

Ion Energetics Measurements Part I. 1971-1973

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Foreword

The National Standard Reference Data System provides access to the quantitative data of physical science, critically evaluated and compiled for convenience and readily accessible through a variety of distribution channels. The System was established in 1963 by action of the President's Office of Science and Technology and the Federal Council for Science and Technology, and responsibility to administer it was assigned to the National Bureau of Standards.

NSRDS receives advice and planning assistance from a Review Committee of the National Research Council of the National Academy of Sciences-National Academy of Engineering. A number of Advisory Panels, each concerned with a single technical area, meet regularly to examine major portions of the program, assign relative priorities, and identify specific key problems in need of further attention. For selected specific topics, the Advisory Panels sponsor subpanels which make detailed studies of users' needs, the present state of knowledge, and existing data resources as a basis for recommending one or more data compilation activities. This assembly of advisory services contributes greatly to the guidance of NSRDS activities.

The System now includes a complex of data centers and other activities in academic institutions and other laboratories. Components of the NSRDS produce compilations of critically evaluated data, reviews of the state of quantitative knowledge in specialized areas, and computations of useful functions derived from standard reference data. The centers and projects also establish criteria for evaluation and compilation of data and recommend improvements in experimental techniques. They are normally associated with research in the relevant field.

The technical scope of NSRDS is indicated by the categories of projects active or being planned: nuclear properties, atomic and molecular properties, solid state properties, thermodynamic and transport properties, chemical kinetics, and colloid and surface properties.

Reliable data on the properties of matter and materials are a major foundation of scientific and technical progress. Such important activities as basic scientific research, industrial quality control, development of new materials for building and other technologies, measuring and correcting environmental pollution depend on quality reference data. In NSRDS, the Bureau's responsibility to support American science, industry, and commerce is vitally fulfilled.



ERNEST AMBLER, *Director*

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The present publication tabulates measurement information on energetics of gaseous positive ions published in 1972 and 1973 along with some information from 1971. It is intended to supplement the information previously compiled and evaluated in "Energetics of Gaseous Ions." Approximately five thousand measurements are tabulated, drawn from over six hundred published papers.

Key words: Appearance potential; electron impact; electron spectroscopy; gaseous ion; ionization potential; photoionization; spectroscopy.

1. Introduction

The present supplement is the first of a series intended to update the measurement information which was presented and critically evaluated in the compilation "Energetics of Gaseous Ions"[1].¹

This supplement includes measurement information on gaseous positive ions which was published in 1972 and 1973, together with additional information which appeared in 1971 but was not included in the ion energetics compilation.

The format and the ordering of ions is similar to the previously published compilation. The notation (V) after an ionization potential indicates a vertical ionization potential which is higher than the adiabatic value [1,2]. The methods, along with their abbreviations, are given in table 1. The methods are discussed in detail in references 1 and 2. In addition, the abstracted measurement information is occasionally annotated with one or more comments which will be useful in evaluating the quality of the information. A list of the comments is given in table 2. They should be self-explanatory, with the possible exception of the comment on metastable transitions. For complex fragmentation processes the observation of metastable transitions provides useful corroborative information on the neutral products of the fragmentation process. Hence where given in the publication presenting fragment appearance potentials, this additional information has been noted in a comment. We are aware that there is much additional useful information on metastable transitions in other publications. However, no attempt was made to incorporate this material at this stage of the project. Evidently, it will have to be taken into account in the critical evaluations which are planned for the future.

We have inserted two asterisks in the other products column to indicate that no fragmentation takes place. Hence, a blank space in that column indicates a fragmentation process in which the neutral fragments are not specified in the journal article.

As before, names are given for all compounds where chemical structure cannot be adequately represented by a one-line semistructural formula, i.e., ring compounds. In a departure from the previously published compilation, we have decided to adopt the systematic nomenclature used by Chemical Abstracts Services. In some instances this leads to extremely long and involved names. To ease the pain, in these instances we also give a short name, if available. Unfortunately this is not so for some complex organometallic compounds. In all cases, name or no name, we give the Chemical Abstracts Services Registry Number to facilitate access of other data bases and to retain an identifier for the compound which is more permanent than the name.

We emphasize the interim nature of the present supplement. It is probable that additional measurements published during this period will be identified. They will be given in the next supplement, along with those measurements published in 1974 and 1975. Further, the intent of the supplement is to present as accurately as possible the measurement information as given in the papers themselves. This will, of course lead to occasional inconsistencies in the tabulated information, reflecting the inconsistencies in the literature itself. They will (hopefully) be removed in the critical evaluation planned for later. Also, the reader should be cautioned that information given in this supplement is not necessarily more accurate than that presented in the earlier compilation.

¹ Figures in brackets indicate literature references.

TABLE 1. Methods for ion energetics measurements in order of sort preference

| Abbreviation | Technique |
|--------------|--------------------------------------|
| S | Spectroscopic |
| PI | Photoionization |
| TPE | Threshold Photoelectron Spectroscopy |
| PE | Photoelectron Spectroscopy |
| AUG | Auger Electron Spectroscopy |
| PEN | Penning Ionization |
| EM | Electron Monochromator Studies |
| RPD | Retarding Potential Difference |
| EDD | Energy Distribution Difference |
| NRE | N th Root Extrapolation |
| SRP | Square Root Plot |
| FD | First Derivative |
| SD | Second Derivative |
| DC | Deconvolution |
| SEQ | Sequential Ionization |
| EI | Other Electron Impact |
| SI | Surface Ionization |
| CTS | Charge Transfer Spectrum |
| BH | Born-Haber Cycle |
| D | Derived Value |
| OTH | Other |

References for the Introduction

- [1] Rosenstock, H. M., Draxl, K., Steiner, B. W., and Herron, J. T., "Energetics of Gaseous Ions," J. Phys. Chem. Ref. Data **6**, Supplement 1 (1977).
- [2] Rosenstock, H. M., "The Measurement of Ionization and Appearance Potentials," Int. J. Mass Spectrom. Ion Phys. **20**, 139 (1976).

TABLE 2. List of comments and coding acronyms

| | |
|----|--|
| RN | CAS Registry Number xxxxxx-xx-x |
| RD | Radical |
| TV | Threshold value approximately corrected to 0 K |
| HB | Threshold value approximately corrected for hot bands (implies vibrational hot bands) |
| ZK | Threshold value for zero kinetic energy ions (used only where threshold dependence on KE is measured) |
| ZT | Zero average translational energy of decomposition at threshold (used where KE is shown to be approximately 0 but no threshold dependence is measured) |
| AD | ___ eV average translational energy of decomposition at threshold |
| HE | High kinetic energy ion |
| CD | Metastable transition indicates ___ eV kinetic energy release |
| UN | Metastable transitions indicate ___ eV kinetic energy release (applies to successive metastables) |
| PC | Appearance potential of the corresponding metastable transition |
| MT | Metastable transition(s) observed (used also if there is possibility of collision contribution) |
| RS | Average of ___ Rydberg series limits (use words) |
| AV | Average of ___ values (use words) |
| FI | Fragment from electron impact induced decomposition of ___ |
| PA | Appearance potential of negative ion |
| NI | Negative ion detected |
| PM | Position of peak maximum |
| TR | Other product(s) thermochemically reasonable |
| SC | Mean value of spin-orbit components |
| JC | Mean value of Jahn-Teller components |

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3. Index of Ions

| | | | |
|---------------------|----|---------------------|----|
| H^+ | 24 | $C_3H_4^+$ | 36 |
| D^+ | 24 | $C_3H_5^+$ | 37 |
| H_2^+ | 24 | $C_3H_6^+$ | 37 |
| HD^+ | 24 | $C_3H_7^+$ | 38 |
| H_3^+ | 24 | $C_3H_8^+$ | 39 |
| Li^+ | 24 | $C_3H_9^+$ | 39 |
| Li_2^+ | 24 | $C_3H_{10}^+$ | 40 |
| B^+ | 24 | $C_3H_{11}^+$ | 40 |
| BH_2^+ | 25 | $C_3H_{12}^+$ | 40 |
| BH_3^+ | 25 | $C_6H_2^+$ | 41 |
| $B_3H_5^+$ | 25 | $C_6H_4^+$ | 41 |
| $B_3H_6^+$ | 25 | $C_6H_5^+$ | 41 |
| $B_4H_8^+$ | 25 | $C_6H_3D_2^+$ | 43 |
| $B_5H_8^+$ | 25 | $C_6H_6^+$ | 43 |
| $B_5H_9^+$ | 25 | $C_6H_4D_2^+$ | 44 |
| C^+ | 25 | $C_6H_7^+$ | 44 |
| C^{+2} | 26 | $C_6H_8^+$ | 44 |
| C^{+3} | 26 | $C_6H_9^+$ | 45 |
| C_2^+ | 26 | $C_6H_{10}^+$ | 45 |
| C_3^+ | 26 | $C_6H_{11}^+$ | 46 |
| CH^+ | 26 | $C_6H_{12}^+$ | 46 |
| CH_2^+ | 26 | $C_6D_{12}^+$ | 47 |
| CH_3^+ | 26 | $C_6H_{14}^+$ | 47 |
| CH_4^+ | 28 | $C_7H_6^+$ | 47 |
| C_2H^+ | 28 | $C_7H_7^+$ | 47 |
| C_2D^+ | 28 | $C_7H_8^+$ | 49 |
| $C_2H_2^+$ | 28 | $C_7H_9^+$ | 50 |
| $C_2D_2^+$ | 29 | $C_7H_{10}^+$ | 50 |
| $C_2H_3^+$ | 29 | $C_7H_{11}^+$ | 51 |
| $C_2D_3^+$ | 29 | $C_7H_{12}^+$ | 51 |
| $C_2H_4^+$ | 29 | $C_7H_{13}^+$ | 52 |
| $C_2H_5^+$ | 30 | $C_7H_{14}^+$ | 52 |
| $C_2H_6^+$ | 30 | $C_8H_6^+$ | 52 |
| C_3H^+ | 30 | $C_8H_8^+$ | 52 |
| $C_3H_2^+$ | 30 | $C_8H_9^+$ | 53 |
| $C_3H_3^+$ | 30 | $C_8H_{10}^+$ | 54 |
| $C_3H_4^+$ | 30 | $C_8H_{11}^+$ | 55 |
| $C_3H_5^+$ | 31 | $C_8H_{12}^+$ | 55 |
| $C_3H_6^+$ | 32 | $C_8H_{13}^+$ | 56 |
| $C_3H_7^+$ | 33 | $C_8H_{14}^+$ | 56 |
| $C_3H_8^+$ | 33 | $C_8H_{16}^+$ | 57 |
| $C_4H_2^+$ | 33 | $C_9H_7^+$ | 57 |
| $C_4H_3^+$ | 33 | $C_9H_8^+$ | 58 |
| $C_4H_4^+$ | 34 | $C_9H_{10}^+$ | 59 |
| $C_4H_6^+$ | 34 | $C_9H_{12}^+$ | 60 |
| $C_4H_7^+$ | 35 | $C_9H_{13}^+$ | 61 |
| $C_4H_8^+$ | 35 | $C_9H_{14}^+$ | 61 |
| $C_4H_9^+$ | 36 | $C_9H_{16}^+$ | 61 |
| $C_4H_{10}^+$ | 36 | $C_9H_{18}^+$ | 62 |

| | | | |
|------------------|----|--------------------|----|
| $C_{10}H_8^+$ | 62 | $C_{18}H_{16}^+$ | 80 |
| $C_{10}H_{10}^+$ | 62 | $C_{18}H_{18}^+$ | 80 |
| $C_{10}H_{12}^+$ | 63 | $C_{18}H_{20}^+$ | 80 |
| $C_{10}H_{14}^+$ | 64 | $C_{19}H_{16}^+$ | 80 |
| $C_{10}H_{15}^+$ | 64 | $C_{19}H_{20}^+$ | 80 |
| $C_{10}H_{16}^+$ | 64 | $C_{19}H_{22}^+$ | 80 |
| $C_{10}H_{20}^+$ | 65 | $C_{20}H_{12}^+$ | 80 |
| $C_{11}H_9^+$ | 66 | $C_{20}H_{14}^+$ | 81 |
| $C_{11}H_{10}^+$ | 66 | $C_{21}H_{15}^+$ | 81 |
| $C_{11}H_{12}^+$ | 66 | $C_{22}H_{12}^+$ | 81 |
| $C_{11}H_{14}^+$ | 66 | $C_{22}H_{14}^+$ | 81 |
| $C_{11}H_{16}^+$ | 67 | $C_{22}H_{18}^+$ | 81 |
| $C_{11}H_{17}^+$ | 67 | $C_{23}H_{26}^+$ | 82 |
| $C_{11}H_{18}^+$ | 67 | $C_{24}H_{12}^+$ | 82 |
| $C_{11}H_{20}^+$ | 68 | $C_{24}H_{22}^+$ | 82 |
| $C_{11}H_{22}^+$ | 68 | $C_{25}H_{16}^+$ | 82 |
| $C_{12}H_8^+$ | 68 | $C_{32}H_{14}^+$ | 82 |
| $C_{12}H_{10}^+$ | 68 | $C_6H_5Be^+$ | 82 |
| $C_{12}H_{12}^+$ | 68 | $C_{12}H_{10}Be^+$ | 82 |
| $C_{12}H_{14}^+$ | 68 | $C_{12}H_{10}B^+$ | 82 |
| $C_{12}H_{16}^+$ | 68 | $C_{18}H_{15}B^+$ | 82 |
| $C_{12}H_{18}^+$ | 69 | N^+ | 82 |
| $C_{12}H_{20}^+$ | 69 | N^{+2} | 82 |
| $C_{12}H_{24}^+$ | 69 | N^{+3} | 83 |
| $C_{13}H_9^+$ | 69 | N_2^+ | 83 |
| $C_{13}H_{10}^+$ | 70 | N_2^{+2} | 83 |
| $C_{13}H_{11}^+$ | 70 | NH^+ | 84 |
| $C_{13}H_{12}^+$ | 70 | NH_2^+ | 84 |
| $C_{13}H_{14}^+$ | 70 | NH_3^+ | 84 |
| $C_{13}H_{16}^+$ | 70 | ND_3^+ | 84 |
| $C_{13}H_{26}^+$ | 70 | NH_4^+ | 84 |
| $C_{14}H_{10}^+$ | 71 | $N_2H_4^+$ | 84 |
| $C_{14}H_{12}^+$ | 73 | N_3H^+ | 85 |
| $C_{14}H_{14}^+$ | 74 | BH_6N^+ | 85 |
| $C_{14}H_{16}^+$ | 74 | $B_3H_6N_3^+$ | 85 |
| $C_{14}H_{28}^+$ | 74 | CHN^+ | 85 |
| $C_{15}H_9^+$ | 74 | CH_4N^+ | 85 |
| $C_{15}H_{11}^+$ | 75 | CH_5N^+ | 85 |
| $C_{15}H_{12}^+$ | 75 | $C_2H_2N^+$ | 86 |
| $C_{15}H_{13}^+$ | 75 | $C_2H_4N^+$ | 86 |
| $C_{15}H_{14}^+$ | 76 | $C_2H_6N^+$ | 86 |
| $C_{15}H_{16}^+$ | 76 | $C_2H_7N^+$ | 86 |
| $C_{16}H_{10}^+$ | 76 | C_3HN^+ | 86 |
| $C_{16}H_{11}^+$ | 77 | $C_3H_6N^+$ | 86 |
| $C_{16}H_{12}^+$ | 77 | $C_3H_7N^+$ | 86 |
| $C_{16}H_{13}^+$ | 77 | $C_3H_9N^+$ | 86 |
| $C_{16}H_{14}^+$ | 77 | $C_4H_3N^+$ | 87 |
| $C_{16}H_{16}^+$ | 78 | $C_4H_5N^+$ | 87 |
| $C_{16}H_{18}^+$ | 78 | $C_4H_{10}N^+$ | 87 |
| $C_{17}H_{12}^+$ | 78 | $C_4H_{11}N^+$ | 87 |
| $C_{17}H_{15}^+$ | 78 | $C_5H_4N^+$ | 87 |
| $C_{18}H_{12}^+$ | 78 | $C_5H_5N^+$ | 87 |
| $C_{18}H_{14}^+$ | 79 | $C_5H_6N^+$ | 88 |

| | | | |
|-------------------|----|---------------------|-----|
| $C_5H_7N^+$ | 88 | $C_4H_8N_2^+$ | 101 |
| $C_5H_{12}N^+$ | 88 | $C_4H_{10}N_2^+$ | 101 |
| $C_6H_5N^+$ | 88 | $C_4H_{12}N_2^+$ | 101 |
| $C_6H_6N^+$ | 89 | $C_5H_4N_2^+$ | 102 |
| $C_6H_7N^+$ | 89 | $C_5H_6N_2^+$ | 102 |
| $C_6H_8N^+$ | 90 | $C_5H_8N_2^+$ | 102 |
| $C_6H_9N^+$ | 90 | $C_5H_{10}N_2^+$ | 102 |
| $C_6H_{15}N^+$ | 90 | $C_5H_{12}N_2^+$ | 102 |
| $C_7H_4N^+$ | 90 | $C_6H_4N_2^+$ | 102 |
| $C_7H_5N^+$ | 90 | $C_6H_7N_2^+$ | 102 |
| $C_7H_8N^+$ | 91 | $C_6H_8N_2^+$ | 103 |
| $C_7H_9N^+$ | 91 | $C_6H_{10}N_2^+$ | 103 |
| $C_7H_{10}N^+$ | 92 | $C_6H_{12}N_2^+$ | 103 |
| $C_7H_{11}N^+$ | 93 | $C_6H_{14}N_2^+$ | 104 |
| $C_8H_6N^+$ | 93 | $C_6H_{16}N_2^+$ | 104 |
| $C_8H_7N^+$ | 93 | $C_7H_8N_2^+$ | 104 |
| $C_8H_9N^+$ | 93 | $C_7H_{10}N_2^+$ | 104 |
| $C_8H_{10}N^+$ | 93 | $C_7H_{12}N_2^+$ | 104 |
| $C_8H_{11}N^+$ | 93 | $C_7H_{14}N_2^+$ | 104 |
| $C_8H_{12}N^+$ | 94 | $C_7H_{16}N_2^+$ | 104 |
| $C_8H_{13}N^+$ | 94 | $C_8H_6N_2^+$ | 104 |
| $C_9H_7N^+$ | 94 | $C_8H_{14}N_2^+$ | 105 |
| $C_9H_{11}N^+$ | 95 | $C_8H_{16}N_2^+$ | 105 |
| $C_9H_{13}N^+$ | 95 | $C_8H_{18}N_2^+$ | 105 |
| $C_9H_{17}N^+$ | 95 | $C_8H_{20}N_2^+$ | 106 |
| $C_{10}H_9N^+$ | 95 | $C_9H_{20}N_2^+$ | 106 |
| $C_{10}H_{15}N^+$ | 95 | $C_{10}H_8N_2^+$ | 106 |
| $C_{11}H_{13}N^+$ | 96 | $C_{10}H_{16}N_2^+$ | 106 |
| $C_{11}H_{17}N^+$ | 96 | $C_{10}H_{20}N_2^+$ | 106 |
| $C_{12}H_{11}N^+$ | 96 | $C_{11}H_8N_2^+$ | 106 |
| $C_{12}H_{15}N^+$ | 96 | $C_{12}H_{20}N_2^+$ | 106 |
| $C_{13}H_9N^+$ | 96 | $C_{13}H_{14}N_2^+$ | 106 |
| $C_{13}H_{12}N^+$ | 96 | $C_{14}H_{12}N_2^+$ | 106 |
| $C_{13}H_{13}N^+$ | 96 | $C_{14}H_{16}N_2^+$ | 106 |
| $C_{14}H_{11}N^+$ | 97 | $C_{17}H_{22}N_2^+$ | 106 |
| $C_{14}H_{15}N^+$ | 97 | $C_{18}H_{18}N_2^+$ | 107 |
| $C_{15}H_{11}N^+$ | 97 | $C_{19}H_{20}N_2^+$ | 107 |
| $C_{16}H_{13}N^+$ | 97 | $C_{19}H_{24}N_2^+$ | 107 |
| $C_{17}H_{29}N^+$ | 97 | $CH_3N_3^+$ | 107 |
| $C_{18}H_{15}N^+$ | 97 | $C_2H_3N_3^+$ | 107 |
| $C_{19}H_{13}N^+$ | 97 | $C_3H_3N_3^+$ | 107 |
| $C_{20}H_{23}N^+$ | 97 | $C_{12}H_{11}N_3^+$ | 108 |
| $CH_2N_2^+$ | 97 | $CH_2N_4^+$ | 108 |
| $CH_3N_2^+$ | 98 | $C_2H_2N_4^+$ | 108 |
| $C_2H_6N_2^+$ | 98 | $C_4H_6N_4^+$ | 109 |
| $C_2H_8N_2^+$ | 98 | $C_{10}H_{20}N_4^+$ | 109 |
| $C_3H_2N_2^+$ | 98 | $C_{10}H_{24}N_4^+$ | 109 |
| $C_3H_3N_2^+$ | 98 | $C_{11}H_{15}N_5^+$ | 109 |
| $C_3H_4N_2^+$ | 98 | $C_{32}H_{18}N_8^+$ | 109 |
| $C_3H_6N_2^+$ | 98 | CH_8BN^+ | 109 |
| $C_3H_8N_2^+$ | 98 | $C_2H_8BN^+$ | 109 |
| $C_4H_2N_2^+$ | 99 | $C_2H_6BN^+$ | 109 |
| $C_4H_4N_2^+$ | 99 | $C_3H_{12}BN^+$ | 109 |

| | | | |
|---------------------|-----|--------------------|-----|
| $C_4H_{12}BN^+$ | 109 | $C_3H_6O^+$ | 121 |
| $C_6H_{12}BN^+$ | 109 | $C_3H_8O^+$ | 121 |
| $C_4H_{13}BN_2^+$ | 109 | $C_3H_9O^+$ | 122 |
| $C_5H_{15}BN_2^+$ | 109 | $C_3H_{10}O^+$ | 122 |
| $C_3H_{12}B_3N_3^+$ | 109 | $C_6H_4O^+$ | 122 |
| $C_6H_{14}BN_3^+$ | 110 | $C_6H_5O^+$ | 122 |
| $C_6H_{18}BN_3^+$ | 110 | $C_6H_6O^+$ | 122 |
| $C_6H_{18}B_3N_3^+$ | 110 | $C_6H_8O^+$ | 122 |
| $C_8H_{24}B_2N_4^+$ | 110 | $C_6H_{10}O^+$ | 123 |
| O^+ | 110 | $C_6H_{12}O^+$ | 123 |
| O^{+2} | 110 | $C_7H_5O^+$ | 124 |
| O^{+3} | 110 | $C_7H_6O^+$ | 124 |
| O^{+6} | 111 | $C_7H_7O^+$ | 125 |
| O_2^+ | 111 | $C_7H_8O^+$ | 126 |
| OH^+ | 111 | $C_7H_{12}O^+$ | 127 |
| H_2O^+ | 111 | $C_7H_{14}O^+$ | 127 |
| D_2O^+ | 112 | $C_8H_7O^+$ | 127 |
| H_3O^+ | 112 | $C_8H_8O^+$ | 128 |
| LiO^+ | 112 | $C_8H_9O^+$ | 128 |
| Li_2O^+ | 112 | $C_8H_{10}O^+$ | 128 |
| BO^+ | 112 | $C_8H_{12}O^+$ | 129 |
| BO_2^+ | 112 | $C_8H_{14}O^+$ | 129 |
| BHO_2^+ | 112 | $C_8H_{16}O^+$ | 129 |
| CO^+ | 112 | $C_9H_9O^+$ | 130 |
| CO_2^+ | 113 | $C_9H_8DO^+$ | 130 |
| $C_3O_2^+$ | 113 | $C_9H_{10}O^+$ | 130 |
| CHO^+ | 114 | $C_9H_{12}O^+$ | 130 |
| CDO^+ | 114 | $C_9H_{18}O^+$ | 130 |
| CH_2O^+ | 114 | $C_{10}H_{11}DO^+$ | 130 |
| CH_3O^+ | 114 | $C_{10}H_{14}O^+$ | 130 |
| CHD_2O^+ | 114 | $C_{10}H_{16}O^+$ | 131 |
| CH_4O^+ | 114 | $C_{11}H_{10}O^+$ | 131 |
| $C_2H_2O^+$ | 115 | $C_{11}H_{12}O^+$ | 131 |
| $C_2H_3O^+$ | 115 | $C_{11}H_{13}O^+$ | 131 |
| $C_2H_4O^+$ | 119 | $C_{11}H_{12}DO^+$ | 131 |
| $C_2H_5O^+$ | 119 | $C_{11}H_{16}O^+$ | 131 |
| $C_2H_3D_2O^+$ | 119 | $C_{12}H_{10}O^+$ | 132 |
| $C_2H_2D_3O^+$ | 119 | $C_{12}H_{15}DO^+$ | 132 |
| $C_2H_6O^+$ | 119 | $C_{12}H_{18}O^+$ | 132 |
| $C_2H_3D_3O^+$ | 119 | $C_{13}H_8O^+$ | 132 |
| $C_3H_4O^+$ | 119 | $C_{13}H_{10}O^+$ | 132 |
| $C_3H_6O^+$ | 119 | $C_{13}H_{11}O^+$ | 132 |
| $C_3D_6O^+$ | 120 | $C_{13}H_{12}O^+$ | 132 |
| $C_3H_7O^+$ | 120 | $C_{14}H_{10}O^+$ | 132 |
| $C_3H_4D_3O^+$ | 120 | $C_{14}H_{14}O^+$ | 132 |
| $C_3H_8O^+$ | 120 | $C_{14}H_{22}O^+$ | 132 |
| $C_3H_5D_3O^+$ | 120 | $C_{15}H_{15}O^+$ | 133 |
| $C_4H_4O^+$ | 120 | $C_{16}H_{10}O^+$ | 133 |
| $C_4H_5O^+$ | 120 | $C_{16}H_{16}O^+$ | 133 |
| $C_4H_6O^+$ | 121 | $C_{18}H_{18}O^+$ | 133 |
| $C_4H_8O^+$ | 121 | $C_{19}H_{20}O^+$ | 133 |
| $C_4H_{10}O^+$ | 121 | $C_{19}H_{22}O^+$ | 133 |
| $C_5H_4O^+$ | 121 | $C_{23}H_{24}O^+$ | 133 |

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| CH_2O_2^+ | 133 | $\text{C}_9\text{H}_7\text{O}_3^+$ | 143 |
| $\text{C}_2\text{H}_4\text{O}_2^+$ | 134 | $\text{C}_9\text{H}_{10}\text{O}_3^+$ | 143 |
| $\text{C}_3\text{H}_4\text{O}_2^+$ | 134 | $\text{C}_{10}\text{H}_6\text{O}_3^+$ | 144 |
| $\text{C}_3\text{H}_6\text{O}_2^+$ | 134 | $\text{C}_{14}\text{H}_8\text{O}_3^+$ | 144 |
| $\text{C}_4\text{H}_2\text{O}_2^+$ | 134 | $\text{C}_{14}\text{H}_{12}\text{O}_3^+$ | 144 |
| $\text{C}_4\text{H}_4\text{O}_2^+$ | 134 | $\text{C}_2\text{H}_4\text{O}_4^+$ | 144 |
| $\text{C}_4\text{H}_6\text{O}_2^+$ | 134 | $\text{C}_4\text{H}_8\text{O}_4^+$ | 144 |
| $\text{C}_4\text{H}_8\text{O}_2^+$ | 134 | $\text{C}_5\text{H}_{10}\text{O}_4^+$ | 144 |
| $\text{C}_5\text{H}_4\text{O}_2^+$ | 135 | $\text{C}_6\text{H}_6\text{O}_4^+$ | 144 |
| $\text{C}_5\text{H}_6\text{O}_2^+$ | 135 | $\text{C}_6\text{H}_8\text{O}_4^+$ | 144 |
| $\text{C}_5\text{H}_8\text{O}_2^+$ | 135 | $\text{C}_6\text{H}_{12}\text{O}_4^+$ | 144 |
| $\text{C}_5\text{H}_{10}\text{O}_2^+$ | 135 | $\text{C}_8\text{H}_6\text{O}_4^+$ | 144 |
| $\text{C}_6\text{H}_4\text{O}_2^+$ | 136 | $\text{C}_9\text{H}_8\text{O}_4^+$ | 144 |
| $\text{C}_6\text{H}_5\text{O}_2^+$ | 136 | $\text{C}_{10}\text{H}_6\text{O}_4^+$ | 144 |
| $\text{C}_6\text{H}_6\text{O}_2^+$ | 136 | $\text{C}_{14}\text{H}_8\text{O}_4^+$ | 145 |
| $\text{C}_6\text{H}_8\text{O}_2^+$ | 136 | $\text{C}_{22}\text{H}_{10}\text{O}_4^+$ | 145 |
| $\text{C}_6\text{H}_{10}\text{O}_2^+$ | 137 | $\text{C}_{14}\text{H}_8\text{O}_6^+$ | 145 |
| $\text{C}_6\text{H}_{11}\text{O}_2^+$ | 137 | $\text{C}_{10}\text{H}_{14}\text{O}_4\text{Be}^+$ | 145 |
| $\text{C}_6\text{H}_{12}\text{O}_2^+$ | 137 | CH_3BO^+ | 145 |
| $\text{C}_7\text{H}_5\text{O}_2^+$ | 137 | $\text{C}_3\text{H}_5\text{BO}^+$ | 145 |
| $\text{C}_7\text{H}_6\text{O}_2^+$ | 137 | $\text{C}_3\text{H}_5\text{BO}_2^+$ | 145 |
| $\text{C}_7\text{H}_7\text{O}_2^+$ | 138 | $\text{C}_3\text{H}_5\text{BO}_3^+$ | 145 |
| $\text{C}_7\text{H}_8\text{O}_2^+$ | 138 | NO^+ | 145 |
| $\text{C}_7\text{H}_{10}\text{O}_2^+$ | 138 | N_2O^+ | 146 |
| $\text{C}_7\text{H}_{13}\text{O}_2^+$ | 138 | NO_2^+ | 146 |
| $\text{C}_8\text{H}_7\text{O}_2^+$ | 138 | $\text{C}_3\text{N}_2\text{O}^+$ | 146 |
| $\text{C}_8\text{H}_8\text{O}_2^+$ | 139 | $\text{C}_6\text{H}_5\text{NO}_3$ | 146 |
| $\text{C}_8\text{H}_{10}\text{O}_2^+$ | 139 | CHNO^+ | 147 |
| $\text{C}_8\text{H}_{12}\text{O}_2^+$ | 139 | CH_3NO^+ | 147 |
| $\text{C}_9\text{H}_{10}\text{O}_2^+$ | 140 | $\text{C}_7\text{H}_3\text{NO}^+$ | 147 |
| $\text{C}_9\text{H}_{14}\text{O}_2^+$ | 140 | $\text{C}_7\text{H}_5\text{NO}^+$ | 147 |
| $\text{C}_{10}\text{H}_6\text{O}_2^+$ | 140 | $\text{C}_7\text{H}_7\text{NO}^+$ | 147 |
| $\text{C}_{10}\text{H}_{12}\text{O}_2^+$ | 140 | $\text{C}_7\text{H}_9\text{NO}^+$ | 147 |
| $\text{C}_{10}\text{H}_{14}\text{O}_2^+$ | 140 | $\text{C}_7\text{H}_9\text{NO}^+$ | 147 |
| $\text{C}_{10}\text{H}_{16}\text{O}_2^+$ | 141 | $\text{C}_4\text{H}_9\text{NO}^+$ | 147 |
| $\text{C}_{11}\text{H}_{16}\text{O}_2^+$ | 141 | $\text{C}_4\text{H}_{11}\text{NO}^+$ | 147 |
| $\text{C}_{11}\text{H}_{20}\text{O}_2^+$ | 141 | $\text{C}_7\text{H}_3\text{NO}^+$ | 147 |
| $\text{C}_{12}\text{H}_{18}\text{O}_2^+$ | 141 | $\text{C}_7\text{H}_5\text{NO}^+$ | 147 |
| $\text{C}_{13}\text{H}_{10}\text{O}_2^+$ | 141 | $\text{C}_7\text{H}_8\text{NO}^+$ | 148 |
| $\text{C}_{14}\text{H}_8\text{O}_2^+$ | 141 | $\text{C}_7\text{H}_{13}\text{NO}^+$ | 148 |
| $\text{C}_{14}\text{H}_{10}\text{O}_2^+$ | 142 | $\text{C}_6\text{H}_5\text{NO}^+$ | 148 |
| $\text{C}_{15}\text{H}_{12}\text{O}_2^+$ | 142 | $\text{C}_6\text{H}_6\text{NO}^+$ | 148 |
| $\text{C}_{20}\text{H}_{22}\text{O}_2^+$ | 142 | $\text{C}_6\text{H}_7\text{NO}^+$ | 148 |
| $\text{C}_{20}\text{H}_{26}\text{O}_2^+$ | 142 | $\text{C}_6\text{H}_{11}\text{NO}^+$ | 149 |
| $\text{C}_{22}\text{H}_{12}\text{O}_2^+$ | 142 | $\text{C}_6\text{H}_{15}\text{NO}^+$ | 149 |
| $\text{C}_3\text{H}_2\text{O}_3^+$ | 142 | $\text{C}_7\text{H}_4\text{NO}^+$ | 149 |
| $\text{C}_3\text{H}_4\text{O}_3^+$ | 142 | $\text{C}_7\text{H}_6\text{NO}^+$ | 149 |
| $\text{C}_3\text{H}_6\text{O}_3^+$ | 142 | $\text{C}_7\text{H}_7\text{NO}^+$ | 150 |
| $\text{C}_4\text{H}_2\text{O}_3^+$ | 142 | $\text{C}_7\text{H}_9\text{NO}^+$ | 150 |
| $\text{C}_6\text{H}_6\text{O}_3^+$ | 143 | $\text{C}_7\text{H}_{10}\text{NO}^+$ | 150 |
| $\text{C}_7\text{H}_6\text{O}_3^+$ | 143 | $\text{C}_7\text{H}_{11}\text{NO}^+$ | 150 |
| $\text{C}_8\text{H}_5\text{O}_3^+$ | 143 | $\text{C}_7\text{H}_{13}\text{NO}^+$ | 150 |
| $\text{C}_8\text{H}_8\text{O}_3^+$ | 143 | $\text{C}_7\text{H}_{17}\text{NO}^+$ | 150 |

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| $C_3H_4NO^+$ | 150 | $C_{13}H_{12}N_2O_2^+$ | 158 |
| $C_3H_7NO^+$ | 150 | $C_{14}H_{14}N_2O_2^+$ | 158 |
| $C_3H_8NO^+$ | 151 | $C_{16}H_{10}N_2O_2^+$ | 158 |
| $C_3H_9NO^+$ | 151 | $C_{16}H_{12}N_2O_2^+$ | 158 |
| $C_3H_{12}NO^+$ | 151 | $C_{18}H_{17}N_3O_2^+$ | 158 |
| $C_3H_{13}NO^+$ | 151 | $C_4H_3NO_3^+$ | 158 |
| $C_3H_{18}NO^+$ | 151 | $C_6H_5NO_3^+$ | 158 |
| $C_3H_8NO^+$ | 151 | $C_7H_4NO_3^+$ | 158 |
| $C_9H_{11}NO^+$ | 151 | $C_7H_7NO_3^+$ | 159 |
| $C_9H_{13}NO^+$ | 151 | $C_9H_{11}NO_3^+$ | 159 |
| $C_9H_{15}NO^+$ | 152 | $C_9H_7N_2O_3^+$ | 159 |
| $C_9H_{17}NO^+$ | 152 | $C_{10}H_{10}N_2O_3^+$ | 159 |
| $C_9H_{18}NO^+$ | 152 | $C_7H_5NO_4^+$ | 159 |
| $C_{10}H_{10}NO^+$ | 152 | $C_8H_7NO_4^+$ | 159 |
| $C_{10}H_{11}NO^+$ | 152 | $C_{13}H_9NO_4^+$ | 159 |
| $C_{11}H_{13}NO^+$ | 152 | $C_{17}H_9NO_4^+$ | 159 |
| $C_{12}H_{13}NO^+$ | 152 | $C_6H_4N_2O_4^+$ | 159 |
| $C_{12}H_{15}NO^+$ | 152 | $C_{13}H_{10}N_2O_4^+$ | 160 |
| $C_6H_4N_2O^+$ | 152 | $C_{14}H_{12}N_2O_4^+$ | 160 |
| $C_8H_{10}N_2O^+$ | 152 | $C_{18}H_{30}N_2O_4^+$ | 160 |
| $C_{10}H_{22}N_2O^+$ | 152 | $C_{16}H_{11}N_3O_4^+$ | 160 |
| $C_{17}H_{20}N_2O^+$ | 153 | F^+ | 160 |
| $CH_3NO_2^+$ | 153 | F_2^+ | 160 |
| $CD_3NO_2^+$ | 153 | HF^+ | 160 |
| $C_2H_5NO_2^+$ | 153 | DF^+ | 160 |
| $C_6H_4NO_2^+$ | 153 | BF^+ | 160 |
| $C_6H_5NO_2^+$ | 153 | BF_2^+ | 160 |
| $C_6H_7NO_2^+$ | 154 | BF_3^+ | 160 |
| $C_7H_6NO_2^+$ | 154 | $B_2F_4^+$ | 161 |
| $C_7H_7NO_2^+$ | 154 | CF^+ | 161 |
| $C_7H_{10}NO_2^+$ | 155 | CF_2^+ | 161 |
| $C_8H_5NO_2^+$ | 155 | CF_3^+ | 161 |
| $C_8H_9NO_2^+$ | 155 | $C_2F_3^+$ | 162 |
| $C_8H_{13}NO_2^+$ | 155 | CF_4^+ | 162 |
| $C_9H_{11}NO_2^+$ | 155 | $C_2F_4^+$ | 162 |
| $C_9H_{13}NO_2^+$ | 155 | $C_3F_6^+$ | 162 |
| $C_9H_{16}NO_2^+$ | 156 | $C_4F_6^+$ | 162 |
| $C_9H_{17}NO_2^+$ | 156 | $C_6F_6^+$ | 162 |
| $C_{10}H_{13}NO_2^+$ | 156 | $C_4F_8^+$ | 163 |
| $C_{13}H_{10}NO_2^+$ | 156 | $C_{10}F_8^+$ | 163 |
| $C_{13}H_{11}NO_2^+$ | 156 | $C_{12}F_{10}^+$ | 163 |
| $C_{14}H_{13}NO_2^+$ | 156 | $C_6F_{12}^+$ | 163 |
| $C_4H_4N_2O_2^+$ | 156 | CH_2F^+ | 163 |
| $C_6H_6N_2O_2^+$ | 156 | C_2HF^+ | 163 |
| $C_7H_4N_2O_2^+$ | 157 | $C_2H_2F^+$ | 163 |
| $C_7H_8N_2O_2^+$ | 157 | $C_2H_3F^+$ | 164 |
| $C_8H_{10}N_2O_2^+$ | 157 | $C_2H_4F^+$ | 164 |
| $C_9H_{12}N_2O_2^+$ | 157 | $C_2H_5F^+$ | 164 |
| $C_9H_{15}N_2O_2^+$ | 157 | C_3HF^+ | 164 |
| $C_9H_{17}N_2O_2^+$ | 157 | $C_3H_2F^+$ | 164 |
| $C_{11}H_{12}N_2O_2^+$ | 157 | $C_3H_5F^+$ | 164 |
| $C_{11}H_{21}N_2O_2^+$ | 158 | $C_3H_7F^+$ | 164 |
| $C_{12}H_{20}N_2O_2^+$ | 158 | $C_6H_4F^+$ | 164 |

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| $C_6H_5F^+$ | 164 | BOF_2^+ | 173 |
| $C_7H_6F^+$ | 165 | COF_2^+ | 173 |
| $C_7H_7F^+$ | 165 | $C_2OF_3^+$ | 174 |
| $C_{10}H_{13}F^+$ | 165 | CF_4O^+ | 174 |
| $C_{10}H_{15}F^+$ | 165 | $C_3OF_5^+$ | 174 |
| $C_{12}H_9F^+$ | 165 | $C_3F_6O^+$ | 174 |
| CHF_2^+ | 166 | $C_6H_4OF^+$ | 174 |
| $C_2HF_2^+$ | 166 | $C_6H_5OF^+$ | 174 |
| $C_2H_2F_2^+$ | 166 | $C_7H_4OF^+$ | 174 |
| $C_2H_3F_2^+$ | 166 | $C_7H_7OF^+$ | 175 |
| $C_3HF_2^+$ | 166 | $C_7H_5O_2F^+$ | 175 |
| $C_3H_2F_2^+$ | 166 | $C_8H_7O_2F^+$ | 175 |
| $C_6H_4F_2^+$ | 166 | $C_6H_4OF_2^+$ | 175 |
| $C_{12}H_8F_2^+$ | 167 | $C_8H_6O_2F_2^+$ | 175 |
| $C_2HF_3^+$ | 167 | $C_2H_3OF_3^+$ | 175 |
| $C_2H_3F_3^+$ | 167 | $C_2HO_2F_3^+$ | 175 |
| $C_3HF_3^+$ | 167 | $C_3H_3O_2F_3^+$ | 175 |
| $C_6H_3F_3^+$ | 167 | $C_4H_5O_2F_3^+$ | 176 |
| $C_6H_2F_4^+$ | 167 | $C_5H_5O_2F_3^+$ | 176 |
| $C_6HF_5^+$ | 168 | $C_6H_3O_2F_3^+$ | 176 |
| $C_8H_3F_5^+$ | 168 | $C_8H_{11}O_2F_3^+$ | 176 |
| NF^+ | 168 | $C_4H_5O_4F_3^+$ | 176 |
| N_2F^+ | 168 | $C_5H_5O_4F_3^+$ | 176 |
| NF_2^+ | 168 | $C_6H_5O_4F_3^+$ | 176 |
| $N_2F_2^+$ | 169 | $C_3H_3OF_5^+$ | 176 |
| NF_3^+ | 169 | $C_6HOF_5^+$ | 176 |
| $N_2F_4^+$ | 170 | $C_7H_3OF_5^+$ | 176 |
| $B_3H_3N_3F_3^+$ | 170 | $C_3H_2OF_6^+$ | 176 |
| $CN_2F_2^+$ | 170 | $C_5H_2O_2F_6^+$ | 176 |
| $C_3N_3F_3^+$ | 170 | $C_{10}H_2O_4F_{12}Be^+$ | 176 |
| $C_5NF_5^+$ | 170 | NOF_3^+ | 176 |
| $C_2N_2F_6^+$ | 170 | $C_2NOF_6^+$ | 177 |
| $C_8N_2F_6^+$ | 170 | $C_8H_8NOF^+$ | 177 |
| $C_9NF_7^+$ | 171 | $C_6H_4NO_2F^+$ | 177 |
| CH_2NF^+ | 171 | $C_8H_7NOF_2^+$ | 177 |
| $C_2H_3NF^+$ | 171 | $C_6H_4NOF_3^+$ | 177 |
| $C_3H_6NF^+$ | 171 | Ne^+ | 177 |
| $C_6H_6NF^+$ | 171 | Na^+ | 177 |
| $CHNF_2^+$ | 171 | Na_2^+ | 177 |
| $CH_2NF_2^+$ | 171 | Mg^+ | 177 |
| $C_2H_6NF_2^+$ | 171 | $C_3H_5Mg^+$ | 178 |
| $C_6H_5NF_2^+$ | 172 | $C_{10}H_{10}Mg^+$ | 178 |
| $C_8H_4N_2F_2^+$ | 172 | $C_{12}H_{14}Mg^+$ | 178 |
| $C_8H_2N_2F_4^+$ | 172 | Al^+ | 178 |
| $C_6H_2NF_5^+$ | 172 | Al_2^+ | 178 |
| $C_6H_7NF_6^+$ | 172 | AlC^+ | 178 |
| $C_4H_{12}BN_2F^+$ | 172 | AlC_2^+ | 178 |
| $C_2H_6BNF_2^+$ | 172 | $Al_2C_2^+$ | 178 |
| $C_3H_9B_3N_3F_3^+$ | 172 | $C_{18}H_{15}Al^+$ | 178 |
| OF^+ | 172 | AlO^+ | 178 |
| OF_2^+ | 172 | AlO_2^+ | 179 |
| HOF^+ | 173 | Al_2O^+ | 179 |
| BOF^+ | 173 | $Al_2O_2^+$ | 179 |

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|---|-----|--|-----|
| AlF ⁺ | 179 | C ₁₄ H ₂₄ Si ₂ ⁺ | 186 |
| AlF ₂ ⁺ | 179 | C ₁₅ H ₂₂ Si ₂ ⁺ | 186 |
| AlOF ⁺ | 179 | C ₁₅ H ₂₄ Si ₂ ⁺ | 186 |
| AlOF ₂ ⁺ | 179 | C ₁₆ H ₂₂ Si ₂ ⁺ | 186 |
| C ₁₅ H ₁₂ O ₆ F ₉ Al ⁺ | 179 | C ₂₁ H ₂₄ Si ₂ ⁺ | 187 |
| C ₁₅ H ₃ O ₆ F ₁₈ Al ⁺ | 179 | C ₂₄ H ₂₆ Si ₂ ⁺ | 187 |
| Si ⁺ | 179 | C ₂₆ H ₂₆ Si ₂ ⁺ | 187 |
| SiH ⁺ | 179 | C ₃₆ H ₃₀ Si ₂ ⁺ | 187 |
| SiH ₂ ⁺ | 180 | C ₈ H ₂₄ Si ₃ ⁺ | 187 |
| SiH ₃ ⁺ | 180 | C ₁₇ H ₂₈ Si ₃ ⁺ | 187 |
| SiH ₄ ⁺ | 180 | C ₂₆ H ₃₂ Si ₃ ⁺ | 187 |
| Si ₂ H ₆ Te ⁺ | 180 | C ₆ H ₁₆ Si ₄ ⁺ | 187 |
| SiC ₂ ⁺ | 180 | C ₁₀ H ₂₄ Si ₄ ⁺ | 187 |
| Si ₂ C ⁺ | 180 | C ₁₀ H ₃₀ Si ₄ ⁺ | 187 |
| CH ₃ Si ⁺ | 180 | C ₁₀ H ₃₀ Si ₅ ⁺ | 187 |
| CH ₅ Si ⁺ | 180 | C ₁₂ H ₃₆ Si ₅ ⁺ | 188 |
| C ₂ H ₆ Si ⁺ | 180 | C ₁₂ H ₃₆ Si ₆ ⁺ | 188 |
| C ₂ H ₇ Si ⁺ | 180 | C ₁₆ H ₃₆ Si ₇ ⁺ | 188 |
| C ₃ H ₈ Si ⁺ | 180 | Si ₂ N ⁺ | 188 |
| C ₃ H ₉ Si ⁺ | 181 | SiH ₃ N ₃ ⁺ | 188 |
| C ₄ H ₉ Si ⁺ | 181 | Si ₃ H ₉ N ⁺ | 188 |
| C ₄ H ₁₂ Si ⁺ | 181 | C ₂ H ₉ NSi ⁺ | 188 |
| C ₃ H ₁₀ Si ⁺ | 181 | C ₂ H ₁₃ NSi ⁺ | 188 |
| C ₃ H ₁₂ Si ⁺ | 182 | C ₃ H ₉ N ₃ Si ⁺ | 188 |
| C ₆ H ₈ Si ⁺ | 182 | C ₈ H ₂₄ N ₄ Si ⁺ | 188 |
| C ₆ H ₁₂ Si ⁺ | 182 | CH ₉ NSi ₂ ⁺ | 188 |
| C ₆ H ₁₄ Si ⁺ | 182 | C ₁₁ H ₂₁ NSi ₂ ⁺ | 188 |
| C ₈ H ₁₁ Si ⁺ | 182 | SiO ⁺ | 188 |
| C ₈ H ₁₂ Si ⁺ | 183 | Si ₂ H ₆ O ⁺ | 189 |
| C ₉ H ₁₄ Si ⁺ | 183 | CH ₆ OSi ⁺ | 189 |
| C ₁₀ H ₁₀ Si ⁺ | 183 | C ₃ H ₉ SiO ⁺ | 189 |
| C ₁₀ H ₁₄ Si ⁺ | 183 | C ₁₀ H ₁₆ OSi ⁺ | 189 |
| C ₁₀ H ₁₆ Si ⁺ | 183 | C ₁₃ H ₁₈ OSi ⁺ | 189 |
| C ₁₁ H ₁₆ Si ⁺ | 183 | C ₁₃ H ₂₀ OSi ⁺ | 189 |
| C ₁₂ H ₁₆ Si ⁺ | 183 | C ₅ H ₁₂ O ₂ Si ⁺ | 189 |
| C ₁₂ H ₁₈ Si ⁺ | 184 | C ₈ H ₂₀ O ₄ Si ⁺ | 189 |
| C ₁₃ H ₁₃ Si ⁺ | 184 | C ₁₂ H ₂₂ O ₅ Si ⁺ | 189 |
| C ₁₃ H ₁₄ Si ⁺ | 184 | Si ₂ NO ⁺ | 189 |
| C ₁₃ H ₁₆ Si ⁺ | 184 | CH ₃ NOSi ⁺ | 189 |
| C ₁₄ H ₁₄ Si ⁺ | 184 | C ₄ H ₉ NOSi ⁺ | 190 |
| C ₁₄ H ₁₈ Si ⁺ | 184 | SiF ₄ ⁺ | 190 |
| C ₁₇ H ₁₈ Si ⁺ | 185 | Si ₂ F ₆ ⁺ | 190 |
| C ₁₇ H ₂₀ Si ⁺ | 185 | SiH ₃ F ⁺ | 190 |
| C ₁₈ H ₁₅ Si ⁺ | 185 | SiH ₂ F ₂ ⁺ | 190 |
| C ₁₈ H ₁₆ Si ⁺ | 185 | SiHF ₃ ⁺ | 191 |
| C ₂₂ H ₂₀ Si ⁺ | 185 | SiF ₃ C ⁺ | 191 |
| C ₂₄ H ₁₆ Si ⁺ | 185 | C ₅ H ₉ SiF ⁺ | 191 |
| C ₂₄ H ₂₀ Si ⁺ | 185 | CH ₃ F ₃ Si ⁺ | 191 |
| C ₆ H ₁₈ Si ₂ ⁺ | 186 | C ₇ H ₁₀ F ₆ Si ⁺ | 191 |
| C ₁₁ H ₂₀ Si ₂ ⁺ | 186 | C ₆ H ₁₂ F ₄ Si ₄ ⁺ | 191 |
| C ₁₂ H ₁₀ Si ₂ ⁺ | 186 | SiAl ⁺ | 191 |
| C ₁₂ H ₂₂ Si ₂ ⁺ | 186 | SiAlO ⁺ | 191 |
| C ₁₃ H ₂₂ Si ₂ ⁺ | 186 | P ⁺ | 192 |

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|----------------------------|-----|-----------------------------|-----|
| P_2^+ | 192 | $C_4H_{12}N_2PF^+$ | 197 |
| P_4^+ | 192 | $C_2H_6NPF_2^+$ | 197 |
| PH^+ | 192 | $C_6H_{18}N_3F_2P^+$ | 197 |
| PH_2^+ | 193 | $C_4H_{12}N_2F_3P^+$ | 197 |
| PH_3^+ | 193 | $C_2H_6NF_4P^+$ | 197 |
| BP^+ | 193 | $C_2H_6BNF_2P^+$ | 197 |
| PC^+ | 193 | $C_2H_{11}B_3NF_2P^+$ | 197 |
| C_2P^+ | 193 | $C_2H_{12}B_3NF_2P^+$ | 197 |
| CP_2^+ | 193 | $C_2H_{12}B_4NF_2P^+$ | 198 |
| CHP^+ | 193 | $C_2H_{14}B_4NF_2P^+$ | 198 |
| CH_5P^+ | 193 | POF_3^+ | 198 |
| $C_3H_9P^+$ | 193 | $P_2OF_4^+$ | 198 |
| $C_4H_{11}P^+$ | 193 | $CNOF_2P^+$ | 198 |
| $C_5H_5P^+$ | 193 | $NaPO_2^+$ | 198 |
| $C_{10}H_9P^+$ | 193 | PSi^+ | 198 |
| $C_{10}H_{13}P^+$ | 194 | PSi_2^+ | 198 |
| $C_{12}H_{13}P^+$ | 194 | P_2Si^+ | 198 |
| $C_{12}H_{17}P^+$ | 194 | SiH_5P^+ | 198 |
| $C_{15}H_{11}P^+$ | 194 | $Si_3H_9P^+$ | 198 |
| $C_{17}H_{29}P^+$ | 194 | $CSiP^+$ | 198 |
| $C_{19}H_{13}P^+$ | 194 | $C_7H_{19}SiP^+$ | 199 |
| $C_{29}H_{25}P^+$ | 194 | $C_9H_{25}Si_2P^+$ | 199 |
| $C_6H_{18}N_3P^+$ | 194 | S^+ | 199 |
| $C_8H_{18}N_3P^+$ | 194 | S_2^+ | 199 |
| PO^+ | 194 | S_8^+ | 199 |
| PO_2^+ | 194 | HS^+ | 199 |
| $P_2O_3^+$ | 195 | H_2S^+ | 199 |
| $P_2O_4^+$ | 195 | H_3S^+ | 200 |
| $P_2O_5^+$ | 195 | BHS^+ | 200 |
| $P_2O_6^+$ | 195 | CS^+ | 200 |
| $P_2O_7^+$ | 195 | CS_2^+ | 201 |
| $P_3O_7^+$ | 195 | CHS^+ | 202 |
| $P_4O_8^+$ | 195 | CH_2S^+ | 202 |
| $P_4O_9^+$ | 195 | CH_3S^+ | 202 |
| $P_4O_{10}^+$ | 195 | CH_4S^+ | 202 |
| CH_4OP^+ | 195 | $C_2H_3S^+$ | 203 |
| $CH_4O_2P^+$ | 195 | $C_2H_4S^+$ | 203 |
| $CH_5O_2P^+$ | 195 | $C_2H_5S^+$ | 204 |
| $C_2H_6O_2P^+$ | 196 | $C_2H_6S^+$ | 204 |
| $C_{19}H_{35}O_2P^+$ | 196 | $C_3H_5S^+$ | 205 |
| $CH_4O_3P^+$ | 196 | $C_3H_6S^+$ | 205 |
| $C_2H_6O_3P^+$ | 196 | $C_3H_7S^+$ | 205 |
| $C_2H_7O_3P^+$ | 196 | $C_3H_8S^+$ | 205 |
| $C_3H_8O_4P^+$ | 196 | $C_4H_4S^+$ | 205 |
| $C_3H_9O_4P^+$ | 196 | $C_4D_4S^+$ | 205 |
| PF_3^+ | 196 | $C_4H_6S^+$ | 205 |
| PF_5^+ | 197 | $C_4H_8S^+$ | 205 |
| $P_2F_4^+$ | 197 | $C_4H_9S^+$ | 206 |
| PHF_2^+ | 197 | $C_4H_{10}S^+$ | 206 |
| $BH_3F_3P^+$ | 197 | $C_3H_6S^+$ | 206 |
| $B_3H_5F_3P^+$ | 197 | $C_3H_{10}S^+$ | 206 |
| $PH_2NF_2^+$ | 197 | $C_6H_6S^+$ | 206 |
| CNF_2P^+ | 197 | $C_6H_8S^+$ | 206 |

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| $C_6H_{10}S^+$ | 207 | $C_{17}H_{20}N_2S^+$ | 213 |
| $C_6H_{14}S^+$ | 207 | $C_{18}H_{22}N_2S^+$ | 213 |
| $C_7H_8S^+$ | 207 | $C_{20}H_{25}N_3S^+$ | 213 |
| $C_8H_6S^+$ | 207 | SO^+ | 213 |
| $C_8H_{10}S^+$ | 207 | SO_2^+ | 214 |
| $C_8H_{12}S^+$ | 207 | S_2O^+ | 214 |
| $C_8H_{18}S^+$ | 207 | COS^+ | 215 |
| $C_9H_{10}S^+$ | 207 | CH_2OS^+ | 215 |
| $C_{11}H_{10}S^+$ | 208 | $C_2H_4OS^+$ | 216 |
| $C_{12}H_8S^+$ | 208 | $C_2H_6OS^+$ | 216 |
| $C_{12}H_{10}S^+$ | 208 | $C_3H_5OS^+$ | 216 |
| $CH_2S_2^+$ | 208 | $C_3H_6OS^+$ | 216 |
| $C_2H_6S_2^+$ | 208 | $C_4H_8OS^+$ | 216 |
| $C_3H_5S_2^+$ | 208 | $C_4H_{10}OS^+$ | 216 |
| $C_3H_6S_2^+$ | 209 | $C_5H_4OS^+$ | 216 |
| $C_3H_8S_2^+$ | 209 | $C_5H_6OS^+$ | 216 |
| $C_4H_8S_2^+$ | 209 | $C_6H_6OS^+$ | 216 |
| $C_4H_{10}S_2^+$ | 209 | $C_6H_{11}OS^+$ | 217 |
| $C_3H_6S_2^+$ | 209 | $C_6H_{12}OS^+$ | 217 |
| $C_6H_4S_2^+$ | 209 | $C_6H_{14}OS^+$ | 217 |
| $C_6H_{10}S_2^+$ | 209 | $C_7H_{13}OS^+$ | 217 |
| $C_6H_{14}S_2^+$ | 209 | $C_7H_{14}OS^+$ | 217 |
| $C_8H_{10}S_2^+$ | 210 | $C_8H_{16}OS^+$ | 217 |
| $C_8H_{18}S_2^+$ | 210 | $C_8H_{18}OS^+$ | 217 |
| $C_3H_6S_3^+$ | 210 | $C_{12}H_{10}OS^+$ | 218 |
| $C_5H_4S_3^+$ | 210 | $C_2H_6O_2S^+$ | 218 |
| $C_6H_6S_3^+$ | 210 | $C_3H_6SO_2^+$ | 218 |
| $C_7H_8S_3^+$ | 210 | $C_4H_6SO_2^+$ | 218 |
| $C_{10}H_{12}S_3^+$ | 210 | $C_5H_4O_2S^+$ | 218 |
| $C_{12}H_{16}S_3^+$ | 210 | $C_5H_{10}O_2S^+$ | 218 |
| $C_{14}H_{20}S_3^+$ | 210 | $C_6H_6O_2S^+$ | 218 |
| $C_{17}H_{12}S_3^+$ | 210 | $C_{14}H_9O_2S^+$ | 218 |
| $C_6H_4S_4^+$ | 210 | $C_{15}H_{11}O_2S^+$ | 218 |
| $C_{10}H_{18}S_6^+$ | 211 | $C_2H_4O_3S^+$ | 218 |
| $C_3H_9BS^+$ | 211 | $C_2H_6O_3S^+$ | 218 |
| $C_3H_9BS_2^+$ | 211 | $C_4H_3NSO^+$ | 219 |
| $C_3H_9BS_3^+$ | 211 | $C_4H_9NOS^+$ | 219 |
| $CHNS^+$ | 211 | $C_6H_7NOS^+$ | 219 |
| $C_2H_3NS^+$ | 211 | $C_6H_{11}NOS^+$ | 219 |
| $C_3H_3NS^+$ | 211 | $C_7H_5NOS^+$ | 219 |
| $C_4H_5NS^+$ | 211 | $C_7H_9NOS^+$ | 219 |
| $C_5H_3NS^+$ | 212 | $C_8H_7NOS^+$ | 219 |
| $C_5H_5NS^+$ | 212 | $C_8H_9NOS^+$ | 219 |
| $C_6H_7NS^+$ | 212 | $C_8H_{11}NOS^+$ | 219 |
| $C_{10}H_9NS^+$ | 212 | $C_{13}H_9NOS^+$ | 219 |
| $C_{12}H_9NS^+$ | 212 | $C_3H_2N_2OS^+$ | 220 |
| $C_{13}H_{11}NS^+$ | 212 | $C_4H_{12}N_2OS^+$ | 220 |
| $C_3H_6N_2S^+$ | 213 | $C_{17}H_{18}N_2OS^+$ | 220 |
| $C_4H_2N_2S^+$ | 213 | $C_{18}H_{22}N_2OS^+$ | 220 |
| $C_4H_8N_2S^+$ | 213 | $C_{19}H_{22}N_2OS^+$ | 220 |
| $C_6H_4N_2S^+$ | 213 | $C_{20}H_{24}N_2OS^+$ | 220 |
| $C_8H_{18}N_2S^+$ | 213 | $C_{19}H_{23}N_3OS^+$ | 220 |
| $C_{16}H_{18}N_2S^+$ | 213 | $C_{22}H_{27}N_3OS^+$ | 220 |

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| $C_{23}H_{29}N_3OS^+$ | 220 | $C_3H_9O_3PS^+$ | 228 |
| $C_3H_7NO_2S^+$ | 220 | $C_2H_6OPS_2^+$ | 228 |
| $C_4H_3NO_2S^+$ | 220 | $C_2H_7OPS_2^+$ | 228 |
| $C_5H_{11}NO_2S^+$ | 220 | $C_2H_6O_2PS_2^+$ | 228 |
| $C_7H_5NO_2S^+$ | 220 | $C_3H_9O_2PS_2^+$ | 228 |
| $C_8H_7NO_2S^+$ | 221 | CNF_2PS^+ | 228 |
| $C_8H_9NO_2S^+$ | 221 | Cl^+ | 228 |
| $C_{13}H_9NO_2S^+$ | 221 | Cl^{+2} | 229 |
| $C_3H_2N_2O_2S^+$ | 221 | Cl_2^+ | 229 |
| $C_{15}H_{11}NO_3S^+$ | 221 | BCl^+ | 229 |
| $C_{22}H_{30}N_4O_2S_2^+$ | 221 | BCl_2^+ | 229 |
| SF^+ | 221 | BCl_3^+ | 229 |
| SF_2^+ | 221 | $B_2Cl_4^+$ | 229 |
| SF_3^+ | 221 | CCl^+ | 230 |
| SF_4^+ | 221 | CCl_2^+ | 230 |
| SF_5^+ | 222 | CCl_3^+ | 230 |
| S_2F^+ | 222 | $C_6Cl_4^+$ | 230 |
| $S_2F_2^+$ | 222 | $C_6Cl_6^+$ | 230 |
| CF_2S^+ | 222 | CH_2Cl^+ | 230 |
| NSF^+ | 222 | CH_3Cl^+ | 230 |
| NSF_3^+ | 223 | C_2HCl^+ | 231 |
| $C_{21}H_{24}N_3F_3S^+$ | 223 | $C_2H_2Cl^+$ | 231 |
| SO_3F^+ | 224 | $C_2H_3Cl^+$ | 231 |
| SOF_2^+ | 224 | $C_2H_5Cl^+$ | 231 |
| $SO_2F_2^+$ | 225 | $C_3H_5Cl^+$ | 231 |
| $CH_3O_2FS^+$ | 226 | $C_3H_7Cl^+$ | 231 |
| $C_6H_3OF_3S^+$ | 226 | $C_4H_9Cl^+$ | 231 |
| $C_{20}H_{21}N_2OF_3S^+$ | 226 | $C_6H_4Cl^+$ | 231 |
| $C_{22}H_{26}N_3OF_3S^+$ | 226 | $C_6H_5Cl^+$ | 231 |
| $C_{20}H_{19}N_2O_2F_3S^+$ | 226 | $C_6H_{11}Cl^+$ | 232 |
| $C_{22}H_{24}N_3O_2F_3S^+$ | 226 | $C_7H_6Cl^+$ | 232 |
| SiH_4S^+ | 226 | $C_7H_7Cl^+$ | 232 |
| $Si_2H_6S^+$ | 226 | $C_8H_7Cl^+$ | 232 |
| CH_6SiS^+ | 226 | $C_{10}H_{15}Cl^+$ | 232 |
| CH_3NSiS^+ | 226 | $C_{12}H_9Cl^+$ | 232 |
| $C_4H_9NSiS^+$ | 227 | $CHCl_2^+$ | 232 |
| PS^+ | 227 | $CH_2Cl_2^+$ | 233 |
| P_4S^+ | 227 | $C_2H_2Cl_2^+$ | 233 |
| $P_4S_2^+$ | 227 | $C_6H_2Cl_2^+$ | 233 |
| $P_4S_3^+$ | 227 | $C_6H_3Cl_2^+$ | 234 |
| $P_4S_4^+$ | 227 | $C_3H_6Cl_2^+$ | 234 |
| $P_4S_5^+$ | 227 | $CHCl_3^+$ | 234 |
| $P_4S_6^+$ | 227 | $C_6H_3Cl_3^+$ | 234 |
| $P_4S_7^+$ | 227 | $C_6H_2Cl_4^+$ | 234 |
| $P_4S_8^+$ | 227 | $C_6HCl_5^+$ | 234 |
| $P_4S_9^+$ | 227 | $B_3H_3N_3Cl_3^+$ | 234 |
| $P_4S_{10}^+$ | 227 | $C_6H_6NCl^+$ | 234 |
| CH_2PS^+ | 227 | $C_{16}H_{12}NCl^+$ | 235 |
| $C_6H_{18}N_3PS^+$ | 227 | $C_6H_5NCl_2^+$ | 235 |
| $C_2H_6OPS^+$ | 227 | $C_4H_{12}BN_2Cl^+$ | 235 |
| $C_2H_6O_2PS^+$ | 227 | $C_2H_6BNCl_2^+$ | 235 |
| $C_2H_7O_2PS^+$ | 228 | $C_3H_9B_3N_3Cl_3^+$ | 235 |
| $C_2H_6O_3PS^+$ | 228 | ClO_2^+ | 235 |

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| Cl_2O^+ | 236 | $\text{C}_4\text{H}_{12}\text{N}_2\text{SiCl}_2^+$ | 244 |
| COCl_2^+ | 236 | $\text{C}_2\text{H}_6\text{NSiCl}_3^+$ | 244 |
| C_2OCl_3^+ | 237 | $\text{C}_6\text{H}_{15}\text{O}_3\text{SiCl}^+$ | 244 |
| $\text{C}_8\text{O}_3\text{Cl}_4^+$ | 237 | $\text{C}_4\text{H}_{10}\text{O}_2\text{SiCl}_2^+$ | 244 |
| $\text{C}_3\text{H}_5\text{OCl}^+$ | 237 | $\text{C}_2\text{H}_5\text{OSiCl}_3^+$ | 244 |
| $\text{C}_6\text{H}_4\text{OCl}^+$ | 237 | SiF_3Cl^+ | 244 |
| $\text{C}_6\text{H}_5\text{OCl}^+$ | 237 | PCl^+ | 245 |
| $\text{C}_7\text{H}_5\text{OCl}^+$ | 237 | PCl_2^+ | 245 |
| $\text{C}_7\text{H}_7\text{OCl}^+$ | 237 | PCl_3^+ | 245 |
| $\text{C}_2\text{H}_3\text{O}_2\text{Cl}^+$ | 238 | PCl_5^+ | 245 |
| $\text{C}_8\text{H}_7\text{O}_2\text{Cl}^+$ | 238 | POCl^+ | 245 |
| $\text{C}_6\text{H}_4\text{OCl}_2^+$ | 238 | POCl_3^+ | 246 |
| $\text{C}_8\text{H}_6\text{O}_2\text{Cl}_2^+$ | 238 | PF_2Cl^+ | 247 |
| $\text{C}_8\text{H}_7\text{NOCl}^+$ | 238 | CSCl_2^+ | 247 |
| $\text{C}_8\text{H}_8\text{NOCl}^+$ | 238 | $\text{C}_2\text{S}_2\text{Cl}_4^+$ | 247 |
| $\text{C}_{17}\text{H}_{14}\text{NOCl}^+$ | 239 | $\text{C}_4\text{H}_3\text{SCl}^+$ | 248 |
| $\text{C}_6\text{H}_4\text{NO}_2\text{Cl}^+$ | 239 | NSCl^+ | 248 |
| $\text{C}_8\text{H}_7\text{NOCl}_2^+$ | 239 | $\text{C}_{17}\text{H}_{19}\text{N}_2\text{SCl}^+$ | 248 |
| ClF^+ | 239 | $\text{C}_{20}\text{H}_{24}\text{N}_3\text{SCl}^+$ | 248 |
| ClF_3^+ | 239 | SOCl_2^+ | 248 |
| BClF^+ | 240 | SO_2Cl_2^+ | 249 |
| BClF_2^+ | 240 | SOCl_3^+ | 250 |
| BCl_2F^+ | 240 | $\text{CH}_3\text{O}_2\text{SCl}^+$ | 250 |
| CFCl^+ | 240 | $\text{C}_{17}\text{H}_{17}\text{N}_2\text{OSCl}^+$ | 250 |
| CF_2Cl^+ | 240 | $\text{C}_{19}\text{H}_{21}\text{N}_2\text{OSCl}^+$ | 250 |
| $\text{C}_2\text{F}_2\text{Cl}^+$ | 240 | $\text{C}_{21}\text{H}_{26}\text{N}_3\text{OSCl}^+$ | 250 |
| CF_3Cl^+ | 240 | SF_5Cl^+ | 250 |
| $\text{C}_2\text{F}_3\text{Cl}^+$ | 241 | CFSCl^+ | 250 |
| CFCl_2^+ | 241 | SO_2FCl^+ | 250 |
| C_2FCl_2^+ | 241 | PSCl_3^+ | 251 |
| CF_2Cl_2^+ | 241 | $\text{C}_4\text{H}_{12}\text{N}_2\text{PSCl}^+$ | 252 |
| $\text{CF}_2\text{CCl}_2^+$ | 241 | $\text{C}_2\text{H}_6\text{NPSCl}_2^+$ | 252 |
| CFCl_3^+ | 241 | Ar^+ | 252 |
| CH_2FCl^+ | 241 | Ar^{+2} | 252 |
| C_2HFCl^+ | 241 | Ar^{+3} | 252 |
| $\text{C}_2\text{H}_2\text{FCl}^+$ | 241 | Ar^{+4} | 252 |
| CHF_2Cl^+ | 241 | Ca^+ | 252 |
| $\text{C}_2\text{HF}_2\text{Cl}^+$ | 241 | Ca^{+2} | 252 |
| CHFCl_2^+ | 241 | Ca^{+3} | 252 |
| ClO_3F^+ | 242 | Sc^+ | 252 |
| AlOCl^+ | 242 | Sc^{+3} | 253 |
| SiCl^+ | 242 | Sc^{+4} | 253 |
| SiCl_4^+ | 242 | ScC_2^+ | 253 |
| SiH_3Cl^+ | 242 | $\text{C}_{15}\text{H}_3\text{O}_6\text{F}_{18}\text{Sc}^+$ | 253 |
| $\text{SiH}_2\text{Cl}_2^+$ | 242 | Ti^+ | 253 |
| SiHCl_3^+ | 243 | TiC_2^+ | 253 |
| $\text{C}_3\text{H}_9\text{SiCl}^+$ | 243 | TiO^+ | 253 |
| $\text{C}_4\text{H}_9\text{SiCl}^+$ | 244 | TiO_2^+ | 253 |
| $\text{C}_4\text{H}_{11}\text{SiCl}^+$ | 244 | $\text{C}_{15}\text{H}_3\text{O}_6\text{F}_{18}\text{Ti}^+$ | 253 |
| $\text{C}_5\text{H}_9\text{SiCl}^+$ | 244 | TiS^+ | 254 |
| $\text{C}_2\text{H}_6\text{SiCl}_2^+$ | 244 | V^+ | 254 |
| $\text{C}_3\text{H}_6\text{SiCl}_2^+$ | 244 | VN^+ | 254 |
| $\text{C}_6\text{H}_{12}\text{Si}_4\text{Cl}_4^+$ | 244 | VO^+ | 254 |

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| VO_2^+ | 254 | $\text{C}_6\text{H}_{18}\text{N}_3\text{PCr}^+$ | 261 |
| V_4O_8^+ | 254 | $\text{C}_7\text{H}_{18}\text{N}_3\text{OPCr}^+$ | 261 |
| $\text{V}_4\text{O}_{10}^+$ | 254 | $\text{C}_9\text{H}_{18}\text{N}_3\text{O}_3\text{PCr}^+$ | 261 |
| $\text{C}_{15}\text{H}_3\text{O}_6\text{F}_{18}\text{V}^+$ | 254 | $\text{C}_{10}\text{H}_{18}\text{N}_3\text{O}_4\text{PCr}^+$ | 261 |
| Cr^+ | 254 | $\text{C}_{11}\text{H}_{18}\text{N}_3\text{O}_5\text{PCr}^+$ | 261 |
| $\text{C}_6\text{H}_6\text{Cr}^+$ | 255 | $\text{C}_{15}\text{H}_{36}\text{N}_6\text{O}_3\text{P}_2\text{Cr}^+$ | 261 |
| $\text{C}_7\text{H}_8\text{Cr}^+$ | 255 | $\text{C}_{16}\text{H}_{36}\text{N}_6\text{O}_4\text{P}_2\text{Cr}^+$ | 261 |
| $\text{C}_8\text{H}_{10}\text{Cr}^+$ | 255 | $\text{CrP}_6\text{F}_{18}^+$ | 261 |
| $\text{C}_9\text{H}_{12}\text{Cr}^+$ | 256 | $\text{C}_9\text{H}_8\text{O}_5\text{SCr}^+$ | 261 |
| $\text{C}_{10}\text{H}_{10}\text{Cr}^+$ | 256 | $\text{C}_7\text{H}_6\text{O}_6\text{SCr}^+$ | 261 |
| $\text{C}_{11}\text{H}_{11}\text{Cr}^+$ | 256 | $\text{C}_7\text{H}_4\text{O}_8\text{SCr}^+$ | 261 |
| $\text{C}_{12}\text{H}_{12}\text{Cr}^+$ | 256 | $\text{C}_6\text{H}_2\text{ClCr}^+$ | 261 |
| $\text{C}_{12}\text{H}_{18}\text{Cr}^+$ | 256 | $\text{C}_7\text{H}_5\text{OClCr}^+$ | 261 |
| $\text{C}_{14}\text{H}_{16}\text{Cr}^+$ | 256 | $\text{C}_8\text{H}_5\text{O}_2\text{ClCr}^+$ | 262 |
| $\text{C}_{20}\text{H}_{44}\text{Cr}^+$ | 256 | $\text{C}_9\text{H}_5\text{O}_3\text{ClCr}^+$ | 262 |
| $\text{C}_6\text{H}_7\text{NCr}^+$ | 256 | $\text{C}_{13}\text{H}_7\text{O}_6\text{ClCr}^+$ | 262 |
| CrCO^{+2} | 256 | Mn^+ | 262 |
| $\text{C}_6\text{O}_6\text{Cr}^+$ | 256 | MnH^+ | 262 |
| $\text{C}_7\text{H}_6\text{OCr}^+$ | 256 | $\text{C}_{10}\text{H}_{10}\text{Mn}^+$ | 262 |
| $\text{C}_7\text{H}_8\text{OCr}^+$ | 257 | $\text{C}_{11}\text{H}_{11}\text{Mn}^+$ | 262 |
| $\text{C}_8\text{H}_8\text{OCr}^+$ | 257 | $\text{C}_{32}\text{H}_{16}\text{N}_8\text{Mn}^+$ | 262 |
| $\text{C}_9\text{H}_{10}\text{OCr}^+$ | 257 | MnCO^+ | 262 |
| $\text{C}_{10}\text{H}_{12}\text{OCr}^+$ | 257 | MnC_2O_2^+ | 262 |
| $\text{C}_{13}\text{H}_{18}\text{OCr}^+$ | 257 | MnC_3O_3^+ | 262 |
| $\text{C}_8\text{H}_6\text{O}_2\text{Cr}^+$ | 257 | MnC_4O_4^+ | 262 |
| $\text{C}_8\text{H}_8\text{O}_2\text{Cr}^+$ | 257 | CHOMn^+ | 262 |
| $\text{C}_9\text{H}_8\text{O}_2\text{Cr}^+$ | 258 | $\text{C}_2\text{HO}_2\text{Mn}^+$ | 263 |
| $\text{C}_{10}\text{H}_{10}\text{O}_2\text{Cr}^+$ | 258 | $\text{C}_3\text{HO}_3\text{Mn}^+$ | 263 |
| $\text{C}_{11}\text{H}_{12}\text{O}_2\text{Cr}^+$ | 258 | $\text{C}_8\text{H}_5\text{O}_3\text{Mn}^+$ | 263 |
| $\text{C}_{14}\text{H}_{18}\text{O}_2\text{Cr}^+$ | 258 | $\text{C}_4\text{HO}_4\text{Mn}^+$ | 263 |
| $\text{C}_9\text{H}_6\text{O}_3\text{Cr}^+$ | 258 | $\text{C}_5\text{HO}_5\text{Mn}^+$ | 263 |
| $\text{C}_9\text{H}_8\text{O}_3\text{Cr}^+$ | 258 | $\text{C}_{15}\text{H}_{21}\text{O}_6\text{Mn}^+$ | 263 |
| $\text{C}_{10}\text{H}_8\text{O}_3\text{Cr}^+$ | 258 | MnF^+ | 263 |
| $\text{C}_{11}\text{H}_{10}\text{O}_3\text{Cr}^+$ | 259 | MnF_2^+ | 263 |
| $\text{C}_{12}\text{H}_{12}\text{O}_3\text{Cr}^+$ | 259 | MnF_3^+ | 263 |
| $\text{C}_{15}\text{H}_{18}\text{O}_3\text{Cr}^+$ | 259 | MnF_4^+ | 263 |
| $\text{C}_{10}\text{H}_8\text{O}_4\text{Cr}^+$ | 259 | $\text{C}_{15}\text{H}_3\text{O}_6\text{F}_{18}\text{Mn}^+$ | 263 |
| $\text{C}_{11}\text{H}_8\text{O}_5\text{Cr}^+$ | 259 | $\text{C}_{19}\text{H}_3\text{O}_{10}\text{F}_{18}\text{Mn}^+$ | 264 |
| $\text{C}_8\text{H}_6\text{O}_6\text{Cr}^+$ | 259 | $\text{C}_3\text{H}_5\text{SiMn}^+$ | 264 |
| $\text{C}_{13}\text{H}_8\text{O}_6\text{Cr}^+$ | 259 | $\text{C}_4\text{H}_5\text{OSiMn}^+$ | 264 |
| $\text{C}_{14}\text{H}_{10}\text{O}_6\text{Cr}^+$ | 259 | $\text{C}_5\text{H}_5\text{O}_2\text{SiMn}^+$ | 264 |
| $\text{C}_{15}\text{H}_{21}\text{O}_6\text{Cr}^+$ | 260 | $\text{C}_6\text{H}_5\text{O}_3\text{SiMn}^+$ | 264 |
| $\text{C}_{14}\text{H}_{10}\text{O}_7\text{Cr}^+$ | 260 | $\text{C}_7\text{H}_5\text{O}_4\text{SiMn}^+$ | 264 |
| $\text{C}_7\text{H}_7\text{NOCr}^+$ | 260 | $\text{C}_5\text{H}_5\text{O}_5\text{SiMn}^+$ | 264 |
| $\text{C}_8\text{H}_7\text{NO}_2\text{Cr}^+$ | 260 | $\text{C}_8\text{H}_9\text{O}_5\text{SiMn}^+$ | 264 |
| $\text{C}_7\text{H}_5\text{NO}_3\text{Cr}^+$ | 260 | $\text{C}_7\text{H}_9\text{O}_4\text{F}_3\text{SiPMn}^+$ | 264 |
| $\text{C}_9\text{H}_7\text{NO}_3\text{Cr}^+$ | 260 | $\text{C}_6\text{H}_9\text{O}_3\text{F}_6\text{SiP}_2\text{Mn}^+$ | 264 |
| $\text{C}_{11}\text{H}_{11}\text{NO}_3\text{Cr}^+$ | 260 | $\text{C}_5\text{H}_9\text{O}_2\text{F}_9\text{SiP}_3\text{Mn}^+$ | 264 |
| $\text{C}_{13}\text{H}_7\text{O}_6\text{FCr}^+$ | 260 | $\text{C}_{10}\text{H}_{15}\text{SMn}^+$ | 264 |
| $\text{C}_{14}\text{H}_7\text{O}_6\text{F}_3\text{Cr}^+$ | 260 | $\text{C}_{18}\text{H}_{17}\text{SMn}^+$ | 264 |
| $\text{C}_{15}\text{H}_{12}\text{O}_6\text{F}_9\text{Cr}^+$ | 260 | $\text{C}_8\text{H}_{13}\text{OSMn}^+$ | 265 |
| $\text{C}_{15}\text{H}_3\text{O}_6\text{F}_{18}\text{Cr}^+$ | 260 | $\text{C}_{10}\text{H}_{15}\text{OSMn}^+$ | 265 |
| $\text{C}_{16}\text{H}_{44}\text{Si}_4\text{Cr}^+$ | 261 | $\text{C}_{18}\text{H}_{17}\text{OSMn}^+$ | 265 |

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|-----------------------------------|-----|--------------------------------|-----|
| $C_{12}H_{15}O_2SMn^+$ | 265 | $C_2O_2SiCl_3Co^+$ | 270 |
| $C_{20}H_{17}O_2SMn^+$ | 265 | $C_3O_3SiCl_3Co^+$ | 270 |
| $C_8H_{11}O_3SMn^+$ | 265 | $F_3SiPCL_3Co^+$ | 270 |
| $C_{10}H_{13}O_3SMn^+$ | 265 | $C_3O_3F_3SiPCL_2Co^+$ | 271 |
| $C_{12}H_{15}O_3SMn^+$ | 265 | $COF_3SiPCL_3Co^+$ | 271 |
| $C_{20}H_{17}O_3SMn^+$ | 265 | $C_3O_3F_3SiPCL_3Co^+$ | 271 |
| $C_{10}H_{11}O_5SMn^+$ | 265 | $COF_6SiP_2Cl_3Co^+$ | 271 |
| $C_5O_5ClMn^+$ | 266 | $C_2O_2F_6SiP_2Cl_3Co^+$ | 271 |
| Fe^+ | 266 | Ni^+ | 271 |
| $C_3H_3Fe^+$ | 266 | $C_3H_3Ni^+$ | 271 |
| $C_5H_5Fe^+$ | 266 | $C_5H_5Ni^+$ | 271 |
| $C_{10}H_{10}Fe^+$ | 266 | $C_6H_{10}Ni^+$ | 272 |
| $C_{12}H_{12}Fe^+$ | 267 | $C_8H_8Ni^+$ | 272 |
| $C_{12}H_{14}Fe^+$ | 267 | $C_{10}H_{10}Ni^+$ | 272 |
| $C_{32}H_{16}N_8Fe^+$ | 267 | $C_{32}H_{16}N_8Ni^+$ | 272 |
| $C_{15}H_{21}O_6Fe^+$ | 267 | $C_5H_5NONi^+$ | 272 |
| $C_{33}H_{57}O_6Fe^+$ | 267 | $C_{12}H_{18}N_2O_2Ni^+$ | 272 |
| $C_{15}H_{12}O_6F_9Fe^+$ | 267 | Cu^+ | 272 |
| $C_{15}H_3O_6F_{18}Fe^+$ | 267 | Cu_2^+ | 273 |
| $C_{13}H_{18}SiFe^+$ | 268 | Cu_3^+ | 273 |
| $C_6H_{18}N_3PFe^+$ | 268 | $C_{32}H_{16}N_8Cu^+$ | 273 |
| $C_{12}H_{36}N_6P_2Fe^+$ | 268 | $C_{12}H_{18}N_2O_2Cu^+$ | 273 |
| $C_7H_{18}N_3OPFe^+$ | 268 | $CuCl^+$ | 273 |
| $C_8H_{18}N_3O_2PFe^+$ | 268 | Cu_2Cl^+ | 273 |
| $C_9H_{18}N_3O_3PFe^+$ | 268 | $Cu_2Cl_2^+$ | 273 |
| $C_{10}H_{18}N_3O_4PFe^+$ | 268 | $Cu_3Cl_2^+$ | 273 |
| $C_{13}H_{36}N_6OP_2Fe^+$ | 268 | $Cu_3Cl_3^+$ | 273 |
| $C_{14}H_{36}N_6O_2P_2Fe^+$ | 268 | $Cu_4Cl_3^+$ | 273 |
| $C_{15}H_{36}N_6O_3P_2Fe^+$ | 268 | $Cu_4Cl_4^+$ | 273 |
| $FeP_5F_{15}^+$ | 268 | $Cu_5Cl_4^+$ | 273 |
| $C_{10}H_9ClFe^+$ | 268 | $Cu_5Cl_5^+$ | 274 |
| $C_{10}H_8Cl_2Fe^+$ | 268 | Zn^+ | 274 |
| Co^+ | 268 | $C_{32}H_{16}N_8Zn^+$ | 274 |
| $C_3H_3Co^+$ | 269 | $ZnCl_2^+$ | 274 |
| $C_5H_5Co^+$ | 269 | Ga^+ | 274 |
| $C_{10}H_{10}Co^+$ | 269 | CH_3Ga^+ | 274 |
| $C_{11}H_{13}BCo^+$ | 269 | $C_2H_3Ga^+$ | 274 |
| $C_{12}H_{16}B_2Co^+$ | 269 | $C_2H_4Ga^+$ | 274 |
| $C_{16}H_{15}BCo^+$ | 269 | $C_2H_6Ga^+$ | 275 |
| $C_{22}H_{20}B_2Co^+$ | 269 | $C_3H_9Ga^+$ | 275 |
| $C_{32}H_{16}N_8Co^+$ | 269 | $C_4H_6Ga^+$ | 275 |
| $COCo^+$ | 269 | $C_6H_9Ga^+$ | 275 |
| $C_2O_2Co^+$ | 269 | $C_{12}H_{10}Ga^+$ | 275 |
| $C_4HO_4Co^+$ | 269 | $C_{18}H_{15}Ga^+$ | 275 |
| $C_{15}H_{21}O_6Co^+$ | 270 | GaF^+ | 275 |
| $C_{12}H_{16}B_2O_2Co^+$ | 270 | GaF_2^+ | 275 |
| $C_{15}H_3O_6F_{18}Co^+$ | 270 | $Ga_2F_5^+$ | 275 |
| $C_4H_3O_4SiCo^+$ | 270 | $C_{15}H_3O_6F_{18}Ga^+$ | 275 |
| F_3PCo^+ | 270 | GaP^+ | 275 |
| $ClCo^+$ | 270 | Ge^+ | 275 |
| $SiCl_2Co^+$ | 270 | Ge_2^+ | 275 |
| $SiCl_3Co^+$ | 270 | GeH_4^+ | 275 |
| $COSiCl_3Co^+$ | 270 | $C_3H_9Ge^+$ | 276 |

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|-------------------------|-----|---------------------|-----|
| $C_4H_{12}Ge^+$ | 276 | AsF_3^+ | 280 |
| $C_7H_{18}Ge^+$ | 276 | $C_6H_7F_6As^+$ | 280 |
| $C_8H_{18}Ge^+$ | 276 | $C_8H_{11}F_6As^+$ | 280 |
| $C_8H_{20}Ge^+$ | 276 | $Si_3H_6As^+$ | 280 |
| $C_9H_{14}Ge^+$ | 276 | AsP^+ | 281 |
| $C_9H_{20}Ge^+$ | 276 | AsP_3^+ | 281 |
| $C_{10}H_{14}Ge^+$ | 276 | $As_2P_2^+$ | 281 |
| $C_{10}H_{16}Ge^+$ | 276 | As_3P^+ | 281 |
| $C_{12}H_{18}Ge^+$ | 277 | AsS^+ | 281 |
| $C_{13}H_{15}Ge^+$ | 277 | $As_2S_2^+$ | 281 |
| $C_{14}H_{18}Ge^+$ | 277 | $As_3S_2^+$ | 281 |
| $C_6H_{18}Ge_2^+$ | 277 | $As_3S_3^+$ | 281 |
| $GeH_3N_3^+$ | 277 | $As_4S_3^+$ | 281 |
| $Ge_3H_9N^+$ | 277 | $As_4S_4^+$ | 281 |
| GeO^+ | 277 | $AsCl_3^+$ | 281 |
| $Ge_2H_6O^+$ | 277 | Se^+ | 281 |
| CH_3NOGe^+ | 277 | Se^{+4} | 281 |
| GeF_2^+ | 277 | SeH^+ | 281 |
| GeF_4^+ | 277 | H_2Se^+ | 281 |
| $Ge_2F_4^+$ | 278 | CSe_2^+ | 282 |
| GeH_3F^+ | 278 | $C_2H_5Se^+$ | 282 |
| $GeH_2F_2^+$ | 278 | $C_2H_6Se^+$ | 282 |
| $GeOF_2^+$ | 278 | $C_3H_7Se^+$ | 282 |
| $C_6H_{18}SiGe^+$ | 278 | $C_4H_4Se^+$ | 282 |
| GeH_5P^+ | 278 | $C_5H_6Se^+$ | 282 |
| $Ge_3H_9P^+$ | 278 | $C_3H_6NSe^+$ | 282 |
| GeH_4S^+ | 278 | $C_4H_{10}NSe^+$ | 282 |
| $Ge_2H_6S^+$ | 278 | $COSe^+$ | 283 |
| CH_3NSGe^+ | 278 | $C_5H_4OSe^+$ | 283 |
| Cl_3Ge^+ | 278 | $C_6H_6OSe^+$ | 283 |
| Cl_4Ge^+ | 278 | $C_5H_4O_2Se^+$ | 283 |
| GeH_3Cl^+ | 278 | $C_4H_6NOSe^+$ | 283 |
| $GeH_2Cl_2^+$ | 279 | $C_5H_9NOSe^+$ | 283 |
| $C_2H_6ClGe^+$ | 279 | $C_4H_8NO_2Se^+$ | 283 |
| $C_3H_9ClGe^+$ | 279 | $C_5H_{11}NO_2Se^+$ | 283 |
| $CH_3Cl_2Ge^+$ | 279 | $C_6H_3OF_3Se^+$ | 283 |
| $C_2H_6Cl_2Ge^+$ | 279 | $Si_2H_6Se^+$ | 283 |
| $CH_3Cl_3Ge^+$ | 279 | SeP^+ | 284 |
| $C_8H_{14}CrGe^+$ | 279 | $CSSe^+$ | 284 |
| $C_9H_{14}OCrGe^+$ | 279 | $ScSe^+$ | 284 |
| $C_{10}H_{14}O_2CrGe^+$ | 279 | $Ge_2H_6Se^+$ | 284 |
| $C_{11}H_{14}O_3CrGe^+$ | 279 | Br^+ | 284 |
| $C_3H_3O_5MnGe^+$ | 279 | Br^{+4} | 284 |
| $C_4H_3O_4GeCo^+$ | 279 | Br^{+5} | 284 |
| $GeCu^+$ | 280 | HBr^+ | 284 |
| As^+ | 280 | DBr^+ | 284 |
| As_2^+ | 280 | C_2HBr^+ | 285 |
| As_4^+ | 280 | $C_2H_3Br^+$ | 285 |
| AsH_3^+ | 280 | $C_2H_5Br^+$ | 285 |
| $C_2H_7As^+$ | 280 | $C_3H_5Br^+$ | 285 |
| $C_3H_5As^+$ | 280 | $C_3H_7Br^+$ | 285 |
| $C_{12}H_{13}As^+$ | 280 | $C_4H_7Br^+$ | 286 |
| $C_{19}H_{13}As^+$ | 280 | $C_4H_9Br^+$ | 286 |

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|-----------------------------|-----|--------------------------|-----|
| $C_5H_9Br^+$ | 286 | PF_2Br^+ | 296 |
| $C_5H_{11}Br^+$ | 286 | $C_4H_3SBr^+$ | 296 |
| $C_6H_4Br^+$ | 286 | $SOSBr_2^+$ | 296 |
| $C_6H_5Br^+$ | 286 | $SOBr_3^+$ | 297 |
| $C_6H_{11}Br^+$ | 286 | $PSBr_3^+$ | 297 |
| $C_7H_7Br^+$ | 287 | $C_3H_8ClBr^+$ | 298 |
| $C_7H_9Br^+$ | 287 | $C_6H_{10}ClBr^+$ | 298 |
| $C_{10}H_{15}Br^+$ | 287 | $PClBr^+$ | 298 |
| $C_{12}H_9Br^+$ | 287 | PCl_2Br^+ | 298 |
| $C_2H_2Br_2^+$ | 287 | $PClBr_2^+$ | 298 |
| $C_5H_8Br_2^+$ | 288 | $C_3O_3BrMn^+$ | 298 |
| $C_6H_4Br_2^+$ | 288 | $C_6H_3NO_4MnBr^+$ | 298 |
| $C_6H_{10}Br_2^+$ | 288 | $Cu_3Br_3^+$ | 298 |
| $C_{12}H_8Br_2^+$ | 289 | $Cu_4Br_3^+$ | 298 |
| $C_6H_3Br_3^+$ | 289 | $Cu_4Br_4^+$ | 298 |
| $C_6H_6NBr^+$ | 289 | $ZnBr_2^+$ | 298 |
| $C_{18}H_{17}N_2Br^+$ | 289 | GeH_3Br^+ | 299 |
| $C_6H_5NBr_2^+$ | 289 | $GeH_2Br_2^+$ | 299 |
| $C_4H_{12}BN_2Br^+$ | 289 | Kr^+ | 299 |
| $C_2H_6BNBr_2^+$ | 289 | KrF_2^+ | 299 |
| $COBr_2^+$ | 289 | Rb^+ | 300 |
| $C_3H_5OBr^+$ | 290 | Rb^{+2} | 300 |
| $C_6H_5OBr^+$ | 290 | $RbCl^+$ | 300 |
| $C_6H_7OBr^+$ | 290 | $RbBr^+$ | 300 |
| $C_7H_5OBr^+$ | 290 | Rb_2Br^+ | 300 |
| $C_7H_7OBr^+$ | 290 | Sr^+ | 300 |
| $C_2H_3O_2Br^+$ | 291 | Sr^{+2} | 301 |
| $C_7H_5O_2Br^+$ | 291 | Sr^{+3} | 301 |
| $C_7H_{11}O_2Br^+$ | 291 | $SrCl^+$ | 301 |
| $C_8H_5O_2Br^+$ | 291 | Y^+ | 301 |
| $C_6H_4OBr_2^+$ | 291 | Y^{+6} | 301 |
| $C_8H_6O_2Br_2^+$ | 291 | YS^+ | 301 |
| $C_8H_7NOBr^+$ | 291 | YSe^+ | 301 |
| $C_8H_8NOBr^+$ | 292 | Zr^{+5} | 301 |
| $C_6H_4NO_2Br^+$ | 292 | Zr^{+6} | 301 |
| $C_8H_7NOBr_2^+$ | 292 | $ZrCl^+$ | 301 |
| BrF^+ | 292 | $ZrCl_2^+$ | 301 |
| BrF_3^+ | 292 | $ZrCl_3^+$ | 301 |
| BrF_5^+ | 292 | $ZrCl_4^+$ | 301 |
| CF_3Br^+ | 292 | Nb^{+6} | 301 |
| $C_2F_3Br^+$ | 293 | Nb^{+7} | 302 |
| $C_3H_8FBr^+$ | 293 | NbF_3^+ | 302 |
| $C_6H_{10}FBr^+$ | 293 | NbF_4^+ | 302 |
| $C_{12}H_8FBr^+$ | 293 | $Nb_2F_9^+$ | 302 |
| $SiBr^+$ | 293 | $Nb_3F_{14}^+$ | 302 |
| SiH_3Br^+ | 293 | $NbCl^+$ | 302 |
| $SiH_2Br_2^+$ | 294 | $NbCl_2^+$ | 302 |
| $C_3H_9SiBr^+$ | 294 | $NbCl_3^+$ | 302 |
| SiF_3Br^+ | 294 | $NbCl_4^+$ | 302 |
| PBr^+ | 294 | Mo^+ | 302 |
| PBr_2^+ | 294 | Mo^{+7} | 302 |
| PBr_3^+ | 294 | Mo^{+8} | 302 |
| $POBr_3^+$ | 295 | $C_6O_6Mo^+$ | 302 |

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| $C_6H_{18}N_3PMo^+$ | 302 |
| $C_{12}H_{36}N_6P_2Mo^+$ | 303 |
| $C_7H_{18}N_3OPMo^+$ | 303 |
| $C_8H_{18}N_3O_2PMo^+$ | 303 |
| $C_9H_{18}N_3O_3PMo^+$ | 303 |
| $C_{10}H_{18}N_3O_4PMo^+$ | 303 |
| $C_{11}H_{18}N_3O_5PMo^+$ | 303 |
| $C_{13}H_{36}N_6OP_2Mo^+$ | 303 |
| $C_{14}H_{36}N_6O_2P_2Mo^+$ | 303 |
| $C_{15}H_{36}N_6O_3P_2Mo^+$ | 303 |
| $C_{16}H_{36}N_6O_4P_2Mo^+$ | 303 |
| $MoCl^+$ | 303 |
| $MoCl_2^+$ | 303 |
| $MoCl_3^+$ | 303 |
| $MoCl_4^+$ | 303 |
| $MoCl_5^+$ | 303 |
| $MoO_2Cl_2^+$ | 303 |
| $MoOCl_3^+$ | 304 |
| $MoOCl_4^+$ | 304 |
| $MoO_2Br_2^+$ | 304 |
| MoO_2ClBr^+ | 304 |
| Ru^+ | 304 |
| $C_3H_3Ru^+$ | 304 |
| $C_5H_5Ru^+$ | 304 |
| $C_8H_8Ru^+$ | 304 |
| $C_{10}H_{10}Ru^+$ | 304 |
| $C_{12}H_{14}Ru^+$ | 305 |
| RuO_4^+ | 305 |
| $C_{15}H_3O_6F_{18}Ru^+$ | 305 |
| RhC^+ | 305 |
| RhC_2^+ | 305 |
| $C_7H_7O_4Rh^+$ | 305 |
| $C_{12}H_9O_4Rh^+$ | 305 |
| $C_{17}H_{11}O_4Rh^+$ | 305 |
| $C_{15}H_{21}O_6Rh^+$ | 305 |
| $C_{15}H_{20}NO_8Rh^+$ | 305 |
| $C_{15}H_{19}N_2O_{10}Rh^+$ | 306 |
| $C_{15}H_{18}N_3O_{12}Rh^+$ | 306 |
| $C_7H_4O_4F_3Rh^+$ | 306 |
| $C_7HO_4F_6Rh^+$ | 306 |
| $RhP_4F_{12}H^+$ | 306 |
| Pd^+ | 306 |
| $C_6H_{10}Pd^+$ | 306 |
| $C_{12}H_{18}N_2O_2Pd^+$ | 306 |
| Ag^+ | 306 |
| Ag_2^+ | 306 |
| Ag_3^+ | 307 |
| $NaAg^+$ | 307 |
| $AgAl^+$ | 307 |
| $AgPO_2^+$ | 307 |
| $AgCl^+$ | 307 |
| Ag_2Cl^+ | 307 |
| $Ag_2Cl_2^+$ | 307 |

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|------------------------|-----|
| Ag_2Cl^+ | 307 |
| $Ag_3Cl_2^+$ | 307 |
| $Ag_3Cl_3^+$ | 307 |
| $Ag_4Cl_3^+$ | 307 |
| $Ag_4Cl_4^+$ | 308 |
| $Ag_5Cl_4^+$ | 308 |
| $AgBr^+$ | 308 |
| Ag_2Br^+ | 308 |
| $Ag_3Br_2^+$ | 308 |
| $Ag_3Br_3^+$ | 308 |
| Cd^+ | 308 |
| $CdCl_2^+$ | 308 |
| $CdBr_2^+$ | 309 |
| In^+ | 309 |
| In_2^+ | 309 |
| InO^+ | 309 |
| In_2O^+ | 309 |
| $InCl^+$ | 309 |
| $InBr^+$ | 309 |
| Sn^+ | 309 |
| SnH_4^+ | 310 |
| $C_3H_9Sn^+$ | 310 |
| $C_4H_{12}Sn^+$ | 310 |
| $C_7H_{18}Sn^+$ | 310 |
| $C_9H_{14}Sn^+$ | 310 |
| $C_{10}H_{16}Sn^+$ | 310 |
| $C_{12}H_{16}Sn^+$ | 310 |
| $C_{12}H_{18}Sn^+$ | 310 |
| $C_{13}H_{16}Sn^+$ | 311 |
| $C_{14}H_{18}Sn^+$ | 311 |
| $C_{14}H_{30}Sn^+$ | 311 |
| $C_{15}H_{32}Sn^+$ | 311 |
| $C_{16}H_{36}Sn^+$ | 311 |
| $C_{24}H_{20}Sn^+$ | 311 |
| $C_6H_{18}Sn_2^+$ | 311 |
| SnO^+ | 311 |
| $C_6H_{18}SiSn^+$ | 311 |
| $C_{16}H_{44}Si_4Sn^+$ | 311 |
| $C_6H_{18}GeSn^+$ | 311 |
| $SnBrCl^+$ | 311 |
| $SnBr_2Cl^+$ | 311 |
| $SnBr_3Cl^+$ | 311 |
| Sb^+ | 311 |
| Sb_2^+ | 311 |
| Sb_3^+ | 312 |
| Sb_4^+ | 312 |
| SbH_3^+ | 312 |
| $C_5H_5Sb^+$ | 312 |
| SbF_3^+ | 312 |
| SbP^+ | 312 |
| TeH^+ | 312 |
| H_2Te^+ | 312 |
| $C_2H_6Te^+$ | 313 |

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| $C_4H_4Te^+$ | 313 | $Cu_3I_2^+$ | 319 |
| $C_5H_6Te^+$ | 313 | $Cu_2I_3^+$ | 319 |
| $C_5H_4OTe^+$ | 313 | $Cu_3I_3^+$ | 319 |
| $C_6H_6OTe^+$ | 313 | $Cu_4I_3^+$ | 319 |
| $C_5H_4O_2Te^+$ | 313 | $Cu_4I_4^+$ | 320 |
| $C_6H_6O_2Te^+$ | 313 | ZnI_2 | 320 |
| TeP^+ | 313 | ZnI_2^+ | 320 |
| $C_5H_6STe^+$ | 313 | GeH_3I^+ | 320 |
| $Ge_2H_6Te^+$ | 313 | $GeH_2I_2^+$ | 320 |
| I^+ | 314 | IBr^+ | 320 |
| I_2^+ | 314 | RbI^+ | 320 |
| I_2^{+2} | 314 | Rb_2I^+ | 321 |
| CH_3I^+ | 314 | AgI^+ | 321 |
| C_2HI^+ | 314 | CdI_2^+ | 321 |
| $C_2H_3I^+$ | 314 | InI^+ | 321 |
| $C_2H_5I^+$ | 314 | Xe^+ | 321 |
| $C_3H_5I^+$ | 315 | $XeOF_4^+$ | 321 |
| $C_3H_7I^+$ | 315 | Cs^+ | 322 |
| $C_4H_9I^+$ | 315 | Cs^{+3} | 322 |
| $C_5H_{11}I^+$ | 316 | Cs^{+4} | 322 |
| $C_6H_{13}I^+$ | 316 | Cs^{+5} | 322 |
| $C_7H_{17}I^+$ | 316 | Cs^{+6} | 322 |
| $C_{12}H_9I^+$ | 316 | Cs^{+7} | 322 |
| $C_2H_2I_2^+$ | 316 | Cs^{+8} | 322 |
| $C_6H_6NI^+$ | 316 | Cs^{+9} | 322 |
| $C_{25}H_{25}N_2I^+$ | 317 | Cs^{+10} | 322 |
| $C_{29}H_{35}N_2I^+$ | 317 | Cs_2^+ | 322 |
| $C_4H_{12}BN_2I^+$ | 317 | $Cs_2NO_3^+$ | 322 |
| $C_2H_6BNI_2^+$ | 317 | CsF^+ | 322 |
| $C_2H_5OI^+$ | 317 | $CsCl^+$ | 322 |
| $C_3H_7OI^+$ | 317 | $CsBr^+$ | 323 |
| $C_6H_5OI^+$ | 317 | CsI^+ | 323 |
| $C_2H_3O_2I^+$ | 317 | Ba^+ | 323 |
| $C_8H_7O_2I^+$ | 317 | Ba^{+2} | 323 |
| $C_6H_4OI_2^+$ | 317 | Ba^{+3} | 323 |
| $C_8H_6O_2I_2^+$ | 317 | Ba^{+4} | 323 |
| $C_8H_8NOI^+$ | 318 | Ba^{+5} | 323 |
| IF_5^+ | 318 | Ba^{+6} | 323 |
| NaI^+ | 318 | Ba^{+7} | 323 |
| MgI_2^+ | 318 | Ba^{+8} | 323 |
| SiH_3I^+ | 318 | Ba^{+9} | 323 |
| $SiH_2I_2^+$ | 318 | Ba^{+10} | 323 |
| $C_3H_3SiI^+$ | 318 | BaO^+ | 323 |
| PI_3^+ | 318 | La^+ | 323 |
| PF_2I^+ | 319 | LaC^+ | 324 |
| $C_4H_2SI_2^+$ | 319 | LaC_2^+ | 324 |
| ICl^+ | 319 | LaC_3^+ | 324 |
| $C_5O_5IMn^+$ | 319 | LaC_4^+ | 324 |
| CuI^+ | 319 | LaF^+ | 324 |
| Cu_2I^+ | 319 | LaF_2^+ | 324 |
| Cu_3I^+ | 319 | $La_2F_5^+$ | 324 |
| CuI_2^+ | 319 | $LaSe^+$ | 324 |
| $Cu_2I_2^+$ | 319 | $LaRh^+$ | 324 |

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| Ce ⁺ | 324 | EuI ⁺ | 328 |
| Ce ⁺² | 325 | EuI ₂ ⁺ | 328 |
| Ce ⁺³ | 325 | Gd ⁺ | 328 |
| Ce ⁺⁴ | 325 | Gd ⁺³ | 328 |
| Ce ₂ ⁺ | 325 | Gd ⁺⁴ | 328 |
| C ₂ Ce ⁺ | 325 | GdCl ⁺ | 328 |
| CeN ⁺ | 325 | GdCl ₂ ⁺ | 328 |
| CeO ⁺ | 325 | NaGdCl ₃ ⁺ | 329 |
| CeO ₂ ⁺ | 325 | GdI ⁺ | 329 |
| Ce ₂ O ₂ ⁺ | 325 | GdI ₂ ⁺ | 329 |
| CeF ⁺ | 325 | GdI ₃ ⁺ | 329 |
| CeF ₂ ⁺ | 325 | Tb ⁺ | 329 |
| CeF ₃ ⁺ | 325 | Tb ⁺³ | 329 |
| Ce ₂ F ₅ ⁺ | 326 | Tb ⁺⁴ | 329 |
| CSiCe ⁺ | 326 | TbI ⁺ | 329 |
| CeS ⁺ | 326 | TbI ₂ ⁺ | 329 |
| CeS ₂ ⁺ | 326 | TbI ₃ ⁺ | 329 |
| CePd ⁺ | 326 | Dy ⁺ | 329 |
| CeI ⁺ | 326 | Dy ⁺³ | 329 |
| CeI ⁺² | 326 | Dy ⁺⁴ | 329 |
| CeI ₂ ⁺ | 326 | DyI ⁺ | 329 |
| CeI ₃ ⁺ | 326 | DyI ₂ ⁺ | 329 |
| Pr ⁺ | 326 | DyI ₃ ⁺ | 329 |
| Pr ⁺³ | 326 | Ho ⁺ | 329 |
| Pr ⁺⁴ | 326 | Ho ⁺³ | 330 |
| Pr ⁺⁵ | 326 | Ho ⁺⁴ | 330 |
| PrI ⁺ | 326 | Ho ₂ ⁺ | 330 |
| PrI ₂ ⁺ | 326 | HoAg ⁺ | 330 |
| PrI ₃ ⁺ | 326 | HoI ⁺ | 330 |
| Nd ⁺ | 326 | HoI ₂ ⁺ | 330 |
| Nd ⁺³ | 327 | HoI ₃ ⁺ | 330 |
| Nd ⁺⁴ | 327 | Er ⁺ | 330 |
| NdCl ⁺ | 327 | Er ⁺³ | 330 |
| NdCl ₂ ⁺ | 327 | Er ⁺⁴ | 330 |
| NdCl ₃ ⁺ | 327 | ErI ⁺ | 330 |
| NdBr ₂ ⁺ | 327 | ErI ₂ ⁺ | 330 |
| NdI ⁺ | 327 | ErI ₃ ⁺ | 330 |
| NdI ₂ ⁺ | 327 | Tm ⁺ | 330 |
| NdI ₃ ⁺ | 327 | Tm ⁺³ | 330 |
| Pm ⁺³ | 327 | Tm ⁺⁴ | 331 |
| Pm ⁺⁴ | 327 | TmBr ₂ ⁺ | 331 |
| Sm ⁺ | 327 | TmBr ₃ ⁺ | 331 |
| Sm ⁺³ | 327 | Yb ⁺ | 331 |
| Sm ⁺⁴ | 327 | Yb ⁺² | 331 |
| SmI ⁺ | 327 | Yb ⁺³ | 331 |
| SmI ₂ ⁺ | 328 | Yb ⁺⁴ | 331 |
| Eu ⁺ | 328 | Yb ₂ ⁺ | 331 |
| Eu ⁺³ | 328 | YbCl ⁺ | 331 |
| Eu ⁺⁴ | 328 | YbCl ₂ ⁺ | 331 |
| Eu ₂ ⁺ | 328 | YbBr ⁺ | 331 |
| EuC ₂ ⁺ | 328 | YbBr ₂ ⁺ | 331 |
| EuCN ⁺ | 328 | Lu ⁺ | 331 |
| EuAg ⁺ | 328 | Lu ⁺⁴ | 331 |

| | | | |
|---|-----|---|-----|
| LuC ₂ ⁺ | 331 | C ₅ H ₃ O ₃ SiRe ⁺ | 335 |
| LuC ₄ ⁺ | 332 | ReCl ₄ ⁺ | 335 |
| Hf ⁺⁴ | 332 | ReO ₂ Cl ⁺ | 335 |
| Ta ⁺⁵ | 332 | ReOCl ₃ ⁺ | 335 |
| TaF ₃ ⁺ | 332 | ReOCl ₄ ⁺ | 335 |
| TaF ₄ ⁺ | 332 | C ₅ H ₃ O ₃ GeRe ⁺ | 335 |
| Ta ₂ F ₉ ⁺ | 332 | ReO ₃ I ⁺ | 335 |
| Ta ₃ F ₁₄ ⁺ | 332 | BaReO ₄ ⁺ | 335 |
| TaCl ₂ ⁺ | 332 | C ₁₂ H ₁₄ Os ⁺ | 335 |
| TaCl ₃ ⁺ | 332 | OsO ₄ ⁺ | 336 |
| TaCl ₄ ⁺ | 332 | OsOCl ₃ ⁺ | 336 |
| C ₆ H ₁₈ W ⁺ | 332 | OsOCl ₄ ⁺ | 336 |
| C ₆ O ₆ W ⁺ | 332 | C ₇ H ₇ O ₄ Ir ⁺ | 336 |
| C ₁₀ H ₅ NO ₅ W ⁺ | 332 | C ₇ HO ₄ F ₆ Ir ⁺ | 336 |
| C ₁₁ H ₇ NO ₅ W ⁺ | 332 | Au ⁺ | 336 |
| C ₁₂ H ₉ NO ₅ W ⁺ | 332 | Au ₂ ⁺ | 336 |
| C ₁₁ H ₄ N ₂ O ₅ W ⁺ | 332 | AuB ⁺ | 336 |
| C ₁₂ H ₃₆ N ₆ P ₂ W ⁺ | 333 | AuBO ⁺ | 336 |
| C ₁₄ H ₃₆ N ₆ O ₂ P ₂ W ⁺ | 333 | AuAl ⁺ | 336 |
| C ₁₅ H ₃₆ N ₆ O ₃ P ₂ W ⁺ | 333 | AuAl ₂ ⁺ | 337 |
| C ₁₆ H ₃₆ N ₆ O ₄ P ₂ W ⁺ | 333 | Au ₂ Al ⁺ | 337 |
| WCl ⁺ | 333 | AuGe ⁺ | 337 |
| WCl ₂ ⁺ | 333 | AuCe ⁺ | 337 |
| WCl ₃ ⁺ | 333 | AuHo ⁺ | 337 |
| WCl ₄ ⁺ | 333 | Hg ⁺ | 337 |
| WCl ₅ ⁺ | 333 | C ₁₂ H ₁₀ Hg | 337 |
| WCl ₆ ⁺ | 333 | HgCl ₂ ⁺ | 337 |
| WOCl ₃ ⁺ | 333 | C ₃ H ₅ ClHg ⁺ | 337 |
| WOCl ₄ ⁺ | 333 | Tl ⁺ | 337 |
| WS ₂ Cl ⁺ | 333 | Tl ⁺³ | 338 |
| WS ₂ Cl ₂ ⁺ | 333 | Tl ₂ ⁺ | 338 |
| WSCI ₃ ⁺ | 333 | TlO ⁺ | 338 |
| WSCI ₄ ⁺ | 333 | Tl ₂ O ⁺ | 338 |
| WOSCl ⁺ | 334 | TlBO ⁺ | 338 |
| WOSCl ₂ ⁺ | 334 | TlBO ₂ ⁺ | 338 |
| WBr ₂ ⁺ | 334 | Tl ₂ BO ₂ ⁺ | 338 |
| WBr ₃ ⁺ | 334 | TlF ⁺ | 338 |
| WOB ⁺ | 334 | Tl ₂ F ⁺ | 338 |
| WO ₂ Br ⁺ | 334 | Tl ₂ F ₂ ⁺ | 338 |
| WOB ₂ ⁺ | 334 | TlCl ⁺ | 338 |
| WO ₂ Br ₂ ⁺ | 334 | TlAs ⁺ | 339 |
| WOB ₃ ⁺ | 334 | TlBr ⁺ | 339 |
| WOB ₄ ⁺ | 334 | TlI ⁺ | 339 |
| WO ₂ I ⁺ | 334 | Pb ⁺⁴ | 339 |
| WO ₂ I ₂ ⁺ | 334 | C ₃ H ₉ Pb ⁺ | 339 |
| ReO ⁺ | 334 | C ₄ H ₁₂ Pb ⁺ | 339 |
| ReO ₂ ⁺ | 334 | C ₇ H ₁₈ Pb ⁺ | 339 |
| ReO ₃ ⁺ | 335 | C ₆ H ₁₈ Pb ₂ ⁺ | 339 |
| Re ₂ O ₅ ⁺ | 335 | C ₁₆ H ₄₄ Si ₄ Pb ⁺ | 339 |
| Re ₂ O ₆ ⁺ | 335 | PbCl ₂ ⁺ | 340 |
| Re ₂ O ₇ ⁺ | 335 | PbI ₂ ⁺ | 340 |
| C ₅ HO ₅ Re ⁺ | 335 | Bi ₃ ⁺ | 340 |
| ReF ₆ ⁺ | 335 | Bi ₄ ⁺ | 340 |

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|--|-----|
| BiF₃⁺ | 340 |
| BiF₄⁺ | 340 |
| Bi₂F₉⁺ | 340 |
| GaBi⁺ | 340 |
| BiTl⁺ | 340 |
| Ac⁺ | 340 |
| Th⁺ | 340 |
| ThO⁺ | 340 |
| ThO₂⁺ | 340 |
| ThCl₄⁺ | 340 |
| ThPt⁺ | 340 |
| Pa⁺ | 340 |
| U⁺ | 341 |
| U⁺² | 341 |
| UO⁺ | 341 |
| UO₂⁺ | 341 |

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|--|-----|
| UO₃⁺ | 341 |
| US⁺ | 341 |
| UOS⁺ | 341 |
| UCl₃⁺ | 341 |
| UCl₄⁺ | 341 |
| Np⁺ | 341 |
| Pu⁺ | 341 |
| Am⁺ | 342 |
| Cm⁺ | 342 |
| Bk⁺ | 342 |
| Cf⁺ | 342 |
| Es⁺ | 342 |
| Fm⁺ | 342 |
| Md⁺ | 342 |
| No⁺ | 342 |

Table of Ion Energetics Measurements

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|---|---|----------------------|---|--------|------|
| H ⁺ | H ₂ (² Σ _g ⁺) (RN-CAS Registry Number 1333-74-0) | H | 18.0±0.2 | EI | 3799 |
| H ⁺ | CH ₄ (RN-CAS Registry Number 74-82-8) | | 24.0±0.5 | EI | 3521 |
| (AD- 1.8-3.2 eV average translational energy of decomposition at threshold) | | | | | |
| H ⁺ | H ₂ O (RN-CAS Registry Number 7732-18-5) | OH(X ² Π) | 18.7±0.05 | EI | 3906 |
| (ZK-Threshold value for zero kinetic energy ions) | | | | | |
| H ⁺ | HCHO (RN-CAS Registry Number 50-00-0) | HCO | 17.41±0.07 | PI | 3554 |
| (TR-Other product(s) thermochemically reasonable) | | | | | |
| H ⁺ | HF (RN-CAS Registry Number 7664-39-3) | F | 19.444 | PI | 3928 |
| (TV-Threshold value approximately corrected to 0°K) | | | | | |
| D ⁺ | D ₂ O (RN-CAS Registry Number 7789-20-0) | OD(X ² Π) | 18.7±0.05 | EI | 3906 |
| (ZK-Threshold value for zero kinetic energy ions) | | | | | |
| H ₂ ⁺ | H ₂ (RN-CAS Registry Number 1333-74-0) | ** | 15.42589±0.00005 S | | 3770 |
| H ₂ ⁺ | H ₂ (RN-CAS Registry Number 1333-74-0) | ** | 15.38186±0.00031 PE | | 3531 |
| (Rotational transitions resolved) | | | | | |
| H ₂ ⁺ | HCHO (RN-CAS Registry Number 50-00-0) | CO | 15.42±0.06 | PI | 3554 |
| (TR-Other product(s) thermochemically reasonable) | | | | | |
| HD ⁺ | HD (RN-CAS Registry Number 13983-20-5) | ** | 15.44477±0.00007 S | | 3763 |
| H ₃ ⁺ | C ₂ H ₆ (RN-CAS Registry Number 74-84-0) | | 32.2±1 | EI | 3904 |
| (AD-3.93 eV average translational energy of decomposition at threshold) | | | | | |
| H ₃ ⁺ | C ₃ H ₈ (RN-CAS Registry Number 74-98-6) | | 31.6±1 | EI | 3904 |
| (AD-3.46 eV average translational energy of decomposition at threshold) | | | | | |
| H ₃ ⁺ | n-C ₄ H ₁₀ (RN-CAS Registry Number 106-97-8) | | 30.5±1 | EI | 3904 |
| (AD-3.03 eV average translational energy of decomposition at threshold) | | | | | |
| Li ⁺ | LiF (RN-CAS Registry Number 7789-24-4) | | ~12 | EI | 3464 |
| Li ₂ ⁺ | Li ₂ (RN-CAS Registry Number 14452-59-6) | ** | 4.96±0.1 | S | 3768 |
| B ⁺ | B (RN-CAS Registry Number 24389-64-8) | ** | 8.6±0.4 | EI | 3468 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|--------------------------|---|------------------------|---|--------|------|
| BH_2^+ | $\text{BH}_3?$ (RN-CAS Registry Number 13283-31-3) | H? | 11-12 | EI | 3441 |
| BH_3^+ | BH_3 (RN-CAS Registry Number 13283-31-3) | ** | 11-12 | EI | 3441 |
| B_3H_5^+ | B_3H_7 (RN-CAS Registry Number 12429-70-8) | | 11.5 ± 0.3 | EI | 3652 |
| B_3H_6^+ | B_3H_7 (RN-CAS Registry Number 12429-70-8) | H | 11.2 ± 0.3 | EI | 3652 |
| B_4H_8^+ | B_4H_8 (RN-CAS Registry Number 12007-71-5) | ** | 10.9 ± 0.3 | EI | 3652 |
| B_5H_8^+ | B_5H_9 (RN-CAS Registry Number 19624-22-7) | H | 11.84 ± 0.01 | RPD | 3547 |
| B_5H_8^+ | $1\text{-B}_5\text{H}_8\text{CH}_3$ (RN-CAS Registry Number 19495-55-7) | CH_3 | 10.45 ± 0.02 | RPD | 3547 |
| B_5H_8^+ | $2\text{-B}_5\text{H}_8\text{CH}_3$ (RN-CAS Registry Number 23753-74-4) | CH_3 | 10.61 ± 0.05 | RPD | 3547 |
| B_5H_8^+ | $1\text{-B}_5\text{H}_8\text{C}_2\text{H}_5$ (RN-CAS Registry Number 23753-61-9) | C_2H_5 | 10.33 ± 0.05 | RPD | 3547 |
| B_5H_8^+ | $2\text{-B}_5\text{H}_8\text{C}_2\text{H}_5$ (RN-CAS Registry Number 23753-62-0) | C_2H_5 | 10.31 ± 0.01 | RPD | 3547 |
| B_5H_8^+ | $1\text{-B}_5\text{H}_8\text{C}_3\text{H}_7$ (RN-CAS Registry Number 34692-67-6) | C_3H_7 | 10.98 ± 0.01 | RPD | 3547 |
| B_5H_8^+ | $1\text{-B}_5\text{H}_8\text{Cl}$ (RN-CAS Registry Number 19469-13-7) | Cl | 11.75 ± 0.05 | RPD | 3547 |
| B_5H_8^+ | $2\text{-B}_5\text{H}_8\text{Cl}$ (RN-CAS Registry Number 19469-14-8) | Cl | 12.20 ± 0.10 | RPD | 3547 |
| B_5H_8^+ | $1\text{-B}_5\text{H}_8\text{Br}$ (RN-CAS Registry Number 23753-67-5) | Br | 11.38 ± 0.05 | RPD | 3547 |
| B_5H_8^+ | $2\text{-B}_5\text{H}_8\text{Br}$ (RN-CAS Registry Number 23753-64-2) | Br | 11.75 ± 0.05 | RPD | 3547 |
| B_5H_8^+ | $1\text{-B}_5\text{H}_8\text{I}$ (RN-CAS Registry Number 30624-33-0) | I | 10.70 ± 0.05 | RPD | 3547 |
| B_5H_8^+ | $2\text{-B}_5\text{H}_8\text{I}$ (RN-CAS Registry Number 20199-87-5) | I | 10.72 ± 0.05 | RPD | 3547 |
| B_5H_9^+ | B_5H_9 (RN-CAS Registry Number 19624-22-7) | ** | 9.90 | PE | 3869 |
| C^+ | C (RN-CAS Registry Number 7440-44-0) | ** | 10.5 ± 1.0 | EI | 3597 |
| C^+ | C (RN-CAS Registry Number 7440-44-0) | ** | 10.8 ± 0.4 | EI | 3902 |
| C^+ | C (RN-CAS Registry Number 7440-44-0) | ** | 11.4 ± 1.5 | EI | 3978 |
| C^+ | CH_4 (RN-CAS Registry Number 74-82-8) | | <25.2 | DC | 3813 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|---------------|---|----------------|---|--------|------|
| $C^{+2}(^3P)$ | C^+ (RN-CAS Registry Number 14067-05-1) | ** | 31.0 | SEQ | 3489 |
| $C^{+2}(^1P)$ | C^+ (RN-CAS Registry Number 14067-05-1) | ** | 37.3 | SEQ | 3489 |
| C^{+3} | C^+ (RN-CAS Registry Number 14067-05-1) | ** | 75 | SEQ | 3489 |
| $C^{+3}(^2P)$ | $C^{+2}(^3P^0)$ (RN-CAS Registry Number 16092-61-8) | ** | 49.5 | SEQ | 3489 |
| $C^{+3}(^2P)$ | C^{+2} (RN-CAS Registry Number 16092-61-8) | ** | 55.5 | SEQ | 3489 |
| C_2^+ | C_2 (RN-CAS Registry Number 12070-15-4) | ** | 11.1 ± 1.0 | EI | 3597 |
| C_3^+ | C_3 (RN-CAS Registry Number 12075-35-3) | ** | 12.1 ± 0.2 | EI | 3601 |
| CH^+ | CH_4 (RN-CAS Registry Number 74-82-8) | $H_2 + H?$ | 22.4 | DC | 3813 |
| CH_2^+ | CH_4 (RN-CAS Registry Number 74-82-8) | H_2 | 15.3 | DC | 3813 |
| CH_2^+ | CH_3OH (RN-CAS Registry Number 67-56-1) | H_2O | 14.05 ± 0.05 | PI | 3554 |
| | (TR—Other product(s) thermochemically reasonable) | | | | |
| CH_2^+ | $CH_2=CF_2$ (RN-CAS Registry Number 75-38-7) | CF_2 | 16.99 ± 0.02 | PI | 3930 |
| CH_2^+ | $CH_2=CF_2$ (RN-CAS Registry Number 75-38-7) | CF_2 | 17.2 ± 0.1 | EI | 3539 |
| CH_3^+ | CH_3 (RN-CAS Registry Number 2229-07-4) | ** | 9.81 ± 0.02 | PE | 3717 |
| (RD—Radical) | | | | | |
| CH_3^+ | CH_3 (RN-CAS Registry Number 2229-07-4) | ** | 9.837 ± 0.005 | PE | 3942 |
| (RD—Radical) | | | | | |
| CH_3^+ | CH_3 (RN-CAS Registry Number 2229-07-4) | ** | 9.86 ± 0.04 (V) | PE | 3695 |
| (RD—Radical) | | | | | |
| CH_3^+ | CH_3 (RN-CAS Registry Number 2229-07-4) | ** | 9.86 ± 0.04 | PE | 3700 |
| (RD—Radical) | | | | | |
| CH_3^+ | CH_4 (RN-CAS Registry Number 74-82-8) | H | 14.4 | DC | 3813 |
| CH_3^+ | $CH_3C \equiv CH$ (RN-CAS Registry Number 74-99-7) | C_2H | 14.6 ± 0.1 | EI | 3769 |
| | (TR—Other product(s) thermochemically reasonable) | | | | |
| CH_3^+ | $CH_3C \equiv CH$ (RN-CAS Registry Number 74-99-7) | C_2H | 16.0 | EI | 3808 |
| | (AD—0.16 eV average translational energy of decomposition at threshold) | | | | |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|------------------------------|--|--|---|--------|------|
| CH ₃ ⁺ | C ₃ H ₈ (RN-CAS Registry Number 74-98-6) | C ₂ H ₅ ⁺ | 30.2±1 | EI | 3904 |
| | (AD-2.7 eV average translational energy of decomposition at threshold) | | | | |
| CH ₃ ⁺ | C ₂ H ₅ C≡CH (RN-CAS Registry Number 107-00-6) | C ₃ H ₃ | 15.1 | EI | 3808 |
| | (AD-0.19 eV average translational energy of decomposition at threshold) | | | | |
| CH ₃ ⁺ | (CH ₃) ₂ C=CH ₂ (RN-CAS Registry Number 115-11-7) | C ₃ H ₅ | 16.4 | EI | 3808 |
| | (AD-0.20 eV average translational energy of decomposition at threshold) | | | | |
| CH ₃ ⁺ | 1-C ₄ H ₈ (RN-CAS Registry Number 106-98-9) | C ₃ H ₅ | 14.1 | EI | 3808 |
| | (AD-0.09 eV average translational energy of decomposition at threshold) | | | | |
| CH ₃ ⁺ | (CH ₃) ₃ CC≡CH (RN-CAS Registry Number 917-92-0) | C ₅ H ₇ | 14.7 | EI | 3808 |
| | (AD-0.11 eV average translational energy of decomposition at threshold) | | | | |
| CH ₃ ⁺ | (CH ₃) ₃ CCH=CH ₂ (RN-CAS Registry Number 558-37-2) | C ₅ H ₉ | 15.4 | EI | 3808 |
| | (AD-0.13 eV average translational energy of decomposition at threshold) | | | | |
| CH ₃ ⁺ | CH ₃ NH ₂ (RN-CAS Registry Number 74-89-5) | NH ₂ | 14.5 | EI | 3808 |
| CH ₃ ⁺ | C ₂ H ₅ NH ₂ (RN-CAS Registry Number 75-04-7) | CH ₂ NH ₂ | 15.6 | EI | 3808 |
| | (AD-0.19 eV average translational energy of decomposition at threshold) | | | | |
| CH ₃ ⁺ | (CH ₃) ₂ NH (RN-CAS Registry Number 124-40-3) | CH ₃ NH | 14.8 | EI | 3808 |
| | (AD-0.13 eV average translational energy of decomposition at threshold) | | | | |
| CH ₃ ⁺ | (CH ₃) ₃ N (RN-CAS Registry Number 75-50-3) | (CH ₃) ₂ N | 14.9 | EI | 3808 |
| | (AD-0.11 eV average translational energy of decomposition at threshold) | | | | |
| CH ₃ ⁺ | (C ₂ H ₅) ₂ NH (RN-CAS Registry Number 109-89-7) | C ₂ H ₅ NHCH ₂ | 15.4 | EI | 3808 |
| | (AD-0.09 eV average translational energy of decomposition at threshold) | | | | |
| CH ₃ ⁺ | (C ₂ H ₅) ₃ N (RN-CAS Registry Number 121-44-8) | (C ₂ H ₅) ₂ NCH ₂ | 16.7 | EI | 3808 |
| | (AD-0.13 eV average translational energy of decomposition at threshold) | | | | |
| CH ₃ ⁺ | CH ₃ OH (RN-CAS Registry Number 67-56-1) | OH | 13.82±0.04 | PI | 3554 |
| | (TR-Other product(s) thermochemically reasonable) | | | | |
| CH ₃ ⁺ | (CH ₃) ₂ CO (RN-CAS Registry Number 67-64-1) | | 15.2 | EI | 3550 |
| CH ₃ ⁺ | (CH ₂ NF ₂)CH ₂ (RN-CAS Registry Number 21298-22-6) | | 14.6±0.3 | EI | 3634 |
| CH ₃ ⁺ | CH ₂ (NF ₂)CH(NF ₂)CH ₃ (RN-CAS Registry Number 15403-25-5) | | 16.4±0.4 | EI | 3634 |
| CH ₃ ⁺ | (CH ₃) ₂ C(NF ₂) ₂ (RN-CAS Registry Number 19309-63-8) | | 14.7±0.2 | EI | 3634 |
| CH ₃ ⁺ | (CH ₃ O) ₃ PO (RN-CAS Registry Number 512-56-1) | | 17.90±0.40 | EI | 3989 |
| CH ₃ ⁺ | (CH ₃ O) ₂ P(CH ₃ S)O (RN-CAS Registry Number 152-20-5) | | 15.20±0.30 | EI | 3989 |
| CH ₃ ⁺ | (CH ₃ O) ₂ P(CH ₃ S)S (RN-CAS Registry Number 2953-29-9) | | 14.50±0.40 | EI | 3989 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|--|---|------------------|---|--------|------|
| CH ₃ ⁺ | CH ₃ I (RN-CAS Registry Number 74-88-4) | I | 12.260±0.013 | PI | 3524 |
| | (TR-Other product(s) thermochemically reasonable) | | | | |
| CH ₃ ⁺ | CH ₃ I (RN-CAS Registry Number 74-88-4) | I | 12.07±0.07 | EDD | 3626 |
| CH ₄ ⁺ (² B ₂) | CH ₄ (RN-CAS Registry Number 74-82-8) | ** | 12.51 | PE | 3645 |
| CH ₄ ⁺ (² B ₂) | CH ₄ (RN-CAS Registry Number 74-82-8) | ** | ~12.51 | PE | 3529 |
| CH ₄ ⁺ (² B ₂) | CH ₄ (RN-CAS Registry Number 74-82-8) | ** | 12.64 | PE | 3716 |
| CH ₄ ⁺ (² A ₁) | CH ₄ (RN-CAS Registry Number 74-82-8) | ** | 22.39 | PE | 3716 |
| CH ₄ ⁺ | CH ₄ (RN-CAS Registry Number 74-82-8) | ** | 12.8 | DC | 3813 |
| C ₂ H ⁺ | C ₂ H (RN-CAS Registry Number 2122-48-7) | ** | 11.6±0.5 | EI | 3601 |
| | (RD-Radical) | | | | |
| C ₂ H ⁺ | C ₂ H (RN-CAS Registry Number 2122-48-7) | ** | 11.96±0.05 | D | 3931 |
| | (RD-Radical) | | | | |
| C ₂ H ⁺ | C ₂ H (RN-CAS Registry Number 2122-48-7) | ** | 11.96±0.05 | D | 3929 |
| | (RD-Radical) | | | | |
| C ₂ H ⁺ | C ₂ H ₂ (RN-CAS Registry Number 74-86-2) | H | 17.36±0.01 | PI | 3931 |
| | (TV-Threshold value approximately corrected to 0°K) | | | | |
| C ₂ H ⁺ | CH≡CCN (RN-CAS Registry Number 1070-71-9) | CN | 18.19±0.04 | PI | 3929 |
| C ₂ H ⁺ | CHF ₂ C≡CH (RN-CAS Registry Number 18371-25-0) | CHF ₂ | 16.19±0.02 | EI | 3769 |
| | (TR-Other product(s) thermochemically reasonable) | | | | |
| C ₂ D ⁺ | C ₂ D ₂ (RN-CAS Registry Number 1070-74-2) | D | 17.44±0.01 | PI | 3931 |
| | (TV-Threshold value approximately corrected to 0°K) | | | | |
| C ₂ H ₂ ⁺ (² Π _u) | C ₂ H ₂ (RN-CAS-Registry Number 74-86-2) | ** | 11.394±0.005 | PI | 4069 |
| C ₂ H ₂ ⁺ (² Π _u) | C ₂ H ₂ (RN-CAS Registry Number 74-86-2) | ** | 11.398±0.005 | PI | 3921 |
| C ₂ H ₂ ⁺ | C ₂ H ₂ (RN-CAS Registry Number 74-86-2) | ** | 11.40 | PE | 4048 |
| C ₂ H ₂ ⁺ | CH ₃ C≡CH (RN-CAS Registry Number 74-99-7) | CH ₂ | 15.2±0.1 | EI | 3769 |
| | (TR-Other product(s) thermochemically reasonable) | | | | |
| C ₂ H ₂ ⁺ | C ₂ H ₃ F (RN-CAS Registry Number 75-02-5) | HF | 13.51±0.02 | PI | 3930 |
| | (TR-Other product(s) thermochemically reasonable) | | | | |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|---|--|-------------------|---|--------|------|
| $C_2H_2^+$ | CH ₂ =CF ₂ (RN-CAS Registry Number 75-38-7) | 2F | 19.08±0.03 | PI | 3930 |
| $C_2H_2^+$ | C ₂ H ₃ Cl (RN-CAS Registry Number 75-01-4) | HCl | 12.47±0.1 | PI | 3930 |
| (TR—Other product(s) thermochemically reasonable) | | | | | |
| $C_2D_2(^2\Pi_u)$ | C ₂ D ₂ (RN-CAS Registry Number 1070-74-2) | ** | 11.404±0.005 | PI | 3921 |
| $C_2D_2^+$ | C ₂ D ₆ (RN-CAS Registry Number 1632-99-1) | 2D ₂ | 14.8 | TPE | 3919 |
| $C_2H_3^+$ | C ₂ H ₃ (RN-CAS Registry Number 2669-89-8) | ** | 8.7±0.1 | D | 3930 |
| (RD—Radical) | | | | | |
| $C_2H_3^+$ | C ₂ H ₃ F (RN-CAS Registry Number 75-02-5) | F | 13.84±0.04 | PI | 3930 |
| $C_2H_3^+$ | C ₂ H ₃ Cl (RN-CAS Registry Number 75-01-4) | Cl | 12.48±0.04 | PI | 3930 |
| (TR—Other product(s) thermochemically reasonable) | | | | | |
| $C_2D_3^+$ | C ₂ D ₆ (RN-CAS Registry Number 1632-99-1) | D ₂ +D | 14.8 | TPE | 3919 |
| $C_2H_4(^2B_{2u})$ | C ₂ H ₄ (RN-CAS Registry Number 74-85-1) | ** | 10.51 | PE | 3649 |
| $C_2H_4^+$ | C ₂ H ₄ (RN-CAS Registry Number 74-85-1) | ** | 10.51 | PE | 3739 |
| $C_2H_4^+$ | C ₂ H ₄ (RN-CAS Registry Number 74-85-1) | ** | 10.51 | PE | 3847 |
| $C_2H_4^+$ | C ₂ H ₄ (RN-CAS Registry Number 74-85-1) | ** | 10.515±0.003 | PE | 3957 |
| $C_2H_4^+$ | C ₂ H ₄ (RN-CAS Registry Number 74-85-1) | ** | 10.56 | PE | 3533 |
| $C_2H_4^*$ | C ₂ H ₄ (RN-CAS Registry Number 74-85-1) | ** | 12.38 | PE | 3739 |
| $C_2H_4(^2B_{2g})$ | C ₂ H ₄ (RN-CAS Registry Number 74-85-1) | ** | 12.45 | PE | 3649 |
| $C_2H_4^*$ | C ₂ H ₄ (RN-CAS Registry Number 74-85-1) | ** | 12.56 | PE | 3533 |
| $C_2H_4^*$ | C ₂ H ₄ (RN-CAS Registry Number 74-85-1) | ** | 14.4 | PE | 3739 |
| $C_2H_4(^2A_g)$ | C ₂ H ₄ (RN-CAS Registry Number 74-85-1) | ** | 14.43 | PE | 3649 |
| $C_2H_4^*$ | C ₂ H ₄ (RN-CAS Registry Number 74-85-1) | ** | 14.46 | PE | 3533 |
| $C_2H_4(^2B_{1u})$ | C ₂ H ₄ (RN-CAS Registry Number 74-85-1) | ** | 15.74 | PE | 3649 |
| $C_2H_4^*$ | C ₂ H ₄ (RN-CAS Registry Number 74-85-1) | ** | 15.96 | PE | 3533 |
| $C_2H_4(^2B_{3u})$ | C ₂ H ₄ (RN-CAS Registry Number 74-85-1) | ** | ~18.8 | PE | 3649 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|--------------------------|---|--------------------|---|--------|------|
| $C_2H_4^+$ * | C_2H_4 (RN-CAS Registry Number 74-85-1) | ** | 18.91 | PE | 3533 |
| $C_2H_4^+(\text{}^2A_g)$ | C_2H_4 (RN-CAS Registry Number 74-85-1) | ** | ~22.8 | PE | 3649 |
| $C_2H_4^+$ | C_3H_8 (RN-CAS Registry Number 74-98-6) | CH_4 | 11.55 | EI | 3488 |
| | (PC—Appearance potential of the corresponding metastable transition) | | | | |
| $C_2H_4^+$ | C_3H_8 (RN-CAS Registry Number 74-98-6) | CH_4 | 11.9 | EI | 3488 |
| | (MT—Metastable transition(s) observed) | | | | |
| $C_2H_5^+$ | C_2H_5Br (RN-CAS Registry Number 74-96-4) | Br | 10.72 ± 0.08 | EDD | 3626 |
| $C_2H_6^+$ | C_2H_6 (RN-CAS Registry Number 74-84-0) | ** | 11.76 ± 0.05 | DC | 3791 |
| $C_2H_6^+$ | $(CH_3)_2C(NF_2)_2$ (RN-CAS Registry Number 19309-63-8) | $NF_3 + CNF?$ | 13.1 ± 0.2 | EI | 3634 |
| C_3H^+ | $CH_3C \equiv CH$ (RN-CAS Registry Number 74-99-7) | $H_2 + H$ | 14.0 ± 0.1 | EI | 3769 |
| $C_3H_2^+$ | $CH_3C \equiv CH$ (RN-CAS Registry Number 74-99-7) | H_2 | 13.8 ± 0.1 | EI | 3769 |
| $C_3H_3^+$ | $CH_3C \equiv CH$ (RN-CAS Registry Number 74-99-7) | H | 11.9 ± 0.1 | EI | 3769 |
| | (TR—Other product(s) thermochemically reasonable) | | | | |
| $C_3H_3^+$ | $C_2H_5C \equiv CH$ (RN-CAS Registry Number 107-00-6) | CH_3 | 11.7 | EI | 3808 |
| | (AD—0.06 eV average translational energy of decomposition at threshold) | | | | |
| $C_3H_3^+$ | C_6H_6 (Benzene) (RN-CAS-Registry Number 71-43-2) | C_3H_3 | 13.79 | PI | 4075 |
| | (Corrected for kinetic shift) | | | | |
| $C_3H_3^+$ | $(CH_3)_2NCH=CHC \equiv CH$ (RN-CAS Registry Number 2206-24-8) | $C_2H_4 + HCN + H$ | 15.2 | EI | 3674 |
| | (TR—Other product(s) thermochemically reasonable) | | | | |
| $C_3H_3^+$ | $(C_2H_5)_2NCH=CHC \equiv CH$ (RN-CAS Registry Number 1809-53-6) | | 18.6 | EI | 3674 |
| | (TR—Other product(s) thermochemically reasonable) | | | | |
| | (OP—the other product(s) is(are): $2C_2H_2 + HCN + 3H_2$) | | | | |
| $C_3H_4^+$ | $CH_3C \equiv CH$ (RN-CAS Registry Number 74-99-7) | ** | 10.37 | PE | 4048 |
| $C_3H_4^+$ | $CH_3C \equiv CH$ (RN-CAS Registry Number 74-99-7) | ** | 10.5 ± 0.1 | EI | 3769 |
| | (TR—Other product(s) thermochemically reasonable) | | | | |
| $C_3H_4^+$ | $CH_2=C=CH_2$ (RN-CAS Registry Number 463-49-0) | ** | 10.017 ± 0.003 | S | 3774 |
| | (RS—Average of two Rydberg series limits) | | | | |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|-----------------|---|----------------|---|--------|------|
| $C_3H_4^+$ | $CH_2=C=CH_2$ (RN-CAS Registry Number 463-49-0) | ** | 10.07 (V) | PE | 4019 |
| $C_3H_4(^2B_2)$ | C_3H_4 (Cyclopropene) (RN-CAS Registry Number 2781-85-3) | ** | 9.67 | PE | 3727 |
| $C_3H_4(^2B_1)$ | C_3H_4 (Cyclopropene) (RN-CAS Registry Number 2781-85-3) | ** | 9.86 (V) | PE | 3505 |
| $C_3H_4(^2B_1)$ | C_3H_4 (Cyclopropene) (RN-CAS Registry Number 2781-85-3) | ** | 10.57 | PE | 3727 |
| $C_3H_4(^2B_2)$ | C_3H_4 (Cyclopropene) (RN-CAS Registry Number 2781-85-3) | ** | 11.02 (V) | PE | 3505 |
| $C_3H_4(^2A_1)$ | C_3H_4 (Cyclopropene) (RN-CAS Registry Number 2781-85-3) | ** | 12.38 | PE | 3727 |
| $C_3H_4(^2A_1)$ | C_3H_4 (Cyclopropene) (RN-CAS Registry Number 2781-85-3) | ** | 12.7 (V) | PE | 3505 |
| $C_3H_4(^2B_2)$ | C_3H_4 (Cyclopropene) (RN-CAS Registry Number 2781-85-3) | ** | 14.5 | PE | 3727 |
| $C_3H_4(^2A_1)$ | C_3H_4 (Cyclopropene) (RN-CAS Registry Number 2781-85-3) | ** | 16.2 | PE | 3727 |
| $C_3H_4(^2B_1)$ | C_3H_4 (Cyclopropene) (RN-CAS Registry Number 2781-85-3) | ** | 17.8 | PE | 3727 |
| $C_3H_4(^2A_1)$ | C_3H_4 (Cyclopropene) (RN-CAS Registry Number 2781-85-3) | ** | 19.2 | PE | 3727 |
| $C_3H_5^+$ | $(CH_3)_2C=CH_2$ (RN-CAS Registry Number 115-11-7) | CH_3 | 11.8 | EI | 3808 |
| | (AD-0.05 eV average translational energy of decomposition at threshold) | | | | |
| $C_3H_5^+$ | $1-C_4H_8$ (RN-CAS Registry Number 106-98-9) | CH_3 | 11.8 | EI | 3808 |
| | (AD-0.07 eV average translational energy of decomposition at threshold) | | | | |
| $C_3H_5^+$ | C_4H_8 (Cyclopropane, methyl-) (RN-CAS Registry Number 594-11-6) | CH_3 | 10.9 | SD | 3493 |
| $C_3H_5^+$ | $CH\equiv C(CH_2)_3CH_3$ (RN-CAS Registry Number 693-02-7) | | 14.09 ± 0.05 | EI | 3585 |
| $C_3H_5^+$ | $CH_3C\equiv CCH_2CH_2CH_3$ (RN-CAS Registry Number 764-35-2) | | 13.9 ± 0.01 | EI | 3585 |
| $C_3H_5^+$ | C_6H_{10} (Cyclohexene) (RN-CAS Registry Number 110-83-8) | | 13.68 ± 0.05 | EI | 3585 |
| $C_3H_5^+$ | $C_5H_8=CH_2$ (Cyclopentane, methylene-) (RN-CAS Registry Number 1528-30-9) | | 14.05 ± 0.05 | EI | 3585 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|------------|--|----------------|---|--------|------|
| $C_3H_5^+$ | $C_5H_7CH_3$ (Cyclopentene, 1-methyl-) (RN-CAS Registry Number 693-89-0) | | 14.90 ± 0.1 | EI | 3585 |
| $C_3H_5^+$ | $(C_2H_5)_2S$ (RN-CAS Registry Number 352-93-2) | $CH_3SH + H$ | 12.41 ± 0.05 | PI | 4025 |
| $C_3H_5^+$ | $C_3H_6S_2$ (1,3-Dithiolane) (RN-CAS Registry Number 4829-04-3) | S_2H | 10.8 ± 0.2 | EI | 3598 |
| $C_3H_5^+$ | $CH_2=CHCH_2CH_2Br$ (RN-CAS Registry Number 5162-44-7) | CH_2Br | 12.6 | EI | 3900 |
| $C_3H_5^+$ | $CH_2=CH(CH_2)_3Br$ (RN-CAS Registry Number 1119-51-3) | | 12.2 | EI | 3900 |
| $C_3H_5^+$ | $C_6H_{11}Br$ (Cyclohexane, bromo-) (RN-CAS Registry Number 108-85-0) | | 12.52 ± 0.05 | PI | 4078 |
| $C_3H_6^+$ | C_3H_6 (RN-CAS Registry Number 115-07-1) | ** | 9.72 | PE | 3864 |
| $C_3H_6^+$ | C_3H_6 (RN-CAS Registry Number 115-07-1) | ** | 9.74 | PE | 3533 |
| $C_3H_6^+$ | C_3H_6 (RN-CAS Registry Number 115-07-1) | ** | 9.744 ± 0.003 | PE | 3957 |
| $C_3H_6^+$ | C_3H_6 (RN-CAS Registry Number 115-07-1) | ** | 9.86 (V) | PE | 3950 |
| $C_3H_6^+$ | C_3H_6 (RN-CAS Registry Number 115-07-1) | ** | 9.9 (V) | PE | 3940 |
| $C_3H_6^+$ | $n-C_4H_{10}$ (RN-CAS Registry Number 106-97-8) | CH_4 | 11.06 | EI | 3538 |
| $C_3H_6^+$ | $n-C_4H_{10}$ (RN-CAS Registry Number 106-97-8) | CH_4 | 11.56 | EI | 3538 |
| | (PC—Appearance potential of the corresponding metastable transition) | | | | |
| $C_3H_6^+$ | $(CH_3)_2C=CHCH_2$ (RN-CAS Registry Number 513-35-9) | C_2H_4 | 11.70 ± 0.11 | EI | 3544 |
| | (TR—Other product(s) thermochemically reasonable) | | | | |
| $C_3H_6^+$ | $CH_3CH_2CH_2CH=CH_2$ (RN-CAS Registry Number 109-67-1) | C_2H_4 | 11.61 ± 0.08 | EI | 3544 |
| | (TR—Other product(s) thermochemically reasonable) | | | | |
| $C_3H_6^+$ | $(CH_3)_2CHCH=CH_2$ (RN-CAS Registry Number 563-45-1) | C_2H_4 | 11.54 ± 0.10 | EI | 3544 |
| | (TR—Other product(s) thermochemically reasonable) | | | | |
| $C_3H_6^+$ | $C_2H_5C(CH_3)=CH_2$ (RN-CAS Registry Number 563-46-2) | C_2H_4 | 11.66 ± 0.06 | EI | 3544 |
| | (TR—Other product(s) thermochemically reasonable) | | | | |
| $C_3H_6^+$ | <i>cis</i> - $C_2H_5CH=CHCH_3$ (RN-CAS Registry Number 627-20-3) | C_2H_4 | 11.54 ± 0.02 | EI | 3544 |
| | (TR—Other product(s) thermochemically reasonable) | | | | |
| $C_3H_6^+$ | <i>trans</i> - $C_2H_5CH=CHCH_3$ (RN-CAS Registry Number 646-04-8) | C_2H_4 | 11.73 ± 0.11 | EI | 3544 |
| | (TR—Other product(s) thermochemically reasonable) | | | | |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|------------|--|----------------|---|--------|------|
| $C_3H_6^+$ | C_5H_{10} (Cyclopentane) (RN-CAS Registry Number 287-92-3) (TR-Other product(s) thermochemically reasonable) | C_2H_4 | 11.74 ± 0.07 | EI | 3544 |
| $C_3H_6^+$ | C_6H_{12} (Cyclohexane) (RN-CAS Registry Number 110-82-7) | C_3H_6 | 11.23 ± 0.04 | PI | 4078 |
| $C_3H_6^+$ | $n-C_3H_7OH$ (RN-CAS Registry Number 71-23-8) | H_2O | 10.33 ± 0.03 | EDD | 3626 |
| $C_3H_6^+$ | $n-C_3H_7OH$ (RN-CAS Registry Number 71-23-8) | H_2O | 10.3 | EI | 3916 |
| $C_3H_6^+$ | C_4H_6O (Cyclobutanone) (RN-CAS Registry Number 1191-95-3) (TR-Other product(s) thermochemically reasonable) | CO | 9.85 ± 0.15 | EDD | 3794 |
| $C_3H_6^+$ | $iso-C_3H_7NO$ (RN-CAS Registry Number 920-40-1) | HNO | 10.8 ± 0.1 | EI | 3602 |
| $C_3H_6^+$ | $iso-C_3H_7NO$ (RN-CAS Registry Number 920-40-1) | | 10.8 ± 0.1 | EI | 3654 |
| $C_3H_7^+$ | $n-C_4H_{10}$ (RN-CAS Registry Number 106-97-8) (PC-Appearance potential of the corresponding metastable transition) | CH_3 | 11.09 | EI | 3538 |
| $C_3H_7^+$ | $n-C_4H_{10}$ (RN-CAS Registry Number 106-97-8) (MT-Metastable transition(s) observed) | CH_3 | 11.53 | EI | 3538 |
| $C_3H_7^+$ | C_6H_{12} (Cyclohexane) (RN-CAS Registry Number 110-82-7) | C_3H_5 | 11.49 ± 0.03 | PI | 4078 |
| $C_3H_7^+$ | $iso-C_3H_7Cl$ (RN-CAS Registry Number 75-29-6) | Cl? | $11.3 \pm < 0.1$ | EI | 3735 |
| $C_3H_7^+$ | $iso-C_3H_7Br$ (RN-CAS Registry Number 75-26-3) | Br? | $10.7 \pm < 0.1$ | EI | 3735 |
| $C_3H_7^+$ | $iso-C_3H_7I$ (RN-CAS Registry Number 75-30-9) | I? | $10.0 \pm < 0.1$ | EI | 3735 |
| $C_3H_8^+$ | C_3H_8 (RN-CAS Registry Number 74-98-6) | ** | 11.5 (V) | PE | 3710 |
| $C_3H_8^+$ | C_3H_8 (RN-CAS Registry Number 74-98-6) | ** | 11.27 ± 0.05 | DC | 3791 |
| $C_4H_2^+$ | $HC \equiv CC \equiv CH$ (RN-CAS Registry Number 460-12-8) | ** | 10.17 | PE | 4048 |
| $C_4H_3^+$ | $(CH_3)_2NCH = CHC \equiv CH$ (RN-CAS Registry Number 2206-24-8) (TR-Other product(s) thermochemically reasonable) (OP-the other product(s) is(are): <i>cyclo</i> -(CH_2) ₂ N + H ₂) | | 14.4 | EI | 3674 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|------------|---|------------------|---|--------|------|
| $C_4H_3^+$ | $C_4H_8NCH=CHC\equiv CH$ (Pyrrolidine, 1-(1-buten-3-ynyl)-) (RN-CAS Registry Number 19352-85-3) | | 15.2 | EI | 3674 |
| | (TR-Other product(s) thermochemically reasonable) (OP-the other product(s) is(are): <i>cyclo</i> -(CH_2) ₂ N + C_2H_4) | | | | |
| $C_4H_3^+$ | $(C_2H_5)_2NCH=CHC\equiv CH$ (RN-CAS Registry Number 1809-53-6) | | 15.0 | EI | 3674 |
| | (TR-Other product(s) thermochemically reasonable) (OP-the other product(s) is(are): $CH_2=NH + C_2H_4 + CH_3$) | | | | |
| $C_4H_4^+$ | $CH_2=CHC\equiv CH$ (RN-CAS Registry Number 689-97-4) | ** | 9.63 | PE | 3997 |
| $C_4H_4^+$ | $CH_2=CHC\equiv CH$ (RN-CAS Registry Number 689-97-4) | ** | 9.9 | EI | 3767 |
| $C_4H_4^+$ | C_6H_6 (Benzene) (RN-CAS-Registry Number 71-43-2) | C_2H_2 | 13.85 | PI | 4075 |
| | (Corrected for kinetic shift) | | | | |
| $C_4H_4^+$ | C_6H_6 (Benzene) (RN-CAS Registry Number 71-43-2) | C_2H_2 | 14.1 | EI | 3488 |
| | (PC-Appearance potential of the corresponding metastable transition) | | | | |
| $C_4H_4^+$ | $(CH_3)_2NCH=CHC\equiv CH$ (RN-CAS Registry Number 2206-24-8) | $CH_2=NH + CH_3$ | 13.4 | EI | 3674 |
| | (TR-Other product(s) thermochemically reasonable) | | | | |
| $C_4H_4^+$ | $C_4H_8NCH=CHC\equiv CH$ (Pyrrolidine, 1-(1-buten-3-ynyl)-) (RN-CAS Registry Number 19352-85-3) | | 13.7 | EI | 3674 |
| | (TR-Other product(s) thermochemically reasonable) (OP-the other product(s) is(are): $CH_2N=CH_2 + C_2H_2 + H$) | | | | |
| $C_4H_6^+$ | $CH_2=CHCH=CH_2$ (RN-CAS Registry Number 106-99-0) | ** | 9.03 | PE | 3847 |
| | <i>(trans-conformer)</i> | | | | |
| $C_4H_6^+$ | $CH_3C\equiv CCH_3$ (RN-CAS Registry Number 503-17-3) | ** | 9.59 | PE | 4048 |
| $C_4H_6^+$ | $CH_2=C=CHCH_3$ (RN-CAS Registry Number 590-19-2) | ** | 9.33 (V) | PE | 4019 |
| $C_4H_6^+$ | $CH\equiv C(CH_2)_3CH_3$ (RN-CAS Registry Number 693-02-7) | C_2H_4 | 11.08±0.05 | EI | 3585 |
| $C_4H_6^+$ | $CH_3C\equiv CCH_2CH_2CH_3$ (RN-CAS Registry Number 764-35-2) | C_2H_4 | 11.02±0.05 | EI | 3585 |
| $C_4H_6^+$ | C_6H_{10} (Cyclohexene) (RN-CAS Registry Number 110-83-8) | C_2H_4 | 11.91±0.05 | EI | 3585 |
| $C_4H_6^+$ | $C_5H_8=CH_2$ (Cyclopentane, methylene-) (RN-CAS Registry Number 1528-30-9) | C_2H_4 | 12.32±0.05 | EI | 3585 |
| $C_4H_6^+$ | $C_5H_7CH_3$ (Cyclopentene, 1-methyl-) (RN-CAS Registry Number 693-89-0) | C_2H_4 | 12.33±0.05 | EI | 3585 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|------------|--|----------------|---|--------|------|
| $C_4H_6^+$ | $C_6H_{11}Cl$ (Cyclohexane, chloro-) (RN-CAS Registry Number 542-18-7) | | 11.07 ± 0.03 | PI | 4078 |
| $C_4H_7^+$ | $CH_3CH_2CH_2CH=CH_2$ (RN-CAS Registry Number 109-67-1) (TR-Other product(s) thermochemically reasonable) | CH_3 | 11.35 ± 0.07 | EI | 3544 |
| $C_4H_7^+$ | $(CH_3)_2C=CHCH_3$ (RN-CAS Registry Number 513-35-9) (TR-Other product(s) thermochemically reasonable) | CH_3 | 11.33 ± 0.12 | EI | 3544 |
| $C_4H_7^+$ | $(CH_3)_2CHCH=CH_2$ (RN-CAS Registry Number 563-45-1) (TR-Other product(s) thermochemically reasonable) | CH_3 | 11.15 ± 0.12 | EI | 3544 |
| $C_4H_7^+$ | $C_2H_5C(CH_3)=CH_2$ (RN-CAS Registry Number 563-46-2) (TR-Other product(s) thermochemically reasonable) | CH_3 | 11.34 ± 0.07 | EI | 3544 |
| $C_4H_7^+$ | <i>cis</i> - $C_2H_5CH=CHCH_3$ (RN-CAS Registry Number 627-20-3) (TR-Other product(s) thermochemically reasonable) | CH_3 | 11.24 ± 0.02 | EI | 3544 |
| $C_4H_7^+$ | <i>trans</i> - $C_2H_5CH=CHCH_3$ (RN-CAS Registry Number 646-04-8) (TR-Other product(s) thermochemically reasonable) | CH_3 | 11.35 ± 0.03 | EI | 3544 |
| $C_4H_7^+$ | C_5H_{10} (Cyclopentane) (RN-CAS Registry Number 287-92-3) (TR-Other product(s) thermochemically reasonable) | CH_3 | 11.36 ± 0.08 | EI | 3544 |
| $C_4H_7^+$ | C_6H_{12} (Cyclohexane) (RN-CAS Registry Number 110-82-7) | C_2H_5 | 11.21 ± 0.04 | PI | 4078 |
| $C_4H_7^+$ | $C_6H_{11}Cl$ (Cyclohexane, chloro-) (RN-CAS Registry Number 542-18-7) | | 11.52 ± 0.05 | PI | 4078 |
| $C_4H_7^+$ | $CH_2=CHCH_2CH_2Br$ (RN-CAS Registry Number 5162-44-7) | Br | 10.6 | EI | 3900 |
| $C_4H_7^+$ | $C_6H_{11}Br$ (Cyclohexane, bromo-) (RN-CAS Registry Number 108-85-0) | | 11.54 ± 0.02 | PI | 4078 |
| $C_4H_8^+$ | 1- C_4H_8 (RN-CAS Registry Number 106-98-9) | ** | 9.72 (V) | PE | 3950 |
| $C_4H_8^+$ | 1- C_4H_8 (RN-CAS Registry Number 106-98-9) | ** | 9.625 ± 0.003 | PE | 3957 |
| $C_4H_8^+$ | <i>iso</i> - C_4H_8 (RN-CAS Registry Number 115-11-7) | ** | 9.21 | PE | 3533 |
| $C_4H_8^+$ | <i>iso</i> - C_4H_8 (RN-CAS Registry Number 115-11-7) | ** | 9.239 ± 0.003 | PE | 3957 |
| $C_4H_8^+$ | <i>cis</i> -2- C_4H_8 (RN-CAS Registry Number 590-18-1) | ** | 9.07 | PE | 3533 |
| $C_4H_8^+$ | <i>cis</i> -2- C_4H_8 (RN-CAS Registry Number 590-18-1) | ** | 9.124 ± 0.005 | PE | 3957 |
| $C_4H_8^+$ | <i>cis</i> -2- C_4H_8 (RN-CAS Registry Number 590-18-1) | ** | 9.29 (V) | PE | 4084 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|---------------|--|----------------|---|--------|------|
| $C_4H_8^+$ | <i>trans</i> -2- C_4H_8 (RN-CAS Registry Number 624-64-6) | ** | 9.11 (V) | PE | 3649 |
| $C_4H_8^+$ | <i>trans</i> -2- C_4H_8 (RN-CAS Registry Number 624-64-6) | ** | 9.09 | PE | 3533 |
| $C_4H_8^+$ | <i>trans</i> -2- C_4H_8 (RN-CAS Registry Number 624-64-6) | ** | 9.122±0.005 | PE | 3957 |
| $C_4H_8^+$ | <i>trans</i> -2- C_4H_8 (RN-CAS Registry Number 624-64-6) | ** | 9.32 (V) | PE | 4084 |
| $C_4H_8^+$ | C_4H_8 (Cyclobutane) (RN-CAS Registry Number 287-23-0) | ** | 9.92±0.05 | PE | 3757 |
| $C_4H_8^+$ | C_4H_8 (Cyclobutane) (RN-CAS Registry Number 287-23-0) | ** | 10.7±0.1 (V) | PE | 4037 |
| $C_4H_8^+$ | C_4H_8 (Cyclopropane, methyl-) (RN-CAS Registry Number 594-11-6) | ** | 9.9±0.2 | SD | 3493 |
| $C_4H_8^+$ | C_6H_{12} (Cyclohexane) (RN-CAS Registry Number 110-82-7) | C_2H_4 | 11.08±0.01 | PI | 4078 |
| $C_4H_8^+$ | $C_6H_{11}Cl$ (Cyclohexane, chloro-) (RN-CAS Registry Number 542-18-7) | | 10.2±0.01 | PI | 4078 |
| $C_4H_9^+$ | <i>tert</i> - C_4H_9NO (RN-CAS Registry Number 917-95-3) | NO | 8.9±0.1 | EI | 3602 |
| $C_4H_9^+$ | <i>tert</i> - C_4H_9NO (RN-CAS Registry Number 917-95-3) | | 8.9±0.1 | EI | 3654 |
| $C_4H_9^+$ | $C_6H_{11}Cl$ (Cyclohexane, chloro-) (RN-CAS Registry Number 542-18-7) | | 10.56±0.02 | PI | 4078 |
| $C_4H_9^+$ | $(CH_3)_3CGe(CH_3)_3$ (RN-CAS Registry Number 1184-91-4) | $(CH_3)_3Ge$ | 10.19±0.27 | EI | 3548 |
| $C_4H_9^+$ | $(CH_3)_3CSn(CH_3)_3$ (RN-CAS Registry Number 3531-47-3) | $(CH_3)_3Sn$ | 10.03±0.23 | EI | 3548 |
| $C_4H_9^+$ | $(CH_3)_3CPb(CH_3)_3$ (RN-CAS Registry Number 32997-03-8) | $(CH_3)_3Pb$ | 9.45±0.15 | EI | 3548 |
| $C_4H_{10}^+$ | <i>n</i> - C_4H_{10} (RN-CAS Registry Number 106-97-8) | ** | 10.87±0.05 | DC | 3791 |
| $C_4H_{10}^+$ | <i>n</i> - C_4H_{10} (RN-CAS Registry Number 106-97-8) | ** | 10.89 | EI | 3538 |
| $C_4H_{10}^+$ | <i>iso</i> - C_4H_{10} (RN-CAS Registry Number 75-28-5) | ** | 11.4 (V) | PE | 3710 |
| $C_4H_{10}^+$ | <i>iso</i> - C_4H_{10} (RN-CAS Registry Number 75-28-5) | ** | 10.74±0.05 | DC | 3791 |
| $C_5H_4^+$ | $CH_3C\equiv CC\equiv CH$ (RN-CAS Registry Number 4911-55-1) | ** | 9.51 | PE | 4048 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|------------|---|----------------|---|--------|------|
| $C_5H_5^+$ | $C_6H_4ClCH_3$ (Benzene, 1-chloro-2-methyl-) (RN-CAS Registry Number 95-49-8) | | 15.67 ± 0.015 | EI | 3777 |
| $C_5H_5^+$ | $C_6H_4ClCH_3$ (Benzene, 1-chloro-3-methyl-) (RN-CAS Registry Number 108-41-8) | | 15.71 ± 0.15 | EI | 3777 |
| $C_5H_5^+$ | $C_6H_4ClCH_3$ (Benzene, 1-chloro-4-methyl-) (RN-CAS Registry Number 106-43-4) | | 15.66 ± 0.15 | EI | 3777 |
| $C_5H_5^+$ | $C_6H_4BrCH_3$ (Benzene, 1-bromo-2-methyl-) (RN-CAS Registry Number 95-46-5) | | 15.19 ± 0.15 | EI | 3777 |
| $C_5H_5^+$ | $C_6H_4BrCH_3$ (Benzene, 1-bromo-3-methyl-) (RN-CAS Registry Number 591-17-3) | | 15.20 ± 0.15 | EI | 3777 |
| $C_5H_5^+$ | $C_6H_4BrCH_3$ (Benzene, 1-bromo-4-methyl-) (RN-CAS Registry Number 106-38-7) | | 15.23 ± 0.15 | EI | 3777 |
| $C_5H_5^+$ | $C_6H_4ICH_3$ (Benzene, 1-iodo-2-methyl-) (RN-CAS Registry Number 615-37-2) | | 14.34 ± 0.15 | EI | 3777 |
| $C_5H_5^+$ | $C_6H_4ICH_3$ (Benzene, 1-iodo-3-methyl-) (RN-CAS Registry Number 625-95-6) | | 14.47 ± 0.15 | EI | 3777 |
| $C_5H_5^+$ | $C_6H_4ICH_3$ (Benzene, 1-iodo-4-methyl-) (RN-CAS Registry Number 624-31-7) | | 14.66 ± 0.15 | EI | 3777 |
| $C_5H_6^+$ | $CH_2=C(CH_3)C \equiv CH$ (RN-CAS Registry Number 78-80-8) | ** | 10.1 | EI | 3767 |
| $C_5H_6^+$ | $CH_2=CHC \equiv CCH_3$ (RN-CAS Registry Number 646-05-9) | ** | 9.4 | EI | 3767 |
| $C_5H_6^+$ | $CH_3CH=CHC \equiv CH$ (RN-CAS Registry Number 2206-23-7) | ** | 8.5 | EI | 3767 |
| $C_5H_6^+$ | C_5H_6 (Cyclopentadiene) (RN-CAS Registry Number 26912-33-4) | ** | 8.56 ± 0.01 | EM | 3535 |
| $C_5H_6^+$ | C_5H_6 (1,3-Cyclopentadiene) (RN-CAS Registry Number 542-92-7) | ** | 9.0 | EI | 3476 |
| $C_5H_6^+$ | $C_3H_5C \equiv CH$ (Cyclopropane, ethynyl-) (RN-CAS Registry Number 6746-94-7) | ** | 9.58 (V) | PE | 3997 |
| $C_5H_6^+$ | C_7H_{10} (Bicyclo[2.2.1]hept-2-ene) (RN-CAS Registry Number 498-66-8) (ON-Other name: 2-Norbornene) | C_2H_4 | 9.22 ± 0.01 | EM | 3535 |

(MT-Metastable transition(s) observed)

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|------------|--|----------------|---|--------|------|
| $C_5H_6^+$ | C_7H_{10} (Tricyclo[2.2.1.0 ^{2,6}]heptane (RN-CAS Registry Number 279-19-6) (ON-Other name: Nortricyclene) | C_2H_4 | 9.44 ± 0.01 | EM | 3535 |
| | (MT-Metastable transition(s) observed) | | | | |
| $C_5H_6^+$ | $C_6H_5NH_2$ (Benzenamine) (RN-CAS Registry Number 62-53-3) | HCN | 12.13 ± 0.06 | EDD | 3784 |
| | (MT-Metastable transition(s) observed) | | | | |
| $C_5H_6^+$ | $C_6H_5NH_2$ (Benzenamine) (RN-CAS Registry Number 62-53-3) | | $12.04 \pm <0.1$ | EI | 3735 |
| $C_5H_6^+$ | C_6H_5OH (Phenol) (RN-CAS Registry Number 108-95-2) | CO | 12.45 ± 0.1 | EI | 3817 |
| $C_5H_6^+$ | C_6H_5SH (Benzenethiol) (RN-CAS Registry Number 108-98-5) | CS | 12.18 ± 0.1 | EI | 3817 |
| $C_5H_6^+$ | C_7H_9Br (bicyclo[2.2.1]hept-2-ene, 5-bromo-, <i>exo</i> -) (RN-CAS Registry Number 5810-82-2) | C_2H_3Br | 10.0 | EI | 3900 |
| $C_5H_6^+$ | C_7H_9Br (Bicyclo[2.2.1]hept-2-ene, 5-bromo-, <i>endo</i> -) (RN-CAS Registry Number 5810-82-2) | C_2H_3Br | 10.0 | EI | 3900 |
| $C_5H_7^+$ | $CH \equiv C(CH_2)_3CH_3$ (RN-CAS Registry Number 693-02-7) | CH_3 | 10.87 ± 0.05 | EI | 3585 |
| $C_5H_7^+$ | $CH_3C \equiv CCH_2CH_2CH_3$ (RN-CAS Registry Number 764-35-2) | CH_3 | 10.63 ± 0.05 | EI | 3585 |
| | (MT-Metastable transition(s) observed) | | | | |
| $C_5H_7^+$ | C_6H_{10} (Cyclohexene) (RN-CAS Registry Number 110-83-8) | CH_3 | 11.22 ± 0.05 | EI | 3585 |
| | (MT-Metastable transition(s) observed) | | | | |
| $C_5H_7^+$ | $C_5H_8 = CH_2$ (Cyclopentane, methylene-) (RN-CAS Registry Number 1528-30-9) | CH_3 | 11.71 ± 0.05 | EI | 3585 |
| | (MT-Metastable transition(s) observed) | | | | |
| $C_5H_7^+$ | $C_5H_7CH_3$ (Cyclopentene, 1-methyl-) (RN-CAS Registry Number 693-89-0) | CH_3 | 11.59 ± 0.05 | EI | 3585 |
| | (MT-Metastable transition(s) observed) | | | | |
| $C_5H_7^+$ | $C_{10}H_{16}$ (4,7-Methano-1 <i>H</i> -indene, octahydro-, (3 α ,4 β ,7 β ,7 α)-) (RN-CAS Registry Number 2825-82-3) (ON-Other name: <i>exo</i> -Tricyclo[5.2.1.0 ^{2,6}]decane) | | 10.0 ± 0.1 | PI | 3918 |
| $C_5H_7^+$ | $C_{10}H_{15}CH_3$ (RN-CAS Registry Number XXXXX-XX-X) (ON-Other name: 2-Methyl- <i>exo</i> -tricyclo[5.2.1.0 ^{2,6}]decane) | | $\leq 10.2 \pm 0.1$ | PI | 3918 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|----------------|--|-----------------|---|--------|------|
| $C_5H_7^+$ | $C_{10}H_{15}CH_3$ (4,7-Methano-1 <i>H</i> -indene, octahydro-2-methyl, (2 α ,3 $\alpha\beta$,4 α ,7 α ,7 $\alpha\beta$)-) (RN-CAS Registry Number 50745-90-9) (ON-Other name: <i>cis</i> -4-Methyl- <i>exo</i> -tricyclo[5.2.1.0 ^{2,6}]decane) | | > 10.2±0.1 | PI | 3918 |
| $C_5H_7^+$ | $C_{10}H_{15}CH_3$ (4,7-Methano-1 <i>H</i> -indene, octahydro-8-methyl-, stereoisomer) (RN-CAS Registry Number 50745-92-1) (ON-Other name: <i>anti</i> -10-Methyl- <i>endo</i> -tricyclo[5.2.1.0 ^{2,6}]decane) | | > 10.5±0.1 | PI | 3918 |
| $C_5H_7^+$ | $C_{10}H_{15}C_2H_5$ (4,7-Methano-1 <i>H</i> -indene, 5-ethyloctahydro-, (3 $\alpha\alpha$,4 β ,5 α ,7 β ,7 $\alpha\alpha$)-) (RN-CAS Registry Number 32787-97-6) (ON-Other name: <i>endo</i> -8-Ethyl- <i>exo</i> -tricyclo[5.2.1.0 ^{2,6}]decane) | | > 10.2±0.1 | PI | 3918 |
| $C_5H_7^+$ | $C_6H_{11}Cl$ (Cyclohexane, chloro-) (RN-CAS Registry Number 542-18-7) | | 10.67±0.05 | PI | 4078 |
| $C_5H_8^+$ | $CH_2=C(CH_3)CH=CH_2$ (RN-CAS Registry Number 78-79-5) | ** | 8.89 | PE | 3847 |
| $C_5H_8^+$ | $CH_2=C(CH_3)CH+CH_2$ (RN-CAS Registry Number 78-79-5) | ** | 9.04 (V) | PE | 3892 |
| $C_5H_8^+$ | $CH_2=CHCH_2CH=CH_2$ (RN-CAS Registry Number 591-93-5) | ** | 9.62±0.02 | PE | 4010 |
| $C_5H_8^+$ | $CH_3CH=C=CHCH_3$ (RN-CAS Registry Number 591-96-8) | ** | 9.13 (V) | PE | 4019 |
| $C_5H_8^+$ | $(CH_3)_2C=C=CH_2$ (RN-CAS Registry Number 598-25-4) | ** | 8.95 (V) | PE | 4019 |
| $C_5H_8^+$ | <i>trans</i> - $CH_2=CHCH=CHCH_3$ (RN-CAS Registry Number 2004-70-8) | ** | 8.61 | PE | 3847 |
| $C_5H_8^+$ | C_5H_8 (Cyclopropane, ethenyl-) (RN-CAS Registry Number 693-86-7) | ** | 9.1 (V) | PE | 4034 |
| $C_5H_8(^2A')$ | $C_3H_5C_2H_3$ (Cyclopropane, ethenyl-) (RN-CAS Registry Number 693-86-7) | ** | 9.2 | PE | 3576 |
| $C_5H_8(^2A')$ | $C_3H_5C_2H_3$ (Cyclopropane, ethenyl-) (RN-CAS Registry Number 693-86-7) | ** | 10.7 | PE | 3576 |
| $C_5H_8(^2A')$ | $C_3H_5C_2H_3$ (Cyclopropane, ethenyl-) (RN-CAS Registry Number 693-86-7) | ** | 11.7 | PE | 3576 |
| $C_5H_9^+$ | C_6H_{12} (Cyclohexane) (RN-CAS Registry Number 110-82-7) | CH ₃ | 11.07±0.04 | PI | 4078 |
| $C_5H_9^+$ | $C_{10}H_{16}$ (4,7-Methano-1 <i>H</i> -indene, octahydro-, (3 $\alpha\alpha$,4 β ,7 β ,7 $\alpha\alpha$)-) (RN-CAS Registry Number 2825-82-3) (ON-Other name: <i>exo</i> -Tricyclo[5.2.1.0 ^{2,6}]decane) | | 10.5±0.1 | PI | 3918 |
| $C_5H_9^+$ | $C_6H_{11}Cl$ (Cyclohexane, chloro-) (RN-CAS Registry Number 542-18-7) | | 11.01±0.02 | PI | 4078 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|---------------|--|----------------|---|--------|------|
| $C_5H_9^+$ | $CH_2=CH(CH_2)_3Br$ (RN-CAS Registry Number 1119-51-3) | Br | 10.2 | EI | 3900 |
| $C_5H_{10}^+$ | $(CH_3)_2C=CHCH_3$ (RN-CAS Registry Number 513-35-9) | ** | 8.682 ± 0.003 | PE | 3957 |
| $C_5H_{10}^+$ | $(CH_3)_2C=CHCH_3$ (RN-CAS Registry Number 513-35-9) | ** | 8.72 | PE | 3533 |
| $C_5H_{10}^+$ | $(CH_3)_2C=CHCH_3$ (RN-CAS Registry Number 513-35-9) | ** | 8.83 ± 0.11 | EI | 3544 |
| $C_5H_{10}^+$ | $(CH_3)_2CHCH=CH_2$ (RN-CAS Registry Number 563-45-1) | ** | 9.533 ± 0.003 | PE | 3957 |
| $C_5H_{10}^+$ | $(CH_3)_2CHCH=CH_2$ (RN-CAS Registry Number 563-45-1) | ** | 9.60 ± 0.03 | EI | 3544 |
| $C_5H_{10}^+$ | $C_2H_5C(CH_3)=CH_2$ (RN-CAS Registry Number 563-46-2) | ** | 9.148 ± 0.003 | PE | 3957 |
| $C_5H_{10}^+$ | $C_2H_5C(CH_3)=CH_2$ (RN-CAS Registry Number 563-46-2) | ** | 9.35 ± 0.08 | EI | 3544 |
| $C_5H_{10}^+$ | $1-C_5H_{10}$ (RN-CAS Registry Number 109-67-1) | ** | 9.54 ± 0.02 (V) | PE | 4010 |
| $C_5H_{10}^+$ | $1-C_5H_{10}$ (RN-CAS Registry Number 109-67-1) | ** | 9.82 ± 0.06 | EI | 3544 |
| $C_5H_{10}^+$ | $1-C_5H_{10}$ (RN-CAS Registry Number 109-67-1) | ** | 9.524 ± 0.003 | PE | 3957 |
| $C_5H_{10}^+$ | <i>cis</i> -2- C_5H_{10} (RN-CAS Registry Number 627-20-3) | ** | 9.23 ± 0.02 | EI | 3544 |
| $C_5H_{10}^+$ | <i>cis</i> -2- C_5H_{10} (RN-CAS Registry Number 627-20-3) | ** | 9.036 ± 0.005 | PE | 3957 |
| $C_5H_{10}^+$ | <i>trans</i> -2- C_5H_{10} (RN-CAS Registry Number 646-04-8) | ** | 9.32 ± 0.03 | EI | 3544 |
| $C_5H_{10}^+$ | <i>trans</i> -2- C_5H_{10} (RN-CAS Registry Number 646-04-8) | ** | 9.036 ± 0.005 | PE | 3957 |
| $C_5H_{10}^+$ | C_5H_{10} (Cyclopentane) (RN-CAS-Registry Number 287-92-3) | ** | 10.40 | PE | 4056 |
| $C_5H_{10}^+$ | C_5H_{10} (Cyclopentane) (RN-CAS Registry Number 287-92-3) | ** | 10.91 ± 0.07 | EI | 3544 |
| $C_5H_{11}^+$ | <i>tert</i> - $C_5H_{11}NO$ (RN-CAS Registry Number 34946-78-6) | NO | 8.7 ± 0.1 | EI | 3602 |
| $C_5H_{11}^+$ | <i>tert</i> - $C_5H_{11}NO$ (RN-CAS Registry Number 34946-78-6) | | 8.7 ± 0.1 | EI | 3654 |
| $C_5H_{12}^+$ | <i>n</i> - C_5H_{12} (RN-CAS-Registry Number 109-66-0) | ** | 10.36 | PE | 4056 |
| $C_5H_{12}^+$ | <i>n</i> - C_5H_{12} (RN-CAS Registry Number 109-66-0) | ** | 10.59 ± 0.05 | DC | 3791 |
| $C_5H_{12}^+$ | <i>iso</i> - C_5H_{12} (RN-CAS Registry Number 78-78-4) | ** | 10.50 ± 0.05 | DC | 3791 |
| $C_5H_{12}^+$ | <i>neo</i> - C_5H_{12} (RN-CAS Registry Number 463-82-1) | ** | 10.25 ± 0.1 | PE | 3677 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|---|--|----------------|---|--------|------|
| $C_5H_{12}^+$ | <i>neo</i> - C_5H_{12} (RN-CAS Registry Number 463-82-1) | ** | 10.21±0.04 | PE | 3880 |
| $C_5H_{12}^+$ | <i>neo</i> - C_5H_{12} (RN-CAS Registry Number 463-82-1) | ** | 11.3 (V) | PE | 3710 |
| $C_5H_{12}^+$ | <i>neo</i> - C_5H_{12} (RN-CAS Registry Number 463-82-1) | ** | ~11.3 (V) | PE | 4050 |
| (JC—Mean value of Jahn-Teller components) | | | | | |
| $C_6H_2^+$ | $HC\equiv CC\equiv CC\equiv CH$ (RN-CAS Registry Number 3161-99-7) | ** | 9.50 | PE | 4048 |
| $C_6H_4^+$ | C_6H_4 (1,3-Cyclohexadien-5-yne) (RN-CAS Registry Number 462-80-6) | ** | 9.75±0.2 | RPD | 3583 |
| $C_6H_4^+$ | C_6H_6 (Benzene) (RN-CAS-Registry Number 71-43-2) | H_2 | 12.94 | PI | 4075 |
| (Corrected for kinetic shift) | | | | | |
| $C_6H_4^+$ | C_6H_6 (Benzene) (RN-CAS Registry Number 71-43-2) | H_2 | 14.04±0.06 | EDD | 3784 |
| (MT—Metastable transition(s) observed) | | | | | |
| $C_6H_4^+$ | C_6H_5CN (Benzonitrile) (RN-CAS Registry Number 100-47-0) | HCN | 13.80±0.06 | EDD | 3784 |
| (MT—Metastable transition(s) observed) | | | | | |
| $C_6H_4^+$ | C_6H_5CN (Benzonitrile) (RN-CAS Registry Number 100-47-0) | | 13.92±<0.1 | EI | 3735 |
| $C_6H_5^+$ | C_6H_5 (Phenyl) (RN-CAS Registry Number 2396-01-2) | ** | 8.1±0.1 | PI | 3752 |
| (RD—Radical) | | | | | |
| $C_6H_5^+$ | $CH\equiv CCH_2CH_2C\equiv CH$ (RN-CAS Registry Number 628-16-0) | H | 10.21±0.03 | EI | 3790 |
| $C_6H_5^+$ | C_6H_6 (Benzene) (RN-CAS-Registry Number 71-43-2) | H | 12.94 | PI | 4075 |
| (Corrected for kinetic shift) | | | | | |
| $C_6H_5^+$ | C_6H_6 (Benzene) (RN-CAS Registry Number 71-43-2) | H | 13.97±0.06 | EDD | 3784 |
| $C_6H_5^+$ | C_6H_6 (Benzene) (RN-CAS Registry Number 71-43-2) | H | 14.05±<0.1 | EI | 3735 |
| $C_6H_5^+$ | C_6H_5CHO (Benzaldehyde) (RN-CAS Registry Number 100-52-7) | CO+H | 14.11 | EI | 3792 |
| (TR—Other product(s) thermochemically reasonable) | | | | | |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|------------|---|----------------|---|--------|------|
| $C_6H_5^+$ | $C_6H_5COCH_3$ (Ethanone, 1-phenyl-) (RN-CAS Registry Number 98-86-2) (TR-Other product(s) thermochemically reasonable) | $CO + CH_3$ | 13.28 | EDD | 3626 |
| $C_6H_5^+$ | $C_6H_5COCH_3$ (Ethanone, 1-phenyl-) (RN-CAS Registry Number 98-86-2) (TR-Other product(s) thermochemically reasonable) | $CO + CH_3$ | 13.97 | EI | 3792 |
| $C_6H_5^+$ | $(C_6H_5)_2CO$ (Methanone, diphenyl-) (RN-CAS Registry Number 119-61-9) (TR-Other product(s) thermochemically reasonable) | $C_6H_5 + CO$ | 15.67 | EI | 3792 |
| $C_6H_5^+$ | C_6H_5COOH (Benzoic acid) (RN-CAS Registry Number 65-85-0) (MT-Metastable transition(s) observed) | $CO + OH$ | 15.08 ± 0.2 | EI | 3973 |
| $C_6H_5^+$ | C_6H_5COOH (Benzoic acid) (RN-CAS Registry Number 65-85-0) (TR-Other product(s) thermochemically reasonable) | $CO + OH$ | 15.08 | EI | 3792 |
| $C_6H_5^+$ | $C_6H_5COOCH_3$ (Benzoic acid methyl ester) (RN-CAS Registry Number 93-58-3) (TR-Other product(s) thermochemically reasonable) | $CH_3O + CO$ | 13.82 | EDD | 3626 |
| $C_6H_5^+$ | $C_6H_5COOCH_3$ (Benzoic acid methyl ester) (RN-CAS Registry Number 93-58-3) (TR-Other product(s) thermochemically reasonable) | $CH_3O + CO$ | 14.74 | EI | 3792 |
| $C_6H_5^+$ | C_6H_5NO (Benzene, nitroso-) (RN-CAS Registry Number 586-96-9) | NO | 11.0 ± 0.1 | EI | 3602 |
| $C_6H_5^+$ | C_6H_5NO (Benzene, nitroso-) (RN-CAS Registry Number 586-96-9) | | 11.0 ± 0.1 | EI | 3654 |
| $C_6H_5^+$ | $C_6H_5CONH_2$ (Benzamide) (RN-CAS Registry Number 55-21-0) (TR-Other product(s) thermochemically reasonable) | $NH_2 + CO$ | 14.21 | EI | 3792 |
| $C_6H_5^+$ | $C_6H_5NO_2$ (Benzene, nitro-) (RN-CAS Registry Number 98-95-3) | NO_2 | 11.93 ± 0.1 | EI | 3447 |
| $C_6H_5^+$ | C_6H_5Cl (Benzene, chloro-) (RN-CAS Registry Number 108-90-7) | Cl | 12.81 | EDD | 3626 |
| $C_6H_5^+$ | C_6H_5COCl (Benzoyl chloride) (RN-CAS Registry Number 98-88-4) (TR-Other product(s) thermochemically reasonable) | $Cl + CO$ | 13.81 | EI | 3792 |
| $C_6H_5^+$ | C_6H_5Br (Benzene, bromo-) (RN-CAS Registry Number 108-86-1) | Br | 11.82 | EDD | 3626 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|----------------------|---|----------------|---|--------|------|
| $C_6H_5^+$ | C_6H_5I (Benzene, iodo-) (RN-CAS Registry Number 591-50-4) | I | 11.34 | EDD | 3626 |
| $C_6H_3D_2^+$ | $CD\equiv CCH_2CH_2C\equiv CD$ (RN-CAS Registry Number XXXXX-XX-X) | H | 10.18 ± 0.03 | EI | 3790 |
| $C_6H_6^+$ | $CH\equiv CCH_2CH_2C\equiv CH$ (RN-CAS Registry Number 628-16-0) | ** | 9.87 ± 0.03 | EI | 3790 |
| $C_6H_6^+$ | $CH_3C\equiv CC\equiv CCH_3$ (RN-CAS Registry Number 2809-69-0) | ** | 8.91 | PE | 4048 |
| $C_6H_6^+$ | C_6H_6 (Benzene) (RN-CAS Registry Number 71-43-2) | ** | 9.2 | PI | 3586 |
| $C_6H_6^+(^2E_{1g})$ | C_6H_6 (Benzene) (RN-CAS Registry Number 71-43-2) | ** | 9.2 (V) | PE | 3528 |
| $C_6H_6^+$ | C_6H_6 (Benzene) (RN-CAS Registry Number 71-43-2) | ** | 9.24 | PE | 3519 |
| $C_6H_6^+(^2E_{1g})$ | C_6H_6 (Benzene) (RN-CAS Registry Number 71-43-2) | ** | 9.24 (V) | PE | 3513 |
| $C_6H_6^+(^2E_{1g})$ | C_6H_6 (Benzene) (RN-CAS Registry Number 71-43-2) | ** | 9.24 (V) | PE | 3673 |
| $C_6H_6^+$ | C_6H_6 (Benzene) (RN-CAS Registry Number 71-43-2) | ** | 9.24 (V) | PE | 3898 |
| $C_6H_6^+$ | C_6H_6 (Benzene) (RN-CAS Registry Number 71-43-2) | ** | 9.25 ± 0.03 (V) | PE | 3713 |
| $C_6H_6^+(^2E_{1g})$ | C_6H_6 (Benzene) (RN-CAS Registry Number 71-43-2) | ** | 9.25 | PE | 3520 |
| $C_6H_6^+(^2E_{1g})$ | C_6H_6 (Benzene) (RN-CAS Registry Number 71-43-2) | ** | 9.27 | PE | 3658 |
| $C_6H_6^+(^2E_{2g})$ | C_6H_6 (Benzene) (RN-CAS Registry Number 71-43-2) | ** | 11.7 (V) | PE | 3673 |
| $C_6H_6^+(^2A_{2u})$ | C_6H_6 (Benzene) (RN-CAS Registry Number 71-43-2) | ** | 12.35 (V) | PE | 3673 |
| $C_6H_6^+(^2E_{1u})$ | C_6H_6 (Benzene) (RN-CAS Registry Number 71-43-2) | ** | 13.9 (V) | PE | 3673 |
| $C_6H_6^+(^2B_{2u})$ | C_6H_6 (Benzene) (RN-CAS Registry Number 71-43-2) | ** | 14.7 (V) | PE | 3673 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|------------------------|--|----------------|---|--------|------|
| $C_6H_6^+(\ ^2B_{1u})$ | C_6H_6 (Benzene) (RN-CAS Registry Number 71-43-2) | ** | 15.4 (V) | PE | 3673 |
| $C_6H_6^+(\ ^2A_{1g})$ | C_6H_6 (Benzene) (RN-CAS Registry Number 71-43-2) | ** | 16.84 (V) | PE | 3673 |
| $C_6H_6^+(\ ^2E_{2g})$ | C_6H_6 (Benzene) (RN-CAS Registry Number 71-43-2) | ** | 19.0 (V) | PE | 3673 |
| $C_6H_6^+$ | C_6H_6 (Benzene) (RN-CAS Registry Number 71-43-2) | ** | 9.20±0.1 | EDD | 3624 |
| $C_6H_6^+$ | C_6H_6 (Benzene) (RN-CAS Registry Number 71-43-2) | ** | 9.25 | CTS | 3922 |
| $C_6H_6^+$ | C_8H_8 (Pentacyclo[4.2.0.0 ^{2,5} .0 ^{3,8} .0 ^{4,7}]octane) (RN-CAS Registry Number 277-10-1) | | 9.2±<0.1 | EI | 3735 |
| $C_6H_6^+$ | $C_6H_5OCH_3$ (Benzene, methoxy-) (RN-CAS Registry Number 100-66-3) | CH_2O | 11.27±0.1 | EI | 3446 |
| $C_6H_6^+$ | $C_6H_5OCH_3$ (Benzene, methoxy-) (RN-CAS Registry Number 100-66-3) (CD-Metastable transition indicates 0.32 eV kinetic energy release) | HCHO | 11.50 | EI | 3845 |
| $C_6H_6^+$ | $C_6H_5OCH_3$ (Benzene, methoxy-) (RN-CAS Registry Number 100-66-3) | | 11.55±<0.1 | EI | 3735 |
| $C_6H_6^+$ | $C_6H_6Cr(CO)_3$ (Chromium, (η^6 -benzene)tricarbonyl-) (RN-CAS Registry Number 12082-08-5) | | 9.49±0.1 | EI | 3788 |
| $C_6H_4D_2^+$ | $CD\equiv CCH_2CH_2C\equiv CD$ (RN-CAS Registry Number XXXXX-XX-X) | ** | 9.97±0.06 | EI | 3790 |
| $C_6H_7^+$ | C_7H_{10} (Bicyclo[2.2.1]hept-2-ene) (RN-CAS Registry Number 498-66-8) (ON-Other name: 2-Norbornene) (MT-Metastable transition(s) observed) | CH_3 | 10.46±0.01 | EM | 3535 |
| $C_6H_7^+$ | C_7H_{10} (Tricyclo[2.2.1.0 ^{2,6}]heptane) (RN-CAS Registry Number 279-19-6) (ON-Other name: Nortricyclene) (MT-Metastable transition(s) observed) | CH_3 | 10.17±0.01 | EM | 3535 |
| $C_6H_8^+$ | <i>cis</i> - $CH_2=CHCH=CHCH=CH_2$ (RN-CAS Registry Number 2612-46-6) | ** | 8.32 | PE | 3847 |
| $C_6H_8^+$ | <i>trans</i> - $CH_2=CHCH=CHCH=CH_2$ (RN-CAS Registry Number 821-07-8) | ** | 8.29 | PE | 3847 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|---------------|--|----------------|---|--------|------|
| $C_6H_8^+$ | $C_4H_7C\equiv CH$ (Cyclobutane, ethynyl-) (RN-CAS Registry Number 50786-62-4) | ** | 10.02 (V) | PE | 3997 |
| $C_6H_8^+$ | $C_5H_5CH_3$ (1,3-Cyclopentadiene, methyl-) (RN-CAS Registry Number 26519-91-5) | ** | 8.28 ± 0.05 (V) | PE | 3688 |
| $C_6H_8^+$ | $C_{10}H_{16}$ (4,7-Methano-1 <i>H</i> -indene, octahydro-, (3 α ,4 β ,7 β ,7 α)-) (RN-CAS Registry Number 2825-82-3) (ON-Other name: <i>exo</i> -Tricyclo[5.2.1.0 ^{2,6}]decane) | | 9.9 ± 0.1 | PI | 3918 |
| $C_6H_9^+$ | $CH\equiv C(CH_2)_3CH_3$ (RN-CAS Registry Number 693-02-7) | H | 10.75 ± 0.05 | EI | 3585 |
| $C_6H_9^+$ | $CH_3C\equiv CCH_2CH_2CH_3$ (RN-CAS Registry Number 764-35-2) | H | 10.81 ± 0.05 | EI | 3585 |
| $C_6H_9^+$ | C_6H_{10} (Cyclohexene) (RN-CAS Registry Number 110-83-8) | H | 11.8 ± 0.05 | EI | 3585 |
| $C_6H_9^+$ | $C_5H_8=CH_2$ (Cyclopentane, methylene-) (RN-CAS Registry Number 1528-30-9) | H | 12.13 ± 0.05 | EI | 3585 |
| $C_6H_9^+$ | $C_5H_7CH_3$ (Cyclopentene, 1-methyl-) (RN-CAS Registry Number 693-89-0) | H | 11.97 ± 0.05 | EI | 3585 |
| $C_6H_9^+$ | $C_{10}H_{15}CH_3$ (4,7-Methano-1 <i>H</i> -indene, octahydro-8-methyl, stereoisomer) (RN-CAS Registry Number 50745-92-1) (ON-Other name: <i>anti</i> -10-Methyl- <i>endo</i> -tricyclo[5.2.1.0 ^{2,6}]decane) | | 9.5 ± 0.1 | PI | 3918 |
| $C_6H_9^+$ | $C_{10}H_{15}C_2H_5$ (4,7-Methano-1 <i>H</i> -indene, 5-ethyloctahydro-, (3 α ,4 β ,5 α ,7 β ,7 α)-) (RN-CAS Registry Number 32787-97-6) (ON-Other name: <i>endo</i> -8-Ethyl- <i>exo</i> -tricyclo[5.2.1.0 ^{2,6}]decane) | | $\leq 10.2 \pm 0.1$ | PI | 3918 |
| $C_6H_9^+$ | $C_6H_{11}Cl$ (Cyclohexane, chloro-) (RN-CAS Registry Number 542-18-7) | | 10.40 ± 0.02 | PI | 4078 |
| $C_6H_{10}^+$ | $CH_2=C(CH_3)C(CH_3)=CH_2$ (RN-CAS Registry Number 513-81-5) | ** | 8.62 | PE | 3847 |
| $C_6H_{10}^+$ | $CH_2=C(CH_3)C(CH_3)=CH_2$ (RN-CAS Registry Number 513-81-5) | ** | 8.76 (V) | PE | 3892 |
| $C_6H_{10}^+$ | $CH_2=CHCH_2CH_2CH=CH_2$ (RN-CAS Registry Number 592-42-7) | ** | 9.59 ± 0.02 (V) | PE | 4010 |
| $C_6H_{10}^+$ | $CH\equiv C(CH_2)_3CH_3$ (RN-CAS Registry Number 693-02-7) | ** | 10.52 ± 0.05 | EI | 3585 |
| $C_6H_{10}^+$ | $CH_3C\equiv CCH_2CH_2CH_3$ (RN-CAS Registry Number 764-35-2) | ** | 9.97 ± 0.05 | EI | 3585 |
| $C_6H_{10}^+$ | $(CH_3)_2C=C=CHCH_3$ (RN-CAS Registry Number 3043-33-2) | ** | 8.69 (V) | PE | 4019 |
| $C_6H_{10}^+$ | <i>trans,trans</i> - $CH_3CH=CHCH=CHCH_3$ (RN-CAS Registry Number 5194-51-4) | | 8.09 | PE | 3847 |
| $C_6H_{10}^+$ | <i>trans,trans</i> - $CH_3CH=CHCH=CHCH_3$ (RN-CAS Registry Number 5194-51-4) | | 8.93 (V) | PE | 3892 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|---------------|--|----------------|---|--------|------|
| $C_6H_{10}^+$ | C_6H_{10} (Cyclohexene) (RN-CAS Registry Number 110-83-8) | ** | 9.57 ± 0.05 | EI | 3585 |
| $C_6H_{10}^+$ | $C_5H_8=CH_2$ (Cyclopentane, methylene-) (RN-CAS Registry Number 1528-30-9) | ** | 8.55 ± 0.01 | PI | 3585 |
| $C_6H_{10}^+$ | $C_5H_8=CH_2$ (Cyclopentane, methylene-) (RN-CAS Registry Number 1528-30-9) | ** | 9.26 ± 0.05 | EI | 3585 |
| $C_6H_{10}^+$ | $C_5H_7CH_3$ (Cyclopentene, 1-methyl-) (RN-CAS Registry Number 693-89-0) | ** | 8.55 ± 0.01 | PI | 3585 |
| $C_6H_{10}^+$ | $C_5H_7CH_3$ (Cyclopentene, 1-methyl-) (RN-CAS Registry Number 693-89-0) | ** | 9.12 ± 0.05 | EI | 3585 |
| $C_6H_{10}^+$ | $C_6H_{10}(CH_3)_2$ (Cyclohexane, 1,2-dimethyl-, <i>cis</i> -) (RN-CAS Registry Number 2207-01-4) | $2CH_3$ | 10.46 ± 0.1 | EDD | 3581 |
| $C_6H_{10}^+$ | $C_6H_{10}(CH_3)_2$ (Cyclohexane, 1,2-dimethyl-, <i>trans</i> -) (RN-CAS Registry Number 6876-23-9) | $2CH_3$ | 10.63 ± 0.1 | EDD | 3581 |
| $C_6H_{10}^+$ | $C_{10}H_{15}CH_3$ (RN-CAS Registry Number XXXXX-XX-X) (ON-Other name: 2-Methyl- <i>exo</i> -tricyclo[5.2.1.0 ^{2,6}]decane) | | 9.8 ± 0.1 | PI | 3918 |
| $C_6H_{10}^+$ | $C_{10}H_{15}CH_3$ (4,7-Methano-1 <i>H</i> -indene, octahydro-2-methyl-, (2 α ,3 $\alpha\beta$,4 α ,7 α ,7 $\alpha\beta$)-) (RN-CAS Registry Number 50745-90-9) (ON-Other name: <i>cis</i> -4-Methyl- <i>exo</i> -tricyclo[5.2.1.0 ^{2,6}]decane) | | 10.0 ± 0.1 | PI | 3918 |
| $C_6H_{10}^+$ | $C_6H_{11}Cl$ (Cyclohexane, chloro-) (RN-CAS Registry Number 542-18-7) | | 10.10 ± 0.05 | PI | 4078 |
| $C_6H_{11}^+$ | C_6H_{12} (Cyclohexane) (RN-CAS Registry Number 110-82-7) | H | 11.32 ± 0.05 | PI | 4078 |
| $C_6H_{11}^+$ | $C_6H_{11}Cl$ (Cyclohexane, chloro-) (RN-CAS Registry Number 542-18-7) | | 10.20 ± 0.05 | PI | 4078 |
| $C_6H_{11}^+$ | $C_6H_{11}Br$ (Cyclohexane, bromo-) (RN-CAS Registry Number 108-85-0) | | 9.85 ± 0.05 | PI | 4078 |
| $C_6H_{12}^+$ | $(CH_3)_3CCH=CH_2$ (RN-CAS Registry Number 558-37-2) | ** | 9.450 ± 0.005 | PE | 3957 |
| $C_6H_{12}^+$ | $(CH_3)_3CCH=CH_2$ (RN-CAS Registry Number 558-37-2) | ** | 9.7 (V) | PE | 3940 |
| $C_6H_{12}^+$ | $(CH_3)_2CHC(CH_3)=CH_2$ (RN-CAS Registry Number 563-78-0) | ** | 9.072 ± 0.005 | PE | 3957 |
| $C_6H_{12}^+$ | $(CH_3)_2C=C(CH_3)_2$ (RN-CAS Registry Number 563-79-1) | ** | 8.26 | PE | 3533 |
| $C_6H_{12}^+$ | $(CH_3)_2C=C(CH_3)_2$ (RN-CAS Registry Number 563-79-1) | ** | 8.271 ± 0.005 | PE | 3957 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|---------------|--|----------------|---|--------|------|
| $C_6H_{12}^+$ | $(CH_3)_2CHCH_2CH=CH_2$ (RN-CAS Registry Number 691-37-2) | ** | 9.452 ± 0.003 | PE | 3957 |
| $C_6H_{12}^+$ | $(C_2H_5)_2C=CH_2$ (RN-CAS Registry Number 760-21-4) | ** | 9.061 ± 0.005 | PE | 3957 |
| $C_6H_{12}^+$ | $C_2H_5CH_2C(CH_3)=CH_2$ (RN-CAS Registry Number 763-29-1) | ** | 9.076 ± 0.005 | PE | 3957 |
| $C_6H_{12}^+$ | 1- C_6H_{12} (RN-CAS Registry Number 592-41-6) | ** | 9.31 | PE | 4033 |
| $C_6H_{12}^+$ | 1- C_6H_{12} (RN-CAS Registry Number 592-41-6) | ** | 9.478 ± 0.003 | PE | 3957 |
| $C_6H_{12}^+$ | 1- C_6H_{12} (RN-CAS Registry Number 592-41-6) | ** | 9.33 | EDD | 4033 |
| $C_6H_{12}^+$ | <i>cis</i> - $(CH_3)_2CHCH=CHCH_3$ (RN-CAS Registry Number 691-38-3) | ** | 8.976 ± 0.005 | PE | 3957 |
| $C_6H_{12}^+$ | <i>cis</i> -2- C_6H_{12} (RN-CAS Registry Number 7688-21-3) | ** | 8.969 ± 0.005 | PE | 3957 |
| $C_6H_{12}^+$ | <i>cis</i> -3- C_6H_{12} (RN-CAS Registry Number 7642-09-3) | ** | 8.954 ± 0.005 | PE | 3957 |
| $C_6H_{12}^+$ | <i>trans</i> - $(CH_3)_2CHCH=CHCH_3$ (RN-CAS Registry Number 674-76-0) | ** | 8.972 ± 0.005 | PE | 3957 |
| $C_6H_{12}^+$ | <i>trans</i> -2- C_6H_{12} (RN-CAS Registry Number 4050-45-7) | ** | 8.966 ± 0.005 | PE | 3957 |
| $C_6H_{12}^+$ | <i>trans</i> -3- C_6H_{12} (RN-CAS Registry Number 13269-52-8) | ** | 8.965 ± 0.005 | PE | 3957 |
| $C_6H_{12}^+$ | C_6H_{12} (Cyclohexane) (RN-CAS Registry Number 110-82-7) | ** | 9.88 ± 0.01 | S | 3757 |
| $C_6H_{12}^+$ | C_6H_{12} (Cyclohexane) (RN-CAS Registry Number 110-82-7) | ** | 9.88 ± 0.01 | PI | 4078 |
| $C_6H_{12}^+$ | C_6H_{12} (Cyclohexane) (RN-CAS-Registry Number 110-82-7) | ** | 9.87 | PE | 4056 |
| $C_6H_{12}^+$ | C_6H_{12} (Cyclohexane) (RN-CAS Registry Number 110-82-7) | ** | 10.3 (V) | PE | 3997 |
| $C_6D_{12}^+$ | C_6D_{12} (Cyclohexane- d_{12}) (RN-CAS Registry Number 1735-17-7) | ** | 9.91 ± 0.01 | S | 3757 |
| $C_6H_{14}^+$ | <i>n</i> - C_6H_{14} (RN-CAS-Registry Number 110-54-3) | ** | 10.22 | PE | 4056 |
| $C_7H_6^+$ | C_7H_6 (Bicyclo[4.1.0]hepta-1,3,5-triene) (RN-CAS-Registry Number 4646-69-9) | ** | 8.82 (V) | PE | 4063 |
| $C_7H_7^+$ | C_7H_7 (2,4,6-Cycloheptatrien-1-yl) (RN-CAS Registry Number 3551-27-7) | ** | 6.74 ± 0.05 | EI | 3789 |

(RD-Radical)

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|------------|--|----------------|---|--------|------|
| $C_7H_7^+$ | $(C_6H_5)_2CH_2$ (Benzene, 1,1'-methylenebis-) (RN-CAS Registry Number 101-81-5) | C_6H_5 | 11.5 ± 0.1 | EI | 3807 |
| $C_7H_7^+$ | $C_6H_3(CH_3)_2CHO$ (Benzaldehyde, 2,4-dimethyl-) (RN-CAS Registry Number 15764-16-6) | | 11.2 | EI | 4051 |
| $C_7H_7^+$ | $C_6H_3(CH_3)_2CHO$ (Benzaldehyde, 2,5-dimethyl-) (RN-CAS Registry Number 5779-94-2) | | 11.2 | EI | 4051 |
| $C_7H_7^+$ | $C_6H_3(CH_3)_2CHO$ (Benzaldehyde, 3,4-dimethyl-) (RN-CAS Registry Number 5973-71-7) | | 11.1 | EI | 4051 |
| $C_7H_7^+$ | $C_6H_4(CH_3)COOH$ (Benzoic acid, 3-methyl-) (RN-CAS Registry Number 99-04-7) | COOH | 12.48 ± 0.2 | EI | 3973 |
| | (MT-Metastable transition(s) observed) | | | | |
| $C_7H_7^+$ | $C_6H_4(CH_3)COOH$ (Benzoic acid, 4-methyl-) (RN-CAS Registry Number 99-94-5) | COOH | 12.55 ± 0.2 | EI | 3973 |
| | (MT-Metastable transition(s) observed) | | | | |
| $C_7H_7^+$ | $C_6H_5CH_2CH_2OCOCH_3$ (Acetic acid, 2-phenylethyl ester) (RN-CAS Registry Number 103-45-7) | | 12.50 | EI | 3590 |
| $C_7H_7^+$ | $C_6H_4(NO_2)CH_3$ (Benzene, 1-methyl-3-nitro-) (RN-CAS Registry Number 99-08-1) | NO_2 | 11.58 ± 0.1 | EI | 3447 |
| $C_7H_7^+$ | $C_6H_4(NO_2)CH_3$ (Benzene, 1-methyl-4-nitro-) (RN-CAS Registry Number 99-99-0) | NO_2 | 11.80 ± 0.1 | EI | 3447 |
| $C_7H_7^+$ | $C_6H_4ClCH_3$ (Benzene, 1-chloro-2-methyl-) (RN-CAS Registry Number 95-49-8) | | 11.21 ± 0.1 | EI | 3777 |
| $C_7H_7^+$ | $C_6H_4ClCH_3$ (Benzene, 1-chloro-3-methyl-) (RN-CAS Registry Number 108-41-8) | | 11.34 ± 0.1 | EI | 3777 |
| $C_7H_7^+$ | $C_6H_4ClCH_3$ (Benzene, 1-chloro-4-methyl-) (RN-CAS Registry Number 106-43-4) | | 11.42 ± 0.1 | EI | 3777 |
| $C_7H_7^+$ | $C_6H_4BrCH_3$ (Benzene, 1-bromo-2-methyl-) (RN-CAS Registry Number 95-46-5) | | 11.14 ± 0.1 | EI | 3777 |
| $C_7H_7^+$ | $C_6H_4BrCH_3$ (Benzene, 1-bromo-3-methyl-) (RN-CAS Registry Number 591-17-3) | | 11.22 ± 0.1 | EI | 3777 |
| $C_7H_7^+$ | $C_6H_4BrCH_3$ (Benzene, 1-bromo-4-methyl-) (RN-CAS Registry Number 106-38-7) | | 11.22 ± 0.1 | EI | 3777 |
| $C_7H_7^+$ | $C_6H_4ICH_3$ (Benzene, 1-iodo-2-methyl-) (RN-CAS Registry Number 615-37-2) | | 11.14 ± 0.1 | EI | 3777 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|------------|---|----------------|---|--------|------|
| $C_7H_7^+$ | $C_6H_4ICH_3$ (Benzene, 1-iodo-3-methyl-) (RN-CAS Registry Number 625-95-6) | | 11.26 ± 0.1 | EI | 3777 |
| $C_7H_7^+$ | $C_6H_4ICH_3$ (Benzene, 1-iodo-4-methyl-) (RN-CAS Registry Number 624-31-7) | | 11.15 ± 0.1 | EI | 3777 |
| $C_7H_8^+$ | $C_6H_5CH_3$ (Benzene, methyl-) (RN-CAS Registry Number 108-88-3) | ** | 8.82 | PI | 3753 |
| $C_7H_8^+$ | $C_6H_5CH_3$ (Benzene, methyl-) (RN-CAS Registry Number 108-88-3) | ** | 8.72 | PE | 3955 |
| $C_7H_8^+$ | $C_6H_5CH_3$ (Benzene, methyl-) (RN-CAS Registry Number 108-88-3) | ** | 8.78 ± 0.02 | PE | 3854 |
| $C_7H_8^+$ | $C_6H_5CH_3$ (Benzene, methyl-) (RN-CAS Registry Number 108-88-3) | ** | 8.80 | PE | 3868 |
| $C_7H_8^+$ | $C_6H_5CH_3$ (Benzene, methyl-) (RN-CAS Registry Number 108-88-3) | ** | 8.85 ± 0.015 (V) | PE | 4107 |
| $C_7H_8^+$ | $C_6H_5CH_3$ (Benzene, methyl-) (RN-CAS Registry Number 108-88-3) | ** | 9.0 ± 0.03 (V) | PE | 3713 |
| $C_7H_8^+$ | $C_6H_5CH_3$ (Benzene, methyl-) (RN-CAS Registry Number 108-88-3) | ** | 8.89 ± 0.03 | EDD | 3626 |
| $C_7H_8^+$ | $C_6H_5CH_3$ (Benzene, methyl-) (RN-CAS Registry Number 108-88-3) | ** | 8.67 | EI | 3845 |
| $C_7H_8^+$ | $C_6H_5CH_3$ (Benzene, methyl-) (RN-CAS Registry Number 108-88-3) | ** | 8.80 ± 0.1 | EI | 3788 |
| $C_7H_8^+$ | $C_6H_5CH_3$ (Benzene, methyl-) (RN-CAS Registry Number 108-88-3) | ** | 8.71 | CTS | 3546 |
| $C_7H_8^+$ | $C_6H_5CH_3$ (Benzene, methyl-) (RN-CAS Registry Number 108-88-3) | ** | 8.91 | CTS | 4029 |
| | (AV—Average of two values) | | | | |
| $C_7H_8^+$ | C_7H_8 (Bicyclo[2.2.1]hepta-2,5-diene) (RN-CAS Registry Number 121-46-0) | ** | 8.6 (V) | PE | 3724 |
| $C_7H_8^+$ | C_7H_8 (Bicyclo[2.2.1]hepta-2,5-diene) (RN-CAS Registry Number 121-46-0) | ** | 8.69 (V) | PE | 3687 |
| $C_7H_8^+$ | C_7H_8 (Bicyclo[2.2.1]hepta-2,5-diene) (RN-CAS Registry Number 121-46-0) | ** | 8.70 (V) | PE | 3509 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|--------------------|--|----------------|---|--------|------|
| $C_7H_8^+$ | C_7H_8 (Bicyclo[2.2.1]hepta-2,5-diene) (RN-CAS Registry Number 121-46-0) | ** | 8.69 (V) | PE | 3824 |
| $C_7H_8^{+2}(A_2)$ | C_7H_8 (Spiro[2.4]hepta-4,6-diene) (RN-CAS Registry Number 765-46-8) | ** | 8.14 | PE | 3576 |
| $C_7H_8^{+2}(B_1)$ | C_7H_8 (Spiro[2.4]hepta-4,6-diene) (RN-CAS Registry Number 765-46-8) | ** | 9.46 | PE | 3576 |
| $C_7H_8^{+2}(A_1)$ | C_7H_8 (Spiro[2.4]hepta-4,6-diene) (RN-CAS Registry Number 765-46-8) | ** | 10.9 | PE | 3576 |
| $C_7H_8^{+2}(B_2)$ | C_7H_8 (Spiro[2.4]hepta-4,6-diene) (RN-CAS Registry Number 765-46-8) | ** | 11.89 | PE | 3576 |
| $C_7H_8^{+2}(B_1)$ | C_7H_8 (Spiro[2.4]hepta-4,6-diene) (RN-CAS Registry Number 765-46-8) | ** | 12.7 | PE | 3576 |
| $C_7H_8^+$ | $C_6H_5C_4H_9$ (Benzene, butyl-) (RN-CAS Registry Number 104-51-8) | $CH_2=CHCH_3$ | 10.10 ± 0.1 | EI | 3629 |
| $C_7H_8^+$ | $C_6H_4(OCH_3)CH_3$ (Benzene, 1-methoxy-3-methyl-) (RN-CAS Registry Number 100-84-5) | CH_2O | 11.22 ± 0.1 | EI | 3446 |
| $C_7H_8^+$ | $C_6H_4(OCH_3)CH_3$ (Benzene, 1-methoxy-4-methyl-) (RN-CAS Registry Number 104-93-8) | CH_2O | 11.11 ± 0.1 | EI | 3446 |
| $C_7H_8^+$ | $C_6H_4(OCH_3)CH_3$ (Benzene, 1-methoxy-4-methyl-) (RN-CAS Registry Number 104-93-8) | HCHO | 11.23 | EI | 3845 |
| $C_7H_8^+$ | (CD-Metastable transition indicates 0.36 eV kinetic energy release) $C_6H_5CH_3Cr(CO)_3$ (Chromium, tricarbonyl[(1,2,3,4,5,6- η)-methylbenzene]-) (RN-CAS Registry Number 12083-24-8) | | 8.31 ± 0.1 | EI | 3788 |
| $C_7H_9^+$ | C_7H_{10} (Bicyclo[2.2.1]hept-2-ene) (RN-CAS Registry Number 498-66-8) (ON-Other name: 2-Norbornene) | H | 11.0 ± 0.01 | EI | 3535 |
| $C_7H_9^+$ | C_7H_{10} (Tricyclo[2.2.1.0 ^{2,6}]heptane) (RN-CAS Registry Number 279-19-6) (ON-Other name: Nortricyclene) | H | 11.3 ± 0.01 | EM | 3535 |
| $C_7H_9^+$ | C_7H_9Br (bicyclo[2.2.1]hept-2-ene, 5-bromo-, <i>exo</i> -) (RN-CAS Registry Number 5810-82-2) | Br | 10.2 | EI | 3900 |
| $C_7H_9^+$ | C_7H_9Br (Bicyclo[2.2.1]hept-2-ene, 5-bromo-, <i>endo</i> -) (RN-CAS Registry Number 5810-82-2) | Br | 10.1 | EI | 3900 |
| $C_7H_{10}^+$ | <i>trans,trans</i> - $CH_2=CHCH=CHCH=CHCH_3$ (RN-CAS Registry Number 17679-93-5) | | 8.07 | PE | 3847 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|---------------|---|----------------|---|--------|------|
| $C_7H_{10}^+$ | C_7H_{10} (Bicyclo[2.2.1]hept-2-ene) (RN-CAS Registry Number 498-66-8) | ** | 8.95 (V) | PE | 3509 |
| $C_7H_{10}^+$ | C_7H_{10} (Bicyclo[2.2.1]hept-2-ene) (RN-CAS Registry Number 498-66-8) | ** | 8.97 (V) | PE | 3687 |
| $C_7H_{10}^+$ | C_7H_{10} (Bicyclo[2.2.1]hept-2-ene) (RN-CAS Registry Number 498-66-8) (ON-Other name: 2-Norbornene) | ** | 8.80 ± 0.01 | EM | 3535 |
| $C_7H_{10}^+$ | C_7H_{10} (Bicyclo[4.1.0]hept-2-ene) (RN-CAS Registry Number 2566-57-6) | ** | 8.69 (V) | PE | 3849 |
| $C_7H_{10}^+$ | C_7H_{10} (Tricyclo[2.2.1.0 ^{2,6}]heptane) (RN-CAS Registry Number 279-19-6) | ** | 9.40 (V) | PE | 3741 |
| $C_7H_{10}^+$ | C_7H_{10} (Tricyclo[2.2.1.0 ^{2,6}]heptane) (RN-CAS Registry Number 279-19-6) (ON-Other name: Nortricyclene) | ** | 8.92 ± 0.01 | EM | 3535 |
| $C_7H_{10}^+$ | $C_{10}H_{15}CH_3$ (4,7-Methano-1H-indene, octahydro-8-methyl-, stereoisomer) (RN-CAS Registry Number 50745-92-1) (ON-Other name: <i>anti</i> -10-Methyl- <i>endo</i> -tricyclo[5.2.1.0 ^{2,6}]decane) | | 9.5 ± 0.1 | PI | 3918 |
| $C_7H_{11}^+$ | $C_{10}H_{16}$ (4,7-Methano-1H-indene, octahydro-, (3 α ,4 β ,7 β ,7 α)-) (RN-CAS Registry Number 2825-82-3) (ON-Other name: <i>exo</i> -Tricyclo[5.2.1.0 ^{2,6}]decane) | | 9.9 ± 0.1 | PI | 3918 |
| $C_7H_{11}^+$ | $C_{10}H_{15}CH_3$ (RN-CAS Registry Number XXXXX-XX-X) (ON-Other name: 2-Methyl- <i>exo</i> -tricyclo[5.2.1.0 ^{2,6}]decane) | | $\leq 10.2 \pm 0.1$ | PI | 3918 |
| $C_7H_{11}^+$ | $C_{10}H_{15}CH_3$ (4,7-Methano-1H-indene, octahydro-2-methyl-, (2 α ,3 $\alpha\beta$,4 α ,7 α ,7 $\alpha\beta$)-) (RN-CAS Registry Number 50745-90-9) (ON-Other name: <i>cis</i> -4-Methyl- <i>exo</i> -tricyclo[5.2.1.0 ^{2,6}]decane) | | 10.0 ± 0.1 | PI | 3918 |
| $C_7H_{11}^+$ | $C_{10}H_{15}C_2H_5$ (4,7-Methano-1H-indene, 5-ethyloctahydro-, (3 α ,4 β ,5 α ,7 β ,7 α)-) (RN-CAS Registry Number 32787-97-6) (ON-Other name: <i>endo</i> -8-Ethyl- <i>exo</i> -tricyclo[5.2.1.0 ^{2,6}]decane) | | $\leq 10.2 \pm 0.1$ | PI | 3918 |
| $C_7H_{12}^+$ | $(CH_3)_2C=C=C(CH_3)_2$ (RN-CAS Registry Number 1000-87-9) | ** | 8.47 (V) | PE | 4019 |
| $C_7H_{12}^+$ | $(C_2H_5)_2C(CH_3)_2$ (RN-CAS Registry Number 1112-35-2) | ** | 9.55 (V) | PE | 3994 |
| $C_7H_{12}^+$ | $CH_2=CH(CH_2)_3CH=CH_2$ (RN-CAS Registry Number 3070-53-9) | ** | 9.52 ± 0.02 (V) | PE | 4010 |
| $C_7H_{12}^+$ | C_7H_{12} (Bicyclo[2.2.1]heptane) (RN-CAS Registry Number 279-23-2) | ** | 10.15 (V) | PE | 3509 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|---------------|---|----------------|---|--------|------|
| $C_7H_{12}^+$ | C_7H_{12} (Bicyclo[2.2.1]heptane) (RN-CAS Registry Number 279-23-2) | ** | 10.2 (V) | PE | 3687 |
| $C_7H_{12}^+$ | C_7H_{12} (Bicyclo[4.1.0]heptane) (RN-CAS Registry Number 286-08-8) | ** | 9.46 (V) | PE | 3849 |
| $C_7H_{13}^+$ | $C_6H_{10}(CH_3)_2$ (Cyclohexane, 1,2-dimethyl-, <i>cis</i> -) (RN-CAS Registry Number 2207-01-4) | CH_3 | 10.55 ± 0.05 | EDD | 3581 |
| $C_7H_{13}^+$ | $C_6H_{10}(CH_3)_2$ (Cyclohexane, 1,2-dimethyl-, <i>trans</i> -) (RN-CAS Registry Number 6876-23-9) | CH_3 | 10.73 ± 0.05 | EDD | 3581 |
| $C_7H_{14}^+$ | <i>trans</i> -(CH_3) ₃ CCH=CHCH ₂ (RN-CAS Registry Number 690-08-4) | ** | 8.908 ± 0.008 | PE | 3957 |
| $C_7H_{14}^+$ | (CH_3) ₃ CC(CH ₃)=CH ₂ (RN-CAS Registry Number 594-56-9) | ** | 9.016 ± 0.007 | PE | 3957 |
| $C_7H_{14}^+$ | (CH_3) ₃ CCH ₂ CH=CH ₂ (RN-CAS Registry Number 762-62-9) | ** | 9.399 ± 0.003 | PE | 3957 |
| $C_7H_{14}^+$ | (CH_3) ₃ CCH ₂ CH=CH ₂ (RN-CAS Registry Number 762-62-9) | ** | 9.6 (V) | PE | 3940 |
| $C_7H_{14}^+$ | (CH_3) ₂ CHCH ₂ C(CH ₃)=CH ₂ (RN-CAS Registry Number 2213-32-3) | ** | 9.025 ± 0.005 | PE | 3957 |
| $C_7H_{14}^+$ | $CH_3(CH_2)_3C(CH_3)=CH_2$ (RN-CAS Registry Number 6094-02-6) | ** | 9.039 ± 0.005 | PE | 3957 |
| $C_7H_{14}^+$ | $C_2H_5C(CH_3)=C(CH_3)_2$ (RN-CAS Registry Number 10574-37-5) | ** | 8.213 ± 0.005 | PE | 3957 |
| $C_7H_{14}^+$ | 1- C_7H_{14} (RN-CAS Registry Number 592-76-7) | ** | 9.442 ± 0.003 | PE | 3957 |
| $C_7H_{14}^+$ | <i>cis</i> -(CH_3) ₃ CCH=CHCH ₃ (RN-CAS Registry Number 762-63-0) | ** | 8.922 ± 0.008 | PE | 3957 |
| $C_7H_{14}^+$ | <i>cis</i> -(CH_3) ₂ CHCH ₂ CH=CHCH ₃ (RN-CAS Registry Number 13151-17-2) | ** | 8.917 ± 0.005 | PE | 3957 |
| $C_7H_{14}^+$ | <i>trans</i> - $CH_3CH_2C(CH_3)HCH=CHCH_3$ (RN-CAS Registry Number 3683-22-5) | ** | 8.912 ± 0.005 | PE | 3957 |
| $C_7H_{14}^+$ | <i>trans</i> -(CH_3) ₂ CHCH ₂ CH=CHCH ₃ (RN-CAS Registry Number 7385-82-2) | ** | 8.919 ± 0.005 | PE | 3957 |
| $C_8H_6^+$ | $CH_3C \equiv CC \equiv CC \equiv CCH_3$ (RN-CAS Registry Number 1072-20-4) | ** | 8.60 | PE | 4048 |
| $C_8H_6^+$ | $C_6H_5C \equiv CH$ (Benzene, ethynyl-) (RN-CAS Registry Number 536-74-3) | ** | 8.75 | PE | 3938 |
| $C_8H_6^+$ | $C_6H_5C \equiv CH$ (Benzene, ethynyl-) (RN-CAS Registry Number 536-74-3) | ** | 8.88 ± 0.02 (V) | PE | 3854 |
| $C_8H_8^+$ | $C_6H_5CH=CH_2$ (Benzene, ethenyl-) (RN-CAS Registry Number 100-42-5) | ** | 8.40 ± 0.02 | PE | 3854 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|------------|--|----------------|---|--------|------|
| $C_8H_8^+$ | $C_6H_5CH=CH_2$ (Benzene, ethenyl-) (RN-CAS Registry Number 100-42-5) | ** | 8.42 | PE | 3938 |
| $C_8H_8^+$ | $C_6H_5CH=CH_2$ (Benzene, ethenyl-) (RN-CAS Registry Number 100-42-5) | ** | 8.49 (V) | PE | 3964 |
| $C_8H_8^+$ | $C_6H_5C_2H_3$ (Benzene, ethenyl-) (RN-CAS Registry Number 100-42-5) | ** | 8.55 (V) | PE | 3781 |
| $C_8H_8^+$ | $C_6H_5CH=CH_2$ (Benzene, ethenyl-) (RN-CAS Registry Number 100-42-5) | ** | 8.55 (V) | PE | 3898 |
| $C_8H_8^+$ | $C_6H_5CH=CH_2$ (Benzene, ethenyl-) (RN-CAS Registry Number 100-42-5) | ** | 8.28±0.04 | RPD | 4097 |
| $C_8H_8^+$ | C_8H_8 (Bicyclo[2.2.1]hepta-2,5-diene, 7-methylene-) (RN-CAS Registry Number 37846-63-2) (ON-Other name: 7-Methylene-norbornadiene) | ** | 8.50 (V) | PE | 3933 |
| $C_8H_8^+$ | C_8H_8 (Bicyclo[4.2.0]octa-1,3,5-triene) (RN-CAS-Registry Number 694-87-1) | ** | 8.66 (V) | PE | 4063 |
| $C_8H_8^+$ | C_8H_8 (1,3,5,7-Cyclooctatetraene) (RN-CAS Registry Number 629-20-9) | ** | 8.0 | PE | 3999 |
| $C_8H_8^+$ | C_8H_8 (Pentacyclo[4.2.0.0 ^{2,5} .0 ^{3,8} .0 ^{4,7}]octane) (RN-CAS Registry Number 277-10-1) | ** | 8.4±<0.1 | EI | 3735 |
| $C_8H_8^+$ | C_8H_8 (Tricyclo[3.2.1.0 ^{2,8}]octa-2,6-diene) (RN-CAS Registry Number XXXXX-XX-X) (ON-Other name: Tetrahydrobullvalene) | ** | 8.5 (V) | PE | 4034 |
| $C_8H_8^+$ | C_8H_8 (Tricyclo[4.2.0.0 ^{2,5}]octa-3,7-diene, <i>syn</i> -) (RN-CAS Registry Number 20380-30-7) | ** | 9.08 (V) | PE | 4045 |
| $C_8H_8^+$ | C_8H_8 (Tricyclo[4.2.0.0 ^{2,5}]octa-3,7-diene, <i>anti</i> -) (RN-CAS Registry Number 20380-31-8) | ** | 8.96 (V) | PE | 4045 |
| $C_8H_8^+$ | $C_6H_5CH_2CH_2OCOCH_3$ (Acetic acid, 2-phenylethyl ester) (RN-CAS Registry Number 103-45-7) | | 8.90 | EI | 3590 |
| $C_8H_9^+$ | $C_6H_4(CH_3)C_4H_9$ (Benzene, 1-butyl-3-methyl-) (RN-CAS Registry Number 1595-04-6) | | 11.43±0.1 | EI | 3629 |
| $C_8H_9^+$ | $C_6H_4(CH_3)C_4H_9$ (Benzene, 1-butyl-4-methyl-) (RN-CAS Registry Number 1595-05-7) | | 11.03±0.1 | EI | 3629 |
| $C_8H_9^+$ | $C_6H_4(CH_3)CH_2CH_2OCOCH_3$ (Phenethyl alcohol, <i>m</i> -methyl-, acetate) (RN-CAS Registry Number 33709-40-9) | | 12.30 | EI | 3590 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|----------------------------|---|----------------|---|--------|------|
| $C_8H_9^+$ | $C_6H_4(CH_3)CH_2CH_2OCOCH_3$ (Phenethyl alcohol, <i>p</i> -methyl-, acetate) (RN-CAS Registry Number 22532-47-4) | | 11.80 | EI | 3590 |
| $C_8H_{10}^+$ | $C_6H_4(CH_3)_2$ (Benzene, 1,2-dimethyl-) (RN-CAS Registry Number 95-47-6) | ** | 8.45 ± 0.02 | PE | 3854 |
| $C_8H_{10}^+$ | $C_6H_4(CH_3)_2$ (Benzene, 1,2-dimethyl-) (RN-CAS-Registry Number 95-47-6) | ** | 8.57 (V) | PE | 4063 |
| $C_8H_{10}^+$ | $C_6H_4(CH_3)_2$ (Benzene, 1,2-dimethyl-) (RN-CAS Registry Number 95-47-6) | ** | 8.75 ± 0.03 (V) | PE | 3713 |
| $C_8H_{10}^+$ | $C_6H_4(CH_3)_2$ (Benzene, 1,2-dimethyl-) (RN-CAS Registry Number 95-47-6) | ** | 8.55 ± 0.1 | EI | 3788 |
| $C_8H_{10}^+$ | $C_6H_4(CH_3)_2$ (Benzene, 1,2-dimethyl-) (RN-CAS Registry Number 95-47-6) | ** | 8.61 | CTS | 3546 |
| $C_8H_{10}^+$ | $C_6H_4(CH_3)_2$ (Benzene, 1,2-dimethyl-) (RN-CAS Registry Number 95-47-6) | ** | 8.70 | CTS | 4029 |
| (AV-Average of two values) | | | | | |
| $C_8H_{10}^+$ | $C_6H_4(CH_3)_2$ (Benzene, 1,3-dimethyl-) (RN-CAS Registry Number 108-38-3) | ** | 8.50 ± 0.02 | PE | 3854 |
| $C_8H_{10}^+$ | $C_6H_4(CH_3)_2$ (Benzene, 1,3-dimethyl-) (RN-CAS Registry Number 108-38-3) | ** | 8.71 ± 0.015 (V) | PE | 4107 |
| $C_8H_{10}^+$ | $C_6H_4(CH_3)_2$ (Benzene, 1,3-dimethyl-) (RN-CAS Registry Number 108-38-3) | ** | 8.75 ± 0.03 (V) | PE | 3713 |
| $C_8H_{10}^+$ | $C_6H_4(CH_3)_2$ (Benzene, 1,4-dimethyl-) (RN-CAS Registry Number 106-42-3) | ** | 8.37 ± 0.02 | PE | 3854 |
| $C_8H_{10}^+$ | $C_6H_4(CH_3)_2$ (Benzene, 1,4-dimethyl-) (RN-CAS Registry Number 106-42-3) | ** | 8.6 ± 0.03 (V) | PE | 3713 |
| $C_8H_{10}^+$ | C_8H_{10} (Bicyclo[2.2.1]hept-2-ene, 5-methylene-) (RN-CAS Registry Number 694-91-7) | ** | 8.93 (V) | PE | 3824 |
| $C_8H_{10}^+$ | C_8H_{10} (1,3,5-Cyclooctatriene) (RN-CAS Registry Number 1871-52-9) | ** | 7.9 | PE | 3999 |
| $C_8H_{10}^+$ | C_8H_{10} (1,3,6-Cyclooctatriene) (RN-CAS Registry Number 3725-30-2) | ** | 8.5 | PE | 3999 |
| $C_8H_{10}^+$ | C_8H_{10} (Tricyclo[3.2.1.0 ^{2,4}]oct-6-ene, (1 α ,2 α ,4 α ,5 α)-) (RN-CAS Registry Number 3635-94-7) (ON-Other name: Tricyclo[3.2.1.0 ^{2,4}]oct-6-ene, <i>endo</i> -) | ** | 9.05 (V) | PE | 3509 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|---------------|--|----------------|---|--------|------|
| $C_8H_{10}^+$ | C_8H_{10} (Tricyclo[3.2.1.0 ^{2,4}]oct-6-ene, (1 α ,2 β ,4 β ,5 α)-) (RN-CAS Registry Number 3635-95-8) (ON-Other name: Tricyclo[3.2.1.0 ^{2,4}]oct-6-ene, <i>exo</i> -) | ** | 8.90 (V) | PE | 3509 |
| $C_8H_{10}^+$ | C_8H_{10} (Tricyclo[3.2.1.0 ^{2,8}]oct-6-ene) (RN-CAS Registry Number XXXXX-XX-X) | ** | 8.5 (V) | PE | 4034 |
| $C_8H_{10}^+$ | C_8H_{10} (Tricyclo[4.2.0.0 ^{2,5}]oct-3-ene, (1 α ,2 β ,5 β ,6 α)-) (RN-CAS Registry Number 39781-76-5) | ** | 9.25 (V) | PE | 4045 |
| $C_8H_{10}^+$ | $C_6H_4(CH_3)C_4H_9$ (Benzene, 1-butyl-3-methyl-) (RN-CAS Registry Number 1595-04-6) | $CH_2=CHCH_3$ | 10.33 \pm 0.1 | EI | 3629 |
| $C_8H_{10}^+$ | $C_6H_4(CH_3)C_4H_9$ (Benzene, 1-butyl-4-methyl-) (RN-CAS Registry Number 1595-05-7) | $CH_2=CHCH_3$ | 10.14 \pm 0.1 | EI | 3629 |
| $C_8H_{10}^+$ | $C_6H_4(CH_3)_2Cr(CO)_3$ (Chromium, tricarbonyl[(1,2,3,4,5,6- η)-1,2-dimethylbenzene]-) (RN-CAS Registry Number 12129-29-2) | | 8.51 \pm 0.1 | EI | 3788 |
| $C_8H_{11}^+$ | $C_{10}H_{15}C_2H_5$ (4,7-Methano-1 <i>H</i> -indene, 5-ethyloctahydro-, (3 α ,4 β ,5 α ,7 β ,7 α)-) (RN-CAS Registry Number 32787-97-6) (ON-Other name: <i>endo</i> -8-Ethyl- <i>exo</i> -tricyclo[5.2.1.0 ^{2,6}]decane) | | 9.9 \pm 0.1 | PI | 3918 |
| $C_8H_{12}^+$ | C_8H_{12} (Bicyclo[2.2.1]heptane, 2-methylene-) (RN-CAS Registry Number 497-35-8) | ** | 9.02 (V) | PE | 3824 |
| $C_8H_{12}^+$ | C_8H_{12} (Bicyclo[2.2.1]heptane, 7-methylene-) (RN-CAS Registry Number 31463-35-1) (ON-Other name: 7-Methylene-norbornane) | ** | 9.40 (V) | PE | 3933 |
| $C_8H_{12}^+$ | $C_6H_{11}C\equiv CH$ (Cyclohexane, ethynyl-) (RN-CAS Registry Number 931-48-6) | ** | 9.92 (V) | PE | 3997 |
| $C_8H_{12}^+$ | C_8H_{12} (1,3-Cyclooctadiene) (RN-CAS Registry Number 1700-10-3) | ** | 8.4 | PE | 3999 |
| $C_8H_{12}^+$ | C_8H_{12} (1,4-Cyclooctadiene) (RN-CAS Registry Number 1073-07-0) | ** | 8.5 | PE | 3999 |
| $C_8H_{12}^+$ | C_8H_{12} (1,5-Cyclooctadiene) (RN-CAS Registry Number 111-78-4) | ** | 8.9 | PE | 3999 |
| $C_8H_{12}^+$ | $C_3H_5CH=CHC_3H_5$ (Cyclopropane, 1,1'-(1,2-ethenediyl)bis- (<i>E</i>)) (RN-CAS Registry Number 10359-44-1) | ** | 7.72 | PI | 3759 |
| $C_8H_{12}^+$ | $C_3H_5CH=CHC_3H_5$ (Cyclopropane, 1,1'-(1,2-ethenediyl)bis- (<i>Z</i>)) (RN-CAS Registry Number 23510-65-68) | ** | 7.70 | PI | 3759 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|---------------|--|----------------|---|--------|------|
| $C_8H_{12}^+$ | $(C_3H_5)_2C=CH_2$ (Cyclopropane, 1,1'-ethenylidenebis-) (RN-CAS Registry Number 822-93-5) | ** | 8.08 | PI | 3759 |
| $C_8H_{12}^+$ | C_8H_{12} (Tricyclo[3.2.1.0 ^{2,4}]octane, (1 α ,2 α ,4 α ,5 α)-) (RN-CAS Registry Number 22389-16-8) (ON-Other name: Tricyclo[3.2.1.0 ^{2,4}]octane, <i>endo</i> -) | ** | 9.40 (V) | PE | 3509 |
| $C_8H_{12}^+$ | C_8H_{12} (Tricyclo[3.2.1.0 ^{2,4}]octane, (1 α ,2 α ,4 α ,5 α)-) (RN-CAS Registry Number 22389-16-8) (ON-Other name: Tricyclo[3.2.1.0 ^{2,4}]octane, <i>endo</i> -) | ** | 8.8±0.1 | EI | 3492 |
| $C_8H_{12}^+$ | C_8H_{12} (Tricyclo[3.2.1.0 ^{2,4}]octane, (1 α ,2 β ,4 β ,5 α)-) (RN-CAS Registry Number 13377-46-3) (ON-Other name: Tricyclo[3.2.1.0 ^{2,4}]octane, <i>exo</i> -) | ** | 9.40 (V) | PE | 3509 |
| $C_8H_{12}^+$ | C_8H_{12} (Tricyclo[3.2.1.0 ^{2,4}]octane, (1 α ,2 β ,4 β ,5 α)-) (RN-CAS Registry Number 13377-46-3) (ON-Other name: Tricyclo[3.2.1.0 ^{2,4}]octane, <i>exo</i> -) | ** | 9.1±0.1 | EI | 3492 |
| $C_8H_{12}^+$ | C_8H_{12} (Tricyclo[4.2.0.0 ^{2,5}]octane, <i>syn</i> -) (RN-CAS Registry Number 28636-10-4) | ** | 9.18 (V) | PE | 4045 |
| $C_8H_{12}^+$ | C_8H_{12} (Tricyclo[4.2.0.0 ^{2,5}]octane, <i>anti</i> -) (RN-CAS Registry Number 13027-75-3) | ** | 9.23 (V) | PE | 4045 |
| $C_8H_{12}^+$ | C_8H_{12} (Tricyclo[5.1.0.0 ^{2,4}]octane, (1 α ,2 α ,4 α ,7 α)-) (RN-CAS Registry Number 50695-42-6) | ** | 8.95 (V) | PE | 3849 |
| $C_8H_{12}^+$ | C_8H_{12} (Tricyclo[5.1.0.0 ^{2,4}]octane, (1 α ,2 β ,4 β ,7 α)-) (RN-CAS Registry Number 50895-58-4) | ** | 9.39 (V) | PE | 3849 |
| $C_8H_{12}^+$ | $C_{10}H_{16}$ (4,7-Methano-1 <i>H</i> -indene, octahydro-, (3 α ,4 β ,7 β ,7 α)-) (RN-CAS Registry Number 2825-82-3) (ON-Other name: <i>exo</i> -Tricyclo[5.2.1.0 ^{2,6}]decane) | | 10.5±0.1 | PI | 3918 |
| $C_8H_{12}^+$ | $C_{10}H_{15}CH_3$ (RN-CAS Registry Number XXXXX-XX-X) (ON-Other name: 2-Methyl- <i>exo</i> -tricyclo[5.2.1.0 ^{2,6}]decane) | | 10.0±0.1 | PI | 3918 |
| $C_8H_{13}^+$ | $C_{10}H_{15}CH_3$ (4,7-Methano-1 <i>H</i> -indene, octahydro-2-methyl-, (2 α ,3 $\alpha\beta$,4 α ,7 α ,7 $\alpha\beta$)-) (RN-CAS Registry Number 50745-90-9) (ON-Other name: <i>cis</i> -4-Methyl- <i>exo</i> -tricyclo[5.2.1.0 ^{2,6}]decane) | | 10.1±0.1 | PI | 3918 |
| $C_8H_{13}^+$ | $C_{10}H_{15}CH_3$ (4,7-Methano-1 <i>H</i> -indene, octahydro-8-methyl-, stereoisomer) (RN-CAS Registry Number 50745-92-1) (ON-Other name: <i>anti</i> -10-Methyl- <i>endo</i> -tricyclo[5.2.1.0 ^{2,6}]decane) | | 9.5±0.1 | PI | 3918 |
| $C_8H_{14}^+$ | $(CH_3)_2C=CHCH=C(CH_3)_2$ (RN-CAS Registry Number 764-13-6) | ** | 7.65 | PE | 3847 |
| $C_8H_{14}^+$ | $CH_2=CH(CH_2)_4CH=CH_2$ (RN-CAS Registry Number 3710-30-3) | ** | 9.52±0.02 (V) | PE | 4010 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|---------------|---|----------------|---|--------|------|
| $C_8H_{14}^+$ | C_8H_{14} (Bicyclo[2.2.2]octane) (RN-CAS Registry Number 280-33-1) | ** | 9.43 | S | 3757 |
| $C_8H_{14}^+$ | C_8H_{14} (Bicyclo[2.2.2]octane) (RN-CAS Registry Number 280-33-1) | ** | 9.45 ± 0.02 | PE | 3757 |
| $C_8H_{14}^+$ | C_8H_{14} (Cyclooctene) (RN-CAS Registry Number 931-88-4) | ** | 8.8 | PE | 3999 |
| $C_8H_{16}^+$ | $(CH_3)_3CCH_2C(CH_3)=CH_2$ (RN-CAS Registry Number 107-39-1) | ** | 8.909 ± 0.005 | PE | 3957 |
| $C_8H_{16}^+$ | $(CH_3)_2CHC(CH_3)=C(CH_3)_2$ (RN-CAS Registry Number 565-77-5) | ** | 8.165 ± 0.005 | PE | 3957 |
| $C_8H_{16}^+$ | $C_2H_5CH_2C(CH_3)=C(CH_3)_2$ (RN-CAS Registry Number 7145-20-2) | ** | 8.186 ± 0.005 | PE | 3957 |
| $C_8H_{16}^+$ | $(C_2H_5)_2C=CHC_2H_5$ (RN-CAS Registry Number 16789-51-8) | ** | 8.480 ± 0.004 | PE | 3957 |
| $C_8H_{16}^+$ | $(C_2H_5)_2C=C(CH_3)_2$ (RN-CAS Registry Number 19780-67-7) | ** | 8.170 ± 0.003 | PE | 3957 |
| $C_8H_{16}^+$ | <i>cis</i> - $(CH_3)_2CHCH=CHCH(CH_3)_2$ (RN-CAS Registry Number 10557-44-5) | ** | 8.846 ± 0.005 | PE | 3957 |
| $C_8H_{16}^+$ | <i>cis</i> - $C_2H_5C(CH_3)=C(CH_3)C_2H_5$ (RN-CAS Registry Number 19550-87-9) | ** | 8.172 ± 0.003 | PE | 3957 |
| $C_8H_{16}^+$ | <i>cis</i> -3- C_8H_{16} (RN-CAS Registry Number 14850-22-7) | ** | 8.849 ± 0.005 | PE | 3957 |
| $C_8H_{16}^+$ | <i>cis</i> -4- C_8H_{16} (RN-CAS Registry Number 7642-15-1) | ** | 8.841 ± 0.005 | PE | 3957 |
| $C_8H_{16}^+$ | <i>trans</i> - $(CH_3)_2CHCH=CHCH(CH_3)_2$ (RN-CAS Registry Number 692-70-6) | ** | 8.838 ± 0.005 | PE | 3957 |
| $C_8H_{16}^+$ | <i>trans</i> - $C_2H_5C(CH_3)=C(CH_3)C_2H_5$ (RN-CAS Registry Number 19550-88-0) | ** | 8.156 ± 0.003 | PE | 3957 |
| $C_8H_{16}^+$ | <i>trans</i> -4- C_8H_{16} (RN-CAS Registry Number 14850-23-8) | ** | 8.830 ± 0.005 | PE | 3957 |
| $C_8H_{16}^+$ | $C_6H_{10}(CH_3)_2$ (Cyclohexane, 1,2-dimethyl-, <i>cis</i> -) (RN-CAS Registry Number 2207-01-4) | ** | 9.90 ± 0.07 | EDD | 3581 |
| $C_8H_{16}^+$ | $C_6H_{10}(CH_3)_2$ (Cyclohexane, 1,2-dimethyl-, <i>trans</i> -) (RN-CAS Registry Number 6876-23-9) | ** | 10.03 ± 0.05 | EDD | 3581 |
| $C_8H_{16}^+$ | C_8H_{16} (Cyclooctane) (RN-CAS Registry Number 292-64-8) | ** | 9.7 | PE | 3999 |
| $C_9H_7^+$ | $C_6H_5C \equiv CCH_3$ (Benzene, 1-propynyl-) (RN-CAS Registry Number 673-32-5) | | 11.42 ± 0.05 | EI | 4044 |
| $C_9H_7^+$ | C_9H_8 (1H-Indene) (RN-CAS Registry Number 95-13-6) | H | 12.62 ± 0.05 | EI | 4044 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|------------|---|----------------|---|--------|------|
| $C_9H_7^+$ | $C_6H_8(C_6H_5)_2$ (Benzene, 1,1'-(2-cyclohexen-1-ylidene)bis-) (RN-CAS Registry Number 31158-25-5) | | 13.6 ± 0.4 | EI | 4018 |
| $C_9H_7^+$ | $C_6H_{10}(C_6H_5)_2$ (Benzene, 1,1'-cyclohexylidenebis-) (RN-CAS Registry Number 21113-55-3) | | 13.3 ± 0.4 | EI | 4018 |
| $C_9H_7^+$ | $C_6H_9(CH_3)(C_6H_5)_2$ (Benzene, 1,1'-(4-methylcyclohexylidene)bis-) (RN-CAS Registry Number 32812-65-0) | | 13.7 ± 0.4 | EI | 4018 |
| $C_9H_7^+$ | $C_{10}H_{13}(CH_3)(C_6H_5)_2$ (Naphthalene, 1,2,3,4,4a,5,6,7-octahydro-4a-methyl-2,2-diphenyl-) (RN-CAS Registry Number 50592-50-2) | | 13.2 ± 0.4 | EI | 4018 |
| $C_9H_7^+$ | $C_6H_5C \equiv CCH = CHCH_2OH$ (2-Penten-4-yn-1-ol, 5-phenyl-, (E)-) (RN-CAS Registry Number 40317-08-6) | | 11.43 ± 0.05 | EI | 4044 |
| $C_9H_7^+$ | $C_6H_8(=O)(C_6H_5)_2$ (Cyclohexanone, 2,2-diphenyl-) (RN-CAS Registry Number 22612-62-0) | | 14.1 ± 0.4 | EI | 4018 |
| $C_9H_7^+$ | $C_6H_8(=O)(C_6H_5)_2$ (Cyclohexanone, 4,4-diphenyl-) (RN-CAS Registry Number 4528-68-1) | | 13.5 ± 0.4 | EI | 4018 |
| $C_9H_7^+$ | $C_6H_7(=O)(CH_3)(C_6H_5)_2$ (Cyclohexanone, 2-methyl-5,5-diphenyl-) (RN-CAS Registry Number 50592-49-9) | | 13.5 ± 0.4 | EI | 4018 |
| $C_9H_7^+$ | $C_6H_7(=O)(CH_3)(C_6H_5)_2$ (Cyclohexanone, 6-methyl-2,2-diphenyl-) (RN-CAS Registry Number 50592-52-4) | | 13.7 ± 0.4 | EI | 4018 |
| $C_9H_7^+$ | $C_6H_8(OH)(CH_3)(C_6H_5)_2$ (Cyclohexanol, 1-methyl-4,4-diphenyl-) (RN-CAS Registry Number 50592-47-7) | | 13.7 ± 0.4 | EI | 4018 |
| $C_9H_7^+$ | $C_6H_6(=O)(CH_3)_2(C_6H_5)_2$ (Cyclohexanone, 2,2-dimethyl-6,6-diphenyl-) (RN-CAS Registry Number 50592-53-5) | | 13.8 ± 0.4 | EI | 4018 |
| $C_9H_7^+$ | $C_{10}H_{11}(=O)(CH_3)(C_6H_5)_2$ (2(3H)-Naphthalenone, 4,4a,5,6,7,8-hexahydro-4a-methyl-7,7-diphenyl-) (RN-CAS Registry Number 50786-03-3) | | 13.0 ± 0.4 | EI | 4018 |
| $C_9H_7^+$ | $C_6H_6(=O)(CH_3)(C_6H_5)_2CH_2CH_2CHO$ (Cyclohexanepropanal, 1-methyl-2-oxo-3,3-diphenyl-) (RN-CAS Registry Number XXXXX-XX-X) | | 13.4 ± 0.4 | EI | 4018 |
| $C_9H_7^+$ | $C_6H_6(=O)(CH_3)(C_6H_5)_2CH_2CH_2COCH_3$ (Cyclohexanone, 2-methyl-2-(3-oxobutyl)-6,6-diphenyl-) (RN-CAS Registry Number 50592-55-7) | | 14.2 ± 0.4 | EI | 4018 |
| $C_9H_7^+$ | $C_6H_6(=O)(C_6H_5)=CHS(CH_2)_3CH_3$ (Cyclohexanone, 6-[(butylthio)methylene]-2,2-diphenyl-) (RN-CAS Registry Number 50592-51-3) | | 13.7 ± 0.4 | EI | 4018 |
| $C_9H_7^+$ | $C_6H_6(=O)CH_3(C_6H_5)_2CH_2CH=C(CH_3)Cl$ (Cyclohexanone, 2-(3-chloro-2-butenyl)-2-methyl-6,6-diphenyl-) (RN-CAS Registry Number 50592-54-6) | | 13.7 ± 0.4 | EI | 4018 |
| $C_9H_8^+$ | C_9H_8 (1H-Indene) (RN-CAS Registry Number 95-13-6) | ** | 8.33 ± 0.01 | EI | 3805 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|---------------|--|----------------|---|--------|------|
| $C_9H_8^+$ | C_9H_8 (Spiro[4.4]nona-1,3,6,8-tetraene) (RN-CAS Registry Number 14867-83-5) | ** | 7.99 (V) | PE | 4049 |
| $C_9H_{10}^+$ | $C_6H_4(CH_3)CH=CH_2$ (Benzene, 1-ethenyl-2-methyl-) (RN-CAS Registry Number 611-15-4) | ** | 8.20 ± 0.02 | PE | 3854 |
| $C_9H_{10}^+$ | $C_6H_4(CH_3)CH=CH_2$ (Benzene, 1-ethenyl-2-methyl-) (RN-CAS Registry Number 611-15-4) | ** | 8.53 (V) | PE | 3964 |
| $C_9H_{10}^+$ | $C_6H_4(CH_3)CH=CH_2$ (Benzene, 1-ethenyl-3-methyl-) (RN-CAS Registry Number 100-80-1) | ** | 8.15 ± 0.02 | PE | 3854 |
| $C_9H_{10}^+$ | $C_6H_4(CH_3)CH=CH_2$ (Benzene, 1-ethenyl-3-methyl-) (RN-CAS Registry Number 100-80-1) | ** | 8.37 (V) | PE | 3964 |
| $C_9H_{10}^+$ | $C_6H_4(CH_3)CH=CH_2$ (Benzene, 1-ethenyl-4-methyl-) (RN-CAS Registry Number 622-97-9) | ** | 8.20 (V) | PE | 3964 |
| $C_9H_{10}^+$ | $C_6H_5C(CH_3)=CH_2$ (Benzene, (1-methylethenyl)-) (RN-CAS Registry Number 98-83-9) | ** | 8.52 (V) | PE | 3964 |
| $C_9H_{10}^+$ | $C_6H_5C(CH_3)=CH_2$ (Benzene, (1-methylethenyl)-) (RN-CAS Registry Number 98-83-9) | ** | 8.18 ± 0.04 | RPD | 4097 |
| $C_9H_{10}^+$ | $C_6H_5CH=CHCH_3$ (Benzene, 1-propenyl-, (E)-) (RN-CAS Registry Number 873-66-5) | ** | 8.20 ± 0.02 | PE | 3854 |
| $C_9H_{10}^+$ | $C_6H_5CH=CHCH_3$ (Benzene, 1-propenyl-, (E)-) (RN-CAS Registry Number 873-66-5) | ** | 7.84 ± 0.04 | RPD | 4097 |
| $C_9H_{10}^+$ | $C_6H_5C(CH_3)=CH_2$ (Benzene, 2-propenyl-) (RN-CAS Registry Number 300-57-2) | ** | 8.20 ± 0.02 | PE | 3854 |
| $C_9H_{10}^+$ | $C_6H_5CH_2CH=CH_2$ (Benzene, (2-propenyl)-) (RN-CAS Registry Number 300-57-2) | ** | 8.60 | PE | 3938 |
| $C_9H_{10}^+$ | C_9H_{10} (Bicyclo[3.2.2]nona-2,6,8-triene) (RN-CAS Registry Number 16216-91-4) | ** | 8.72 (V) | PE | 3991 |
| $C_9H_{10}^+$ | C_9H_{10} (1 <i>H</i> -Indene, 2,3-dihydro-) (RN-CAS Registry Number 496-11-7) | ** | 8.45 ± 0.02 (V) | PE | 3854 |
| $C_9H_{10}^+$ | C_9H_{10} (1 <i>H</i> -Indene, 2,3-dihydro-) (RN-CAS-Registry Number 496-11-7) | ** | 8.46 (V) | PE | 4063 |
| $C_9H_{10}^+$ | C_9H_{10} (1 <i>H</i> -Indene, 2,3-dihydro-) (RN-CAS Registry Number 496-11-7) | ** | 8.60 ± 0.01 | EI | 3805 |
| $C_9H_{10}^+$ | C_9H_{10} (1 <i>H</i> -Indene, 2,3-dihydro-) (RN-CAS Registry Number 496-11-7) | ** | 8.52 | CTS | 3546 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|---------------|---|----------------|---|--------|------|
| $C_9H_{10}^+$ | C_9H_{10} (Spiro[bicyclo[2.2.1]hepta-2,5-diene-7,1'-cyclopropane]) (RN-CAS Registry Number 7092-57-1) | ** | 8.73 (V) | PE | 3780 |
| $C_9H_{10}^+$ | C_9H_{10} (Tricyclo[3.3.1.0 ^{2,8}]nona-3,6-diene) (RN-CAS Registry Number 14693-11-9) | ** | 8.4 (V) | PE | 4034 |
| $C_9H_{10}^+$ | C_9H_{10} (Tricyclo[4.2.1.0 ^{2,5}]nona-3,7-diene) (RN-CAS Registry Number 4932-71-2) | ** | 8.7 (V) | PE | 3853 |
| $C_9H_{10}^+$ | C_9H_{10} (Tricyclo[4.2.1.0 ^{2,5}]nona-3,7-diene, (1 α ,2 β ,5 β ,6 α)-) (RN-CAS Registry Number 15564-44-0) (ON-Other name: Tricyclo[4.2.1.0 ^{2,5}]nona-3,7-diene, <i>exo</i> -) | ** | 8.65±0.05 (V) | PE | 4040 |
| $C_9H_{10}^+$ | $C_6H_4(CH_3)CH_2CH_2OCOCH_3$ (Phenethyl alcohol, <i>m</i> -methyl-, acetate) (RN-CAS Registry Number 33709-40-9) | | 8.75 | EI | 3590 |
| $C_9H_{10}^+$ | $C_6H_4(CH_3)CH_2CH_2OCOCH_3$ (Phenethyl alcohol, <i>p</i> -methyl-, acetate) (RN-CAS Registry Number 22532-47-4) | | 8.50 | EI | 3590 |
| $C_9H_{12}^+$ | $(C_2H_5)_4C$ (RN-CAS Registry Number 20685-34-1) | ** | 9.52 (V) | PE | 3994 |
| $C_9H_{12}^+$ | $C_6H_3(CH_3)_3$ (Benzene, 1,2,3-trimethyl-) (RN-CAS Registry Number 526-73-8) | ** | 8.6±0.03 (V) | PE | 3713 |
| $C_9H_{12}^+$ | $C_6H_3(CH_3)_3$ (Benzene, 1,2,4-trimethyl-) (RN-CAS Registry Number 95-63-6) | ** | 8.5±0.03 (V) | PE | 3713 |
| $C_9H_{12}^+$ | $C_6H_3(CH_3)_3$ (Benzene, 1,3,5-trimethyl-) (RN-CAS Registry Number 108-67-8) | ** | 8.65±0.03 (V) | PE | 3713 |
| $C_9H_{12}^+$ | $C_6H_3(CH_3)_3$ (Benzene, 1,3,5-trimethyl-) (RN-CAS Registry Number 108-67-8) | ** | 8.21±0.1 | EI | 3788 |
| $C_9H_{12}^+$ | $C_6H_3(CH_3)_3$ (Benzene, 1,3,5-trimethyl-) (RN-CAS Registry Number 108-67-8) | ** | 8.46 | CTS | 4029 |
| | (AV-Average of two values) | | | | |
| $C_9H_{12}^+$ | C_9H_{12} (Bicyclo[3.2.2]nona-2,6-diene) RN-CAS Registry Number 14993-07-8) | ** | 8.84 (V) | PE | 3991 |
| $C_9H_{12}^+$ | C_9H_{12} (Bicyclo[3.2.2]nona-6,8-diene) (RN-CAS Registry Number 7164-08-1) | ** | 9.00 (V) | PE | 3991 |
| $C_9H_{12}^+$ | C_9H_{12} (Tetracyclo[3.3.1.0 ^{2,8} .0 ^{4,6}]nonane) (RN-CAS Registry Number 3105-29-1) | ** | 8.67 (V) | PE | 3741 |
| $C_9H_{12}^+$ | C_9H_{12} (Tricyclo[4.2.1.0 ^{2,5}]non-3-ene) (RN-CAS Registry Number 7078-40-2) | ** | 9 (V) | PE | 3853 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|---------------|--|-----------------|---|--------|------|
| $C_9H_{12}^+$ | C_9H_{12} (Tricyclo[4.2.1.0 ^{2,5}]non-3-ene, (1 α ,2 β ,5 β ,6 α)-) (RN-CAS Registry Number 16529-76-3) (ON-Other name: Tricyclo[4.2.1.0 ^{2,5}]non-3-ene, <i>exo</i> -) | ** | 9.00±0.05 (V) | PE | 4040 |
| $C_9H_{12}^+$ | C_9H_{12} (Tricyclo[4.2.1.0 ^{2,5}]non-7-ene) (RN-CAS Registry Number 6827-30-1) | ** | 8.7 (V) | PE | 3853 |
| $C_9H_{12}^+$ | C_9H_{12} (Tricyclo[4.2.1.0 ^{2,5}]non-7-ene, <i>exo</i> -) (RN-CAS Registry Number 16529-82-1) | ** | 8.70±0.05 (V) | PE | 4040 |
| $C_9H_{12}^+$ | $C_6H_3(CH_3)_3Cr(CO)_3$ (Chromium, tricarbonyl[(1,2,3,4,5,6- η)-1,3,5-trimethylbenzene]-) (RN-CAS Registry Number 12129-67-8) | | 8.61±0.1 | EI | 3788 |
| $C_9H_{13}^+$ | $C_{10}H_{16}$ (4,7-Methano-1 <i>H</i> -indene, octahydro-, (3 α ,4 β ,7 β ,7 α)-) (RN-CAS Registry Number 2825-82-3) (ON-Other name: <i>exo</i> -Tricyclo[5.2.1.0 ^{2,6}]decane) | CH ₃ | 9.8±0.1 | PI | 3918 |
| $C_9H_{13}^+$ | $C_{10}H_{15}CH_3$ (RN-CAS Registry Number XXXXX-XX-X) (ON-Other name: 2-Methyl- <i>exo</i> -tricyclo[5.2.1.0 ^{2,6}]decane) | | ≤10.2±0.1 | PI | 3918 |
| $C_9H_{13}^+$ | $C_{10}H_{15}CH_3$ (4,7-Methano-1 <i>H</i> -indene, octahydro-2-methyl-, (2 α ,3 $\alpha\beta$,4 α ,7 α ,7 $\alpha\beta$)-) (RN-CAS Registry Number 50745-90-9) (ON-Other name: <i>cis</i> -4-Methyl- <i>exo</i> -tricyclo[5.2.1.0 ^{2,6}]decane) | | 10.1±0.1 | PI | 3918 |
| $C_9H_{13}^+$ | $C_{10}H_{15}CH_3$ (4,7-Methano-1 <i>H</i> -indene, octahydro-8-methyl-, stereoisomer) (RN-CAS Registry Number 50745-92-1) (ON-Other name: <i>anti</i> -10-Methyl- <i>endo</i> -tricyclo[5.2.1.0 ^{2,6}]decane) | | 9.5±0.1 | PI | 3918 |
| $C_9H_{13}^+$ | $C_{10}H_{15}C_2H_5$ (4,7-Methano-1 <i>H</i> -indene, 5-ethyloctahydro-, (3 α ,4 β ,5 α ,7 β ,7 α)-) (RN-CAS Registry Number 32787-97-6) (ON-Other name: <i>endo</i> -8-Ethyl- <i>exo</i> -tricyclo[5.2.1.0 ^{2,6}]decane) | | 9.9±0.1 | PI | 3918 |
| $C_9H_{14}^+$ | C_9H_{14} (Bicyclo[3.2.2]non-2-ene) (RN-CAS Registry Number 40319-81-1) | ** | 8.84 (V) | PE | 3991 |
| $C_9H_{14}^+$ | C_9H_{14} (Bicyclo[3.2.2]non-6-ene) (RN-CAS Registry Number 7124-86-9) | ** | 8.95 (V) | PE | 3991 |
| $C_9H_{14}^+$ | C_9H_{14} (1,2-Cyclononadiene) (RN-CAS Registry Number 1123-11-1) | ** | 8.87 (V) | PE | 4019 |
| $C_9H_{14}^+$ | C_9H_{14} (Tricyclo[3.2.2.0 ^{2,4}]nonane) (RN-CAS Registry Number 278-80-8) | ** | 9.50 (V) | PE | 3849 |
| $C_9H_{14}^+$ | C_9H_{14} (Tricyclo[4.2.1.0 ^{2,5}]nonane, <i>exo</i> -) (RN-CAS Registry Number 16526-27-5) | ** | 9.5±0.05 (V) | PE | 4040 |
| $C_9H_{16}^+$ | $CH_2=CH(CH_2)_5CH=CH_2$ (RN-CAS Registry Number 4900-30-5) | ** | 9.51±0.02 (V) | PE | 4010 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|-----------------------|---|----------------|---|--------|------|
| $C_9H_{16}^+$ | $C_7H_{10}(CH_3)_2$ (Bicyclo[2.2.1]heptane, 7,7-dimethyl-) (RN-CAS Registry Number 2034-53-9) | ** | 8.30 | PE | 3687 |
| $C_9H_{16}^+$ | C_9H_{16} (Bicyclo[3.2.2]nonane) (RN-CAS Registry Number 283-19-2) | ** | 9.6 (V) | PE | 3991 |
| $C_9H_{16}^{+2}(^2E)$ | C_9H_{16} (Bicyclo[6.1.0]nonane) (RN-CAS Registry Number 286-60-2) | ** | 9.4 (V) | PE | 3509 |
| $C_9H_{16}^+$ | C_9H_{16} (Bicyclo[6.1.0]nonane, <i>trans</i> -) (RN-CAS Registry Number 39124-79-3) | ** | 9.36 (V) | PE | 3849 |
| $C_9H_{18}^+$ | $CH_3(CH_2)_3C(CH_3)=C(CH_3)_2$ (RN-CAS Registry Number 3074-64-4) | ** | 8.145 ± 0.005 | PE | 3957 |
| $C_9H_{18}^+$ | $C_2H_5CH_2C(CH_3)=C(CH_3)C_2H_5$ (RN-CAS Registry Number 3074-67-7) | ** | 8.077 ± 0.005 | PE | 3957 |
| $C_9H_{18}^+$ | $(C_2H_5)_2C=C(CH_3)C_2H_5$ (RN-CAS Registry Number 50787-13-8) | ** | 8.128 ± 0.005 | PE | 3957 |
| $C_{10}H_8^+$ | $C_{10}H_8$ (Naphthalene) (RN-CAS Registry Number 91-20-3) | ** | 8.1 | PI | 3586 |
| $C_{10}H_8^+$ | $C_{10}H_8$ (Naphthalene) (RN-CAS Registry Number 91-20-3) | ** | 8.13 | PE | 3637 |
| $C_{10}H_8^+$ | $C_{10}H_8$ (Naphthalene) (RN-CAS Registry Number 91-20-3) | ** | 8.15 | PE | 4066 |
| $C_{10}H_8^+$ | $C_{10}H_8$ (Naphthalene) (RN-CAS Registry Number 91-20-3) | ** | 8.15 | PE | 3638 |
| $C_{10}H_8^+$ | $C_{10}H_8$ (Naphthalene) (RN-CAS Registry Number 91-20-3) | ** | 8.15 | PE | 3668 |
| $C_{10}H_8^+$ | $C_{10}H_8$ (Naphthalene) (RN-CAS Registry Number 91-20-3) | ** | 8.15 (V) | PE | 3781 |
| $C_{10}H_8^+$ | $C_{10}H_8$ (Naphthalene) (RN-CAS Registry Number 91-20-3) | ** | 8.15 (V) | PE | 3898 |
| $C_{10}H_8^+$ | $C_{10}H_8$ (Naphthalene) (RN-CAS Registry Number 91-20-3) | ** | 8.25 ± 0.01 | RPD | 3588 |
| $C_{10}H_8^+$ | $C_{10}H_8$ (Naphthalene) (RN-CAS Registry Number 91-20-3) | ** | 8.12 | CTS | 3922 |
| $C_{10}H_{10}^+$ | $C_6H_5CH=CHCH=CH_2$ (Benzene, 1,3-butadienyl-, (E)-) (RN-CAS Registry Number 16939-57-4) | ** | 7.95 | PE | 3892 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|------------------|---|----------------|---|--------|------|
| $C_{10}H_{10}^+$ | $CH_2=C(C_6H_5)CH=CH_2$ (Benzene, (1-methylene-2-propenyl)-) (RN-CAS Registry Number 2288-18-8) | ** | 8.57 | PE | 3892 |
| $C_{10}H_{10}^+$ | $C_9H_8=CH_2$ (Bicyclo[4.2.1]nona-2,4,7-triene, 9-methylene-) (RN-CAS Registry Number 38898-39-4) | ** | 8.25 (V) | PE | 4094 |
| $C_{10}H_{10}^+$ | $C_{10}H_{10}$ (Cyclopenta[cd]pentalene, 2a,4a,6a,6b-tetrahydro-) (RN-CAS Registry Number 6053-74-3) (ON-Other name: Triquinacene) | ** | 9.0 (V) | PE | 4004 |
| $C_{10}H_{10}^+$ | $C_9H_8(=CH_2)$ (1 <i>H</i> -Indene, 2,3-dihydro-1-methylene-) (RN-CAS Registry Number 1194-56-5) | ** | 8.00 ± 0.02 | PE | 3854 |
| $C_{10}H_{10}^+$ | $C_{10}H_{10}$ (1,2,3-Metheno-1 <i>H</i> -dicycloprop[cd,hi]indene, octahydro-) (RN-CAS Registry Number 33840-23-2) (ON-Other name: Diademane) | ** | 8.50 (V) | PE | 3849 |
| $C_{10}H_{10}^+$ | $(C_5H_5)_2Fe$ (Ferrocene) (RN-CAS Registry Number 102-54-5) | Fe | 13.8 ± 0.5 | EI | 3628 |
| | (PC-Appearence potential of the corresponding metastable transition) | | | | |
| $C_{10}H_{10}^+$ | $(C_5H_5)_2Fe$ (Ferrocene) (RN-CAS Registry Number 102-54-5) | Fe | 13.96 ± 0.10 | EI | 3628 |
| | (MT-Metastable transition(s) observed) | | | | |
| $C_{10}H_{10}^+$ | $(C_5H_5)_2Ni$ (Nickelocene) (RN-CAS Registry Number 1271-28-9) | Ni | 13.3 ± 0.5 | EI | 3628 |
| | (PC-Appearence potential of the corresponding metastable transition) | | | | |
| $C_{10}H_{12}^+$ | $C_6H_3(CH_3)_2CH=CH_2$ (Benzene, 1-ethenyl-2,4-dimethyl-) (RN-CAS Registry Number 2234-20-0) | ** | 8.22 (V) | PE | 3964 |
| $C_{10}H_{12}^+$ | $C_6H_3(CH_3)_2CH=CH_2$ (Benzene, 2-ethenyl-1,3-dimethyl-) (RN-CAS Registry Number 2039-90-9) | ** | 8.10 ± 0.02 | PE | 3854 |
| $C_{10}H_{12}^+$ | $C_6H_3(CH_3)_2CH=CH_2$ (Benzene, 2-ethenyl-1,3-dimethyl-) (RN-CAS Registry Number 2039-90-9) | ** | 8.48 (V) | PE | 3964 |
| $C_{10}H_{12}^+$ | $C_6H_3(CH_3)_2CH=CH_2$ (Benzene, 2-ethenyl-1,4-dimethyl-) (RN-CAS Registry Number 2039-89-6) | ** | 8.00 ± 0.02 | PE | 3854 |
| $C_{10}H_{12}^+$ | $C_6H_5CH=C(CH_3)_2$ (Benzene, (2-methyl-1-propenyl)-) (RN-CAS Registry Number 768-49-0) | ** | 7.78 ± 0.04 | RPD | 4097 |
| $C_{10}H_{12}^+$ | $C_7H_6=C(CH_3)_2$ (Bicyclo[2.2.1]hepta-2,5-diene, 7-(1-methylethylidene)-) (RN-CAS Registry Number 36456-22-1) | ** | 7.97 | PE | 3687 |
| $C_{10}H_{12}^+$ | $C_9H_9CH_3$ (1 <i>H</i> -Indene, 2,3-dihydro-1-methyl-) (RN-CAS Registry Number 767-58-8) | ** | 8.47 | CTS | 3546 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|------------------|---|-----------------|---|--------|------|
| $C_{10}H_{12}^+$ | $C_{10}H_{12}$ (Naphthalene, 1,2,3,4-tetrahydro-) (RN-CAS-Registry Number 119-64-2) | ** | 8.44 (V) | PE | 4063 |
| $C_{10}H_{12}^+$ | $C_{10}H_{12}$ (Naphthalene, 1,2,3,4-tetrahydro-) (RN-CAS Registry Number 119-64-2) | ** | 8.45 ± 0.02 (V) | PE | 3854 |
| $C_{10}H_{12}^+$ | $C_{10}H_{12}$ (Naphthalene, 1,2,3,4-tetrahydro-) (RN-CAS Registry Number 119-64-2) | ** | 8.47 | CTS | 3546 |
| $C_{10}H_{12}^+$ | $C_{10}H_{12}$ (Tricycloprop[<i>cd,f,h</i>]indene, decahydro-, (1 α ,1 β ,1 γ ,2 α ,2 β ,2 γ ,2 δ ,2 ϵ)-) (RN-CAS Registry Number 50895-59-5) (ON-Other name: Pentacyclo[3.3.2.0 ^{2,9} .0 ^{4,10} .0 ^{6,8}]decane) | ** | 8.78 (V) | PE | 3849 |
| $C_{10}H_{14}^+$ | $C_6H_4(C_2H_5)_2$ (Benzene, 1,2-diethyl-) (RN-CAS-Registry Number 135-01-3) | ** | 8.51 (V) | PE | 4063 |
| $C_{10}H_{14}^+$ | $C_6H_4(C_2H_5)_2$ (Benzene, 1,2-diethyl-) (RN-CAS Registry Number 135-01-3) | ** | 8.51 | CTS | 3546 |
| $C_{10}H_{14}^+$ | $C_6H_5C(CH_3)_3$ (Benzene, (1,1-dimethylethyl-) (RN-CAS Registry Number 98-06-6) | ** | 8.64 | CTS | 3922 |
| $C_{10}H_{14}^+$ | $C_6H_2(CH_3)_4$ (Benzene, 1,2,3,5-tetramethyl-) (RN-CAS Registry Number 527-53-7) | ** | 8.3 ± 0.03 (V) | PE | 3713 |
| $C_{10}H_{14}^+$ | $C_6H_2(CH_3)_4$ (Benzene, 1,2,4,5-tetramethyl-) (RN-CAS Registry Number 95-93-2) | ** | 8.2 | CTS | 3543 |
| $C_{10}H_{14}^+$ | $C_7H_8=C(CH_3)_2$ (Bicyclo[2.2.1]hept-2-ene, 7-(1-methylethylidene)-) (RN-CAS Registry Number 14995-50-7) | ** | 8.27 | PE | 3687 |
| $C_{10}H_{15}^+$ | $C_{10}H_{15}CH_3$ (RN-CAS Registry Number XXXXX-XX-X) (ON-Other name: 2-Methyl- <i>exo</i> -tricyclo[5.2.1.0 ^{2,6}]decane) | CH ₃ | 9.5 ± 0.1 | PI | 3918 |
| $C_{10}H_{15}^+$ | $C_{10}H_{15}CH_3$ (4,7-Methano-1 <i>H</i> -indene, octahydro-2-methyl-, (2 α ,3 α ,4 α ,7 α ,7 β)-) (RN-CAS Registry Number 50745-90-9) (ON-Other name: <i>cis</i> -4-Methyl- <i>exo</i> -tricyclo[5.2.1.0 ^{2,6}]decane) | CH ₃ | 10.1 ± 0.1 | PI | 3918 |
| $C_{10}H_{15}^+$ | $C_{10}H_{15}CH_3$ (4,7-Methano-1 <i>H</i> -indene, octahydro-8-methyl-, stereoisomer) (RN-CAS Registry Number 50745-92-1) (ON-Other name: <i>anti</i> -10-Methyl- <i>endo</i> -tricyclo[5.2.1.0 ^{2,6}]decane) | CH ₃ | 9.6 ± 0.1 | PE | 3918 |
| $C_{10}H_{15}^+$ | $C_{10}H_{15}C_2H_5$ (4,7-Methano-1 <i>H</i> -indene, 5-ethyloctahydro-, (3 α ,4 β ,5 α ,7 β ,7 α)-) (RN-CAS Registry Number 32787-97-6) (ON-Other name: <i>endo</i> -8-Ethyl- <i>exo</i> -tricyclo[5.2.1.0 ^{2,6}]decane) | | 9.9 ± 0.1 | PI | 3918 |
| $C_{10}H_{16}^+$ | $C_9H_{14}=CH_2$ (Bicyclo[4.2.1]nonane, 9-methylene-) (RN-CAS Registry Number 40916-48-1) | ** | 9.0 (V) | PE | 4094 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|------------------|---|----------------|---|--------|------|
| $C_{10}H_{16}^+$ | $(C_3H_5)_2C=C(CH_3)_2$ (Cyclopropane, 1,1'-(2-methyl-1-propenylidene)bis-) (RN-CAS Registry Number 27720-84-9) | ** | 7.82 | PI | 3759 |
| $C_{10}H_{16}^+$ | $C_{10}H_{16}$ (4,7-Methano-1H-indene, octahydro-, (3 α ,4 β ,7 β ,7 α)-) (RN-CAS Registry Number 2825-82-3) (ON-Other name: <i>exo</i> -Tricyclo[5.2.1.0 ^{2,6}]decane) | ** | 9.35 \pm 0.05 | PI | 3918 |
| $C_{10}H_{16}^+$ | $C_{10}H_{16}$ (Tricyclo[3.3.1.1 ^{3,7}]decane (RN-CAS Registry Number 281-23-2) | ** | 9.30 \pm 0.01 | S | 3757 |
| $C_{10}H_{16}^+$ | $C_{10}H_{16}$ (Tricyclo[3.3.1.1 ^{3,7}]decane) (RN-CAS Registry Number 281-23-2) (ON-Other name: Adamantane) | ** | 9.1 \pm 0.05 | PE | 3855 |
| $C_{10}H_{16}^+$ | $C_{10}H_{16}$ (Tricyclo[3.3.1.1 ^{3,7}]decane) (RN-CAS Registry Number 281-23-2) (ON-Other name: Adamantane) | ** | 9.22 | PE | 3907 |
| $C_{10}H_{16}^+$ | $C_{10}H_{16}$ (Tricyclo[3.3.1.1 ^{3,7}]decane) (RN-CAS Registry Number 281-23-2) (ON-Other name: Adamantane) | ** | 9.23 | PE | 3886 |
| $C_{10}H_{16}^+$ | $C_{10}H_{16}$ (Tricyclo[3.3.1.1 ^{3,7}]decane) (RN-CAS Registry Number 281-23-2) (ON-Other name: Adamantane) | ** | 9.28 \pm 0.1 | PE | 3851 |
| $C_{10}H_{16}^+$ | $C_{10}H_{16}$ (Tricyclo[3.3.1.1 ^{3,7}]decane (RN-CAS Registry Number 281-23-2) | ** | 9.31 \pm 0.01 | PE | 3757 |
| $C_{10}H_{16}^+$ | $C_{10}H_{16}$ (Tricyclo[3.3.1.1 ^{3,7}]decane) (RN-CAS Registry Number 281-23-2) (ON-Other name: Adamantane) | ** | 9.55 (V) | PE | 3990 |
| $C_{10}H_{16}^+$ | $C_{10}H_{16}$ (Tricyclo[3.3.1.1 ^{3,7}]decane (RN-CAS Registry Number 281-23-2) (ON-Other name: Adamantane) | ** | 9.75 (V) | PE | 4000 |
| $C_{10}H_{20}^+$ | $CH_3(CH_2)_3C(C_2H_5)=C(CH_3)_2$ (RN-CAS Registry Number 19780-61-1) | ** | 8.101 \pm 0.005 | PE | 3957 |
| $C_{10}H_{20}^+$ | $CH_3(CH_2)_4C(CH_3)=C(CH_3)_2$ (RN-CAS Registry Number 19781-18-1) | ** | 8.132 \pm 0.005 | PE | 3957 |
| $C_{10}H_{20}^+$ | $(CH_3)_3CCH_2C(CH_3)=C(CH_3)_2$ (RN-CAS Registry Number 33175-59-6) | ** | 8.097 \pm 0.005 | PE | 3957 |
| $C_{10}H_{20}^+$ | $(tert-C_4H_9)_2C=CH_2$ (RN-CAS Registry Number 5857-68-1) | ** | 8.795 \pm 0.008 | PE | 3957 |
| $C_{10}H_{20}^+$ | <i>cis</i> -(CH_3) ₃ CCH=CHC(CH_3) ₃ (RN-CAS Registry Number 692-47-7) | ** | 8.695 \pm 0.010 | PE | 3957 |
| $C_{10}H_{20}^+$ | <i>cis</i> -(CH_3) ₃ CCH=CHC(CH_3) ₃ (RN-CAS Registry Number 692-47-7) | ** | 8.95 (V) | PE | 4084 |
| $C_{10}H_{20}^+$ | <i>cis</i> -5- $C_{10}H_{20}$ (RN-CAS Registry Number 7433-78-5) | ** | 8.766 \pm 0.005 | PE | 3957 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|------------------|--|----------------|---|--------|------|
| $C_{10}H_{20}^+$ | <i>trans</i> -(CH_3) ₃ CCH=CHC(CH_3) ₃ (RN-CAS Registry Number 692-48-8) | ** | 8.741±0.008 | PE | 3957 |
| $C_{10}H_{20}^+$ | <i>trans</i> -(CH_3) ₃ CCH=CHC(CH_3) ₃ (RN-CAS Registry Number 692-48-8) | ** | 8.89 (V) | PE | 4084 |
| $C_{10}H_{20}^+$ | <i>trans</i> -5- $C_{10}H_{20}$ (RN-CAS Registry Number 7433-56-9) | ** | 8.760±0.005 | PE | 3957 |
| $C_{11}H_9^+$ | $C_6H_5C\equiv CCH=CHCH_2Cl$ (Benzene, (5-chloro-3-penten-1-ynyl)-, (<i>E</i>)-) (RN-CAS Registry Number 40316-56-1) | | 8.95±0.05 | EI | 4044 |
| $C_{11}H_9^+$ | $C_{10}H_7CH_2Cl$ (Naphthalene, 1-(chloromethyl)-) (RN-CAS Registry Number 86-52-2) | | 11.21±0.05 | EI | 4044 |
| $C_{11}H_9^+$ | $C_{10}H_7CH_2Cl$ (Naphthalene, 2-(chloromethyl)-) (RN-CAS Registry Number 2506-41-4) | | 11.15±0.05 | EI | 4044 |
| $C_{11}H_{10}^+$ | $C_{11}H_{10}$ (Bicyclo[4.4.1]undeca-1,3,5,7,9-pentaene) (RN-CAS Registry Number 2443-46-1) | ** | 7.90 (V) | PE | 3953 |
| $C_{11}H_{10}^+$ | $C_{10}H_7CH_3$ (Naphthalene, 1-methyl-) (RN-CAS Registry Number 90-12-0) | ** | 7.95 (V) | PE | 3685 |
| $C_{11}H_{10}^+$ | $C_{10}H_7CH_3$ (Naphthalene, 1-methyl-) (RN-CAS Registry Number 90-12-0) | ** | 7.80±0.03 | RPD | 3588 |
| $C_{11}H_{10}^+$ | $C_{10}H_7CH_3$ (Naphthalene, 1-methyl-) (RN-CAS Registry Number 90-12-0) | ** | 7.98 | CTS | 3758 |
| $C_{11}H_{10}^+$ | $C_{10}H_7CH_3$ (Naphthalene, 2-methyl-) (RN-CAS Registry Number 91-57-6) | ** | 7.93 (V) | PE | 3685 |
| $C_{11}H_{10}^+$ | $C_{10}H_7CH_3$ (Naphthalene, 2-methyl-) (RN-CAS Registry Number 91-57-6) | ** | 8.10±0.03 | RPD | 3588 |
| $C_{11}H_{10}^+$ | (C_6H_5) ₂ S (Benzene, 1,1'-thiobis-) (RN-CAS Registry Number 139-66-2) | CS | 12.57±0.1 | EI | 3817 |
| $C_{11}H_{12}^+$ | $C_{10}H_{10}(=CH_2)$ (Naphthalene, 1,2,3,4-tetrahydro-1-methylene-) (RN-CAS Registry Number 25108-63-8) | ** | 7.90±0.02 (V) | PE | 3854 |
| $C_{11}H_{14}^+$ | $C_6H_2(CH_3)_3CH=CH_2$ (Benzene, 2-ethenyl-1,3,5-trimethyl-) (RN-CAS Registry Number 769-25-5) | ** | 8.33 (V) | PE | 3964 |
| $C_{11}H_{14}^+$ | $C_{11}H_{14}$ (5 <i>H</i> -Benzocycloheptene, 6,7,8,9-tetrahydro-) (RN-CAS Registry Number 1075-16-7) | ** | 8.40±0.02 (V) | PE | 3854 |
| $C_{11}H_{14}^+$ | $C_{11}H_{14}$ (5 <i>H</i> -Benzocycloheptene, 6,7,8,9-tetrahydro-) (RN-CAS Registry Number 1075-16-7) | ** | 8.44 (V) | PE | 4063 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|------------------|--|-----------------|---|--------|------|
| $C_{11}H_{14}^+$ | $C_9H_8(CH_3)_2$ (Indan, 1,1-dimethyl) (RN-CAS Registry Number 4912-92-9) | ** | 8.47 | CTS | 3546 |
| $C_{11}H_{14}^+$ | $C_9H_8(CH_3)_2$ (1 <i>H</i> -Indene, 2,3-dihydro-2,2-dimethyl-) (RN-CAS Registry Number 20836-11-7) | ** | 8.47 | CTS | 3546 |
| $C_{11}H_{14}^+$ | $C_8H_8=C(CH_3)_2$ (Tricyclo[3.2.1.0 ^{2,4}]oct-6-ene, 8-(1-methylethylidene)-, <i>endo</i> -) (RN-CAS Registry Number XXXXX-XX-X) | ** | 7.9 | PE | 3687 |
| $C_{11}H_{16}^+$ | $C_6H_4(CH_3)C_4H_9$ (Benzene, 1-butyl-3-methyl-) (RN-CAS Registry Number 1595-04-6) | ** | 8.42±0.1 | EI | 3629 |
| $C_{11}H_{16}^+$ | $C_6H_4(CH_3)C_4H_9$ (Benzene, 1-butyl-4-methyl-) (RN-CAS Registry Number 1595-05-7) | ** | 8.35±0.1 | EI | 3629 |
| $C_{11}H_{16}^+$ | $C_6H(CH_3)_5$ (Benzene, pentamethyl-) (RN-CAS Registry Number 700-12-9) | ** | 7.9 | CTS | 3543 |
| $C_{11}H_{16}^+$ | $(C_3H_5)_2C=CHC_3H_5$ (Cyclopropane, 1,1',1''-(1-ethenyl-2-ylidene)tris-) (RN-CAS Registry Number 23603-63-6) | ** | 7.48 | PI | 3759 |
| $C_{11}H_{16}^+$ | $C_{10}H_{14}(=CH_2)$ (Tricyclo[3.3.1.1 ^{3,7}]decane, 2-methylene-) (RN-CAS Registry Number 875-72-9) (ON-Other name: Methyleneadamantane) | | 8.82 | PE | 3886 |
| $C_{11}H_{16}^+$ | $C_8H_{10}=C(CH_3)_2$ (Tricyclo[3.2.1.0 ^{2,4}]octane, 8-(1-methylethylidene)-, <i>endo</i> -) (RN-CAS Registry Number XXXXX-XX-X) | ** | 8.18 | PE | 3687 |
| $C_{11}H_{17}^+$ | $C_{10}H_{15}C_2H_5$ (4,7-Methano-1 <i>H</i> -indene, 5-ethyloctahydro-, (3 <i>α</i> ,4 <i>β</i> ,5 <i>α</i> ,7 <i>β</i> ,7 <i>α</i>)-) (RN-CAS Registry Number 32787-97-6) (ON-Other name: <i>endo</i> -8-Ethyl- <i>exo</i> -tricyclo[5.2.1.0 ^{2,6}]decane) | CH ₃ | 10.0±0.1 | PI | 3918 |
| $C_{11}H_{18}^+$ | $C_{10}H_{15}CH_3$ (RN-CAS Registry Number XXXXX-XX-X) (ON-Other name: 2-Methyl- <i>exo</i> -tricyclo[5.2.1.0 ^{2,6}]decane) | ** | 9.35±0.05 | PI | 3918 |
| $C_{11}H_{18}^+$ | $C_{10}H_{15}CH_3$ (4,7-Methano-1 <i>H</i> -indene, octahydro-2-methyl-, (2 <i>α</i> ,3 <i>αβ</i> ,4 <i>α</i> ,7 <i>α</i> ,7 <i>αβ</i>)-) (RN-CAS Registry Number 50745-90-9) (ON-Other name: <i>cis</i> -4-Methyl- <i>exo</i> -tricyclo[5.2.1.0 ^{2,6}]decane) | ** | 9.35±0.05 | PI | 3918 |
| $C_{11}H_{18}^+$ | $C_{10}H_{15}CH_3$ (4,7-Methano-1 <i>H</i> -indene, octahydro-8-methyl-, stereoisomer) (RN-CAS Registry Number 50745-92-1) (ON-Other name: <i>anti</i> -10-Methyl- <i>endo</i> -tricyclo[5.2.1.0 ^{2,6}]decane) | ** | 9.35±0.05 | PI | 3918 |
| $C_{11}H_{18}^+$ | $C_{10}H_{15}CH_3$ (Tricyclo[3.3.1.1 ^{3,7}]decane, 1-methyl-) (RN-CAS Registry Number 768-91-2) (ON-Other name: 1-Methyladamantane) | ** | 9.17±0.02 | PE | 3886 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|------------------|--|----------------|---|--------|------|
| $C_{11}H_{20}^+$ | <i>tert</i> - $C_4H_9)_2C=C=CH_2$ (RN-CAS Registry Number 22585-31-5) | ** | 8.55 (V) | PE | 4019 |
| $C_{11}H_{22}^+$ | $C_2H_5CH_2C(C_2H_5)=C(C_2H_5)_2$ (RN-CAS Registry Number 50787-14-9) | ** | 8.041 ± 0.020 | PE | 3957 |
| $C_{12}H_8^+$ | $C_{12}H_8$ (Biphenylene) (RN-CAS Registry Number 259-79-0) | ** | 7.53 ± 0.05 | PE | 3684 |
| $C_{12}H_8^+$ | $C_{12}H_8$ (Biphenylene) (RN-CAS Registry Number 259-79-0) | ** | 7.60 ± 0.02 (V) | PE | 3702 |
| $C_{12}H_{10}^+$ | $(C_6H_5)_2$ (1,1'-Biphenyl) (RN-CAS Registry Number 92-52-4) | ** | 7.95 ± 0.02 | PE | 3702 |
| $C_{12}H_{10}^+$ | $(C_6H_5)_2$ (1,1'-Biphenyl) (RN-CAS Registry Number 92-52-4) | ** | 8.35 | CTS | 3577 |
| $C_{12}H_{10}^+$ | $C_{12}H_{10}$ (Cyclopent[<i>cd</i>]azulene, 2a, 8b-dihydro-) (RN-CAS Registry Number 38310-40-6) | ** | 7.46 (V) | PE | 4008 |
| $C_{12}H_{10}^+$ | $C_{12}H_{10}$ (4a, 8a-Ethenonaphthalene) (RN-CAS Registry Number 19539-78-7) | ** | 8.1 (V) | PE | 4006 |
| $C_{12}H_{12}^+$ | $C_{12}H_{12}$ (4a, 8a-Ethenonaphthalene, 1,4-dihydro-) (RN-CAS Registry Number 38310-32-6) | ** | 8.0 (V) | PE | 4006 |
| $C_{12}H_{14}^+$ | $C_{11}H_{12}(=CH_2)$ (5 <i>H</i> -Benzocycloheptene, 6,7,8,9-tetrahydro-5-methylene-) (RN-CAS Registry Number 40562-09-2) | ** | 8.45 ± 0.02 (V) | PE | 3854 |
| $C_{12}H_{14}^+$ | $C_{12}H_{14}$ (4a, 8a-Ethenonaphthalene, 1,2,3,4-tetrahydro-) (RN-CAS Registry Number 24139-33-1) | ** | 8.0 (V) | PE | 4006 |
| $C_{12}H_{14}^+$ | $C_{12}H_{14}$ (4a, 8a-Ethenonaphthalene, 1,4,5,8-tetrahydro-) (RN-CAS Registry Number 20295-17-4) | ** | 8.7 (V) | PE | 4006 |
| $C_{12}H_{16}^+$ | $C_6H_5CH=CHC(CH_3)_3$ (Benzene, (3,3-dimethyl-1-butenyl)-, (E)-) (RN-CAS Registry Number 3846-66-0) | ** | 7.80 ± 0.04 | RPD | 4097 |
| $C_{12}H_{16}^+$ | $C_6H_5CH=CHC(CH_3)_3$ (Benzene, (3,3-dimethyl-1-butenyl)-, (Z)-) (RN-CAS Registry Number 3740-05-4) | ** | 8.29 ± 0.04 | RPD | 4097 |
| $C_{12}H_{16}^+$ | $C_6H_5C(C(CH_3)_3)=CH_2$ (Benzene, (2,2-dimethyl-1-methylenpropyl)-) (RN-CAS Registry Number 5676-29-9) | ** | 8.25 ± 0.04 | RPD | 4097 |
| $C_{12}H_{16}^+$ | $C_{12}H_{16}$ (Benzocyclooctene, 5,6,7,8,9,10-hexahydro-) (RN-CAS-Registry Number 1076-69-3) | ** | 8.42 (V) | PE | 4063 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|------------------|---|----------------|---|--------|------|
| $C_{12}H_{16}^+$ | $C_{12}H_{16}$ (4a, 8a-Ethenonaphthalene, 1,2,3,4,5,8-hexahydro-) (RN-CAS Registry Number 24139-32-0) | ** | 8.9 (V) | PE | 4006 |
| $C_{12}H_{18}^+$ | $C_6(CH_3)_6$ (Benzene, hexamethyl-) (RN-CAS Registry Number 87-85-4) | ** | 7.8 | CTS | 3543 |
| $C_{12}H_{18}^+$ | $C_{12}H_{18}$ (4a, 8a-Ethenonaphthalene, 1,2,3,4,5,6,7,8-octahydro-) (RN-CAS Registry Number 38992-78-8) | ** | 9.05 (V) | PE | 4006 |
| $C_{12}H_{18}^+$ | $C_6(CH_3)_6Cr(CO)_3$ (Chromium, tricarbonyl[(1,2,3,4,5,6- η)-hexamethylbenzene]-) (RN-CAS Registry Number 12088-11-8) | | 8.55±0.1 | EI | 3788 |
| $C_{12}H_{20}^+$ | $C_{10}H_{15}C_2H_5$ (4,7-Methano-1H-indene, 5-ethyloctahydro-, (3 α ,4 β ,5 α ,7 β ,7 α)-) (RN-CAS Registry Number 32787-97-6) (ON-Other name: <i>endo</i> -8-Ethyl- <i>exo</i> -tricyclo[5.2.1.0 ^{2,6}]decane) | ** | 9.35±0.05 | PI | 3918 |
| $C_{12}H_{24}^+$ | <i>cis</i> -(CH_3) ₃ CCH ₂ C(CH_3)=CHC(CH_3) ₃ ** (RN-CAS Registry Number 27656-50-4) | ** | 8.346±0.005 | PE | 3957 |
| $C_{13}H_9^+$ | $C_{14}H_9CH_3$ (Phenanthrene, 4-methyl-) (RN-CAS Registry Number 832-64-4) (MT-Metastable transition(s) observed) | C_2H_3 | 12.7±0.1 | EI | 3454 |
| $C_{13}H_9^+$ | $C_{14}H_8(CH_3)_2$ (Phenanthrene, 4,5-dimethyl-) (RN-CAS Registry Number 3674-69-9) | | 12.4±0.1 | EI | 3454 |
| $C_{13}H_9^+$ | $C_6H_8(C_6H_5)_2$ (Benzene, 1,1'-(2-cyclohexen-1-ylidene)bis-) (RN-CAS Registry Number 31158-25-5) | | 13.0±0.4 | EI | 4018 |
| $C_{13}H_9^+$ | $C_6H_{10}(C_6H_5)_2$ (Benzene, 1,1'-cyclohexylidenebis-) (RN-CAS Registry Number 21113-55-3) | | 13.3±0.4 | EI | 4018 |
| $C_{13}H_9^+$ | $C_6H_7(CH_3)(C_6H_5)_2$ (Cyclohexene, 1-methyl-4,4-diphenyl-) (RN-CAS Registry Number 50592-48-8) | | 13.4±0.4 | EI | 4018 |
| $C_{13}H_9^+$ | $C_6H_9(CH_3)(C_6H_5)_2$ (Benzene, 1,1'-(4-methylcyclohexylidene)bis-) (RN-CAS Registry Number 32812-65-0) | | 13.2±0.4 | EI | 4018 |
| $C_{13}H_9^+$ | $C_{10}H_{13}(CH_3)(C_6H_5)_2$ (Naphthalene, 1,2,3,4,4a,5,6,7-octahydro-4a-methyl-2,2-diphenyl-) (RN-CAS Registry Number 50592-50-2) | | 13.4±0.4 | EI | 4018 |
| $C_{13}H_9^+$ | $C_6H_6(=O)(C_6H_5)_2$ (2-Cyclohexen-1-one, 4,4-diphenyl-) (RN-CAS Registry Number 4528-64-7) | | 14.4±0.4 | EI | 4018 |
| $C_{13}H_9^+$ | $C_6H_8(=O)(C_6H_5)_2$ (Cyclohexanone, 2,2-diphenyl-) (RN-CAS Registry Number 22612-62-0) | | 13.8±0.4 | EI | 4018 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|------------------|---|------------------|---|--------|------|
| $C_{13}H_9^+$ | $C_6H_8(=O)(C_6H_5)_2$ (Cyclohexanone, 4,4-diphenyl-) (RN-CAS Registry Number 4528-68-1) | | 14.4±0.4 | EI | 4018 |
| $C_{13}H_9^+$ | $C_6H_7(=O)(CH_3)(C_6H_5)_2$ (Cyclohexanone, 2-methyl-5,5-diphenyl-) (RN-CAS Registry Number 50592-49-9) | | 14.0±0.4 | EI | 4018 |
| $C_{13}H_9^+$ | $C_6H_7(=O)(CH_3)(C_6H_5)_2$ (Cyclohexanone, 6-methyl-2,2-diphenyl-) (RN-CAS Registry Number 50592-52-4) | | 14.1±0.4 | EI | 4018 |
| $C_{13}H_9^+$ | $C_6H_8(OH)(CH_3)(C_6H_5)_2$ (Cyclohexanol, 1-methyl-4,4-diphenyl-) (RN-CAS Registry Number 50592-47-7) | | 13.9±0.4 | EI | 4018 |
| $C_{13}H_9^+$ | $C_6H_6(=O)(CH_3)_2(C_6H_5)_2$ (Cyclohexanone, 2,2-dimethyl-6,6-diphenyl-) (RN-CAS Registry Number 50592-53-5) | | 13.4±0.4 | EI | 4018 |
| $C_{13}H_9^+$ | $C_6H_6(=O)(CH_3)(C_6H_5)_2CH_2CH_2CHO$ (Cyclohexanepropanal, 1-methyl-2-oxo-3,3-diphenyl-) (RN-CAS Registry Number XXXXX-XX-X) | | 13.6±0.4 | EI | 4018 |
| $C_{13}H_9^+$ | $C_6H_6(=O)(CH_3)(C_6H_5)_2CH_2CH_2COCH_3$ (Cyclohexanone, 2-methyl-2-(3-oxobutyl)-6,6-diphenyl-) (RN-CAS Registry Number 50592-55-7) | | 13.6±0.4 | EI | 4018 |
| $C_{13}H_9^+$ | $C_6H_6(=O)(C_6H_5)=CHS(CH_2)_3CH_3$ (Cyclohexanone, 6-[(butylthio)methylene]-2,2-diphenyl-) (RN-CAS Registry Number 50592-51-3) | | 13.7±0.4 | EI | 4018 |
| $C_{13}H_9^+$ | $C_6H_6(=O)CH_3(C_6H_5)_2CH_2CH=C(CH_3)Cl$ (Cyclohexanone, 2-(3-chloro-2-butenyl)-2-methyl-6,6-diphenyl-) (RN-CAS Registry Number 50592-54-6) | | 13.3±0.4 | EI | 4018 |
| $C_{13}H_{10}^+$ | $C_{13}H_{10}$ (Fluorene) (RN-CAS Registry Number 86-73-7) | ** | 7.93±0.02 (V) | PE | 3702 |
| $C_{13}H_{11}^+$ | $(C_6H_5)_3CH$ (Benzene, 1,1',1''-methylidynetris-) (RN-CAS-Registry Number 519-73-3) | C_6H_5 | 10.9 | PI | 4055 |
| $C_{13}H_{11}^+$ | $C_6H_5CH_2C_6H_4OH$ (Phenol, 4-(phenylmethyl)-) (RN-CAS Registry Number 101-53-1) | OH | 11.0±0.2 | EI | 3807 |
| $C_{13}H_{11}^+$ | $C_6H_5CH_2C_6H_4OCH_3$ (Benzene, 1-methoxy-4-(phenylmethyl)-) (RN-CAS Registry Number 834-14-0) | OCH ₃ | 11.6±0.1 | EI | 3807 |
| $C_{13}H_{11}^+$ | $C_6H_5CH_2C_6H_4NO_2$ (Benzene, 1-nitro-4-(phenylmethyl)-) (RN-CAS Registry Number 1817-77-2) | NO ₂ | 10.5±0.1 | EI | 3807 |
| $C_{13}H_{12}^+$ | $(C_6H_5)_2CH_2$ (Benzene, 1,1'-methylenebis-) (RN-CAS Registry Number 101-81-5) | ** | 8.80±0.02 (V) | PE | 3854 |
| $C_{13}H_{12}^+$ | $(C_6H_5)_2CH_2$ (Benzene, 1,1'-methylenebis-) (RN-CAS Registry Number 101-81-5) | ** | 9.00±0.05 | EI | 3806 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|------------------|---|----------------|---|--------|------|
| $C_{13}H_{12}^+$ | $C_6H_5C_6H_4CH_3$ (1,1'-Biphenyl, 2-methyl-) (RN-CAS Registry Number 643-58-3) | ** | 8.10 ± 0.02 | PE | 3702 |
| $C_{13}H_{12}^+$ | $C_6H_5C_6H_4CH_3$ (1,1'-Biphenyl, 3-methyl-) (RN-CAS Registry Number 643-93-6) | ** | 7.95 ± 0.02 | PE | 3702 |
| $C_{13}H_{12}^+$ | $C_6H_5C_6H_4CH_3$ (1,1'-Biphenyl, 4-methyl-) (RN-CAS Registry Number 644-08-6) | ** | 7.80 ± 0.02 | PE | 3702 |
| $C_{13}H_{14}^+$ | $C_{13}H_{14}$ (1,2,4-Ethanylylidene-1 <i>H</i> -cyclobuta[<i>cd</i>]pentalene, octahydro-5,7-bis (methylene)-) (RN-CAS Registry Number 42607-62-5) (ON-Other name: 8,11-Dimethylene-pentacyclo[5.4.0.0 ^{2,6} .0 ^{3,10} .0 ^{5,9}]tridecane) | ** | 8.50 | PE | 4036 |
| $C_{13}H_{16}^+$ | $C_{13}H_{16}$ (Bicyclo[5.4.2]trideca-7,9,11,12-tetraene) (RN-CAS Registry Number XXXXX-XX-X) | ** | 8.2 (V) | PE | 3999 |
| $C_{13}H_{16}^+$ | $C_{13}H_{16}$ (1,2,4-Ethanylylidene-1 <i>H</i> -cyclobuta[<i>cd</i>]pentalene, octahydro-5-methyl-7-methylene-, (1 α ,1 $\alpha\beta$,2 α ,3 $\alpha\beta$,4 α ,5 α ,5 $\alpha\beta$,5 $\beta\beta$)-) (RN-CAS Registry Number 42607-64-7) | ** | 9.10 | PE | 4036 |
| $C_{13}H_{26}^+$ | $((CH_3)_3C)_2C=CHCH(CH_3)_2$ (RN-CAS Registry Number 50787-12-7) | ** | 8.307 ± 0.008 | PE | 3957 |
| $C_{14}H_{10}^+$ | $C_{14}H_{10}$ (Anthracene) (RN-CAS Registry Number 120-12-7) (RS-Average of two Rydberg series limits) | ** | 7.47 | S | 3857 |
| $C_{14}H_{10}^+$ | $C_{14}H_{10}$ (Anthracene) (RN-CAS Registry Number 120-12-7) | ** | 7.4 | PI | 3586 |
| $C_{14}H_{10}^+$ | $C_{14}H_{10}$ (Anthracene) (RN-CAS Registry Number 120-12-7) | ** | 7.40 | PI | 3877 |
| $C_{14}H_{10}^+$ | $C_{14}H_{10}$ (Anthracene) (RN-CAS Registry Number 120-12-7) | ** | 7.40 | PE | 3668 |
| $C_{14}H_{10}^+$ | $C_{14}H_{10}$ (Anthracene) (RN-CAS Registry Number 120-12-7) | ** | 7.40 (V) | PE | 3896 |
| $C_{14}H_{10}^+$ | $C_{14}H_{10}$ (Anthracene) (RN-CAS Registry Number 120-12-7) | ** | 7.41 ± 0.05 | PE | 3684 |
| $C_{14}H_{10}^+$ | $C_{14}H_{10}$ (Anthracene) (RN-CAS Registry Number 120-12-7) | ** | 7.47 ± 0.01 | PE | 3644 |
| $C_{14}H_{10}^+$ | $C_{14}H_{10}$ (Anthracene) (RN-CAS Registry Number 120-12-7) | ** | 7.47 ± 0.01 | PE | 3657 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|------------------|--|----------------|---|--------|------|
| $C_{14}H_{10}^+$ | $C_{14}H_{10}$ (Anthracene) (RN-CAS Registry Number 120-12-7) | ** | 7.35 | CTS | 3577 |
| $C_{14}H_{10}^+$ | $C_{14}H_{10}$ (Anthracene) (RN-CAS Registry Number 120-12-7) | ** | 7.4 | CTS | 3543 |
| $C_{14}H_{10}^+$ | $C_6H_5C\equiv CC_6H_5$ (Benzene, 1,1'-(1,2-ethynediyl)bis-) (RN-CAS Registry Number 501-65-5) | ** | 7.90 ± 0.02 | PE | 3854 |
| $C_{14}H_{10}^+$ | $C_6H_5C\equiv CC_6H_5$ (Benzene, 1,1'-(1-2-ethynediyl)bis-) (RN-CAS Registry Number 501-65-5) | ** | 8.0 ± 0.05 | PE | 3684 |
| $C_{14}H_{10}^+$ | $C_{14}H_{10}$ (Phenanthrene) (RN-CAS Registry Number 85-01-8) | ** | 7.86 ± 0.01 | PE | 3644 |
| $C_{14}H_{10}^+$ | $C_{14}H_{10}$ (Phenanthrene) (RN-CAS Registry Number 85-01-8) | ** | 7.92 ± 0.02 (V) | PE | 3702 |
| $C_{14}H_{10}^+$ | $C_{14}H_{10}$ (Phenanthrene) (RN-CAS Registry Number 85-01-8) | ** | 7.92 ± 0.05 | PE | 3684 |
| $C_{14}H_{10}^+$ | $C_{14}H_{10}$ (Phenanthrene) (RN-CAS Registry Number 85-01-8) | ** | 8.03 ± 0.01 | RPD | 3588 |
| $C_{14}H_{10}^+$ | $C_{14}H_{10}$ (Phenanthrene) (RN-CAS Registry Number 85-01-8) | ** | 8.25 | CTS | 3577 |
| $C_{14}H_{10}^+$ | $C_6H_8(C_6H_5)_2$ (Benzene, 1,1'-(2-cyclohexen-1-ylidene)bis-) (RN-CAS Registry Number 31158-25-5) | | 10.4 ± 0.4 | EI | 4018 |
| $C_{14}H_{10}^+$ | $C_6H_{10}(C_6H_5)_2$ (Benzene, 1,1'-cyclohexylidenebis-) (RN-CAS Registry Number 21113-55-3) | | 10.8 ± 0.4 | EI | 4018 |
| $C_{14}H_{10}^+$ | $C_6H_9(CH_3)(C_6H_5)_2$ (Benzene, 1,1'-(4-methylcyclohexylidene)bis-) (RN-CAS Registry Number 32812-65-0) | | 10.2 ± 0.4 | EI | 4018 |
| $C_{14}H_{10}^+$ | $C_{10}H_{13}(CH_3)(C_6H_5)_2$ (Naphthalene, 1,2,3,4,4a,5,6,7-octahydro-4a-methyl-2,2-diphenyl-) (RN-CAS Registry Number 50592-50-2) | | 9.3 ± 0.4 | EI | 4018 |
| $C_{14}H_{10}^+$ | $C_6H_8(=O)(C_6H_5)_2$ (Cyclohexanone, 2,2-diphenyl-) (RN-CAS Registry Number 22612-62-0) | | 10.7 ± 0.4 | EI | 4018 |
| $C_{14}H_{10}^+$ | $C_6H_8(=O)(C_6H_5)_2$ (Cyclohexanone, 4,4-diphenyl-) (RN-CAS Registry Number 4528-68-1) | | 13.2 ± 0.4 | EI | 4018 |
| $C_{14}H_{10}^+$ | $C_6H_7(=O)(CH_3)(C_6H_5)_2$ (Cyclohexanone, 2-methyl-5,5-diphenyl-) (RN-CAS Registry Number 50592-49-9) | | 9.6 ± 0.4 | EI | 4018 |
| $C_{14}H_{10}^+$ | $C_6H_7(=O)(CH_3)(C_6H_5)_2$ (Cyclohexanone, 6-methyl-2,2-diphenyl-) (RN-CAS Registry Number 50592-52-4) | | 10.3 ± 0.4 | EI | 4018 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|------------------|---|----------------|---|--------|------|
| $C_{14}H_{10}^+$ | $C_6H_8(OH)(CH_3)(C_6H_5)_2$ (Cyclohexanol, 1-methyl-4,4-diphenyl-) (RN-CAS Registry Number 50592-47-7) | | 10.5 ± 0.4 | EI | 4018 |
| $C_{14}H_{10}^+$ | $C_6H_6(=O)(CH_3)(C_6H_5)_2CH_2CH_2CHO$ (Cyclohexanepropanal, 1-methyl-2-oxo-3,3-diphenyl-) (RN-CAS Registry Number XXXXX-XX-X) | | 10.2 ± 0.4 | EI | 4018 |
| $C_{14}H_{10}^+$ | $C_6H_6(=O)(CH_3)(C_6H_5)_2CH_2CH_2COCH_3$ (Cyclohexanone, 2-methyl-2-(3-oxobutyl)-6,6-diphenyl-) (RN-CAS Registry Number 50592-55-7) | | 10.0 ± 0.4 | EI | 4018 |
| $C_{14}H_{10}^+$ | $C_6H_6(=O)CH_3(C_6H_5)_2CH_2CH=C(CH_3)Cl$ (Cyclohexanone, 2-(3-chloro-2-butenyl)-2-methyl-6,6-diphenyl-) (RN-CAS Registry Number 50592-54-6) | | 10.5 ± 0.4 | EI | 4018 |
| $C_{14}H_{12}^+$ | $C_6H_5CH=CHC_6H_5$ (Benzene, 1,1'-(1,2-ethenediyl)bis-, (E)) (RN-CAS Registry Number 103-30-0) | ** | 7.70 ± 0.02 | PE | 3854 |
| $C_{14}H_{12}^+$ | $C_6H_5CH=CHC_6H_5$ (Benzene, 1,1'-(1,2-ethenediyl)bis-, (E)-) (RN-CAS Registry Number 103-30-0) | ** | 7.76 | PE | 3657 |
| $C_{14}H_{12}^+$ | $C_6H_5CH=CHC_6H_5$ (Benzene, 1,1'-(1,2-ethenediyl)bis-, (Z)) (RN-CAS Registry Number 645-49-8) | ** | 7.80 ± 0.02 | PE | 3854 |
| $C_{14}H_{12}^+$ | $C_{14}H_{12}$ (Benzene, 1,1'-(1,2-ethenediyl)bis-) (RN-CAS Registry Number 588-59-0) | ** | 7.5 | PI | 3586 |
| $C_{14}H_{12}^+$ | $C_6H_5CH=CHC_6H_5$ (Benzene, 1,1'-(1,2-ethenediyl)bis-) (RN-CAS Registry Number 588-59-0) | ** | 7.9 | CTS | 3577 |
| $C_{14}H_{12}^+$ | $(C_6H_5)_2C=CH_2$ (Benzene, 1,1'-ethenylidenebis-) (RN-CAS Registry Number 530-48-3) | ** | 8.00 ± 0.02 | PE | 3854 |
| $C_{14}H_{12}^+$ | $C_{14}H_{12}$ (Phenanthrene, 9,10-dihydro-) (RN-CAS Registry Number 776-35-2) | ** | 7.55 ± 0.02 | PE | 3702 |
| $C_{14}H_{12}^+$ | $C_6H_8(C_6H_5)_2$ (Benzene, 1,1'-(2-cyclohexen-1-ylidene)bis-) (RN-CAS Registry Number 31158-25-5) | | 9.8 ± 0.4 | EI | 4018 |
| $C_{14}H_{12}^+$ | $C_6H_{10}(C_6H_5)_2$ (Benzene, 1,1'-cyclohexylidenebis-) (RN-CAS Registry Number 21113-55-3) | | 9.8 ± 0.4 | EI | 4018 |
| $C_{14}H_{12}^+$ | $C_6H_7(CH_3)(C_6H_5)_2$ (Cyclohexene, 1-methyl-4,4-diphenyl-) (RN-CAS Registry Number 50592-48-8) | | 9.8 ± 0.4 | EI | 4018 |
| $C_{14}H_{12}^+$ | $C_6H_9(CH_3)(C_6H_5)_2$ (Benzene, 1,1'-(4-methylcyclohexylidene)bis-) (RN-CAS Registry Number 32812-65-0) | | 10.1 ± 0.4 | EI | 4018 |
| $C_{14}H_{12}^+$ | $C_{10}H_{13}(CH_3)(C_6H_5)_2$ (Naphthalene, 1,2,3,4,4a,5,6,7-octahydro-4a-methyl-2,2-diphenyl-) (RN-CAS Registry Number 50592-50-2) | | 9.5 ± 0.4 | EI | 4018 |
| $C_{14}H_{12}^+$ | $C_6H_8(=O)(C_6H_5)_2$ (Cyclohexanone, 2,2-diphenyl-) (RN-CAS Registry Number 22612-62-0) | | 9.5 ± 0.4 | EI | 4018 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|------------------|---|----------------|---|--------|------|
| $C_{14}H_{12}^+$ | $C_6H_8(=O)(C_6H_5)_2$ (Cyclohexanone, 4,4-diphenyl-) (RN-CAS Registry Number 4528-68-1) | | 10.0 ± 0.4 | EI | 4018 |
| $C_{14}H_{12}^+$ | $C_6H_7(=O)(CH_3)(C_6H_5)_2$ (Cyclohexanone, 2-methyl-5,5-diphenyl-) (RN-CAS Registry Number 50592-49-9) | | 10.0 ± 0.4 | EI | 4018 |
| $C_{14}H_{12}^+$ | $C_6H_7(=O)(CH_3)(C_6H_5)_2$ (Cyclohexanone, 6-methyl-2,2-diphenyl-) (RN-CAS Registry Number 50592-52-4) | | 10.4 ± 0.4 | EI | 4018 |
| $C_{14}H_{12}^+$ | $C_6H_8(OH)(CH_3)(C_6H_5)_2$ (Cyclohexanol, 1-methyl-4,4-diphenyl-) (RN-CAS Registry Number 50592-47-7) | | 10.1 ± 0.4 | EI | 4018 |
| $C_{14}H_{12}^+$ | $C_6H_6(=O)(CH_3)_2(C_6H_5)_2$ (Cyclohexanone, 2,2-dimethyl-6,6-diphenyl-) (RN-CAS Registry Number 50592-53-5) | | 9.9 ± 0.4 | EI | 4018 |
| $C_{14}H_{12}^+$ | $C_6H_6(=O)(CH_3)(C_6H_5)_2CH_2CH_2CHO$ (Cyclohexanepropanal, 1-methyl-2-oxo-3,3-diphenyl-) (RN-CAS Registry Number XXXXX-XX-X) | | 10.3 ± 0.4 | EI | 4018 |
| $C_{14}H_{12}^+$ | $C_6H_6(=O)(CH_3)(C_6H_5)_2CH_2CH_2COCH_3$ (Cyclohexanone, 2-methyl-2-(3-oxobutyl)-6,6-diphenyl-) (RN-CAS Registry Number 50592-55-7) | | 10.5 ± 0.4 | EI | 4018 |
| $C_{14}H_{12}^+$ | $C_6H_6(=O)(C_6H_5)=CHS(CH_2)_3CH_3$ (Cyclohexanone, 6-[(butylthio)methylene]-2,2-diphenyl-) (RN-CAS Registry Number 50592-51-3) | | 10.1 ± 0.4 | EI | 4018 |
| $C_{14}H_{12}^+$ | $C_6H_6(=O)CH_3(C_6H_5)_2CH_2CH=C(CH_3)Cl$ (Cyclohexanone, 2-(3-chloro-2-butenyl)-2-methyl-6,6-diphenyl-) (RN-CAS Registry Number 50592-54-6) | | 10.0 ± 0.4 | EI | 4018 |
| $C_{14}H_{14}^+$ | $C_6H_5CH_2CH_2C_6H_5$ (Benzene, 1,1'-(1,2-ethanediyl)bis-) (RN-CAS Registry Number 103-29-7) | ** | 9.00 ± 0.05 | EI | 3806 |
| $C_{14}H_{14}^+$ | $(C_6H_4CH_3)_2$ (1,1'-Biphenyl, 2,2'-dimethyl-) (RN-CAS Registry Number 605-39-0) | ** | 8.05 ± 0.02 | PE | 3702 |
| $C_{14}H_{14}^+$ | $(C_6H_4CH_3)_2$ (1,1'-Biphenyl, 3,3'-dimethyl-) (RN-CAS Registry Number 612-75-9) | ** | 7.85 ± 0.02 | PE | 3702 |
| $C_{14}H_{14}^+$ | $C_6H_5C_6H_4C_2H_5$ (1,1'-Biphenyl, 2-ethyl-) (RN-CAS Registry Number 1812-51-7) | ** | 8.55 ± 0.02 (V) | PE | 3702 |
| $C_{14}H_{16}^+$ | $C_{10}H_7(CH_2)_3CH_3$ (Naphthalene, 1-butyl-) (RN-CAS Registry Number 1634-09-0) | ** | 7.76 | PE | 3960 |
| $C_{14}H_{28}^+$ | $((CH_3)_3C)_2C=CHC(CH_3)_3$ (RN-CAS Registry Number 28923-90-2) | ** | 8.169 ± 0.012 | PE | 3957 |
| $C_{15}H_9^+$ | $C_{14}H_9CH_3$ (Phenanthrene, 4-methyl-) (RN-CAS Registry Number 832-64-4) | $H_2 + H$ | 14.4 ± 0.1 | EI | 3454 |

(MT—Metastable transition(s) observed)

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|------------------|--|----------------|---|--------|------|
| $C_{15}H_9^+$ | $C_{14}H_8(CH_3)_2$ (Phenanthrene, 2,7-dimethyl-) (RN-CAS Registry Number 1576-69-8) | | 17.6 ± 0.1 | EI | 3454 |
| $C_{15}H_9^+$ | $C_{14}H_8(CH_3)_2$ (Phenanthrene, 4,5-dimethyl-) (RN-CAS Registry Number 3674-69-9) | | 15.1 ± 0.1 | EI | 3454 |
| $C_{15}H_9^+$ | $C_{14}H_6(CH_3)_4$ (Phenanthrene, 2,4,5,7-tetramethyl-) (RN-CAS Registry Number 7396-38-5) | $3CH_3$ | 14.5 ± 0.1 | EI | 3454 |
| | (MT-Metastable transition(s) observed) | | | | |
| $C_{15}H_9^+$ | $C_{14}H_6(CH_3)_4$ (Phenanthrene, 3,4,5,6-tetramethyl-) (RN-CAS Registry Number 7343-06-8) | $3CH_3$ | 16.5 ± 0.1 | EI | 3454 |
| | (MT-Metastable transition(s) observed) | | | | |
| $C_{15}H_{11}^+$ | $C_{14}H_9CH_3$ (Phenanthrene, 4-methyl-) (RN-CAS Registry Number 832-64-4) | H | 12.0 ± 0.1 | EI | 3454 |
| $C_{15}H_{11}^+$ | $C_{14}H_8(CH_3)_2$ (Phenanthrene, 2,7-dimethyl-) (RN-CAS Registry Number 1576-69-8) | CH_3 | 13.5 ± 0.1 | EI | 3454 |
| $C_{15}H_{11}^+$ | $C_{14}H_8(CH_3)_2$ (Phenanthrene, 4,5-dimethyl-) (RN-CAS Registry Number 3674-69-9) | CH_3 | 10.8 ± 0.1 | EI | 3454 |
| | (MT-Metastable transition(s) observed) | | | | |
| $C_{15}H_{12}^+$ | $C_{14}H_9CH_3$ (Phenanthrene, 1-methyl-) (RN-CAS Registry Number 832-69-9) | ** | 7.7 ± 0.03 | RPD | 3588 |
| $C_{15}H_{12}^+$ | $C_{14}H_9CH_3$ (Phenanthrene, 2-methyl-) (RN-CAS Registry Number 2531-84-2) | ** | 7.9 ± 0.04 | RPD | 3588 |
| $C_{15}H_{12}^+$ | $C_{14}H_9CH_3$ (Phenanthrene, 3-methyl-) (RN-CAS Registry Number 832-71-3) | ** | 7.68 ± 0.01 | RPD | 3588 |
| $C_{15}H_{12}^+$ | $C_{14}H_9CH_3$ (Phenanthrene, 4-methyl-) (RN-CAS Registry Number 832-64-4) | ** | 7.70 ± 0.02 | RPD | 3588 |
| $C_{15}H_{12}^+$ | $C_{14}H_9CH_3$ (Phenanthrene, 4-methyl-) (RN-CAS Registry Number 832-64-4) | ** | 7.1 ± 0.1 | EI | 3454 |
| $C_{15}H_{12}^+$ | $C_{14}H_9CH_3$ (Phenanthrene, 9-methyl-) (RN-CAS Registry Number 883-20-5) | ** | 7.46 ± 0.03 | RPD | 3588 |
| $C_{15}H_{13}^+$ | $C_6H_{10}(C_6H_5)_2$ (Benzene, 1,1'-cyclohexylidenebis-) (RN-CAS Registry Number 21113-55-3) | | 10.3 ± 0.4 | EI | 4018 |
| $C_{15}H_{13}^+$ | $C_6H_9(CH_3)(C_6H_5)_2$ (Benzene, 1,1'-(4-methylcyclohexylidene)bis-) (RN-CAS Registry Number 32812-65-0) | | 10.6 ± 0.4 | EI | 4018 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|------------------|--|----------------|---|--------|------|
| $C_{15}H_{13}^+$ | $C_{10}H_{13}(CH_3)(C_6H_5)_2$ (Naphthalene, 1,2,3,4,4a,5,6,7-octahydro-4a-methyl-2,2-diphenyl-) (RN-CAS Registry Number 50592-50-2) | | 10.3 ± 0.4 | EI | 4018 |
| $C_{15}H_{13}^+$ | $C_6H_8(=O)(C_6H_5)_2$ (Cyclohexanone, 2,2-diphenyl-) (RN-CAS Registry Number 22612-62-0) | | 9.7 ± 0.4 | EI | 4018 |
| $C_{15}H_{13}^+$ | $C_6H_8(=O)(C_6H_5)_2$ (Cyclohexanone, 4,4-diphenyl-) (RN-CAS Registry Number 4528-68-1) | | 10.5 ± 0.4 | EI | 4018 |
| $C_{15}H_{13}^+$ | $C_6H_7(=O)(CH_3)(C_6H_5)_2$ (Cyclohexanone, 2-methyl-5,5-diphenyl-) (RN-CAS Registry Number 50592-49-9) | | 10.8 ± 0.4 | EI | 4018 |
| $C_{15}H_{13}^+$ | $C_6H_7(=O)(CH_3)(C_6H_5)_2$ (Cyclohexanone, 6-methyl-2,2-diphenyl-) (RN-CAS Registry Number 50592-52-4) | | 10.3 ± 0.4 | EI | 4018 |
| $C_{15}H_{13}^+$ | $C_6H_8(OH)(CH_3)(C_6H_5)_2$ (Cyclohexanol, 1-methyl-4,4-diphenyl-) (RN-CAS Registry Number 50592-47-7) | | 10.1 ± 0.4 | EI | 4018 |
| $C_{15}H_{13}^+$ | $C_6H_6(=O)(CH_3)_2(C_6H_5)_2$ (Cyclohexanone, 2,2-dimethyl-6,6-diphenyl-) (RN-CAS Registry Number 50592-53-5) | | 10.3 ± 0.4 | EI | 4018 |
| $C_{15}H_{13}^+$ | $C_{10}H_{11}(=O)(CH_3)(C_6H_5)_2$ (2(3 <i>H</i>)-Naphthalenone,4,4a,5,6,7,8-hexahydro-4a-methyl-7,7-diphenyl-) (RN-CAS Registry Number 50786-03-3) | | 9.9 ± 0.4 | EI | 4018 |
| $C_{15}H_{13}^+$ | $C_6H_6(=O)(CH_3)(C_6H_5)_2CH_2CH_2CHO$ (Cyclohexanepropanal, 1-methyl-2-oxo-3,3-diphenyl-) (RN-CAS Registry Number XXXXX-XX-X) | | 10.5 ± 0.4 | EI | 4018 |
| $C_{15}H_{13}^+$ | $C_6H_6(=O)(CH_3)(C_6H_5)_2CH_2CH_2COCH_3$ (Cyclohexanone, 2-methyl-2-(3-oxobutyl)-6,6-diphenyl-) (RN-CAS Registry Number 50592-55-7) | | 10.6 ± 0.4 | EI | 4018 |
| $C_{15}H_{13}^+$ | $C_6H_6(=O)(C_6H_5)=CHS(CH_2)_3CH_3$ (Cyclohexanone, 6-[(butylthio)methylene]-2,2-diphenyl-) (RN-CAS Registry Number 50592-51-3) | | 10.8 ± 0.4 | EI | 4018 |
| $C_{15}H_{13}^+$ | $C_6H_6(=O)CH_3(C_6H_5)_2CH_2CH=C(CH_3)Cl$ (Cyclohexanone, 2-(3-chloro-2-butenyl)-2-methyl-6,6-diphenyl-) (RN-CAS Registry Number 50592-54-6) | | 10.6 ± 0.4 | EI | 4018 |
| $C_{15}H_{14}^+$ | $C_{13}H_8(CH_3)_2$ (9 <i>H</i> -Fluorene, 9,9-dimethyl-) (RN-CAS Registry Number 4569-45-3) | ** | 7.8 (V) | PE | 4081 |
| $C_{15}H_{16}^+$ | $C_6H_5C_6H_4CH(CH_3)_2$ (1,1'-Biphenyl, 2-isopropyl-) (RN-CAS Registry Number 19486-60-3) | ** | 8.50 ± 0.02 (V) | PE | 3702 |
| $C_{15}H_{16}^+$ | $C_6H_5C_6H_4C_3H_7$ (1,1'-Biphenyl, 2-propyl-) (RN-CAS Registry Number 20282-28-4) | ** | 8.50 ± 0.02 (V) | PE | 3702 |
| $C_{16}H_{10}^+$ | $C_{16}H_{10}$ (Pyrene) (RN-CAS Registry Number 129-00-0) | ** | 7.41 (V) | PE | 3951 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|------------------|---|----------------|---|--------|------|
| $C_{16}H_{10}^+$ | $C_{16}H_{10}$ (Pyrene) (RN-CAS Registry Number 129-00-0) | ** | 7.45 ± 0.01 | PE | 3657 |
| $C_{16}H_{10}^+$ | $C_{16}H_{10}$ (Pyrene) (RN-CAS Registry Number 129-00-0) | ** | 7.45 | CTS | 3577 |
| $C_{16}H_{10}^+$ | $C_{14}H_8(CH_3)_2$ (Phenanthrene, 2,7-dimethyl-) (RN-CAS Registry Number 1576-69-8) | | 17.7 ± 0.1 | EI | 3454 |
| $C_{16}H_{10}^+$ | $C_{14}H_8(CH_3)_2$ (Phenanthrene, 4,5-dimethyl-) (RN-CAS Registry Number 3674-69-9) | | > 16 | EI | 3454 |
| $C_{16}H_{11}^+$ | $C_{14}H_6(CH_3)_4$ (Phenanthrene, 2,4,5,7-tetramethyl-) (RN-CAS Registry Number 7396-38-5) (MT-Metastable transition(s) observed) | $2CH_3 + H$ | 15.6 ± 0.1 | EI | 3454 |
| $C_{16}H_{11}^+$ | $C_{14}H_6(CH_3)_4$ (Phenanthrene, 3,4,5,6-tetramethyl-) (RN-CAS Registry Number 7343-06-8) (MT-Metastable transition(s) observed) | $2CH_3 + H$ | 14.3 ± 0.1 | EI | 3454 |
| $C_{16}H_{12}^+$ | $C_{10}H_7C_6H_5$ (Naphthalene, 2-phenyl-) (RN-CAS-Registry Number 612-94-2) | ** | 7.75 | PE | 4066 |
| $C_{16}H_{12}^+$ | $C_{14}H_6(CH_3)_4$ (Phenanthrene, 2,4,5,7-tetramethyl-) (RN-CAS Registry Number 7396-38-5) (MT-Metastable transition(s) observed) | $2CH_3$ | 14.0 ± 0.1 | EI | 3454 |
| $C_{16}H_{12}^+$ | $C_{14}H_6(CH_3)_4$ (Phenanthrene, 3,4,5,6-tetramethyl-) (RN-CAS Registry Number 7343-06-8) (MT-Metastable transition(s) observed) | $2CH_3$ | 13.5 ± 0.1 | EI | 3454 |
| $C_{16}H_{13}^+$ | $C_{16}H_{14}$ (Phenanthrene, 2,7-dimethyl-) (RN-CAS Registry Number 1576-69-8) | H | 13.5 ± 0.1 | EI | 3454 |
| $C_{16}H_{13}^+$ | $C_{14}H_8(CH_3)_2$ (Phenanthrene, 4,5-dimethyl-) (RN-CAS Registry Number 3674-69-9) | H | 12.3 ± 0.1 | EI | 3454 |
| $C_{16}H_{14}^+$ | $C_{14}H_8(CH_3)_2$ (Phenanthrene, 2,7-dimethyl-) (RN-CAS Registry Number 1576-69-8) | ** | 8.0 ± 0.1 | EI | 3454 |
| $C_{16}H_{14}^+$ | $C_{14}H_8(CH_3)_2$ (Phenanthrene, 4,5-dimethyl-) (RN-CAS Registry Number 3674-69-9) | ** | 7.6 ± 0.1 | EI | 3454 |
| $C_{16}H_{14}^+$ | $C_6H_6(=O)(C_6H_5)_2$ (2-Cyclohexen-1-one, 4,4-diphenyl-) (RN-CAS Registry Number 4528-64-7) | | 9.3 ± 0.4 | EI | 4018 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|------------------|---|-----------------|---|--------|------|
| $C_{16}H_{14}^+$ | $C_6H_8(=O)(C_6H_5)_2$ (Cyclohexanone, 2,2-diphenyl-) (RN-CAS Registry Number 22612-62-0) | | 9.6 ± 0.4 | EI | 4018 |
| $C_{16}H_{14}^+$ | $C_6H_7(=O)(CH_3)(C_6H_5)_2$ (Cyclohexanone, 6-methyl-2,2-diphenyl-) (RN-CAS Registry Number 50592-52-4) | | 9.2 ± 0.4 | EI | 4018 |
| $C_{16}H_{14}^+$ | $C_6H_6(=O)(CH_3)_2(C_6H_5)_2$ (Cyclohexanone, 2,2-dimethyl-6,6-diphenyl-) (RN-CAS Registry Number 50592-53-5) | | 9.4 ± 0.4 | EI | 4018 |
| $C_{16}H_{14}^+$ | $C_6H_6(=O)(CH_3)(C_6H_5)_2CH_2CH_2CHO$ (Cyclohexanepropenal, 1-methyl-2-oxo-3,3-diphenyl-) (RN-CAS Registry Number XXXXX-XX-X) | | 9.4 ± 0.4 | EI | 4018 |
| $C_{16}H_{14}^+$ | $C_6H_6(=O)(CH_3)(C_6H_5)_2CH_2CH_2COCH_3$ (Cyclohexanone, 2-methyl-2-(3-oxobutyl)-6,6-diphenyl-) (RN-CAS Registry Number 50592-55-7) | | 9.3 ± 0.4 | EI | 4018 |
| $C_{16}H_{14}^+$ | $C_6H_6(=O)CH_3(C_6H_5)_2CH_2CH=C(CH_3)Cl$ (Cyclohexanone, 2-(3-chloro-2-butenyl)-2-methyl-6,6-diphenyl-) (RN-CAS Registry Number 50592-54-6) | | 9.1 ± 0.4 | EI | 4018 |
| $C_{16}H_{16}^+$ | $C_{16}H_{16}$ (Tricyclo[8.2.2.2 ^{4,7}]hexadeca-4,6,10,12,13,15-hexaene) (RN-CAS Registry Number 1633-22-2) (ON-Other name: [2.2]Paracyclophane) | ** | 8.08 (V) | PE | 4088 |
| $C_{16}H_{16}^+$ | $C_{16}H_{16}$ (Tricyclo[9.3.1.1 ^{4,8}]hexadeca-1(15),4,6,8(16),11,13-hexaene) (RN-CAS Registry Number 2319-97-3) (ON-Other name: [2.2]Metacyclophane) | ** | 8.24 (V) | PE | 4088 |
| $C_{16}H_{18}^+$ | $C_6H_5C_6H_4C_4H_9$ (1,1'-Biphenyl, 2-butyl-) (RN-CAS Registry Number XXXXX-XX-X) | ** | 8.50 ± 0.02 (V) | PE | 3702 |
| $C_{17}H_{12}^+$ | $C_{17}H_{12}$ (1,1'-Spirobi[1H-indene]) (RN-CAS Registry Number 165-42-4) | ** | 7.80 (V) | PE | 4083 |
| $C_{17}H_{15}^+$ | $C_{14}H_6(CH_3)_4$ (Phenanthrene, 2,4,5,7-tetramethyl-) (RN-CAS Registry Number 7396-38-5) (MT-Metastable transition(s) observed) | CH ₃ | 11.5 ± 0.1 | EI | 3454 |
| $C_{17}H_{15}^+$ | $C_{18}H_{18}$ (Phenanthrene, 3,4,5,6-tetramethyl-) (RN-CAS Registry Number 7343-06-8) (MT-Metastable transition(s) observed) | CH ₃ | 11.5 ± 0.1 | EI | 3454 |
| $C_{18}H_{10}^+$ | $C_{18}H_{10}$ (Naphthacene) (RN-CAS Registry Number 92-24-0) | ** | 6.9 | PI | 3586 |
| $C_{18}H_{12}^+$ | $C_{18}H_{12}$ (Benz[a]anthracene) (RN-CAS Registry Number 56-55-3) | ** | 7.42 (V) | PE | 4039 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|------------------|--|----------------|---|--------|------|
| $C_{18}H_{12}^+$ | $C_{18}H_{12}$ (Benz[<i>a</i>]anthracene) (RN-CAS Registry Number 56-55-3) | ** | 7.47 ± 0.01 | PE | 3644 |
| $C_{18}H_{12}^+$ | $C_{18}H_{12}$ (Benz[<i>a</i>]anthracene) (RN-CAS Registry Number 56-55-3) | ** | 7.56 ± 0.01 | PE | 3657 |
| $C_{18}H_{12}^+$ | $C_{18}H_{12}$ (Benz[<i>a</i>]anthracene) (RN-CAS Registry Number 56-55-3) | ** | 7.5 | CTS | 3577 |
| $C_{18}H_{12}^+$ | $C_{18}H_{12}$ (Benzo[<i>c</i>]phenanthrene) (RN-CAS Registry Number 195-19-7) | ** | 7.62 (V) | PE | 4039 |
| $C_{18}H_{12}^+$ | $C_{18}H_{12}$ (Chrysene) (RN-CAS Registry Number 218-01-9) | ** | 7.60 ± 0.01 | PE | 3644 |
| $C_{18}H_{12}^+$ | $C_{18}H_{12}$ (Chrysene) (RN-CAS Registry Number 218-01-9) | ** | 7.61 (V) | PE | 4039 |
| $C_{18}H_{12}^+$ | $C_{18}H_{12}$ (Chrysene) (RN-CAS Registry Number 218-01-9) | ** | 7.75 | CTS | 3577 |
| $C_{18}H_{12}^+$ | $C_{18}H_{12}$ (Naphthacene) (RN-CAS Registry Number 92-24-0) | ** | 7.01 | PE | 3668 |
| $C_{18}H_{12}^+$ | $C_{18}H_{12}$ (Naphthacene) (RN-CAS Registry Number 92-24-0) | ** | 7.01 (V) | PE | 4039 |
| $C_{18}H_{12}^+$ | $C_{18}H_{12}$ (Tetracyclo[6.6.2.1 ^{3,13} .1 ^{6,10}]octadeca-1,3(17),4,6,8,10(18),11,13,15-nonaene) (RN-CAS Registry Number 27313-56-0) (ON-Other name: [2.2.2](1,3,5)cyclophane-1,9,17-triene) | ** | 8.06 (V) | PE | 3647 |
| $C_{18}H_{12}^+$ | $C_{18}H_{12}$ (Tetracyclo[6.6.2.1 ^{3,13} .1.1 ^{6,10}]octadeca-1,3(17),4,6,8,10(18),11,13,15-nonane) (RN-CAS Registry Number 27313-56-0) (ON-Other name: [2.2.2](1,3,5)Cyclophane-1,9,17-triene) | ** | 8.06 (V) | PE | 4088 |
| $C_{18}H_{12}^+$ | $C_{18}H_{12}$ (Triphenylene) (RN-CAS Registry Number 217-59-4) | ** | 7.84 ± 0.01 | PE | 3657 |
| $C_{18}H_{12}^+$ | $C_{18}H_{12}$ (Triphenylene) (RN-CAS Registry Number 217-59-4) | ** | 7.86 (V) | PE | 4039 |
| $C_{18}H_{12}^+$ | $C_{18}H_{12}$ (Triphenylene) (RN-CAS Registry Number 217-59-4) | ** | 8.1 | CTS | 3577 |
| $C_{18}H_{14}^+$ | $C_{18}H_{14}$ (1,1':2',1''-Terphenyl) (RN-CAS Registry Number 84-15-1) | ** | 7.99 ± 0.01 | PE | 3657 |
| $C_{18}H_{14}^+$ | $C_{18}H_{14}$ (1,1':3',1''-Terphenyl) (RN-CAS Registry Number 92-06-8) | ** | 8.01 ± 0.01 | PE | 3657 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|------------------|---|------------------|---|--------|------|
| $C_{18}H_{14}^+$ | $C_{18}H_{14}$ (1,1':4',1''-Terphenyl) (RN-CAS Registry Number 92-94-4) | ** | 7.78 ± 0.01 | PE | 3657 |
| $C_{18}H_{16}^+$ | $C_{16}H_{10}(CH_3)_2$ (Pyrene, 10b,10c-dihydro-10b,10c-dimethyl-, <i>trans</i> -) (RN-CAS Registry Number 956-84-3) | ** | 6.7 | PE | 3948 |
| $C_{18}H_{18}^+$ | $C_{14}H_6(CH_3)_4$ (Phenanthrene, 2,4,5,7-tetramethyl-) (RN-CAS Registry Number 7396-38-5) | ** | 7.8 ± 0.1 | EI | 3454 |
| $C_{18}H_{18}^+$ | $C_{14}H_6(CH_3)_4$ (Phenanthrene, 3,4,5,6-tetramethyl-) (RN-CAS Registry Number 7343-06-8) | ** | 7.5 ± 0.1 | EI | 3454 |
| $C_{18}H_{18}^+$ | $C_{18}H_{18}$ (Tetracyclo[6.6.2.1 ^{3,13} .1 ^{6,10}]octadeca-1,3(17),6,8,10(18),13-hexaene) (RN-CAS Registry Number 27165-88-4) (ON-Other name: [2.2.2](1,3,5)Cyclophane) | ** | 7.70 (V) | PE | 4088 |
| $C_{18}H_{18}^+$ | $C_{18}H_{18}$ (Tetracyclo[6.6.2.1 ^{3,13} .1 ^{6,10}]octadeca-1,3(17),6,8,10(18),13-hexaene) (RN-CAS Registry Number 27165-88-4) (ON-Other name: [2.2.2](1,3,5)cyclophane) | ** | 7.70 (V) | PE | 3647 |
| $C_{18}H_{20}^+$ | $C_6H_{10}(C_6H_5)_2$ (Benzene, 1,1'-cyclohexylidenebis-) (RN-CAS-Registry Number 21113-55-3) | ** | 8.9 ± 0.2 | EI | 4074 |
| $C_{19}H_{16}^+$ | $(C_6H_5)_3CH$ (Benzene, 1,1',1''-methylidynetris-) (RN-CAS-Registry Number 519-73-3) | ** | 8.34 ± 0.03 | PI | 4055 |
| $C_{19}H_{20}^+$ | $C_6H_7(CH_3)(C_6H_5)_2$ (Cyclohexene, 1-methyl-4,4-diphenyl-) (RN-CAS Registry Number 50592-48-8) | ** | 8.7 ± 0.4 | EI | 4018 |
| $C_{19}H_{20}^+$ | $C_6H_8(OH)(CH_3)(C_6H_5)_2$ (Cyclohexanol, 1-methyl-4,4-diphenyl-) (RN-CAS Registry Number 50592-47-7) | H ₂ O | 9.2 ± 0.4 | EI | 4018 |
| $C_{19}H_{22}^+$ | $C_6H_9(CH_3)(C_6H_5)_2$ (Benzene, 1,1'-(4-methylcyclohexylidene)bis-) (RN-CAS-Registry Number 32812-65-0) | ** | 8.8 ± 0.2 | EI | 4074 |
| $C_{19}H_{22}^+$ | $C_6H_9(CH_3)(C_6H_5)_2$ (Benzene, 1,1'-(4-methylcyclohexylidene)bis-) (RN-CAS-Registry Number 32812-65-0) | ** | 8.8 ± 0.2 | EI | 4074 |
| $C_{20}H_{12}^+$ | $C_{20}H_{12}$ (Benzo[<i>a</i>]pyrene) (RN-CAS Registry Number 50-32-8) | ** | 7.12 ± 0.01 | PE | 3644 |
| $C_{20}H_{12}^+$ | $C_{20}H_{12}$ (Benzo[<i>a</i>]pyrene) (RN-CAS Registry Number 50-32-8) | ** | 7.39 ± 0.01 | PE | 3657 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|------------------|--|-----------------|---|--------|------|
| $C_{20}H_{12}^+$ | $C_{20}H_{12}$ (Perylene) (RN-CAS Registry Number 198-55-0) | ** | 6.90 ± 0.01 | PE | 3657 |
| $C_{20}H_{12}^+$ | $C_{20}H_{12}$ (Perylene) (RN-CAS Registry Number 198-55-0) | ** | 7.00 ± 0.01 | PE | 3644 |
| $C_{20}H_{12}^+$ | $C_{20}H_{12}$ (Perylene) (RN-CAS Registry Number 198-55-0) | ** | 7.1 | CTS | 3577 |
| $C_{20}H_{14}^+$ | $C_{14}H_9C_6H_5$ (Anthracene, 9-phenyl-) (RN-CAS Registry Number 602-55-1) | ** | 7.25 (V) | PE | 3896 |
| $C_{21}H_{15}^+$ | $C_{10}H_6(CH_3)C_{10}H_6CH_3$ (1,1'-Binaphthyl, 2,2'-dimethyl-) (RN-CAS Registry Number 32834-84-7) | CH ₃ | 13.25 | EI | 3477 |
| $C_{21}H_{15}^+$ | $C_{10}H_6(CH_3)C_{10}H_6CH_3$ (1,1'-Binaphthyl, 3,3'-dimethyl-) (RN-CAS Registry Number 34042-82-5) | CH ₃ | 12.25 | EI | 3477 |
| $C_{21}H_{15}^+$ | $C_{10}H_6(CH_3)C_{10}H_6CH_3$ (1,1'-Binaphthyl, 7,7'-dimethyl-) (RN-CAS Registry Number 34003-80-0) | CH ₃ | 12.75 | EI | 3477 |
| $C_{21}H_{15}^+$ | $C_{10}H_6(CH_3)C_{10}H_6CH_3$ (1,1'-Binaphthyl, 8,8'-dimethyl-) (RN-CAS Registry Number 32693-05-3) | CH ₃ | 11.50 | EI | 3477 |
| $C_{22}H_{12}^+$ | $C_{22}H_{12}$ (Benzo[ghi]perylene) (RN-CAS Registry Number 191-24-2) | ** | 7.19 ± 0.01 | PE | 3644 |
| $C_{22}H_{14}^+$ | $C_{22}H_{14}$ (3,4-Benzotetraphene) (RN-CAS Registry Number XXXXX-XX-X) | ** | 7.35 ± 0.01 | PE | 3657 |
| $C_{22}H_{14}^+$ | $C_{22}H_{14}$ (Pentacene) (RN-CAS Registry Number 135-48-8) | ** | 6.64 | PE | 3668 |
| $C_{22}H_{14}^+$ | $C_{22}H_{14}$ (Pentacene) (RN-CAS Registry Number 135-48-8) | ** | 6.74 ± 0.01 | PE | 3644 |
| $C_{22}H_{18}^+$ | $C_{10}H_6(CH_3)C_{10}H_6CH_3$ (1,1'-Binaphthyl, 2,2'-dimethyl-) (RN-CAS Registry Number 32834-84-7) | ** | 8.20 | EI | 3477 |
| $C_{22}H_{18}^+$ | $C_{10}H_6(CH_3)C_{10}H_6CH_3$ (1,1'-Binaphthyl, 3,3'-dimethyl-) (RN-CAS Registry Number 34042-82-5) | ** | 8.00 | EI | 3477 |
| $C_{22}H_{18}^+$ | $C_{10}H_6(CH_3)C_{10}H_6CH_3$ (1,1'-Binaphthyl, 7,7'-dimethyl-) (RN-CAS Registry Number 34003-80-0) | ** | 8.15 | EI | 3477 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|--------------------|--|----------------|---|--------|------|
| $C_{22}H_{18}^+$ | $C_{10}H_6(CH_3)C_{10}H_6CH_3$ (1,1'-Binaphthyl, 8,8'-dimethyl-) (RN-CAS Registry Number 32693-05-3) | ** | 8.00 | EI | 3477 |
| $C_{23}H_{26}^+$ | $C_{10}H_{13}(CH_3)(C_6H_5)_2$ (Naphthalene, 1,2,3,4,4a,5,6,7-octahydro-4a-methyl-2,2-diphenyl-) (RN-CAS-Registry Number 50592-50-2) | ** | 8.9 ± 0.2 | EI | 4074 |
| $C_{24}H_{12}^+$ | $C_{24}H_{12}$ (Coronene) (RN-CAS Registry Number 191-07-1) | ** | 7.34 (V) | PE | 3951 |
| $C_{24}H_{12}^+$ | $C_{24}H_{12}$ (Coronene) (RN-CAS Registry Number 191-07-1) | ** | 7.5 | CTS | 3577 |
| $C_{24}H_{22}^+$ | $C_{10}H_7(CH_2)_4C_{10}H_7$ (Naphthalene, 1,1'-(1,4-butanediyl)bis-) (RN-CAS Registry Number 29571-17-3) | ** | 7.67 | PE | 3960 |
| $C_{25}H_{16}^+$ | $C_{25}H_{16}$ (9,9'-Spirobi[9H-fluorene]) (RN-CAS Registry Number 159-66-0) | ** | 7.7 (V) | PE | 4081 |
| $C_{32}H_{14}^+$ | $C_{32}H_{14}$ (Ovalene) (RN-CAS Registry Number 190-26-1) | ** | 6.86 ± 0.01 | PE | 3644 |
| $C_6H_5Be^+$ | $(C_6H_5)_2Be$ (Beryllium, diphenyl-) (RN-CAS Registry Number 22300-89-6) | C_6H_5 | 13.4 ± 0.2 | EI | 3815 |
| $C_{12}H_{10}Be^+$ | $(C_6H_5)_2Be$ (Beryllium, diphenyl-) (RN-CAS Registry Number 22300-89-6) | ** | 9.20 ± 0.10 | EI | 3815 |
| $C_{12}H_{10}B^+$ | $(C_6H_5)_3B$ (Borane, triphenyl-) (RN-CAS-Registry Number 960-71-4) | C_6H_5 | 10.2 | PI | 4055 |
| $C_{18}H_{15}B^+$ | $(C_6H_5)_3B$ (Borane, triphenyl-) (RN-CAS-Registry Number 960-71-4) | ** | 8.60 ± 0.03 | PI | 4055 |
| N^+ | N_2 (RN-CAS Registry Number 7727-37-9) | N | 24.4 ± 0.25 | EI | 3797 |
| N^+ | NH_3 (RN-CAS Registry Number 7664-41-7) | $H_2 + H$ | ≤ 22.5 | DC | 3811 |
| N^{+2} | N_2 (RN-CAS Registry Number 7727-37-9) | N | 60.3 ± 2 | EI | 3797 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|----------------------------------|---|----------------|---|--------|------|
| N^{+3} | N_2 (RN-CAS Registry Number 7727-37-9) (HE-High kinetic energy ion) | N | ~100 | EI | 3452 |
| $N_2(X^2\Sigma_g^+)$ | N_2 (RN-CAS Registry Number 7727-37-9) | ** | 15.5812 ± 0.0002 | S | 3561 |
| $N_2(^2\Sigma_g^-)$ | N_2 (RN-CAS Registry Number 7727-37-9) | ** | 15.60 (V) | PE | 4022 |
| $N_2(X^2\Sigma_g^+)$ | N_2 (RN-CAS-Registry Number 7727-37-9) | ** | 15.61 | PE | 4073 |
| $N_2(A^2\Pi_u)$ | N_2 (RN-CAS Registry Number 7727-37-9) | ** | 16.695 ± 0.002 | PE | 3935 |
| $N_2(A^2\Pi_u)$ | N_2 (RN-CAS-Registry Number 7727-37-9) | ** | 16.73 | PE | 4073 |
| $N_2(^2\Pi_u)$ | N_2 (RN-CAS Registry Number 7727-37-9) | ** | 16.98 (V) | PE | 4022 |
| $N_2(^2\Sigma_u)$ | N_2 (RN-CAS Registry Number 7727-37-9) | ** | 18.78 (V) | PE | 4022 |
| $N_2(B^2\Sigma_u^+)$ | N_2 (RN-CAS Registry Number 7727-37-9) | ** | 18.87 (V) | PE | 3714 |
| $N_2(C^2\Sigma_u^+)$ | N_2 (RN-CAS Registry Number 7727-37-9) | ** | 24.6 (V) | PE | 3714 |
| N_2^* | N_2 (RN-CAS Registry Number 7727-37-9) | ** | 28.2 | PE | 3975 |
| $N_2(X^2\Sigma_g^+)$ | N_2 (RN-CAS Registry Number 7727-37-9) | ** | 35 (V) | PE | 3714 |
| N_2^* | N_2 (RN-CAS Registry Number 7727-37-9) | ** | 36.5 | PE | 3975 |
| $N_2(^2\Sigma_g^-)$ | N_2 (RN-CAS Registry Number 7727-37-9) | ** | 38.7 | PE | 3975 |
| $N_2(^2\Sigma_u)$ | N_2 (RN-CAS Registry Number 7727-37-9) | ** | 28-29 (V) | PE | 3714 |
| $N_2(^2\Sigma_g^-)$ | N_2 (RN-CAS Registry Number 7727-37-9) | ** | 32-33 (V) | PE | 3714 |
| $N_2(^2\Sigma_g^+)$ | N_2 (RN-CAS Registry Number 7727-37-9) | ** | 36-37 (V) | PE | 3714 |
| $N_2^{+2}(X^1\Sigma_g^+)$ | N_2 (RN-CAS Registry Number 7727-37-9) | ** | 43.3 ± 0.9 | AUG | 3542 |
| $N_2^{+2}(A^{\infty}\Sigma_u^+)$ | N_2 (RN-CAS Registry Number 7727-37-9) | ** | 46.2 ± 1.3 | AUG | 3542 |
| $N_2^{+2}(A^3\Pi_g)$ | N_2 (RN-CAS Registry Number 7727-37-9) | ** | 47.2 ± 1.3 | AUG | 3542 |
| $N_2^{+2}(C^1\Pi_g)$ | N_2 (RN-CAS Registry Number 7727-37-9) | ** | 49.7 ± 1.2 | AUG | 3542 |
| $N_2^{+2}(d^1\Sigma_u^+)$ | N_2 (RN-CAS Registry Number 7727-37-9) | ** | 51.2 ± 1.15 | AUG | 3542 |
| $N_2^{+2}(e^1\Sigma_g^+)$ | N_2 (RN-CAS Registry Number 7727-37-9) | ** | 52.8 ± 1.15 | AUG | 3542 |
| $N_2^{+2}(f^1\Sigma_g^+)$ | N_2 (RN-CAS Registry Number 7727-37-9) | ** | 96.3 ± 1.9 | AUG | 3542 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|----------------------|---|----------------|---|--------|------|
| N_2^{+2} | N_2 (RN-CAS Registry Number 7727-37-9) | ** | 43 | EI | 3452 |
| N_2^{+2} | N_2^+ (RN-CAS Registry Number 13966-04-6) | | 28 | EI | 3452 |
| NH^+ | NH_3 (RN-CAS Registry Number 7664-41-7) | H_2 | 17.2 | DC | 3811 |
| NH_2^+ | NH_3 (RN-CAS Registry Number 7664-41-7) | H | 15.0 | DC | 3811 |
| NH_2^+ | CH_3NH_2 (RN-CAS Registry Number 74-89-5) | CH_3 | 15.9 | EI | 3808 |
| $NH_3^+(^2A_1)$ | NH_3 (RN-CAS Registry Number 7664-41-7) (HB-Threshold value approximately corrected for hot bands) | ** | 10.15 | PE | 3719 |
| $NH_3^+(^2E)$ | NH_3 (RN-CAS Registry Number 7664-41-7) | ** | 14.98 ± 0.02 | PE | 3719 |
| $NH_3^+(^2A_1)$ | NH_3 (RN-CAS Registry Number 7664-41-7) | ** | 27.0 (V) | PE | 3719 |
| NH_3^+ | NH_3 (RN-CAS Registry Number 7664-41-7) | ** | 10.2 | DC | 3811 |
| $ND_3^+(^2A_1)$ | ND_3 (RN-CAS Registry Number 13550-49-7) (HB-Threshold value approximately corrected for hot bands) | ** | 10.21 | PE | 3719 |
| $ND_3^+(^2E)$ | ND_3 (RN-CAS Registry Number 13550-49-7) | ** | 15.10 ± 0.03 | PE | 3719 |
| NH_4^+ | $C_2H_5NH_2$ (RN-CAS Registry Number 75-04-7) (MT-Metastable transition(s) observed) (TR-Other product(s) thermochemically reasonable) | $C_2H_2 + H$ | 12.72 ± 0.02 | RPD | 3487 |
| NH_4^+ | $(CH_3)_2NH$ (RN-CAS Registry Number 124-40-3) (MT-Metastable transition(s) observed) | $C_2H_2 + H$ | 14.05 ± 0.05 | RPD | 3487 |
| $N_2H_4^+(^2A)$ | N_2H_4 (RN-CAS Registry Number 302-01-2) | ** | 9.91 (V) | PE | 3862 |
| $N_2H_4^+$ | N_2H_4 (RN-CAS Registry Number 302-01-2) | ** | 10.07 | PE | 3747 |
| $N_2H_4^+(^2B)$ | N_2H_4 (RN-CAS Registry Number 302-01-2) | ** | 10.64 (V) | PE | 3862 |
| $N_2H_4^+(^2A)$ | N_2H_4 (RN-CAS Registry Number 302-01-2) | ** | 15.61 (V) | PE | 3862 |
| $N_2H_4^+(^2B, ^2A)$ | N_2H_4 (RN-CAS Registry Number 302-01-2) | ** | 16.66 (V) | PE | 3862 |
| $N_2H_4^*$ | N_2H_4 (RN-CAS Registry Number 302-01-2) | ** | 24.5 | PE | 3715 |
| $N_2H_4^*$ | N_2H_4 (RN-CAS Registry Number 302-01-2) | ** | 30.0 | PE | 3715 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|--------------------|--|----------------|---|--------|------|
| $N_3H^+(^2A'')$ | HN ₃ (RN-CAS Registry Number 7782-79-8) | ** | 10.72±0.02 | PE | 3670 |
| $N_3H^+(^2A')$ | HN ₃ (RN-CAS Registry Number 7782-79-8) | ** | 12.24±0.02 (V) | PE | 3670 |
| N_3H^{+*} | HN ₃ (RN-CAS Registry Number 7782-79-8) | ** | 15.37±0.02 | PE | 3670 |
| N_3H^{+*} | HN ₃ (RN-CAS Registry Number 7782-79-8) | ** | 16.8±0.1 (V) | PE | 3670 |
| BH_6N^+ | (BH ₃)(NH ₃) (RN-CAS Registry Number xxxx-xx-x) | ** | 9.44±0.02 | PE | 3699 |
| $B_3H_6N_3^+$ | B ₃ H ₆ N ₃ (Borazine) (RN-CAS Registry Number 6569-51-3) | ** | 9.88 | PE | 3637 |
| $B_3H_6N_3^+$ | B ₃ H ₆ N ₃ (Borazine) (RN-CAS Registry Number 6569-51-3) | ** | 10.09 (V) | PE | 3673 |
| $B_3H_6N_3(^2E'')$ | B ₃ H ₆ N ₃ (Borazine) (RN-CAS Registry Number 6569-51-3) | ** | 10.14±0.01 | PE | 3506 |
| $CHN^+(X^2\Pi)$ | HCN (RN-CAS Registry Number 74-90-8) | ** | 13.61±0.01 | PE | 3840 |
| $CHN^+(A^2\Sigma)$ | HCN (RN-CAS Registry Number 74-90-8) | ** | 14.00±0.01 | PE | 3840 |
| $CHN^+(B^2\Sigma)$ | HCN (RN-CAS Registry Number 74-90-8) | ** | 19.06±0.01 | PE | 3840 |
| CHN^+ | HCN (RN-CAS Registry Number 74-90-8) | ** | 13.71 | EDD | 3737 |
| CH_4N^+ | C ₂ H ₅ NO ₂ (RN-CAS Registry Number 56-40-6) | | 10.27±0.05 | EI | 3571 |
| CH_3N^+ | CH ₃ NH ₂ (RN-CAS Registry Number 74-89-5) | ** | 8.80±0.02 | PE | 3890 |
| $CH_3N^+(^2A')$ | CH ₃ NH ₂ (RN-CAS-Registry Number 74-89-5) | ** | 9.64 (V) | PE | 4068 |
| CH_3N^+ | CH ₃ NH ₂ (RN-CAS Registry Number 74-89-5) | ** | 9.65 (V) | PE | 4087 |
| $CH_3N^+(^2A'')$ | CH ₃ NH ₂ (RN-CAS-Registry Number 74-89-5) | ** | 13.22 (V) | PE | 4068 |
| $CH_3N^+(^2A')$ | CH ₃ NH ₂ (RN-CAS-Registry Number 74-89-5) | ** | 14.42 (V) | PE | 4068 |
| $CH_3N^+(^2A')$ | CH ₃ NH ₂ (RN-CAS-Registry Number 74-89-5) | ** | 15.45 (V) | PE | 4068 |
| $CH_3N^+(^2A'')$ | CH ₃ NH ₂ (RN-CAS-Registry Number 74-89-5) | ** | 16.85 (V) | PE | 4068 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|-------------|---|-------------------|---|--------|------|
| $C_2H_2N^+$ | $C_3H_4N_2$ (1 <i>H</i> -Imidazole) (RN-CAS Registry Number 288-32-4) | HCN | 13.2 | EI | 3910 |
| $C_2H_4N^+$ | $(CH_3)_2NCH=CHC\equiv CH$ (RN-CAS Registry Number 2206-24-8) | | 13.1 | EI | 3674 |
| $C_2H_4N^+$ | $(C_2H_5)_2NCH=CHC\equiv CH$ (RN-CAS Registry Number 1809-53-6) | | 13.6 | EI | 3674 |
| $C_2H_6N^+$ | $(CH_3)_2NCH=CHC\equiv CH$ (RN-CAS Registry Number 2206-24-8) | $CH=CHC\equiv CH$ | 12.7 | EI | 3674 |
| $C_2H_7N^+$ | $C_2H_5NH_2$ (RN-CAS Registry Number 75-04-7) | ** | 9.44 ± 0.18 (V) | PE | 3987 |
| $C_2H_7N^+$ | $C_2H_5NH_2$ (RN-CAS Registry Number 75-04-7) | ** | 9.50 (V) | PE | 4032 |
| $C_2H_7N^+$ | $CH_3CH_2NH_2$ (RN-CAS-Registry Number 75-04-7) | ** | 9.50 (V) | PE | 4068 |
| $C_2H_7N^+$ | $(CH_3)_2NH$ (RN-CAS Registry Number 124-40-3) | ** | 8.07 | PE | 3589 |
| $C_2H_7N^+$ | $(CH_3)_2NH$ (RN-CAS Registry Number 124-40-3) | ** | 8.25 ± 0.02 | PE | 3890 |
| C_3HN^+ | $CH\equiv CCN$ (RN-CAS Registry Number 1070-71-9) | ** | 11.6 | S | 3755 |
| C_3HN^+ | $CH\equiv CCN$ (RN-CAS Registry Number 1070-71-9) | ** | 11.64 ± 0.01 | PI | 3929 |
| $C_3H_6N^+$ | $(C_2H_5)_2NCH=CHC\equiv CH$ (RN-CAS Registry Number 1809-53-6) (TR-Other product(s) thermochemically reasonable) (OP-the other product(s) is(are): $CH=CHC\equiv CH + CH_3 + H$) | | 12.3 | EI | 3674 |
| $C_3H_6N^+$ | $(CH_2NF_2)CH_2$ (RN-CAS Registry Number 21298-22-6) | | 15.6 ± 0.4 | EI | 3634 |
| $C_3H_6N^+$ | $CH_2(NF_2)CH(NF_2)CH_3$ (RN-CAS Registry Number 15403-25-5) | | 15.6 ± 0.3 | EI | 3634 |
| $C_3H_6N^+$ | $(CH_3)_2C(NF_2)_2$ (RN-CAS Registry Number 19309-63-8) | | 15.4 ± 0.3 | EI | 3634 |
| $C_3H_7N^+$ | $CH_2=CHCH_2NH_2$ (RN-CAS Registry Number 107-11-9) | ** | 8.76 | PE | 3864 |
| $C_3H_9N^+$ | $N(CH_3)_3$ (RN-CAS Registry Number 75-50-3) | ** | 7.95 ± 0.10 | PI | 3729 |
| $C_3H_9N^+$ | $(CH_3)_3N$ (RN-CAS Registry Number 75-50-3) | ** | 7.83 ± 0.02 | PE | 3890 |
| $C_3H_9N^+$ | $(CH_3)_3N$ (RN-CAS Registry Number 75-50-3) | ** | 8.45 ± 0.01 (V) | PE | 3699 |
| $C_3H_9N^+$ | $(CH_3)_3N$ (RN-CAS Registry Number 75-50-3) | ** | 8.5 ± 0.1 (V) | PE | 3661 |
| $C_3H_9N^+$ | <i>n</i> - $C_3H_7NH_2$ (RN-CAS-Registry Number 107-10-8) | ** | 9.44 (V) | PE | 4068 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|---------------------------|--|----------------|---|--------|------|
| $C_3H_9N^+$ | <i>iso</i> - $C_3H_7NH_2$ (RN-CAS-Registry Number 75-31-0) | ** | 9.31 (V) | PE | 4068 |
| $C_4H_3N^+$ | $(CH_3)_2NCH=CHC\equiv CH$ (RN-CAS Registry Number 2206-24-8) (TR-Other product(s) thermochemically reasonable) | $2CH_3$ | 15.1 | EI | 3674 |
| $C_4H_3N^+$ | $C_4H_8NCH=CHC\equiv CH$ (Pyrrolidine, 1-(1-buten-3-ynyl)-) (RN-CAS Registry Number 19352-85-3) (TR-Other product(s) thermochemically reasonable) | C_4H_8 | 15.3 | EI | 3674 |
| $C_4H_3N^+$ | $(C_2H_5)_2NCH=CHC\equiv CH$ (RN-CAS Registry Number 1809-53-6) (TR-Other product(s) thermochemically reasonable) | $2C_2H_4 + 2H$ | 16.5 | EI | 3674 |
| $C_4H_5N^+$ | C_4H_5N (1 <i>H</i> -Pyrrole) (RN-CAS-Registry Number 109-97-7) | ** | 8.20 ± 0.01 | PI | 4058 |
| $C_4H_5N^+$ | C_4H_5N (1 <i>H</i> -Pyrrole) (RN-CAS Registry Number 109-97-7) | ** | 8.23 (V) | PE | 4009 |
| $C_4H_5N^+$ | C_4H_5N (1 <i>H</i> -Pyrrole) (RN-CAS Registry Number 109-97-7) | ** | 8.40 ± 0.05 | EI | 3482 |
| $C_4H_{10}N^+$ | $(C_2H_5)_3N$ (RN-CAS Registry Number 121-44-8) | C_2H_5 | 13.14 | EI | 3674 |
| $C_4H_{11}N^+$ | <i>n</i> - $C_4H_9NH_2$ (RN-CAS-Registry Number 109-73-9) | ** | 9.40 (V) | PE | 4068 |
| $C_3H_4N^+$ | $(CH_3)_2NCH=CHC\equiv CH$ (RN-CAS Registry Number 2206-24-8) (TR-Other product(s) thermochemically reasonable) | $CH_3 + H_2$ | 12.4 | EI | 3674 |
| $C_3H_4N^+$ | $C_4H_8NCH=CHC\equiv CH$ (Pyrrolidine, 1-(1-buten-3-ynyl)-) (RN-CAS Registry Number 19352-85-3) (TR-Other product(s) thermochemically reasonable) | $C_3H_3 + H$ | 15.0 | EI | 3674 |
| $C_3H_5N^+$ | C_5H_5N (Pyridine) (RN-CAS Registry Number 110-86-1) | ** | 9.4 | PI | 3586 |
| $C_3H_5N^+$ | C_5H_5N (Pyridine) (RN-CAS Registry Number 110-86-1) (HB-Threshold value approximately corrected for hot bands) | ** | 9.263 | PE | 3707 |
| $C_3H_5N^+(\text{}^2A_1)$ | C_5H_5N (Pyridine) (RN-CAS Registry Number 110-86-1) | ** | 9.59 (V) | PE | 3513 |
| $C_3H_5N^+$ | C_5H_5N (Pyridine) (RN-CAS Registry Number 110-86-1) | ** | 9.60 ± 0.5 (V) | PE | 3685 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|-----------------------|--|-----------------|---|--------|------|
| $C_5H_5N^+(\ ^2A_1?)$ | C_5H_5N (Pyridine) (RN-CAS Registry Number 110-86-1) | ** | 9.7 (V) | PE | 3832 |
| $C_5H_5N^+(\ ^2A_2)$ | C_5H_5N (Pyridine) (RN-CAS Registry Number 110-86-1) | ** | 9.73 (V) | PE | 3513 |
| $C_5H_5N^+(\ ^2A_2?)$ | C_5H_5N (Pyridine) (RN-CAS Registry Number 110-86-1) | ** | 9.8 (V) | PE | 3832 |
| $C_5H_5N^+(\ ^2B_1)$ | C_5H_5N (Pyridine) (RN-CAS Registry Number 110-86-1) | ** | 10.5 (V) | PE | 3832 |
| $C_5H_5N^+(\ ^2B_1)$ | C_5H_5N (Pyridine) (RN-CAS Registry Number 110-86-1) | ** | 10.50 (V) | PE | 3513 |
| $C_5H_5N^+(\ ^2B_2)$ | C_5H_5N (Pyridine) (RN-CAS Registry Number 110-86-1) | ** | 12.5 (V) | PE | 3832 |
| $C_5H_5N^+(\ ^2B_1)$ | C_5H_5N (Pyridine) (RN-CAS Registry Number 110-86-1) | ** | 12.6 (V) | PE | 3832 |
| $C_5H_5N^+$ | C_5H_5N (Pyridine) (RN-CAS Registry Number 110-86-1) | ** | 9.66 ± 0.03 | EDD | 3626 |
| $C_5H_5N^+$ | C_5H_5N (Pyridine) (RN-CAS Registry Number 110-86-1) | ** | 9.70 ± 0.05 | EI | 3498 |
| $C_5H_6N^+$ | $(CH_3)_2NCH=CHC \equiv CH$ (RN-CAS Registry Number 2206-24-8) | CH_3 | 11.2 | EI | 3674 |
| $C_5H_6N^+$ | $C_4H_8NCH=CHC \equiv CH$ (Pyrrolidine, 1-(1-buten-3-ynyl)-) (RN-CAS Registry Number 19352-85-3) | $CH_2=CHCH_2$ | 11.3 | EI | 3674 |
| $C_5H_6N^+$ | (TR-Other product(s) thermochemically reasonable) $(C_2H_5)_2NCH=CHC \equiv CH$ (RN-CAS Registry Number 1809-53-6) | $C_2H_4 + CH_3$ | 13.9 | EI | 3674 |
| $C_5H_7N^+$ | $C_4H_4N(CH_3)$ (Pyrrole, 1-methyl-) (RN-CAS Registry Number 96-54-8) | ** | 8.4 | EI | 3580 |
| $C_5H_7N^+$ | $C_4H_4NCH_3$ (Pyrrole, 2-methyl-) (RN-CAS Registry Number 636-41-9) | ** | 8.01 ± 0.05 | EI | 3482 |
| $C_5H_{12}N^+$ | $(C_2H_5)_3N$ (RN-CAS Registry Number 121-44-8) | CH_3 | 11.48 | EI | 3674 |
| $C_6H_5N^+$ | C_5H_5CN (Cyclopentadienecarbonitrile) (RN-CAS Registry Number 27659-36-5) | ** | 9.7 | EI | 3476 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|-------------|---|----------------|---|--------|------|
| $C_6H_6N^+$ | $C_6H_4(NH_2)COOH$ (Benzoic acid, 3-amino-) (RN-CAS Registry Number 99-05-8) | CO + OH | 14.26 ± 0.2 | EI | 3973 |
| | (MT—Metastable transition(s) observed) | | | | |
| $C_6H_6N^+$ | $C_6H_4(NH_2)COOH$ (Benzoic acid, 4-amino-) (RN-CAS Registry Number 150-13-0) | CO + OH | 14.77 ± 0.2 | EI | 3973 |
| | (MT—Metastable transition(s) observed) | | | | |
| $C_6H_6N^+$ | $C_6H_4(NO_2)NH_2$ (Benzenamine, 3-nitro-) (RN-CAS Registry Number 99-09-2) | NO_2 | 11.23 ± 0.1 | EI | 3447 |
| $C_6H_6N^+$ | $C_6H_4(NO_2)NH_2$ (Benzenamine, 4-nitro-) (RN-CAS Registry Number 100-01-6) | NO_2 | 11.53 ± 0.1 | EI | 3447 |
| $C_6H_7N^+$ | $C_6H_5NH_2$ (Benzenamine) (RN-CAS Registry Number 62-53-3) | ** | 7.7 | PI | 3586 |
| $C_6H_7N^+$ | $C_6H_5NH_2$ (Benzenamine) (RN-CAS Registry Number 62-53-3) | ** | 7.70 ± 0.01 | PI | 4028 |
| $C_6H_7N^+$ | $C_6H_5NH_2$ (Benzenamine) (RN-CAS Registry Number 62-53-3) | ** | 7.65 ± 0.02 | PE | 3890 |
| $C_6H_7N^+$ | $C_6H_5NH_2$ (Benzenamine) (RN-CAS Registry Number 62-53-3) | ** | 7.66 | PE | 3988 |
| $C_6H_7N^+$ | $C_6H_5NH_2$ (Benzenamine) (RN-CAS Registry Number 62-53-3) | ** | 7.71 | PE | 3955 |
| $C_6H_7N^+$ | $C_6H_5NH_2$ (Benzenamine) (RN-CAS Registry Number 62-53-3) | ** | 8.05 (V) | PE | 4106 |
| $C_6H_7N^+$ | $C_6H_5NH_2$ (Benzenamine) (RN-CAS Registry Number 62-53-3) | ** | 7.89 ± 0.03 | EDD | 3626 |
| $C_6H_7N^+$ | $C_6H_5NH_2$ (Benzenamine) (RN-CAS Registry Number 62-53-3) | ** | 7.89 | EDD | 3485 |
| $C_6H_7N^+$ | $C_6H_5NH_2$ (Benzenamine) (RN-CAS Registry Number 62-53-3) | ** | 7.61 ± 0.1 | EI | 3788 |
| $C_6H_7N^+$ | $C_6H_5NH_2$ (Benzenamine) (RN-CAS Registry Number 62-53-3) | ** | 7.63 | EI | 3845 |
| $C_6H_7N^+$ | $C_6H_5NH_2$ (Benzenamine) (RN-CAS Registry Number 62-53-3) | ** | $8.09 \pm < 0.1$ | EI | 3735 |
| $C_6H_7N^+$ | $C_5H_4NCH_3$ (Pyridine, 2-methyl-) (RN-CAS Registry Number 109-06-8) | ** | 9.20 ± 0.05 (V) | PE | 3685 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|----------------|---|----------------|---|--------|------|
| $C_6H_7N^+$ | $C_5H_4NCH_3$ (Pyridine, 4-methyl-) (RN-CAS Registry Number 108-89-4) | ** | 9.50 ± 0.05 (V) | PE | 3685 |
| $C_6H_7N^+$ | $C_5H_4NCH_3$ (Pyridine, 4-methyl) (RN-CAS Registry Number 108-89-4) | ** | 9.55 ± 0.05 | EI | 3498 |
| $C_6H_7N^+$ | $C_6H_4(NH_2)OCH_3$ (Benzenamine, 3-methoxy-) (RN-CAS Registry Number 536-90-3) | CH_2O | 10.51 ± 0.1 | EI | 3446 |
| $C_6H_7N^+$ | $C_6H_4(NH_2)OCH_3$ (Benzenamine, 4-methoxy-) (RN-CAS Registry Number 104-94-9) | HCHO | 9.58 | EI | 3845 |
| $C_6H_7N^+$ | $C_6H_5NHCOCH_3$ (Acetamide, <i>N</i> -phenyl-) (RN-CAS Registry Number 103-84-4) | $CH_2=C=O$ | 10.45 ± 0.03 | EI | 3483 |
| $C_6H_7N^+$ | $C_6H_5NH_2Cr(CO)_3$ (Chromium, (η^6 -benzenamine)tricarbonyl-) (RN-CAS Registry Number 12108-11-1) | | 7.96 ± 0.1 | EI | 3788 |
| $C_6H_9N^+$ | $(CH_3)_2NCH=CHC \equiv CH$ (RN-CAS Registry Number 2206-24-8) | H | 10.1 | EI | 3674 |
| $C_6H_9N^+$ | $(CH_3)_2NCH=CHC \equiv CH$ (RN-CAS Registry Number 2206-24-8) | ** | 7.7 | EI | 3674 |
| $C_6H_9N^+$ | $C_4H_4NC_2H_5$ (Pyrrole, 2-ethyl-) (RN-CAS Registry Number 1551-06-0) | ** | 7.97 ± 0.05 | EI | 3482 |
| $C_6H_{15}N^+$ | $(C_2H_5)_3N$ (RN-CAS Registry Number 121-44-8) | ** | 8.19 ± 0.05 (V) | PE | 3987 |
| $C_7H_4N^+$ | $C_6H_4(CN)COOH$ (Benzoic acid, 4-cyano-) (RN-CAS Registry Number 619-65-8) (MT-Metastable transition(s) observed) | CO + OH | 15.68 ± 0.2 | EI | 3973 |
| $C_7H_4N^+$ | $C_6H_4(NO_2)CN$ (Benzonitrile, 3-nitro-) (RN-CAS Registry Number 619-24-9) | NO_2 | 12.25 ± 0.1 | EI | 3447 |
| $C_7H_4N^+$ | $C_6H_4(NO_2)CN$ (Benzonitrile, 4-nitro-) (RN-CAS Registry Number 619-72-7) | NO_2 | 12.42 ± 0.1 | EI | 3447 |
| $C_7H_5N^+$ | C_6H_5CN (Benzonitrile) (RN-CAS Registry Number 100-47-0) | ** | 9.62 | PE | 3938 |
| $C_7H_5N^+$ | C_6H_5CN (Benzonitrile) (RN-CAS Registry Number 100-47-0) | ** | 9.7 | EI | 3916 |
| $C_7H_5N^+$ | C_6H_5CN (Benzonitrile) (RN-CAS Registry Number 100-47-0) | ** | 9.77 | EI | 3845 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|---|--|----------------|---|--------|------|
| $C_7H_5N^+$ | C_6H_5CN (Benzonitrile) (RN-CAS Registry Number 100-47-0) | ** | $10.02 \pm <0.1$ | EI | 3735 |
| $C_7H_5N^+$ | $C_6H_4(CN)OCH_3$ (Benzonitrile, 3-methoxy-) (RN-CAS Registry Number 1527-89-5) | CH_2O | 12.23 ± 0.1 | EI | 3446 |
| $C_7H_5N^+$ | $C_6H_4(CN)OCH_3$ (Benzonitrile, 4-methoxy-) (RN-CAS Registry Number 874-90-8) | CH_2O | 12.30 ± 0.1 | EI | 3446 |
| $C_7H_5N^+$ | $C_6H_4(CN)OCH_3$ (Benzonitrile, 4-methoxy-) (RN-CAS Registry Number 874-90-8) | HCHO | 12.39 | EI | 3845 |
| (CD-Metastable transition indicates 0.36 eV kinetic energy release) | | | | | |
| $C_7H_8N^+$ | $C_6H_4(NH_2)CH_3$ (Benzenamine, 2-methyl-) (RN-CAS Registry Number 95-53-4) | H | 11.25 ± 0.05 | PI | 4028 |
| $C_7H_8N^+$ | $C_6H_4(NH_2)CH_3$ (Benzenamine, 4-methyl-) (RN-CAS Registry Number 106-49-0) | H | 11.00 ± 0.1 | PI | 4028 |
| $C_7H_8N^+$ | $C_6H_4(NH_2)C_4H_9$ (Benzenamine, 3-butyl-) (RN-CAS Registry Number 5369-17-5) | | 12.13 ± 0.1 | EI | 3629 |
| $C_7H_8N^+$ | $C_6H_4(NH_2)C_4H_9$ (Benzenamine, 4-butyl-) (RN-CAS Registry Number 104-13-2) | | 11.10 ± 0.1 | EI | 3629 |
| $C_7H_8N^+$ | $C_6H_5CH_2C_6H_4NH_2$ (Benzenamine, 4-(phenylmethyl)-) (RN-CAS Registry Number 1135-12-2) | C_6H_5 | 10.6 ± 0.1 | EI | 3807 |
| $C_7H_8N^+$ | $(C_6H_4NH_2)_2CH_2$ (Benzenamine, 4,4'-methylenebis-) (RN-CAS Registry Number 101-77-9) | | 10.6 ± 0.1 | EI | 3807 |
| $C_7H_8N^+$ | $C_6H_4(CH_3)NHCOCH_3$ (Acetamide, N-(2-methylphenyl)-) (RN-CAS Registry Number 120-66-1) | CH_3CO | 13.97 ± 0.02 | EI | 3631 |
| $C_7H_8N^+$ | $C_6H_4(CH_3)NHCOCH_3$ (Acetamide, N-(4-methylphenyl)-) (RN-CAS Registry Number 103-89-9) | CH_3CO | 14.21 ± 0.02 | EI | 3631 |
| $C_7H_8N^+$ | $C_6H_4(NH_2)CH_2CH_2OCOCH_3$ (Benzeneethanol, 4-amino-, acetate(ester)) (RN-CAS Registry Number 33709-38-5) | | 11.00 | EI | 3590 |
| $C_7H_8N^+$ | $C_6H_4(NO_2)CH_2C_6H_4NH_2$ (Benzenamine, 4-[(4-nitrophenyl)methyl]-) (RN-CAS Registry Number 726-17-0) | | 11.6 ± 0.2 | EI | 3807 |
| $C_7H_9N^+$ | $C_6H_4(NH_2)CH_3$ (Benzenamine, 2-methyl-) (RN-CAS Registry Number 95-53-4) | ** | 7.44 ± 0.02 | PI | 4028 |
| $C_7H_9N^+$ | $C_6H_4(NH_2)CH_3$ (Benzenamine, 2-methyl-) (RN-CAS Registry Number 95-53-4) | ** | 7.45 ± 0.02 | PE | 3890 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|----------------|---|----------------|---|--------|------|
| $C_7H_9N^+$ | $C_6H_4(NH_2)CH_3$ (Benzenamine, 2-methyl-) (RN-CAS Registry Number 95-53-4) | ** | 7.52 | PE | 3988 |
| $C_7H_9N^+$ | $C_6H_4(NH_2)CH_3$ (Benzenamine, 2-methyl-) (RN-CAS Registry Number 95-53-4) | ** | 7.83 (V) | PE | 4106 |
| $C_7H_9N^+$ | $C_6H_4(NH_2)CH_3$ (Benzenamine, 3-methyl-) (RN-CAS Registry Number 108-44-1) | ** | 7.55 | PE | 3988 |
| $C_7H_9N^+$ | $C_6H_4(NH_2)CH_3$ (Benzenamine, 3-methyl-) (RN-CAS Registry Number 108-44-1) | ** | 7.66 (V) | PE | 4106 |
| $C_7H_9N^+$ | $C_6H_4(NH_2)CH_3$ (Benzenamine, 4-methyl-) (RN-CAS Registry Number 106-49-0) | ** | 7.24±0.02 | PI | 4028 |
| $C_7H_9N^+$ | $C_6H_4(NH_2)CH_3$ (Benzenamine, 4-methyl-) (RN-CAS Registry Number 106-49-0) | ** | 7.37 | PE | 3988 |
| $C_7H_9N^+$ | $C_6H_4(NH_2)CH_3$ (Benzenamine, 4-methyl-) (RN-CAS Registry Number 106-49-0) | ** | 7.62 (V) | PE | 4106 |
| $C_7H_9N^+$ | $C_6H_5NHCH_3$ (Benzenamine, <i>N</i> -methyl-) (RN-CAS Registry Number 100-61-8) | ** | 7.32 | PE | 3988 |
| $C_7H_9N^+$ | $C_6H_5NHCH_3$ (Benzenamine, <i>N</i> -methyl-) (RN-CAS Registry Number 100-61-8) | ** | 7.35±0.02 | PE | 3890 |
| $C_7H_9N^+$ | $C_5H_3N(CH_3)_2$ (2,6-Dimethylpyridine) (RN-CAS Registry Number 108-48-5) | ** | 9.23±0.05 | EI | 3498 |
| $C_7H_9N^+$ | $C_5H_3N(CH_3)_2$ (Pyridine, 2,5-dimethyl-) (RN-CAS Registry Number 589-93-5) | ** | 8.80±0.05 (V) | PE | 3685 |
| $C_7H_9N^+$ | $C_5H_3N(CH_3)_2$ (Pyridine, 2,6-dimethyl-) (RN-CAS Registry Number 108-48-5) | ** | 8.90±0.05 (V) | PE | 3685 |
| $C_7H_9N^+$ | $C_6H_4(NH_2)C_4H_9$ (Benzenamine, 3-butyl-) (RN-CAS Registry Number 5369-17-5) | $CH_2=CHCH_3$ | 10.10±0.1 | EI | 3629 |
| $C_7H_9N^+$ | $C_6H_4(NH_2)C_4H_9$ (Benzenamine, 4-butyl-) (RN-CAS Registry Number 104-13-2) | $CH_2=CHCH_3$ | 9.37±0.1 | EI | 3629 |
| $C_7H_9N^+$ | $C_6H_4(CH_3)NHCOCH_3$ (Acetamide, <i>N</i> -(2-methylphenyl)-) (RN-CAS Registry Number 120-66-1) | $CH_2=C=O$ | 10.05±0.02 | EI | 3631 |
| $C_7H_9N^+$ | $C_6H_4(CH_3)NHCOCH_3$ (Acetamide, <i>N</i> -(4-methylphenyl)-) (RN-CAS Registry Number 103-89-9) | $CH_2=C=O$ | 10.12±0.02 | EI | 3631 |
| $C_7H_{10}N^+$ | $(C_2H_5)_2NCH=CHC\equiv CH$ (RN-CAS Registry Number 1809-53-6) | CH_3 | 13.1 | EI | 3674 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|----------------|--|----------------|---|--------|------|
| $C_7H_{11}N^+$ | $C_4H_2N(CH_3)_3$ (Pyrrole, 1,3,4-trimethyl-) (RN-CAS Registry Number 30144-12-8) | ** | 7.3 | EI | 3580 |
| $C_8H_6N^+$ | $C_6H_4(CN)C_4H_9$ (Benzonitrile, 3-butyl-) (RN-CAS Registry Number 20651-74-5) | | 12.90 ± 0.1 | EI | 3629 |
| $C_8H_6N^+$ | $C_6H_4(CN)C_4H_9$ (Benzonitrile, 4-butyl-) (RN-CAS Registry Number 20651-73-4) | | 12.71 ± 0.1 | EI | 3629 |
| $C_8H_7N^+$ | $C_6H_4(CH_3)CN$ (Benzonitrile, 4-methyl-) (RN-CAS Registry Number 104-85-8) | ** | 9.31 | EI | 4089 |
| $C_8H_7N^+$ | $C_6H_4(CN)C_4H_9$ (Benzonitrile, 3-butyl-) (RN-CAS Registry Number 20651-74-5) | $CH_2=CHCH_3$ | 11.55 ± 0.1 | EI | 3629 |
| $C_8H_7N^+$ | $C_6H_4(CN)C_4H_9$ (Benzonitrile, 4-butyl-) (RN-CAS Registry Number 20651-73-4) | $CH_2=CHCH_3$ | 11.66 ± 0.1 | EI | 3629 |
| $C_8H_9N^+$ | C_8H_9N (1 <i>H</i> -Indole, 2,3-dihydro-) (RN-CAS Registry Number 496-15-1) | ** | 7.15 ± 0.02 | PE | 3890 |
| $C_8H_9N^+$ | $C_6H_4(NH_2)CH_2CH_2OCOCH_3$ (Benzeneethanol, 4-amino-, acetate(ester)) (RN-CAS Registry Number 33709-38-5) | | 7.80 | EI | 3590 |
| $C_8H_{10}N^+$ | $C_6H_5N(CH_3)_2$ (Benzenamine, <i>N,N</i> -dimethyl-) (RN-CAS Registry Number 121-69-7) | H | 10.56 ± 0.05 | PI | 4028 |
| $C_8H_{10}N^+$ | $C_4H_8NCH=CHC \equiv CH$ (Pyrrolidine, 1-(1-buten-3-ynyl)-) (RN-CAS Registry Number 19352-85-3) | H | 10.7 | EI | 3674 |
| $C_8H_{11}N^+$ | $C_6H_3(CH_3)_2NH_2$ (Benzenamine, 2,6-dimethyl-) (RN-CAS Registry Number 87-62-7) | ** | 7.30 ± 0.02 | PE | 3890 |
| $C_8H_{11}N^+$ | $C_6H_3(CH_3)_2NH_2$ (Benzenamine, 2,6-dimethyl-) (RN-CAS Registry Number 87-62-7) | ** | 7.36 | PE | 3988 |
| $C_8H_{11}N^+$ | $C_6H_4(CH_3)NHCH_3$ (Benzenamine, <i>N,2</i> -dimethyl-) (RN-CAS Registry Number 611-21-2) | ** | 7.27 | PE | 3988 |
| $C_8H_{11}N^+$ | $C_6H_4(CH_3)NHCH_3$ (Benzenamine, <i>N,3</i> -dimethyl-) (RN-CAS Registry Number 696-44-6) | ** | 7.26 | PE | 3988 |
| $C_8H_{11}N^+$ | $C_6H_4(CH_3)NHCH_3$ (Benzenamine, <i>N,4</i> -dimethyl-) (RN-CAS Registry Number 623-08-5) | ** | 7.13 | PE | 3988 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|----------------|--|----------------|---|--------|------|
| $C_8H_{11}N^+$ | $C_6H_5N(CH_3)_2$ (Benzenamine, <i>N,N</i> -dimethyl-) (RN-CAS Registry Number 121-69-7) | ** | 7.13 ± 0.04 | PI | 4028 |
| $C_8H_{11}N^+$ | $C_6H_5N(CH_3)_2$ (Benzenamine, <i>N,N</i> -dimethyl-) (RN-CAS Registry Number 121-69-7) | ** | 7.10 ± 0.02 | PE | 3890 |
| $C_8H_{11}N^+$ | $C_6H_5N(CH_3)_2$ (Benzenamine, <i>N,N</i> -dimethyl-) (RN-CAS Registry Number 121-69-7) | ** | 7.11 | PE | 3988 |
| $C_8H_{11}N^+$ | $C_6H_5N(CH_3)_2$ (Benzenamine, <i>N,N</i> -dimethyl-) (RN-CAS Registry Number 121-69-7) | ** | 7.37 (V) | PE | 4106 |
| $C_8H_{11}N^+$ | $C_6H_5N(CH_3)_2$ (Benzenamine, <i>N,N</i> -dimethyl-) (RN-CAS Registry Number 121-69-7) | ** | 7.2 | CTS | 3543 |
| $C_8H_{11}N^+$ | $C_6H_5N(CH_3)_2$ (Benzenamine, <i>N,N</i> -dimethyl-) (RN-CAS Registry Number 121-69-7) | ** | 7.42 | CTS | 4029 |
| | (AV—Average of two values) | | | | |
| $C_8H_{11}N^+$ | $C_4H_8NCH=CHC\equiv CH$ (Pyrrolidine, 1-(1-buten-3-ynyl)-) (RN-CAS Registry Number 19352-85-3) | ** | 7.5 | EI | 3674 |
| $C_8H_{12}N^+$ | $(C_2H_5)_2NCH=CHC\equiv CH$ (RN-CAS Registry Number 1809-53-6) | H | 9.9 | EI | 3674 |
| $C_8H_{13}N^+$ | $(C_2H_5)_2NCH=CHC\equiv CH$ (RN-CAS Registry Number 1809-53-6) | ** | 8.0 | EI | 3674 |
| $C_8H_{13}N^+$ | $C_4H_4NC_4H_9$ (1 <i>H</i> -Pyrrole, 2-(1,1-dimethylethyl)-) (RN-CAS Registry Number 5398-58-3) | ** | 7.95 ± 0.05 | EI | 3482 |
| $C_9H_7N^+$ | C_9H_7N (Isoquinoline) (RN-CAS Registry Number 119-65-3) | ** | 8.50 | PE | 3638 |
| $C_9H_7N^+$ | C_9H_7N (Isoquinoline) (RN-CAS Registry Number 119-65-3) | ** | 8.54 (V) | PE | 3723 |
| $C_9H_7N^+$ | C_9H_7N (Quinoline) (RN-CAS Registry Number 91-22-5) | ** | 8.3 | PI | 3586 |
| $C_9H_7N^+$ | C_9H_7N (Quinoline) (RN-CAS-Registry Number 91-22-5) | ** | 8.62 | PE | 4066 |
| $C_9H_7N^+$ | C_9H_7N (Quinoline) (RN-CAS Registry Number 91-22-5) | ** | 8.62 | PE | 3638 |
| $C_9H_7N^+$ | C_9H_7N (Quinoline) (RN-CAS Registry Number 91-22-5) | ** | 8.62 (V) | PE | 3723 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|-------------------|--|----------------|---|--------|------|
| $C_9H_{11}N^+$ | $C_9H_{11}N$ (Quinoline, 1,2,3,4-tetrahydro-) (RN-CAS Registry Number 635-46-1) | ** | 7.00 ± 0.02 | PE | 3890 |
| $C_9H_{13}N^+$ | $C_6H_2(CH_3)_3NH_2$ (Benzenamine, 2,4,6-trimethyl-) (RN-CAS Registry Number 88-05-1) | ** | 7.15 | PE | 3988 |
| $C_9H_{13}N^+$ | $C_6H_3(CH_3)_2NHCH_3$ (Benzenamine, <i>N</i> ,2,6-trimethyl-) (RN-CAS Registry Number 767-71-5) | ** | 7.34 | PE | 3988 |
| $C_9H_{13}N^+$ | $C_6H_4(CH_3)N(CH_3)_2$ (Benzenamine, <i>N,N</i> ,2-trimethyl-) (RN-CAS Registry Number 609-72-3) | ** | 7.40 ± 0.02 | PE | 3890 |
| $C_9H_{13}N^+$ | $C_6H_4(CH_3)N(CH_3)_2$ (Benzenamine, <i>N,N</i> ,2-trimethyl-) (RN-CAS Registry Number 609-72-3) | ** | 7.44 | PE | 3988 |
| $C_9H_{13}N^+$ | $C_6H_4(CH_3)N(CH_3)_2$ (Benzenamine, <i>N,N</i> ,2-trimethyl-) (RN-CAS Registry Number 609-72-3) | ** | 7.92 (V) | PE | 4106 |
| $C_9H_{13}N^+$ | $C_6H_4(CH_3)N(CH_3)_2$ (Benzenamine, <i>N,N</i> ,3-trimethyl-) (RN-CAS Registry Number 121-72-2) | ** | 7.06 | PE | 3988 |
| $C_9H_{13}N^+$ | $C_6H_4(CH_3)N(CH_3)_2$ (Benzenamine, <i>N,N</i> ,3-trimethyl-) (RN-CAS Registry Number 121-72-2) | ** | 7.24 (V) | PE | 4106 |
| $C_9H_{13}N^+$ | $C_6H_4(CH_3)N(CH_3)_2$ (Benzenamine, <i>N,N</i> ,4-trimethyl-) (RN-CAS Registry Number 99-97-8) | ** | 6.95 | PE | 3988 |
| $C_9H_{13}N^+$ | $C_6H_4(CH_3)N(CH_3)_2$ (Benzenamine, <i>N,N</i> ,4-trimethyl-) (RN-CAS Registry Number 99-97-8) | ** | 7.27 (V) | PE | 4106 |
| $C_9H_{13}N^+$ | $C_5H_4NC(CH_3)_3$ (Pyridine, 4-(1,1-dimethylethyl)-) (RN-CAS Registry Number 3978-81-2) | ** | 9.30 ± 0.05 (V) | PE | 3685 |
| $C_9H_{17}N^+$ | $C_6H_{11}N=C(CH_3)_2$ (Cyclohexanamine, <i>N</i> -(1-methylethylidene)-) (RN-CAS Registry Number 6407-36-9) | ** | 8.23 | PE | 4043 |
| $C_{10}H_9N^+$ | $C_{10}H_7(NH_2)$ (1-Naphthylamine) (RN-CAS Registry Number 134-32-7) | ** | 7.3 | PI | 3586 |
| $C_{10}H_9N^+$ | $C_{10}H_7(NH_2)$ (2-Naphthylamine) (RN-CAS Registry Number 91-59-8) | ** | 7.2 | PI | 3586 |
| $C_{10}H_{15}N^+$ | $C_6H_4(NH_2)C_4H_9$ (Benzenamine, 3-butyl-) (RN-CAS Registry Number 5369-17-5) | ** | 7.51 ± 0.1 | EI | 3629 |
| $C_{10}H_{15}N^+$ | $C_6H_4(NH_2)C_4H_9$ (Benzenamine, 4-butyl-) (RN-CAS Registry Number 104-13-2) | ** | 7.61 ± 0.1 | EI | 3629 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|-------------------|--|-----------------|---|--------|------|
| $C_{10}H_{15}N^+$ | $C_6H_5N(C_2H_5)_2$ (Benzenamine, <i>N,N</i> -diethyl-) (RN-CAS Registry Number 91-66-7) | ** | 6.95 ± 0.02 | PE | 3890 |
| $C_{10}H_{15}N^+$ | $C_6H_2(CH_3)_3NHCH_3$ (Benzenamine, <i>N,2,4,6</i> -tetramethyl-) (RN-CAS Registry Number 13021-14-2) | ** | 7.22 | PE | 3988 |
| $C_{10}H_{15}N^+$ | $C_6H_3(CH_3)_2N(CH_3)_2$ (Benzenamine, <i>N,N,2,6</i> -tetramethyl-) (RN-CAS Registry Number 769-06-2) | ** | 7.30 ± 0.02 | PE | 3890 |
| $C_{10}H_{15}N^+$ | $C_6H_3(CH_3)_2N(CH_3)_2$ (Benzenamine, <i>N,N,2,6</i> -tetramethyl-) (RN-CAS Registry Number 769-06-2) | ** | 7.42 | PE | 3988 |
| $C_{11}H_{13}N^+$ | $C_6H_4(CN)C_4H_9$ (Benzonitrile, 3-butyl-) (RN-CAS Registry Number 20651-74-5) | ** | 9.77 ± 0.1 | EI | 3629 |
| $C_{11}H_{13}N^+$ | $C_6H_4(CN)C_4H_9$ (Benzonitrile, 4-butyl-) (RN-CAS Registry Number 20651-73-4) | ** | 10.08 ± 0.1 | EI | 3629 |
| $C_{11}H_{13}N^+$ | $C_{11}H_{13}N$ (2 <i>H</i> -1,4-Ethanoquinoline, 3,4-dihydro-) (RN-CAS Registry Number 4363-25-1) (ON-Other name: Benzoquinuclidine) | ** | 7.85 ± 0.02 | PE | 3890 |
| $C_{11}H_{17}N^+$ | $C_6H_2(CH_3)_3N(CH_3)_2$ (Benzenamine, <i>N,N,2,4,6</i> -pentamethyl-) (RN-CAS Registry Number 13021-15-3) | ** | 7.24 | PE | 3988 |
| $C_{12}H_{11}N^+$ | $(C_6H_5)_2NH$ (Benzenamine, <i>N</i> -phenyl-) (RN-CAS Registry Number 122-39-4) | ** | 7.14 ± 0.03 | PI | 4028 |
| $C_{12}H_{11}N^+$ | $C_6H_5C_6H_4NH_2$ ([1,1'-Biphenyl]-2-amine) (RN-CAS Registry Number 90-41-5) | ** | 7.28 ± 0.02 | PE | 3702 |
| $C_{12}H_{15}N^+$ | $C_{12}H_{15}N$ (1 <i>H,5H</i> -Benzo[<i>ij</i>]quinolizine, 2,3,6,7-tetrahydro-) (RN-CAS Registry Number 479-59-4) (ON-Other name: Julolidine) | ** | 6.65 ± 0.02 | PE | 3890 |
| $C_{13}H_9N^+$ | $C_{13}H_9N$ (Acridine) (RN-CAS Registry Number 260-94-6) | ** | 7.8 | PI | 3586 |
| $C_{13}H_{12}N^+$ | $(C_6H_4NH_2)_2CH_2$ (Benzenamine, 4,4'-methylenebis-) (RN-CAS Registry Number 101-77-9) | NH ₂ | 10.7 ± 0.1 | EI | 3807 |
| $C_{13}H_{13}N^+$ | $C_6H_5CH_2C_6H_4NH_2$ (Benzenamine, 4-(phenylmethyl)-) (RN-CAS Registry Number 1135-12-2) | ** | 7.67 ± 0.05 | EI | 3806 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|--------------------|--|----------------|---|--------|------|
| $C_{14}H_{11}N^+$ | $C_6H_5CH_2C_6H_4CN$ (Benzonitrile, 4-(phenylmethyl)-) (RN-CAS Registry Number 23450-31-9) | ** | 9.25 ± 0.05 | EI | 3806 |
| $C_{14}H_{15}N^+$ | $C_6H_5CH_2CH_2C_6H_4NH_2$ (Benzenamine, 4-(2-phenylethyl)-) (RN-CAS Registry Number 13024-49-2) | ** | 7.55 ± 0.05 | EI | 3806 |
| $C_{15}H_{11}N^+$ | $C_9H_6NC_6H_5$ (Quinoline, 2-phenyl-) (RN-CAS-Registry Number 612-96-4) | ** | 8.10 | PE | 4066 |
| $C_{16}H_{13}N^+$ | $C_3H_3(CN)(C_6H_5)_2$ (Cyclopropanecarbonitrile, 1,2-diphenyl-) (RN-CAS Registry Number 10224-14-3) | ** | 8.80 ± 0.08 | EDD | 3575 |
| $C_{17}H_{29}N^+$ | $C_5H_2N(C(CH_3)_3)_3$ (Pyridine, 2,4,6-tris(1,1-dimethylethyl)-) (RN-CAS Registry Number 20336-15-6) | ** | 8.6 (V) | PE | 3934 |
| $C_{17}H_{29}N^+$ | $C_5H_2N(C(CH_3)_3)_3$ (Pyridine, 2,4,6-tris(1,1-dimethylethyl)-) (RN-CAS Registry Number 20336-15-6) | ** | 8.6 (V) | PE | 3685 |
| $C_{18}H_{15}N^+$ | $(C_6H_5)_3N$ (Benzenamine, <i>N,N</i> -diphenyl-) (RN-CAS Registry Number 603-34-9) | ** | 6.80 ± 0.05 | PI | 4028 |
| $C_{19}H_{13}N^+$ | $C_{13}H_8NC_6H_5$ (Acridine, 9-phenyl-) (RN-CAS Registry Number 602-56-2) | ** | 7.80 (V) | PE | 3896 |
| $C_{20}H_{23}N^+$ | $C_{15}H_{12} = CHCH_2CH_2N(CH_3)_2$ (1-Propanamine, 3-(10,11-dihydro-5 <i>H</i> -dibenzo[<i>a,d</i>]cyclohepten-5-ylidene)- <i>N,N</i> -dimethyl-) (RN-CAS Registry Number 50-48-6) (ON-Other name: Amitriptyline) | ** | 8.26 ± 0.07 | CTS | 4079 |
| $CH_2N_2^+(^2B_1)$ | CH_2N_2 (3 <i>H</i> -Diazirine) (RN-CAS Registry Number 157-22-2) | ** | 10.3 | PE | 3727 |
| $CH_2N_2^+(^2B_2)$ | CH_2N_2 (3 <i>H</i> -Diazirine) (RN-CAS Registry Number 157-22-2) | ** | 12.8 | PE | 3727 |
| $CH_2N_2^+(^2A_1)$ | CH_2N_2 (3 <i>H</i> -Diazirine) (RN-CAS Registry Number 157-22-2) | ** | 14.15 | PE | 3727 |
| $CH_2N_2^+(^2A_1)$ | CH_2N_2 (3 <i>H</i> -Diazirine) (RN-CAS Registry Number 157-22-2) | ** | 16 | PE | 3727 |
| $CH_2N_2^+(^2B_2)$ | CH_2N_2 (3 <i>H</i> -Diazirine) (RN-CAS Registry Number 157-22-2) | ** | 17.5 (V) | PE | 3727 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|---|--|----------------|---|--------|------|
| $\text{CH}_2\text{N}_2^+(\text{}^2\text{B}_1)$ | CH_2N_2 (3 <i>H</i> -Diazirine) (RN-CAS Registry Number 157-22-2) | ** | 21 | PE | 3727 |
| $\text{CH}_2\text{N}_2^+(\text{}^2\text{A}_1)$ | CH_2N_2 (3 <i>H</i> -Diazirine) (RN-CAS Registry Number 157-22-2) | ** | 22.5 (V) | PE | 3727 |
| CH_3N_2^+ | $\text{CH}_3\text{N}=\text{NCH}_3$ (RN-CAS Registry Number 503-28-6) | CH_3 | 9.2 | EI | 3632 |
| $\text{C}_2\text{H}_6\text{N}_2^+$ | <i>trans</i> - $\text{CH}_3\text{N}=\text{NCH}_3$ (RN-CAS Registry Number 4143-41-3) | ** | ~8.20 | PE | 3649 |
| $\text{C}_2\text{H}_6\text{N}_2^+(\text{}^2\text{B}_1)$ | $\text{C}_3\text{H}_6\text{N}_2$ (3 <i>H</i> -Diazirine, 3,3-dimethyl-) (RN-CAS Registry Number 5161-49-9) | ** | 12.11 (V) | PE | 3505 |
| $\text{C}_2\text{H}_6\text{N}_2^+(\text{}^2\text{A}_1)$ | $\text{C}_3\text{H}_6\text{N}_2$ (3 <i>H</i> -Diazirine, 3,3-dimethyl-) (RN-CAS Registry Number 5161-49-9) | ** | 13.31 (V) | PE | 3505 |
| $\text{C}_2\text{H}_8\text{N}_2^+$ | $\text{CH}_3\text{NHNHCH}_3$ (RN-CAS Registry Number 540-73-8) | ** | 9.02 (V) | PE | 4085 |
| $\text{C}_2\text{H}_8\text{N}_2^+$ | $\text{CH}_3\text{NHNHCH}_3$ (RN-CAS Registry Number 540-73-8) | ** | 9.62 | PE | 3747 |
| $\text{C}_3\text{H}_2\text{N}_2^+$ | $\text{CH}_2(\text{CN})_2$ (RN-CAS-Registry Number 109-77-3) | ** | 12.88 | PE | 4067 |
| $\text{C}_3\text{H}_3\text{N}_2^+$ | $\text{C}_3\text{H}_4\text{N}_2$ (1 <i>H</i> -Imidazole) (RN-CAS Registry Number 288-32-4) | H | 12.8 | EI | 3910 |
| $\text{C}_3\text{H}_4\text{N}_2^+$ | $\text{C}_3\text{H}_4\text{N}_2$ (1 <i>H</i> -Imidazole) (RN-CAS Registry Number 288-32-4) | ** | 8.78 (V) | PE | 4009 |
| $\text{C}_3\text{H}_4\text{N}_2^+$ | $\text{C}_3\text{H}_4\text{N}_2$ (1 <i>H</i> -Imidazole) (RN-CAS Registry Number 288-32-4) | ** | 9.12 | EI | 3910 |
| $\text{C}_3\text{H}_4\text{N}_2^+$ | $\text{C}_3\text{H}_4\text{N}_2$ (1 <i>H</i> -Pyrazole) (RN-CAS Registry Number 288-13-1) | ** | 9.15 (V) | PE | 4009 |
| $\text{C}_3\text{H}_6\text{N}_2^+$ | $(\text{CH}_3)_2\text{C}=\text{N}=\text{N}$ (RN-CAS Registry Number 2684-60-8) | ** | 7.88 | PE | 4047 |
| $\text{C}_3\text{H}_6\text{N}_2^+(\text{}^2\text{B}_2)$ | $\text{C}_3\text{H}_6\text{N}_2$ (3 <i>H</i> -Diazirine, 3,3-dimethyl-) (RN-CAS Registry Number 5161-49-9) | ** | 9.76 (V) | PE | 3505 |
| $\text{C}_3\text{H}_8\text{N}_2^+$ | $(\text{CH}_3)_2\text{NN}=\text{CH}_2$ (RN-CAS Registry Number 2035-89-4) | ** | 7.85 | PE | 3884 |
| $\text{C}_3\text{H}_8\text{N}_2^+$ | $\text{CH}_3\text{NHN}=\text{CHCH}_3$ (RN-CAS Registry Number 17167-73-6) | ** | 7.67 | PE | 3884 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|---|---|----------------|---|--------|------|
| $C_3H_8N_2^+$ | $CH_2N_2(CH_3)_2$ (Diaziridine, 1,2-dimethyl-) (RN-CAS Registry Number 6794-95-2) | ** | 9.42 (V) | PE | 3888 |
| $C_3H_8N_2^+$ | $CH_2N_2(CH_3)_2$ (Diaziridine, 3,3-dimethyl-) (RN-CAS Registry Number 4901-76-2) | ** | 9.90 (V) | PE | 3888 |
| $C_3H_8N_2^+$ | $C_3H_8N_2$ (Pyrazolidine) (RN-CAS Registry Number 504-70-1) | ** | 7.90 (V) | PE | 4085 |
| $C_4H_2N_2^+$ | <i>cis</i> - $CH(CN)=CH(CN)$ (RN-CAS Registry Number 928-53-0) | ** | 11.15 | PE | 3778 |
| $C_4H_2N_2^+$ | <i>trans</i> - $CH(CN)=CH(CN)$ (RN-CAS Registry Number 764-42-1) | ** | 11.15 | PE | 3778 |
| $C_4H_4N_2^+$ | $C_4H_4N_2$ (Pyrazine) (RN-CAS Registry Number 290-37-9) | ** | 9.28 ± 0.01 | S | 3773 |
| (RS-Average of two Rydberg series limits) | | | | | |
| $C_4H_4N_2^+$ | $C_4H_4N_2$ (Pyrazine) (RN-CAS Registry Number 290-37-9) | ** | 9.216 | PE | 3750 |
| $C_4H_4N_2^+$ | $C_4H_4N_2$ (Pyrazine) (RN-CAS Registry Number 290-37-9) | ** | 9.29 | PE | 3679 |
| $C_4H_4N_2(^2A_{1g})$ | $C_4H_4N_2$ (Pyrazine) (RN-CAS Registry Number 290-37-9) | ** | 9.63 (V) | PE | 3513 |
| $C_4H_4N_2(^2B_{2g})$ | $C_4H_4N_2$ (Pyrazine) (RN-CAS Registry Number 290-37-9) | ** | 10.18 (V) | PE | 3513 |
| $C_4H_4N_2(^2B_{2u})$ | $C_4H_4N_2$ (Pyrazine) (RN-CAS Registry Number 290-37-9) | ** | 11.35 (V) | PE | 3513 |
| $C_4H_4N_2(^2B_{1g})$ | $C_4H_4N_2$ (Pyrazine) (RN-CAS Registry Number 290-37-9) | ** | 11.77 (V) | PE | 3513 |
| $C_4H_4N_2^+$ | $C_4H_4N_2$ (Pyridazine) (RN-CAS Registry Number 289-80-5) | ** | 8.64 | PE | 3679 |
| $C_4H_4N_2(^2B_2)$ | $C_4H_4N_2$ (Pyridazine) (RN-CAS Registry Number 289-80-5) | ** | 8.706 ± 0.001 | PE | 3639 |
| $C_4H_4N_2(^2B_2)$ | $C_4H_4N_2$ (Pyridazine) (RN-CAS Registry Number 289-80-5) | ** | 9.31 (V) | PE | 3513 |
| $C_4H_4N_2(^2A_2)$ | $C_4H_4N_2$ (Pyridazine) (RN-CAS Registry Number 289-80-5) | ** | 10.483 ± 0.001 | PE | 3639 |
| $C_4H_4N_2(^2A_2)$ | $C_4H_4N_2$ (Pyridazine) (RN-CAS Registry Number 289-80-5) | ** | 10.61 (V) | PE | 3513 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|---------------------------------|--|----------------|---|--------|------|
| $C_4H_4N_2^+(\ ^2B_1)$ | $C_4H_4N_2$ (Pyridazine) (RN-CAS Registry Number 289-80-5) | ** | ~10.9 (V) | PE | 3513 |
| $C_4H_4N_2^+(\ ^2A_1, \ ^2B_1)$ | $C_4H_4N_2$ (Pyridazine) (RN-CAS Registry Number 289-80-5) | ** | ~11.1 | PE | 3639 |
| $C_4H_4N_2^+(\ ^2A_1)$ | $C_4H_4N_2$ (Pyridazine) (RN-CAS Registry Number 289-80-5) | ** | 11.31 (V) | PE | 3513 |
| $C_4H_4N_2^+(\ ^2B_1)$ | $C_4H_4N_2$ (Pyridazine) (RN-CAS Registry Number 289-80-5) | ** | 13.504 ± 0.003 | PE | 3639 |
| $C_4H_4N_2^+(\ ^2A_1)$ | $C_4H_4N_2$ (Pyridazine) (RN-CAS Registry Number 289-80-5) | ** | ~13.8 | PE | 3639 |
| $C_4H_4N_2^+(\ ^2B_2)$ | $C_4H_4N_2$ (Pyridazine) (RN-CAS Registry Number 289-80-5) | ** | ~14.5 | PE | 3639 |
| $C_4H_4N_2^+(\ ^2A_1)$ | $C_4H_4N_2$ (Pyridazine) (RN-CAS Registry Number 289-80-5) | ** | ~15.88 | PE | 3639 |
| $C_4H_4N_2^+(\ ^2B_2)$ | $C_4H_4N_2$ (Pyridazine) (RN-CAS Registry Number 289-80-5) | ** | ~16.5 | PE | 3639 |
| $C_4H_4N_2^+(\ ^2A_1)$ | $C_4H_4N_2$ (Pyridazine) (RN-CAS Registry Number 289-80-5) | ** | ~17.0 | PE | 3639 |
| $C_4H_4N_2^+(\ ^2A_1, \ ^2B_2)$ | $C_4H_4N_2$ (Pyridazine) (RN-CAS Registry Number 289-80-5) | ** | 20.0 | PE | 3639 |
| $C_4H_4N_2^+$ | $C_4H_4N_2$ (Pyrimidine) (RN-CAS Registry Number 289-95-2) | ** | 9.23 | PE | 3679 |
| $C_4H_4N_2^+(\ ^2B_2)$ | $C_4H_4N_2$ (Pyrimidine) (RN-CAS Registry Number 289-95-2) | ** | 9.32 ± 0.01 | PE | 3651 |
| $C_4H_4N_2^+(\ ^2B_2)$ | $C_4H_4N_2$ (Pyrimidine) (RN-CAS Registry Number 289-95-2) | ** | 9.73 (V) | PE | 3513 |
| $C_4H_4N_2^+(\ ^2B_1)$ | $C_4H_4N_2$ (Pyrimidine) (RN-CAS Registry Number 289-95-2) | ** | 10.40 ± 0.01 | PE | 3651 |
| $C_4H_4N_2^+(\ ^2B_1)$ | $C_4H_4N_2$ (Pyrimidine) (RN-CAS Registry Number 289-95-2) | ** | 10.41 (V) | PE | 3513 |
| $C_4H_4N_2^+(\ ^2A_2)$ | $C_4H_4N_2$ (Pyrimidine) (RN-CAS Registry Number 289-95-2) | ** | 11.1 | PE | 3651 |
| $C_4H_4N_2^+(\ ^2A_1)$ | $C_4H_4N_2$ (Pyrimidine) (RN-CAS Registry Number 289-95-2) | ** | 11.23 (V) | PE | 3513 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|---------------------------------|--|----------------|---|--------|------|
| $C_4H_4N_2^+(\ ^2A_1)$ | $C_4H_4N_2$ (Pyrimidine) (RN-CAS Registry Number 289-95-2) | ** | 11.3 | PE | 3651 |
| $C_4H_4N_2^+(\ ^2A_2)$ | $C_4H_4N_2$ (Pyrimidine) (RN-CAS Registry Number 289-95-2) | ** | 11.39 (V) | PE | 3513 |
| $C_4H_4N_2^+(\ ^2B_1)$ | $C_4H_4N_2$ (Pyrimidine) (RN-CAS Registry Number 289-95-2) | ** | 13.6 | PE | 3651 |
| $C_4H_4N_2^+(\ ^2A_1, \ ^2B_2)$ | $C_4H_4N_2$ (Pyrimidine) (RN-CAS Registry Number 289-95-2) | ** | ~ 14 | PE | 3651 |
| $C_4H_4N_2^+(\ ^2A_1)$ | $C_4H_4N_2$ (Pyrimidine) (RN-CAS Registry Number 289-95-2) | ** | 15.3 | PE | 3651 |
| $C_4H_4N_2^+(\ ^2B_2)$ | $C_4H_4N_2$ (Pyrimidine) (RN-CAS Registry Number 289-95-2) | ** | 16.6 | PE | 3651 |
| $C_4H_4N_2^+(\ ^2A_1)$ | $C_4H_4N_2$ (Pyrimidine) (RN-CAS Registry Number 289-95-2) | ** | 17.2 | PE | 3651 |
| $C_4H_4N_2^+(\ ^2A_1, \ ^2B_2)$ | $C_4H_4N_2$ (Pyrimidine) (RN-CAS Registry Number 289-95-2) | ** | 20.0 | PE | 3651 |
| $C_4H_4N_2^+(\ ^2A_1)$ | $C_4H_4N_2$ (Pyrimidine) (RN-CAS Registry Number 289-95-2) | ** | 23.4 | PE | 3651 |
| $C_4H_8N_2^+$ | $CH_3CH=NN=CHCH_3$ (RN-CAS Registry Number 592-56-3) | ** | 8.56 | PE | 4043 |
| $C_4H_8N_2^+$ | $CH_3CH=NN=CHCH_3$ (RN-CAS Registry Number 592-56-3) | ** | 9.11 (V) | PE | 4085 |
| $C_4H_8N_2^+$ | $C_2H_4NC_2H_4N$ (1,1'-Biaziridine) (RN-CAS Registry Number 4388-03-8) | ** | 8.65 (V) | PE | 4085 |
| $C_4H_{10}N_2^+$ | $C_2H_5N=NC_2H_5$ (RN-CAS Registry Number 821-14-7) | ** | 8.7±0.1 | EI | 4099 |
| $C_4H_{10}N_2^+$ | $CH_3NHN=C(CH_3)_2$ (RN-CAS Registry Number 5771-02-8) | ** | 7.69 | PE | 3884 |
| $C_4H_{10}N_2^+$ | $(CH_3)_2NN=CHCH_3$ (RN-CAS Registry Number 7422-90-4) | ** | 7.54 | PE | 3884 |
| $C_4H_{10}N_2^+$ | $CHN_2(CH_3)_3$ (Diaziridine, 1,3,3-trimethyl-) (RN-CAS Registry Number 40711-15-7) | ** | 9.20 (V) | PE | 3888 |
| $C_4H_{10}N_2^+$ | $C_4H_{10}N_2$ (Piperazine) (RN-CAS Registry Number 110-85-0) (ON-Other name: Piperidazine) | ** | 8.72 (V) | PE | 4085 |
| $C_4H_{12}N_2^+$ | $C_2H_5NHNHC_2H_5$ (RN-CAS Registry Number 1615-80-1) | ** | 8.88 (V) | PE | 4085 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|------------------|--|----------------|---|--------|------|
| $C_4H_{12}N_2^+$ | $(CH_3)_2NN(CH_3)_2$ (RN-CAS Registry Number 6415-12-9) | ** | 8.38 (V) | PE | 4085 |
| $C_4H_{12}N_2^+$ | $(CH_3)_2NN(CH_3)_2$ (RN-CAS Registry Number 6415-12-9) | ** | 8.43 (V) | PE | 3889 |
| $C_5H_4N_2^+$ | $C_5H_4=N=N$ (1,3-Cyclopentadiene, 5-diazo-) (RN-CAS Registry Number 1192-27-4) | ** | 8.33 (V) | PE | 4047 |
| $C_5H_6N_2^+$ | $CH_3C(CN)_2CH_3$ (RN-CAS-Registry Number 7321-55-3) | ** | 12.39 (V) | PE | 4067 |
| $C_5H_6N_2^+$ | $C_5H_4NNH_2$ (2-Pyridinamine) (RN-CAS Registry Number 504-29-0) | ** | 8.85 ± 0.05 | EI | 3891 |
| $C_5H_6N_2^+$ | $C_5NH_4NH_2$ (2-Pyridinamine) (RN-CAS Registry Number 504-29-0) | ** | 9.3 | CTS | 3730 |
| $C_5H_6N_2^+$ | $C_5H_4NNH_2$ (3-Pyridinamine) (RN-CAS Registry Number 462-08-8) | ** | 9.03 ± 0.05 | EI | 3891 |
| $C_5H_6N_2^+$ | $C_5NH_4NH_2$ (3-Pyridinamine) (RN-CAS Registry Number 462-08-8) | ** | 9.0 | CTS | 3730 |
| $C_5H_6N_2^+$ | $C_5H_4NNH_2$ (4-Pyridinamine) (RN-CAS Registry Number 504-24-5) | ** | 9.27 ± 0.05 | EI | 3891 |
| $C_5H_6N_2^+$ | $C_5NH_4NH_2$ (4-Pyridinamine) (RN-CAS Registry Number 504-24-5) | ** | 8.4 | CTS | 3730 |
| $C_5H_8N_2^+$ | $C_5H_8N_2$ (2,3-Diazabicyclo[2.2.1]hept-2-ene) (RN-CAS Registry Number 2721-32-6) | ** | 8.45 ± 0.04 | PE | 3828 |
| $C_5H_{10}N_2^+$ | $C_4H_7N_2CH_3$ (1,5-Diazabicyclo[3.1.0]hexane, 2-methyl-) (RN-CAS Registry Number 6794-96-3) | ** | 8.78 (V) | PE | 3888 |
| $C_5H_{12}N_2^+$ | $(CH_3)_2NN=C(CH_3)_2$ (RN-CAS Registry Number 13483-31-3) | ** | 7.43 | PE | 3884 |
| $C_5H_{12}N_2^+$ | $CN_2(CH_3)_4$ (Diaziridine, tetramethyl-) (RN-CAS Registry Number 50695-43-7) | ** | 8.94 (V) | PE | 3888 |
| $C_6H_4N_2^+$ | C_5H_4NCN (2-Pyridinecarbonitrile) (RN-CAS Registry Number 100-70-9) | ** | 10.33 ± 0.05 | EI | 3498 |
| $C_6H_7N_2^+$ | $C_6H_4(NH_2)NHCOCH_3$ (Acetamide, <i>N</i> -(2-aminophenyl)-) (RN-CAS Registry Number 34801-09-7) | CH_3CO | 13.93 ± 0.02 | EI | 3631 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|------------------|---|----------------|---|--------|------|
| $C_6H_7N_2^+$ | $C_6H_4(NH_2)NHC(=O)CH_3$ (Acetamide, <i>N</i> -(4-aminophenyl)-) (RN-CAS Registry Number 122-80-5) | CH_3CO | 13.72 ± 0.02 | EI | 3631 |
| $C_6H_8N_2^+$ | $C_6H_4(NH_2)_2$ (1,4-Benzenediamine) (RN-CAS Registry Number 106-50-3) | ** | 7.16 | EI | 4089 |
| $C_6H_8N_2^+$ | $C_4H_2N_2(CH_3)_2$ (Pyrazine, 2,6-dimethyl-) (RN-CAS Registry Number 108-50-9) | ** | 8.80 | PE | 3860 |
| $C_6H_8N_2^+$ | $C_5NH_3(CH_3)NH_2$ (2-Pyridinamine, 6-methyl-) (RN-CAS Registry Number 1824-81-3) | ** | 9.1 | CTS | 3730 |
| $C_6H_8N_2^+$ | $C_5H_4NNHCH_3$ (2-Pyridinamine, <i>N</i> -methyl-) (RN-CAS Registry Number 4597-87-9) | ** | 8.26 ± 0.05 | EI | 3891 |
| $C_6H_8N_2^+$ | $C_5NH_3(CH_3)NH_2$ (3-Pyridinamine, 4-methyl-) (RN-CAS Registry Number 3430-27-1) | ** | 9.3 | CTS | 3730 |
| $C_6H_8N_2^+$ | $C_5H_4NNHCH_3$ (3-Pyridinamine, <i>N</i> -methyl-) (RN-CAS Registry Number 18364-47-1) | ** | 8.53 ± 0.05 | EI | 3891 |
| $C_6H_8N_2^+$ | $C_5H_4NNHCH_3$ (4-Pyridinamine, <i>N</i> -methyl-) (RN-CAS Registry Number 1121-58-0) | ** | 8.75 ± 0.05 | EI | 3891 |
| $C_6H_8N_2^+$ | $C_5H_4N(=NH)CH_3$ (2(1 <i>H</i>)-Pyridinimine, 1-methyl-) (RN-CAS Registry Number 4088-63-5) | ** | 7.91 ± 0.05 | EI | 3891 |
| $C_6H_8N_2^+$ | $C_5H_4N(=NH)CH_3$ (4(1 <i>H</i>)-Pyridinimine, 1-methyl-) (RN-CAS Registry Number 16562-40-6) | ** | 7.85 ± 0.05 | EI | 3891 |
| $C_6H_8N_2^+$ | $C_5H_4N(NH)CH_3$ (Pyridinium, 3-amino-1-methyl-, hydroxides, inner salt) (RN-CAS Registry Number 38879-42-2) | ** | 7.45 ± 0.1 | EI | 3891 |
| $C_6H_8N_2^+$ | $C_6H_4(NH_2)NHC(=O)CH_3$ (Acetamide, <i>N</i> -(2-aminophenyl)-) (RN-CAS Registry Number 34801-09-7) | $CH_2=C=O$ | 10.49 ± 0.02 | EI | 3631 |
| $C_6H_8N_2^+$ | $C_6H_4(NH_2)NHC(=O)CH_3$ (Acetamide, <i>N</i> -(4-aminophenyl)-) (RN-CAS Registry Number 122-80-5) | $CH_2=C=O$ | 10.06 ± 0.02 | EI | 3631 |
| $C_6H_{10}N_2^+$ | $C_6H_{10}N_2$ (2,3-Diazabicyclo[2.2.2]oct-2-ene) (RN-CAS Registry Number 3310-62-1) | ** | 7.79 ± 0.04 | PE | 3828 |
| $C_6H_{12}N_2^+$ | $(CH_3)_2C=NN=C(CH_3)_2$ (RN-CAS Registry Number 627-70-3) | ** | 7.97 | PE | 4043 |
| $C_6H_{12}N_2^+$ | $C_6H_{12}N_2$ (1,4-Diazabicyclo[2.2.2]octane) (RN-CAS Registry Number 280-57-9) | ** | 7.52 (V) | PE | 4038 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|------------------|---|----------------|---|--------|------|
| $C_6H_{12}N_2^+$ | $C_6H_{12}N_2$ (1 <i>H</i> ,5 <i>H</i> -Pyrazolo[1,2- <i>a</i>]pyrazole, tetrahydro-) (RN-CAS Registry Number 5397-67-1) (ON-Other name: 1,5-Diazabicyclo[3.3.0]octane) | ** | 7.90 (V) | PE | 4085 |
| $C_6H_{12}N_2^+$ | $C_6H_{12}N_2$ (1 <i>H</i> ,5 <i>H</i> -Pyrazolo[1,2- <i>a</i>]pyrazole, tetrahydro-) (RN-CAS Registry Number 5397-67-1) (ON-Other name: 1,5-Diazabicyclo[3.3.0]octane) | ** | 7.91 (V) | PE | 3889 |
| $C_6H_{14}N_2^+$ | $C_4H_8N_2(CH_3)_2$ (Pyridazine, hexahydro-1,2-dimethyl-) (RN-CAS Registry Number 26163-37-1) | ** | 7.77 (V) | PE | 3887 |
| $C_6H_{16}N_2^+$ | $(CH_3)_2CHNHNHCH(CH_3)_2$ (RN-CAS Registry Number 3711-34-0) | ** | 8.34 (V) | PE | 4085 |
| $C_7H_8N_2^+$ | $C_7H_8N_2$ (3,4-Diazatricyclo[4.2.1.0 ^{2,5}]nona-3,7-diene) (RN-CAS Registry Number 23979-29-5) | ** | 9.05 ± 0.05 (V) | PE | 4040 |
| $C_7H_{10}N_2^+$ | $C_7H_{10}N_2$ (3,4-Diazatricyclo[4.2.1.0 ^{2,5}]non-3-ene) (RN-CAS Registry Number 23979-30-8) | ** | 8.90 ± 0.05 (V) | PE | 4040 |
| $C_7H_{10}N_2^+$ | $C_5NH_4N(CH_3)_2$ (4-Pyridinamine, <i>N,N</i> -dimethyl-) (RN-CAS Registry Number 1122-58-3) | ** | 7.7 | CTS | 3730 |
| $C_7H_{12}N_2^+$ | $C_5H_6N_2(CH_3)_2$ (2,3-Diazabicyclo[2.2.1]hept-5-ene, 2,3-dimethyl-) (RN-CAS Registry Number 14288-15-4) | ** | 7.74 (V) | PE | 3889 |
| $C_7H_{12}N_2^+$ | $C_7H_{12}N_2$ (6,7-Diazabicyclo[3.2.2]non-6-ene) (RN-CAS Registry Number 43195-77-3) | ** | 7.64 ± 0.04 | PE | 3828 |
| $C_7H_{12}N_2^+$ | $C_3N_2(CH_3)_4$ (4 <i>H</i> -Pyrazole, 3,4,4,5-tetramethyl-) (RN-CAS Registry Number 19078-32-1) | ** | 10.12 (V) | PE | 4085 |
| $C_7H_{14}N_2^+$ | $C_5H_8N_2(CH_3)_2$ (2,3-Diazabicyclo[2.2.1]heptane, 2,3-dimethyl-) (RN-CAS Registry Number 14287-89-9) | ** | 7.58 (V) | PE | 3889 |
| $C_7H_{16}N_2^+$ | $C_4H_7N_2(CH_3)_3$ (Pyridazine, hexahydro-1,2,3-trimethyl-) (RN-CAS Registry Number 38704-92-6) | ** | 7.81 (V) | PE | 3887 |
| $C_8H_6N_2^+$ | $C_8H_6N_2$ (Cinnoline) (RN-CAS Registry Number 253-66-7) | ** | < 8.8 | PE | 3638 |
| $C_8H_6N_2^+$ | $C_8H_6N_2$ (Cinnoline) (RN-CAS Registry Number 253-66-7) | ** | 8.90 (V) | PE | 3722 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|------------------|---|----------------|---|--------|------|
| $C_8H_6N_2^+$ | $C_8H_6N_2$ (1,5-Naphthyridine) (RN-CAS Registry Number 254-79-5) | ** | 9.20 (V) | PE | 3722 |
| $C_8H_6N_2^+$ | $C_8H_6N_2$ (1,6-Naphthyridine) (RN-CAS Registry Number 253-72-5) | ** | 9.07 (V) | PE | 3722 |
| $C_8H_6N_2^+$ | $C_8H_6N_2$ (1,7-Naphthyridine) (RN-CAS Registry Number 253-69-0) | ** | 8.99 (V) | PE | 3722 |
| $C_8H_6N_2^+$ | $C_8H_6N_2$ (1,8-Naphthyridine) (RN-CAS Registry Number 254-60-4) | ** | 9.20 (V) | PE | 3722 |
| $C_8H_6N_2^+$ | $C_8H_6N_2$ (2,6-Naphthyridine) (RN-CAS Registry Number 253-50-9) | ** | 8.87 (V) | PE | 3722 |
| $C_8H_6N_2^+$ | $C_8H_6N_2$ (2,7-Naphthyridine) (RN-CAS Registry Number 253-45-2) | ** | 8.98 (V) | PE | 3722 |
| $C_8H_6N_2^+$ | $C_8H_6N_2$ (Phthalazine) (RN-CAS Registry Number 253-52-1) | ** | 8.70 (V) | PE | 3722 |
| $C_8H_6N_2^+$ | $C_8H_6N_2$ (Quinazoline) (RN-CAS Registry Number 253-82-7) | ** | 9.00 | PE | 3638 |
| $C_8H_6N_2^+$ | $C_8H_6N_2$ (Quinazoline) (RN-CAS Registry Number 253-82-7) | ** | 9.08 (V) | PE | 3722 |
| $C_8H_6N_2^+$ | $C_8H_6N_2$ (Quinoxaline) (RN-CAS Registry Number 91-19-0) | ** | 9.00 (V) | PE | 3722 |
| $C_8H_6N_2^+$ | $C_8H_6N_2$ (Quinoxaline) (RN-CAS Registry Number 91-19-0) | ** | 9.01 | PE | 3638 |
| $C_8H_{14}N_2^+$ | $C_6H_8N_2(CH_3)_2$ (2,3-Diazabicyclo[2.2.2]oct-5-ene, 2,3-dimethyl-) (RN-CAS Registry Number 14287-91-3) | ** | 7.59 (V) | PE | 3889 |
| $C_8H_{14}N_2^+$ | $C_8H_{14}N_2$ (7,8-Diazabicyclo[4.2.2]dec-7-ene) (RN-CAS Registry Number 32634-64-3) | ** | 7.38±0.04 | PE | 3828 |
| $C_8H_{16}N_2^+$ | $C_8H_{16}N_2$ (Pyridazino[1,2- <i>a</i>]pyridazine, octahydro-) (RN-CAS Registry Number 3661-15-2) | ** | 7.59 (V) | PE | 3889 |
| $C_8H_{18}N_2^+$ | $C_4H_6N_2(CH_3)_4$ (Pyridazine, hexahydro-1,2,3,6-tetramethyl, <i>cis</i> -) (RN-CAS Registry Number 26171-64-2) | ** | 7.82 (V) | PE | 3887 |
| $C_8H_{18}N_2^+$ | $C_4H_6N_2(CH_3)_4$ (Pyridazine, hexahydro-1,2,3,6-tetramethyl, <i>trans</i> -) (RN-CAS Registry Number 38704-91-5) | ** | 7.78 (V) | PE | 3887 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|---------------------|---|----------------|---|--------|------|
| $C_8H_{20}N_2^+$ | $(C_2H_5)_2NN(C_2H_5)_2$ (RN-CAS Registry Number 4267-00-9) | ** | 8.10 (V) | PE | 3889 |
| $C_9H_{20}N_2^+$ | $C_3H_6N_2(C_3H_7)_2$ (Pyrazolidine, 1,2-bis(1-methylethyl)-) (RN-CAS Registry Number 38704-87-9) | ** | 7.89 (V) | PE | 3889 |
| $C_{10}H_8N_2^+$ | $(C_5H_4N)_2$ (2,2'-Bipyridine) (RN-CAS Registry Number 366-18-7) | ** | 8.35 ± 0.02 | PE | 3702 |
| $C_{10}H_8N_2^+$ | $(C_5H_4N)_2$ (4,4'-Bipyridine) (RN-CAS Registry Number 553-26-4) | ** | 9.10 ± 0.02 | PE | 3702 |
| $C_{10}H_{16}N_2^+$ | $C_6H_4(N(CH_3)_2)_2$ (1,4-Benzenediamine, <i>N,N,N',N'</i> -tetramethyl-) (RN-CAS Registry Number 100-22-1) | ** | 6.20 ± 0.05 | PI | 3729 |
| $C_{10}H_{16}N_2^+$ | $C_6H_4(N(CH_3)_2)_2$ (1,4-Benzenediamine, <i>N,N,N',N'</i> -tetramethyl-) (RN-CAS Registry Number 100-22-1) | ** | 6.7 | CTS | 3543 |
| $C_{10}H_{20}N_2^+$ | $C_5H_{10}NC_5H_{10}N$ (1,1'-Bipiperidine) (RN-CAS Registry Number 6130-94-5) | ** | 8.05 (V) | PE | 4085 |
| $C_{11}H_8N_2^+$ | $C_{11}H_8N_2$ (1 <i>H</i> -Perimidine) (RN-CAS Registry Number 204-02-4) | ** | 6.80 | CTS | 4035 |
| $C_{12}H_{20}N_2^+$ | $C_6H_{10}NN(C_6H_{10})$ (Cyclohexanone, cyclohexylidenehydrazone) (RN-CAS Registry Number 4278-87-9) | ** | 7.84 | PE | 4043 |
| $C_{13}H_{14}N_2^+$ | $(C_6H_4NH_2)_2CH_2$ (Benzenamine, 4,4'-methylenebis-) (RN-CAS Registry Number 101-77-9) | ** | 7.75 ± 0.05 | EI | 3806 |
| $C_{14}H_{12}N_2^+$ | $C_{13}H_9N_2(CH_3)$ (1 <i>H</i> -Cyclopenta[<i>gh</i>]perimidine, 6,7-dihydro-1-methyl-) (RN-CAS Registry Number 18969-93-2) (ON-Other name: 1-Methylaceperimidine) | ** | 6.53 | CTS | 4035 |
| $C_{14}H_{16}N_2^+$ | $C_6H_4(NH_2)CH_2CH_2C_6H_4NH_2$ (Benzenamine, 4,4'-(1,2-ethanediyl)bis-) (RN-CAS Registry Number 621-95-4) | ** | 7.45 ± 0.05 | EI | 3806 |
| $C_{17}H_{22}N_2^+$ | $(C_6H_4N(CH_3)_2)_2CH_2$ (Benzenamine, 4,4'-methylenebis(<i>N,N</i> -dimethyl)-) (RN-CAS Registry Number 101-61-1) | ** | 7.1 | CTS | 3543 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|---------------------|---|----------------|---|--------|------|
| $C_{18}H_{18}N_2^+$ | $C_6H_5C_3H_3(CN)C_6H_4N(CH_3)_2$ (Cyclopropanecarbonitrile, 2-(<i>p</i> -(dimethylamino)phenyl)-1-phenyl-) (RN-CAS Registry Number 6114-58-5) | ** | 6.90 ± 0.10 | EDD | 3575 |
| $C_{19}H_{20}N_2^+$ | $C_6H_4(CH_3)C_3H_3(CN)C_6H_4N(CH_3)_2$ ** (Cyclopropanecarbonitrile, 2-(<i>p</i> -(dimethylamino)phenyl)-1- <i>p</i> -tolyl-) (RN-CAS Registry Number 32589-51-8) | ** | 6.80 ± 0.07 | EDD | 3575 |
| $C_{19}H_{24}N_2^+$ | $C_{14}H_{12}N(CH_2)_3N(CH_3)_2$ (5 <i>H</i> -Dibenz[<i>b,f</i>]azepine-5-propanamine, 10,11-dihydro- <i>N,N</i> -dimethyl-) (RN-CAS Registry Number 50-49-7) (ON-Other name: Imizine) | ** | 8.21 ± 0.07 | CTS | 4079 |
| $CH_3N_3(^2A'')$ | CH_3N_3 (RN-CAS Registry Number 624-90-8) | ** | 9.81 ± 0.02 | PE | 3670 |
| $C_2H_3N_3^+$ | $C_2H_3N_3$ (1 <i>H</i> -1,2,3-Triazole) (RN-CAS Registry Number 288-36-8) | ** | 10.06 (V) | PE | 4009 |
| $C_2H_3N_3^+$ | $C_2H_3N_3$ (1 <i>H</i> -1,2,4-Triazole) (RN-CAS Registry Number 288-88-0) | ** | 10.0 (V) | PE | 4009 |
| $C_3H_3N_3^+$ | $C_3H_3N_3$ (1,3,5-Triazine) (RN-CAS Registry Number 290-87-9) | ** | 9.98 | PE | 3679 |
| $C_3H_3N_3(^2E')$ | $C_3H_3N_3$ (1,3,5-Triazine) (RN-CAS Registry Number 290-87-9) | ** | 10.01 ± 0.01 | PE | 3720 |
| $C_3H_3N_3^+$ | $C_3H_3N_3$ (1,3,5-Triazine) (RN-CAS Registry Number 290-87-9) | ** | 10.1 | PE | 3637 |
| $C_3H_3N_3(^2E'')$ | $C_3H_3N_3$ (1,3,5-Triazine) (RN-CAS Registry Number 290-87-9) | ** | 11.69 ± 0.01 | PE | 3720 |
| $C_3H_3N_3(^2A_2)$ | $C_3H_3N_3$ (1,3,5-Triazine) (RN-CAS Registry Number 290-87-9) | ** | 13.26 ± 0.01 | PE | 3720 |
| $C_3H_3N_3(^2E')$ | $C_3H_3N_3$ (1,3,5-Triazine) (RN-CAS Registry Number 290-87-9) | ** | 14.56 ± 0.01 | PE | 3720 |
| $C_3H_3N_3(^2A')$ | $C_3H_3N_3$ (1,3,5-Triazine) (RN-CAS Registry Number 290-87-9) | ** | 15.0 ± 0.01 | PE | 3720 |
| $C_3H_3N_3(^2A')$ | $C_3H_3N_3$ (1,3,5-Triazine) (RN-CAS Registry Number 290-87-9) | ** | 17.1 ± 0.01 | PE | 3720 |
| $C_3H_3N_3(^2A')$ | $C_3H_3N_3$ (1,3,5-Triazine) (RN-CAS Registry Number 290-87-9) | ** | 18.05 ± 0.01 | PE | 3720 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|---------------------------|--|----------------|---|--------|------|
| $C_3H_3N_3(^2E')$ | $C_3H_3N_3$ (1,3,5-Triazine) (RN-CAS Registry Number 290-87-9) | ** | 21.0±0.01 | PE | 3720 |
| $C_{12}H_{11}N_3^+$ | $C_{11}H_6N_2(NH_2)CH_3$ (1 <i>H</i> -Perimindin-2-amine, 1-methyl-) (RN-CAS Registry Number 20551-10-4) | ** | 6.41 | CTS | 4035 |
| $CH_2N_4^+$ | CH_2N_4 (1 <i>H</i> -Tetrazole) (RN-CAS Registry Number 288-94-8) | ** | 11.3 (V) | PE | 4009 |
| $C_2H_2N_4^+$ | $C_2H_2N_4$ (1,2,4,5-Tetrazine) (RN-CAS Registry Number 290-96-0) | ** | 9.14 | PE | 3679 |
| $C_2H_2N_4(^2B_2)$ | $C_2H_2N_4$ (1,2,4,5-Tetrazine) (RN-CAS Registry Number 290-96-0) | ** | 9.24 | PE | 3740 |
| $C_2H_2N_4(^2B_1)$ | $C_2H_2N_4$ (1,2,4,5-Tetrazine) (RN-CAS Registry Number 290-96-0) | ** | 11.6 | PE | 3740 |
| $C_2H_2N_4(^2A_1)$ | $C_2H_2N_4$ (1,2,4,5-Tetrazine) (RN-CAS Registry Number 290-96-0) | ** | 12.1 (V) | PE | 3740 |
| $C_2H_2N_4(^2A_2)$ | $C_2H_2N_4$ (1,2,4,5-Tetrazine) (RN-CAS Registry Number 290-96-0) | ** | 12.5 | PE | 3740 |
| $C_2H_2N_4(^2A_1)$ | $C_2H_2N_4$ (1,2,4,5-Tetrazine) (RN-CAS Registry Number 290-96-0) | ** | 13.2 | PE | 3740 |
| $C_2H_2N_4(^2B_1)$ | $C_2H_2N_4$ (1,2,4,5-Tetrazine) (RN-CAS Registry Number 290-96-0) | ** | 15.51 | PE | 3740 |
| $C_2H_2N_4(^2A_1)$ | $C_2H_2N_4$ (1,2,4,5-Tetrazine) (RN-CAS Registry Number 290-96-0) | ** | 16.5 | PE | 3740 |
| $C_2H_2N_4(^2B_2)$ | $C_2H_2N_4$ (1,2,4,5-Tetrazine) (RN-CAS Registry Number 290-96-0) | ** | ~17.5 (V) | PE | 3740 |
| $C_2H_2N_4(^2B_2, ^2A_1)$ | $C_2H_2N_4$ (1,2,4,5-Tetrazine) (RN-CAS Registry Number 290-96-0) | ** | 18.9 | PE | 3740 |
| $C_2H_2N_4(^2A_1)$ | $C_2H_2N_4$ (1,2,4,5-Tetrazine) (RN-CAS Registry Number 290-96-0) | ** | 22.0 | PE | 3740 |
| $C_2H_2N_4(^2B_2)$ | $C_2H_2N_4$ (1,2,4,5-Tetrazine) (RN-CAS Registry Number 290-96-0) | ** | ~24 | PE | 3740 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|--------------------------|---|----------------|---|--------|------|
| $C_4H_6N_4^+$ | $C_2N_4(CH_3)_2$ (1,2,4,5-Tetrazine, 3,6-dimethyl-) (RN-CAS Registry Number 1558-23-2) | ** | 9.08 (V) | PE | 3679 |
| $C_{10}H_{20}N_4^+$ | $C_{10}H_{20}N_4$ (Imidazolidine, 2-(1,3-dimethyl-2-imidazolidinylidene)-1,3-dimethyl-) (RN-CAS Registry Number 1911-01-9) | ** | 6.06 (V) | PE | 3512 |
| $C_{10}H_{24}N_4^+$ | $((CH_3)_2N)_2C=C(N(CH_3)_2)_2$ (RN-CAS Registry Number 996-70-3) | ** | 5.95 (V) | PE | 3512 |
| $C_{11}H_{15}N_5^+$ | $C_{11}H_{15}N_4NH_2$ (9 <i>H</i> -Purin-6-amine, 9-cyclohexyl-) (RN-CAS Registry Number 4235-94-3) | ** | 9.1 | CTS | 3915 |
| $C_{32}H_{18}N_8^+$ | $C_{32}H_{18}N_8$ (29 <i>H</i> ,31 <i>H</i> -Phthalocyanine) (RN-CAS Registry Number 574-93-6) | ** | 7.36 ± 0.10 | EI | 3829 |
| CH_8BN^+ | $(CH_3NH_2)(BH_3)$ (RN-CAS Registry Number 1722-33-4) | ** | 9.66 ± 0.01 | PE | 3699 |
| $C_2H_8BN^+$ | $(CH_3)_2NBH_2$ (RN-CAS Registry Number 1838-13-7) | ** | 9.51 | PE | 3584 |
| $C_2H_9BN^+$ | $((CH_3)_2NH)(BH_2)$ (RN-CAS Registry Number 74-94-2) | ** | 9.39 ± 0.01 | PE | 3699 |
| $C_3H_{12}BN^+$ | $((CH_3)_3N)(BH_3)$ (RN-CAS Registry Number 75-22-9) | ** | 9.28 ± 0.2 | PE | 3699 |
| $C_4H_{12}BN^+$ | $(CH_3)_2NB(CH_3)_2$ (RN-CAS Registry Number 1113-30-0) | ** | 8.92 | PE | 3584 |
| $C_6H_{12}BN^+$ | $C_6H_{12}BN$ (1 <i>H</i> ,5 <i>H</i> -[1,2]Azaborolo[1,2- <i>a</i>][1,2]azaborole, tetrahydro-) (RN-CAS Registry Number 16153-13-2) | ** | 8.06 | PE | 3584 |
| $C_4H_{13}BN_2^+$ | $((CH_3)_2N)_2BH$ (RN-CAS Registry Number 2386-98-3) | ** | 7.76 | PE | 3584 |
| $C_5H_{15}BN_2^+$ | $((CH_3)_2N)_2B(CH_3)$ (RN-CAS Registry Number 6914-63-2) | ** | 7.63 | PE | 3584 |
| $C_3H_{12}B_3N_3^+$ | $C_3H_{12}B_3N_3$ (Borazine, 1,3,5-trimethyl-) (RN-CAS Registry Number 1004-35-9) | ** | 8.99 (V) | PE | 3944 |
| $C_3H_{12}B_3N_3(^2E^+)$ | $C_3H_{12}B_3N_3$ (Borazine, 1,3,5-trimethyl-) (RN-CAS Registry Number 1004-35-9) | ** | 9.28 ± 0.02 | PE | 3506 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|---|--|----------------|---|--------|------|
| $C_3H_{12}B_3N_3^+$ | $C_3H_{12}B_3N_3$ (Borazine, 2,4,6-trimethyl-) (RN-CAS Registry Number 5314-85-2) | ** | 9.50 (V) | PE | 3944 |
| $C_3H_{12}B_3N_3(^2E')$ | $C_3H_{12}B_3N_3$ (Borazine, 2,4,6-trimethyl-) (RN-CAS Registry Number 5314-85-2) | ** | 9.64 ± 0.03 | PE | 3506 |
| $C_6H_{14}BN_3^+$ | $C_6H_{14}BN_3$ ([1,3,2]Diazaborino[1,2-a][1,3,2]diazaborine, octahydro-) (RN-CAS Registry Number 1730-15-0) | ** | 7.90 | PE | 3584 |
| $C_6H_{18}BN_3^+$ | $B(N(CH_3)_2)_3$ (RN-CAS Registry Number 4375-83-1) | ** | 7.60 (V) | PE | 3704 |
| $C_6H_{18}B_3N_3^+$ | $C_6H_{18}B_3N_3$ (Borazine, hexamethyl-) (RN-CAS Registry Number 877-07-6) | ** | 8.53 (V) | PE | 3944 |
| $C_8H_{24}B_2N_4^+$ | $((CH_3)_2N)_2BB(N(CH_3)_2)_2$ (RN-CAS Registry Number 1630-79-1) | ** | 7.3 (V) | PE | 3512 |
| $C_8H_{24}B_2N_4^+$ | $((CH_3)_2N)_2BB(N(CH_3)_2)_2$ (RN-CAS Registry Number 1630-79-1) | ** | 7.58 | PE | 3584 |
| $O^+(^2P)$ | O (RN-CAS Registry Number 17778-80-2) | ** | 18.63 | PE | 3701 |
| O^+ | H_2O (RN-CAS Registry Number 7732-18-5) | H_2 | 19.0 | DC | 3967 |
| O^+ | H_2O (RN-CAS Registry Number 7732-18-5) | 2H | 26.8 | DC | 3967 |
| O^+ | NO (RN-CAS Registry Number 10102-43-9) | N | 20.1 ± 0.3 | EI | 3945 |
| O^+ | HOF (RN-CAS Registry Number 14034-79-8) | HF | 14.34 | PI | 3932 |
| (TV-Threshold value approximately corrected to 0°K) | | | | | |
| O^{+2} | $O^+(^2P)$ (RN-CAS Registry Number 14581-93-2) | ** | 30 | SEQ | 3489 |
| O^{+2} | $O^+(^2D)$ (RN-CAS Registry Number 14581-93-2) | ** | 32 | SEQ | 3489 |
| $O^{+2}(^1D)$ | O^+ (RN-CAS Registry Number 14581-93-2) | ** | 38 | SEQ | 3489 |
| $O^{+2}(^5S)$ | O^+ (RN-CAS Registry Number 14581-93-2) | ** | 42 | SEQ | 3489 |
| O^{+2} | CO (RN-CAS Registry Number 630-08-0) | $C(^1D)$ | 61 | SEQ | 3489 |
| O^{+2} | CO^+ (RN-CAS Registry Number 12144-04-6) | $C(^1D)$ | 47 | SEQ | 3489 |
| O^{+3} | $O^{+2}(^1S)$ (RN-CAS Registry Number 14127-63-0) | ** | 49.3 | SEQ | 3489 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|---|---|----------------|---|--------|------|
| O^{+3} | $O^{+2}(^1D)$ (RN-CAS Registry Number 14127-63-0) | ** | 52.6 | SEQ | 3489 |
| O^{+6} | O^{+5} (RN-CAS Registry Number 14127-66-3) | ** | > 160 | SEQ | 3489 |
| $O_2(^1X^2\Pi_{1/2})$ | $O_2(^1\Delta_g)$ (RN-CAS Registry Number 7782-44-7) | ** | 11.108 ± 0.002 | S | 3878 |
| $O_2(^1X^2\Pi_g)$ | O_2 (RN-CAS Registry Number 7782-44-7) | ** | 12.07 ± 0.01 | PI | 4020 |
| $O_2(^1X^2\Pi_{3/2g})$ | O_2 (RN-CAS Registry Number 7782-44-7) | ** | 12.077 | PE | 3834 |
| $O_2(^1X^2\Pi_g)$ | O_2 (RN-CAS-Registry Number 7782-44-7) | ** | 12.08 | PE | 4073 |
| $O_2(^1X^2\Pi_{1/2g})$ | O_2 (RN-CAS Registry Number 7782-44-7) | ** | 12.102 | PE | 3834 |
| $O_2(^1a^4\pi u)$ | O_2 (RN-CAS Registry Number 7782-44-7) | ** | 16.105 | PE | 3664 |
| $O_2(^2\Pi_u)$ | $O_2(^1\Delta_g)$ (RN-CAS Registry Number 7782-44-7) | ** | ~ 16.5 | PE | 3698 |
| $O_2(^2\Phi_u?)$ | $O_2(^1\Delta_g)$ (RN-CAS Registry Number 7782-44-7) | ** | ~ 17.45 | PE | 3534 |
| $O_2(^2\Phi_u)$ | $O_2(^1\Delta_g)$ (RN-CAS Registry Number 7782-44-7) | ** | 17.5 | PE | 3698 |
| $O_2(^2\Delta_g?)$ | $O_2(^1\Delta_g)$ (RN-CAS Registry Number 7782-44-7) | ** | 18.81 | PE | 3534 |
| $O_2(^2\Pi_u)$ | O_2 (RN-CAS Registry Number 7782-44-7) | ** | 22.8 ± 0.1 | PE | 3975 |
| $O_2(^1c^4\Sigma_u)$ | O_2 (RN-CAS Registry Number 7782-44-7) | ** | 24.6 | PE | 3975 |
| O_2^* | O_2 (RN-CAS Registry Number 7782-44-7) | ** | 38.4 ± 0.2 | PE | 3975 |
| OH^+ (RD-Radical) | OH (RN-CAS-Registry Number 3352-57-6) | ** | 13.5 ± 1.0 | EI | 4054 |
| OH^+ (RD-Radical) | OH (RN-CAS Registry Number 3352-57-6) | ** | 12.88 | D | 3932 |
| OH^+ | H_2O (RN-CAS Registry Number 7732-18-5) | H | 18.2 | DC | 3967 |
| OH^+ | HOF (RN-CAS Registry Number 14034-79-8) | F | 15.07 | PI | 3932 |
| (TV-Threshold value approximately corrected to 0°K) | | | | | |
| H_2O^+ | H_2O (RN-CAS Registry Number 7732-18-5) | ** | 12.619 ± 0.006 | S | 3983 |
| $H_2O^+(^2B_1)$ | H_2O (RN-CAS Registry Number 7732-18-5) | ** | 12.619 | PE | 3941 |
| $H_2O^+(^2B_1)$ | H_2O (RN-CAS Registry Number 7732-18-5) | ** | 12.62 | PE | 3719 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|---|---|----------------------------------|---|--------|------|
| H ₂ O ⁺ (² B ₁) | H ₂ O (RN-CAS Registry Number 7732-18-5) (Center of rotational envelope) | ** | 12.624 | PE | 3530 |
| H ₂ O ⁺ (² A ₁) | H ₂ O (RN-CAS Registry Number 7732-18-5) | ** | 13.78 | PE | 3719 |
| H ₂ O ⁺ (² A ₁) | H ₂ O (RN-CAS Registry Number 7732-18-5) (Origin of rotational envelope) | ** | 13.930±0.010 | PE | 3530 |
| H ₂ O ⁺ (² A ₁) | H ₂ O (RN-CAS Registry Number 7732-18-5) | ** | 14.8 | PE | 3941 |
| H ₂ O ⁺ (² B ₂) | H ₂ O (RN-CAS Registry Number 7732-18-5) | ** | 17.02 | PE | 3719 |
| H ₂ O ⁺ (² B ₂) | H ₂ O (RN-CAS Registry Number 7732-18-5) | ** | 17.390 | PE | 3530 |
| H ₂ O ⁺ (² B ₂) | H ₂ O (RN-CAS Registry Number 7732-18-5) | ** | 18.54 | PE | 3941 |
| H ₂ O ⁺ (² A ₁) | H ₂ O (RN-CAS Registry Number 7732-18-5) | ** | 32.2 (V) | PE | 3719 |
| H ₂ O ⁺ | H ₂ O (RN-CAS Registry Number 7732-18-5) | ** | 12.7 | DC | 3967 |
| D ₂ O ⁺ | D ₂ O (RN-CAS Registry Number 7789-20-0) | ** | 12.636±0.006 | S | 3983 |
| D ₂ O ⁺ (² B ₁) | D ₂ O (RN-CAS Registry Number 7789-20-0) (Center of rotational envelope) | ** | 12.633 | PE | 3530 |
| D ₂ O ⁺ (² A ₁) | D ₂ O (RN-CAS Registry Number 7789-20-0) (Origin of rotational envelope) | ** | 13.930±0.010 | PE | 3530 |
| H ₃ O ⁺ | C ₂ H ₅ OH (RN-CAS Registry Number 64-17-5) (MT-Metastable transition(s) observed) (TR-Other product(s) thermochemically reasonable) | C ₂ H ₂ +H | 14.30±0.02 | RPD | 3487 |
| LiO ⁺ | LiO (RN-CAS Registry Number 12142-77-7) | ** | 8.45±0.20 | EI | 3909 |
| Li ₂ O ⁺ | Li ₂ O (RN-CAS Registry Number 12057-24-8) | ** | 6.19±0.20 | EI | 3909 |
| BO ⁺ | BO (RN-CAS Registry Number 13840-87-4) | ** | 13.0±0.5 | EI | 3473 |
| BO ₂ ⁺ | BO ₂ (RN-CAS-Registry Number 13840-88-5) | ** | 14.0±1.0 | EI | 4054 |
| BHO ₂ ⁺ | BHO ₂ (RN-CAS-Registry Number 13460-50-9) | ** | 13.5±1.0 | EI | 4054 |
| CO ⁺ (X ² Σ ⁺) | CO (RN-CAS Registry Number 630-08-0) | ** | 14.014 | S | 3760 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|---|---|--------------------------------|---|--------|------|
| $\text{CO}^+(\text{A}^2\Pi_{1/2})$ | CO (RN-CAS Registry Number 630-08-0) | ** | 16.550 | S | 3760 |
| $\text{CO}^+(\text{B}^2\Sigma^+)$ | CO (RN-CAS Registry Number 630-08-0) | ** | 19.672 | S | 3760 |
| (RS-Average of two Rydberg series limits) | | | | | |
| $\text{CO}^+(\text{X}^2\Sigma^+)$ | CO (RN-CAS-Registry Number 630-08-0) | ** | 14.01 | PE | 4073 |
| $\text{CO}^+(\text{Z}^2\Sigma_p)$ | CO (RN-CAS Registry Number 630-08-0) | ** | 14.01 (V) | PE | 4022 |
| $\text{CO}^+(\text{A}^2\Pi)$ | CO (RN-CAS-Registry Number 630-08-0) | ** | 16.55 | PE | 4073 |
| $\text{CO}^+(\text{Z}^2\Pi)$ | CO (RN-CAS Registry Number 630-08-0) | ** | 16.91 (V) | PE | 4022 |
| $\text{CO}^+(\text{B}^2\Sigma_u^-)$ | CO (RN-CAS Registry Number 630-08-0) | ** | 19.69 (V) | PE | 3714 |
| $\text{CO}^+(\text{Z}^2\Sigma_s)$ | CO (RN-CAS Registry Number 630-08-0) | ** | 19.72 (V) | PE | 4022 |
| $\text{CO}^+(\text{C}^2\Sigma^+)$ | CO (RN-CAS Registry Number 630-08-0) | ** | 39.0 | PE | 3975 |
| CO^+ | CO_2 (RN-CAS Registry Number 124-38-9) | $\text{O}(\text{Z}^3\text{S})$ | 29.0 | PI | 4095 |
| CO^+ | COS (RN-CAS Registry Number 463-58-1) | $\text{S}^-?$ | 15.6 | EI | 3779 |
| $\text{CO}_2^+(\text{X}^2\Pi_{3/2g})$ | CO_2 (RN-CAS Registry Number 124-38-9) | ** | 13.773 ± 0.002 | PI | 3925 |
| $\text{CO}_2^+(\text{X}^2\Pi_{3/2g})$ | CO_2 (RN-CAS-Registry Number 124-38-9) | ** | 13.776 ± 0.008 | PI | 4069 |
| $\text{CO}_2^+(\text{X}^2\Pi_g)$ | CO_2 (RN-CAS-Registry Number 124-38-9) | ** | 13.78 | PE | 4073 |
| $\text{CO}_2^+(\text{X}^2\Pi_g)$ | CO_2 (RN-CAS Registry Number 124-38-9) | ** | 13.80 ± 0.01 | PE | 3965 |
| $\text{CO}_2^+(\text{A}^2\Pi_u)$ | CO_2 (RN-CAS Registry Number 124-38-9) | ** | 17.34 ± 0.01 | PE | 3965 |
| $\text{CO}_2^+(\text{B}^2\Sigma_u^-)$ | CO_2 (RN-CAS Registry Number 124-38-9) | ** | 18.08 ± 0.01 | PE | 3965 |
| $\text{CO}_2^+(\text{C}^2\Sigma_g^-)$ | CO_2 (RN-CAS Registry Number 124-38-9) | ** | 19.39 ± 0.01 | PE | 3965 |
| $\text{CO}_2^+(\text{Z}^2\Sigma_u)$ | CO_2 (RN-CAS Registry Number 124-38-9) | ** | 37 | PE | 4095 |
| $\text{CO}_2^+(\text{Z}^2\Sigma_g)$ | CO_2 (RN-CAS Registry Number 124-38-9) | ** | 38.4 | PE | 4095 |
| $\text{CO}_2^+(\text{Z}^2\Sigma_u?)$ | CO_2 (RN-CAS Registry Number 124-38-9) | ** | 38.4 (V) | PE | 3975 |
| $\text{CO}_2^+(\text{Z}^2\Sigma_g?)$ | CO_2 (RN-CAS Registry Number 124-38-9) | ** | 40.0 (V) | PE | 3975 |
| $\text{C}_3\text{O}_2^+(\text{Z}^2\Pi_u)$ | C_3O_2 (RN-CAS Registry Number 504-64-3) | ** | 10.605 | PE | 3728 |
| $\text{C}_3\text{O}_2^+(\text{Z}^2\Pi_g)$ | C_3O_2 (RN-CAS Registry Number 504-64-3) | ** | 14.502 | PE | 3728 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|---|---|----------------|---|--------|------|
| $C_3O_2(^2\Sigma_u)$ | C_3O_2 (RN-CAS Registry Number 504-64-3) | ** | 15.751 | PE | 3728 |
| $C_3O_2(^2\Sigma_g)$ | C_3O_2 (RN-CAS Registry Number 504-64-3) | ** | 16.978 | PE | 3728 |
| $C_3O_2(^2\Pi_u)$ | C_3O_2 (RN-CAS Registry Number 504-64-3) | ** | 17.258 | PE | 3728 |
| CHO^+ | HCHO (RN-CAS Registry Number 50-00-0) | H | 11.89 ± 0.03 | PI | 3554 |
| CHO^+ | CH_3OH (RN-CAS Registry Number 67-56-1) | $H_2 + H$ | 13.06 ± 0.10 | PI | 3554 |
| (TR—Other product(s) thermochemically reasonable) | | | | | |
| CHO^+ | $(CH_3)_2O$ (RN-CAS-Registry Number 115-10-6) | | 13.96 ± 0.2 | EI | 4071 |
| CHO^+ | CH_3OCD_3 (RN-CAS-Registry Number 13725-27-4) | | 13.97 ± 0.2 | EI | 4071 |
| CHO^+ | $C_2H_5OCD_3$ (RN-CAS-Registry Number 16995-14-5) | | 13.13 ± 0.2 | EI | 4071 |
| CDO^+ | CH_3OCD_3 (RN-CAS-Registry Number 13725-27-4) | | 13.87 ± 0.2 | EI | 4071 |
| CDO^+ | $C_2H_5OCD_3$ (RN-CAS-Registry Number 16995-14-5) | | 13.57 ± 0.2 | EI | 4071 |
| CH_2O^+ | HCHO (RN-CAS Registry Number 50-00-0) | ** | 10.88 ± 0.02 | PI | 3554 |
| CH_2O^+ | HCHO (RN-CAS Registry Number 50-00-0) | ** | 10.90 ± 0.03 | PI | 3765 |
| CH_2O^+ | CH_3OH (RN-CAS Registry Number 67-56-1) | H_2 | 12.05 ± 0.12 | PI | 3554 |
| (TR—Other product(s) thermochemically reasonable) | | | | | |
| CH_3O^+ | CH_3OH (RN-CAS Registry Number 67-56-1) | H | 11.55 ± 0.03 | PI | 3554 |
| CH_3O^+ | $(CH_3)_2O$ (RN-CAS-Registry Number 115-10-6) | CH_3 | 12.42 ± 0.1 | EI | 4071 |
| CH_3O^+ | $C_2H_5OCH_3$ (RN-CAS-Registry Number 540-67-0) | | 12.86 ± 0.1 | EI | 4071 |
| CH_3O^+ | <i>n</i> - C_3H_7OH (RN-CAS Registry Number 71-23-8) | C_2H_5 | 11.16 ± 0.03 | EDD | 3626 |
| CHD_2O^+ | $C_2H_5OCD_3$ (RN-CAS-Registry Number 16995-14-5) | | 12.86 ± 0.05 | EI | 4071 |
| CH_4O^+ | CH_3OH (RN-CAS Registry Number 67-56-1) | ** | 10.83 ± 0.03 | PI | 3554 |
| $CH_4O^+(^2A'')$ | CH_3OH (RN-CAS-Registry Number 67-56-1) | ** | 10.94 (V) | PE | 4068 |
| CH_4O^+ | CH_3OH (RN-CAS Registry Number 67-56-1) | ** | 10.95 | PE | 4087 |
| $CH_4O^+(^2A'')$ | CH_3OH (RN-CAS Registry Number 67-56-1) | ** | 10.95 (V) | PE | 4032 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|--|--|---|---|--------|------|
| CH ₄ O ⁺ (² A ⁺) | CH ₃ OH (RN-CAS Registry Number 67-56-1) | ** | 10.96 (V) | PE | 3941 |
| CH ₄ O ⁺ (² A ⁺) | CH ₃ OH (RN-CAS Registry Number 67-56-1) | ** | 12.62 (V) | PE | 3941 |
| CH ₄ O ⁺ (² A ⁺) | CH ₃ OH (RN-CAS Registry Number 67-56-1) | ** | 12.66 (V) | PE | 4032 |
| CH ₄ O ⁺ (² A ⁺) | CH ₃ OH (RN-CAS-Registry Number 67-56-1) | ** | 12.68 (V) | PE | 4068 |
| CH ₄ O ⁺ (² A ⁺) | CH ₃ OH (RN-CAS Registry Number 67-56-1) | ** | 15.09 (V) | PE | 4032 |
| CH ₄ O ⁺ (² A ⁺) | CH ₃ OH (RN-CAS-Registry Number 67-56-1) | ** | 15.19 (V) | PE | 4068 |
| CH ₄ O ⁺ (² A ⁺) | CH ₃ OH (RN-CAS Registry Number 67-56-1) | ** | 15.21 (V) | PE | 3941 |
| CH ₄ O ⁺ (² A ⁺) | CH ₃ OH (RN-CAS Registry Number 67-56-1) | ** | 15.64 (V) | PE | 3941 |
| CH ₄ O ⁺ (² A ⁺) | CH ₃ OH (RN-CAS-Registry Number 67-56-1) | ** | 15.66 (V) | PE | 4068 |
| CH ₄ O ⁺ (² A ⁺) | CH ₃ OH (RN-CAS Registry Number 67-56-1) | ** | 15.69 (V) | PE | 4032 |
| CH ₄ O ⁺ (² A ⁺) | CH ₃ OH (RN-CAS-Registry Number 67-56-1) | ** | 17.50 (V) | PE | 4068 |
| CH ₄ O ⁺ (² A ⁺) | CH ₃ OH (RN-CAS Registry Number 67-56-1) | ** | 17.53 (V) | PE | 4032 |
| CH ₄ O ⁺ (² A ⁺) | CH ₃ OH (RN-CAS Registry Number 67-56-1) | ** | 17.62 (V) | PE | 3941 |
| CH ₄ O ⁺ (² A ⁺) | CH ₃ OH (RN-CAS Registry Number 67-56-1) | ** | 22.65 (V) | PE | 3941 |
| C ₂ H ₂ O ⁺ | C ₄ H ₆ O (Cyclobutanone) (RN-CAS Registry Number 1191-95-3) | C ₂ H ₄ | 10.53±0.15 | EDD | 3794 |
| (TR—Other product(s) thermochemically reasonable) | | | | | |
| C ₂ H ₃ O ⁺ | (CH ₃) ₂ CO (RN-CAS Registry Number 67-64-1) | CH ₃ | 10.28±0.05 | EDD | 3626 |
| C ₂ H ₃ O ⁺ | (CH ₃) ₂ CO (RN-CAS Registry Number 67-64-1) | CH ₃ | 11.3 | EI | 3550 |
| C ₂ H ₃ O ⁺ | C ₆ H ₅ OOCCH ₃ (Acetic acid, phenyl ester) (RN-CAS Registry Number 122-79-2) | <i>cyclo</i> -C ₆ H ₅ O | 12.78±0.2 | EI | 3484 |
| C ₂ H ₃ O ⁺ | C ₆ H ₅ OOCCH ₃ (Acetic acid, phenyl ester) (RN-CAS Registry Number 122-79-2) | <i>cyclo</i> -C ₆ H ₅ O | 12.83±0.03 | EI | 3483 |
| C ₂ H ₃ O ⁺ | C ₆ H ₄ (CH ₃)OOCCH ₃ (Acetic acid, 3-methylphenyl ester) (RN-CAS Registry Number 122-46-3) | C ₆ H ₄ (CH ₃)O | 13.83±0.2 | EI | 3484 |
| C ₂ H ₃ O ⁺ | C ₆ H ₄ (CH ₃)OOCCH ₃ (Acetic acid, 4-methylphenyl ester) (RN-CAS Registry Number 140-39-6) | | 13.97±0.2 | EI | 3484 |
| (OP—the other product(s) is(are): <i>cyclo</i> -C ₆ H ₄ (CH ₃)O) | | | | | |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|--|--|--|---|--------|------|
| C ₂ H ₃ O ⁺ | C ₆ H ₅ CH ₂ CH ₂ OCOCH ₃ (Acetic acid, 2-phenylethyl ester) (RN-CAS Registry Number 103-45-7) | | 11.70 | EI | 3590 |
| C ₂ H ₃ O ⁺ | C ₆ H ₄ (CH ₃)CH ₂ CH ₂ OCOCH ₃ (Phenethyl alcohol, <i>m</i> -methyl-, acetate) (RN-CAS Registry Number 33709-40-9) | | 11.90 | EI | 3590 |
| C ₂ H ₃ O ⁺ | C ₆ H ₄ (CH ₃)CH ₂ CH ₂ OCOCH ₃ (Phenethyl alcohol, <i>p</i> -methyl-, acetate) (RN-CAS Registry Number 22532-47-4) | | 11.90 | EI | 3590 |
| C ₂ H ₃ O ⁺ | C ₆ H ₄ (OCH ₃)OOCCH ₃ (Phenol, 3-methoxy-, acetate) (RN-CAS Registry Number 5451-83-2) | C ₆ H ₄ (OCH ₃)O | 13.92±0.2 | EI | 3484 |
| C ₂ H ₃ O ⁺ | C ₆ H ₄ (OCH ₃)OOCCH ₃ (Phenol, 4-methoxy-, acetate) (RN-CAS Registry Number 1200-06-2) | C ₆ H ₄ (OCH ₃)O | 14.57±0.2 | EI | 3484 |
| C ₂ H ₃ O ⁺ | C ₆ H ₄ (OCH ₃)CH ₂ CH ₂ OCOCH ₃ (Phenethyl alcohol, <i>m</i> -methoxy-, acetate) (RN-CAS Registry Number 33709-39-6) | | 11.80 | EI | 3590 |
| C ₂ H ₃ O ⁺ | C ₆ H ₄ (OCH ₃)CH ₂ CH ₂ OCOCH ₃ (Phenethyl alcohol, <i>p</i> -methoxy-, acetate) (RN-CAS Registry Number 22532-51-0) | | 12.20 | EI | 3590 |
| C ₂ H ₃ O ⁺ | C ₆ H ₄ (COOH)OOCCH ₃ (Benzoic acid, 4-(acetyloxy)-) (RN-CAS Registry Number 2345-34-8) | C ₆ H ₄ (COOH)O | 12.46±0.2 | EI | 3484 |
| C ₂ H ₃ O ⁺ | C ₅ H ₈ NCOCH ₃ (Pyridine, 1-acetyl-1,2,3,4-tetrahydro-) (RN-CAS Registry Number 19615-27-1) | | 13.5 | EI | 4046 |
| C ₂ H ₃ O ⁺ | C ₅ H ₁₀ NCOCH ₃ (Piperidine, 1-acetyl-) (RN-CAS Registry Number 618-42-8) | | 15.1 | EI | 4046 |
| C ₂ H ₃ O ⁺ | C ₆ H ₅ NHCOCH ₃ (Acetamide, <i>N</i> -phenyl-) (RN-CAS Registry Number 103-84-4) | | 13.22±0.03 | EI | 3483 |
| C ₂ H ₃ O ⁺ | C ₆ H ₄ (NH ₂)CH ₂ CH ₂ OCOCH ₃ (Benzeneethanol, 4-amino-, acetate(ester)) (RN-CAS Registry Number 33709-38-5) | | 12.30 | EI | 3590 |
| C ₂ H ₃ O ⁺ | C ₆ H ₄ (NO ₂)OOCCH ₃ (Acetic acid, 3-nitrophenyl ester) (RN-CAS Registry Number 1523-06-4) | | 10.94±0.2 | EI | 3484 |
| | (OP—the other product(s) is(are): <i>cyclo</i> -C ₆ H ₄ (NO ₂)O) | | | | |
| C ₂ H ₃ O ⁺ | C ₆ H ₄ (NO ₂)OOCCH ₃ (Acetic acid, 4-nitrophenyl ester) (RN-CAS Registry Number 830-03-5) | | 10.85±0.2 | EI | 3484 |
| | (OP—the other product(s) is(are): <i>cyclo</i> -C ₆ H ₄ (NO ₂)O) | | | | |
| C ₂ H ₃ O ⁺ | C ₆ H ₄ FOOCCH ₃ (Phenol, 2-fluoro-, acetate) (RN-CAS Registry Number 29650-44-0) | <i>cyclo</i> -C ₆ H ₄ FO | 12.23±0.03 | EI | 3483 |
| C ₂ H ₃ O ⁺ | C ₆ H ₄ FOOCCH ₃ (Phenol, 4-fluoro-, acetate) (RN-CAS Registry Number 405-51-6) | <i>cyclo</i> -C ₆ H ₄ FO | 12.72±0.03 | EI | 3483 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|-------------|---|----------------|---|--------|------|
| $C_2H_3O^+$ | $C_6H_3F_2OOCCH_3$ (Phenol, 2,4-difluoro-, acetate) (RN-CAS Registry Number 36914-77-9) | | 12.00 ± 0.03 | EI | 3480 |
| $C_2H_3O^+$ | $C_6H_3F_2OOCCH_3$ (Phenol, 2,6-difluoro-, acetate) (RN-CAS Registry Number 36914-78-0) | | 12.24 ± 0.03 | EI | 3480 |
| $C_2H_3O^+$ | CH_3COCF_3 (RN-CAS Registry Number 421-50-1) | | 11.45 | EI | 3550 |
| $C_2H_3O^+$ | $C_6H_4FNHCOCH_3$ (Acetamide, <i>N</i> -(2-fluorophenyl)-) (RN-CAS Registry Number 399-31-5) | | 13.59 ± 0.03 | EI | 3483 |
| $C_2H_3O^+$ | $C_6H_4FNHCOCH_3$ (Acetamide, <i>N</i> -(4-fluorophenyl)-) (RN-CAS Registry Number 351-83-7) | | 13.42 ± 0.03 | EI | 3483 |
| $C_2H_3O^+$ | $C_6H_3F_2NHCOCH_3$ (Acetamide, <i>N</i> -(2,4-difluorophenyl)-) (RN-CAS Registry Number 399-36-0) | | 13.18 ± 0.03 | EI | 3480 |
| $C_2H_3O^+$ | $C_6H_3F_2NHCOCH_3$ (Acetamide, <i>N</i> -(2,6-difluorophenyl)-) (RN-CAS Registry Number 3869-29-5) | | 13.80 ± 0.03 | EI | 3480 |
| $C_2H_3O^+$ | $C_6H_4ClOOCCH_3$ (Acetic acid, 2-chlorophenyl ester) (RN-CAS Registry Number 4525-75-1) (OP—the other product(s) is(are): <i>cyclo</i> - C_6H_4ClO) | | 12.55 ± 0.03 | EI | 3483 |
| $C_2H_3O^+$ | $C_6H_4ClOOCCH_3$ (Acetic acid, 3-chlorophenyl ester) (RN-CAS Registry Number 13031-39-5) (OP—the other product(s) is(are): <i>cyclo</i> - $C_6H_4(Cl)O$) | | 12.36 ± 0.2 | EI | 3484 |
| $C_2H_3O^+$ | $C_6H_4ClOOCCH_3$ (Acetic acid, 4-chlorophenyl ester) (RN-CAS Registry Number 876-27-7) (OP—the other product(s) is(are): <i>cyclo</i> - C_6H_4ClO) | | 12.39 ± 0.03 | EI | 3483 |
| $C_2H_3O^+$ | $C_6H_4ClOOCCH_3$ (Acetic acid, 4-chlorophenyl ester) (RN-CAS Registry Number 876-27-7) (OP—the other product(s) is(are): <i>cyclo</i> - $C_6H_4(Cl)O$) | | 12.73 ± 0.2 | EI | 3484 |
| $C_2H_3O^+$ | $C_6H_4ClCH_2CH_2OCOCH_3$ (Phenethyl alcohol, <i>m</i> -chloro-, acetate) (RN-CAS Registry Number 33709-41-0) | | 11.60 | EI | 3590 |
| $C_2H_3O^+$ | $C_6H_3Cl_2OOCCH_3$ (Phenol, 2,4-dichloro-, acetate) (RN-CAS Registry Number 6341-97-5) | | 12.11 ± 0.03 | EI | 3480 |
| $C_2H_3O^+$ | $C_6H_3Cl_2OOCCH_3$ (Phenol, 2,6-dichloro-, acetate) (RN-CAS Registry Number 28165-71-1) | | 12.09 ± 0.03 | EI | 3480 |
| $C_2H_3O^+$ | $C_6H_4ClNHCOCH_3$ (Acetamide, <i>N</i> -(2-chlorophenyl)-) (RN-CAS Registry Number 533-17-5) | | 13.91 ± 0.03 | EI | 3483 |
| $C_2H_3O^+$ | $C_6H_4ClNHCOCH_3$ (Acetamide, <i>N</i> -(4-chlorophenyl)-) (RN-CAS Registry Number 539-03-7) | | 13.00 ± 0.03 | EI | 3483 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|-------------|---|---------------------------|---|--------|------|
| $C_2H_3O^+$ | $C_6H_3Cl_2NHCOCH_3$ (Acetamide, <i>N</i> -(2,4-dichlorophenyl)-) (RN-CAS Registry Number 6975-29-7) | | 13.08 ± 0.03 | EI | 3480 |
| $C_2H_3O^+$ | $C_6H_3Cl_2NHCOCH_3$ (Acetamide, <i>N</i> -(2,6-dichlorophenyl)-) (RN-CAS Registry Number 17700-54-8) | | 13.40 ± 0.03 | EI | 3480 |
| $C_2H_3O^+$ | $C_6H_4BrCOOCH_3$ (Phenol, 2-bromo-, acetate) (RN-CAS Registry Number 1829-37-4) | | 12.24 ± 0.03 | EI | 3483 |
| | (OP—the other product(s) is(are): <i>cyclo</i> - C_6H_4BrO) | | | | |
| $C_2H_3O^+$ | $C_6H_4BrOOCCH_3$ (Phenol, 3-bromo-, acetate) (RN-CAS Registry Number 35065-86-2) | | 12.36 ± 0.2 | EI | 3484 |
| | (OP—the other product(s) is(are): <i>cyclo</i> - $C_6H_4(Br)O$) | | | | |
| $C_2H_3O^+$ | $C_6H_4BrOOCCH_3$ (Phenol, 4-bromo-, acetate) (RN-CAS Registry Number 1927-95-3) | | 12.87 ± 0.2 | EI | 3484 |
| | (OP—the other product(s) is(are): <i>cyclo</i> - $C_6H_4(Br)O$) | | | | |
| $C_2H_3O^+$ | $C_6H_4BrOOCCH_3$ (Phenol, 4-bromo-, acetate) (RN-CAS Registry Number 1927-95-3) | | 13.06 ± 0.03 | EI | 3483 |
| | (OP—the other product(s) is(are): <i>cyclo</i> - C_6H_4BrO) | | | | |
| $C_2H_3O^+$ | $C_6H_3Br_2OOCCH_3$ (Phenol, 2,4-dibromo-, acetate) (RN-CAS Registry Number 36914-79-1) | | 12.01 ± 0.03 | EI | 3480 |
| $C_2H_3O^+$ | $C_6H_3Br_2OOCCH_3$ (Phenol, 2,6-dibromo-, acetate) (RN-CAS Registry Number 28165-72-2) | | 12.36 ± 0.03 | EI | 3480 |
| $C_2H_3O^+$ | $C_6H_4BrNHCOCH_3$ (Acetamide, <i>N</i> -(2-bromophenyl)-) (RN-CAS Registry Number 614-76-6) | | 14.68 ± 0.03 | EI | 3483 |
| $C_2H_3O^+$ | $C_6H_4BrNHCOCH_3$ (Acetamide, <i>N</i> -(4-bromophenyl)-) (RN-CAS Registry Number 103-88-8) | | 13.96 ± 0.03 | EI | 3483 |
| $C_2H_3O^+$ | $C_6H_3Br_2NHCOCH_3$ (Acetamide, <i>N</i> -(2,4-dibromophenyl)-) (RN-CAS Registry Number 23373-04-8) | | 13.10 ± 0.03 | EI | 3480 |
| $C_2H_3O^+$ | $C_6H_3Br_2NHCOCH_3$ (Acetamide, <i>N</i> -(2,6-dibromophenyl)-) (RN-CAS Registry Number 33098-80-5) | | 13.21 ± 0.03 | EI | 3480 |
| $C_2H_3O^+$ | $C_6H_4IOOCCH_3$ (Phenol, 2-iodo-, acetate) (RN-CAS Registry Number 32865-61-5) | <i>cyclo</i> - C_6H_4IO | 12.47 ± 0.03 | EI | 3483 |
| $C_2H_3O^+$ | $C_6H_4IOOCCH_3$ (Phenol, 4-iodo-, acetate) (RN-CAS Registry Number 33527-94-5) | <i>cyclo</i> - C_6H_4IO | 12.74 ± 0.03 | EI | 3483 |
| $C_2H_3O^+$ | $C_6H_3I_2OOCCH_3$ (Phenol, 2,4-diiodo-, acetate) (RN-CAS Registry Number 36914-80-4) | | 12.15 ± 0.03 | EI | 3480 |
| $C_2H_3O^+$ | $C_6H_3I_2OOCCH_3$ (Phenol, 2,6-diiodo-, acetate) (RN-CAS Registry Number 28165-73-3) | | 12.02 ± 0.03 | EI | 3480 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|--------------------|--|----------------|---|--------|------|
| $C_2H_3O^+$ | $C_6H_4INHCOCH_3$ (Acetamide, <i>N</i> -(2-iodophenyl)-) (RN-CAS Registry Number 19591-17-4) | | 13.56 ± 0.03 | EI | 3483 |
| $C_2H_3O^+$ | $C_6H_4INHCOCH_3$ (Acetamide, <i>N</i> -(4-iodophenyl)-) (RN-CAS Registry Number 622-50-4) | | 13.16 ± 0.03 | EI | 3483 |
| $C_2H_4O^+$ | CH_3CHO (RN-CAS Registry Number 75-07-0) | ** | 10.20 ± 0.03 | PI | 3765 |
| $C_2H_5O^+$ | $(CH_3)_2O$ (RN-CAS-Registry Number 115-10-6) | H | 11.55 ± 0.15 | EI | 4071 |
| $C_2H_5O^+$ | $C_2H_5OCH_3$ (RN-CAS-Registry Number 540-67-0) | CH_3 | 10.91 ± 0.1 | EI | 4071 |
| $C_2H_3D_2O^+$ | CH_3OCD_3 (RN-CAS-Registry Number 13725-27-4) | D | 11.53 ± 0.1 | EI | 4071 |
| $C_2H_2D_3O^+$ | CH_3OCD_3 (RN-CAS-Registry Number 13725-27-4) | H | 11.15 ± 0.1 | EI | 4071 |
| $C_2H_2D_3O^+$ | $C_2H_5OCD_3$ (RN-CAS-Registry Number 16995-14-5) | CH_3 | 11.01 ± 0.1 | EI | 4071 |
| $C_2H_6O^+$ | C_2H_5OH (RN-CAS Registry Number 64-17-5) | ** | 10.62 (V) | PE | 3941 |
| $C_2H_6O^+$ | C_2H_5OH (RN-CAS-Registry Number 64-17-5) | ** | 10.64 (V) | PE | 4068 |
| $C_2H_6O^+(^2B_1)$ | $(CH_3)_2O$ (RN-CAS Registry Number 115-10-6) | ** | 10.04 (V) | PE | 3656 |
| $C_2H_6O^+$ | $(CH_3)_2O$ (RN-CAS Registry Number 115-10-6) | ** | 10.04 (V) | PE | 3844 |
| $C_2H_6O^+$ | $(CH_3)_2O$ (RN-CAS-Registry Number 115-10-6) | ** | 10.12 ± 0.2 | EI | 4071 |
| $C_2H_3D_3O^+$ | CH_3OCD_3 (RN-CAS-Registry Number 13725-27-4) | ** | 10.00 ± 0.1 | EI | 4071 |
| $C_3H_4O^+$ | $CH_2=CHCHO$ (RN-CAS Registry Number 107-02-8) | ** | 10.13 | PE | 3864 |
| $C_3H_4O^+$ | $CH_2=CHCHO$ (RN-CAS Registry Number 107-02-8) | ** | 11.07 (V) | PE | 3972 |
| $C_3H_6O^+$ | $(CH_3)_2CO$ (RN-CAS Registry Number 67-64-1) | ** | 9.71 ± 0.03 | PI | 3765 |
| $C_3H_6O^+$ | $(CH_3)_2CO$ (RN-CAS Registry Number 67-64-1) | ** | 9.72 | PE | 3649 |
| $C_3H_6O^+$ | $(CH_3)_2CO$ (RN-CAS Registry Number 67-64-1) | ** | 9.75 ± 0.025 | PE | 3626 |
| $C_3H_6O^+$ | $(CH_3)_2CO$ (RN-CAS Registry Number 67-64-1) | ** | 9.74 | EDD | 3485 |
| $C_3H_6O^+$ | $CH_2=CHCH_2OH$ (RN-CAS Registry Number 107-18-6) | ** | 9.63 | PE | 3864 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|---|--|----------------|---|--------|------|
| C ₃ H ₆ O ⁺ | CH ₂ =CHCH ₂ OH (RN-CAS Registry Number 107-18-6) | ** | 10.22 (V) | PE | 3863 |
| C ₃ H ₆ O ⁺ | CH ₂ =CHOCH ₃ (RN-CAS Registry Number 107-25-5) | ** | 8.95 | PE | 3863 |
| C ₃ H ₆ O ⁺ | C ₃ H ₆ O (Oxetane) (RN-CAS Registry Number 503-30-0) | ** | 9.63 | PE | 3980 |
| C ₃ D ₆ O ⁺ | (CD ₃) ₂ CO (RN-CAS Registry Number 666-52-4) | ** | 9.68 | PE | 3649 |
| C ₃ H ₇ O ⁺ | C ₂ H ₅ OCH ₃ (RN-CAS-Registry Number 540-67-0) | H | 10.32±0.1 | EI | 4071 |
| C ₃ H ₇ O ⁺ | <i>n</i> -C ₃ H ₇ OH (RN-CAS Registry Number 71-23-8) | H | 10.48±0.03 | EDD | 3626 |
| C ₃ H ₇ O ⁺ | <i>n</i> -C ₃ H ₇ OH (RN-CAS Registry Number 71-23-8) | H | 10.2 | EI | 3916 |
| C ₃ H ₄ D ₃ O ⁺ | C ₂ H ₅ OCD ₃ (RN-CAS-Registry Number 16995-14-5) | H | 10.22±0.1 | EI | 4071 |
| C ₃ H ₈ O ⁺ | C ₂ H ₅ OCH ₃ (RN-CAS-Registry Number 540-67-0) | ** | 9.62±0.1 | EI | 4071 |
| C ₃ H ₈ O ⁺ | <i>n</i> -C ₃ H ₇ OH (RN-CAS Registry Number 71-23-8) | ** | 10.15±0.025 | PE | 3626 |
| C ₃ H ₈ O ⁺ | <i>n</i> -C ₃ H ₇ OH (RN-CAS-Registry Number 71-23-8) | ** | 10.49 (V) | PE | 4068 |
| C ₃ H ₈ O ⁺ | <i>n</i> -C ₃ H ₇ OH (RN-CAS Registry Number 71-23-8) | ** | 10.51 (V) | PE | 3941 |
| C ₃ H ₈ O ⁺ | <i>n</i> -C ₃ H ₇ OH (RN-CAS Registry Number 71-23-8) | ** | 10.16±0.03 | EDD | 3626 |
| C ₃ H ₈ O ⁺ | <i>n</i> -C ₃ H ₇ OH (RN-CAS Registry Number 71-23-8) | ** | 10.0 | EI | 3916 |
| C ₃ H ₈ O ⁺ | <i>iso</i> -C ₃ H ₇ OH (RN-CAS-Registry Number 67-63-0) | ** | 10.36 (V) | PE | 4068 |
| C ₃ H ₈ O ⁺ | <i>iso</i> -C ₃ H ₇ OH (RN-CAS Registry Number 67-63-0) | ** | 10.42 (V) | PE | 3941 |
| C ₃ H ₅ D ₃ O ⁺ | C ₂ H ₅ OCD ₃ (RN-CAS-Registry Number 16995-14-5) | ** | 9.64±0.1 | EI | 4071 |
| C ₄ H ₄ O ⁺ | C ₄ H ₄ O (Furan) (RN-CAS-Registry Number 110-00-9) | ** | 8.91±0.01 | PI | 4058 |
| C ₄ H ₄ O ⁺ | C ₄ H ₄ O (Furan) (RN-CAS Registry Number 110-00-9) | ** | 8.99±0.05 | EI | 3482 |
| C ₄ H ₅ O ⁺ | C ₅ H ₈ NCOCH=CHCH ₃ (Pyridine, 1,2,3,4-tetrahydro-1-(1-oxo-2-butenyl)-, (E)) (RN-CAS Registry Number 50838-23-8) | | 13.0 | EI | 4046 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|----------------|--|----------------|---|--------|------|
| $C_4H_5O^+$ | $C_5H_{10}NCOCH=CHCH_3$ (Piperidine, 1-(1-oxo-2-butenyl)-, (E)) (RN-CAS Registry Number 50838-22-7) | ** | 14.6 | EI | 4046 |
| $C_4H_6O^+$ | $CH_2=CHCOCH_3$ (RN-CAS Registry Number 78-94-4) | ** | 10.60 (V) | PE | 3972 |
| $C_4H_6O^+$ | $CH_3CH=CHCHO$ (RN-CAS Registry Number 4170-30-3) | ** | 10.28 (V) | PE | 3972 |
| $C_4H_6O^+$ | C_4H_6O (Cyclobutanone) (RN-CAS Registry Number 1191-95-3) | ** | 9.61 ± 0.02 (V) | PE | 3517 |
| $C_4H_6O^+$ | C_4H_6O (Cyclobutanone) (RN-CAS Registry Number 1191-95-3) | ** | 9.58 ± 0.1 | EDD | 3794 |
| $C_4H_6O^+$ | C_4H_6O (Furan, 2,5-dihydro-) (RN-CAS Registry Number 1708-29-8) | ** | 9.14 ± 0.02 (V) | PE | 3843 |
| $C_4H_8O^+$ | $C_2H_5COCH_3$ (RN-CAS Registry Number 78-93-3) | ** | 9.54 ± 0.03 | PI | 3765 |
| $C_4H_8O^+$ | C_4H_8O (Furan, tetrahydro-) (RN-CAS Registry Number 109-99-9) | ** | 9.41 | S | 3749 |
| $C_4H_8O^+$ | (RS-Average of four Rydberg series limits) C_4H_8O (Furan, tetrahydro-) (RN-CAS Registry Number 109-99-9) | ** | 9.57 ± 0.02 (V) | PE | 3843 |
| $C_4H_{10}O^+$ | $n-C_4H_9OH$ (RN-CAS Registry Number 71-36-3) | ** | 10.37 (V) | PE | 4068 |
| $C_4H_{10}O^+$ | $tert-C_4H_9OH$ (RN-CAS Registry Number 75-65-0) | ** | 10.25 (V) | PE | 3941 |
| $C_5H_4O^+$ | $C_6H_4O_2$ (2,5-Cyclohexadiene-1,4-dione) (RN-CAS Registry Number 106-51-4) | CO | 11.10 ± 0.05 | PI | 3523 |
| $C_5H_6O^+$ | $C_4H_3OCH_3$ (Furan, 2-methyl-) (RN-CAS Registry Number 534-22-5) | ** | 8.47 ± 0.05 | EI | 3482 |
| $C_5H_8O^+$ | $CH_2=C(OCH_3)CH=CH_2$ (RN-CAS Registry Number 3588-30-5) | ** | 8.43 | PE | 3892 |
| $C_5H_8O^+$ | $trans-CH_3OCH=CHCH=CH_2$ (RN-CAS Registry Number 10034-09-0) | ** | 8.03 | PE | 3892 |
| $C_5H_8O^+$ | C_5H_8O (Cyclopentanone) (RN-CAS Registry Number 120-92-3) | ** | 9.42 ± 0.03 | PI | 3765 |
| $C_5H_8O^+$ | C_5H_8O (Cyclopentanone) (RN-CAS Registry Number 120-92-3) | ** | 9.25 ± 0.02 (V) | PE | 3517 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|---|---|-----------------|---|--------|------|
| C ₅ H ₉ O ⁺ | <i>n</i> -C ₄ H ₉ COCH ₃ (RN-CAS Registry Number 591-78-6) | CH ₃ | 9.4 | EI | 3916 |
| C ₅ H ₁₀ O ⁺ | <i>n</i> -C ₃ H ₇ COCH ₃ (RN-CAS Registry Number 107-87-9) | ** | 9.47±0.03 | PI | 3765 |
| C ₅ H ₁₀ O ⁺ | C ₅ H ₁₀ O (2 <i>H</i> -Pyran, tetrahydro-) (RN-CAS Registry Number 142-68-7) | ** | 9.48 (V) | PE | 4082 |
| C ₅ H ₁₀ O ⁺ | C ₅ H ₁₀ O (2 <i>H</i> -Pyran, tetrahydro-) (RN-CAS Registry Number 142-68-7) | ** | 9.50 (V) | PE | 3733 |
| C ₆ H ₄ O ⁺ | C ₆ H ₄ O (Methanone, 2,4-cyclopentadien-1-ylidene-) (RN-CAS Registry Number 4727-22-4) | ** | 8.95±0.1 | EI | 3552 |
| C ₆ H ₄ O ⁺ | C ₅ H ₄ =CO (Methanone, 2,4-cyclopentadien-1-ylidene-) (RN-CAS Registry Number 4727-22-4) | ** | 8.99±0.1 | EI | 3553 |
| C ₆ H ₅ O ⁺ | C ₆ H ₅ OCH ₃ (Benzene, methoxy-) (RN-CAS Registry Number 100-66-3) | CH ₃ | 11.3 | EI | 3916 |
| C ₆ H ₅ O ⁺ | C ₆ H ₅ OCH ₃ (Benzene, methoxy-) (RN-CAS Registry Number 100-66-3) | CH ₃ | 11.80±0.1 | EI | 3446 |
| C ₆ H ₅ O ⁺ | C ₆ H ₄ (OH)COOH (Benzoic acid, 3-hydroxy-) (RN-CAS Registry Number 99-06-9) | CO+OH | 14.42±0.2 | EI | 3973 |
| (MT-Metastable transition(s) observed) | | | | | |
| C ₆ H ₅ O ⁺ | C ₆ H ₄ (OH)COOH (Benzoic acid, 4-hydroxy-) (RN-CAS Registry Number 99-96-7) | CO+OH | 14.56±0.2 | EI | 3973 |
| (MT-Metastable transition(s) observed) | | | | | |
| C ₆ H ₅ O ⁺ | C ₆ H ₅ NO ₂ (Benzene, nitro-) (RN-CAS Registry Number 98-95-3) | NO | 10.35±0.1 | EI | 3447 |
| C ₆ H ₅ O ⁺ | C ₆ H ₄ (NO ₂)OH (Phenol, 4-nitro-) (RN-CAS Registry Number 100-02-7) | NO ₂ | 11.91±0.1 | EI | 3447 |
| C ₆ H ₆ O ⁺ | C ₆ H ₅ OH (Phenol) (RN-CAS Registry Number 108-95-2) | ** | 8.37 | PE | 3955 |
| C ₆ H ₆ O ⁺ | C ₆ H ₅ OH (Phenol) (RN-CAS Registry Number 108-95-2) | ** | 8.47±0.02 | PE | 3890 |
| C ₆ H ₆ O ⁺ | C ₆ H ₅ OH (Phenol) (RN-CAS Registry Number 108-95-2) | ** | 8.69 | EDD | 3485 |
| C ₆ H ₆ O ⁺ | C ₆ H ₅ OH (Phenol) (RN-CAS Registry Number 108-95-2) | ** | 8.50 | EI | 3845 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|----------------|---|----------------|---|--------|------|
| $C_6H_6O^+$ | C_6H_5OH (Phenol) (RN-CAS Registry Number 108-95-2) | ** | 9.09 ± 0.1 | EI | 3817 |
| $C_6H_6O^+$ | $C_6H_5OC_2H_5$ (Benzene, ethoxy-) (RN-CAS Registry Number 103-73-1) (MT-Metastable transition(s) observed) | C_2H_4 | 11.3 | EI | 3479 |
| $C_6H_6O^+$ | $C_7H_6O_2$ (2,4,6-Cycloheptatrien-1-one, 2-hydroxy-) (RN-CAS Registry Number 533-75-5) (MT-Metastable transition(s) observed) | CO | 10.8 | EI | 3479 |
| $C_6H_6O^+$ | $C_6H_4(OH)OCH_3$ (Phenol, 4-methoxy-) (RN-CAS Registry Number 150-76-5) | HCHO | 10.30 | EI | 3845 |
| $C_6H_6O^+$ | $C_6H_5OOCCH_3$ (Acetic acid, phenyl ester) (RN-CAS Registry Number 122-79-2) | $CH_2=C=O$ | 9.57 ± 0.03 | EI | 3483 |
| $C_6H_6O^+$ | $C_6H_5OOCCH_3$ (Acetic acid, phenyl ester) (RN-CAS Registry Number 122-79-2) | $CH_2=C=O$ | 9.89 ± 0.2 | EI | 3484 |
| $C_6H_8O^+$ | $C_4H_3OC_2H_5$ (Furan, 2-ethyl-) (RN-CAS Registry Number 3208-16-0) | ** | 8.45 ± 0.05 | EI | 3482 |
| $C_6H_8O^+$ | C_6H_8O (7-Oxabicyclo[2.2.1]hept-2-ene) (RN-CAS Registry Number 6705-50-6) | ** | 9.44 ± 0.02 (V) | PE | 3843 |
| $C_6H_{10}O^+$ | $C_6H_{10}O$ (Cyclohexanone) (RN-CAS Registry Number 108-94-1) | ** | 9.14 ± 0.03 | PI | 3765 |
| $C_6H_{10}O^+$ | $C_6H_{10}O$ (Cyclohexanone) (RN-CAS Registry Number 108-94-1) | ** | 9.14 ± 0.02 (V) | PE | 3517 |
| $C_6H_{10}O^+$ | $C_6H_{10}O$ (Cyclohexanone) (RN-CAS-Registry Number 108-94-1) | ** | 9.5 ± 0.2 | EI | 4074 |
| $C_6H_{10}O^+$ | $C_6H_{10}O$ (7-Oxabicyclo[2.2.1]heptane) (RN-CAS Registry Number 279-49-2) | ** | 9.57 ± 0.02 (V) | PE | 3843 |
| $C_6H_{12}O^+$ | $(CH_3)_3CCOH_3$ (RN-CAS Registry Number 75-97-8) | ** | 8.88 ± 0.04 | PE | 3851 |
| $C_6H_{12}O^+$ | $(CH_3)_3CCOCH_3$ (RN-CAS Registry Number 75-97-8) | ** | 9.18 ± 0.03 | PI | 3765 |
| $C_6H_{12}O^+$ | $n-C_4H_9COCH_3$ (RN-CAS Registry Number 591-78-6) | ** | 9.44 ± 0.03 | PI | 3765 |
| $C_6H_{12}O^+$ | $n-C_4H_9COCH_3$ (RN-CAS Registry Number 591-78-6) | ** | 9.2 | EI | 3916 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|-------------|---|----------------|---|--------|------|
| $C_7H_5O^+$ | C_6H_5CHO (Benzaldehyde) (RN-CAS Registry Number 100-52-7) | H | 11.26 | EI | 3792 |
| $C_7H_5O^+$ | $C_6H_5COCH_3$ (Ethanone, 1-phenyl-) (RN-CAS Registry Number 98-86-2) | CH_3 | 9.6 | EI | 3916 |
| $C_7H_5O^+$ | $C_6H_5COCH_3$ (Ethanone, 1-phenyl-) (RN-CAS Registry Number 98-86-2) (TR-Other product(s) thermochemically reasonable) | CH_3 | 10.38 | EI | 3792 |
| $C_7H_5O^+$ | $(C_6H_5)_2CO$ (Methanone, diphenyl-) (RN-CAS Registry Number 119-61-9) (TR-Other product(s) thermochemically reasonable) | C_6H_5 | 11.72 | EI | 3792 |
| $C_7H_5O^+$ | C_6H_5COOH (Benzoic acid) (RN-CAS Registry Number 65-85-0) | OH | 12.11 ± 0.2 | EI | 3973 |
| $C_7H_5O^+$ | C_6H_5COOH (Benzoic acid) (RN-CAS Registry Number 65-85-0) (TR-Other product(s) thermochemically reasonable) | OH | 12.11 | EI | 3792 |
| $C_7H_5O^+$ | $C_6H_5COOCH_3$ (Benzoic acid methyl ester) (RN-CAS Registry Number 93-58-3) (TR-Other product(s) thermochemically reasonable) | CH_3O | 11.40 | EI | 3792 |
| $C_7H_5O^+$ | $C_6H_5COOC_6H_5$ (Benzoic acid phenyl ester) (RN-CAS Registry Number 93-99-2) | | 10.0 | EI | 3897 |
| $C_7H_5O^+$ | $C_6H_5COOC_6H_4OCH_3$ (Phenol, 4-methoxy-, benzoate) (RN-CAS Registry Number 1523-19-9) | | 10.6 | EI | 3897 |
| $C_7H_5O^+$ | $C_6H_5CONH_2$ (Benzamide) (RN-CAS Registry Number 55-21-0) (TR-Other product(s) thermochemically reasonable) | NH_2 | 11.09 | EI | 3792 |
| $C_7H_5O^+$ | $C_5H_8NCOC_6H_5$ (Pyridine, 1-benzoyl-1,2,3,4-tetrahydro-) (RN-CAS Registry Number 50838-24-9) | | 12.4 | EI | 4046 |
| $C_7H_5O^+$ | $C_5H_{10}NCOC_6H_5$ (Piperidine, 1-benzoyl-) (RN-CAS Registry Number 776-75-0) | | 14.4 | EI | 4046 |
| $C_7H_5O^+$ | $C_6H_5COOC_6H_4NO_2$ (Benzoic acid 4-nitro phenyl ester) (RN-CAS Registry Number 959-22-8) | | 10.2 | EI | 3897 |
| $C_7H_5O^+$ | C_6H_5COCl (Benzoyl chloride) (RN-CAS Registry Number 98-88-4) (TR-Other product(s) thermochemically reasonable) | Cl | 10.31 | EI | 3792 |
| $C_7H_6O^+$ | C_6H_5CHO (Benzaldehyde) (RN-CAS-Registry Number 100-52-7) | ** | 9.50 ± 0.02 | PI | 4057 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|--|---|----------------|---|--------|------|
| $C_7H_6O^+$ | C_6H_5CHO (Benzaldehyde) (RN-CAS Registry Number 100-52-7) | ** | 9.50 ± 0.02 | PI | 4031 |
| $C_7H_6O^+$ | C_7H_6O (Benzaldehyde) (RN-CAS Registry Number 100-52-7) | ** | 9.6 | PI | 3586 |
| $C_7H_6O^+$ | C_6H_5CHO (Benzaldehyde) (RN-CAS Registry Number 100-52-7) | ** | 9.40 | PE | 3938 |
| $C_7H_6O^+$ | C_6H_5CHO (Benzaldehyde) (RN-CAS Registry Number 100-52-7) | ** | 9.74 | EI | 3792 |
| $C_7H_6O^+$ | $C_6H_5CH_2C_6H_4OH$ (Phenol, 4-(phenylmethyl)-) (RN-CAS Registry Number 101-53-1) | C_6H_5 | 11.1 ± 0.2 | EI | 3807 |
| $C_7H_7O^+$ | $C_6H_4(OCH_3)CH_3$ (Benzene, 1-methoxy-3-methyl-) (RN-CAS Registry Number 100-84-5) | CH_3 | 11.60 ± 0.1 | EI | 3446 |
| $C_7H_7O^+$ | $C_6H_4(OCH_3)CH_3$ (Benzene, 1-methoxy-4-methyl-) (RN-CAS Registry Number 104-93-8) | CH_3 | 11.45 ± 0.1 | EI | 3446 |
| $C_7H_7O^+$ | $C_6H_4(OH)C_4H_9$ (Phenol, 3-butyl-) (RN-CAS Registry Number 4074-43-5) | | 12.79 ± 0.1 | EI | 3629 |
| $C_7H_7O^+$ | $C_6H_4(OH)C_4H_9$ (Phenol, 4-butyl-) (RN-CAS Registry Number 1638-22-8) | | 11.45 ± 0.1 | EI | 3629 |
| $C_7H_7O^+$ | $C_6H_4(CH_3)OOCCH_3$ (Acetic acid, 2-methylphenyl ester) (RN-CAS Registry Number 533-18-6) | CH_3CO | 13.16 ± 0.02 | EI | 3631 |
| $C_7H_7O^+$ | $C_6H_4(CH_3)OOCCH_3$ (Acetic acid, 4-methylphenyl ester) (RN-CAS Registry Number 140-39-6) | CH_3CO | 13.47 ± 0.02 | EI | 3631 |
| $C_7H_7O^+$ | $C_6H_4(OCH_3)COOH$ (Benzoic acid, 3-methoxy-) (RN-CAS Registry Number 586-38-9) | $COOH$ | 13.07 ± 0.2 | EI | 3973 |
| (MT-Metastable transition(s) observed) | | | | | |
| $C_7H_7O^+$ | $C_6H_4(OCH_3)COOH$ (Benzoic acid, 4-methoxy-) (RN-CAS Registry Number 100-09-4) | $COOH$ | 12.80 ± 0.2 | EI | 3973 |
| (MT-Metastable transition(s) observed) | | | | | |
| $C_7H_7O^+$ | $C_6H_4(NO_2)CH_3$ (Benzene, 1-methyl-3-nitro-) (RN-CAS Registry Number 99-08-1) | NO | 9.98 ± 0.1 | EI | 3447 |
| $C_7H_7O^+$ | $C_6H_4(NO_2)CH_3$ (Benzene, 1-methyl-4-nitro-) (RN-CAS Registry Number 99-99-0) | NO | 10.34 ± 0.1 | EI | 3447 |
| $C_7H_7O^+$ | $C_6H_4(NO_2)OCH_3$ (Benzene, 1-methoxy-3-nitro-) (RN-CAS Registry Number 555-03-3) | NO_2 | 11.44 ± 0.1 | EI | 3447 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|----------------------------|---|----------------|---|--------|------|
| $C_7H_7O^+$ | $C_6H_4(NO_2)OCH_3$ (Benzene, 1-methoxy-4-nitro-) (RN-CAS Registry Number 100-17-4) | NO_2 | 11.63 ± 0.1 | EI | 3447 |
| $C_7H_8O^+$ | $C_6H_5CH_2OH$ (Benzenemethanol) (RN-CAS Registry Number 100-51-6) | ** | 9.00 ± 0.1 | EI | 3788 |
| $C_7H_8O^+$ | $C_6H_5OCH_3$ (Benzene, methoxy-) (RN-CAS Registry Number 100-66-3) | ** | 8.20 ± 0.02 | PE | 3890 |
| $C_7H_8O^+$ | $C_6H_5OCH_3$ (Benzene, methoxy-) (RN-CAS Registry Number 100-66-3) | ** | 8.42 (V) | PE | 3781 |
| $C_7H_8O^+$ | $C_6H_5OCH_3$ (Benzene, methoxy-) (RN-CAS Registry Number 100-66-3) | ** | 8.20 | EI | 3845 |
| $C_7H_8O^+$ | $C_6H_5OCH_3$ (Benzene, methoxy-) (RN-CAS Registry Number 100-66-3) | ** | 8.20 | EI | 3845 |
| $C_7H_8O^+$ | $C_6H_5OCH_3$ (Benzene, methoxy-) (RN-CAS Registry Number 100-66-3) | ** | 8.25 ± 0.1 | EI | 3788 |
| $C_7H_8O^+$ | $C_6H_5OCH_3$ (Benzene, methoxy-) (RN-CAS Registry Number 100-66-3) | ** | 8.39 ± 0.1 | EI | 3446 |
| $C_7H_8O^+$ | $C_6H_5OCH_3$ (Benzene, methoxy-) (RN-CAS Registry Number 100-66-3) | ** | 8.6 | EI | 3916 |
| $C_7H_8O^+$ | $C_6H_5OCH_3$ (Benzene, methoxy-) (RN-CAS Registry Number 100-66-3) | ** | 8.6 | EI | 3479 |
| $C_7H_8O^+$ | $C_6H_5OCH_3$ (Benzene, methoxy-) (RN-CAS Registry Number 100-66-3) | ** | $8.76 \pm < 0.1$ | EI | 3735 |
| $C_7H_8O^+$ | $C_6H_5OCH_3$ (Benzene, methoxy-) (RN-CAS Registry Number 100-66-3) | ** | 8.18 | CTS | 3758 |
| $C_7H_8O^+$ | $C_6H_5OCH_3$ (Benzene, methoxy-) (RN-CAS Registry Number 100-66-3) | ** | 8.37 | CTS | 4029 |
| (AV—Average of two values) | $C_6H_4(OH)CH_3$ (Phenol, 2-methyl-) (RN-CAS Registry Number 95-48-7) | ** | 8.24 ± 0.02 | PE | 3890 |
| $C_7H_8O^+$ | $C_6H_4(OH)CH_3$ (Phenol, 4-methyl-) (RN-CAS Registry Number 106-44-5) | ** | 8.34 | EI | 4089 |
| $C_7H_8O^+$ | $C_6H_4(OH)C_4H_9$ (Phenol, 3-butyl-) (RN-CAS Registry Number 4074-43-5) | $CH_2=CHCH_3$ | 11.07 ± 0.1 | EI | 3629 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|----------------|---|----------------|---|--------|------|
| $C_7H_8O^+$ | $C_6H_4(OH)C_4H_9$ (Phenol, 4-butyl-) (RN-CAS Registry Number 1638-22-8) | $CH_2=CHCH_3$ | 10.32 ± 0.1 | EI | 3629 |
| $C_7H_8O^+$ | $C_6H_4(OCH_3)_2$ (Benzene, 1,3-dimethoxy-) (RN-CAS Registry Number 151-10-0) | CH_2O | 10.98 ± 0.1 | EI | 3446 |
| $C_7H_8O^+$ | $C_6H_4(OCH_3)_2$ (Benzene, 1,4-dimethoxy-) (RN-CAS Registry Number 150-78-7) | HCHO | 11.00 | EI | 3845 |
| $C_7H_8O^+$ | $C_6H_4(CH_3)OOCCH_3$ (Acetic acid, 2-methylphenyl ester) (RN-CAS Registry Number 533-18-6) | $CH_2=C=O$ | 9.44 ± 0.02 | EI | 3631 |
| $C_7H_8O^+$ | $C_6H_4(CH_3)OOCCH_3$ (Acetic acid, 3-methylphenyl ester) (RN-CAS Registry Number 122-46-3) | $CH_2=C=O$ | 10.03 ± 0.2 | EI | 3484 |
| $C_7H_8O^+$ | $C_6H_4(CH_3)OOCCH_3$ (Acetic acid, 4-methylphenyl ester) (RN-CAS Registry Number 140-39-6) | $CH_2=C=O$ | 9.26 ± 0.02 | EI | 3631 |
| $C_7H_8O^+$ | $C_6H_4(CH_3)OOCCH_3$ (Acetic acid, 4-methylphenyl ester) (RN-CAS Registry Number 140-39-6) | $CH_2=C=O$ | 9.75 ± 0.2 | EI | 3484 |
| $C_7H_8O^+$ | $C_6H_5OOCOCH_3$ (Carbonic acid, methyl phenyl ester) (RN-CAS Registry Number 13509-27-8) | CO_2 | 10.3 | EI | 3479 |
| | (MT-Metastable transition(s) observed) | | | | |
| $C_7H_8O^+$ | $C_6H_5CH_2OHCr(CO)_3$ (Chromium, [(1,2,3,4,5,6- η)-benzenemethanol]tricarboxyl-) (RN-CAS Registry Number 12116-45-9) | | 9.40 ± 0.1 | EI | 3788 |
| $C_7H_8O^+$ | $C_6H_5OCH_3Cr(CO)_3$ (Chromium, tricarboxyl[(1,2,3,4,5,6- η)-methoxybenzene]-) (RN-CAS Registry Number 12116-44-8) | | 8.45 ± 0.1 | EI | 3788 |
| $C_7H_{12}O^+$ | $C_7H_{12}O$ (Cycloheptanone) (RN-CAS Registry Number 502-42-1) | ** | 9.17 ± 0.02 (V) | PE | 3517 |
| $C_7H_{12}O^+$ | $C_6H_9(=O)CH_3$ (Cyclohexanone, 2-methyl-) (RN-CAS-Registry Number 583-60-8) | ** | 9.5 ± 0.2 | EI | 4074 |
| $C_7H_{14}O^+$ | $(n-C_3H_7)_2CO$ (RN-CAS Registry Number 123-19-3) | ** | 9.12 ± 0.03 | PI | 3765 |
| $C_7H_{14}O^+$ | $C_6H_{10}(OH)CH_3$ (Cyclohexanol, 1-methyl-) (RN-CAS-Registry Number 590-67-0) | ** | 9.8 ± 0.2 | EI | 4074 |
| $C_8H_7O^+$ | $C_6H_4(CH_3)COOH$ (Benzoic acid, 3-methyl-) (RN-CAS Registry Number 99-04-7) | OH | 12.38 ± 0.2 | EI | 3973 |
| $C_8H_7O^+$ | $C_6H_4(CH_3)COOH$ (Benzoic acid, 4-methyl-) (RN-CAS Registry Number 99-94-5) | OH | 12.07 ± 0.2 | EI | 3973 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|---|---|----------------|---|--------|------|
| $C_8H_7O^+$ | $C_6H_5COCOC_6H_4CH_3$ (Ethanedione, (4-methylphenyl)phenyl-) (RN-CAS Registry Number 2431-00-7) | C_6H_5CO | 9.84 ± 0.10 | SD | 3823 |
| (TR-Other product(s) thermochemically reasonable) | | | | | |
| $C_8H_8O^+$ | $C_6H_5CH_2CHO$ (Benzeneacetaldehyde) (RN-CAS Registry Number 122-78-1) | ** | 8.80 | PE | 3938 |
| $C_8H_8O^+$ | $C_6H_5COCH_3$ (Ethanone, 1-phenyl-) (RN-CAS Registry Number 98-86-2) | ** | 9.29 ± 0.2 | PI | 4031 |
| $C_8H_8O^+$ | $C_6H_5COCH_3$ (Ethanone, 1-phenyl-) (RN-CAS-Registry Number 98-86-2) | ** | 9.29 ± 0.2 | PI | 4057 |
| $C_8H_8O^+$ | C_6H_5CO (Ethanone, 1-phenyl-) (RN-CAS Registry Number 98-86-2) | ** | 9.6 | PI | 3586 |
| $C_8H_8O^+$ | $C_6H_5COCH_3$ (Ethanone, 1-phenyl-) (RN-CAS Registry Number 98-86-2) | ** | 9.1 | EI | 3916 |
| $C_8H_8O^+$ | $C_6H_5COCH_3$ (Ethanone, 1-phenyl-) (RN-CAS Registry Number 98-86-2) | ** | 9.50 | EI | 3792 |
| $C_8H_9O^+$ | $C_6H_4(OCH_3)C_4H_9$ (Benzene, 1-butyl-3-methoxy-) (RN-CAS Registry Number 20893-43-0) | | 12.04 ± 0.1 | EI | 3629 |
| $C_8H_9O^+$ | $C_6H_4(OCH_3)C_4H_9$ (Benzene, 1-butyl-4-methoxy-) (RN-CAS Registry Number 18272-84-9) | | 10.79 ± 0.1 | EI | 3629 |
| $C_8H_9O^+$ | $C_6H_5CH_2C_6H_4OCH_3$ (Benzene, 1-methoxy-4-(phenylmethyl)-) (RN-CAS Registry Number 834-14-0) | C_6H_5 | 11.9 ± 0.1 | EI | 3807 |
| $C_8H_9O^+$ | $C_6H_4(OCH_3)CH_2CH_2OCOCH_3$ (Phenethyl alcohol, <i>m</i> -methoxy-, acetate) (RN-CAS Registry Number 33709-39-6) | | 12.10 | EI | 3590 |
| $C_8H_9O^+$ | $C_6H_4(OCH_3)CH_2CH_2OCOCH_3$ (Phenethyl alcohol, <i>p</i> -methoxy-, acetate) (RN-CAS Registry Number 22532-51-0) | | 11.50 | EI | 3590 |
| $C_8H_{10}O^+$ | $C_6H_5OC_2H_5$ (Benzene, ethoxy-) (RN-CAS Registry Number 103-73-1) | ** | 8.6 | EI | 3479 |
| $C_8H_{10}O^+$ | $C_6H_5CH_2OCH_3$ (Benzene, (methoxymethyl)-) (RN-CAS Registry Number 538-86-3) | ** | 9.12 (V) | PE | 3781 |
| $C_8H_{10}O^+$ | $C_6H_4(OCH_3)CH_3$ (Benzene, 1-methoxy-2-methyl-) (RN-CAS Registry Number 578-58-5) | ** | 8.03 ± 0.02 | PE | 3890 |
| $C_8H_{10}O^+$ | $C_6H_4(OCH_3)CH_3$ (Benzene, 1-methoxy-3-methyl-) (RN-CAS Registry Number 100-84-5) | ** | 8.35 ± 0.1 | EI | 3446 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|--|---|----------------|---|--------|------|
| $C_8H_{10}O^+$ | $C_6H_4(OCH_3)CH_3$ (Benzene, 1-methoxy-4-methyl-) (RN-CAS Registry Number 104-93-8) | ** | 7.85 | EI | 3845 |
| $C_8H_{10}O^+$ | $C_6H_4(OCH_3)CH_3$ (Benzene, 1-methoxy-4-methyl-) (RN-CAS Registry Number 104-93-8) | ** | 8.33 ± 0.1 | EI | 3446 |
| $C_8H_{10}O^+$ | $C_6H_4(OCH_3)CH_3$ (Benzene, 1-methoxy-4-methyl-) (RN-CAS Registry Number 104-93-8) | ** | 7.91 | CTS | 3758 |
| $C_8H_{10}O^+$ | $C_6H_3(CH_3)_2OH$ (Phenol, 2,6-dimethyl-) (RN-CAS Registry Number 576-26-1) | ** | 8.05 ± 0.02 | PE | 3890 |
| $C_8H_{10}O^+$ | $C_8H_{10}O$ (Tricyclo[3.2.1.0 ^{2,4}]octan-8-one, (1 α ,2 α ,4 α ,5 α -)) (RN-CAS Registry Number 14224-86-3) (ON-Other name: Tricyclo[3.2.1.0 ^{2,4}]octan-8-one, <i>endo</i> -) | ** | 8.8 ± 0.1 | EI | 3492 |
| $C_8H_{10}O^+$ | $C_8H_{10}O$ (Tricyclo[3.2.1.0 ^{2,4}]octan-8-one, <i>exo</i> -) (RN-CAS Registry Number 7076-83-7) | ** | 9.2 ± 0.1 | EI | 3492 |
| $C_8H_{10}O^+$ | $C_6H_4(OCH_3)C_4H_9$ (Benzene, 1-butyl-3-methoxy-) (RN-CAS Registry Number 20893-43-0) | $CH_2=CHCH_3$ | 10.52 ± 0.1 | EI | 3629 |
| $C_8H_{10}O^+$ | $C_6H_4(OCH_3)C_4H_9$ (Benzene, 1-butyl-4-methoxy-) (RN-CAS Registry Number 18272-84-9) | $CH_2=CHCH_3$ | 10.38 ± 0.1 | EI | 3629 |
| $C_8H_{10}O^+$ | $C_6H_5OOCOC_2H_5$ (Carbonic acid, ethyl phenyl ester) (RN-CAS Registry Number 3878-46-4) | CO_2 | 10.0 | EI | 3479 |
| (MT-Metastable transition(s) observed) | | | | | |
| $C_8H_{12}O^+$ | $C_8H_{11}OH$ (Tricyclo[3.2.1.0 ^{2,4}]octan-8-ol, <i>endo-syn</i> -) (RN-CAS Registry Number 7076-81-5) | ** | 8.8 ± 0.1 | EI | 3492 |
| $C_8H_{12}O^+$ | $C_8H_{11}OH$ (Tricyclo[3.2.1.0 ^{2,4}]octan-8-ol, <i>endo-anti</i> -) (RN-CAS Registry Number 16384-97-7) | ** | 9.1 ± 0.1 | EI | 3492 |
| $C_8H_{12}O^+$ | $C_8H_{11}OH$ (Tricyclo[3.2.1.0 ^{2,4}]octan-8-ol, <i>exo-syn</i> -) (RN-CAS Registry Number 7076-80-4) | ** | 9.1 ± 0.1 | EI | 3492 |
| $C_8H_{12}O^+$ | $C_8H_{11}OH$ (Tricyclo[3.2.1.0 ^{2,4}]octan-8-ol, <i>exo-anti</i> -) | ** | 9.3 ± 0.1 | EI | 3492 |
| $C_8H_{14}O^+$ | $C_8H_{14}O$ (Cyclooctanone) (RN-CAS Registry Number 502-49-8) | ** | 9.09 ± 0.02 (V) | PE | 3517 |
| $C_8H_{16}O^+$ | $n-C_6H_{13}COCH_3$ (RN-CAS Registry Number 111-13-7) | ** | 9.40 ± 0.03 | PI | 3765 |
| $C_8H_{16}O^+$ | $n-C_4H_9COCH_2CH_2CH_3$ (RN-CAS Registry Number 589-63-9) | ** | 9.10 ± 0.05 | PI | 3765 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|--------------------|---|----------------|---|--------|------|
| $C_9H_9O^+$ | $C_6H_2(CH_3)_2(CH_2D)CHO$ (Benzaldehyde, 2,4-dimethyl-5-(methyl- <i>d</i> -)-) (RN-CAS Registry Number 38479-87-7) | CH_2D | 12.3 ± 0.1 | EI | 4041 |
| $C_9H_9O^+$ | $C_6H_2(CH_3)_2(CH_2D)CHO$ (Benzaldehyde, 2,5-dimethyl-4-(methyl- <i>d</i> -)-) (RN-CAS Registry Number 38479-86-6) | CH_2D | 11.4 ± 0.1 | EI | 4041 |
| $C_9H_8DO^+$ | $C_6H_2(CH_3)_2(CH_2D)CHO$ (Benzaldehyde, 2,4-dimethyl-5-(methyl- <i>d</i> -)-) (RN-CAS Registry Number 38479-87-7) | CH_3 | 11.5 ± 0.1 | EI | 4041 |
| $C_9H_8DO^+$ | $C_6H_2(CH_3)_2(CH_2D)CHO$ (Benzaldehyde, 2,5-dimethyl-4-(methyl- <i>d</i> -)-) (RN-CAS Registry Number 38479-86-6) | CH_3 | 11.4 ± 0.1 | EI | 4041 |
| $C_9H_{10}O^+$ | $C_6H_4(OCH_3)CH_2CH_2OCOCH_3$ (Phenethyl alcohol, <i>m</i> -methoxy-, acetate) (RN-CAS Registry Number 33709-39-6) | | 8.40 | EI | 3590 |
| $C_9H_{10}O^+$ | $C_6H_4(OCH_3)CH_2CH_2OCOCH_3$ (Phenethyl alcohol, <i>p</i> -methoxy-, acetate) (RN-CAS Registry Number 22532-51-0) | | 8.25 | EI | 3590 |
| $C_9H_{12}O^+$ | $C_6H_3(CH_3)_2OCH_3$ (Benzene, 2-methoxy-1,3-dimethyl-) (RN-CAS Registry Number 1004-66-6) | ** | 8.10 ± 0.02 | PE | 3890 |
| $C_9H_{12}O^+$ | $C_{10}H_{12}O_2$ (2,5-Cyclohexadiene-1,4-dione, 2,3,5,6-tetramethyl-) (RN-CAS Registry Number 527-17-3) | CO | 10.1 ± 0.05 | PI | 3523 |
| $C_9H_{18}O^+$ | $((CH_3)_3C)_2CO$ (RN-CAS Registry Number 815-24-7) | ** | 8.65 ± 0.03 | PI | 3765 |
| $C_9H_{18}O^+$ | $(iso-C_4H_9)_2CO$ (RN-CAS Registry Number 108-83-8) | ** | 9.04 ± 0.03 | PI | 3765 |
| $C_{10}H_{11}DO^+$ | $C_6H_2(CH_3)_2(CH_2D)CHO$ (Benzaldehyde, 2,4-dimethyl-5-(methyl- <i>d</i> -)-) (RN-CAS Registry Number 38479-87-7) | ** | 8.7 ± 0.1 | EI | 4041 |
| $C_{10}H_{11}DO^+$ | $C_6H_2(CH_3)_2(CH_2D)CHO$ (Benzaldehyde, 2,5-dimethyl-4-(methyl- <i>d</i> -)-) (RN-CAS Registry Number 38479-86-6) | ** | 8.7 ± 0.1 | EI | 4041 |
| $C_{10}H_{14}O^+$ | $C_6H_4(OH)C_4H_9$ (Phenol, 3-butyl-) (RN-CAS Registry Number 4074-43-5) | ** | 8.92 ± 0.1 | EI | 3629 |
| $C_{10}H_{14}O^+$ | $C_6H_4(OH)C_4H_9$ (Phenol, 4-butyl-) (RN-CAS Registry Number 1638-22-8) | ** | 8.67 ± 0.1 | EI | 3629 |
| $C_{10}H_{14}O^+$ | $C_6H_4(OH)C_4H_9$ (Phenol, 2-(1,1-dimethylethyl-)) (RN-CAS Registry Number 88-18-6) | ** | 8.10 ± 0.02 | PE | 3890 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|--------------------|--|----------------|---|--------|------|
| $C_{10}H_{14}O^+$ | $C_{10}H_{14}O$ (Tricyclo[3.3.1.1 ^{3,7}]decan-2-one) (RN-CAS Registry Number 700-58-3) (ON-Other name: Adamantanone) | ** | 8.59 | PE | 3886 |
| $C_{10}H_{16}O^+$ | $C_{10}H_{16}O$ (Bicyclo[2,2,1]heptan-2-one, 1,7,7-trimethyl-) (RN-CAS Registry Number 76-22-2) | ** | 8.76 ± 0.03 | PI | 3765 |
| $C_{10}H_{16}O^+$ | $C_{10}H_{15}OH$ (Tricyclo[3.3.1.1 ^{3,7}]decan-1-ol) (RN-CAS Registry Number 768-95-6) (ON-Other name: 1-Adamantanol) | ** | 9.09 ± 0.05 | PE | 3886 |
| $C_{10}H_{16}O^+$ | $C_{10}H_{15}OH$ (Tricyclo[3.3.1.1 ^{3,7}]decan-2-ol) (RN-CAS Registry Number 700-57-2) (ON-Other name: 2-Adamantanol) | ** | 9.09 ± 0.07 | PE | 3886 |
| $C_{11}H_{10}O^+$ | $C_{10}H_7OCH_3$ (Naphthalene, 1-methoxy-) (RN-CAS Registry Number 2216-69-5) | ** | 7.72 (V) | PE | 3781 |
| $C_{11}H_{10}O^+$ | $C_{10}H_7OCH_3$ (Naphthalene, 2-methoxy-) (RN-CAS Registry Number 93-04-9) | ** | 7.87 (V) | PE | 3781 |
| $C_{11}H_{12}O^+$ | $C_{20}H_{26}O_2$ (<i>D</i> -Homoestra-1,3,5(10)-trien-17a-one, 3-methoxy-) (RN-CAS Registry Number 1232-89-9) | | 11.46 ± 0.05 | EI | 3571 |
| $C_{11}H_{12}O^+$ | $C_{20}H_{26}O_2$ (<i>D</i> -Homoestra-1,3,5(10)-trien-17a-one, 3-methoxy-, (8 α -)) (RN-CAS Registry Number 1232-88-8) | | 11.20 ± 0.05 | EI | 3571 |
| $C_{11}H_{13}O^+$ | $C_6(CH_3)_4(CH_2D)CHO$ (Benzaldehyde, 2,3,5,6-tetramethyl-4-(methyl- <i>d</i> -)) (RN-CAS Registry Number 43022-36-2) | CH_2D | 11.2 ± 0.1 | EI | 4041 |
| $C_{11}H_{12}DO^+$ | $C_6(CH_3)_4(CH_2D)CHO$ (Benzaldehyde, 2,3,5,6-tetramethyl-4-(methyl- <i>d</i> -)) (RN-CAS Registry Number 43022-36-2) | CH_3 | 11.2 ± 0.1 | EI | 4041 |
| $C_{11}H_{16}O^+$ | $C_6H_4(OCH_3)C_4H_9$ (Benzene, 1-butyl-3-methoxy-) (RN-CAS Registry Number 20893-43-0) | ** | 8.17 ± 0.1 | EI | 3629 |
| $C_{11}H_{16}O^+$ | $C_6H_4(OCH_3)C_4H_9$ (Benzene, 1-butyl-4-methoxy-) (RN-CAS Registry Number 18272-84-9) | ** | 8.24 ± 0.1 | EI | 3629 |
| $C_{11}H_{16}O^+$ | $C_{10}H_{13}(=O)CH_3$ (2(3 <i>H</i>)-Naphthalenone, 4,4a,5,6,7,8-hexahydro-4a-methyl-) (RN-CAS Registry Number 826-56-2) | ** | 9.6 ± 0.2 | EI | 4074 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|--------------------|---|----------------|---|--------|------|
| $C_{12}H_{10}O^+$ | $C_6H_5C_6H_4OH$ ([1,1'-Biphenyl]-2-ol) (RN-CAS Registry Number 90-43-7) | ** | 7.80 ± 0.02 | PE | 3702 |
| $C_{12}H_{15}DO^+$ | $C_6(CH_3)_4(CH_2D)CHO$ (Benzaldehyde, 2,3,5,6-tetramethyl-4-(methyl- <i>d</i> -)) (RN-CAS Registry Number 43022-36-2) | ** | 8.3 ± 0.1 | EI | 4041 |
| $C_{12}H_{18}O^+$ | $C_{10}H_{15}COCH_3$ (Ethanone, 1-tricyclo[3.3.1.1 ^{3,7}]dec-1-yl-) (RN-CAS Registry Number 1660-04-4) (ON-Other name: 1-Acetyladamantane) | ** | 8.82 ± 0.05 | PE | 3851 |
| $C_{13}H_8O^+$ | $C_{13}H_8O$ (9 <i>H</i> -Fluoren-9-one) (RN-CAS Registry Number 486-25-9) | ** | 8.36 ± 0.02 | PI | 3523 |
| $C_{13}H_{10}O^+$ | $(C_6H_5)_2CO$ (Methanone, diphenyl-) (RN-CAS-Registry Number 119-61-9) | ** | 9.14 ± 0.03 | PI | 4057 |
| $C_{13}H_{10}O^+$ | $(C_6H_5)_2CO$ (Methanone, diphenyl-) (RN-CAS Registry Number 119-61-9) | ** | 9.14 ± 0.03 | PI | 4031 |
| $C_{13}H_{10}O^+$ | $(C_6H_5)_2CO$ (Methanone, diphenyl-) (RN-CAS Registry Number 119-61-9) | ** | 9.4 | PI | 3586 |
| $C_{13}H_{10}O^+$ | $(C_6H_5)_2CO$ (Methanone, diphenyl-) (RN-CAS Registry Number 119-61-9) | ** | 9.46 | EI | 3792 |
| $C_{13}H_{11}O^+$ | $C_6H_5CH_2C_6H_4OCH_3$ (Benzene, 1-methoxy-4-(phenylmethyl)-) (RN-CAS Registry Number 834-14-0) | CH_3 | 11.9 ± 0.1 | EI | 3807 |
| $C_{13}H_{12}O^+$ | $C_6H_5CH_2C_6H_4OH$ (Phenol, 4-(phenylmethyl)-) (RN-CAS Registry Number 101-53-1) | ** | 8.45 ± 0.05 | EI | 3806 |
| $C_{14}H_{10}O^+$ | $C_{14}H_{10}O$ (9(10 <i>H</i>)-Anthracenone) (RN-CAS Registry Number 90-44-8) | ** | 8.83 ± 0.03 | PI | 3523 |
| $C_{14}H_{14}O^+$ | $C_6H_5CH_2C_6H_4OCH_3$ (Benzene, 1-methoxy-4-(phenylmethyl)-) (RN-CAS Registry Number 834-14-0) | ** | 8.20 ± 0.05 | EI | 3806 |
| $C_{14}H_{22}O^+$ | $C_6H_3(C_4H_9)_2OH$ (Phenol, 2,6-bis(1,1-dimethylethyl)-) (RN-CAS Registry Number 128-39-2) | ** | 7.70 ± 0.02 | PE | 3890 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|-------------------|---|----------------|---|--------|------|
| $C_{14}H_{22}O^+$ | $C_6H_3(C_4H_9)_2OH$ (Phenol, 3,5-bis(1,1-dimethylethyl-) (RN-CAS Registry Number 1138-52-9) | ** | 7.90 ± 0.02 | PE | 3890 |
| $C_{15}H_{15}O^+$ | $C_{20}H_{22}O_2$ (<i>D</i> -Homoestra-1,3,5(10),6,8-pentaen-17a-one, 3-methoxy-) (RN-CAS Registry Number 1232-90-2) | | 11.46 ± 0.05 | EI | 3571 |
| $C_{15}H_{15}O^+$ | $C_{20}H_{22}O_2$ (<i>D</i> -Homoestra-1,3,5(10),6,8-pentaen-17a-one, 3-methoxy-, (14 β)-) (RN-CAS Registry Number 1232-91-3) | | 10.84 ± 0.09 | EI | 3571 |
| $C_{16}H_{10}O^+$ | $C_{16}H_{10}O$ (4,6-Ethenodibenz[<i>b,f</i>]oxepine, (<i>Z,Z</i>)-) (RN-CAS Registry Number 42073-03-0) (ON-Other name: 8,16-Oxido- <i>cis</i> [2.2]metacyclophane-1,9-diene) | ** | 7.95 (V) | PE | 4088 |
| $C_{16}H_{16}O^+$ | $C_{20}H_{22}O_2$ (<i>D</i> -Homoestra-1,3,5(10),6,8-pentaen-17a-one, 3-methoxy-) (RN-CAS Registry Number 1232-90-2) | | 10.79 ± 0.07 | EI | 3571 |
| $C_{16}H_{16}O^+$ | $C_{20}H_{22}O_2$ (<i>D</i> -Homoestra-1,3,5(10),6,8-pentaen-17a-one, 3-methoxy-, (14 β)-) (RN-CAS Registry Number 1232-91-3) | | 10.44 ± 0.11 | EI | 3571 |
| $C_{18}H_{18}O^+$ | $C_6H_8(=O)(C_6H_5)_2$ (Cyclohexanone, 4,4-diphenyl-) (RN-CAS-Registry Number 4528-68-1) | ** | 8.8 ± 0.2 | EI | 4074 |
| $C_{19}H_{20}O^+$ | $C_6H_7(=O)(CH_3)(C_6H_5)_2$ (Cyclohexanone, 2-methyl-5,5-diphenyl-) (RN-CAS-Registry Number 50592-49-9) | ** | 8.8 ± 0.2 | EI | 4074 |
| $C_{19}H_{22}O^+$ | $C_6H_8(OH)(CH_3)(C_6H_5)_2$ (Cyclohexanol, 1-methyl-4,4-diphenyl-) (RN-CAS-Registry Number 50592-47-7) | ** | 9.2 ± 0.2 | EI | 4074 |
| $C_{23}H_{24}O^+$ | $C_{10}H_{11}(=O)(CH_3)(C_6H_5)_2$ (2(3 <i>H</i> -Naphthalenone, 4,4a,5,6,7,8-hexahydro-4a-methyl-7,7-diphenyl-) (RN-CAS-Registry Number 50786-03-3) | ** | 8.9 ± 0.2 | EI | 4074 |
| $CH_2O_2^+$ | HCOOH (RN-CAS Registry Number 64-18-6) | ** | 11.05 ± 0.03 | PI | 3765 |
| $CH_2O_2^+$ | HCOOH (RN-CAS Registry Number 64-18-6) | ** | 11.3 | PE | 3883 |
| $CH_2O_2^+$ | HCOOH (RN-CAS Registry Number 64-18-6) | ** | 11.33 | PE | 3874 |
| $CH_2O_2^+$ | HCOOH (RN-CAS Registry Number 64-18-6) | ** | 11.35 ± 0.03 | PE | 3734 |
| $CH_2O_2^{*+}$ | HCOOH (RN-CAS Registry Number 64-18-6) | ** | 12.4 | PE | 3883 |
| $CH_2O_2^{*+}$ | HCOOH (RN-CAS Registry Number 64-18-6) | ** | 16.9 | PE | 3883 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|---------------|---|-------------------------------|---|--------|------|
| $C_2H_4O_2^+$ | CH ₃ COOH (RN-CAS Registry Number 64-19-7) | ** | 10.38±0.03 | PI | 3765 |
| $C_2H_4O_2^+$ | CH ₃ COOH (RN-CAS Registry Number 64-19-7) | ** | 10.65 | PE | 3874 |
| $C_2H_4O_2^+$ | CH ₃ COOH (RN-CAS Registry Number 64-19-7) | ** | 10.69±0.03 | PE | 3734 |
| $C_2H_4O_2^+$ | CH ₃ COOH (RN-CAS Registry Number 64-19-7) | ** | 10.70 | PE | 3718 |
| $C_2H_4O_2^+$ | HCOOCH ₃ (RN-CAS Registry Number 107-31-3) | ** | 10.85 | PE | 3718 |
| $C_3H_4O_2^+$ | CH ₂ =CHCOOH (RN-CAS Registry Number 79-10-7) | ** | 10.60 | PE | 3864 |
| $C_3H_6O_2^+$ | C ₂ H ₅ COOH (RN-CAS Registry Number 79-09-4) | ** | 10.44±0.03 | PE | 3734 |
| $C_3H_6O_2^+$ | C ₂ H ₅ COOH (RN-CAS Registry Number 79-09-4) | ** | 10.54 | PE | 3874 |
| $C_3H_6O_2^+$ | CH ₃ COOCH ₃ (RN-CAS Registry Number 79-20-9) | ** | 10.33 | PE | 3718 |
| $C_3H_6O_2^+$ | CH ₃ COOCH ₃ (RN-CAS Registry Number 79-20-9) | ** | 10.59 (V) | PE | 3937 |
| $C_3H_6O_2^+$ | HCOOC ₂ H ₅ (RN-CAS Registry Number 109-94-4) | ** | 10.62 | PE | 3718 |
| $C_3H_6O_2^+$ | C ₃ H ₆ O ₂ (1,3-Dioxolane) (RN-CAS Registry Number 646-06-0) | ** | 10.1 (V) | PE | 3733 |
| $C_4H_2O_2^+$ | C ₆ H ₄ O ₂ (2,5-Cyclohexadiene-1,4-dione) (RN-CAS Registry Number 106-51-4) | C ₂ H ₂ | 11.2±0.05 | PI | 3523 |
| $C_4H_4O_2^+$ | C ₄ H ₄ O(=O) (2(3 <i>H</i>)-Furanone) (RN-CAS Registry Number 20825-71-2) | ** | 10.70 (V) | PE | 3826 |
| $C_4H_6O_2^+$ | CH ₂ =CHCOOCH ₃ (RN-CAS Registry Number 96-33-3) | ** | 10.72 (V) | PE | 3937 |
| $C_4H_6O_2^+$ | CH ₂ =CHCOOCH ₃ (RN-CAS Registry Number 96-33-3) | ** | 10.72 (V) | PE | 3972 |
| $C_4H_6O_2^+$ | CH ₃ COCOCH ₃ (RN-CAS Registry Number 431-03-8) | ** | 9.55 (V) | PE | 3936 |
| $C_4H_6O_2^+$ | C ₄ H ₆ O(=O) (2(3 <i>H</i>)-Furanone, dihydro-) (RN-CAS Registry Number 96-48-0) | ** | 10.26 (V) | PE | 3826 |
| $C_4H_8O_2^+$ | CH ₃ CH(CH ₃)COOH (RN-CAS Registry Number 79-31-2) | ** | 10.30 (V) | PE | 3937 |
| $C_4H_8O_2^+$ | HCOOCH ₂ CH ₂ CH ₃ (RN-CAS Registry Number 110-74-7) | ** | 10.62 | PE | 3718 |
| $C_4H_8O_2^+$ | CH ₃ COOC ₂ H ₅ (RN-CAS Registry Number 141-78-6) | ** | 10.24 | PE | 3718 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|------------------|--|----------------|---|--------|------|
| $C_4H_8O_2^+$ | <i>n</i> -C ₃ H ₇ COOH (RN-CAS Registry Number 107-92-6) | ** | 10.46 | PE | 3874 |
| $C_4H_8O_2^+$ | <i>n</i> -C ₃ H ₇ COOH (RN-CAS Registry Number 107-92-6) | ** | 10.22 (V) | PE | 3937 |
| $C_4H_8O_2^+$ | <i>iso</i> -C ₃ H ₇ COOH (RN-CAS Registry Number 79-31-2) | ** | 10.33±0.03 | PE | 3734 |
| $C_4H_8O_2^+$ | <i>iso</i> -C ₃ H ₇ COOH (RN-CAS Registry Number 79-31-2) | ** | 10.33 | PE | 3874 |
| $C_4H_8O_2^+$ | C ₄ H ₈ O ₂ (1,3-Dioxane) (RN-CAS Registry Number 505-22-6) | ** | 10.1 (V) | PE | 3733 |
| $C_4H_8O_2^+$ | C ₄ H ₈ O ₂ (1,3-Dioxane) (RN-CAS Registry Number 505-22-6) | ** | 10.12 (V) | PE | 4082 |
| $C_4H_8O_2^+$ | C ₄ H ₈ O ₂ (1,4-Dioxane) (RN-CAS Registry Number 123-91-1) | ** | 9.41 (V) | PE | 4082 |
| $C_4H_8O_2^+$ | C ₄ H ₈ O ₂ (1,4-Dioxane) (RN-CAS Registry Number 123-91-1) | ** | 9.43 (V) | PE | 3733 |
| $C_5H_4O_2^+$ | C ₅ H ₄ O ₂ (4-Cyclopentene-1,3-dione) (RN-CAS Registry Number 930-60-9) | ** | 10.25 (V) | PE | 3826 |
| $C_5H_4O_2^+$ | C ₄ H ₃ OCHO (2-Furancarboxaldehyde) (RN-CAS Registry Number 98-01-1) | ** | 9.50±0.05 | EI | 3482 |
| $C_5H_6O_2^+$ | C ₅ H ₆ (=O) ₂ (1,3-Cyclopentanedione) (RN-CAS Registry Number 3859-41-4) | ** | 9.46±0.05 | PE | 3848 |
| $C_5H_6O_2^+$ | C ₅ H ₅ (=O)OH (2-Cyclopenten-1-one, 3-hydroxy-) (RN-CAS Registry Number 5870-62-2) | ** | 9.22±0.05 (V) | PE | 3848 |
| $C_5H_8O_2^+$ | CH ₂ =C(CH ₃)COOCH ₃ (RN-CAS Registry Number 80-62-6) | ** | 10.28 (V) | PE | 3937 |
| $C_5H_8O_2^+$ | CH ₂ =C(CH ₃)COOCH ₃ (RN-CAS Registry Number 80-62-6) | ** | 10.28 (V) | PE | 3972 |
| $C_5H_8O_2^+$ | CH ₃ COCH ₂ COCH ₃ (RN-CAS Registry Number 123-54-6) | ** | 8.85±0.05 | PE | 3848 |
| $C_5H_8O_2^+$ | CH ₃ COCH ₂ COCH ₃ (RN-CAS Registry Number 123-54-6) | ** | 9.18±0.07 (V) | PE | 3682 |
| $C_5H_8O_2^+$ | CH ₃ CH=CHCOOCH ₃ (RN-CAS Registry Number 18707-60-3) | ** | 10.11 (V) | PE | 3972 |
| $C_5H_{10}O_2^+$ | CH ₃ COOCH(CH ₃) ₂ (RN-CAS Registry Number 108-21-4) | ** | 10.08 | PE | 3718 |
| $C_5H_{10}O_2^+$ | HCOO(CH ₂) ₃ CH ₃ (RN-CAS Registry Number 592-84-7) | ** | 10.54 | PE | 3718 |
| $C_5H_{10}O_2^+$ | <i>n</i> -C ₄ H ₉ COOH (RN-CAS Registry Number 109-52-4) | ** | 10.53 (V) | PE | 3874 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|------------------|---|----------------|---|--------|------|
| $C_5H_{10}O_2^+$ | <i>iso</i> - C_4H_9COOH (RN-CAS Registry Number 503-74-2) | ** | 10.51 (V) | PE | 3874 |
| $C_5H_{10}O_2^+$ | $C_3H_4O_2(CH_3)_2$ (1,3-Dioxolane, 2,2-dimethyl-) (RN-CAS Registry Number 2916-31-6) | ** | 9.71 (V) | PE | 3733 |
| $C_6H_4O_2^+$ | $C_6H_4O_2$ (2,5-Cyclohexadiene-1,4-dione) (RN-CAS Registry Number 106-51-4) | ** | 9.7 | PI | 3586 |
| $C_6H_4O_2^+$ | $C_6H_4O_2$ (2,5-Cyclohexadiene-1,4-dione) (RN-CAS Registry Number 106-51-4) | ** | 9.96±0.01 | PI | 3523 |
| $C_6H_4O_2^+$ | $C_6H_4(=O)_2$ (2,5-Cyclohexadiene-1,4-dione) (RN-CAS Registry Number 106-51-4) | ** | 10.03 (V) | PE | 3936 |
| $C_6H_5O_2^+$ | $C_6H_4(OH)OCH_3$ (Phenol, 4-methoxy-) (RN-CAS Registry Number 150-76-5) | CH_3 | 11.10±0.1 | EI | 3446 |
| $C_6H_5O_2^+$ | $C_6H_4(OH)OOCCH_3$ (Benzenecetic acid, 2-hydroxy-) (RN-CAS Registry Number 614-75-5) | CH_3CO | 12.54±0.02 | EI | 3631 |
| $C_6H_5O_2^+$ | $C_6H_4(OH)OOCCH_3$ (Benzenecetic acid, 4-hydroxy-) (RN-CAS Registry Number 156-38-7) | CH_3CO | 13.83±0.02 | EI | 3631 |
| $C_6H_5O_2^+$ | $C_6H_4(NO_2)OH$ (Phenol, 4-nitro-) (RN-CAS Registry Number 100-02-7) | NO | 9.90±0.1 | EI | 3447 |
| $C_6H_6O_2^+$ | $C_6H_6O_2$ (1,4-Benzenediol) (RN-CAS Registry Number 123-31-9) | ** | 7.95±0.03 | PI | 3523 |
| $C_6H_6O_2^+$ | $C_4H_3OCOCH_3$ (Ethanone, 1-(2-furanyl)-) (RN-CAS Registry Number 1192-62-7) | ** | 9.27±0.05 | EI | 3482 |
| $C_6H_6O_2^+$ | $C_6H_4(OH)OOCCH_3$ (Benzenecetic acid, 2-hydroxy-) (RN-CAS Registry Number 614-75-5) | $CH_2=C=O$ | 9.30±0.02 | EI | 3631 |
| $C_6H_6O_2^+$ | $C_6H_4(OH)OOCCH_3$ (Benzenecetic acid, 4-hydroxy-) (RN-CAS Registry Number 156-38-7) | $CH_2=C=O$ | 9.28±0.02 | EI | 3631 |
| $C_6H_8O_2^+$ | $C_6H_8(=O)_2$ (1,3-Cyclohexanedione) (RN-CAS Registry Number 504-02-9) | ** | 9.52±0.05 | PE | 3848 |
| $C_6H_8O_2^+$ | $C_6H_8(=O)_2$ (1,4-Cyclohexanedione) (RN-CAS Registry Number 637-88-7) | ** | 9.65 (V) | PE | 3936 |
| $C_6H_8O_2^+$ | $C_5H_5(=O)_2CH_3$ (1,3-Cyclopentanedione, 2-methyl-) (RN-CAS Registry Number 765-69-5) | ** | 9.40±0.1 (V) | PE | 3848 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|------------------|---|-----------------|---|--------|------|
| $C_6H_8O_2^+$ | $C_5H_4(=O)(OH)CH_3$ (2-Cyclopenten-1-one, 3-hydroxy-2-methyl-) (RN-CAS Registry Number 5870-63-3) | ** | 8.84 ± 0.05 | PE | 3848 |
| $C_6H_{10}O_2^+$ | <i>trans</i> - $CH_3CH=CHCOOC_2H_5$ (RN-CAS Registry Number 623-70-1) | ** | 10.11 (V) | PE | 3937 |
| $C_6H_{11}O_2^+$ | $C_4H_6O_2(CH_3)_2$ (1,3-Dioxane, 4,6-dimethyl-, <i>cis</i> -) (RN-CAS Registry Number 3390-18-9) | H | 9.693 ± 0.005 | EI | 3481 |
| $C_6H_{11}O_2^+$ | $C_4H_6O_2(CH_3)_2$ (1,3-Dioxane, 4,6-dimethyl-, <i>trans</i> -) (RN-CAS Registry Number 1121-87-5) | H | 9.540 ± 0.003 | EI | 3481 |
| $C_6H_{11}O_2^+$ | $C_4H_5O_2(CH_3)_3$ (1,3-Dioxane, 2,4,6-trimethyl-, (2 α ,4 α ,6 α)-) (RN-CAS Registry Number 19145-91-6) (ON-Other name: <i>cis</i> -2- <i>r</i> -4- <i>cis</i> -6-Trimethyl-1,3-dioxan) | CH ₃ | 9.593 ± 0.006 | EI | 3481 |
| $C_6H_{11}O_2^+$ | $C_4H_5O_2(CH_3)_3$ (1,3-Dioxane, 2,4,6-trimethyl-, (2 α ,4 α ,6 β)-) (RN-CAS Registry Number 36402-73-0) (ON-Other name: <i>cis</i> -2- <i>r</i> -4- <i>trans</i> -6-Trimethyl-1,3-dioxan) | CH ₃ | 9.448 ± 0.002 | EI | 3481 |
| $C_6H_{12}O_2^+$ | $CH_3COO(CH_2)_3CH_3$ (RN-CAS Registry Number 123-86-4) | ** | 10.17 | PE | 3718 |
| $C_6H_{12}O_2^+$ | <i>tert</i> - $C_4H_9COOCH_3$ (RN-CAS Registry Number 598-98-1) | ** | 9.90 ± 0.04 | PE | 3851 |
| $C_7H_5O_2^+$ | $C_6H_4(OH)COOH$ (Benzoic acid, 3-hydroxy-) (RN-CAS Registry Number 99-06-9) | OH | 12.51 ± 0.2 | EI | 3973 |
| $C_7H_5O_2^+$ | $C_6H_4(OH)COOH$ (Benzoic acid, 4-hydroxy-) (RN-CAS Registry Number 99-96-7) | OH | 12.00 ± 0.2 | EI | 3973 |
| $C_7H_5O_2^+$ | $C_6H_4(COOH)_2$ (1,3-Benzenedicarboxylic acid) (RN-CAS Registry Number 121-91-5) (MT-Metastable transition(s) observed) | COOH | 12.42 ± 0.2 | EI | 3973 |
| $C_7H_5O_2^+$ | $C_6H_4(COOH)_2$ (1,4-Benzenedicarboxylic acid) (RN-CAS Registry Number 100-21-0) (MT-Metastable transition(s) observed) | COOH | 12.56 ± 0.2 | EI | 3973 |
| $C_7H_6O_2^+$ | C_6H_5COOH (Benzoic acid) (RN-CAS Registry Number 65-85-0) | ** | 9.75 ± 0.2 | EI | 3973 |
| $C_7H_6O_2^+$ | C_6H_5COOH (Benzoic acid) (RN-CAS Registry Number 65-85-0) | ** | 9.75 | EI | 3792 |
| $C_7H_6O_2^+$ | $C_7H_6O_2$ (2,5-Cyclohexadiene-1,4-dione, 2-methyl-) (RN-CAS Registry Number 553-97-9) | ** | 9.78 ± 0.02 | PI | 3523 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|------------------|---|----------------|---|--------|------|
| $C_7H_7O_2^+$ | $C_6H_4(OCH_3)_2$ (Benzene, 1,3-dimethoxy-) (RN-CAS Registry Number 151-10-0) | CH_3 | 11.17 ± 0.1 | EI | 3446 |
| $C_7H_7O_2^+$ | $C_6H_4(OCH_3)_2$ (Benzene, 1,4-dimethoxy-) (RN-CAS Registry Number 150-78-7) | CH_3 | 10.98 ± 0.1 | EI | 3446 |
| $C_7H_7O_2^+$ | $C_6H_4(NO_2)OCH_3$ (Benzene, 1-methoxy-3-nitro-) (RN-CAS Registry Number 555-03-3) | NO | 9.39 ± 0.1 | EI | 3447 |
| $C_7H_7O_2^+$ | $C_6H_4(NO_2)OCH_3$ (Benzene, 1-methoxy-4-nitro-) (RN-CAS Registry Number 100-17-4) | NO | 10.03 ± 0.1 | EI | 3447 |
| $C_7H_8O_2^+$ | $C_6H_4(OH)OCH_3$ (Phenol, 4-methoxy-) (RN-CAS Registry Number 150-76-5) | ** | 7.50 | EI | 3845 |
| $C_7H_8O_2^+$ | $C_6H_4(OH)OCH_3$ (Phenol, 4-methoxy-) (RN-CAS Registry Number 150-76-5) | ** | 8.02 ± 0.1 | EI | 3446 |
| $C_7H_8O_2^+$ | $C_6H_4(OCH_3)OOCCH_3$ (Phenol, 3-methoxy-, acetate) (RN-CAS Registry Number 5451-83-2) | $CH_2=C=O$ | 9.56 ± 0.2 | EI | 3484 |
| $C_7H_8O_2^+$ | $C_6H_4(OCH_3)OOCCH_3$ (Phenol, 4-methoxy-, acetate) (RN-CAS Registry Number 1200-06-2) | $CH_2=C=O$ | 9.48 ± 0.2 | EI | 3484 |
| $C_7H_{10}O_2^+$ | $C_6H_7(=O)_2CH_3$ (1,3-Cyclohexanedione, 2-methyl-) (RN-CAS Registry Number 1193-55-1) | ** | 9.37 ± 0.05 | PE | 3848 |
| $C_7H_{10}O_2^+$ | $C_5H_4(=O)_2(CH_3)_2$ (1,3-Cyclopentanedione, 2,2-dimethyl-) (RN-CAS Registry Number 3883-58-7) | ** | 9.08 ± 0.05 | PE | 3848 |
| $C_7H_{10}O_2^+$ | $C_5H_5(=O)_2C_2H_5$ (1,3-Cyclopentanedione, 2-ethyl-) (RN-CAS Registry Number 823-36-9) | ** | 9.35 ± 0.1 (V) | PE | 3848 |
| $C_7H_{10}O_2^+$ | $C_5H_4(=O)(OH)C_2H_5$ (2-Cyclopenten-1-one, 2-ethyl-3-hydroxy-) (RN-CAS Registry Number 5857-25-0) | ** | 8.79 ± 0.05 | PE | 3848 |
| $C_7H_{13}O_2^+$ | $C_4H_4O_2(CH_3)_4$ (1,3-Dioxane, 2,2,4,6-tetramethyl-, <i>cis</i> -) (RN-CAS Registry Number 17227-17-7) | CH_3 | 9.332 ± 0.006 | EI | 3481 |
| $C_7H_{13}O_2^+$ | $C_4H_4O_2(CH_3)_4$ (1,3-Dioxane, 2,2,4,6-tetramethyl-, <i>trans</i> -) (RN-CAS Registry Number 20268-00-2) | CH_3 | 9.128 ± 0.008 | EI | 3481 |
| $C_8H_7O_2^+$ | $C_6H_4(OCH_3)COOH$ (Benzoic acid, 3-methoxy-) (RN-CAS Registry Number 586-38-9) | OH | 12.51 ± 0.2 | EI | 3973 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|------------------|---|----------------|---|--------|------|
| $C_8H_7O_2^+$ | $C_6H_4(OCH_3)COOH$ (Benzoic acid, 4-methoxy-) (RN-CAS Registry Number 100-09-4) | OH | 12.53 ± 0.2 | EI | 3973 |
| $C_8H_8O_2^+$ | $C_6H_5OOCCH_3$ (Acetic acid, phenyl ester) (RN-CAS Registry Number 122-79-2) | ** | 8.75 ± 0.03 | EI | 3483 |
| $C_8H_8O_2^+$ | $C_6H_5OOCCH_3$ (Acetic acid, phenyl ester) (RN-CAS Registry Number 122-79-2) | ** | 8.84 ± 0.2 | EI | 3484 |
| $C_8H_8O_2^+$ | $C_6H_4(CH_3)COOH$ (Benzoic acid, 3-methyl-) (RN-CAS Registry Number 99-04-7) | ** | 9.43 ± 0.2 | EI | 3973 |
| $C_8H_8O_2^+$ | $C_6H_4(CH_3)COOH$ (Benzoic acid, 4-methyl-) (RN-CAS Registry Number 99-94-5) | ** | 9.23 ± 0.2 | EI | 3973 |
| $C_8H_8O_2^+$ | $C_6H_5COOCH_3$ (Benzoic acid methyl ester) (RN-CAS Registry Number 93-58-3) | ** | 9.40 ± 0.025 | PE | 3626 |
| $C_8H_8O_2^+$ | $C_6H_5COOCH_3$ (Benzoic acid methyl ester) (RN-CAS Registry Number 93-58-3) | ** | 9.35 ± 0.03 | EDD | 3626 |
| $C_8H_8O_2^+$ | $C_6H_5COOCH_3$ (Benzoic acid methyl ester) (RN-CAS Registry Number 93-58-3) | ** | 9.35 ± 0.1 | EI | 3788 |
| $C_8H_8O_2^+$ | $C_6H_5COOCH_3$ (Benzoic acid methyl ester) (RN-CAS Registry Number 93-58-3) | ** | 9.49 | EI | 3792 |
| $C_8H_8O_2^+$ | $C_6H_5COOCH_3Cr(CO)_3$ (Chromium, tricarbonyl[(1,2,3,4,5,6- η)-methylbenzoate]-) (RN-CAS Registry Number 12125-87-0) | | 9.31 ± 0.1 | EI | 3788 |
| $C_8H_{10}O_2^+$ | $C_6H_4(OCH_3)_2$ (Benzene, 1,3-dimethoxy-) (RN-CAS Registry Number 151-10-0) | ** | 8.17 ± 0.1 | EI | 3446 |
| $C_8H_{10}O_2^+$ | $C_6H_4(OCH_3)_2$ (Benzene, 1,4-dimethoxy-) (RN-CAS Registry Number 150-78-7) | ** | 7.90 (V) | PE | 3781 |
| $C_8H_{10}O_2^+$ | $C_6H_4(OCH_3)_2$ (Benzene, 1,4-dimethoxy-) (RN-CAS Registry Number 150-78-7) | ** | 7.45 | EI | 3845 |
| $C_8H_{10}O_2^+$ | $C_6H_4(OCH_3)_2$ (Benzene, 1,4-dimethoxy-) (RN-CAS Registry Number 150-78-7) | ** | 7.88 ± 0.1 | EI | 3446 |
| $C_8H_{12}O_2^+$ | $C_4(=O)_2(CH_3)_4$ (1,3-Cyclobutanedione, 2,2,4,4-tetramethyl-) (RN-CAS Registry Number 933-52-8) | ** | 8.80 (V) | PE | 3936 |
| $C_8H_{12}O_2^+$ | $C_6H_6(=O)_2(CH_3)_2$ (1,3-Cyclohexanedione, 5,5-dimethyl-) (RN-CAS Registry Number 126-81-8) | ** | 9.28 ± 0.05 | PE | 3848 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|---------------------|---|----------------|---|--------|------|
| $C_8H_{12}O_2^+$ | $C_6H_7(=O)OC_2H_5$ (2-Cyclohexen-1-one, 3-ethoxy-) (RN-CAS Registry Number 5323-87-5) | ** | 8.69 ± 0.05 | PE | 3848 |
| $C_9H_{10}O_2^+$ | $C_6H_4(CH_3)OOCCH_3$ (Acetic acid, 2-methylphenyl ester) (RN-CAS Registry Number 533-18-6) | ** | 8.38 ± 0.02 | EI | 3631 |
| $C_9H_{10}O_2^+$ | $C_6H_4(CH_3)OOCCH_3$ (Acetic acid, 3-methylphenyl ester) (RN-CAS Registry Number 122-46-3) | ** | 8.98 ± 0.2 | EI | 3484 |
| $C_9H_{10}O_2^+$ | $C_6H_4(CH_3)OOCCH_3$ (Acetic acid, 4-methylphenyl ester) (RN-CAS Registry Number 140-39-6) | ** | 7.84 ± 0.02 | EI | 3631 |
| $C_9H_{10}O_2^+$ | $C_6H_4(CH_3)OOCCH_3$ (Acetic acid, 4-methylphenyl ester) (RN-CAS Registry Number 140-39-6) | ** | 8.61 ± 0.2 | EI | 3484 |
| $C_9H_{14}O_2^+$ | $C_6H_7(=O)_2CH(CH_3)_2$ (1,3-Cyclohexanedione, 2-(1-methylethyl)-) (RN-CAS Registry Number 3401-01-2) | ** | 9.09 ± 0.05 | PE | 3848 |
| $C_9H_{14}O_2^+$ | $C_6H_5(=O)_2(CH_3)_3$ (1,3-Cyclohexanedione, 2,5,5-trimethyl-) (RN-CAS Registry Number 1125-11-7) | ** | 9.10 ± 0.05 | PE | 3848 |
| $C_{10}H_6O_2^+$ | $C_{10}H_6O_2$ (1,4-Naphthalenedione) (RN-CAS Registry Number 130-15-4) | ** | 9.56 ± 0.01 | PI | 3523 |
| $C_{10}H_{12}O_2^+$ | $C_{10}H_{12}O_2$ (2,5-Cyclohexadiene-1,4-dione, 2,3,5,6-tetramethyl-) (RN-CAS Registry Number 527-17-3) | ** | 9.16 ± 0.03 | PI | 3523 |
| $C_{10}H_{12}O_2^+$ | $C_{10}H_{12}O_2$ (Tricyclo[3.3.1.1 ^{3,7}]decane-2,6-dione) (RN-CAS Registry Number 39751-07-0) (ON-Other name: 2,6-Adamantanedione) | ** | 9.06 | PE | 3886 |
| $C_{10}H_{14}O_2^+$ | $C_7H_5(=O)_2(CH_3)_3$ (Bicyclo[2.2.1]heptane-2,3-dione, 1,7,7-trimethyl-) (RN-CAS Registry Number 465-29-2) | ** | 8.80 (V) | PE | 3936 |
| $C_{10}H_{14}O_2^+$ | $C_8H_{11}OOCCH_3$ (Tricyclo[3.2.1.0 ^{2,4}]octan-8-ol, acetate, <i>endo-syn</i> -) (RN-CAS Registry Number 32426-26-9) | ** | 8.6 ± 0.1 | EI | 3492 |
| $C_{10}H_{14}O_2^+$ | $C_8H_{11}OOCCH_3$ (Tricyclo[3.2.1.0 ^{2,4}]octan-8-ol, acetate, <i>endo-anti</i> -) (RN-CAS Registry Number 32350-51-9) | ** | 9.0 ± 0.1 | EI | 3492 |
| $C_{10}H_{14}O_2^+$ | $C_8H_{11}OOCCH_3$ (Tricyclo[3.2.1.0 ^{2,4}]octan-8-ol, acetate, <i>exo-syn</i> -) (RN-CAS Registry Number 32350-52-0) | ** | 8.9 ± 0.1 | EI | 3492 |
| $C_{10}H_{14}O_2^+$ | $C_8H_{11}OOCCH_3$ (Tricyclo[3.2.1.0 ^{2,4}]octan-8-ol, acetate, <i>exo-anti</i> -) (RN-CAS Registry Number 32350-50-8) | ** | 9.3 ± 0.1 | EI | 3492 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|---------------------|--|----------------|---|--------|------|
| $C_{10}H_{14}O_2^+$ | $C_8H_8(OCH_3)_2$ (Tricyclo[3.2.1.0 ^{2,4}]oct-6-ene, 8,8-dimethoxy-, (1 α ,2 α ,4 α ,5 α)-) (RN-CAS Registry Number 14224-84-1) (ON-Other name: Tricyclo[3.2.1.0 ^{2,4}]oct-6-ene, 8,8-dimethoxy-, <i>endo</i> -) | ** | 8.6±0.1 | EI | 3492 |
| $C_{10}H_{16}O_2^+$ | $C_6H_7(=O)_2C(CH_3)_3$ (1,3-Cyclohexanedione, 2-(1,1-dimethylethyl)-) (RN-CAS Registry Number XXXXX-XX-X) | ** | 9.05±0.1 | PE | 3848 |
| $C_{10}H_{16}O_2^+$ | $C_6H_4(=O)_2(CH_3)_4$ (1,3-Cyclohexanedione, 2,2,5,5-tetramethyl-) (RN-CAS Registry Number 702-50-1) | ** | 9.04±0.05 | PE | 3848 |
| $C_{10}H_{16}O_2^+$ | $C_8H_{10}(OCH_3)_2$ (Tricyclo[3.2.1.0 ^{2,4}]octane, 8,8-dimethoxy-, (1 α ,2 α ,4 α ,5 α)-) (RN-CAS Registry Number 14224-85-2) (ON-Other name: Tricyclo[3.2.1.0 ^{2,4}]octane, 8,8-dimethoxy-, <i>endo</i> -) | ** | 8.7±0.1 | EI | 3492 |
| $C_{10}H_{16}O_2^+$ | $C_8H_{10}(OCH_3)_2$ (Tricyclo[3.2.1.0 ^{2,4}]octane, 8,8-dimethoxy-, (1 α ,2 β ,4 β ,5 α)-) (RN-CAS Registry Number 7076-82-6) (ON-Other name: Tricyclo[3.2.1.0 ^{2,4}]octane, 8,8-dimethoxy-, <i>exo</i> -) | ** | 8.9±0.1 | EI | 3492 |
| $C_{11}H_{16}O_2^+$ | $C_{10}H_{15}COOH$ (Tricyclo[3.3.1.1 ^{3,7}]decane-1-carboxylic acid) (RN-CAS Registry Number 828-51-3) (ON-Other name: 1-Adamantanecarboxylic acid) | ** | 9.34 | PE | 3886 |
| $C_{11}H_{20}O_2^+$ | $(CH_3)_3CCOCH_2COC(CH_3)_3$ (RN-CAS Registry Number 1118-71-4) | ** | 8.86±0.07 (V) | PE | 3682 |
| $C_{12}H_{18}O_2^+$ | $C_{10}H_{15}COOCH_3$ (Tricyclo[3.3.1.1 ^{3,7}]decane-1-carboxylic acid methyl ester) (RN-CAS Registry Number 711-01-3) (ON-Other name: 1-Carbomethoxyadamantane) | ** | 9.38±0.03 | PE | 3851 |
| $C_{14}H_8O_2^+$ | $C_{14}H_8O_2$ (9 <i>H</i> -Xanthen-9-one) (RN-CAS Registry Number 90-47-1) | ** | 8.42±0.03 | PI | 3523 |
| $C_{13}H_{10}O_2^+$ | $C_6H_5COOC_6H_5$ (Benzoic acid phenyl ester) (RN-CAS Registry Number 93-99-2) | ** | 9.0 | EI | 3897 |
| $C_{14}H_8O_2^+$ | $C_{14}H_8O_2$ (1,4-Anthracenedione) (RN-CAS Registry Number 635-12-1) | ** | 8.45±0.02 | PI | 3523 |
| $C_{14}H_8O_2^+$ | $C_{14}H_8O_2$ (9,10-Anthracenedione) (RN-CAS Registry Number 84-65-1) | ** | 9.25±0.03 | PI | 3523 |
| $C_{14}H_8O_2^+$ | $C_{14}H_8O_2$ (9,10-Anthracenedione) (RN-CAS Registry Number 84-65-1) | ** | 9.3 | PI | 3586 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|---------------------|---|----------------|---|--------|------|
| $C_{14}H_8O_2^+$ | $C_{14}H_8O_2$ (9,10-Anthracenedione) (RN-CAS Registry Number 84-65-1) (ON-Other name: Anthraquinone) | ** | 9.40 ± 0.08 | EI | 3571 |
| $C_{14}H_8O_2^+$ | $C_{14}H_8O_2$ (9,10-Phenanthrenedione) (RN-CAS Registry Number 84-11-7) | ** | 8.64 ± 0.03 | PI | 3523 |
| $C_{14}H_{10}O_2^+$ | $C_6H_5COCOC_6H_5$ (Ethanedione, diphenyl-) (RN-CAS Registry Number 134-81-6) | ** | 8.86 ± 0.15 | SD | 3823 |
| $C_{15}H_{12}O_2^+$ | $C_6H_5COCOC_6H_4CH_3$ (Ethanedione, (4-methylphenyl)phenyl-) (RN-CAS Registry Number 2431-00-7) | ** | 9.05 ± 0.10 | SD | 3823 |
| $C_{20}H_{22}O_2^+$ | $C_{20}H_{22}O_2$ (<i>D</i> -Homoestra-1,3,5(10),6,8-pentaen-17a-one, 3-methoxy-) (RN-CAS Registry Number 1232-90-2) | ** | 7.56 ± 0.07 | EI | 3571 |
| $C_{20}H_{22}O_2^+$ | $C_{20}H_{22}O_2$ (<i>D</i> -Homoestra-1,3,5(10),6,8-pentaen-17a-one, 3-methoxy-, (14 β)-) (RN-CAS Registry Number 1232-91-3) | ** | 7.82 ± 0.07 | EI | 3571 |
| $C_{20}H_{26}O_2^+$ | $C_{20}H_{26}O_2$ (<i>D</i> -Homoestra-1,3,5(10)-trien-17a-one, 3-methoxy-) (RN-CAS Registry Number 1232-89-9) | ** | 8.22 ± 0.06 | EI | 3571 |
| $C_{20}H_{26}O_2^+$ | $C_{20}H_{26}O_2$ (<i>D</i> -Homoestra-1,3,5(10)-trien-17a-one, 3-methoxy-, (8 α)-) (RN-CAS Registry Number 1232-88-8) | ** | 8.17 ± 0.08 | EI | 3571 |
| $C_{22}H_{12}O_2^+$ | $C_{22}H_{12}O_2$ (6,13-Pentacenedione) (RN-CAS Registry Number 3029-32-1) | ** | 8.07 ± 0.05 | PI | 3523 |
| $C_3H_2O_3^+$ | $C_3H_2O_2(=O)$ (1,3-Dioxol-2-one) (RN-CAS Registry Number 872-36-6) | ** | 11.91 (V) | PE | 3826 |
| $C_3H_4O_3^+$ | $C_3H_4O_2(=O)$ (1,3-Dioxolan-2-one) (RN-CAS Registry Number 96-49-1) | ** | 11.47 (V) | PE | 3826 |
| $C_3H_6O_3^+$ | $C_3H_6O_3$ (1,3,5-Trioxane) (RN-CAS Registry Number 110-88-3) | ** | ~ 10.8 (V) | PE | 3733 |
| $C_4H_2O_3^+$ | $C_4H_2O(=O)_2$ (2,5-Furandione) (RN-CAS Registry Number 108-31-6) | ** | 11.45 (V) | PE | 3826 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|------------------|--|----------------|---|--------|------|
| $C_6H_6O_3^+$ | $C_4H_3OCOOCH_3$ (2-Furancarboxylic acid, methyl ester) (RN-CAS Registry Number 611-13-2) | ** | 9.32 ± 0.05 | EI | 3482 |
| $C_7H_6O_3^+$ | $C_6H_4(OH)COOH$ (Benzoic acid, 3-hydroxy-) (RN-CAS Registry Number 99-06-9) | ** | 9.20 ± 0.2 | EI | 3973 |
| $C_7H_6O_3^+$ | $C_6H_4(OH)COOH$ (Benzoic acid, 4-hydroxy-) (RN-CAS Registry Number 99-96-7) | ** | 9.22 ± 0.2 | EI | 3973 |
| $C_7H_6O_3^+$ | $C_6H_4(COOH)OOCCH_3$ (Benzoic acid, 4-(acetyloxy-)) (RN-CAS Registry Number 2345-34-8) | $CH_2=C=O$ | 10.08 ± 0.2 | EI | 3484 |
| $C_8H_5O_3^+$ | $C_6H_4(COOH)_2$ (1,3-Benzenedicarboxylic acid) (RN-CAS Registry Number 121-91-5) | OH | 12.17 ± 0.2 | EI | 3973 |
| $C_8H_5O_3^+$ | $C_6H_4(COOH)_2$ (1,4-Benzenedicarboxylic acid) (RN-CAS Registry Number 100-21-0) | OH | 12.14 ± 0.2 | EI | 3973 |
| $C_8H_8O_3^+$ | $C_6H_4(OH)OOCCH_3$ (Benzeneacetic acid, 2-hydroxy-) (RN-CAS Registry Number 614-75-5) | ** | 8.16 ± 0.02 | EI | 3631 |
| $C_8H_8O_3^+$ | $C_6H_4(OH)OOCCH_3$ (Benzeneacetic acid, 4-hydroxy-) (RN-CAS Registry Number 156-38-7) | ** | 8.12 ± 0.02 | EI | 3631 |
| $C_8H_8O_3^+$ | $C_6H_4(OCH_3)COOH$ (Benzoic acid, 3-methoxy-) (RN-CAS Registry Number 586-38-9) | ** | 9.06 ± 0.2 | EI | 3973 |
| $C_8H_8O_3^+$ | $C_6H_4(OCH_3)COOH$ (Benzoic acid, 4-methoxy-) (RN-CAS Registry Number 100-09-4) | ** | 9.04 ± 0.2 | EI | 3973 |
| $C_9H_7O_3^+$ | $C_6H_4(COOCH_3)COSC_6H_4CH_3$ (Benzoic acid, 2-[[4-(4-methylphenyl)thio]carbonyl]-methyl ester) (RN-CAS-Registry Number 42797-32-0) | | 10.98 ± 0.2 | EI | 4062 |
| $C_9H_7O_3^+$ | $C_8H_4O(=O)(OCH_3)SC_6H_4CH_3$ (1(3 <i>H</i>)-Isobenzofuranone, 3-methoxy-3-[[4-(4-methylphenyl)thio]-]) (RN-CAS-Registry Number 51053-89-5) | | 10.7 ± 0.2 | EI | 4062 |
| | (OP-The other product(s) is(are): $C_6H_4(S)CH_3$) | | | | |
| $C_9H_{10}O_3^+$ | $C_6H_4(OCH_3)OOCCH_3$ (Phenol, 3-methoxy-, acetate) (RN-CAS Registry Number 5451-83-2) | ** | 8.29 ± 0.2 | EI | 3484 |
| $C_9H_{10}O_3^+$ | $C_6H_4(OCH_3)OOCCH_3$ (Phenol, 4-methoxy-, acetate) (RN-CAS Registry Number 1200-06-2) | ** | 7.92 ± 0.2 | EI | 3484 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|---------------------|---|----------------|---|--------|------|
| $C_{10}H_6O_3^+$ | $C_{10}H_5O_2(OH)$ (1,4-Naphthalenedione, 5-hydroxy-) (RN-CAS Registry Number 481-39-0) | ** | 8.70 ± 0.02 | PI | 3523 |
| $C_{14}H_8O_3^+$ | $C_{14}H_7O_2(OH)$ (9,10-Anthracenedione, 1-hydroxy-) (RN-CAS Registry Number 129-43-1) | ** | 8.43 ± 0.05 | PI | 3523 |
| $C_{14}H_8O_3^+$ | $C_{14}H_7O_2(OH)$ (9,10-Anthracenedione, 2-hydroxy-) (RN-CAS Registry Number 605-32-3) | ** | 8.70 ± 0.03 | PI | 3523 |
| $C_{14}H_{12}O_3^+$ | $C_6H_5COOC_6H_4OCH_3$ (Phenol, 4-methoxy-, benzoate) (RN-CAS Registry Number 1523-19-9) | ** | 8.6 | EI | 3897 |
| $C_2H_4O_4^+$ | $(HCOOH)_2$ (RN-CAS Registry Number 14523-98-9) | ** | 11.3 (V) | PE | 3734 |
| $C_4H_8O_4^+$ | $(CH_3COOH)_2$ (RN-CAS Registry Number 6993-75-5) | ** | 10.6 (V) | PE | 3734 |
| $C_3H_{10}O_4^+$ | $(iso-C_3H_7COOH)(HCOOH)$ (RN-CAS Registry Number XXXXX-XX-X) | ** | 10.5 (V) | PE | 3734 |
| $C_6H_6O_4^+$ | $CH_3OCC \equiv CCOOCH_3$ (RN-CAS Registry Number 762-42-5) | ** | 10.9 (V) | PE | 3937 |
| $C_6H_8O_4^+$ | $cis-CH_3OCCCH=CHCOOCH_3$ (RN-CAS Registry Number 624-48-6) | ** | 10.47 (V) | PE | 3937 |
| $C_6H_8O_4^+$ | $trans-CH_3OCCCH=CHCOOCH_3$ (RN-CAS Registry Number 624-49-7) | ** | 10.70 (V) | PE | 3937 |
| $C_6H_{12}O_4^+$ | $(CH_3CH_2COOH)_2$ (RN-CAS Registry Number XXXXX-XX-X) | ** | 10.4 (V) | PE | 3734 |
| $C_8H_6O_4^+$ | $C_6H_4(COOH)_2$ (1,3-Benzenedicarboxylic acid) (RN-CAS Registry Number 121-91-5) | ** | 9.98 ± 0.2 | EI | 3973 |
| $C_8H_6O_4^+$ | $C_6H_4(COOH)_2$ (1,4-Benzenedicarboxylic acid) (RN-CAS Registry Number 100-21-0) | ** | 9.86 ± 0.2 | EI | 3973 |
| $C_9H_8O_4^+$ | $C_6H_4(COOH)OCCCH_3$ (Benzoic acid, 4-(acetyloxy)-) (RN-CAS Registry Number 2345-34-8) | ** | 9.11 ± 0.2 | EI | 3484 |
| $C_{10}H_6O_4^+$ | $C_{10}H_4O_2(OH)_2$ (1,4-Naphthalenedione, 5,8-dihydroxy-) (RN-CAS Registry Number 475-38-7) | ** | 8.20 ± 0.02 | PI | 3523 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|-----------------------|---|----------------|---|--------|------|
| $C_{14}H_8O_4^+$ | $C_{14}H_6O_2(OH)_2$ (9,10-Anthracenedione, 1,4-dihydroxy-) (RN-CAS Registry Number 81-64-1) | ** | 7.94 ± 0.03 | PI | 3523 |
| $C_{14}H_8O_4^+$ | $C_{14}H_6O_2(OH)_2$ (9,10-Anthracenedione, 1,5-dihydroxy-) (RN-CAS Registry Number 117-12-4) | ** | 8.53 ± 0.03 | PI | 3523 |
| $C_{14}H_8O_4^+$ | $C_{14}H_6O_2(OH)_2$ (9,10-Anthracenedione, 2,6-dihydroxy-) (RN-CAS Registry Number 84-60-6) | ** | 8.65 ± 0.05 | PI | 3523 |
| $C_{22}H_{10}O_4^+$ | $C_{22}H_{10}O_4$ (5,7,12,14-Pentacenetetrone) (RN-CAS Registry Number 23912-79-0) | ** | 9.22 ± 0.05 | PI | 3523 |
| $C_{14}H_8O_6^+$ | $C_{14}H_4O_2(OH)_4$ (Anthraquinone, 1,4,5,8-tetrahydroxy-) (RN-CAS Registry Number 81-60-7) | ** | 7.83 ± 0.02 | PI | 3523 |
| $C_{10}H_{14}O_4Be^+$ | $(CH_3COCHCOCH_3)_2Be$ (Beryllium, bis(2,4-pentanedionato- <i>O,O'</i>)-, (<i>T-4</i>)-) (RN-CAS Registry Number 10210-64-7) | ** | 8.41 ± 0.07 (V) | PE | 3682 |
| $CH_3BO^+(^2E)$ | $(BH_3)(CO)$ (RN-CAS Registry Number 13205-44-2) | ** | 12.51 ± 0.02 (V) | PE | 3699 |
| $CH_3BO^+(^2A_1)$ | $(BH_3)(CO)$ (RN-CAS Registry Number 13205-44-2) | ** | 13.73 ± 0.01 | PE | 3699 |
| $CH_3BO^+(^2E)$ | $(BH_3)(CO)$ (RN-CAS Registry Number 13205-44-2) | ** | 16.09 ± 0.02 | PE | 3699 |
| $CH_3BO^+(^2A_1)$ | $(BH_3)(CO)$ (RN-CAS Registry Number 13205-44-2) | ** | 18.48 ± 0.02 | PE | 3699 |
| CH_3BO^+ | $(BH_3)(CO)$ (RN-CAS Registry Number 13205-44-2) | ** | 11.14 ± 0.02 | PE | 3699 |
| $C_3H_9BO^+$ | $(CH_3)_2BOCH_3$ (RN-CAS-Registry Number 7318-81-2) | ** | 10.32 (V) | PE | 4065 |
| $C_3H_9BO_2^+$ | $(CH_3O)_2BCH_3$ (RN-CAS-Registry Number 7318-81-2) | ** | 10.40 (V) | PE | 4065 |
| $C_3H_9BO_3^+$ | $B(OCH_3)_3$ (RN-CAS-Registry Number 121-43-7) | ** | 10.40 (V) | PE | 4065 |
| $NO^+(^3\Pi)$ | NO (RN-CAS Registry Number 10102-43-9) (RS-Average of two Rydberg series limits) | ** | 21.721 ± 0.006 | S | 3761 |
| $NO^+(X^1\Sigma^+)$ | NO (RN-CAS Registry Number 10102-43-9) | ** | 9.262 ± 0.003 | PE | 3516 |
| $NO^+(X^1\Sigma^+)$ | NO (RN-CAS-Registry Number 10102-43-9) | ** | 9.27 | PE | 4073 |
| $NO^+(a^3\Sigma^+)$ | NO (RN-CAS Registry Number 10102-43-9) | ** | 15.667 ± 0.003 | PE | 3516 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|--|--|-------------------|---|--------|------|
| NO ⁺ (b ³ Π) | NO (RN-CAS Registry Number 10102-43-9) | ** | 16.562±0.003 | PE | 3516 |
| NO ⁺ (w ³ Δ) | NO (RN-CAS Registry Number 10102-43-9) | ** | 16.863±0.003 | PE | 3516 |
| NO ⁺ (b ³ Σ ⁻) | NO (RN-CAS Registry Number 10102-43-9) | ** | 17.586±0.003 | PE | 3516 |
| NO ⁺ (A ¹ Σ ⁻) | NO (RN-CAS Registry Number 10102-43-9) | ** | 17.811±0.003 | PE | 3516 |
| NO ⁺ (A ¹ Π) | NO (RN-CAS Registry Number 10102-43-9) | ** | 18.319±0.003 | PE | 3516 |
| NO ⁺ (w ¹ Δ) | NO (RN-CAS Registry Number 10102-43-9) | ** | <18.36 | PE | 3516 |
| NO ⁺ (c ³ Π) | NO (RN-CAS Registry Number 10102-43-9) | ** | 21.722±0.010 | PE | 3516 |
| NO ⁺ (B ¹ Π) | NO (RN-CAS Registry Number 10102-43-9) | ** | 21.722±0.010 | PE | 3516 |
| NO ⁺ (B ¹ Σ ⁺) | NO (RN-CAS Registry Number 10102-43-9) | ** | 22.727±0.010 | PE | 3516 |
| NO ⁺ (¹ Σ ⁺) | NO (RN-CAS Registry Number 10102-43-9) | ** | 9.27±0.05 | RPD | 3453 |
| NO ⁺ | CH ₃ NO ₂ (RN-CAS Registry Number 75-52-5) | | 11.75±0.01 | PI | 3524 |
| NO ⁺ | CH ₃ ONO (RN-CAS Registry Number 624-91-9) | CH ₃ O | 10.917±0.008 | PI | 3524 |
| (TR—Other product(s) thermochemically reasonable) | | | | | |
| N ₂ O ⁺ (X ² Π) | N ₂ O (RN-CAS Registry Number 10024-97-2) | ** | 12.90 | TPE | 3998 |
| N ₂ O ⁺ (A ² Σ ⁺) | N ₂ O (RN-CAS Registry Number 10024-97-2) | ** | 16.40 | TPE | 3998 |
| NO ₂ ⁺ | NO ₂ (RN-CAS Registry Number 10102-44-0) | ** | ≤9.62±0.01 | PI | 3927 |
| C ₃ N ₂ O ⁺ (² B ₂) | (CN) ₂ CO (RN-CAS Registry Number 1115-12-4) | ** | 12.56 (V) | PE | 3726 |
| C ₃ N ₂ O ⁺ * | (CN) ₂ CO (RN-CAS Registry Number 1115-12-4) | ** | 13.76 (V) | PE | 3726 |
| C ₃ N ₂ O ⁺ * | (CN) ₂ CO (RN-CAS Registry Number 1115-12-4) | ** | 14.41 (V) | PE | 3726 |
| C ₃ N ₂ O ⁺ * | (CN) ₂ CO (RN-CAS Registry Number 1115-12-4) | ** | 14.79 (V) | PE | 3726 |
| C ₃ N ₂ O ⁺ (² B ₁) | (CN) ₂ CO (RN-CAS Registry Number 1115-12-4) | ** | 16.7 (V) | PE | 3726 |
| C ₃ N ₂ O ⁺ * | (CN) ₂ CO (RN-CAS Registry Number 1115-12-4) | ** | 17.9 (V) | PE | 3726 |
| C ₆ H ₅ NO ₃ | C ₆ H ₄ (OH)NO ₂ (Phenol, 4-nitro-) (RN-CAS Registry Number 100-02-7) | ** 7.38 | EI | | 4089 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|---|--|----------------|---|--------|------|
| CHNO ⁺ (² A'') | HNCO (RN-CAS Registry Number 75-13-8) | ** | 11.62±0.02 | PE | 3670 |
| CHNO ⁺ (² A') | HNCO (RN-CAS Registry Number 75-13-8) | ** | 12.30±0.02 (V) | PE | 3670 |
| CHNO ⁺ * | HNCO (RN-CAS Registry Number 75-13-8) | ** | 15.8±0.1 (V) | PE | 3670 |
| CHNO ⁺ * | HNCO (RN-CAS Registry Number 75-13-8) | ** | 17.50±0.02 (V) | PE | 3670 |
| CHNO ⁺ * | HNCO (RN-CAS Registry Number 75-13-8) | ** | 19.24±0.02 (V) | PE | 3670 |
| CH ₃ NO ⁺ | HCONH ₂ (RN-CAS Registry Number 75-12-7) | ** | 10.16±0.03 | PI | 3765 |
| C ₂ H ₃ NO ⁺ (² A'') | CH ₃ NCO (RN-CAS Registry Number 624-83-9) | ** | 10.67±0.02 | PE | 3670 |
| C ₂ H ₃ NO ⁺ | CH ₃ CONH ₂ (RN-CAS Registry Number 60-35-5) | ** | 9.65±0.03 | PI | 3765 |
| C ₂ H ₃ NO ⁺ | CH ₃ CONH ₂ (RN-CAS Registry Number 60-35-5) | ** | 9.80 | PE | 3718 |
| C ₂ H ₃ NO ⁺ | C ₂ H ₅ NO (RN-CAS Registry Number 925-91-7) | ** | 10.1±0.2 | EI | 4099 |
| C ₂ H ₇ NO ⁺ | NH ₂ CH ₂ CH ₂ OH (RN-CAS Registry Number 141-43-5) | ** | 9.87±0.06 (V) | PE | 3987 |
| C ₃ H ₇ NO ⁺ | CH ₃ CONHCH ₃ (RN-CAS Registry Number 79-16-3) | ** | ~9.85 (V) | PE | 3718 |
| C ₃ H ₉ NO ⁺ | CH ₃ OCH ₂ CH ₂ NH ₂ (RN-CAS Registry Number 109-85-3) | ** | 9.45±0.09 (V) | PE | 3987 |
| C ₃ H ₉ NO ⁺ | NH ₂ (CH ₂) ₃ OH (RN-CAS Registry Number 156-87-6) | ** | 9.77±0.20 (V) | PE | 3987 |
| C ₄ H ₉ NO ⁺ | CH ₃ CON(CH ₃) ₂ (RN-CAS Registry Number 127-19-5) | ** | 9.43 (V) | PE | 3718 |
| C ₄ H ₁₁ NO ⁺ | (CH ₃) ₂ NCH ₂ CH ₂ OH (RN-CAS Registry Number 108-01-0) | ** | 8.85±0.04 (V) | PE | 3987 |
| C ₄ H ₁₁ NO ⁺ | CH ₃ O(CH ₂) ₃ NH ₂ (RN-CAS Registry Number 5332-73-0) | ** | 9.37±0.12 (V) | PE | 3987 |
| C ₅ H ₃ NO ⁺ | C ₄ H ₃ OCN (2-Furancarbonitrile) (RN-CAS Registry Number 617-90-3) | ** | 9.77±0.05 | EI | 3482 |
| C ₅ H ₃ NO ⁺ | C ₅ H ₄ N(OH) (2-Pyridinol) (RN-CAS Registry Number 109-10-4) | ** | 9.28±0.02 | EI | 3636 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|-----------------|--|----------------|---|--------|------|
| $C_5H_5NO^+$ | $C_5H_4N(OH)$ (3-Pyridinol) (RN-CAS Registry Number 109-00-2) | ** | 9.55 ± 0.02 | EI | 3636 |
| $C_5H_5NO^+$ | $C_5H_4N(OH)$ (3-Pyridinol) (RN-CAS Registry Number 109-00-2) | ** | 9.55 ± 0.05 | EI | 3635 |
| $C_5H_5NO^+$ | $C_5H_4N(OH)$ (4-Pyridinol) (RN-CAS Registry Number 626-64-2) | ** | 9.89 ± 0.02 | EI | 3636 |
| $C_5H_5NO^+$ | C_4H_4NCHO (1- <i>H</i> -Pyrrole-2-carboxaldehyde) (RN-CAS Registry Number 1003-29-8) | ** | 8.93 ± 0.05 | EI | 3482 |
| $C_5H_8NO^+$ | $(CH_3)_2NCOCH=CHCH_3$ (RN-CAS Registry Number 23135-18-4) | CH_3 | 11.0 ± 0.1 | EI | 3996 |
| $C_5H_{13}NO^+$ | $(CH_3)_2N(CH_2)_3OH$ (RN-CAS Registry Number 3179-63-3) | ** | 8.74 ± 0.04 (V) | PE | 3987 |
| $C_6H_5NO^+$ | C_6H_5NO (Benzene, nitroso-) (RN-CAS Registry Number 586-96-9) | ** | 8.09 | PE | 3938 |
| $C_6H_6NO^+$ | $C_6H_4(NH_2)OCH_3$ (Benzenamine, 3-methoxy-) (RN-CAS Registry Number 536-90-3) | CH_3 | 11.07 ± 0.1 | EI | 3446 |
| $C_6H_6NO^+$ | $C_6H_4(NH_2)OCH_3$ (Benzenamine, 4-methoxy-) (RN-CAS Registry Number 104-94-9) | CH_3 | 10.43 ± 0.1 | EI | 3446 |
| $C_6H_6NO^+$ | $C_6H_4(OH)NHCOCH_3$ (Acetamide, <i>N</i> -(2-hydroxyphenyl)-) (RN-CAS Registry Number 614-80-2) | CH_3CO | 13.46 ± 0.02 | EI | 3631 |
| $C_6H_6NO^+$ | $C_6H_4(OH)NHCOCH_3$ (Acetamide, <i>N</i> -(4-hydroxyphenyl)-) (RN-CAS Registry Number 103-90-2) | CH_3CO | 13.52 ± 0.02 | EI | 3631 |
| $C_6H_6NO^+$ | $C_6H_4(NO_2)NH_2$ (Benzenamine, 3-nitro-) (RN-CAS Registry Number 99-09-2) | NO | 9.12 ± 0.1 | EI | 3447 |
| $C_6H_6NO^+$ | $C_6H_4(NO_2)NH_2$ (Benzenamine, 4-nitro-) (RN-CAS Registry Number 100-01-6) | NO | 9.56 ± 0.1 | EI | 3447 |
| $C_6H_7NO^+$ | $C_5H_4N(OCH_3)$ (Pyridine, 2-methoxy-) (RN-CAS Registry Number 1628-89-3) | ** | 8.96 ± 0.02 | EI | 3636 |
| $C_6H_7NO^+$ | $C_5H_4N(OCH_3)$ (Pyridine, 3-methoxy-) (RN-CAS Registry Number 7295-76-3) | ** | 9.34 ± 0.02 | EI | 3636 |
| $C_6H_7NO^+$ | $C_5H_4N(OCH_3)$ (Pyridine, 3-methoxy-) (RN-CAS Registry Number 7295-76-3) | ** | 9.34 ± 0.05 | EI | 3635 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|-----------------|---|----------------|---|--------|------|
| $C_6H_7NO^+$ | $C_5H_4N(OCH_3)$ (Pyridine, 4-methoxy-) (RN-CAS Registry Number 620-08-6) | ** | 9.58 ± 0.02 | EI | 3636 |
| $C_6H_7NO^+$ | $C_5H_4N(=O)CH_3$ (2(1 <i>H</i>)-Pyridinone, 1-methyl-) (RN-CAS Registry Number 694-85-9) | ** | 8.58 ± 0.02 | EI | 3636 |
| $C_6H_7NO^+$ | $C_5H_4N(=O)CH_3$ (4(1 <i>H</i>)-Pyridinone, 1-methyl-) (RN-CAS Registry Number 695-19-2) | ** | 8.48 ± 0.02 | EI | 3636 |
| $C_6H_7NO^+$ | $C_4H_4NCOCH_3$ (Ethanone, 1-(1 <i>H</i> -pyrrol-2-yl)-) (RN-CAS Registry Number 1072-83-9) | ** | 8.72 ± 0.05 | EI | 3482 |
| $C_6H_7NO^+$ | $C_5H_4N(O)CH_3$ (Pyridinium, 3-hydroxy-1-methyl-, hydroxide, inner salt) (RN-CAS Registry Number 25065-00-3) | ** | 7.90 ± 0.02 | EI | 3636 |
| $C_6H_7NO^+$ | $C_5H_4N(O)CH_3$ (Pyridinium, 3-hydroxy-1-methyl-, hydroxide, inner salt) (RN-CAS Registry Number 25065-00-3) | ** | 7.90 ± 0.05 | EI | 3635 |
| $C_6H_7NO^+$ | $C_5H_3N(OH)CH_3$ (3-Pyridinol, 6-methyl-) (RN-CAS Registry Number 1121-78-4) | ** | 9.15 ± 0.05 | EI | 3635 |
| $C_6H_7NO^+$ | $C_6H_4(OH)NHCOCH_3$ (Acetamide, <i>N</i> -(2-hydroxyphenyl)-) (RN-CAS Registry Number 614-80-2) | $CH_2=C=O$ | 9.41 ± 0.02 | EI | 3631 |
| $C_6H_7NO^+$ | $C_6H_4(OH)NHCOCH_3$ (Acetamide, <i>N</i> -(4-hydroxyphenyl)-) (RN-CAS Registry Number 103-90-2) | $CH_2=C=O$ | 9.82 ± 0.02 | EI | 3631 |
| $C_6H_{11}NO^+$ | $(CH_3)_2NCOCH=CHCH_3$ (RN-CAS Registry Number 23135-18-4) | ** | 9.0 ± 0.1 | EI | 3996 |
| $C_6H_{15}NO^+$ | $(C_2H_5)_2NCH_2CH_2OH$ (RN-CAS Registry Number 100-37-8) | ** | 8.58 ± 0.03 (V) | PE | 3987 |
| $C_7H_4NO^+$ | $C_6H_4(CN)OCH_3$ (Benzonitrile, 3-methoxy-) (RN-CAS Registry Number 1527-89-5) | CH_3 | 12.75 ± 0.1 | EI | 3446 |
| $C_7H_4NO^+$ | $C_6H_4(CN)OCH_3$ (Benzonitrile, 4-methoxy-) (RN-CAS Registry Number 874-90-8) | CH_3 | 12.65 ± 0.1 | EI | 3446 |
| $C_7H_4NO^+$ | $C_6H_4(NO_2)CN$ (Benzonitrile, 3-nitro-) (RN-CAS Registry Number 619-24-9) | NO | 10.45 ± 0.1 | EI | 3447 |
| $C_7H_4NO^+$ | $C_6H_4(NO_2)CN$ (Benzonitrile, 4-nitro-) (RN-CAS Registry Number 619-72-7) | NO | 10.80 ± 0.1 | EI | 3447 |
| $C_7H_6NO^+$ | $C_6H_4(NH_2)COOH$ (Benzoic acid, 3-amino-) (RN-CAS Registry Number 99-05-8) | OH | 12.18 ± 0.2 | EI | 3973 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|-----------------|--|----------------|---|--------|------|
| $C_7H_6NO^+$ | $C_6H_4(NH_2)COOH$ (Benzoic acid, 4-amino-) (RN-CAS Registry Number 150-13-0) | OH | 12.12 ± 0.2 | EI | 3973 |
| $C_7H_7NO^+$ | $C_6H_5CONH_2$ (Benzamide) (RN-CAS Registry Number 55-21-0) | ** | 9.60 | EI | 3792 |
| $C_7H_9NO^+$ | $C_6H_4(NH_2)OCH_3$ (Benzenamine, 3-methoxy-) (RN-CAS Registry Number 536-90-3) | ** | 7.76 ± 0.1 | EI | 3446 |
| $C_7H_9NO^+$ | $C_6H_4(NH_2)OCH_3$ (Benzenamine, 4-methoxy-) (RN-CAS Registry Number 104-94-9) | ** | 6.92 | EI | 3845 |
| $C_7H_9NO^+$ | $C_6H_4(NH_2)OCH_3$ (Benzenamine, 4-methoxy-) (RN-CAS Registry Number 104-94-9) | ** | 7.60 ± 0.1 | EI | 3446 |
| $C_7H_9NO^+$ | $C_6H_4(NH_2)OCH_3$ (Benzenamine, 4-methoxy-) (RN-CAS Registry Number 104-94-9) | ** | 9.39 | EI | 4089 |
| $C_7H_{10}NO^+$ | $C_4H_8NCOCH=CHCH_3$ (Pyrrolidine, 1-(1-oxo-2-butenyl)-) (RN-CAS Registry Number 51944-65-1) | CH_3 | 11.2 ± 0.1 | EI | 3996 |
| $C_7H_{11}NO^+$ | $C_5H_8NCOCH_3$ (Pyridine, 1-acetyl-1,2,3,4-tetrahydro-) (RN-CAS Registry Number 19615-27-1) | ** | 8.8 | EI | 4046 |
| $C_7H_{13}NO^+$ | $C_5H_{10}NCOCH_3$ (Piperidine, 1-acetyl-) (RN-CAS Registry Number 618-42-8) | ** | 9.1 | EI | 4046 |
| $C_7H_{17}NO^+$ | $(C_2H_5)_2N(CH_2)_3OH$ (RN-CAS Registry Number 622-93-5) | ** | 8.56 ± 0.05 (V) | PE | 3987 |
| $C_8H_4NO^+$ | $C_6H_4(CN)COOH$ (Benzoic acid, 4-cyano-) (RN-CAS Registry Number 619-65-8) | OH | 12.68 ± 0.2 | EI | 3973 |
| $C_8H_7NO^+$ | $C_6H_4(CN)OCH_3$ (Benzonitrile, 3-methoxy-) (RN-CAS Registry Number 1527-89-5) | ** | 9.11 ± 0.1 | EI | 3446 |
| $C_8H_7NO^+$ | $C_6H_4(CN)OCH_3$ (Benzonitrile, 4-methoxy-) (RN-CAS Registry Number 874-90-8) | ** | 8.74 | EI | 3845 |
| $C_8H_7NO^+$ | $C_6H_4(CN)OCH_3$ (Benzonitrile, 4-methoxy-) (RN-CAS Registry Number 874-90-8) | ** | 8.97 ± 0.1 | EI | 3446 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|---------------------------------|--|-----------------|---|--------|------|
| $C_8H_8NO^+$ | $C_6H_4ClNHCOCH_3$ (Acetamide, <i>N</i> -(2-chlorophenyl)-) (RN-CAS Registry Number 533-17-5) | | 8.86 ± 0.03 | EI | 3483 |
| $C_8H_8NO^+$ | $C_6H_4BrNHCOCH_3$ (Acetamide, <i>N</i> -(2-bromophenyl)-) (RN-CAS Registry Number 614-76-6) | | 9.08 ± 0.03 | EI | 3483 |
| $C_8H_8NO^+$ | $C_6H_4INHCOCH_3$ (Acetamide, <i>N</i> -(2-iodophenyl)-) (RN-CAS Registry Number 19591-17-4) | | 8.57 ± 0.03 | EI | 3483 |
| $C_8H_9NO^+$ | $C_6H_5NHCOCH_3$ (Acetamide, <i>N</i> -phenyl-) (RN-CAS Registry Number 103-84-4) | ** | 8.18 ± 0.03 | EI | 3483 |
| $C_8H_{12}NO^+$ | $C_5H_{10}NCOCH=CHCH_3$ (Piperidine, 1-(1-oxo-2-butenyl)-) (RN-CAS Registry Number 3626-69-5) | ** | 11.1 ± 0.1 | EI | 3996 |
| $C_8H_{13}NO^+$ | $C_4H_8NCOCH=CHCH_3$ (Pyrrolidine, 1-(1-oxo-2-butenyl)-) (RN-CAS Registry Number 51944-65-1) | ** | 9.0 ± 0.1 | EI | 3996 |
| $C_8H_{18}NO^+$ (RD-Radical) | (<i>tert</i> - C_4H_9) ₂ NO (RN-CAS Registry Number 2406-25-9) | ** | 6.77 | PE | 3712 |
| $C_9H_8NO^+$ | $C_6H_5NHCOCH=CHCH_3$ (2-Butenamide, <i>N</i> -phenyl-) (RN-CAS Registry Number 1733-40-0) | CH ₃ | 12.1 ± 0.3 | EI | 3996 |
| $C_9H_{11}NO^+$ | $C_6H_4(CH_3)NHCOCH_3$ (Acetamide, <i>N</i> -(2-methylphenyl)-) (RN-CAS Registry Number 120-66-1) | ** | 8.03 ± 0.02 | EI | 3631 |
| $C_9H_{11}NO^+$ | $C_6H_4(CH_3)NHCOCH_3$ (Acetamide, <i>N</i> -(4-methylphenyl)-) (RN-CAS Registry Number 103-89-9) | ** | 7.75 ± 0.02 | EI | 3631 |
| $C_9H_{11}NO^+$ | $C_6H_4(CHO)N(CH_3)_2$ (Benzaldehyde, 4-(dimethylamino)-) (RN-CAS Registry Number 100-10-7) | ** | 7.36 ± 0.02 | PI | 4028 |
| $C_9H_{13}NO^+$ | $C_6H_4(OCH_3)N(CH_3)_2$ (Benzenamine, 2-methoxy- <i>N,N</i> -dimethyl-) (RN-CAS Registry Number 700-75-4) | ** | 7.59 ± 0.02 | EI | 3630 |
| $C_9H_{13}NO^+$ | $C_6H_4(O)N(CH_3)_3$ (Benzenaminium, 2-hydroxy- <i>N,N,N</i> -trimethyl-, hydroxide, inner salt) (RN-CAS Registry Number 31061-58-2) | ** | ~6.8 | EI | 3630 |
| $C_9H_{13}NO^+$ | $C_5H_8NCOCH=CHCH_3$ (Pyridine, 1,2,3,4-tetrahydro-1-(1-oxo-2-butenyl)-, (E)) (RN-CAS Registry Number 50838-23-8) | ** | 8.6 | EI | 4046 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|---------------------------------|--|----------------|---|--------|------|
| $C_9H_{15}NO^+$ | $C_5H_{10}NCOCH=CHCH_3$ (Piperidine, 1-(1-oxo-2-butenyl)-, (E)) (RN-CAS Registry Number 50838-22-7) | | 8.9 | EI | 4046 |
| $C_9H_{15}NO^+$ | $C_5H_{10}NCOCH=CHCH_3$ CH_3 (Piperidine, 1-(1-oxo-2-butenyl)-) (RN-CAS Registry Number 3626-69-5) | | 8.9 ± 0.1 | EI | 3996 |
| $C_9H_{17}NO^+$ | $C_5H_9N(=O)(CH_3)_4$ (4-Piperidinone, 2,2,6,6-tetramethyl-) (RN-CAS Registry Number 826-36-8) | ** | 8.30 ± 0.05 | EI | 3494 |
| $C_9H_{18}NO^+$ (RD-Radical) | $C_5H_6N(CH_3)_4O$ (1-Piperidinyloxy, 2,2,6,6-tetramethyl-) (RN-CAS Registry Number 2564-83-2) | ** | 6.73 | PE | 3712 |
| $C_{10}H_{10}NO^+$ | $C_6H_5CH_2NHCOCH=CHCH_3$ CH_3 (2-Butenamide, N-(phenylmethyl)-) (RN-CAS Registry Number 51944-67-3) | | 10.7 ± 0.1 | EI | 3996 |
| $C_{10}H_{11}NO^+$ | $C_6H_5NHCOCH=CHCH_3$ (2-Butenamide, N-phenyl-) (RN-CAS Registry Number 1733-40-0) | ** | 8.7 ± 0.1 | EI | 3996 |
| $C_{11}H_{13}NO^+$ | $C_6H_5CH_2NHCOCH=CHCH_3$ CH_3 (2-Butenamide, N-(phenylmethyl)-) (RN-CAS Registry Number 51944-67-3) | ** | 8.6 ± 0.1 | EI | 3996 |
| $C_{12}H_{13}NO^+$ | $C_5H_8NCOC_6H_5$ (Pyridine, 1-benzoyl-1,2,3,4-tetrahyro-) (RN-CAS Registry Number 50838-24-9) | ** | 8.4 | EI | 4046 |
| $C_{12}H_{15}NO^+$ | $C_5H_{10}NCOC_6H_5$ (Piperidine, 1-benzoyl-) (RN-CAS Registry Number 776-75-0) | ** | 8.8 | EI | 4046 |
| $C_6H_4N_2O^+$ | $C_6H_4N_2O$ (Benzofurazan) (RN-CAS Registry Number 273-09-6) | ** | 9.37 | PE | 4017 |
| $C_8H_{10}N_2O^+$ | $C_6H_4(NH_2)NHCOCH_3$ (Acetamide, N-(2-aminophenyl)-) (RN-CAS Registry Number 34801-09-7) | ** | 7.39 ± 0.02 | EI | 3631 |
| $C_8H_{10}N_2O^+$ | $C_6H_4(NH_2)NHCOCH_3$ (Acetamide, N-(4-aminophenyl)-) (RN-CAS Registry Number 122-80-5) | ** | 7.12 ± 0.02 | EI | 3631 |
| $C_{10}H_{22}N_2O^+$ | $C_2H_4N_2O(C_4H_9)_2$ (1,3,4-Oxadiazolidine, 3,4-bis(1,1-dimethylethyl)-) (RN-CAS Registry Number 38786-33-3) | ** | 8.15 (V) | PE | 3889 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|-----------------------|--|----------------|---|--------|------|
| $C_{17}H_{20}N_2O^+$ | $(C_6H_4N(CH_3)_2)_2CO$ (Methanone, diphenyl-, bis(dimethylamino)deriv.) (RN-CAS Registry Number 58211-66-8) | ** | 7.25 ± 0.1 | PI | 4028 |
| $CH_3NO_2^+$ | CH_3NO_2 (RN-CAS Registry Number 75-52-5) | ** | 11.040 ± 0.017 | PI | 3524 |
| $CH_3NO_2^+(^2A_1)$ | CH_3NO_2 (RN-CAS Registry Number 75-52-5) | ** | 11.07 ± 0.01 | PE | 3721 |
| $CH_3NO_2^+$ | CH_3NO_2 (RN-CAS Registry Number 75-52-5) | ** | 11.31 ± 0.015 (V) | PE | 4107 |
| $CH_3NO_2^+(^2A_2)$ | CH_3NO_2 (RN-CAS Registry Number 75-52-5) | ** | 11.73 ± 0.01 | PE | 3721 |
| $CH_3NO_2^+(^2B_2)$ | CH_3NO_2 (RN-CAS Registry Number 75-52-5) | ** | 13.85 ± 0.01 | PE | 3721 |
| $CH_3NO_2^+(^2B_1)$ | CH_3NO_2 (RN-CAS Registry Number 75-52-5) | ** | 15.75 ± 0.01 (V) | PE | 3721 |
| $CH_3NO_2^+(^2B_2)$ | CH_3NO_2 (RN-CAS Registry Number 75-52-5) | ** | ~ 16.7 | PE | 3721 |
| $CH_3NO_2^+(^2A_1)$ | CH_3NO_2 (RN-CAS Registry Number 75-52-5) | ** | 19.1 (V) | PE | 3721 |
| $CH_3NO_2^+$ | CH_3ONO (RN-CAS Registry Number 624-91-9) | ** | 10.475 ± 0.007 | PI | 3524 |
| $CD_3NO_2^+(^2A_1)$ | CD_3NO_2 (RN-CAS Registry Number 13031-32-8) | ** | 11.08 ± 0.01 | PE | 3721 |
| $CD_3NO_2^+(^2A_2)$ | CD_3NO_2 (RN-CAS Registry Number 13031-32-8) | ** | 11.73 ± 0.01 | PE | 3721 |
| $C_2H_5NO_2^+$ | $C_2H_5NO_2$ (RN-CAS Registry Number 56-40-6) | ** | 9.21 ± 0.05 | EI | 3571 |
| $C_6H_4NO_2^+$ | $C_6H_4(NO_2)_2$ (Benzene, 1,3-dinitro-) (RN-CAS Registry Number 99-65-0) | NO_2 | 12.34 ± 0.1 | EI | 3447 |
| $C_6H_4NO_2^+$ | $C_6H_4(NO_2)_2$ (Benzene, 1,4-dinitro-) (RN-CAS Registry Number 100-25-4) | NO_2 | 12.50 ± 0.1 | EI | 3447 |
| $C_6H_5NO_2^+$ | $C_6H_5NO_2$ (Benzene, nitro-) (RN-CAS Registry Number 98-95-3) | ** | 9.88 ± 0.015 (V) | PE | 4107 |
| $C_6H_5NO_2^+$ | $C_6H_5NO_2$ (Benzene, nitro-) (RN-CAS Registry Number 98-95-3) | ** | 9.94 ± 0.025 | PE | 3626 |
| $C_6H_5NO_2^+(^2B_1)$ | $C_6H_5NO_2$ (Benzene, nitro-) (RN-CAS Registry Number 98-95-3) | ** | 9.99 ± 0.01 | PE | 3721 |
| $C_6H_5NO_2^+$ | $C_6H_5NO_2$ (Benzene, nitro-) (RN-CAS Registry Number 98-95-3) | ** | 9.99 | PE | 3856 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|----------------|---|----------------|---|--------|------|
| $C_6H_5NO_2^+$ | $C_6H_5NO_2$ (Benzene, nitro-) (RN-CAS Registry Number 98-95-3) | ** | 9.90 | EDD | 3485 |
| $C_6H_5NO_2^+$ | $C_6H_5NO_2$ (Benzene, nitro-) (RN-CAS Registry Number 98-95-3) | ** | 9.6 | EI | 3916 |
| $C_6H_5NO_2^+$ | $C_6H_5NO_2$ (Benzene, nitro-) (RN-CAS Registry Number 98-95-3) | ** | 9.65 ± 0.1 | EI | 3447 |
| $C_6H_7NO_2^+$ | $C_4H_4NCOOCH_3$ (1 <i>H</i> -Pyrrole-2-carboxylic acid, methyl ester) (RN-CAS Registry Number 1193-62-0) | ** | 8.65 ± 0.05 | EI | 3482 |
| $C_7H_6NO_2^+$ | $C_6H_4(NO_2)C_4H_9$ (Benzene, 1-butyl-3-nitro-) (RN-CAS Registry Number 20651-76-7) | | 13.08 ± 0.1 | EI | 3629 |
| $C_7H_6NO_2^+$ | $C_6H_4(NO_2)C_4H_9$ (Benzene, 1-butyl-4-nitro-) (RN-CAS Registry Number 20651-75-6) | | 12.54 ± 0.1 | EI | 3629 |
| $C_7H_7NO_2^+$ | $C_6H_4(NO_2)CH_3$ (Benzene, 1-methyl-2-nitro-) (RN-CAS Registry Number 88-72-2) | ** | 9.69 ± 0.015 (V) | PE | 4107 |
| $C_7H_7NO_2^+$ | $C_6H_4(NO_2)CH_3$ (Benzene, 1-methyl-3-nitro-) (RN-CAS Registry Number 99-08-1) | ** | 9.49 ± 0.015 (V) | PE | 4107 |
| $C_7H_7NO_2^+$ | $C_6H_4(NO_2)CH_3$ (Benzene, 1-methyl-3-nitro-) (RN-CAS Registry Number 99-08-1) | ** | 9.48 ± 0.1 | EI | 3447 |
| $C_7H_7NO_2^+$ | $C_6H_4(NO_2)CH_3$ (Benzene, 1-methyl-4-nitro-) (RN-CAS Registry Number 99-99-0) | ** | 9.54 ± 0.015 (V) | PE | 4107 |
| $C_7H_7NO_2^+$ | $C_6H_4(NO_2)CH_3$ (Benzene, 1-methyl-4-nitro-) (RN-CAS Registry Number 99-99-0) | ** | 9.50 ± 0.1 | EI | 3447 |
| $C_7H_7NO_2^+$ | $C_6H_4(NO_2)CH_3$ (Benzene, 1-methyl-4-nitro-) (RN-CAS Registry Number 99-99-0) | ** | 9.56 | EI | 4089 |
| $C_7H_7NO_2^+$ | $C_6H_4(NH_2)COOH$ (Benzoic acid, 3-amino-) (RN-CAS Registry Number 99-05-8) | ** | 8.41 ± 0.2 | EI | 3973 |
| $C_7H_7NO_2^+$ | $C_6H_4(NH_2)COOH$ (Benzoic acid, 4-amino-) (RN-CAS Registry Number 150-13-0) | ** | 8.36 ± 0.2 | EI | 3973 |
| $C_7H_7NO_2^+$ | $C_6H_4(NO_2)C_4H_9$ (Benzene, 1-butyl-3-nitro-) (RN-CAS Registry Number 20651-76-7) | $CH_2=CHCH_3$ | 11.52 ± 0.1 | EI | 3629 |
| $C_7H_7NO_2^+$ | $C_6H_4(NO_2)C_4H_9$ (Benzene, 1-butyl-4-nitro-) (RN-CAS Registry Number 20651-75-6) | $CH_2=CHCH_3$ | 11.44 ± 0.1 | EI | 3629 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|-------------------|--|----------------|---|--------|------|
| $C_7H_{10}NO_2^+$ | $C_4H_8NO(COCH=CHCH_3)$ (Morpholine, 4-(1-oxo-2-butenyl)-) (RN-CAS Registry Number 51944-66-2) | ** | 11.1 ± 0.1 | EI | 3996 |
| $C_8H_5NO_2^+$ | $C_6H_4(CN)COOH$ (Benzoic acid, 4-cyano-) (RN-CAS Registry Number 619-65-8) | ** | 10.27 ± 0.2 | EI | 3973 |
| $C_8H_9NO_2^+$ | $C_6H_4(OH)NHCOCH_3$ (Acetamide, <i>N</i> -(2-hydroxyphenyl)-) (RN-CAS Registry Number 614-80-2) | ** | 7.01 ± 0.02 | EI | 3631 |
| $C_8H_9NO_2^+$ | $C_6H_4(OH)NHCOCH_3$ (Acetamide, <i>N</i> -(4-hydroxyphenyl)-) (RN-CAS Registry Number 103-90-2) | ** | 7.57 ± 0.02 | EI | 3631 |
| $C_8H_9NO_2^+$ | $C_6H_3(CH_3)_2NO_2$ (Benzene, 1,3-dimethyl-2-nitro-) (RN-CAS Registry Number 81-20-9) | ** | 9.17 ± 0.015 | PE | 4107 |
| $C_8H_9NO_2^+$ | $C_6H_3(CH_3)_2NO_2$ (Benzene, 2,4-dimethyl-1-nitro-) (RN-CAS Registry Number 89-87-2) | ** | 9.38 ± 0.015 (V) | PE | 4107 |
| $C_8H_9NO_2^+$ | $C_5H_4NCH_2COOCH_3$ (2-Pyridineacetic acid methyl ester) (RN-CAS Registry Number 1658-42-0) | ** | 9.40 ± 0.02 | EI | 3627 |
| $C_8H_9NO_2^+$ | $C_5H_4NCH_2COOCH_3$ (3-Pyridineacetic acid methyl ester) (RN-CAS Registry Number 39998-25-9) | ** | 9.52 ± 0.02 | EI | 3627 |
| $C_8H_9NO_2^+$ | $C_5H_4NCH_2COOCH_3$ (4-Pyridineacetic acid methyl ester) (RN-CAS Registry Number 29800-89-3) | ** | 9.62 ± 0.02 | EI | 3627 |
| $C_8H_{13}NO_2^+$ | $C_4H_8NO(COCH=CHCH_3)$ (Morpholine, 4-(1-oxo-2-butenyl)-) (RN-CAS Registry Number 51944-66-2) | ** | 8.8 ± 0.1 | EI | 3996 |
| $C_9H_{11}NO_2^+$ | $C_5H_4N(CH_3)=CHCOOCH_3$ (Acetic acid, (1-methyl-2(1 <i>H</i>)-pyridinylidene)-, methyl ester) (RN-CAS Registry Number 39998-21-5) | ** | 7.02 ± 0.02 | EI | 3627 |
| $C_9H_{11}NO_2^+$ | $C_5H_4N(CH_3)=CHCOOCH_3$ (Acetic acid, (1-methyl-4(1 <i>H</i>)-pyridinylidene)-, methyl ester) (RN-CAS Registry Number 39998-22-6) | ** | 6.82 ± 0.02 | EI | 3627 |
| $C_9H_{11}NO_2^+$ | $C_6H_5CH_2CH(NH_2)COOH$ (DL-Phenylalanine) (RN-CAS Registry Number 150-30-1) | ** | ≤ 8.4 | PI | 3766 |
| $C_9H_{13}NO_2^+$ | $C_5H_5N(CH_3)CH_2COOCH_3$ (3-Pyridineacetic acid, 1,4-dihydro-1-methyl-, methyl ester) (RN-CAS Registry Number 39998-23-7) | ** | 6.94 ± 0.02 | EI | 3627 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|-----------------------------------|---|-----------------|---|--------|------|
| $C_9H_{16}NO_2^+$ (RD-Radical) | $C_5H_4N(O)(=O)(CH_3)_4$ (1-Piperidinyloxy, 2,2,6,6-tetramethyl-4-oxo-) (RN-CAS Registry Number 2896-70-0) | ** | 7.40 ± 0.05 | EI | 3494 |
| $C_9H_{17}NO_2^+$ | <i>trans</i> - $(C_2H_5)_2NCH=CHCOC_2H_5$ (RN-CAS Registry Number 13894-28-5) | ** | 7.63 (V) | PE | 3885 |
| $C_9H_{17}NO_2^+$ | $C_5H_4N(=O)(OH)(CH_3)_4$ (4-Piperidinone, 1-hydroxy-2,2,6,6-tetramethyl-) (RN-CAS Registry Number 3637-11-4) | ** | 8.51 ± 0.05 | EI | 3494 |
| $C_{10}H_{13}NO_2^+$ | $C_6H_4(NO_2)C_4H_9$ (Benzene, 1-butyl-3-nitro-) (RN-CAS Registry Number 20651-76-7) | ** | 9.94 ± 0.1 | EI | 3629 |
| $C_{10}H_{13}NO_2^+$ | $C_6H_4(NO_2)C_4H_9$ (Benzene, 1-butyl-4-nitro-) (RN-CAS Registry Number 20651-75-6) | ** | 10.07 ± 0.1 | EI | 3629 |
| $C_{13}H_{10}NO_2^+$ | $(C_6H_4NO_2)_2CH_2$ (Benzene, 1,1'-methylenebis[4-nitro-]) (RN-CAS Registry Number 1817-74-9) | NO ₂ | 11.1 ± 0.1 | EI | 3807 |
| $C_{13}H_{11}NO_2^+$ | $C_6H_5CH_2C_6H_4NO_2$ (Benzene, 1-nitro-4-(phenylmethyl)-) (RN-CAS Registry Number 1817-77-2) | ** | 9.35 ± 0.05 | EI | 3806 |
| $C_{14}H_{13}NO_2^+$ | $C_6H_5CH_2CH_2C_6H_4NO_2$ (Benzene, 1-nitro-4-(2-phenylethyl)-) (RN-CAS Registry Number 14310-29-3) | ** | 9.17 ± 0.05 | EI | 3806 |
| $C_4H_4N_2O_2^+$ | $C_4H_4N_2O_2$ (2,4(1 <i>H</i> ,3 <i>H</i>)-Pyrimidinedione) (RN-CAS Registry Number 66-22-8) (ON-Other name: Uracil) | ** | 9.53 ± 0.02 | EI | 3571 |
| $C_4H_4N_2O_2^+$ | $C_4H_4NNO_2$ (Pyrrole, 2-nitro-) (RN-CAS Registry Number 5919-26-6) | ** | 9.30 ± 0.05 | EI | 3482 |
| $C_6H_6N_2O_2^+$ | $C_6H_4(NO_2)NH_2$ (Benzenamine, 2-nitro-) (RN-CAS Registry Number 88-74-4) | ** | 8.43 (V) | PE | 3856 |
| $C_6H_6N_2O_2^+$ | $C_6H_4(NO_2)NH_2$ (Benzenamine, 3-nitro-) (RN-CAS Registry Number 99-09-2) | ** | 8.60 (V) | PE | 3856 |
| $C_6H_6N_2O_2^+$ | $C_6H_4(NO_2)NH_2$ (Benzenamine, 3-nitro-) (RN-CAS Registry Number 99-09-2) | ** | 8.73 ± 0.1 | EI | 3447 |
| $C_6H_6N_2O_2^+$ | $C_6H_4(NO_2)NH_2$ (Benzenamine, 4-nitro-) (RN-CAS Registry Number 100-01-6) | ** | 8.60 (V) | PE | 3856 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|-------------------------------------|--|----------------|---|--------|------|
| $C_6H_6N_2O_2^+$ | $C_6H_4(NO_2)NH_2$ (Benzenamine, 4-nitro-) (RN-CAS Registry Number 100-01-6) | ** | 8.43 | EI | 4089 |
| $C_6H_6N_2O_2^+$ | $C_6H_4(NO_2)NH_2$ (Benzenamine, 4-nitro-) (RN-CAS Registry Number 100-01-6) | ** | 8.62 ± 0.1 | EI | 3447 |
| $C_7H_4N_2O_2^+$ | $C_6H_4(NO_2)CN$ (Benzonitrile, 3-nitro-) (RN-CAS Registry Number 619-24-9) | ** | 10.29 ± 0.1 | EI | 3447 |
| $C_7H_4N_2O_2^+$ | $C_6H_4(NO_2)CN$ (Benzonitrile, 4-nitro-) (RN-CAS Registry Number 619-72-7) | ** | 10.23 ± 0.1 | EI | 3447 |
| $C_7H_8N_2O_2^+$ | $C_6H_4(NO_2)NHCH_3$ (Benzenamine, <i>N</i> -methyl-2-nitro-) (RN-CAS Registry Number 612-28-2) | ** | 8.02 (V) | PE | 3856 |
| $C_7H_8N_2O_2^+$ | $C_6H_4(NO_2)NHCH_3$ (Benzenamine, <i>N</i> -methyl-4-nitro-) (RN-CAS Registry Number 100-15-2) | ** | 8.17 (V) | PE | 3856 |
| $C_8H_{10}N_2O_2^+$ | $C_6H_2NO_2(CH_3)_2NH_2$ (Benzenamine, 2,6-dimethyl-4-nitro-) (RN-CAS Registry Number 16947-63-0) | ** | 8.33 (V) | PE | 3856 |
| $C_8H_{10}N_2O_2^+$ | $C_6H_2NO_2(CH_3)_2NH_2$ (Benzenamine, 3,5-dimethyl-4-nitro-) (RN-CAS Registry Number 34761-82-5) | ** | 8.23 (V) | PE | 3856 |
| $C_8H_{10}N_2O_2^+$ | $C_6H_4(NO_2)N(CH_3)_2$ (Benzenamine, <i>N,N</i> -dimethyl-4-nitro-) (RN-CAS Registry Number 100-23-2) | ** | 8.0 (V) | PE | 3856 |
| $C_9H_{12}N_2O_2^+$ | $C_6H_3NO_2(CH_3)N(CH_3)_2$ (Benzenamine, <i>N,N,2</i> -trimethyl-4-nitro-) (RN-CAS Registry Number 32417-74-6) | ** | 8.30 (V) | PE | 3856 |
| $C_9H_{15}N_2O_2^+$ (RD-Radical) | $C_4HN(O)(CH_3)_4CONH_2$ (1 <i>H</i> -Pyrrol-1-yloxy, 3-(aminocarbonyl)-2,5-dihydro-2,2,5,5-tetramethyl-) (RN-CAS Registry Number 3229-73-0) | ** | 7.40 ± 0.05 | EI | 3494 |
| $C_9H_{17}N_2O_2^+$ (RD-Radical) | $C_4H_3N(O)(CH_3)_4CONH_2$ (1-Pyrrolidinyloxy, 3-(aminocarbonyl)-2,2,5,5-tetramethyl-) (RN-CAS Registry Number 4399-80-8) | ** | 7.40 ± 0.05 | EI | 3494 |
| $C_{11}H_{12}N_2O_2^+$ | $C_{11}H_{12}N_2O_2$ (DL-Tryptophan) (RN-CAS Registry Number 54-12-6) | ** | < 7.5 | EI | 3766 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|--|--|----------------|---|--------|------|
| $C_{11}H_{21}N_2O_2^+$ (RD-Radical) | $C_5H_5N(O)(CH_3)_4NHCOCH_3$ (1-Piperidinyloxy, 4-(acetylamino)-2,2,6,6-tetramethyl-) (RN-CAS Registry Number 14691-89-5) | ** | 7.40 ± 0.05 | EI | 3494 |
| $C_{12}H_{20}N_2O_2^+$ | $C_{12}H_{20}O_2N_2$ (2-Pentanone, 4,4'-(1,2-ethanediyldinitrilo)bis-) (RN-CAS Registry Number 6310-76-5) | ** | 7.71 (V) | PE | 3822 |
| $C_{13}H_{12}N_2O_2^+$ | $C_6H_4(NO_2)CH_2C_6H_4NH_2$ (Benzenamine, 4-[(4-nitrophenyl)methyl]-) (RN-CAS Registry Number 726-17-0) | ** | 7.87 ± 0.05 | EI | 3806 |
| $C_{14}H_{14}N_2O_2^+$ | $C_6H_4(NH_2)CH_2CH_2C_6H_4NO_2$ (Benzenamine, 4-[2-(4-nitrophenyl)ethyl]-) (RN-CAS Registry Number 7357-96-2) | ** | 7.78 ± 0.05 | EI | 3806 |
| $C_{16}H_{10}N_2O_2^+$ | $C_{16}H_{10}N_2O_2$ ([$\Delta^{2,2}$ -Biindoline]-3,3'-dione) (RN-CAS Registry Number 12626-73-2) (ON-Other name: Indigo Blue) | ** | 7.17 | PI | 3586 |
| $C_{16}H_{12}N_2O_2^+$ | $C_6H_4(NO_2)C_3H_3(CN)C_6H_5$ (Cyclopropanecarbonitrile, 1-(<i>p</i> -nitrophenyl)-2-phenyl-) (RN-CAS Registry Number 10432-22-1) | ** | 9.05 ± 0.10 | EDD | 3575 |
| $C_{18}H_{17}N_3O_2^+$ | $C_6H_4(NO_2)C_3H_3(CN)C_6H_4N(CH_3)_2$ (Cyclopropanecarbonitrile, 2-(<i>p</i> -(dimethylamino)phenyl)-1-(<i>p</i> -nitrophenyl)-) (RN-CAS Registry Number 28752-34-3) | ** | 8.30 ± 0.07 | EDD | 3575 |
| $C_4H_3NO_3^+$ | $C_4H_3ONO_2$ (Furan, 2-nitro-) (RN-CAS Registry Number 609-39-2) | ** | 10.04 ± 0.05 | EI | 3482 |
| $C_6H_5NO_3^+$ | $C_6H_4(NO_2)OH$ (Phenol, 4-nitro-) (RN-CAS Registry Number 100-02-7) | ** | 8.84 ± 0.1 | EI | 3447 |
| $C_6H_5NO_3^+$ | $C_6H_4(NO_2)OOCCH_3$ (Acetic acid, 3-nitrophenyl ester) (RN-CAS Registry Number 1523-06-4) | $CH_2=C=O$ | 10.85 ± 0.2 | EI | 3484 |
| $C_6H_5NO_3^+$ | $C_6H_4(NO_2)OOCCH_3$ (Acetic acid, 4-nitrophenyl ester) (RN-CAS Registry Number 830-03-5) | $CH_2=C=O$ | 10.76 ± 0.2 | EI | 3484 |
| $C_7H_4NO_3^+$ | $C_6H_4(NO_2)COOH$ (Benzoic acid, 3-nitro-) (RN-CAS Registry Number 121-92-6) | OH | 13.00 ± 0.2 | EI | 3973 |
| $C_7H_4NO_3^+$ | $C_6H_4(NO_2)COOH$ (Benzoic acid, 4-nitro-) (RN-CAS Registry Number 62-23-7) | OH | 11.58 ± 0.2 | EI | 3973 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|------------------------|---|----------------|---|--------|------|
| $C_7H_7NO_3^+$ | $C_6H_4(NO_2)OCH_3$ (Benzene, 1-methoxy-3-nitro-) (RN-CAS Registry Number 555-03-3) | ** | 9.09 ± 0.1 | EI | 3447 |
| $C_7H_7NO_3^+$ | $C_6H_4(NO_2)OCH_3$ (Benzene, 1-methoxy-4-nitro-) (RN-CAS Registry Number 100-17-4) | ** | 9.04 ± 0.1 | EI | 3447 |
| $C_9H_{11}NO_3^+$ | $C_6H_4(OH)CH_2CH(NH_2)COOH$ (DL-Tyrosine) (RN-CAS Registry Number 556-03-6) | ** | ≤ 8.4 | EI | 3766 |
| $C_9H_7N_2O_3^+$ | $C_6H_4(NO_2)NHCOCH=CHCH_3$ CH_3 (2-Butenamide, N-(4-nitrophenyl)-) (RN-CAS Registry Number 51944-68-4) | | 13.6 ± 0.3 | EI | 3996 |
| $C_{10}H_{10}N_2O_3^+$ | $C_6H_4(NO_2)NHCOCH=CHCH_3$ CH_3 (2-Butenamide, N-(4-nitrophenyl)-) (RN-CAS Registry Number 51944-68-4) | ** | 9.1 ± 0.1 | EI | 3996 |
| $C_7H_5NO_4^+$ | $C_6H_4(NO_2)COOH$ (Benzoic acid, 3-nitro-) (RN-CAS Registry Number 121-92-6) | ** | 10.31 ± 0.2 | EI | 3973 |
| $C_7H_5NO_4^+$ | $C_6H_4(NO_2)COOH$ (Benzoic acid, 4-nitro-) (RN-CAS Registry Number 62-23-7) | ** | 10.18 ± 0.2 | EI | 3973 |
| $C_8H_7NO_4^+$ | $C_6H_4(NO_2)OOCCH_3$ (Acetic acid, 3-nitrophenyl ester) (RN-CAS Registry Number 1523-06-4) | ** | 9.43 ± 0.2 | EI | 3484 |
| $C_8H_7NO_4^+$ | $C_6H_4(NO_2)OOCCH_3$ (Acetic acid, 4-nitrophenyl ester) (RN-CAS Registry Number 830-03-5) | ** | 9.48 ± 0.2 | EI | 3484 |
| $C_{13}H_9NO_4^+$ | $C_6H_5COOC_6H_4NO_2$ (Benzoic acid 4-nitro phenyl ester) (RN-CAS Registry Number 959-22-8) | ** | 9.3 | EI | 3897 |
| $C_{17}H_9NO_4^+$ | $C_{17}H_9NO_4$ (Naphtho[2,3-f]quinoline-7,12-dione, 5,6-dihydroxy-) (RN-CAS Registry Number 568-02-5) (ON-Other name: Alizarine Blue) | ** | 7.35 | PI | 3586 |
| $C_6H_4N_2O_4^+$ | $C_6H_4(NO_2)_2$ (Benzene, 1,3-dinitro-) (RN-CAS Registry Number 99-65-0) | ** | 10.62 ± 0.1 | EI | 3447 |
| $C_6H_4N_2O_4^+$ | $C_6H_4(NO_2)_2$ (Benzene, 1,4-dinitro-) (RN-CAS Registry Number 100-25-4) | ** | 10.63 ± 0.1 | EI | 3447 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|------------------------|---|----------------|---|--------|------|
| $C_{13}H_{10}N_2O_4^+$ | $(C_6H_4NO_2)_2CH_2$ (Benzene, 1,1'-methylenebis[4-nitro-]) (RN-CAS Registry Number 1817-74-9) | ** | 9.98 ± 0.05 | EI | 3806 |
| $C_{14}H_{12}N_2O_4^+$ | $C_6H_4(NO_2)CH_2CH_2C_6H_4NO_2$ (Benzene, 1,1'-(1,2-ethanediyl)bis[4-nitro-]) (RN-CAS Registry Number 736-30-1) | ** | 9.77 ± 0.05 | EI | 3806 |
| $C_{18}H_{30}N_2O_4^+$ | $C_4(N(C_2H_5)_2)(COOC_2H_5)_2$ (1,3-Cyclobutadiene-1,3-dicarboxylic acid, 2,4-bis(diethylamino)-, diethyl ester) (RN-CAS Registry Number 20913-35-3) | ** | 7.55 (V) | PE | 3885 |
| $C_{16}H_{11}N_3O_4^+$ | $C_3H_3(CN)((C_6H_4)NO_2)_2$ (Cyclopropanecarbonitrile, 1,2-bis(<i>p</i> -nitrophenyl)-) (RN-CAS Registry Number 28752-28-5) | ** | 9.30 ± 0.05 | EDD | 3575 |
| F^+ | F_2 (RN-CAS Registry Number 7782-41-4) (TV-Threshold value approximately corrected to 0°K) | F | 19.008 | PI | 3928 |
| $F_2^+(\ ^2\Pi_g)$ | F_2 (RN-CAS Registry Number 7782-41-4) (RS-Average of two Rydberg series limits) | ** | 15.70 ± 0.02 | S | 3743 |
| $F_2^+(\ ^2\Pi_g)$ | F_2 (RN-CAS Registry Number 7782-41-4) | ** | 15.70 | PE | 3507 |
| $F_2^+(\ ^2\Pi_u)$ | F_2 (RN-CAS Registry Number 7782-41-4) | ** | 18.98 (V) | PE | 3507 |
| $F_2^+(\ ^2\Pi_u)$ | F_2 (RN-CAS Registry Number 7782-41-4) | ** | ~18.45 | D | 3743 |
| $HF^+(\ X^2\Pi)$ | HF (RN-CAS Registry Number 7664-39-3) | ** | 16.03 ± 0.01 | PE | 3500 |
| $HF^+(\ ^2\Sigma^+)$ | HF (RN-CAS Registry Number 7664-39-3) | ** | 19.118 | PE | 3500 |
| $DF^+(\ ^2\Sigma^+)$ | DF (RN-CAS Registry Number 14333-26-7) | ** | 19.172 | PE | 3500 |
| BF^+ | BF (RN-CAS-Registry Number 13768-60-0) | ** | 12 ± 1 | EI | 4054 |
| BF_2^+ | BF_2 (RN-CAS Registry Number 13842-55-2) | ** | 8 ± 1 | EI | 3465 |
| BF_2^+ | BF_2 (RN-CAS-Registry Number 13842-55-2) | ** | 9 ± 1 | EI | 4054 |
| BF_2^+ | BF_3 (RN-CAS-Registry Number 7637-07-2) | ** | ~16 | EI | 4054 |
| $BF_3^+(\ ^2A_2')$ | BF_3 (RN-CAS Registry Number 7637-07-2) | ** | 15.95 (V) | PE | 3704 |
| $BF_3^+(\ ^2E')$ | BF_3 (RN-CAS Registry Number 7637-07-2) | ** | 16.65 (V) | PE | 3704 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|--|---|------------------------------------|---|--------|------|
| $\text{BF}_3(^2E^-)$ | BF_3 (RN-CAS Registry Number 7637-07-2) | ** | 17.10 (V) | PE | 3704 |
| $\text{BF}_3(^2A_2)$ | BF_3 (RN-CAS Registry Number 7637-07-2) | ** | 19.15 (V) | PE | 3704 |
| $\text{BF}_3(^2E)$ | BF_3 (RN-CAS Registry Number 7637-07-2) | ** | 20.10 (V) | PE | 3704 |
| BF_3^+ | BF_3 (RN-CAS Registry Number 7637-07-2) | ** | 15.71 ± 0.10 | RPD | 3540 |
| BF_3^+ | BF_3 (RN-CAS-Registry Number 7637-07-2) | ** | 17 ± 1 | EI | 4054 |
| BF_3^+ | $(\text{C}_2\text{H}_5)_2\text{OBF}_3$ (RN-CAS Registry Number 109-63-7) | $(\text{C}_2\text{H}_5)_2\text{O}$ | 15.00 ± 0.10 | RPD | 3540 |
| $\text{B}_2\text{F}_4(^2A_1)$ | B_2F_4 (RN-CAS Registry Number 13965-73-6) | ** | $\leq 12.23 \pm 0.06$ | PE | 3709 |
| $\text{B}_2\text{F}_4(^2E)$ | B_2F_4 (RN-CAS Registry Number 13965-73-6) | ** | $\leq 15.50 \pm 0.03$ | PE | 3709 |
| $\text{B}_2\text{F}_4(^2B_1)$ | B_2F_4 (RN-CAS Registry Number 13965-73-6) | ** | 16.32 ± 0.01 (V) | PE | 3709 |
| $\text{B}_2\text{F}_4(^2B_2)$ | B_2F_4 (RN-CAS Registry Number 13965-73-6) | ** | 17.20 ± 0.01 | PE | 3709 |
| $\text{B}_2\text{F}_4(^2E)$ | B_2F_4 (RN-CAS Registry Number 13965-73-6) | ** | $\leq 18.71 \pm 0.03$ | PE | 3709 |
| $\text{B}_2\text{F}_4(^2E, ^2A_1)$ | B_2F_4 (RN-CAS Registry Number 13965-73-6) | ** | 20.52 ± 0.01 | PE | 3709 |
| CF^+ | CF (RN-CAS Registry Number 3889-75-6) | ** | 9.24 | D | 3930 |
| (RD-Radical) CF^+ | $\text{CH}_2=\text{CF}_2$ (RN-CAS Registry Number 75-38-7) | CH_2F | 14.92 ± 0.02 | PI | 3930 |
| (TR-Other product(s) thermochemically reasonable) CF^+ | $\text{C}_2\text{F}_3\text{Cl}$ (RN-CAS-Registry Number 79-38-9) | CF_2Cl | 16.7 ± 0.1 | EI | 4070 |
| CF^+ | $\text{CFCl}=\text{CFCl}$ (RN-CAS-Registry Number 598-88-9) | CFCl_2 | 16.5 ± 0.1 | EI | 4070 |
| CF_2^+ | CF_2 (RN-CAS Registry Number 2154-59-8) | ** | 11.54 ± 0.10 | EI | 3818 |
| (RD-Radical) CF_2^+ | CF_2 (RN-CAS Registry Number 2154-59-8) | ** | 9.74 | D | 3930 |
| (RD-Radical) CF_2^+ | C_2F_4 (RN-CAS Registry Number 116-14-3) | CF_2 | 15.2 ± 0.1 | EI | 3539 |
| CF_3^+ | CH_3CF_3 (RN-CAS Registry Number 71-55-6) | CH_3 | 13.94 ± 0.1 | EI | 3478 |
| CF_3^+ | $(\text{CF}_3)_2\text{CO}$ (RN-CAS Registry Number 684-16-2) | | 13.8 | EI | 3550 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|--|---|----------------|---|--------|------|
| CF_3^+ | CH_3COCF_3 (RN-CAS Registry Number 421-50-1) | | 14.6 | EI | 3550 |
| C_2F_3^+ | $\text{C}_2\text{F}_3\text{Cl}$ (RN-CAS-Registry Number 79-38-9) | Cl | 15.4 ± 0.1 | EI | 4070 |
| $\text{CF}_4^+(\text{}^2\text{T}_1)$ | CF_4 (RN-CAS Registry Number 75-73-0) | ** | 16.25 ± 0.04 (V) | PE | 3880 |
| $\text{CF}_4^+(\text{}^2\text{T}_2)$ | CF_4 (RN-CAS Registry Number 75-73-0) | ** | 17.46 ± 0.04 (V) | PE | 3880 |
| $\text{CF}_4^+(\text{}^2\text{E})$ | CF_4 (RN-CAS Registry Number 75-73-0) | ** | 18.58 ± 0.04 (V) | PE | 3880 |
| $\text{C}_2\text{F}_4^+(\text{}^2\text{B}_{2u})$ | C_2F_4 (RN-CAS Registry Number 116-14-3) | ** | 10.10 | PE | 3649 |
| C_2F_4^+ | C_2F_4 (RN-CAS Registry Number 116-14-3) | ** | 10.32 | PE | 3589 |
| C_2F_4^+ | C_2F_4 (RN-CAS Registry Number 116-14-3) | ** | 10.52 (V) | PE | 4084 |
| $\text{C}_2\text{F}_4^+(\text{}^2\text{A}_g)$ | C_2F_4 (RN-CAS Registry Number 116-14-3) | ** | 15.6 | PE | 3649 |
| $\text{C}_2\text{F}_4^+(\text{}^2\text{B}_{2g})$ | C_2F_4 (RN-CAS Registry Number 116-14-3) | ** | 16.4 (V) | PE | 3649 |
| $\text{C}_2\text{F}_4^+(\text{}^2\text{B}_{1u})$ | C_2F_4 (RN-CAS Registry Number 116-14-3) | ** | 16.6 (V) | PE | 3649 |
| $\text{C}_2\text{F}_4^+(\text{}^2\text{A}_u)$ | C_2F_4 (RN-CAS Registry Number 116-14-3) | ** | 16.9 (V) | PE | 3649 |
| $\text{C}_2\text{F}_4^+(\text{}^2\text{B}_{3g})$ | C_2F_4 (RN-CAS Registry Number 116-14-3) | ** | 17.50 | PE | 3649 |
| $\text{C}_2\text{F}_4^+(\text{}^2\text{B}_{3u})$ | C_2F_4 (RN-CAS Registry Number 116-14-3) | ** | 18.0 | PE | 3649 |
| $\text{C}_2\text{F}_4^+(\text{}^2\text{B}_{1u})$ | C_2F_4 (RN-CAS Registry Number 116-14-3) | ** | 19.19 | PE | 3649 |
| $\text{C}_2\text{F}_4^+(\text{}^2\text{A}_g)$ | C_2F_4 (RN-CAS Registry Number 116-14-3) | ** | ~20.6 | PE | 3649 |
| $\text{C}_2\text{F}_4^+(\text{}^2\text{B}_{3u})$ | C_2F_4 (RN-CAS Registry Number 116-14-3) | ** | ~22.3 | PE | 3649 |
| C_3F_6^+ | $\text{CF}_3\text{CF}=\text{CF}_2$ (RN-CAS Registry Number 116-15-4) | ** | 10.62 | PE | 3589 |
| C_4F_6^+ | $\text{CF}_3\text{C}\equiv\text{CCF}_3$ (RN-CAS Registry Number 692-50-2) | ** | 12.31 | PE | 3589 |
| C_6F_6^+ | C_6F_6 (Benzene, hexafluoro-) (RN-CAS Registry Number 392-56-3) | ** | 9.90 ± 0.01 | S | 3559 |
| $\text{C}_6\text{F}_6^{+\ast}$ | C_6F_6 (Benzene, hexafluoro-) (RN-CAS Registry Number 392-56-3) | ** | 12.62 ± 0.01 | S | 3559 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|--|---|----------------|---|--------|------|
| $C_6F_6^+$ | C_6F_6 (Benzene, hexafluoro-) (RN-CAS Registry Number 392-56-3) | ** | 9.90 (V) | PE | 3873 |
| $C_6F_6(^2E_{1g})$ | C_6F_6 (Benzene, hexafluoro-) (RN-CAS Registry Number 392-56-3) | ** | 9.93 | PE | 3637 |
| $C_4F_8^+$ | <i>cis</i> -2- C_4F_8 (RN-CAS Registry Number 1516-65-0) | ** | 11.46 (V) | PE | 4084 |
| $C_4F_8^+$ | <i>trans</i> -2- C_4F_8 (RN-CAS Registry Number 1516-64-9) | ** | 11.55 (V) | PE | 4084 |
| $C_4F_8^+$ | <i>trans</i> -2- C_4F_8 (RN-CAS Registry Number 1516-64-9) | ** | 11.55 (V) | PE | 3649 |
| $C_{10}F_8^+$ | $C_{10}F_8$ (Naphthalene, octafluoro-) (RN-CAS Registry Number 313-72-4) | ** | 8.85 | PE | 3637 |
| $C_{12}F_{10}^+$ | $(C_6F_5)_2$ (1,1'-Biphenyl, decafluoro-) (RN-CAS Registry Number 434-90-2) | ** | 9.40 ± 0.02 | PE | 3702 |
| $C_6F_{12}^+$ | $(CF_3)_2C=C(CF_3)_2$ (RN-CAS Registry Number 360-57-6) | ** | 12.61 (V) | PE | 4084 |
| CH_2F^+ (RD-Radical) | CH_2F (RN-CAS Registry Number 3744-29-4) | ** | 8.90 | EM | 3732 |
| CH_2F^+ (RD-Radical) | CH_2F (RN-CAS Registry Number 3744-29-4) | ** | 9.16 ± 0.02 | D | 3930 |
| CH_2F^+ (TR-Other product(s) thermochemically reasonable) | CH_2F_2 (RN-CAS Registry Number 75-10-5) | F | 14.06 | EM | 3732 |
| CH_2F^+ (TR-Other product(s) thermochemically reasonable) | $CH_2=CF_2$ (RN-CAS Registry Number 75-38-7) | CF | 14.84 ± 0.02 | PI | 3930 |
| C_2HF^+ (TR-Other product(s) thermochemically reasonable) | C_2H_3F (RN-CAS Registry Number 75-02-5) | H_2 | 13.72 ± 0.02 | PI | 3930 |
| C_2HF^+ | $CH_2=CF_2$ (RN-CAS Registry Number 75-38-7) | HF | 14.18 ± 0.03 | PI | 3930 |
| $C_2H_2F^+$ | C_2H_3F (RN-CAS Registry Number 75-02-5) | H | 13.56 ± 0.04 | PI | 3930 |
| $C_2H_2F^+$ (TR-Other product(s) thermochemically reasonable) | $CH_2=CF_2$ (RN-CAS Registry Number 75-38-7) | F | 14.37 ± 0.02 | PI | 3930 |
| $C_2H_2F^+$ | $CH_2=CFCI$ (RN-CAS-Registry Number 2317-91-1) | Cl | 13.7 ± 0.1 | EI | 4070 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|--|---|-----------------|---|--------|------|
| $C_2H_3F^+$ | C_2H_3F (RN-CAS Registry Number 75-02-5) | ** | 10.35 ± 0.01 | PI | 3930 |
| $C_2H_4F^+$ | CH_3CHF_2 (RN-CAS Registry Number 75-37-6) | F | 14.80 ± 0.1 | EI | 3478 |
| $C_2H_5F^+(\text{}^2A')$ | C_2H_5F (RN-CAS Registry Number 353-36-6) | ** | 12.43 (V) | PE | 3984 |
| $C_2H_5F^+(\text{}^2A'')$ | C_2H_5F (RN-CAS Registry Number 353-36-6) | ** | 12.87 (V) | PE | 3984 |
| $C_2H_5F^+(\text{}^2A')$ | C_2H_5F (RN-CAS Registry Number 353-36-6) | ** | 13.96 (V) | PE | 3984 |
| $C_2H_5F^+(\text{}^2A'')$ | C_2H_5F (RN-CAS Registry Number 353-36-6) | ** | 14.57 (V) | PE | 3984 |
| $C_2H_5F^+(\text{}^2A')$ | C_2H_5F (RN-CAS Registry Number 353-36-6) | ** | 16.00 (V) | PE | 3984 |
| $C_2H_5F^+(\text{}^2A', \text{}^2A'')$ | C_2H_5F (RN-CAS Registry Number 353-36-6) | ** | 17.23 (V) | PE | 3984 |
| C_3HF^+ | $CHF_2C \equiv CH$ (RN-CAS Registry Number 18371-25-0) | HF | 12.6 ± 0.15 | EI | 3769 |
| $C_3H_2F^+$ | $CHF_2C \equiv CH$ (RN-CAS Registry Number 18371-25-0) | F | 14.2 ± 0.2 | EI | 3769 |
| $C_3H_5F^+$ | $CH_2 = CHCH_2F$ (RN-CAS Registry Number 818-92-8) | ** | 10.11 | PE | 3863 |
| $C_3H_5F^+$ | $CH_2 = CHCH_2F$ (RN-CAS Registry Number 818-92-8) | ** | 10.56 (V) | PE | 4091 |
| $C_3H_7F^+$ | <i>n</i> - C_3H_7F (RN-CAS Registry Number 460-13-9) | ** | 11.96 (V) | PE | 3984 |
| $C_6H_4F^+$ | $C_6H_4(F)COOH$ (Benzoic acid, 3-fluoro-) (RN-CAS Registry Number 455-38-9) (MT-Metastable transition(s) observed) | CO+OH | 15.25 ± 0.2 | EI | 3973 |
| $C_6H_4F^+$ | $C_6H_4(F)COOH$ (Benzoic acid, 4-fluoro-) (RN-CAS Registry Number 456-22-4) (MT-Metastable transition(s) observed) | CO+OH | 15.33 ± 0.2 | EI | 3973 |
| $C_6H_4F^+$ | $C_6H_4FNO_2$ (Benzene, 1-fluoro-3-nitro-) (RN-CAS Registry Number 402-67-5) | NO ₂ | 12.22 ± 0.1 | EI | 3447 |
| $C_6H_4F^+$ | $C_6H_4FNO_2$ (Benzene, 1-fluoro-4-nitro-) (RN-CAS Registry Number 350-46-9) | NO ₂ | 12.37 ± 0.1 | EI | 3447 |
| $C_6H_5F^+$ | C_6H_5F (Benzene, fluoro-) (RN-CAS Registry Number 462-06-6) | ** | 9.20 | S | 3559 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|-------------------|---|----------------|---|--------|------|
| $C_6H_5F^{+*}$ | C_6H_5F (Benzene, fluoro-) (RN-CAS Registry Number 462-06-6) | ** | 11.82 | S | 3559 |
| $C_6H_5F^+$ | C_6H_5F (Benzene, fluoro-) (RN-CAS Registry Number 462-06-6) | ** | 9.11 | PE | 3955 |
| $C_6H_5F^+$ | C_6H_5F (Benzene, fluoro-) (RN-CAS Registry Number 462-06-6) | ** | 9.19 (V) | PE | 3873 |
| $C_6H_5F^+$ | C_6H_5F (Benzene, fluoro-) (RN-CAS Registry Number 462-06-6) | ** | 9.35 ± 0.03 (V) | PE | 3713 |
| $C_6H_5F^+$ | $C_6H_4FOCH_3$ (Benzene, 1-fluoro-3-methoxy-) (RN-CAS Registry Number 456-49-5) | CH_2O | 11.76 ± 0.1 | EI | 3446 |
| $C_6H_5F^+$ | $C_6H_4FOCH_3$ (Benzene, 1-fluoro-4-methoxy-) (RN-CAS Registry Number 459-60-9) | CH_2O | 11.55 ± 0.1 | EI | 3446 |
| $C_7H_6F^+$ | $C_6H_4FC_4H_9$ (Benzene, 1-butyl-3-fluoro-) (RN-CAS Registry Number 20651-66-5) | | 11.69 ± 0.1 | EI | 3629 |
| $C_7H_6F^+$ | $C_6H_4FC_4H_9$ (Benzene, 1-butyl-4-fluoro-) (RN-CAS Registry Number 20651-65-4) | | 11.25 ± 0.1 | EI | 3629 |
| $C_7H_7F^+$ | $C_6H_5CH_2F$ (Benzene, (fluoromethyl)-) (RN-CAS Registry Number 350-50-5) | ** | 9.55 (V) | PE | 3992 |
| $C_7H_7F^+$ | $C_6H_4FC_4H_9$ (Benzene, 1-butyl-3-fluoro-) (RN-CAS Registry Number 20651-66-5) | $CH_2=CHCH_3$ | 10.21 ± 0.1 | EI | 3629 |
| $C_7H_7F^+$ | $C_6H_4FC_4H_9$ (Benzene, 1-butyl-4-fluoro-) (RN-CAS Registry Number 20651-65-4) | $CH_2=CHCH_3$ | 10.29 ± 0.1 | EI | 3629 |
| $C_{10}H_{13}F^+$ | $C_6H_4FC_4H_9$ (Benzene, 1-butyl-3-fluoro-) (RN-CAS Registry Number 20651-66-5) | ** | 9.19 ± 0.1 | EI | 3629 |
| $C_{10}H_{13}F^+$ | $C_6H_4FC_4H_9$ (Benzene, 1-butyl-4-fluoro-) (RN-CAS Registry Number 20651-65-4) | ** | 9.15 ± 0.1 | EI | 3629 |
| $C_{10}H_{15}F^+$ | $C_{10}H_{15}F$ (Tricyclo[3.3.1.1 ^{3,7}]decane, 2-fluoro-) (RN-CAS Registry Number 16668-83-0) (ON-Other name: 2-Fluoroadamantane) | ** | 9.46 | PE | 3886 |
| $C_{12}H_9F^+$ | $C_6H_5C_6H_4F$ (1,1'-Biphenyl, 2-fluoro-) (RN-CAS Registry Number 321-60-8) | ** | 8.20 ± 0.02 | PE | 3702 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|---------------------------|--|----------------|---|--------|------|
| $C_{12}H_9F^+$ | $C_6H_5C_6H_4F$ (1,1'-Biphenyl, 4-fluoro-) (RN-CAS Registry Number 324-74-3) | ** | 8.00 ± 0.02 | PE | 3702 |
| CHF_2^+ | CHF_2 (RN-CAS Registry Number 2670-13-5) | ** | ≤ 8.90 | EM | 3732 |
| (RD-Radical) CHF_2^+ | CH_2F_2 (RN-CAS Registry Number 75-10-5) | H | 13.11 | EM | 3732 |
| CHF_2^+ | $CHF_2C \equiv CH$ (RN-CAS Registry Number 18371-25-0) | C_2H | 13.8 ± 0.1 | EI | 3769 |
| $C_2HF_2^+$ | $CH_2=CF_2$ (RN-CAS Registry Number 75-38-7) | H | 15.80 ± 0.04 | PI | 3930 |
| $C_2H_2F_2^+$ | $CH_2=CF_2$ (RN-CAS Registry Number 75-38-7) | ** | 10.29 ± 0.01 | PI | 3930 |
| $C_2H_2F_2^+$ | <i>cis</i> - $CHF=CHF$ (RN-CAS Registry Number 1630-77-9) | ** | 10.43 (V) | PE | 3649 |
| $C_2H_2F_2^+$ | <i>trans</i> - $CHF=CHF$ (RN-CAS Registry Number 1630-78-0) | ** | 10.38 (V) | PE | 3649 |
| $C_2H_3F_2^+$ | CH_3CF_3 (RN-CAS Registry Number 71-55-6) | F | 15.14 ± 0.1 | EI | 3478 |
| $C_3HF_2^+$ | $CHF_2C \equiv CH$ (RN-CAS Registry Number 18371-25-0) | H | 12.9 ± 0.1 | EI | 3769 |
| $C_3H_2F_2^+$ | $CHF_2C \equiv CH$ (RN-CAS Registry Number 18371-25-0) | ** | 11.6 ± 0.1 | EI | 3769 |
| $C_6H_4F_2^+$ | $C_6H_4F_2$ (Benzene, 1,2-difluoro-) (RN-CAS Registry Number 367-11-3) | ** | 9.30 (V) | PE | 3873 |
| $C_6H_4F_2^+$ | $C_6H_4F_2$ (Benzene, 1,2-difluoro-) (RN-CAS Registry Number 367-11-3) | ** | 9.6 ± 0.03 (V) | PE | 3713 |
| $C_6H_4F_2^+$ | $C_6H_4F_2$ (Benzene, 1,3-difluoro-) (RN-CAS Registry Number 372-18-9) | ** | 9.32 (V) | PE | 3873 |
| $C_6H_4F_2^+$ | $C_6H_4F_2$ (Benzene, 1,3-difluoro-) (RN-CAS Registry Number 372-18-9) | ** | 9.6 ± 0.03 (V) | PE | 3713 |
| $C_6H_4F_2^+$ | $C_6H_4F_2$ (Benzene, 1,4-difluoro-) (RN-CAS Registry Number 540-36-3) | ** | 9.15 (V) | PE | 3873 |
| $C_6H_4F_2^+$ | $C_6H_4F_2$ (Benzene, 1,4-difluoro-) (RN-CAS Registry Number 540-36-3) | ** | 9.4 ± 0.03 (V) | PE | 3713 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|---|---|----------------|---|--------|------|
| $C_{12}H_8F_2^+$ | $(C_6H_4F)_2$ (1,1'-Biphenyl, 2,2'-difluoro-) (RN-CAS Registry Number 388-82-9) | ** | 8.35 ± 0.02 | PE | 3702 |
| $C_{12}H_8F_2^+$ | $(C_6H_4F)_2$ (1,1'-Biphenyl, 3,3'-difluoro-) (RN-CAS Registry Number 396-64-5) | ** | 8.35 ± 0.02 | PE | 3702 |
| $C_{12}H_8F_2^+$ | $(C_6H_4F)_2$ (1,1'-Biphenyl, 4,4'-difluoro-) (RN-CAS Registry Number 398-23-2) | ** | 8.00 ± 0.02 | PE | 3702 |
| $C_2HF_3^+$ | C_2HF_3 (RN-CAS Registry Number 359-11-5) | ** | 10.53 (V) | PE | 3649 |
| $C_2H_3F_3^+$ | CH_3CF_3 (RN-CAS Registry Number 71-55-6) | ** | 13.26 ± 0.1 | EI | 3478 |
| $C_3HF_3^+$ | $CF_3C \equiv CH$ (RN-CAS Registry Number 661-54-1) | ** | 11.83 | PE | 3589 |
| $C_6H_3F_3(^2E'')$ | $C_6H_3F_3$ (Benzene, 1,3,5-trifluoro-) (RN-CAS Registry Number 372-38-3) | ** | 9.64 | S | 3764 |
| (RS-Average of two Rydberg series limits) | | | | | |
| $C_6H_3F_3(^2A_2')$ | $C_6H_3F_3$ (Benzene, 1,3,5-trifluoro-) (RN-CAS Registry Number 372-38-3) | ** | 12.35 | S | 3764 |
| $C_6H_3F_3^+$ | $C_6H_3F_3$ (Benzene, 1,3,5-trifluoro-) (RN-CAS Registry Number 372-38-3) | ** | 9.26 (V) | PE | 3873 |
| $C_6H_3F_3(^2E'')$ | $C_6H_3F_3$ (Benzene, 1,3,5-trifluoro-) (RN-CAS Registry Number 372-38-3) | ** | 9.64 | PE | 3764 |
| $C_6H_3F_3(^2A_2')$ | $C_6H_3F_3$ (Benzene, 1,3,5-trifluoro-) (RN-CAS Registry Number 372-38-3) | ** | 12.35 | PE | 3764 |
| $C_6H_3F_3^*$ | $C_6H_3F_3$ (Benzene, 1,3,5-trifluoro-) (RN-CAS Registry Number 372-38-3) | ** | 13.58 (V) | PE | 3764 |
| $C_6H_2F_4^+$ | $C_6H_2F_4$ (Benzene, 1,2,3,4-tetrafluoro-) (RN-CAS Registry Number 551-62-2) | ** | 9.56 (V) | PE | 3873 |
| $C_6H_2F_4^+$ | $C_6H_2F_4$ (Benzene, 1,2,3,5-tetrafluoro-) (RN-CAS Registry Number 2367-82-0) | ** | 9.56 (V) | PE | 3873 |
| $C_6H_2F_4^+$ | $C_6H_2F_4$ (Benzene, 1,2,4,5-tetrafluoro-) (RN-CAS Registry Number 327-54-8) | ** | 9.36 (V) | PE | 3873 |
| $C_6H_2F_4^+$ | $C_6H_2F_4$ (1,2,4,5-Tetrafluorobenzene) (RN-CAS Registry Number 327-54-8) | ** | 8.92 | PE | 3522 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|---|--|----------------|---|--------|------|
| $C_6HF_5^+$ | C_6HF_5 (Benzene, pentafluoro-) (RN-CAS Registry Number 363-72-4) | ** | 9.82 | S | 3559 |
| (RS-Average of two Rydberg series limits) | | | | | |
| $C_6HF_5^*$ | C_6HF_5 (Benzene, pentafluoro-) (RN-CAS Registry Number 363-72-4) | ** | 12.44 | S | 3559 |
| $C_6HF_5^+$ | C_6HF_5 (Benzene, pentafluoro-) (RN-CAS Registry Number 363-72-4) | ** | 9.64 (V) | PE | 3873 |
| $C_8H_3F_5^+$ | $C_6F_5CH=CH_2$ (Benzene, ethenylpentafluoro-) (RN-CAS Registry Number 653-34-9) | ** | 9.18 ± 0.02 | PE | 3854 |
| NF^+ | NF_2 (RN-CAS Registry Number 3744-07-8) | F^- | 11.86 ± 0.2 | EI | 3785 |
| (TR-Other product(s) thermochemically reasonable) | | | | | |
| NF^+ | NF_2 (RN-CAS Registry Number 3744-07-8) | F | 15.46 ± 0.2 | EI | 3785 |
| (TR-Other product(s) thermochemically reasonable) | | | | | |
| NF^+ | N_2F_4 (RN-CAS Registry Number 10036-47-2) | $NF_2 + F$ | ~ 16.6 | EI | 3785 |
| (TR-Other product(s) thermochemically reasonable) | | | | | |
| NF^+ | $(CH_2NF_2)CH_2$ (RN-CAS Registry Number 21298-22-6) | | 13.0 ± 0.3 | EI | 3634 |
| NF^+ | $(CH_3)_2C(NF_2)_2$ (RN-CAS Registry Number 19309-63-8) | | 13.9 ± 0.3 | EI | 3634 |
| N_2F^+ | N_2F_4 (RN-CAS Registry Number 10036-47-2) | $F_2 + F$ | 14.2 ± 0.3 | EI | 3785 |
| (TR-Other product(s) thermochemically reasonable) | | | | | |
| N_2F^+ | N_2F_4 (RN-CAS Registry Number 10036-47-2) | 3F | 16.7 ± 0.3 | EI | 3785 |
| (TR-Other product(s) thermochemically reasonable) | | | | | |
| $NF_2^+(^1A_1)$ | NF_2 (RN-CAS Registry Number 3744-07-8) | ** | 12.1 ± 0.1 (V) | PE | 3671 |
| (RD-Radical) | | | | | |
| $NF_2^+(^1A_1)$ | NF_2 (RN-CAS Registry Number 3744-07-8) | ** | 12.1 | PE | 3693 |
| (RD-Radical) | | | | | |
| $NF_2^+(^3B_1)$ | NF_2 (RN-CAS Registry Number 3744-07-8) | ** | 14.6 ± 0.1 (V) | PE | 3671 |
| (RD-Radical) | | | | | |
| $NF_2^+(^3B_1)$ | NF_2 (RN-CAS Registry Number 3744-07-8) | ** | 14.6 | PE | 3693 |
| (RD-Radical) | | | | | |
| $NF_2^+(^1B_1, ^3B_2, ^3A_2)$ | NF_2 (RN-CAS Registry Number 3744-07-8) | ** | $\sim 16.4 \pm 0.1$ (V) | PE | 3671 |
| (RD-Radical) | | | | | |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|---|---|---------------------|---|--------|------|
| NF ₂ ⁺ | NF ₂ (RN-CAS Registry Number 3744-07-8) | ** | 16.4 | PE | 3693 |
| (RD-Radical) | | | | | |
| NF ₂ ^{*•} | NF ₂ (RN-CAS Registry Number 3744-07-8) | ** | ~17.6±0.1 (V) | PE | 3671 |
| (RD-Radical) | | | | | |
| NF ₂ (¹ B ₂) | NF ₂ (RN-CAS Registry Number 3744-07-8) | ** | 17.6 | PE | 3693 |
| (RD-Radical) | | | | | |
| NF ₂ ⁺ | NF ₂ (RN-CAS Registry Number 3744-07-8) | ** | 11.76±0.1 | EI | 3785 |
| (RD-Radical) | | | | | |
| NF ₂ ⁺ | N ₂ F ₄ (RN-CAS Registry Number 10036-47-2) | F ⁻ + NF | 12.40±0.1 | DC | 3785 |
| NF ₂ ⁺ | N ₂ F ₄ (RN-CAS Registry Number 10036-47-2) | NF ₂ | 12.70±0.1 | DC | 3785 |
| (TR-Other product(s) thermochemically reasonable) | | | | | |
| NF ₂ ⁺ | (CH ₂ NF ₂)CH ₂ (RN-CAS Registry Number 21298-22-6) | | 14.8±0.4 | EI | 3634 |
| NF ₂ ⁺ | (CH ₃) ₂ C(NF ₂) ₂ (RN-CAS Registry Number 19309-63-8) | | 13.9±0.4 | EI | 3634 |
| N ₂ F ₂ (² A _g) | <i>trans</i> -N ₂ F ₂ (RN-CAS Registry Number 13776-62-0) | ** | 12.8 | PE | 3649 |
| N ₂ F ₂ (² A _u) | <i>trans</i> -N ₂ F ₂ (RN-CAS Registry Number 13776-62-0) | ** | 13.65 | PE | 3649 |
| N ₂ F ₂ (² A _u) | <i>trans</i> -N ₂ F ₂ (RN-CAS Registry Number 13776-62-0) | ** | 18.0 | PE | 3649 |
| N ₂ F ₂ (² B _u) | <i>trans</i> -N ₂ F ₂ (RN-CAS Registry Number 13776-62-0) | ** | 19.8 (V) | PE | 3649 |
| N ₂ F ₂ (² A _g) | <i>trans</i> -N ₂ F ₂ (RN-CAS Registry Number 13776-62-0) | ** | 21.0 (V) | PE | 3649 |
| N ₂ F ₂ (² B _u) | <i>trans</i> -N ₂ F ₂ (RN-CAS Registry Number 13776-62-0) | ** | 22.3 | PE | 3649 |
| N ₂ F ₂ ⁺ | N ₂ F ₄ (RN-CAS Registry Number 10036-47-2) | 2F | 16.0±0.1 | EI | 3785 |
| (TR-Other product(s) thermochemically reasonable) | | | | | |
| NF ₃ (² A ₁) | NF ₃ (RN-CAS Registry Number 7783-54-2) | ** | 12.97±0.04 | PE | 3641 |
| NF ₃ ^{*•} | NF ₃ (RN-CAS Registry Number 7783-54-2) | ** | 15.49±0.04 | PE | 3641 |
| NF ₃ ^{*•} | NF ₃ (RN-CAS Registry Number 7783-54-2) | ** | 16.55±0.05 (V) | PE | 3641 |
| NF ₃ (² E) | NF ₃ (RN-CAS Registry Number 7783-54-2) | ** | 17.16±0.03 | PE | 3641 |
| NF ₃ (² A ₁) | NF ₃ (RN-CAS Registry Number 7783-54-2) | ** | 19.24±0.03 | PE | 3641 |
| NF ₃ (² E) | NF ₃ (RN-CAS Registry Number 7783-54-2) | ** | 21.14±0.07 (V) | PE | 3641 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|---|---|----------------|---|--------|------|
| NF_3^+ | NF_3 (RN-CAS Registry Number 7783-54-2) | ** | 13.18 ± 0.1 | EI | 3578 |
| N_2F_4^+ | N_2F_4 (RN-CAS Registry Number 10036-47-2) | ** | 12.00 ± 0.1 | EI | 3785 |
| $\text{B}_3\text{H}_3\text{N}_3\text{F}_3^+$ | $\text{B}_3\text{H}_3\text{N}_3\text{F}_3$ (Borazine, 2,4,6-trifluoro-) (RN-CAS Registry Number 13779-24-3) | ** | 10.46 | PE | 3637 |
| $\text{B}_3\text{H}_3\text{N}_3\text{F}_3^+$ | $\text{B}_3\text{H}_3\text{N}_3\text{F}_3$ (Borazine, 2,4,6-trifluoro-) (RN-CAS Registry Number 13779-24-3) | ** | 10.66 (V) | PE | 3944 |
| $\text{B}_3\text{H}_3\text{N}_3\text{F}_3^+$ | $\text{B}_3\text{H}_3\text{N}_3\text{F}_3$ (Borazine, 2,4,6-trifluoro-) (RN-CAS Registry Number 13779-24-3) | ** | 10.66 (V) | PE | 3673 |
| $\text{CN}_2\text{F}_2(^2\text{B}_1)$ | CF_2N_2 (3 <i>H</i> -Diazirine, 3,3-difluoro-) (RN-CAS Registry Number 693-85-6) | ** | 11.2 | PE | 3727 |
| $\text{CN}_2\text{F}_2(^2\text{B}_2, ^2\text{A}_1)$ | CF_2N_2 (3 <i>H</i> -Diazirine, 3,3-difluoro-) (RN-CAS Registry Number 693-85-6) | ** | 15.00 | PE | 3727 |
| $\text{CN}_2\text{F}_2(^2\text{B}_2, ^2\text{A}_1)$ | CF_2N_2 (3 <i>H</i> -Diazirine, 3,3-difluoro-) (RN-CAS Registry Number 693-85-6) | ** | 16.75 (V) | PE | 3727 |
| $\text{CN}_2\text{F}_2(^2\text{A}_2)$ | CF_2N_2 (3 <i>H</i> -Diazirine, 3,3-difluoro-) (RN-CAS Registry Number 693-85-6) | ** | 17.8 (V) | PE | 3727 |
| $\text{CN}_2\text{F}_2(^2\text{B}_1)$ | CF_2N_2 (3 <i>H</i> -Diazirine, 3,3-difluoro-) (RN-CAS Registry Number 693-85-6) | ** | 19.0 | PE | 3727 |
| $\text{CN}_2\text{F}_2(^2\text{A}_1, ^2\text{B}_2)$ | CF_2N_2 (3 <i>H</i> -Diazirine, 3,3-difluoro-) (RN-CAS Registry Number 693-85-6) | ** | 20.9 (V) | PE | 3727 |
| $\text{CN}_2\text{F}_2(^2\text{A}_1, ^2\text{B}_1)$ | CF_2N_2 (3 <i>H</i> -Diazirine, 3,3-difluoro-) (RN-CAS Registry Number 693-85-6) | ** | 23.4 (V) | PE | 3727 |
| $\text{C}_3\text{N}_3\text{F}_3^+$ | $\text{C}_3\text{N}_3\text{F}_3$ (1,3,5-Triazine, 2,4,6-trifluoro-) (RN-CAS Registry Number 675-14-9) | ** | 11.5 | PE | 3637 |
| C_5NF_5^+ | C_5NF_5 (Pyridine, pentafluoro-) (RN-CAS Registry Number 700-16-3) | ** | 10.08 | PE | 3637 |
| $\text{C}_2\text{N}_2\text{F}_6^+$ | <i>cis</i> - $\text{CF}_3\text{N}=\text{NCF}_3$ (RN-CAS Registry Number XXXXX-XX-X) | ** | ~10.5 | PE | 3649 |
| $\text{C}_8\text{N}_2\text{F}_6^+$ | $\text{C}_8\text{N}_2(\text{F})_6$ (Cinnoline, hexafluoro-) (RN-CAS Registry Number 28734-86-3) | ** | 9.66 (V) | PE | 3959 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|----------------|--|------------------|---|--------|------|
| $C_8N_2F_6^+$ | $C_8N_2(F)_6$ (Phthalazine, hexafluoro-) (RN-CAS Registry Number 25732-35-8) | ** | 9.90 (V) | PE | 3959 |
| $C_8N_2F_6^+$ | $C_8N_2(F)_6$ (Quinazoline, hexafluoro-) (RN-CAS Registry Number 28734-87-4) | ** | 9.43 (V) | PE | 3959 |
| $C_8N_2F_6^+$ | $C_8N_2(F)_6$ (Quinoxaline, hexafluoro-) (RN-CAS Registry Number 21271-15-8) | ** | 9.65 (V) | PE | 3959 |
| $C_9NF_7^+$ | C_9NF_7 (Isoquinoline, heptafluoro-) (RN-CAS Registry Number 13180-39-7) | ** | 9.29 (V) | PE | 3723 |
| $C_9NF_7^+$ | C_9NF_7 (Quinoline, heptafluoro-) (RN-CAS Registry Number 13180-38-6) | ** | 9.51 (V) | PE | 3723 |
| CH_2NF^+ | $(CH_2NF_2)CH_2$ (RN-CAS Registry Number 21298-22-6) | | 11.9 ± 0.2 | EI | 3634 |
| CH_2NF^+ | $CH_2(NF_2)CH(NF_2)CH_3$ (RN-CAS Registry Number 15403-25-5) | $CH_3C(NF_2)FH?$ | 11.5 ± 0.2 | EI | 3634 |
| $C_2H_3NF^+$ | $(CH_2NF_2)CH_2$ (RN-CAS Registry Number 21298-22-6) | | 16.8 ± 0.4 | EI | 3634 |
| $C_3H_6NF^+$ | $CH_2(NF_2)CH(NF_2)CH_3$ (RN-CAS Registry Number 15403-25-5) | | 14.6 ± 0.3 | EI | 3634 |
| $C_6H_6NF^+$ | $C_6H_4FNHCOCH_3$ (Acetamide, <i>N</i> -(2-fluorophenyl)-) (RN-CAS Registry Number 399-31-5) | $CH_2=C=O$ | 9.80 ± 0.03 | EI | 3483 |
| $C_6H_6NF^+$ | $C_6H_4FNHCOCH_3$ (Acetamide, <i>N</i> -(4-fluorophenyl)-) (RN-CAS Registry Number 351-83-7) | $CH_2=C=O$ | 10.12 ± 0.03 | EI | 3483 |
| $CHNF_2^+$ | $(CH_2NF_2)CH_2$ (RN-CAS Registry Number 21298-22-6) | | 13.7 ± 0.3 | EI | 3634 |
| $CHNF_2^+$ | $(CH_3)_2C(NF_2)_2$ (RN-CAS Registry Number 19309-63-8) | | 13.2 ± 0.3 | EI | 3634 |
| $CH_2NF_2^+$ | $(CH_2NF_2)CH_2$ (RN-CAS Registry Number 21298-22-6) | | 13.6 ± 0.3 | EI | 3634 |
| $CH_2NF_2^+$ | $CH_2(NF_2)CH(NF_2)CH_3$ (RN-CAS Registry Number 15403-25-5) | | 13.1 ± 0.2 | EI | 3634 |
| $C_2H_6NF_2^+$ | $(CH_2NF_2)CH_2$ (RN-CAS Registry Number 21298-22-6) | | 11.8 ± 0.3 | EI | 3634 |
| $C_2H_6NF_2^+$ | $CH_2(NF_2)CH(NF_2)CH_3$ (RN-CAS Registry Number 15403-25-5) | | 10.8 ± 0.2 | EI | 3634 |
| $C_2H_6NF_2^+$ | $(CH_3)_2C(NF_2)_2$ (RN-CAS Registry Number 19309-63-8) | | 11.1 ± 0.3 | EI | 3634 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|---|---|----------------|---|--------|------|
| $C_6H_5NF_2^+$ | $C_6H_3F_2NHCOCH_3$ (Acetamide, <i>N</i> -(2,4-difluorophenyl)-) (RN-CAS Registry Number 399-36-0) | $CH_2=C=O$ | 9.70 ± 0.03 | EI | 3480 |
| $C_6H_5NF_2^+$ | $C_6H_3F_2NHCOCH_3$ (Acetamide, <i>N</i> -(2,6-difluorophenyl)-) (RN-CAS Registry Number 3896-29-5) | $CH_2=C=O$ | 9.52 ± 0.03 | EI | 3480 |
| $C_8H_4N_2F_2^+$ | $C_8H_4N_2(F)_2$ (Quinoxaline, 2,3-difluoro-) (RN-CAS Registry Number 7066-36-6) | ** | 9.30 (V) | PE | 3959 |
| $C_8H_2N_2F_4^+$ | $C_8H_2N_2(F)_4$ (Quinoxaline, 5,6,7,8-tetrafluoro-) (RN-CAS Registry Number 33319-19-6) | ** | 9.50 (V) | PE | 3959 |
| $C_6H_2NF_5^+$ | $C_6F_5NH_2$ (Benzenamine, 2,3,4,5,6-pentafluoro-) (RN-CAS Registry Number 771-60-8) | ** | 8.40 ± 0.02 | PE | 3890 |
| $C_6H_2NF_5^+$ | $C_6F_5NH_2$ (Benzenamine, 2,3,4,5,6-pentafluoro-) (RN-CAS Registry Number XXXXX-XX-X) | ** | 8.60 | PE | 3955 |
| $C_6H_7NF_6^+$ | $(CH_3)_2NC(CF_3)=C(CF_3)H$ (RN-CAS Registry Number 35186-00-6) | ** | 8.22 | PE | 3589 |
| $C_4H_{12}BN_2F^+$ | $((CH_3)_2N)_2BF_2$ (RN-CAS Registry Number 383-90-4) | ** | 8.04 | PE | 3584 |
| $C_2H_6BNF_2^+$ | $(CH_3)_2NBF_2$ (RN-CAS Registry Number 359-18-2) | ** | 9.71 | PE | 3584 |
| $C_3H_9B_3N_3F_3^+$ | $C_3H_9B_3N_3F_3$ (Borazine, 2,4,6-trifluoro-1,3,5-trimethyl-) (RN-CAS Registry Number 13722-15-1) | ** | 9.48 (V) | PE | 3944 |
| OF^+ (RD-Radical) | OF (RN-CAS Registry Number 12061-70-0) | ** | 12.79 ± 0.1 | D | 3920 |
| OF^+ (TV-Threshold value approximately corrected to 0°K) | OF_2 (RN-CAS Registry Number 7783-41-7) | F | ≤ 14.438 | PI | 3920 |
| OF_2^+ | OF_2 (RN-CAS Registry Number 7783-41-7) | ** | 13.11 ± 0.01 | PI | 3920 |
| $OF_2^+(^2B_2)$ | OF_2 (RN-CAS Registry Number 7783-41-7) | ** | 13.11 | PE | 3649 |
| $OF_2^+(^2B_1)$ | OF_2 (RN-CAS Registry Number 7783-41-7) | ** | 13.26 (V) | PE | 3694 |
| $OF_2^+(^2A_1)$ | OF_2 (RN-CAS Registry Number 7783-41-7) | ** | 15.74 | PE | 3649 |
| $OF_2^+(^2B_2)$ | OF_2 (RN-CAS Registry Number 7783-41-7) | ** | 16.17 (V) | PE | 3694 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|--|--|----------------|---|--------|------|
| $\text{OF}_2(^2\text{B}_1)$ | OF_2 (RN-CAS Registry Number 7783-41-7) | ** | 16.44 (V) | PE | 3649 |
| $\text{OF}_2(^2\text{A}_2)$ | OF_2 (RN-CAS Registry Number 7783-41-7) | ** | 16.47 (V) | PE | 3694 |
| $\text{OF}_2(^2\text{A}_2)$ | OF_2 (RN-CAS Registry Number 7783-41-7) | ** | ~17.9 | PE | 3649 |
| OF_2^* | OF_2 (RN-CAS Registry Number 7783-41-7) | ** | 18.68 (V) | PE | 3694 |
| OF_2^* | OF_2 (RN-CAS Registry Number 7783-41-7) | ** | 19.50 (V) | PE | 3694 |
| $\text{OF}_2(^2\text{B}_1, ^2\text{A}_1)$ | OF_2 (RN-CAS Registry Number 7783-41-7) | ** | 19.55 (V) | PE | 3649 |
| $\text{OF}_2(^2\text{B}_2)$ | OF_2 (RN-CAS Registry Number 7783-41-7) | ** | 20.7 (V) | PE | 3649 |
| OF_2^* | OF_2 (RN-CAS Registry Number 7783-41-7) | ** | 20.9 (V) | PE | 3694 |
| HOF^+ | HOF (RN-CAS Registry Number 14034-79-8) | ** | 12.71 ± 0.01 | PI | 3932 |
| $\text{HOF}^+(^2\text{A}''')$ | HOF (RN-CAS Registry Number 14034-79-8) | ** | 12.69 ± 0.03 | PE | 3831 |
| $\text{HOF}^+(^2\text{A}')$ | HOF (RN-CAS Registry Number 14034-79-8) | ** | 14.50 ± 0.03 | PE | 3831 |
| $\text{HOF}^+(^2\text{A}')$ | HOF (RN-CAS Registry Number 14034-79-8) | ** | 15.9 ± 0.05 | PE | 3831 |
| BOF^+ | BOF (RN-CAS-Registry Number 23361-56-0) | ** | 14 ± 1 | EI | 4054 |
| BOF_2^+ | BOF_2 (RN-CAS-Registry Number 12006-82-5) | ** | 17 ± 1 | EI | 4054 |
| $\text{COF}_2(^2\text{B}_1)$ | CF_2O (RN-CAS Registry Number 353-50-4) | ** | 13.02 | PE | 3649 |
| $\text{COF}_2(^2\text{B}_2)$ | CF_2O (RN-CAS Registry Number 353-50-4) | ** | 13.04 | PE | 3726 |
| $\text{COF}_2(^2\text{B}_2)$ | CF_2O (RN-CAS Registry Number 353-50-4) | ** | 14.09 | PE | 3649 |
| COF_2^* | CF_2O (RN-CAS Registry Number 353-50-4) | ** | ≤ 14.26 | PE | 3726 |
| $\text{COF}_2(^2\text{A}_1, ^2\text{B}_1, ^2\text{A}_2)$ | CF_2O (RN-CAS Registry Number 353-50-4) | ** | 16.1 | PE | 3649 |
| COF_2^* | CF_2O (RN-CAS Registry Number 353-50-4) | ** | 16.6 (V) | PE | 3726 |
| $\text{COF}_2(^2\text{B}_1)$ | CF_2O (RN-CAS Registry Number 353-50-4) | ** | 16.90 | PE | 3726 |
| $\text{COF}_2(^2\text{A}_1, ^2\text{B}_1, ^2\text{A}_2)$ | CF_2O (RN-CAS Registry Number 353-50-4) | ** | 16.91 | PE | 3649 |
| COF_2^* | CF_2O (RN-CAS Registry Number 353-50-4) | ** | 19.06 | PE | 3726 |
| $\text{COF}_2(^2\text{A}_1)$ | CF_2O (RN-CAS Registry Number 353-50-4) | ** | 19.15 | PE | 3649 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|--|--|----------------------|---|--------|------|
| COF ₂ ⁺ * | CF ₂ O (RN-CAS Registry Number 353-50-4) | ** | 19.46 | PE | 3726 |
| COF ₂ ⁺ (² B ₂) | CF ₂ O (RN-CAS Registry Number 353-50-4) | ** | 19.8 (V) | PE | 3649 |
| COF ₂ ⁺ (² B ₁) | CF ₂ O (RN-CAS Registry Number 353-50-4) | ** | 21.1 (V) | PE | 3649 |
| COF ₂ ⁺ (² A ₁) | CF ₂ O (RN-CAS Registry Number 353-50-4) | ** | ~22.7 | PE | 3649 |
| C ₂ OF ₃ ⁺ | (CF ₃) ₂ CO (RN-CAS Registry Number 684-16-2) | | 11.65 | EI | 3550 |
| CF ₄ O ⁺ (² A ^o) | CF ₃ OF (RN-CAS Registry Number 373-91-1) | ** | 13.6 (V) | PE | 3941 |
| CF ₄ O ⁺ * | CF ₃ OF (RN-CAS Registry Number 373-91-1) | ** | 16.6 (V) | PE | 3941 |
| CF ₄ O ⁺ * | CF ₃ OF (RN-CAS Registry Number 373-91-1) | ** | 17.5 (V) | PE | 3941 |
| CF ₄ O ⁺ * | CF ₃ OF (RN-CAS Registry Number 373-91-1) | ** | 19.0 (V) | PE | 3941 |
| CF ₄ O ⁺ * | CF ₃ OF (RN-CAS Registry Number 373-91-1) | ** | 20.40 (V) | PE | 3941 |
| C ₃ OF ₅ ⁺ | (CF ₃) ₂ CO (RN-CAS Registry Number 684-16-2) | | 16 | EI | 3550 |
| C ₃ F ₆ O ⁺ | (CF ₃) ₂ CO (RN-CAS Registry Number 684-16-2) | ** | 11.44 | PE | 3649 |
| C ₆ H ₄ OF ⁺ | C ₆ H ₄ FOCH ₃ (Benzene, 1-fluoro-3-methoxy-) (RN-CAS Registry Number 456-49-5) | CH ₃ | 12.53±0.1 | EI | 3446 |
| C ₆ H ₄ OF ⁺ | C ₆ H ₄ FOCH ₃ (Benzene, 1-fluoro-4-methoxy-) (RN-CAS Registry Number 459-60-9) | CH ₃ | 11.99±0.1 | EI | 3446 |
| C ₆ H ₄ OF ⁺ | C ₆ H ₄ FNO ₂ (Benzene, 1-fluoro-3-nitro-) (RN-CAS Registry Number 402-67-5) | NO | 10.25±0.1 | EI | 3447 |
| C ₆ H ₄ OF ⁺ | C ₆ H ₄ FNO ₂ (Benzene, 1-fluoro-4-nitro-) (RN-CAS Registry Number 350-46-9) | NO | 10.64±0.1 | EI | 3447 |
| C ₆ H ₃ OF ⁺ | C ₆ H ₄ FOOCCH ₃ (Phenol, 2-fluoro-, acetate) (RN-CAS Registry Number 29650-44-0) | CH ₂ =C=O | 9.17±0.03 | EI | 3483 |
| C ₆ H ₃ OF ⁺ | C ₆ H ₄ FOOCCH ₃ (Phenol, 4-fluoro-, acetate) (RN-CAS Registry Number 405-51-6) | CH ₂ =C=O | 9.55±0.03 | EI | 3483 |
| C ₇ H ₄ OF ⁺ | C ₆ H ₄ (F)COOH (Benzoic acid, 3-fluoro-) (RN-CAS Registry Number 455-38-9) | OH | 12.50±0.2 | EI | 3973 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|------------------|---|----------------|---|--------|------|
| $C_7H_4OF^+$ | $C_6H_4(F)COOH$ (Benzoic acid, 4-fluoro-) (RN-CAS Registry Number 456-22-4) | OH | 12.33 ± 0.2 | EI | 3973 |
| $C_7H_7OF^+$ | $C_6H_4FOCH_3$ (Benzene, 1-fluoro-3-methoxy-) (RN-CAS Registry Number 456-49-5) | ** | 8.70 ± 0.1 | EI | 3446 |
| $C_7H_7OF^+$ | $C_6H_4FOCH_3$ (Benzene, 1-fluoro-4-methoxy-) (RN-CAS Registry Number 459-60-9) | ** | 8.58 ± 0.1 | EI | 3446 |
| $C_7H_5O_2F^+$ | $C_6H_4(F)COOH$ (Benzoic acid, 3-fluoro-) (RN-CAS Registry Number 455-38-9) | ** | 9.91 ± 0.2 | EI | 3973 |
| $C_7H_5O_2F^+$ | $C_6H_4(F)COOH$ (Benzoic acid, 4-fluoro-) (RN-CAS Registry Number 456-22-4) | ** | 9.91 ± 0.2 | EI | 3973 |
| $C_8H_7O_2F^+$ | $C_6H_4FOOCCH_3$ (Phenol, 2-fluoro-, acetate) (RN-CAS Registry Number 29650-44-0) | ** | 8.78 ± 0.03 | EI | 3483 |
| $C_8H_7O_2F^+$ | $C_6H_4FOOCCH_3$ (Phenol, 4-fluoro-, acetate) (RN-CAS Registry Number 405-51-6) | ** | 8.27 ± 0.03 | EI | 3483 |
| $C_6H_4OF_2^+$ | $C_6H_3F_2OOCCH_3$ (Phenol, 2,4-difluoro-, acetate) (RN-CAS Registry Number 36914-77-9) | $CH_2=C=O$ | 9.63 ± 0.03 | EI | 3480 |
| $C_6H_4OF_2^+$ | $C_6H_3F_2OOCCH_3$ (Phenol, 2,6-difluoro-, acetate) (RN-CAS Registry Number 36914-78-0) | $CH_2=C=O$ | 9.69 ± 0.03 | EI | 3480 |
| $C_8H_6O_2F_2^+$ | $C_6H_3F_2OOCCH_3$ (Phenol, 2,4-difluoro-, acetate) (RN-CAS Registry Number 36914-77-9) | ** | 8.60 ± 0.03 | EI | 3480 |
| $C_8H_6O_2F_2^+$ | $C_6H_3F_2OOCCH_3$ (Phenol, 2,6-difluoro-, acetate) (RN-CAS Registry Number 36914-78-0) | ** | 8.88 ± 0.03 | EI | 3480 |
| $C_2H_3OF_3^+$ | CF_3CH_2OH (RN-CAS Registry Number 75-89-8) | ** | 11.7 (V) | PE | 3941 |
| $C_2HO_2F_3^+$ | CF_3COOH (RN-CAS Registry Number 76-05-1) | ** | 11.46 | PE | 3718 |
| $C_2HO_2F_3^+$ | CF_3COOH (RN-CAS Registry Number 76-05-1) | ** | 12.00 ± 0.03 (V) | PE | 3734 |
| $C_2HO_2F_3^+$ | CF_3COOH (RN-CAS Registry Number 76-05-1) | ** | 12.00 (V) | PE | 3874 |
| $C_3H_3O_2F_3^+$ | $HCOOCH_2CF_3$ (RN-CAS Registry Number 32042-38-9) | ** | 11.31 | PE | 3718 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|--------------------------|--|----------------|---|--------|------|
| $C_4H_5O_2F_3^+$ | $CF_3COOC_2H_5$ (RN-CAS Registry Number 383-63-1) | ** | ~11.6 (V) | PE | 3718 |
| $C_4H_5O_2F_3^+$ | $CH_3COOCH_2CF_3$ (RN-CAS Registry Number 406-95-1) | ** | 10.84 | PE | 3718 |
| $C_5H_5O_2F_3^+$ | $CF_3COCH_2COCH_3$ (RN-CAS Registry Number 367-57-7) | ** | 9.92 ± 0.07 (V) | PE | 3682 |
| $C_6H_3O_2F_3^+$ | $C_4H_3OCOCF_3$ (Ethanone, 2,2,2-trifluoro-1-(2-furanyl)-) (RN-CAS Registry Number 18207-47-1) | ** | 9.77 ± 0.05 | EI | 3482 |
| $C_8H_{11}O_2F_3^+$ | $(CH_3)_3CCOCH_2COCF_3$ (RN-CAS Registry Number 22767-90-4) | ** | 9.87 ± 0.07 (V) | PE | 3682 |
| $C_4H_5O_4F_3^+$ | $(CF_3COOH)(CH_3COOH)$ (RN-CAS Registry Number XXXXX-XX-X) | ** | 11.1 (V) | PE | 3734 |
| $C_5H_7O_4F_3^+$ | $(C_2H_5COOH)(CF_3COOH)$ (RN-CAS Registry Number XXXXX-XX-X) | ** | 10.9 (V) | PE | 3734 |
| $C_6H_9O_4F_3^+$ | $(iso-C_3H_7COOH)(CF_3COOH)$ (RN-CAS Registry Number XXXXX-XX-X) | ** | 10.7 (V) | PE | 3734 |
| $C_3H_3OF_5^+$ | $C_2F_5CH_2OH$ (RN-CAS Registry Number 422-05-9) | ** | 11.68 (V) | PE | 3941 |
| $C_6HOF_5^+$ | C_6F_5OH (Phenol, pentafluoro-) (RN-CAS Registry Number 771-61-9) | ** | 9.20 ± 0.02 | PE | 3890 |
| $C_7H_3OF_5^+$ | $C_6F_5OCH_3$ (Benzene, pentafluoromethoxy-) (RN-CAS Registry Number 389-40-2) | ** | 9.10 ± 0.02 | PE | 3890 |
| $C_3H_2OF_6^+$ | $CF_3CH(OH)CF_3$ (RN-CAS Registry Number 920-66-1) | ** | 12.23 (V) | PE | 3941 |
| $C_5H_2O_2F_6^+$ | $CF_3COCH_2COCF_3$ (RN-CAS Registry Number 1522-22-1) | ** | 10.74 ± 0.07 (V) | PE | 3682 |
| $C_{10}H_2O_4F_{12}Be^+$ | $(CF_3COCHCOCF_3)_2Be$ (Beryllium, bis(1,1,1,5,5,5-hexafluoro-2,4-pentanedionato- <i>O,O'</i>)-, (<i>T-4</i>)-) (RN-CAS Registry Number 19648-82-9) | ** | 10.39 ± 0.07 (V) | PE | 3682 |
| $NOF_3(^2E)$ | NOF_3 (RN-CAS Registry Number 13847-65-9) | ** | 13.36 ± 0.01 | PE | 3641 |
| | (This value probably corresponds to the first vibrationally excited state of the ion.) | | | | |
| NOF_3^* | NOF_3 (RN-CAS Registry Number 13847-65-9) | ** | 14.83 ± 0.06 | PE | 3641 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|---|--|----------------|---|--------|------|
| NOF ₃ ⁺ * | NOF ₃ (RN-CAS Registry Number 13847-65-9) | ** | 16.34±0.03 | PE | 3641 |
| NOF ₃ ⁺ (² E) | NOF ₃ (RN-CAS Registry Number 13847-65-9) | ** | 19.90±0.02 | PE | 3641 |
| NOF ₃ ⁺ (² A ₁) | NOF ₃ (RN-CAS Registry Number 13847-65-9) | ** | 21.1±0.1 (V) | PE | 3641 |
| C ₂ NOF ₆ ⁺ (RD-Radical) | (CF ₃) ₂ NO (RN-CAS Registry Number 2154-71-4) | ** | 10.7±0.1 (V) | PE | 3671 |
| C ₈ H ₈ NOF ⁺ | C ₆ H ₄ FNHCOCH ₃ (Acetamide, <i>N</i> -(2-fluorophenyl)-) (RN-CAS Registry Number 399-31-5) | ** | 8.27±0.03 | EI | 3483 |
| C ₈ H ₈ NOF ⁺ | C ₆ H ₄ FNHCOCH ₃ (Acetamide, <i>N</i> -(4-fluorophenyl)-) (RN-CAS Registry Number 351-83-7) | ** | 8.20±0.03 | EI | 3483 |
| C ₆ H ₄ NO ₂ F ⁺ | C ₆ H ₄ FNO ₂ (Benzene, 1-fluoro-3-nitro-) (RN-CAS Registry Number 402-67-5) | ** | 9.93±0.1 | EI | 3447 |
| C ₆ H ₄ NO ₂ F ⁺ | C ₆ H ₄ FNO ₂ (Benzene, 1-fluoro-4-nitro-) (RN-CAS Registry Number 350-46-9) | ** | 10.00±0.1 | EI | 3447 |
| C ₈ H ₇ NOF ₂ ⁺ | C ₆ H ₃ F ₂ NHCOCH ₃ (Acetamide, <i>N</i> -(2,4-difluorophenyl)-) (RN-CAS Registry Number 399-36-0) | ** | 8.21±0.03 | EI | 3480 |
| C ₈ H ₇ NOF ₂ ⁺ | C ₆ H ₃ F ₂ NHCOCH ₃ (Acetamide, <i>N</i> -(2,6-difluorophenyl)-) (RN-CAS Registry Number 3896-29-5) | ** | 8.52±0.03 | EI | 3480 |
| C ₆ H ₄ NOF ₃ ⁺ | C ₄ H ₄ NCOCF ₃ (Ethanone, 2,2,2-trifluoro-1-(1 <i>H</i> -pyrrol-2-yl)-) (RN-CAS Registry Number 2557-70-2) | ** | 9.18±0.05 | EI | 3482 |
| Ne ⁺ (² P _{3/2}) | Ne (RN-CAS Registry Number 7440-01-9) | ** | 21.56471±0.00001 S | | 3754 |
| Na ⁺ | Na (RN-CAS Registry Number 7440-23-5) | ** | 5.3±0.2 | EI | 3609 |
| Na ⁺ | NaF (RN-CAS Registry Number 7681-49-4) | | ~12 | EI | 3464 |
| Na ₂ ⁺ | Na ₂ (RN-CAS Registry Number 25681-79-2) | ** | <6±2 | EI | 3609 |
| Mg ⁺ | (C ₅ H ₅) ₂ Mg (Magnesium, bis(η ⁵ -2,4-cyclopentadien-1-yl)-) (RN-CAS Registry Number 1284-72-6) (ON-Other name: Magnesocene) | | 13.9±0.5 | RPD | 3793 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|--------------------|---|----------------|---|--------|------|
| $C_5H_5Mg^+$ | $(C_5H_5)_2Mg$ (Magnesium, bis(η^5 -2,4-cyclopentadien-1-yl)-) (RN-CAS Registry Number 1284-72-6) (ON-Other name: Magnesocene) | | 11.0 ± 0.2 | RPD | 3793 |
| $C_{10}H_{10}Mg^+$ | $(C_5H_5)_2Mg$ (Magnesium, bis(η^5 -2,4-cyclopentadien-1-yl)-) (RN-CAS Registry Number 1284-72-6) (ON-Other name: Magnesocene) | ** | 8.11 (V) | PE | 3688 |
| $C_{10}H_{10}Mg^+$ | $(C_5H_5)_2Mg$ (Magnesium, bis(η^5 -2,4-cyclopentadien-1-yl)-) (RN-CAS Registry Number 1284-72-6) (ON-Other name: Magnesocene) | ** | 8.0 ± 0.1 | RPD | 3793 |
| $C_{12}H_{14}Mg^+$ | $(C_5H_4CH_3)_2Mg$ (Magnesocene, 1,1'-dimethyl-) (RN-CAS Registry Number 40672-08-0) | ** | 7.78 (V) | PE | 3688 |
| Al^+ | Al (RN-CAS Registry Number 7429-90-5) | ** | 6.6 ± 0.6 | EI | 3440 |
| Al_2^+ | Al_2 (RN-CAS Registry Number 32752-94-6) | ** | 5.4 ± 1.0 | EI | 4005 |
| Al_2^+ | Al_2 (RN-CAS Registry Number 37361-48-1) | ** | 5.4 ± 1.0 | EI | 4014 |
| Al_2^+ | Al_2O (RN-CAS Registry Number 12004-36-3) | | 15.2 ± 0.5 | EI | 4005 |
| AlC^+ | $AlC_2?$ (RN-CAS Registry Number 37297-57-7) | | 14.0 ± 1.0 | EI | 4014 |
| AlC_2^+ | AlC_2 (RN-CAS Registry Number 37297-57-7) | ** | 9.3 ± 1.0 | EI | 4014 |
| $Al_2C_2^+$ | Al_2C_2 (RN-CAS Registry Number 12122-01-9) | ** | 8.0 ± 0.5 | EI | 4014 |
| $C_{18}H_{15}Al^+$ | $(C_6H_5)_3Al$ (Aluminum, triphenyl-) (RN-CAS-Registry Number 841-76-9) | ** | 8.53 ± 0.03 | PI | 4055 |
| AlO^+ | AlO (RN-CAS Registry Number 14457-64-8) | ** | 9.5 ± 1 | EI | 3617 |
| AlO^+ | AlO (RN-CAS Registry Number 14457-64-8) | ** | 9.53 ± 0.15 | EI | 3816 |
| AlO^+ | AlO (RN-CAS Registry Number 14457-64-8) | ** | 9 ± 1 | EI | 3463 |
| AlO^+ | AlO (RN-CAS Registry Number 14457-64-8) | ** | 10 ± 1 | EI | 3620 |
| AlO^+ | Al_2O (RN-CAS Registry Number 12004-36-3) | | 15.1 ± 0.3 | EI | 4005 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|---|--|----------------|---|--------|------|
| AlO_2^+ | AlO_2 (RN-CAS Registry Number 11092-32-3) | ** | 10 ± 1 | EI | 3463 |
| AlO_2^+ | AlO_2 (RN-CAS Registry Number 11092-32-3) | ** | 10 ± 1 | EI | 3617 |
| Al_2O^+ | Al_2O (RN-CAS Registry Number 12004-36-3) | ** | 7.7 ± 0.2 | EI | 4005 |
| Al_2O^+ | Al_2O (RN-CAS Registry Number 12004-36-3) | ** | 7.7 ± 0.5 | EI | 3985 |
| Al_2O^+ | Al_2O (RN-CAS Registry Number 12004-36-3) | ** | 8.20 ± 0.15 | EI | 3816 |
| Al_2O^+ | Al_2O (RN-CAS Registry Number 12004-36-3) | ** | 8.5 ± 1 | EI | 3617 |
| Al_2O^+ | Al_2O (RN-CAS Registry Number 12004-36-3) | ** | 9 ± 1 | EI | 3620 |
| Al_2O_2^+ | Al_2O_2 (RN-CAS Registry Number 12252-63-0) | ** | 10 ± 1 | EI | 3617 |
| AlF^+ | AlF (RN-CAS Registry Number 13595-82-9) | ** | 9 | EI | 3606 |
| AlF_2^+ | AlF_2 (RN-CAS Registry Number 13569-23-8) | ** | 10 | EI | 3606 |
| AlOF^+ | AlOF (RN-CAS Registry Number 13596-12-8) | ** | 10.5 ± 1 | EI | 3462 |
| AlOF^+ | AlOF (RN-CAS Registry Number 13596-12-8) | ** | 11 | EI | 3606 |
| AlOF_2^+ | AlOF_2 (RN-CAS Registry Number 38344-66-0) | ** | 13 ± 1 | EI | 3606 |
| $\text{C}_{15}\text{H}_{12}\text{O}_6\text{F}_9\text{Al}^+$ | $(\text{CF}_3\text{COCHCOCH}_3)_3\text{Al}$ (Aluminum, tris(1,1,1-trifluoro-2,4-pentanedionato- <i>O,O'</i>)-) (RN-CAS Registry Number 14354-59-7) | ** | 9.22 ± 0.07 (V) | PE | 3682 |
| $\text{C}_{15}\text{H}_3\text{O}_6\text{F}_{18}\text{Al}^+$ | $(\text{CF}_3\text{COCHCOF}_3)_3\text{Al}$ (Aluminum, tris(1,1,1,5,5,5-hexafluoro-2,4-pentanedionato- <i>O,O'</i>)-, (<i>OC</i> -6-11)-) (RN-CAS Registry Number 15306-18-0) | ** | 10.33 ± 0.07 (V) | PE | 3682 |
| Si^+ | Si (RN-CAS Registry Number 7440-21-3) | ** | 8.1 ± 0.5 | EI | 3969 |
| Si^+ | Si (RN-CAS Registry Number 7440-21-3) | ** | 8.5 ± 0.5 | EI | 3610 |
| Si^+ | SiH_4 (RN-CAS Registry Number 7803-62-5) | | 13.3 | DC | 3813 |
| $\text{SiH}^+(\text{X}^1\Sigma^+)$ | SiH (RN-CAS Registry Number 13774-94-2) | ** | 7.91 | D | 3564 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|--|--|-------------------------------|---|--------|------|
| SiH ⁺ | SiH ₄ (RN-CAS Registry Number 7803-62-5) | | 14.7 | DC | 3813 |
| SiH ₂ ⁺ | SiH ₄ (RN-CAS Registry Number 7803-62-5) | H ₂ | 11.8 | DC | 3813 |
| SiH ₂ ⁺ | SiH ₄ (RN-CAS Registry Number 7803-62-5) | 2H? | 16.2 | DC | 3813 |
| SiH ₃ ⁺ | SiH ₄ (RN-CAS Registry Number 7803-62-5) | H | 12.2 | DC | 3813 |
| SiH ₄ (² B ₂) | SiH ₄ (RN-CAS Registry Number 7803-62-5) | ** | 11.60 | PE | 3716 |
| SiH ₄ (² A ₁) | SiH ₄ (RN-CAS Registry Number 7803-62-5) | ** | 17.95 | PE | 3716 |
| Si ₂ H ₆ Te ⁺ | (SiH ₃) ₂ Te (RN-CAS Registry Number 19415-73-7) | ** | 8.63 (V) | PE | 3656 |
| SiC ₂ ⁺ | SiC ₂ (RN-CAS Registry Number 12071-27-1) | ** | 10.1±0.5 | EI | 4005 |
| SiC ₂ ⁺ | SiC ₂ (RN-CAS Registry Number 12071-27-1) | ** | 10.3±0.5 | EI | 3969 |
| Si ₂ C ⁺ | Si ₂ C (RN-CAS Registry Number XXXXX-XX-X) | ** | 9.0±0.5 | EI | 4005 |
| Si ₂ C ⁺ | Si ₂ C (RN-CAS Registry Number XXXXX-XX-X) | ** | 9.5±0.5 | EI | 3969 |
| CH ₃ Si ⁺ | CH ₂ =CHSi(CH ₃) ₃ (RN-CAS Registry Number 754-05-2) | | ~ 15 | EI | 3809 |
| CH ₃ Si ⁺ | CH ₂ =CHSi(CH ₃) ₃ (RN-CAS Registry Number 754-05-2) | | ~ 15 | EI | 3809 |
| C ₂ H ₆ Si ⁺ | 1-C ₄ H ₈ (RN-CAS Registry Number 7291-09-0) | ** | 10.37 (V) | PE | 3950 |
| C ₂ H ₆ Si ⁺ | CH ₂ =CHSiH ₃ (RN-CAS Registry Number 7291-09-0) | ** | 10.4 (V) | PE | 3940 |
| C ₂ H ₇ Si ⁺ | CH ₂ =CHSi(CH ₃) ₃ (RN-CAS Registry Number 754-05-2) | | ~ 13 | EI | 3809 |
| C ₃ H ₈ Si ⁺ | CH ₂ =CHCH ₂ SiH ₃ (RN-CAS Registry Number 18191-59-8) | ** | 9.49 (V) | PE | 3950 |
| C ₃ H ₈ Si ⁺ | C ₃ H ₈ Si (Silacyclobutane) (RN-CAS Registry Number 287-29-6) | ** | 10.05 (V) | PE | 4077 |
| C ₃ H ₈ Si ⁺ | CH ₂ =CHSi(CH ₃) ₃ (RN-CAS Registry Number 754-05-2) | C ₂ H ₄ | ~ 10 | EI | 3809 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|-------------------------|---|--------------------|---|--------|------|
| $C_3H_9Si^+$ | $(CH_3)_4Si$ (RN-CAS Registry Number 75-76-3) | CH_3 | 10.53 ± 0.20 | EI | 3548 |
| $C_3H_9Si^+$ | $CH_2=CHSi(CH_3)_3$ (RN-CAS Registry Number 754-05-2) | C_2H_3 | ~ 11 | EI | 3809 |
| $C_3H_9Si^+$ | $(CH_3)_3SiSi(CH_3)_3$ (RN-CAS Registry Number 1450-14-2) | $(CH_3)_3Si$ | 10.22 ± 0.18 | EI | 3548 |
| $C_3H_9Si^+$ | $C_6H_5Si_2(CH_3)_3$ (Disilane, pentamethylphenyl-) (RN-CAS Registry Number 1130-17-2) | $C_6H_5Si(CH_3)_2$ | 10.08 ± 0.09 | EI | 3549 |
| | (TR—Other product(s) thermochemically reasonable) | | | | |
| $C_3H_9Si^+$ | $(C_6H_5)_2SiCH_3Si(CH_3)_3$ (Disilane, 1,1,1,2-tetramethyl-2,2-diphenyl-) (RN-CAS Registry Number 1450-16-4) | | 10.59 ± 0.03 | EI | 3549 |
| | (TR—Other product(s) thermochemically reasonable) | | | | |
| | (OP—the other product(s) is(are): $(C_6H_5)_2SiCH_3$) | | | | |
| $C_3H_9Si^+$ | $(C_6H_5)(CH_3)_2Si_2$ (Disilane, 1,1,2,2-tetramethyl-1,2-diphenyl-) (RN-CAS Registry Number 1145-98-8) | $(C_6H_5)_2SiCH_3$ | 11.04 ± 0.03 | EI | 3549 |
| | (TR—Other product(s) thermochemically reasonable) | | | | |
| $C_3H_9Si^+$ | $(C_6H_5)_3SiSi(CH_3)_3$ (Disilane, 1,1,1-trimethyl-2,2,2-triphenyl-) (RN-CAS Registry Number 1450-18-6) | $(C_6H_5)_3Si$ | 10.83 ± 0.09 | EI | 3549 |
| | (TR—Other product(s) thermochemically reasonable) | | | | |
| $C_3H_9Si^+$ | $(CH_3)_3SiOSi(CH_3)_3$ (RN-CAS Registry Number 107-46-0) | | 15.4 ± 0.2 | EI | 3444 |
| $C_3H_9Si^+$ | $(CH_3)_3SiOSi(CH_3)_2OSi(CH_3)_3$ (RN-CAS Registry Number 107-51-7) | | 15.8 ± 0.2 | EI | 3444 |
| $C_3H_9Si^+$ | $(CH_3)_3SiOSi(CH_3)(C_2H_5)OSi(CH_3)_3$ (RN-CAS Registry Number 5356-85-4) | | 15.4 ± 0.2 | EI | 3444 |
| $C_3H_9Si^+$ | $(CH_3)_3SiOSi(CH_3)(C_2H_5)OSi(CH_3)_3$ (RN-CAS Registry Number 17861-60-8) | | 15.3 ± 0.2 | EI | 3444 |
| $C_3H_9Si^+$ | $(CH_3)_3SiGe(CH_3)_3$ (RN-CAS Registry Number 31608-80-7) | $(CH_3)_3Ge$ | 10.19 ± 0.12 | EI | 3548 |
| $C_3H_9Si^+$ | $(CH_3)_3SiSn(CH_3)_3$ (RN-CAS Registry Number 16393-88-7) | $(CH_3)_3Sn$ | 10.18 ± 0.26 | EI | 3548 |
| $C_4H_9Si^+$ | $CH_2=CHSi(CH_3)_3$ (RN-CAS Registry Number 754-05-2) | CH_3 | ~ 9 | EI | 3809 |
| $C_4H_{12}Si^+$ | $(CH_3)_4Si$ (RN-CAS Registry Number 75-76-3) | ** | 9.42 ± 0.1 | PE | 3677 |
| $C_4H_{12}Si^+$ | $(CH_3)_4Si$ (RN-CAS Registry Number 75-76-3) | ** | 9.79 ± 0.04 | PE | 3880 |
| $C_4H_{12}Si^+ (^2A_1)$ | $(CH_3)_4Si$ (RN-CAS Registry Number 75-76-3) | ** | 15.62 (V) | PE | 3503 |
| $C_4H_{12}Si^+$ | $(CH_3)_4Si$ (RN-CAS Registry Number 75-76-3) | ** | 9.85 ± 0.16 | EI | 3548 |
| $C_3H_{10}Si^+$ | $(CH_3)_3SiC \equiv CH$ (RN-CAS Registry Number 1066-54-2) | ** | 9.9 ± 0.1 | PE | 4002 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|-----------------|---|--------------------|---|--------|------|
| $C_5H_{12}Si^+$ | $(CH_3)_3SiCH=CH_2$ (RN-CAS Registry Number 754-05-2) | ** | 9.8 (V) | PE | 3940 |
| $C_5H_{12}Si^+$ | $(CH_3)_3SiCH=CH_2$ (RN-CAS Registry Number 754-05-2) | ** | 9.8 (V) | PE | 3908 |
| $C_5H_{12}Si^+$ | $CH_2=CHSi(CH_3)_3$ (RN-CAS Registry Number 754-05-2) | ** | 9.2 | EI | 3809 |
| $C_5H_{12}Si^+$ | $C_3H_6Si(CH_3)_2$ (Silacyclobutane, 1,1-dimethyl-) (RN-CAS Registry Number 2295-12-7) | ** | 9.40 (V) | PE | 4077 |
| $C_6H_8Si^+$ | $C_6H_5SiH_3$ (Silane, phenyl-) (RN-CAS Registry Number 694-53-1) | ** | 9.09 | PE | 3868 |
| $C_6H_8Si^+$ | $C_6H_5SiH_3$ (Silane, phenyl-) (RN-CAS Registry Number 694-53-1) | ** | 9.25 | PE | 3922 |
| $C_6H_{12}Si^+$ | $(C_2H_5)_2Si(CH_3)_2$ (RN-CAS Registry Number 10519-87-6) | ** | 9.8 (V) | PE | 3994 |
| $C_6H_{14}Si^+$ | $(CH_3)_3SiCH_2CH=CH_2$ (RN-CAS Registry Number 762-72-1) | ** | 9.0 (V) | PE | 3908 |
| $C_6H_{14}Si^+$ | $(CH_3)_3SiCH_2CH=CH_2$ (RN-CAS Registry Number 762-72-1) | ** | 9.0 (V) | PE | 3940 |
| $C_6H_{14}Si^+$ | $C_3H_5Si(CH_3)_3$ (Silacyclobutane, 1,1,2-trimethyl-) (RN-CAS Registry Number 30681-90-4) | ** | 9.20 (V) | PE | 4077 |
| $C_6H_{14}Si^+$ | $C_4H_8Si(CH_3)_2$ (Silacyclopentane, 1,1-dimethyl-) (RN-CAS Registry Number 1072-54-4) | ** | 9.75 (V) | PE | 4077 |
| $C_8H_{11}Si^+$ | $C_6H_5Si(CH_3)_2H$ (Silane, dimethylphenyl-) (RN-CAS Registry Number 766-77-8) | H | 10.43 ± 0.04 | EI | 3549 |
| | (TR-Other product(s) thermochemically reasonable) | | | | |
| $C_8H_{11}Si^+$ | $C_6H_5Si(CH_3)_3$ (Silane, trimethylphenyl-) (RN-CAS Registry Number 768-32-1) | CH_3 | 10.26 ± 0.03 | EI | 3549 |
| | (TR-Other product(s) thermochemically reasonable) | | | | |
| $C_8H_{11}Si^+$ | $C_6H_5Si_2(CH_3)_5$ (Disilane, pentamethylphenyl-) (RN-CAS Registry Number 1130-17-2) | $Si(CH_3)_3$ | 9.86 ± 0.06 | EI | 3549 |
| | (TR-Other product(s) thermochemically reasonable) | | | | |
| $C_8H_{11}Si^+$ | $(C_6H_5)_2SiCH_3Si(CH_3)_3$ (Disilane, 1,1,1,2-tetramethyl-2,2-diphenyl-) (RN-CAS Registry Number 1450-16-4) | $C_6H_5Si(CH_3)_2$ | 9.75 ± 0.04 | EI | 3549 |
| | (TR-Other product(s) thermochemically reasonable) | | | | |
| $C_8H_{11}Si^+$ | $(C_6H_5(CH_3)_2Si)_2$ (Disilane, 1,1,2,2-tetramethyl-1,2-diphenyl-) (RN-CAS Registry Number 1145-98-8) | $C_6H_5Si(CH_3)_2$ | 9.87 ± 0.08 | EI | 3549 |
| | (TR-Other product(s) thermochemically reasonable) | | | | |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|---|---|--------------------|---|--------|------|
| $C_8H_{11}Si^+$ | $(C_6H_5)_3SiSi(CH_3)_3$ (Disilane, 1,1,1-trimethyl-2,2,2-triphenyl-) (RN-CAS Registry Number 1450-18-6) | $(C_6H_5)_2SiCH_3$ | 10.13 ± 0.03 | EI | 3549 |
| (TR—Other product(s) thermochemically reasonable) | | | | | |
| $C_8H_{12}Si^+$ | $(C_2H_5)_4Si$ (RN-CAS Registry Number 1112-55-6) | ** | 9.7 (V) | PE | 3994 |
| $C_8H_{12}Si^+$ | $C_6H_5Si(CH_3)_2H$ (Silane, dimethylphenyl-) (RN-CAS Registry Number 766-77-8) | ** | 8.92 ± 0.15 | EI | 3549 |
| $C_9H_{14}Si^+$ | $C_6H_5Si(CH_3)_3$ (Silane, trimethylphenyl-) (RN-CAS Registry Number 768-32-1) | ** | 8.81 ± 0.15 | EI | 3549 |
| $C_9H_{14}Si^+$ | $C_6H_5Si(CH_3)_3$ (Silane, trimethylphenyl-) (RN-CAS Registry Number 768-32-1) | ** | 8.79 | CTS | 3922 |
| $C_{10}H_{10}Si^+$ | $C_{10}H_7SiH_3$ (Silane, 1-naphthalenyl-) (RN-CAS Registry Number 38274-75-8) | ** | 8.12 | CTS | 3922 |
| $C_{10}H_{14}Si^+$ | $C_8H_8Si(CH_3)_2$ (1-Silaindan, 1,1-dimethyl-) (RN-CAS Registry Number 17158-48-4) | ** | 8.54 | CTS | 3546 |
| $C_{10}H_{14}Si^+$ | $C_8H_8Si(CH_3)_2$ (1 <i>H</i> -2-Silaindene, 2,3-dihydro-2,2-dimethyl-) (RN-CAS Registry Number 2764-87-6) | ** | 8.41 | CTS | 3546 |
| $C_{10}H_{16}Si^+$ | $C_6H_5CH_2Si(CH_3)_3$ (Silane, trimethyl(phenylmethyl)-) (RN-CAS Registry Number 770-09-2) | ** | 8.27 | CTS | 3922 |
| $C_{10}H_{16}Si^+$ | $C_6H_5CH_2Si(CH_3)_3$ (Silane, trimethyl(phenylmethyl)-) (RN-CAS Registry Number 770-09-2) | ** | 8.37 | CTS | 3546 |
| $C_{11}H_{16}Si^+$ | $C_6H_5CH=CHSi(CH_3)_3$ (Silane, trimethyl(2-phenylethenyl)-, (E)-) (RN-CAS Registry Number 19372-00-0) | ** | 7.89 ± 0.04 | RPD | 4097 |
| $C_{11}H_{16}Si^+$ | $C_6H_5CH=CHSi(CH_3)_3$ (Silane, trimethyl(2-phenylethenyl)-, (Z)-) (RN-CAS Registry Number 19319-11-0) | ** | 8.19 ± 0.04 | RPD | 4097 |
| $C_{11}H_{16}Si^+$ | $C_6H_5C(Si(CH_3)_3)=CH_2$ (Silane, trimethyl(1-phenylethenyl)-) (RN-CAS Registry Number 1923-01-9) | ** | 8.23 ± 0.04 | RPD | 4097 |
| $C_{12}H_{16}Si^+$ | $C_9H_7Si(CH_3)_3$ (Silane, 1 <i>H</i> -inden-1-yltrimethyl-) (RN-CAS Registry Number 18053-75-3) | ** | 7.65 ± 0.01 | EI | 3805 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|--------------------|---|--------------------|---|--------|------|
| $C_{12}H_{18}Si^+$ | $C_9H_9Si(CH_3)_3$ (Silane, (2,3-dihydro-1 <i>H</i> -inden-1-yl)trimethyl-) (RN-CAS Registry Number 18036-88-9) | ** | 7.87 ± 0.01 | EI | 3805 |
| $C_{12}H_{18}Si^+$ | $C_9H_9Si(CH_3)_3$ (Silane, 1-indanyltrimethyl-) (RN-CAS Registry Number 18036-88-9) | ** | 8.13 | CTS | 3546 |
| $C_{12}H_{18}Si^+$ | $C_6H_5CH=CHCH_2Si(CH_3)_3$ (Silane, trimethyl(3-phenyl-2-propenyl)-, (E)-) (RN-CAS Registry Number 40595-34-4) | ** | 7.61 ± 0.04 | RPD | 4097 |
| $C_{12}H_{18}Si^+$ | $C_6H_5CH=CHCH_2Si(CH_3)_3$ (Silane, trimethyl(3-phenyl-2-propenyl)-, (Z)-) (RN-CAS Registry Number 40595-35-5) | ** | 7.77 ± 0.04 | RPD | 4097 |
| $C_{13}H_{13}Si^+$ | $(C_6H_5)_2Si(CH_3)H$ (Silane, methyl-diphenyl-) (RN-CAS Registry Number 776-76-1) | H | 10.97 ± 0.12 | EI | 3549 |
| $C_{13}H_{13}Si^+$ | $(C_6H_5)_2SiCH_3Si(CH_3)_3$ (Disilane, 1,1,1,2-tetramethyl-2,2-diphenyl-) (RN-CAS Registry Number 1450-16-4) | $(CH_3)_3Si$ | 9.63 ± 0.02 | EI | 3549 |
| | (MT-Metastable transition(s) observed) (TR-Other product(s) thermochemically reasonable) | | | | |
| $C_{13}H_{13}Si^+$ | $(C_6H_5)(CH_3)_2Si_2$ (Disilane, 1,1,2,2-tetramethyl-1,2-diphenyl-) (RN-CAS Registry Number 1145-98-8) | $(CH_3)_3Si$ | 9.60 ± 0.02 | EI | 3549 |
| | (TR-Other product(s) thermochemically reasonable) | | | | |
| $C_{13}H_{13}Si^+$ | $((C_6H_5)_2CH_3Si)_2$ (Disilane, 1,2-dimethyl-1,1,2,2-tetraphenyl-) (RN-CAS Registry Number 1172-76-5) | $(C_6H_5)_2SiCH_3$ | 9.51 ± 0.05 | EI | 3549 |
| | (TR-Other product(s) thermochemically reasonable) | | | | |
| $C_{13}H_{14}Si^+$ | $(C_6H_5)_2Si(CH_3)H$ (Silane, methyl-diphenyl-) (RN-CAS Registry Number 776-76-1) | ** | 8.75 ± 0.15 | EI | 3549 |
| $C_{13}H_{16}Si^+$ | $C_{10}H_7Si(CH_3)_3$ (Silane, trimethyl-1-naphthalenyl-) (RN-CAS Registry Number 18052-80-7) | ** | 8.03 | CTS | 3758 |
| $C_{14}H_{14}Si^+$ | $C_{12}H_8Si(CH_3)_2$ (5 <i>H</i> -Dibenzosilole, 5,5-dimethyl-) (RN-CAS Registry Number 13688-68-1) | ** | 7.9 (V) | PE | 4081 |
| $C_{14}H_{18}Si^+$ | $C_{10}H_7CH_2Si(CH_3)_3$ (Silane, trimethyl(1-naphthalenylmethyl)-) (RN-CAS Registry Number 18410-58-7) | ** | 7.83 | CTS | 3922 |
| $C_{14}H_{18}Si^+$ | $C_{10}H_7CH_2Si(CH_3)_3$ (Silane, trimethyl(1-naphthalenylmethyl)-) (RN-CAS Registry Number 18410-58-7) | ** | 7.83 | CTS | 3758 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|--------------------|---|--------------------|---|--------|------|
| $C_{17}H_{18}Si^+$ | $C_9H_7Si(CH_3)_2C_6H_5$ (Silane, 1 <i>H</i> -inden-1-yl dimethylphenyl-) (RN-CAS Registry Number 27490-90-0) | ** | 7.69 ± 0.04 | EI | 3805 |
| $C_{17}H_{20}Si^+$ | $C_9H_9Si(CH_3)_2C_6H_5$ (Silane, (2,3-dihydro-1 <i>H</i> -inden-1-yl)dimethylphenyl-) (RN-CAS Registry Number 41273-54-5) | ** | 7.94 ± 0.01 | EI | 3805 |
| $C_{18}H_{15}Si^+$ | $(C_6H_5)_3SiH$ (Silane, triphenyl-) (RN-CAS Registry Number 789-25-3) (TR-Other product(s) thermochemically reasonable) | H | 9.58 ± 0.08 | EI | 3549 |
| $C_{18}H_{15}Si^+$ | $(C_6H_5)_4Si$ (Silane, tetraphenyl-) (RN-CAS-Registry Number 1048-08-4) | C_6H_5 | 9.7 | PI | 4055 |
| $C_{18}H_{15}Si^+$ | $(C_6H_5)_4Si$ (Silane, tetraphenyl-) (RN-CAS Registry Number 1048-08-4) (TR-Other product(s) thermochemically reasonable) | C_6H_5 | 9.93 ± 0.08 | EI | 3549 |
| $C_{18}H_{15}Si^+$ | $(C_6H_5)_3SiSi(CH_3)_3$ (Disilane, 1,1,1-trimethyl-2,2,2-triphenyl-) (RN-CAS Registry Number 1450-18-6) (TR-Other product(s) thermochemically reasonable) | $(CH_3)_3Si$ | 9.35 ± 0.03 | EI | 3549 |
| $C_{18}H_{15}Si^+$ | $((C_6H_5)_2CH_2Si)_2$ (Disilane, 1,2-dimethyl-1,1,2,2-tetraphenyl-) (RN-CAS Registry Number 1172-76-5) (TR-Other product(s) thermochemically reasonable) | $C_6H_5Si(CH_3)_2$ | 9.35 ± 0.03 | EI | 3549 |
| $C_{18}H_{15}Si^+$ | $((C_6H_5)_3Si)_2$ (Disilane, hexaphenyl-) (RN-CAS Registry Number 1450-23-3) (TR-Other product(s) thermochemically reasonable) | $(C_6H_5)_3Si$ | 9.61 ± 0.09 | EI | 3549 |
| $C_{18}H_{16}Si^+$ | $(C_6H_5)_3SiH$ (Silane, triphenyl-) (RN-CAS Registry Number 789-25-3) | ** | 8.80 ± 0.15 | EI | 3549 |
| $C_{22}H_{20}Si^+$ | $C_{10}H_7Si(CH_3)_2C_{10}H_7$ (Silane, dimethyl-di-1-naphthalenyl-) (RN-CAS Registry Number 18753-19-0) | ** | 8.03 | CTS | 3758 |
| $C_{24}H_{16}Si^+$ | $C_{24}H_{16}Si$ (5,5'-Spirobi[5 <i>H</i> -dibenzosilole]) (RN-CAS Registry Number 159-68-2) | ** | 7.85 (V) | PE | 4081 |
| $C_{24}H_{20}Si^+$ | $(C_6H_5)_4Si$ (Silane, tetraphenyl-) (RN-CAS-Registry Number 1048-08-4) | ** | 8.50 ± 0.03 | PI | 4055 |
| $C_{24}H_{20}Si^+$ | $(C_6H_5)_4Si$ (Silane, tetraphenyl-) (RN-CAS Registry Number 1048-08-4) | ** | 8.65 ± 0.15 | EI | 3549 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|----------------------|---|----------------|---|--------|------|
| $C_6H_{18}Si_2^+$ | $(CH_3)_3SiSi(CH_3)_3$ (RN-CAS Registry Number 1450-14-2) | ** | 8.69 (V) | PE | 3504 |
| $C_6H_{18}Si_2^+$ | $(CH_3)_3SiSi(CH_3)_3$ (RN-CAS Registry Number 1450-14-2) | ** | 8.35 ± 0.12 | EI | 3548 |
| $C_6H_{18}Si_2^+$ | $(CH_3)_3SiSi(CH_3)_3$ (RN-CAS Registry Number 1450-14-2) | ** | 8.46 ± 0.15 | EI | 3549 |
| $C_{11}H_{20}Si_2^+$ | $C_6H_5Si_2(CH_3)_5$ (Disilane, pentamethylphenyl-) (RN-CAS Registry Number 1130-17-2) | ** | 8.35 (V) | PE | 3946 |
| $C_{11}H_{20}Si_2^+$ | $C_6H_5Si_2(CH_3)_5$ (Disilane, pentamethylphenyl-) (RN-CAS Registry Number 1130-17-2) | ** | 8.35 ± 0.15 | EI | 3549 |
| $C_{11}H_{20}Si_2^+$ | $C_6H_5Si_2(CH_3)_5$ (Disilane, pentamethylphenyl-) (RN-CAS Registry Number 1130-17-2) | ** | 8.37 | CTS | 3946 |
| $C_{12}H_{10}Si_2^+$ | $C_8H_8Si(CH_3)Si(CH_3)_3$ (2-Silaindan, 2-methyl-2-(trimethylsilyl)-) (RN-CAS Registry Number 27490-20-6) | ** | 8.37 | CTS | 3546 |
| $C_{12}H_{22}Si_2^+$ | $C_6H_5CH_2Si_2(CH_3)_5$ (Disilane, pentamethyl(phenylmethyl)-) (RN-CAS Registry Number 3098-82-6) | ** | 8.27 | CTS | 3546 |
| $C_{13}H_{22}Si_2^+$ | $C_6H_5CH=CHSi_2(CH_3)_5$ (Disilane, pentamethyl(2-phenylethenyl)-, (E)-) (RN-CAS Registry Number 40595-36-6) | ** | 7.73 ± 0.04 | RPD | 4097 |
| $C_{14}H_{24}Si_2^+$ | $C_9H_9Si_2(CH_3)_5$ (Disilane, 1-indanylpentamethyl-) (RN-CAS Registry Number 27490-23-9) | ** | 8.07 | CTS | 3546 |
| $C_{14}H_{24}Si_2^+$ | $C_6H_5CH=C(Si(CH_3)_3)_2$ (Silane, (phenylethenylidene)bis(trimethyl-)) (RN-CAS Registry Number 18415-23-1) | ** | 8.12 ± 0.04 | RPD | 4097 |
| $C_{15}H_{22}Si_2^+$ | $C_{10}H_7Si_2(CH_3)_5$ (Disilane, pentamethyl-1-naphthalenyl-) (RN-CAS Registry Number 38446-40-1) | ** | 7.95 | CTS | 3758 |
| $C_{15}H_{24}Si_2^+$ | $C_9H_6(Si(CH_3)_3)_2$ (Silane, 1 <i>H</i> -indene-1,2-diylbis(trimethyl-)) (RN-CAS Registry Number 26205-36-7) | ** | 7.54 ± 0.01 | EI | 3805 |
| $C_{16}H_{22}Si_2^+$ | $(C_6H_5)_2SiCH_3Si(CH_3)_3$ (Disilane, 1,1,1,2-tetramethyl-2,2-diphenyl-) (RN-CAS Registry Number 1450-16-4) | ** | 8.38 ± 0.15 | EI | 3549 |
| $C_{16}H_{22}Si_2^+$ | $(C_6H_5(CH_3)_2Si)_2$ (Disilane, 1,1,2,2-tetramethyl-1,2-diphenyl-) (RN-CAS Registry Number 1145-98-8) | ** | 8.11 ± 0.15 | EI | 3549 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|----------------------|--|----------------|---|--------|------|
| $C_{21}H_{24}Si_2^+$ | $(C_6H_5)_3SiSi(CH_3)_3$ (Disilane, 1,1,1-trimethyl-2,2,2-triphenyl-) (RN-CAS Registry Number 1450-18-6) | ** | 8.30 ± 0.15 | EI | 3549 |
| $C_{24}H_{26}Si_2^+$ | $C_{10}H_7(Si(CH_3)_2)_2C_{10}H_7$ (Disilane, 1,1,2,2-tetramethyl-1,2-di-1-naphthalenyl-) (RN-CAS Registry Number 38446-41-2) | ** | 7.91 | CTS | 3758 |
| $C_{26}H_{26}Si_2^+$ | $((C_6H_5)_2CH_3Si)_2$ (Disilane, 1,2-dimethyl-1,1,2,2-tetraphenyl-) (RN-CAS Registry Number 1172-76-5) | ** | 8.05 ± 0.15 | EI | 3549 |
| $C_{36}H_{30}Si_2^+$ | $((C_6H_5)_3Si)_2$ (Disilane, hexaphenyl-) (RN-CAS Registry Number 1450-23-3) | ** | 8.16 ± 0.15 | EI | 3549 |
| $C_8H_{24}Si_3^+$ | $Si_3(CH_3)_8$ (RN-CAS Registry Number 3704-44-7) | ** | 8.19 (V) | PE | 3504 |
| $C_{17}H_{28}Si_3^+$ | $C_{10}H_7Si_3(CH_3)_7$ (Trisilane, 1,1,1,2,2,3,3-heptamethyl-3-(1-naphthalenyl-)) (RN-CAS Registry Number 38446-42-3) | ** | 7.93 | CTS | 3758 |
| $C_{17}H_{28}Si_3^+$ | $C_{10}H_7Si(Si(CH_3)_3)_2CH_3$ (Trisilane, 1,1,1,2,3,3,3-heptamethyl-2-)(-naphthalenyl-)) (RN-CAS Registry Number 38446-43-4) | ** | 7.85 | CTS | 3758 |
| $C_{26}H_{32}Si_3^+$ | $C_{10}H_7(Si(CH_3)_2)_3C_{10}H_7$ (Trisilane, 1,1,2,2,3,3-hexamethyl-1,3-di-1-naphthalenyl-) (RN-CAS Registry Number 38580-43-7) | ** | 7.92 | CTS | 3758 |
| $C_6H_{16}Si_4^+$ | $C_6H_{16}Si_4$ (1,3,5,7-Tetrasilatricyclo[3.3.1.1 ^{3,7}]decane) (RN-CAS Registry Number 281-44-7) (ON-Other name: 1,3,5,7-Tetrasilaadamantane) | ** | 9.0 ± 0.05 | PE | 3855 |
| $C_6H_{16}Si_4^+$ | $C_6H_{16}Si_4$ (1,3,5,7-Tetrasilatricyclo[3.3.1.1 ^{3,7}]decane) (RN-CAS Registry Number 281-44-7) (ON-Other name: Silamantane) | ** | 9.7 (V) | PE | 4000 |
| $C_{10}H_{24}Si_4^+$ | $C_6H_{12}Si_4(CH_3)_4$ (1,3,5,7-Tetrasilatricyclo[3.3.1.1 ^{3,7}]decane, 1,3,5,7-tetramethyl-) (RN-CAS Registry Number 17995-33-4) (ON-Other name: 1,3,5,7-Tetramethyl-1,3,5,7-tetrasilaadamantane) | ** | 8.45 ± 0.05 | PE | 3855 |
| $C_{10}H_{30}Si_4^+$ | $n-Si_4(CH_3)_{10}$ (RN-CAS Registry Number 865-76-9) | ** | 7.98 (V) | PE | 3504 |
| $C_{10}H_{30}Si_5^+$ | $Si_5(CH_3)_{10}$ (Cyclopentasilane, decamethyl-) (RN-CAS Registry Number 13452-92-1) | ** | 7.94 (V) | PE | 3504 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|-----------------------|--|----------------|---|--------|------|
| $C_{12}H_{36}Si_5^+$ | $Si(Si(CH_3)_3)_4$ (RN-CAS Registry Number 4098-98-0) | ** | 8.24 (V) | PE | 3504 |
| $C_{12}H_{36}Si_6^+$ | $Si_6(CH_3)_{12}$ (Cyclohexasilane, dodecamethyl-) (RN-CAS Registry Number 4098-30-0) | ** | 7.79 (V) | PE | 3504 |
| $C_{16}H_{36}Si_7^+$ | $C_{10}H_{18}Si_7(CH_3)_6$ (2 <i>H</i> -1,5:8,12-Dimethano-3,6a,10-metheno-1,3,5,6a,8,10,12-heptasilaoctalene, dodecahydro-1,3,5,8,10,12-hexamethyl-) (RN-CAS Registry Number 26393-20-4) (ON-Other name: Carborundane) | ** | 7.9±0.05 | PE | 3855 |
| Si_2N^+ | Si_2N (RN-CAS Registry Number XXXXX-XX-X) | ** | 9.5±0.5 | EI | 3810 |
| $SiH_3N_3(^2A')$ | SiH_3N_3 (RN-CAS Registry Number 13847-60-4) | ** | 10.33±0.02 (V) | PE | 3670 |
| $Si_3H_9N^+$ | $(SiH_3)_3N$ (RN-CAS Registry Number 13862-16-3) | ** | 9.7±0.1 (V) | PE | 3661 |
| $C_2H_9NSi^+$ | $(CH_3)_2NSiH_3$ (RN-CAS Registry Number 2875-98-1) | ** | 8.5±0.1 (V) | PE | 3661 |
| $C_8H_{13}NSi^+$ | $C_5H_4NS(CH_3)_3$ (Pyridine, 2-(trimethylsilyl)-) (RN-CAS Registry Number 13737-04-7) | ** | 8.90±0.05 (V) | PE | 3685 |
| $C_8H_{13}NSi^+$ | $C_5H_4NS(CH_3)_3$ (Pyridine, 4-(trimethylsilyl)-) (RN-CAS Registry Number 18301-46-7) | ** | 9.30±0.05 (V) | PE | 3685 |
| $C_3H_9N_3Si^+$ | $(CH_3)_3SiN_3$ (RN-CAS Registry Number 4648-54-8) | ** | 9.7±0.1 (V) | PE | 3670 |
| $C_8H_{24}N_4Si^+$ | $((CH_3)_2N)_4Si$ (RN-CAS Registry Number 1624-01-7) | ** | 8.39 (V) | PE | 3503 |
| $CH_9NSi_2^+$ | $(SiH_3)_2NCH_3$ (RN-CAS Registry Number 4459-06-7) | ** | 9.2±0.1 (V) | PE | 3661 |
| $C_{11}H_{21}NSi_2^+$ | $C_5H_3N(S(CH_3)_3)_2$ (Pyridine, 2,5-bis(trimethylsilyl)-) (RN-CAS Registry Number 35505-51-2) | ** | 8.65±0.05 (V) | PE | 3685 |
| $C_{11}H_{21}NSi_2^+$ | $C_5H_3N(S(CH_3)_3)_2$ (Pyridine, 2,6-bis(trimethylsilyl)-) (RN-CAS Registry Number 35505-52-3) | ** | 8.50±0.05 (V) | PE | 3685 |
| SiO^+ | SiO (RN-CAS Registry Number 10097-28-6) | ** | 10.2±0.5 | EI | 3985 |
| SiO^+ | SiO (RN-CAS Registry Number 10097-28-6) | ** | 11.3±0.3 | EI | 4005 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|---|--|----------------|---|--------|------|
| SiO ⁺ | SiO (RN-CAS Registry Number 10097-28-6) | ** | 11.3±0.5 | EI | 3810 |
| SiO ⁺ | SiO (RN-CAS Registry Number 10097-28-6) | ** | 11.5±0.3 | EI | 3610 |
| Si ₂ H ₆ O ⁺ (² B ₁) | (SiH ₃) ₂ O (RN-CAS Registry Number 13597-73-4) | ** | 11.17 (V) | PE | 3656 |
| Si ₂ H ₆ O ⁺ | (SiH ₃) ₂ O (RN-CAS Registry Number 13597-73-4) | ** | 11.19 (V) | PE | 3844 |
| CH ₆ OSi ⁺ | CH ₃ OSiH ₃ (RN-CAS Registry Number 2171-96-2) | ** | 10.61 (V) | PE | 3844 |
| C ₃ H ₉ SiO ⁺ | (CH ₃) ₃ SiOSi(CH ₃) ₃ (RN-CAS Registry Number 107-46-0) | | 21.8±0.2 | EI | 3444 |
| C ₃ H ₉ SiO ⁺ | (CH ₃) ₃ SiOSi(CH ₃) ₂ OSi(CH ₃) ₃ (RN-CAS Registry Number 107-51-7) | | 21.8±0.2 | EI | 3444 |
| C ₃ H ₉ SiO ⁺ | (CH ₃) ₃ SiOSi(CH ₃)(C ₂ H ₅)OSi(CH ₃) ₃ (RN-CAS Registry Number 5356-85-4) | | 23.6±0.2 | EI | 3444 |
| C ₃ H ₉ SiO ⁺ | (CH ₃) ₃ SiOSi(CH ₃)(C ₂ H ₅)OSi(CH ₃) ₃ (RN-CAS Registry Number 17861-60-8) | | 21.8±0.2 | EI | 3444 |
| C ₁₀ H ₁₆ OSi ⁺ | C ₆ H ₄ (OCH ₃)Si(CH ₃) ₃ (Silane, (4-methoxyphenyl)trimethyl-) (RN-CAS Registry Number 877-68-9) | ** | 8.03 | CTS | 3758 |
| C ₁₃ H ₁₈ OSi ⁺ | C ₉ H ₇ Si(CH ₃) ₂ OC ₂ H ₅ (Silane, ethoxy-1 <i>H</i> -inden-1-yl)dimethyl-) (RN-CAS Registry Number 41273-57-8) | ** | 7.63±0.01 | EI | 3805 |
| C ₁₃ H ₂₀ OSi ⁺ | C ₉ H ₉ Si(CH ₃) ₂ OC ₂ H ₅ (Silane, (2,3-dihydro-1 <i>H</i> -inden-1-yl)ethoxydimethyl-) (RN-CAS Registry Number 41273-53-4) | ** | 7.81±0.01 | EI | 3805 |
| C ₃ H ₁₂ O ₂ Si ⁺ | C ₃ H ₆ Si(OCH ₃) ₂ (Silacyclobutane, 1,1-dimethoxy-) (RN-CAS Registry Number 33446-84-3) | ** | 10.15 (V) | PE | 4077 |
| C ₈ H ₂₀ O ₄ Si ⁺ | (C ₂ H ₅ O) ₄ Si (RN-CAS Registry Number 78-10-4) | ** | 9.77 (V) | PE | 3503 |
| C ₁₂ H ₂₂ OSi ₂ ⁺ | C ₆ H ₄ (OCH ₃)Si ₂ (CH ₃) ₅ (Disilane, (4-methoxyphenyl)pentamethyl-) (RN-CAS Registry Number 4199-03-5) | ** | 7.85 | CTS | 3758 |
| Si ₂ NO ⁺ | Si ₂ NO (RN-CAS Registry Number 12033-47-5) | ** | 10.8±0.5 | EI | 3810 |
| CH ₃ NOSi ⁺ | SiH ₃ NCO (RN-CAS Registry Number 13730-13-7) | ** | 11.10±0.02 (V) | PE | 3670 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|-----------------------|---|----------------|---|--------|------|
| $C_4H_9NOSi^+$ | $(CH_3)_3SiNCO$ (RN-CAS Registry Number 1118-02-1) | ** | 10.3 ± 0.1 (V) | PE | 3670 |
| $SiF_4^+(\ ^2T_1)$ | SiF_4 (RN-CAS Registry Number 7783-61-1) | ** | 16.46 ± 0.04 (V) | PE | 3880 |
| $SiF_4^+(\ ^2T_2)$ | SiF_4 (RN-CAS Registry Number 7783-61-1) | ** | 17.55 ± 0.04 (V) | PE | 3880 |
| $SiF_4^+(\ ^2A_1)$ | SiF_4 (RN-CAS Registry Number 7783-61-1) | ** | 18.09 ± 0.04 (V) | PE | 3880 |
| $SiF_4^+(\ ^2E)$ | SiF_4 (RN-CAS Registry Number 7783-61-1) | ** | 19.51 ± 0.04 (V) | PE | 3880 |
| $Si_2F_6^+$ | Si_2F_6 (RN-CAS Registry Number 13830-68-7) | ** | 13.20 ± 0.02 (V) | PE | 4026 |
| $SiH_3F^+(\ ^2E)$ | SiH_3F (RN-CAS Registry Number 13537-33-2) | ** | 12.58 (V) | PE | 3511 |
| $SiH_3F^+(\ ^2E)$ | SiH_3F (RN-CAS Registry Number 13537-33-2) | ** | 12.6 ± 0.1 (V) | PE | 3510 |
| $SiH_3F^+(\ ^2A_1)$ | SiH_3F (RN-CAS Registry Number 13537-33-2) | ** | ~ 16 (V) | PE | 3510 |
| SiH_3F^+ | SiH_3F (RN-CAS Registry Number 13537-33-2) | ** | 16.1 ± 0.1 (V) | PE | 3502 |
| $SiH_3F^+(\ ^2A_1)$ | SiH_3F (RN-CAS Registry Number 13537-33-2) | ** | ~ 16.13 (V) | PE | 3511 |
| $SiH_3F^+(\ ^2E)$ | SiH_3F (RN-CAS Registry Number 13537-33-2) | ** | 16.2 ± 0.1 (V) | PE | 3510 |
| $SiH_3F^+(\ ^2E)$ | SiH_3F (RN-CAS Registry Number 13537-33-2) | ** | ~ 16.58 (V) | PE | 3511 |
| $SiH_3F^+(\ ^2A_1)$ | SiH_3F (RN-CAS Registry Number 13537-33-2) | ** | 19.29 (V) | PE | 3511 |
| $SiH_2F_2^+(\ ^2B_1)$ | SiH_2F_2 (RN-CAS Registry Number 13824-36-7) | ** | 12.85 (V) | PE | 3511 |
| $SiH_2F_2^+(\ ^2B_1)$ | SiH_2F_2 (RN-CAS Registry Number 13824-36-7) | ** | 12.85 (V) | PE | 3694 |
| $SiH_2F_2^+(\ ^2B_1)$ | SiH_2F_2 (RN-CAS Registry Number 13824-36-7) | ** | 12.9 ± 0.1 (V) | PE | 3510 |
| $SiH_2F_2^+(\ ^2A_1)$ | SiH_2F_2 (RN-CAS Registry Number 13824-36-7) | ** | 15.20 (V) | PE | 3511 |
| $SiH_2F_2^+(\ ^2A_1)$ | SiH_2F_2 (RN-CAS Registry Number 13824-36-7) | ** | 15.20 (V) | PE | 3694 |
| $SiH_2F_2^+(\ ^2B_2)$ | SiH_2F_2 (RN-CAS Registry Number 13824-36-7) | ** | 16.07 (V) | PE | 3511 |
| $SiH_2F_2^+(\ ^2B_2)$ | SiH_2F_2 (RN-CAS Registry Number 13824-36-7) | ** | 16.07 (V) | PE | 3694 |
| $SiH_2F_2^+(\ ^2A_2)$ | SiH_2F_2 (RN-CAS Registry Number 13824-36-7) | ** | 16.37 (V) | PE | 3511 |
| $SiH_2F_2^+(\ ^2A_2)$ | SiH_2F_2 (RN-CAS Registry Number 13824-36-7) | ** | 16.37 (V) | PE | 3694 |
| $SiH_2F_2^+(\ ^2B_1)$ | SiH_2F_2 (RN-CAS Registry Number 13824-36-7) | ** | 17.60 (V) | PE | 3511 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|--|---|----------------|---|--------|------|
| $\text{SiH}_2\text{F}_2(^2\text{B}_1)$ | SiH_2F_2 (RN-CAS Registry Number 13824-36-7) | ** | 17.60 (V) | PE | 3694 |
| $\text{SiH}_2\text{F}_2(^2\text{A}_1)$ | SiH_2F_2 (RN-CAS Registry Number 13824-36-7) | ** | 17.93 (V) | PE | 3511 |
| $\text{SiH}_2\text{F}_2(^2\text{B}_2)$ | SiH_2F_2 (RN-CAS Registry Number 13824-36-7) | ** | 17.93 (V) | PE | 3694 |
| $\text{SiH}_2\text{F}_2(^2\text{B}_1)$ | SiH_2F_2 (RN-CAS Registry Number 13824-36-7) | ** | 18.30 (V) | PE | 3511 |
| $\text{SiH}_2\text{F}_2(^2\text{A}_1)$ | SiH_2F_2 (RN-CAS Registry Number 13824-36-7) | ** | 18.30 (V) | PE | 3694 |
| $\text{SiH}_2\text{F}_2(^2\text{A}_1)$ | SiH_2F_2 (RN-CAS Registry Number 13824-36-7) | ** | 20.19 (V) | PE | 3511 |
| $\text{SiH}_2\text{F}_2(^2\text{A}_1)$ | SiH_2F_2 (RN-CAS Registry Number 13824-36-7) | ** | 20.19 (V) | PE | 3694 |
| $\text{SiHF}_3(^2\text{A}_1)$ | SiHF_3 (RN-CAS Registry Number 13465-71-9) | ** | 14.48±0.02 (V) | PE | 4026 |
| $\text{SiHF}_3(^2\text{A}_2)$ | SiHF_3 (RN-CAS Registry Number 13465-71-9) | ** | 15.94±0.02 (V) | PE | 4026 |
| $\text{SiHF}_3(^2\text{E})$ | SiHF_3 (RN-CAS Registry Number 13465-71-9) | ** | 16.38±0.02 (V) | PE | 4026 |
| $\text{SiHF}_3(^2\text{E})$ | SiHF_3 (RN-CAS Registry Number 13465-71-9) | ** | 17.24±0.02 (V) | PE | 4026 |
| $\text{SiHF}_3(^2\text{A}_1)$ | SiHF_3 (RN-CAS Registry Number 13465-71-9) | ** | 18.20±0.02 (V) | PE | 4026 |
| $\text{SiHF}_3(^2\text{E})$ | SiHF_3 (RN-CAS Registry Number 13465-71-9) | ** | 18.61±0.02 (V) | PE | 4026 |
| $\text{SiHF}_3(^2\text{A}_1)$ | SiHF_3 (RN-CAS Registry Number 13465-71-9) | ** | 20.94±0.02 (V) | PE | 4026 |
| $\text{SiF}_3\text{C}^+(^2\text{A}_1)$ | SiF_3Cl (RN-CAS Registry Number 14049-36-6) | ** | 20.86±0.02 (V) | PE | 4026 |
| $\text{C}_3\text{H}_9\text{SiF}^+$ | $(\text{CH}_3)_3\text{SiC}\equiv\text{CF}$ (RN-CAS Registry Number 38346-22-4) | ** | 9.8±0.1 | PE | 4002 |
| $\text{CH}_3\text{F}_3\text{Si}^+$ | CH_3SiF_3 (RN-CAS Registry Number 373-74-0) | ** | 13.24±0.02 (V) | PE | 4026 |
| $\text{C}_7\text{H}_{10}\text{F}_6\text{Si}^+$ | <i>cis</i> - $(\text{CH}_3)_3\text{SiC}(\text{CF}_3)=\text{C}(\text{CF}_3)\text{H}$ (RN-CAS Registry Number 35186-03-9) | ** | 9.86 | PE | 3589 |
| $\text{C}_6\text{H}_{12}\text{F}_4\text{Si}_4^+$ | $\text{C}_6\text{H}_{12}\text{Si}_4\text{F}_4$ (1,3,5,7-Tetrasilatricyclo[3.3.1.1 ^{3,7}]decane, 1,3,5,7-tetrafluoro-) (RN-CAS Registry Number 33664-21-0) (ON-Other name: 1,3,5,7-Tetrafluoro-1,3,5,7-tetrasilaadamantane) | ** | 9.8±0.05 | PE | 3855 |
| SiAl^+ | SiAl (RN-CAS Registry Number 12042-55-6) | ** | 6.5±1.0 | EI | 4005 |
| SiAlO^+ | SiAlO (RN-CAS Registry Number 37361-47-0) | ** | 6.3±1.0 | EI | 4005 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|---|---|---------------------|---|--------|------|
| SiAlO ⁺ | AlSiO (RN-CAS Registry Number 37361-47-0) | ** | 8.0±1 | EI | 3985 |
| P ⁺ | P ₂ (RN-CAS Registry Number 12185-09-0) | ** | 15.9 | EI | 3472 |
| P ⁺ | PH ₃ (RN-CAS Registry Number 7803-51-2) | H ₂ +H | 16.3 | DC | 3811 |
| P ⁺ | PCl ₃ (RN-CAS Registry Number 7719-12-2) | Cl ₂ +Cl | 18.5±0.7 | EDD | 3556 |
| P ⁺ | (TR—Other product(s) thermochemically reasonable) PBr ₃ (RN-CAS Registry Number 7789-60-8) | Br ₂ +Br | 16.7±0.7 | EDD | 3556 |
| P ₂ ⁺ | P ₂ (RN-CAS Registry Number 12185-09-0) | ** | 10.7±0.1 | S | 3567 |
| | (RS—Average of two Rydberg series limits) | | | | |
| P ₂ ⁺ (² Π _u) | P ₂ (RN-CAS Registry Number 12185-09-0) | ** | 10.60 | PE | 3695 |
| P ₂ ⁺ (² Σ _g) | P ₂ (RN-CAS Registry Number 12185-09-0) | ** | 10.84 (V) | PE | 3695 |
| P ₂ ⁺ | P ₂ (RN-CAS Registry Number 12185-09-0) | ** | 9.7±0.5 | EI | 3458 |
| P ₂ ⁺ | P ₂ (RN-CAS Registry Number 12185-09-0) | ** | 9.7 | EI | 4001 |
| P ₂ ⁺ | P ₂ (RN-CAS Registry Number 12185-09-0) | ** | 11.2 | EI | 3472 |
| P ₂ ⁺ | P ₂ (RN-CAS Registry Number 12185-09-0) | ** | 11.4±0.5 | EI | 4098 |
| P ₂ ⁺ | P ₂ (RN-CAS Registry Number 12185-09-0) | ** | 11.8±0.5 | EI | 3555 |
| P ₄ ⁺ | P ₄ (RN-CAS Registry Number 12185-10-3) | ** | 9.10±0.05 | PE | 3683 |
| P ₄ ⁺ (² E) | P ₄ (RN-CAS Registry Number 12185-10-3) | ** | 9.2 | PE | 3643 |
| P ₄ ⁺ (² T ₂) | P ₄ (RN-CAS Registry Number 12185-10-3) | ** | 10.2 | PE | 3643 |
| P ₄ ⁺ (² A ₁) | P ₄ (RN-CAS Registry Number 12185-10-3) | ** | 11.80±0.07 | PE | 3643 |
| P ₄ ⁺ (² T ₂) | P ₄ (RN-CAS Registry Number 12185-10-3) | ** | ~14.2 | PE | 3643 |
| P ₄ ⁺ | P ₄ (RN-CAS Registry Number 12185-10-3) | ** | 10.0±0.5 | EI | 4098 |
| P ₄ ⁺ | P ₄ (RN-CAS Registry Number 12185-10-3) | ** | 10.8±0.3 | EI | 3555 |
| PH ⁺ | PH ₃ (RN-CAS Registry Number 7803-51-2) | H ₂ | 12.9 | DC | 3811 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|--------------------------------------|---|----------------|---|--------|------|
| PH_2^+ | PH_3 (RN-CAS Registry Number 7803-51-2) | H | 13.4 | DC | 3811 |
| $\text{PH}_3^+(\text{}^2\text{A}_1)$ | PH_3 (RN-CAS Registry Number 7803-51-2) | ** | 9.96 ± 0.01 | PE | 3703 |
| $\text{PH}_3^+(\text{}^2\text{A}_1)$ | PH_3 (RN-CAS Registry Number 7803-51-2) | ** | 9.96 | PE | 3719 |
| $\text{PH}_3^+(\text{}^2\text{E})$ | PH_3 (RN-CAS Registry Number 7803-51-2) | ** | 12.40 ± 0.02 | PE | 3703 |
| $\text{PH}_3^+(\text{}^2\text{E})$ | PH_3 (RN-CAS Registry Number 7803-51-2) | ** | 12.64 ± 0.02 | PE | 3719 |
| $\text{PH}_3^+(\text{}^2\text{A}_1)$ | PH_3 (RN-CAS Registry Number 7803-51-2) | ** | 19.0 (V) | PE | 3719 |
| PH_3^+ | PH_3 (RN-CAS Registry Number 7803-51-2) | ** | 10.0 | DC | 3811 |
| BP^+ | BP (RN-CAS Registry Number 20205-91-8) | ** | $<13 \pm 2$ | EI | 3619 |
| PC^+ | PC (RN-CAS Registry Number 12326-85-1) | ** | 10.5 ± 0.5 | EI | 3458 |
| C_2P^+ | C_2P (RN-CAS Registry Number 12602-39-0) | ** | 10.9 ± 0.5 | EI | 3458 |
| CP_2^+ | CP_2 (RN-CAS Registry Number 12601-93-3) | ** | 9.4 ± 0.5 | EI | 3458 |
| $\text{CHP}^+(\text{X}^2\text{II})$ | HCP (RN-CAS Registry Number 6829-52-3) | ** | 10.79 ± 0.01 | PE | 3840 |
| $\text{CHP}^+(\text{A}^2\Sigma)$ | HCP (RN-CAS Registry Number 6829-52-3) | ** | 12.86 ± 0.01 | PE | 3840 |
| CH_3P^+ | CH_3PH_2 (RN-CAS Registry Number 593-54-4) | ** | 9.6 ± 0.1 (V) | PE | 3661 |
| $\text{C}_3\text{H}_9\text{P}^+$ | $(\text{CH}_3)_3\text{P}$ (RN-CAS Registry Number 594-09-2) | ** | 8.6 ± 0.1 (V) | PE | 3661 |
| $\text{C}_4\text{H}_{11}\text{P}^+$ | $(\text{C}_2\text{H}_5)_2\text{PH}$ (RN-CAS Registry Number 627-49-6) | ** | 8.69 | PE | 3589 |
| $\text{C}_5\text{H}_9\text{P}^+$ | $\text{C}_5\text{H}_9\text{P}$ (Phosphorin) (RN-CAS Registry Number 289-68-9) | ** | 9.2 (V) | PE | 3832 |
| $\text{C}_{10}\text{H}_9\text{P}^+$ | $\text{C}_6\text{H}_5\text{C}_4\text{H}_4\text{P}$ (1 <i>H</i> -Phosphole, 1-phenyl-) (RN-CAS Registry Number 20342-00-1) | ** | 8.45 (V) | PE | 4090 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|-------------------|--|------------------|---|--------|------|
| $C_{10}H_{13}P^+$ | $C_6H_5C_4H_8P$ (Phospholane, 1-phenyl-) (RN-CAS Registry Number 3302-87-2) | ** | 8.35 (V) | PE | 4090 |
| $C_{12}H_{13}P^+$ | $C_6H_5C_4H_2P(CH_3)_2$ (1 <i>H</i> -Phosphole, 2,5-dimethyl-1-phenyl-) (RN-CAS Registry Number 13904-58-0) | ** | 8.0 (V) | PE | 4090 |
| $C_{12}H_{17}P^+$ | $C_6H_5C_4H_6P(CH_3)_2$ (Phospholane, 2,5-dimethyl-1-phenyl-) (RN-CAS Registry Number 40358-68-7) | ** | 8.35 (V) | PE | 4090 |
| $C_{15}H_{11}P^+$ | $C_9H_6PC_6H_5$ (Phosphinoline, 2-phenyl-) (RN-CAS Registry Number 39768-04-2) | ** | 7.65 | PE | 4066 |
| $C_{17}H_{29}P^+$ | $C_5H_2P(C(CH_3)_3)_3$ (Phosphorin, 2,4,6-tris(1,1-dimethylethyl)-) (RN-CAS Registry Number 17420-29-0) | ** | 8.0 (V) | PE | 3934 |
| $C_{19}H_{13}P^+$ | $C_{13}H_8PC_6H_5$ (Acridophosphine, 10-phenyl-) (RN-CAS Registry Number 20995-81-7) | ** | 7.25 (V) | PE | 3896 |
| $C_{29}H_{25}P^+$ | $C_9H_6P(C_6H_5)(CH_2C_6H_5)_2$ (Phosphinoline, 1,1-dihydro-2-phenyl-1,1-bis(phenylmethyl)-) (RN-CAS Registry Number 39767-95-8) | ** | 6.00 | PE | 4066 |
| $C_6H_{18}N_3P^+$ | $((CH_3)_2N)_3P$ (RN-CAS Registry Number 1608-26-0) | ** | 7.61 (V) | PE | 3825 |
| $C_6H_{18}N_3P^+$ | $((CH_3)_2N)_3P)_2Mo(CO)_4$ (RN-CAS Registry Number 27342-90-1) | | 10.1 ± 0.05 | EI | 3952 |
| $C_8H_{18}N_3P^+$ | $((CH_3)_2N)_3P)_2Mo(CO)_4$ (RN-CAS Registry Number 27342-90-1) | | 10.1 ± 0.05 | EI | 3952 |
| PO^+ | PO (RN-CAS Registry Number 14452-66-5) | ** | 8.231 | S | 3762 |
| PO^+ | PO (RN-CAS Registry Number 14452-66-5) | ** | 8.38 | S | 3560 |
| PO^+ | PO (RN-CAS Registry Number 14452-66-5) | ** | 8.5 ± 1 | EI | 3819 |
| PO^+ | PO (RN-CAS Registry Number 14452-66-5) | ** | 9.5 ± 0.5 | EI | 4098 |
| PO^+ | P_2O_3 (RN-CAS Registry Number 1314-24-5) | | 13.5 ± 1.0 | EI | 4098 |
| PO^+ | $(CH_3O)_3PO$ (RN-CAS Registry Number 512-56-1) | $O + CH_3O + 2H$ | 18.90 ± 0.50 | EI | 3989 |
| PO_2^+ | PO_2 (RN-CAS Registry Number 12164-97-5) | ** | 10.5 ± 1 | EI | 3819 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|-----------------------------------|---|-------------------------------------|---|--------|------|
| PO_2^+ | PO_2 (RN-CAS Registry Number 12164-97-5) | ** | 11.5 ± 0.5 | EI | 4098 |
| PO_2^+ | P_2O_3 (RN-CAS Registry Number 1314-24-5) | | 15.4 ± 1.0 | EI | 4098 |
| P_2O_3^+ | P_2O_3 (RN-CAS Registry Number 1314-24-5) | ** | 10.4 ± 0.5 | EI | 4098 |
| P_2O_4^+ | P_2O_4 (RN-CAS Registry Number XXXXX-XX-X) | ** | 10.8 ± 1.0 | EI | 4098 |
| P_2O_5^+ | P_2O_5 (RN-CAS Registry Number 1314-56-3) | ** | 12.0 ± 1.0 | EI | 4098 |
| P_3O_6^+ | P_3O_6 (RN-CAS Registry Number XXXXX-XX-X) | ** | 12.3 ± 1.0 | EI | 4098 |
| P_3O_7^+ | P_4O_9 (RN-CAS Registry Number XXXXX-XX-X) | | 15.0 ± 1.0 | EI | 4098 |
| P_4O_7^+ | P_4O_7 (RN-CAS Registry Number 12065-80-4) | ** | 11.4 ± 0.5 | EI | 4098 |
| P_4O_8^+ | P_4O_8 (RN-CAS Registry Number 12037-06-8) | ** | 11.9 ± 0.5 | EI | 4098 |
| P_4O_9^+ | P_4O_9 (RN-CAS Registry Number XXXXX-XX-X) | ** | 12.4 ± 0.5 | EI | 4098 |
| $\text{P}_4\text{O}_{10}^+$ | P_4O_{10} (RN-CAS Registry Number XXXXX-XX-X) | ** | 13.0 ± 0.5 | EI | 4098 |
| CH_4OP^+ | $(\text{CH}_3\text{O})_2\text{P}(\text{CH}_3)\text{S}$ (RN-CAS Registry Number 2953-29-9) | | 13.40 ± 0.30 | EI | 3989 |
| $\text{CH}_4\text{O}_2\text{P}^+$ | $(\text{CH}_3\text{O})_3\text{PO}$ (RN-CAS Registry Number 512-56-1) | $2\text{HCHO} + \text{H}$ | 14.90 ± 0.20 | EI | 3989 |
| $\text{CH}_4\text{O}_2\text{P}^+$ | $(\text{CH}_3\text{O})_2\text{P}(\text{CH}_3)\text{S}$ (RN-CAS Registry Number 152-20-5) | $\text{CH}_3\text{S} + \text{HCHO}$ | 12.25 ± 0.20 | EI | 3989 |
| | (MT-Metastable transition(s) observed) | | | | |
| $\text{CH}_4\text{O}_2\text{P}^+$ | $(\text{CH}_3\text{O})_2\text{P}(\text{CH}_3)\text{S}$ (RN-CAS Registry Number 2953-29-9) | $\text{CH}_3\text{S} + \text{HCHS}$ | 12.75 ± 0.20 | EI | 3989 |
| | (MT-Metastable transition(s) observed) | | | | |
| $\text{CH}_4\text{O}_2\text{P}^+$ | $(\text{CH}_3\text{S})_2\text{P}(\text{CH}_3\text{O})\text{O}$ (RN-CAS Registry Number 22608-53-3) | $\text{CH}_3\text{S} + \text{HCHS}$ | 11.90 ± 0.10 | EI | 3989 |
| $\text{CH}_5\text{O}_2\text{P}^+$ | $(\text{CH}_3\text{O})_3\text{PO}$ (RN-CAS Registry Number 512-56-1) | 2HCHO | 12.91 ± 0.10 | EI | 3989 |
| $\text{CH}_5\text{O}_2\text{P}^+$ | $(\text{CH}_3\text{O})_2\text{P}(\text{CH}_3)\text{S}$ (RN-CAS Registry Number 152-20-5) | $\text{HCHS} + \text{HCHO}$ | 12.35 ± 0.20 | EI | 3989 |
| | (MT-Metastable transition(s) observed) | | | | |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|----------------------|---|------------------------|---|--------|------|
| $C_2H_6O_2P^+$ | $(CH_3O)_2P(CH_3S)S$ (RN-CAS Registry Number 2953-29-9) | | 10.40 ± 0.10 | EI | 3989 |
| $C_{19}H_{35}O_2P^+$ | $C_5H_2P(OCH_3)_2(C_4H_9)_3$ (Phosphorin, 2,4,6-tris(1,1-dimethylethyl)-1,1-dihydro-1,1-dimethoxy-) (RN-CAS-Registry Number 37912-85-9) | ** | 6.7 (V) | PE | 4053 |
| $CH_4O_3P^+$ | $(CH_3O)_3PO$ (RN-CAS Registry Number 512-56-1) (MT-Metastable transition(s) observed) | HCHO + CH ₃ | 13.90 ± 0.20 | EI | 3989 |
| $CH_4O_3P^+$ | $(CH_3O)_2P(CH_3S)O$ (RN-CAS Registry Number 152-20-5) | HCHS + CH ₃ | 13.20 ± 0.20 | EI | 3989 |
| $C_2H_6O_3P^+$ | $(CH_3O)_3PO$ (RN-CAS Registry Number 512-56-1) | HCHO + H | 14.1 ± 0.20 | EI | 3989 |
| $C_2H_6O_3P^+$ | $(CH_3O)_2P(CH_3S)O$ (RN-CAS Registry Number 152-20-5) | CH ₃ S | 11.90 ± 0.10 | EI | 3989 |
| $C_2H_7O_3P^+$ | $(CH_3O)_3PO$ (RN-CAS Registry Number 512-56-1) (MT-Metastable transition(s) observed) | HCHO | 11.62 ± 0.10 | EI | 3989 |
| $C_2H_7O_3P^+$ | $(CH_3O)_2P(CH_3S)O$ (RN-CAS Registry Number 152-20-5) (MT-Metastable transition(s) observed) | HCHS | 11.00 ± 0.10 | EI | 3989 |
| $C_3H_8O_4P^+$ | $(CH_3O)_3PO$ (RN-CAS Registry Number 512-56-1) | H | 12.73 ± 0.20 | EI | 3989 |
| $C_3H_9O_4P^+$ | $(CH_3O)_3PO$ (RN-CAS Registry Number 512-56-1) | ** | 10.70 ± 0.10 | EI | 3989 |
| $PF_3^+(^2A_1)$ | PF ₃ (RN-CAS Registry Number 7783-55-3) | ** | 11.57 ± 0.01 | PE | 3703 |
| $PF_3^+(^2A_1)$ | PF ₃ (RN-CAS Registry Number 7783-55-3) | ** | 11.66 ± 0.01 | PE | 3641 |
| PF_3^+ | PF ₃ (RN-CAS Registry Number 7783-55-3) | ** | 12.23 ± 0.02 (V) | PE | 3662 |
| $PF_3^+(^2A_2)$ | PF ₃ (RN-CAS Registry Number 7783-55-3) | ** | 15.31 ± 0.05 | PE | 3641 |
| $PF_3^+(^2E)$ | PF ₃ (RN-CAS Registry Number 7783-55-3) | ** | 16.31 ± 0.07 (V) | PE | 3641 |
| $PF_3^+(^2E)$ | PF ₃ (RN-CAS Registry Number 7783-55-3) | ** | 17.08 ± 0.01 | PE | 3641 |
| $PF_3^+(^2A_1)$ | PF ₃ (RN-CAS Registry Number 7783-55-3) | ** | 18.26 ± 0.01 | PE | 3641 |
| $PF_3^+(^2E)$ | PF ₃ (RN-CAS Registry Number 7783-55-3) | ** | 19.06 ± 0.01 | PE | 3641 |
| $PF_3^+(^2A_1)$ | PF ₃ (RN-CAS Registry Number 7783-55-3) | ** | 22.6 (V) | PE | 3641 |
| PF_3^+ | PF ₃ (RN-CAS Registry Number 7783-55-3) | ** | 11.72 ± 0.1 | EI | 3578 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|--|---|----------------|---|--------|------|
| PF ₅ ⁺ | PF ₅ (RN-CAS Registry Number 7647-19-0) | ** | 15.54 (V) | PE | 3872 |
| PF ₅ ⁺ | PF ₅ (RN-CAS Registry Number 7647-19-0) | ** | 15.6 (V) | PE | 3669 |
| P ₂ F ₄ ⁺ | P ₂ F ₄ (RN-CAS Registry Number 13824-74-3) | ** | 9.64 (V) | PE | 3662 |
| PHF ₂ ⁺ | PF ₂ H (RN-CAS Registry Number 14984-74-8) | ** | 11.0±0.1 (V) | PE | 3662 |
| BH ₃ F ₃ P ⁺ | (PF ₃)(BH ₃) (RN-CAS Registry Number 14931-39-6) | ** | 11.02±0.03 | PE | 3699 |
| B ₃ H ₅ F ₃ P ⁺ | B ₃ H ₇ PF ₃ (RN-CAS Registry Number 11126-95-7) | | 10.8±0.3 | EI | 3652 |
| PH ₂ NF ₂ ⁺ | PF ₂ NH ₂ (RN-CAS Registry Number 25757-74-8) | ** | 10.9 (V) | PE | 3662 |
| CNF ₂ P ⁺ | PF ₂ CN (RN-CAS Registry Number 14118-40-2) | ** | 11.9±0.1 (V) | PE | 3662 |
| C ₄ H ₁₂ N ₂ PF ⁺ | ((CH ₃) ₂ N) ₂ PF (RN-CAS Registry Number 1735-82-6) | ** | 8.18 (V) | PE | 3825 |
| C ₂ H ₆ NPF ₂ ⁺ | (CH ₃) ₂ NPF ₂ (RN-CAS Registry Number 814-97-1) | ** | 9.58 (V) | PE | 3825 |
| C ₂ H ₆ NF ₂ P ⁺ | (CH ₃) ₂ NPF ₂ (RN-CAS Registry Number 814-97-1) | ** | 9.6 (V) | PE | 3662 |
| C ₂ H ₆ NF ₂ P ⁺ | (CH ₃) ₂ NF ₂ P (RN-CAS Registry Number 814-97-1) | ** | 10.2±0.3 | EI | 3652 |
| C ₆ H ₁₈ N ₃ F ₂ P ⁺ | ((CH ₃) ₂ N) ₃ PF ₂ (RN-CAS Registry Number 7549-83-9) | ** | 8.04 (V) | PE | 3825 |
| C ₄ H ₁₂ N ₂ F ₃ P ⁺ | ((CH ₃) ₂ N) ₂ PF ₃ (RN-CAS Registry Number 1735-83-7) | ** | 8.84 (V) | PE | 3825 |
| C ₂ H ₆ NF ₄ P ⁺ | (CH ₃) ₂ NPF ₄ (RN-CAS Registry Number 2353-98-2) | ** | 10.35 (V) | PE | 3825 |
| C ₂ H ₉ BNF ₂ P ⁺ | (CH ₃) ₂ NF ₂ PBH ₃ ? (RN-CAS Registry Number 2851-73-2) | ** | 12.2±0.3 | EI | 3652 |
| C ₂ H ₁₁ B ₃ NF ₂ P ⁺ | (CH ₃) ₂ NF ₂ PB ₃ H ₇ (RN-CAS Registry Number 11126-93-5) | | 10.4±0.3 | EI | 3652 |
| C ₂ H ₁₂ B ₃ NF ₂ P ⁺ | (CH ₃) ₂ NF ₂ PB ₃ H ₇ (RN-CAS Registry Number 11126-93-5) | H | 10.5±0.3 | EI | 3652 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|-----------------------|--|----------------|---|--------|------|
| $C_2H_{12}B_4NF_2P^+$ | $(CH_3)_2NF_2PB_4H_8$ (RN-CAS Registry Number 12602-24-3) | | 10.0 ± 0.3 | EI | 3652 |
| $C_2H_{14}B_4NF_2P^+$ | $(CH_3)_2NF_2PB_4H_8$ (RN-CAS Registry Number 12602-24-3) | ** | 9.6 ± 0.3 | EI | 3652 |
| $POF_3(^2E)$ | POF_3 (RN-CAS Registry Number 13478-20-1) | ** | 12.77 ± 0.04 | PE | 3641 |
| $POF_3(^2A_1)$ | POF_3 (RN-CAS Registry Number 13478-20-1) | ** | 15.16 ± 0.04 | PE | 3641 |
| $POF_3(^2A_2)$ | POF_3 (RN-CAS Registry Number 13478-20-1) | ** | 16.69 ± 0.05 | PE | 3641 |
| $POF_3(^2E)$ | POF_3 (RN-CAS Registry Number 13478-20-1) | ** | 17.68 (V) | PE | 3641 |
| $POF_3(^2E)$ | POF_3 (RN-CAS Registry Number 13478-20-1) | ** | 18.45 ± 0.02 | PE | 3641 |
| $POF_3(^2A_1)$ | POF_3 (RN-CAS Registry Number 13478-20-1) | ** | 19.61 (V) | PE | 3641 |
| $POF_3(^2E)$ | POF_3 (RN-CAS Registry Number 13478-20-1) | ** | 20.36 ± 0.02 | PE | 3641 |
| $POF_3(^2A_1)$ | POF_3 (RN-CAS Registry Number 13478-20-1) | ** | 23.4 ± 0.1 (V) | PE | 3641 |
| $P_2OF_4^+$ | PF_2OPF_2 (RN-CAS Registry Number 13812-07-2) | ** | 11.2 (V) | PE | 3662 |
| $CNOF_2P^+$ | PF_2NCO (RN-CAS Registry Number 461-59-6) | ** | 11.05 ± 0.02 (V) | PE | 3662 |
| $NaPO_2^+$ | $NaPO_2$ (RN-CAS Registry Number XXXXX-XX-X) | ** | 8.6 | EI | 4098 |
| PSi^+ | PSi (RN-CAS Registry Number 12137-64-3) | ** | 9.1 ± 0.5 | EI | 4102 |
| PSi_2^+ | PSi_2 (RN-CAS Registry Number 37347-46-9) | ** | 8.4 ± 0.5 | EI | 4102 |
| P_2Si^+ | P_2Si (RN-CAS Registry Number 12137-68-7) | ** | 9.0 ± 0.5 | EI | 4102 |
| SiH_3P^+ | SiH_3PH_2 (RN-CAS Registry Number 14616-47-8) | ** | 9.9 ± 0.1 (V) | PE | 3661 |
| $Si_3H_9P^+$ | $(SiH_3)_3P$ (RN-CAS Registry Number 15110-33-5) | ** | 9.3 ± 0.1 (V) | PE | 3661 |
| $CSiP^+$ | $CSiP$ (RN-CAS Registry Number 37342-74-8) | ** | 8.9 ± 0.5 | EI | 4102 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|--------------------|--|----------------|---|--------|------|
| $C_7H_{19}SiP^+$ | $(CH_3)_3P=CHSi(CH_3)_3$ (RN-CAS Registry Number 3272-86-4) | ** | 6.80 | PE | 3782 |
| $C_9H_{25}Si_2P^+$ | $(CH_3)_3P=CHSi_2(CH_3)_5$ (RN-CAS Registry Number 29947-67-9) | ** | 6.87 | PE | 3782 |
| S^+ | S (RN-CAS Registry Number 7704-34-9) | ** | 10.3 ± 0.3 | EI | 3449 |
| S^+ | S (RN-CAS Registry Number 7704-34-9) | ** | 10.5 ± 0.3 | EI | 3616 |
| S^+ | S (RN-CAS Registry Number 7704-34-9) | ** | $\sim 11 \pm 0.5$ | EI | 3448 |
| S^+ | H_2S (RN-CAS Registry Number 7783-06-4) | H_2 | 13.5 | DC | 3967 |
| S^+ | CS_2 (RN-CAS Registry Number 75-15-0) | CS | 15 ± 1 | EI | 3812 |
| S^+ | (CD-Metastable transition indicates <0.25 eV kinetic energy release) (PC-Appearance potential of the corresponding metastable transition) CS_2 (RN-CAS Registry Number 75-15-0) | CS | 17 ± 1 | EI | 3812 |
| S^+ | (CD-Metastable transition indicates <0.25 eV kinetic energy release) (PC-Appearance potential of the corresponding metastable transition) COS (RN-CAS Registry Number 463-58-1) | CO | 13.7 | EI | 3779 |
| S_2^+ | S_2 (RN-CAS Registry Number 12185-11-4) | ** | 9.42 ± 0.10 | EI | 3616 |
| S_2^+ | S_2 (RN-CAS Registry Number 12185-11-4) | ** | 9.8 ± 0.5 | EI | 3615 |
| S_2^+ | $C_3H_6S_2$ (1,3-Dithiolane) (RN-CAS Registry Number 4829-04-3) | $CH_2=CHCH_3$ | 10.7 ± 0.1 | EI | 3598 |
| S_2^+ | S_2F_2 (RN-CAS Registry Number 13709-35-8) | | 17.6 ± 0.4 | EI | 3738 |
| S_8^+ | S_8 (RN-CAS Registry Number 10544-50-0) | ** | 9.23 (V) | PE | 3846 |
| HS^+ | H_2S (RN-CAS Registry Number 7783-06-4) | H | 14.4 | DC | 3967 |
| $H_2S^+(^2B_1)$ | H_2S (RN-CAS-Registry Number 7783-06-4) | ** | 10.43 | PE | 4073 |
| H_2S^+ | H_2S (RN-CAS Registry Number 7783-06-4) | ** | 10.47 | PE | 3678 |
| $H_2S^+(^2B_1)$ | H_2S (RN-CAS Registry Number 7783-06-4) | ** | 10.47 | PE | 3719 |
| H_2S^+ | H_2S (RN-CAS Registry Number 7783-06-4) | ** | 10.48 | PE | 3697 |
| $H_2S^+(^2A_1)$ | H_2S (RN-CAS Registry Number 7783-06-4) | ** | 12.752 | PE | 3515 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|---|--|----------------------------------|---|--------|------|
| H ₂ S ⁺ (² A ₁) | H ₂ S (RN-CAS Registry Number 7783-06-4) | ** | 12.78 | PE | 3719 |
| H ₂ S ⁺ * | H ₂ S (RN-CAS Registry Number 7783-06-4) | ** | 13.21 (V) | PE | 3697 |
| H ₂ S ⁺ (² B ₂) | H ₂ S (RN-CAS Registry Number 7783-06-4) | ** | 14.78 | PE | 3719 |
| H ₂ S ⁺ (² A ₁) | H ₂ S (RN-CAS Registry Number 7783-06-4) | ** | 22.2 (V) | PE | 3719 |
| H ₂ S ⁺ | H ₂ S (RN-CAS Registry Number 7783-06-4) | ** | 10.45 | DC | 3967 |
| H ₃ S ⁺ | C ₂ H ₅ SH (RN-CAS Registry Number 75-08-1) (MT-Metastable transition(s) observed) (TR-Other product(s) thermochemically reasonable) | C ₂ H ₃ | 12.41±0.02 | RPD | 3487 |
| H ₃ S ⁺ | (CH ₃) ₂ S (RN-CAS Registry Number 75-18-3) (MT-Metastable transition(s) observed) (TR-Other product(s) thermochemically reasonable) | C ₂ H ₂ +H | 14.14±0.02 | RPD | 3487 |
| BHS ⁺ (X ² Π) | HBS (RN-CAS Registry Number 14457-85-3) | ** | 11.11±0.03 | PE | 3982 |
| BHS ⁺ | HBS (RN-CAS Registry Number 14457-85-3) | ** | 11.12 | PE | 3871 |
| BHS ⁺ (A ² Σ ⁺) | HBS (RN-CAS Registry Number 14457-85-3) | ** | 13.54±0.03 | PE | 3982 |
| BHS ⁺ (B ² Σ ⁺) | HBS (RN-CAS Registry Number 14457-85-3) | ** | 15.83±0.1 | PE | 3982 |
| CS ⁺ (X ² Σ _g ⁺) | CS (RN-CAS Registry Number 2944-05-0) (RD-Radical) | ** | 11.33±0.01 | PE | 3691 |
| CS ⁺ | CS (RN-CAS Registry Number 2944-05-0) (RD-Radical) | ** | 11.33±0.02 | PE | 3696 |
| CS ⁺ (X ² Σ) | CS (RN-CAS Registry Number 2944-05-0) (RD-Radical) | ** | 11.34±0.02 | PE | 3690 |
| CS ⁺ (X ² Σ) | CS (RN-CAS Registry Number 2944-05-0) (RD-Radical) | ** | 11.34 | PE | 3689 |
| CS ⁺ * | CS (RN-CAS Registry Number 2944-05-0) (RD-Radical) | ** | 12.56±0.02 | PE | 3696 |
| CS ⁺ (A ² π) | CS (RN-CAS Registry Number 2944-05-0) (RD-Radical) | ** | 12.78±0.02 | PE | 3690 |
| CS ⁺ (A ² π) | CS (RN-CAS Registry Number 2944-05-0) (RD-Radical) | ** | 12.78 | PE | 3689 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|--|---|-----------------|---|--------|------|
| CS ⁺ (A ² π _u) | CS (RN-CAS Registry Number 2944-05-0) | ** | 12.79±0.01 | PE | 3691 |
| (RD-Radical) | | | | | |
| CS ⁺ (B ² Σ) | CS (RN-CAS Registry Number 2944-05-0) | ** | 15.83±0.02 | PE | 3690 |
| (RD-Radical) | | | | | |
| CS ⁺ (B ² Σ) | CS (RN-CAS Registry Number 2944-05-0) | ** | 15.83 | PE | 3689 |
| (RD-Radical) | | | | | |
| CS ⁺ (B ² Σ _u ⁺) | CS (RN-CAS Registry Number 2944-05-0) | ** | 15.84±0.01 | PE | 3691 |
| (RD-Radical) | | | | | |
| CS ⁺ (E ² Σ _u ⁺) | CS (RN-CAS Registry Number 2944-05-0) | ** | 18.00±0.01 | PE | 3691 |
| (RD-Radical) | | | | | |
| CS ⁺ (C ² Σ) | CS (RN-CAS Registry Number 2944-05-0) | ** | 18.03±0.02 | PE | 3690 |
| (RD-Radical) | | | | | |
| CS ⁺ (C ² Σ) | CS (RN-CAS Registry Number 2944-05-0) | ** | 18.03 | PE | 3689 |
| (RD-Radical) | | | | | |
| CS ⁺ | CS (RN-CAS Registry Number 2944-05-0) | ** | 11.39±0.10 | EI | 3616 |
| (RD-Radical) | | | | | |
| CS ⁺ | CS ₂ (RN-CAS Registry Number 75-15-0) | S | 16.3±1 | EI | 3812 |
| (CD-Metastable transition indicates <0.40 eV kinetic energy release) | | | | | |
| (PC-Appearance potential of the corresponding metastable transition) | | | | | |
| CS ⁺ | COS (RN-CAS Registry Number 463-58-1) | O ^{-?} | 16.7 | EI | 3779 |
| CS ₂ ⁺ (A ² Π _{1/2u}) | CS ₂ (RN-CAS Registry Number 75-15-0) | ** | 12.586 | S | 3573 |
| CS ₂ ⁺ (X ² Π _g) | CS ₂ (RN-CAS Registry Number 75-15-0) | ** | 10.06±0.01 | PE | 3965 |
| CS ₂ ⁺ (X ² Π _{3/2}) | CS ₂ (RN-CAS-Registry Number 75-15-0) | ** | 10.06 | PE | 4073 |
| CS ₂ ⁺ | CS ₂ (RN-CAS Registry Number 75-15-0) | ** | 10.06 | PE | 3697 |
| CS ₂ ⁺ (A ² Π _u) | CS ₂ (RN-CAS Registry Number 75-15-0) | ** | 12.67±0.01 | PE | 3965 |
| CS ₂ ⁺ * | CS ₂ (RN-CAS Registry Number 75-15-0) | ** | 12.83 (V) | PE | 3697 |
| CS ₂ ⁺ (B ² Σ _u ⁺) | CS ₂ (RN-CAS Registry Number 75-15-0) | ** | 14.47±0.01 | PE | 3965 |
| CS ₂ ⁺ (C ² Σ _g ⁺) | CS ₂ (RN-CAS Registry Number 75-15-0) | ** | 16.18±0.01 | PE | 3965 |
| CS ₂ ⁺ * | CS ₂ (RN-CAS Registry Number 75-15-0) | ** | 16.70±0.01 | PE | 3965 |
| CS ₂ ⁺ | CS ₂ (RN-CAS Registry Number 75-15-0) | ** | 10.07±0.10 | EI | 3616 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|--|--|---|---|--------|------|
| CHS ⁺ | C ₃ H ₆ S ₂ (1,3-Dithiolane) (RN-CAS Registry Number 4829-04-3) (MT-Metastable transition(s) observed) | CHS + CH ₄ ? | 13 ± 0.4 | EI | 3598 |
| CHS ⁺ | C ₃ H ₆ OS (1,3-Oxathiolane) (RN-CAS Registry Number 2094-97-5) | | 12.9 ± 0.2 | EI | 3598 |
| CH ₂ S ⁺ (² B ₂) | CH ₂ S (RN-CAS Registry Number 865-36-1) | ** | 9.338 ± 0.010 | PE | 3697 |
| CH ₂ S ⁺ (² B ₁) | CH ₂ S (RN-CAS Registry Number 865-36-1) | ** | 11.78 ± 0.01 | PE | 3697 |
| CH ₂ S ⁺ | CH ₃ SH (RN-CAS Registry Number 74-93-1) | H ₂ | 10.8 ± 0.1 | PI | 4025 |
| CH ₂ S ⁺ | (CH ₃) ₂ S (RN-CAS Registry Number 75-18-3) | CH ₄ | 10.46 ± 0.08 | PI | 4025 |
| CH ₂ S ⁺ | (C ₂ H ₅) ₂ S (RN-CAS Registry Number 352-93-2) | C ₂ H ₄ + CH ₄ | 11.75 ± 0.03 | PI | 4025 |
| CH ₂ S ⁺ | C ₃ H ₆ S ₂ (1,3-Dithiolane) (RN-CAS Registry Number 4829-04-3) | | 11 ± 0.4 | EI | 3598 |
| CH ₂ S ⁺ | C ₃ H ₆ OS (1,3-Oxathiolane) (RN-CAS Registry Number 2094-97-5) | | 12.5 ± 0.2 | EI | 3598 |
| CH ₂ S ⁺ | C ₅ H ₁₀ O ₂ S (1,3,6-Dioxathiocane) (RN-CAS Registry Number 2094-92-0) | 2HCHO + C ₂ H ₄ | 12.55 ± 0.1 | EI | 3903 |
| | (TR—Other product(s) thermochemically reasonable) | | | | |
| CH ₃ S ⁺ | CH ₃ SH (RN-CAS Registry Number 74-93-1) | H | 11.37 ± 0.05 | PI | 4025 |
| CH ₃ S ⁺ | (CH ₃) ₂ S (RN-CAS Registry Number 75-18-3) | CH ₃ | 10.79 ± 0.04 | PI | 4025 |
| CH ₃ S ⁺ | (C ₂ H ₅) ₂ S (RN-CAS Registry Number 352-93-2) | C ₂ H ₄ + CH ₃ | 12.00 ± 0.05 | PI | 4025 |
| CH ₃ S ⁺ | C ₃ H ₆ S ₂ (1,3-Dithiolane) (RN-CAS Registry Number 4829-04-3) | | 11.4 ± 0.4 | EI | 3598 |
| CH ₃ S ⁺ | (CH ₃ O) ₂ P(CH ₃ S)O (RN-CAS Registry Number 152-20-5) | | 13.1 ± 0.30 | EI | 3989 |
| CH ₃ S ⁺ | (CH ₃ S) ₂ P(CH ₃ O)O (RN-CAS Registry Number 22608-53-3) | | 12.60 ± 0.20 | EI | 3989 |
| CH ₄ S ⁺ | CH ₃ SH (RN-CAS Registry Number 74-93-1) | ** | 9.44 ± 0.01 | PI | 4025 |
| CH ₄ S ⁺ | CH ₃ SH (RN-CAS Registry Number 74-93-1) | ** | 9.415 | PE | 3697 |
| CH ₄ S ⁺ (² A'') | CH ₃ SH (RN-CAS Registry Number 74-93-1) | ** | 9.42 | PE | 3678 |
| CH ₄ S ⁺ (² A'') | CH ₃ SH (RN-CAS Registry Number 74-93-1) | ** | 9.44 | PE | 4032 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|--|--|-------------------------------|---|--------|------|
| CH ₄ S ⁺ | CH ₃ SH (RN-CAS Registry Number 74-93-1) | ** | 9.44 | PE | 4087 |
| CH ₄ S ⁺ (² A ^o) | CH ₃ SH (RN-CAS Registry Number 74-93-1) | ** | 9.44 (V) | PE | 3656 |
| CH ₄ S ⁺ | CH ₃ SH (RN-CAS Registry Number 74-93-1) | ** | 9.44 (V) | PE | 3898 |
| CH ₄ S ⁺⁺ | CH ₃ SH (RN-CAS Registry Number 74-93-1) | ** | 11.90 (V) | PE | 3697 |
| CH ₄ S ⁺ (² A') | CH ₃ SH (RN-CAS Registry Number 74-93-1) | ** | 12.0 (V) | PE | 3678 |
| CH ₄ S ⁺ (² A') | CH ₃ SH (RN-CAS Registry Number 74-93-1) | ** | 12.08 (V) | PE | 4032 |
| CH ₄ S ⁺⁺ | CH ₃ SH (RN-CAS Registry Number 74-93-1) | ** | 13.50 (V) | PE | 3697 |
| CH ₄ S ⁺ (² A') | CH ₃ SH (RN-CAS Registry Number 74-93-1) | ** | 13.67 (V) | PE | 4032 |
| CH ₄ S ⁺ (² A') | CH ₃ SH (RN-CAS Registry Number 74-93-1) | ** | 13.9 (V) | PE | 3678 |
| CH ₄ S ⁺⁺ | CH ₃ SH (RN-CAS Registry Number 74-93-1) | ** | 14.90 (V) | PE | 3697 |
| CH ₄ S ⁺ (² A ^o) | CH ₃ SH (RN-CAS Registry Number 74-93-1) | ** | 15.0 (V) | PE | 3678 |
| CH ₄ S ⁺ (² A ^o) | CH ₃ SH (RN-CAS Registry Number 74-93-1) | ** | 15.5 (V) | PE | 3678 |
| CH ₄ S ⁺⁺ | CH ₃ SH (RN-CAS Registry Number 74-93-1) | ** | 15.5 (V) | PE | 3697 |
| CH ₄ S ⁺ (² A ^o) | CH ₃ SH (RN-CAS Registry Number 74-93-1) | ** | 15.63 (V) | PE | 4032 |
| CH ₄ S ⁺ (² A') | CH ₃ SH (RN-CAS Registry Number 74-93-1) | ** | ~20.0 (V) | PE | 3678 |
| C ₂ H ₃ S ⁺ | C ₃ H ₆ S ₂ (1,3-Dithiolane) (RN-CAS Registry Number 4829-04-3) | CH ₃ S | 10.8±0.4 | EI | 3598 |
| C ₂ H ₃ S ⁺ | C ₃ H ₆ OS (1,3-Oxathiolane) (RN-CAS Registry Number 2094-97-5) | CH ₂ O+H | 12.3±0.1 | EI | 3598 |
| (MT—Metastable transition(s) observed) | | | | | |
| (TR—Other product(s) thermochemically reasonable) | | | | | |
| C ₂ H ₄ S ⁺ | C ₂ H ₄ S (Thiirane) (RN-CAS Registry Number 420-12-2) | ** | 9.051±0.006 | S | 3882 |
| (RS—Average of three Rydberg series limits) | | | | | |
| C ₂ H ₄ S ⁺ | C ₂ H ₄ S (Thiirane) (RN-CAS Registry Number 420-12-2) | ** | 9.00 | PE | 3861 |
| C ₂ H ₄ S ⁺ | C ₂ H ₄ S (Thiirane) (RN-CAS Registry Number 420-12-2) | ** | 9.05 (V) | PE | 3837 |
| C ₂ H ₄ S ⁺ | (C ₂ H ₅) ₂ S (RN-CAS Registry Number 352-93-2) | C ₂ H ₆ | 9.89±0.3 | PI | 4025 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|--------------------|---|-----------------|---|--------|------|
| $C_2H_4S^+$ | $C_3H_6S_2$ (1,3-Dithiolane) (RN-CAS Registry Number 4829-04-3) | CH_2S | 11.2 ± 0.3 | EI | 3598 |
| $C_2H_4S^+$ | C_3H_6OS (1,3-Oxathiolane) (RN-CAS Registry Number 2094-97-5) (MT—Metastable transition(s) observed) | CH_2O | 10.5 ± 0.1 | EI | 3598 |
| $C_2H_4S^+$ | $C_5H_{10}O_2S$ (1,3,6-Dioxathiocane) (RN-CAS Registry Number 2094-92-0) | | 10.4 ± 0.02 | EI | 3903 |
| $C_2H_5S^+$ | $(CH_3)_2S$ (RN-CAS Registry Number 75-18-3) | H | 10.93 ± 0.02 | PI | 4025 |
| $C_2H_5S^+$ | $(C_2H_5)_2S$ (RN-CAS Registry Number 352-93-2) | C_2H_5 | 10.23 ± 0.03 | PI | 4025 |
| $C_2H_5S^+$ | $C_3H_6S_2$ (1,3-Dithiolane) (RN-CAS Registry Number 4829-04-3) (TR—Other product(s) thermochemically reasonable) | CHS | 11.4 ± 0.3 | EI | 3598 |
| $C_2H_5S^+$ | C_3H_6OS (1,3-Oxathiolane) (RN-CAS Registry Number 2094-97-5) (TR—Other product(s) thermochemically reasonable) | CHO | 10.4 ± 0.1 | EI | 3598 |
| $C_2H_5S^+$ | $C_5H_{10}O_2S$ (1,3,6-Dioxathiocane) (RN-CAS Registry Number 2094-92-0) (MT—Metastable transition(s) observed) (TR—Other product(s) thermochemically reasonable) | $CH_3CO + HCHO$ | 10.8 ± 0.2 | EI | 3903 |
| $C_2H_6S^+$ | C_2H_5SH (RN-CAS Registry Number 75-08-1) | ** | 9.29 | PE | 4032 |
| $C_2H_6S^+$ | $(CH_3)_2S$ (RN-CAS Registry Number 75-18-3) (RS—Average of three Rydberg series limits) | ** | 8.706 ± 0.010 | S | 3970 |
| $C_2H_6S^+$ | $(CH_3)_2S$ (RN-CAS Registry Number 75-18-3) | ** | 8.69 ± 0.01 | PI | 4025 |
| $C_2H_6S^+$ | $(CH_3)_2S$ (RN-CAS Registry Number 75-18-3) | ** | 8.57 ± 0.04 | PE | 3842 |
| $C_2H_6S^+$ | $(CH_3)_2S$ (RN-CAS Registry Number 75-18-3) | ** | 8.65 (V) | PE | 3678 |
| $C_2H_6S^+$ | $(CH_3)_2S$ (RN-CAS Registry Number 75-18-3) | ** | 8.67 | PE | 3867 |
| $C_2H_6S^+$ | $(CH_3)_2S$ (RN-CAS Registry Number 75-18-3) | ** | 8.67 (V) | PE | 3898 |
| $C_2H_6S^+$ | $(CH_3)_2S$ (RN-CAS Registry Number 75-18-3) | ** | 8.7 | PE | 4104 |
| $C_2H_6S^+(^2B_1)$ | $(CH_3)_2S$ (RN-CAS Registry Number 75-18-3) | ** | 8.71 (V) | PE | 3656 |
| $C_2H_6S^+$ | $(C_2H_5)_2S$ (RN-CAS Registry Number 352-93-2) | C_2H_4 | 9.90 ± 0.03 | PI | 4025 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|---|--|----------------|---|--------|------|
| $C_3H_5S^+$ | $C_3H_6S_2$ (1,3-Dithiolane) (RN-CAS Registry Number 4829-04-3) | SH | 10.5 ± 0.1 | EI | 3598 |
| $C_3H_6S^+$ | $CH_2=CHCH_2SH$ (RN-CAS Registry Number 870-23-5) | ** | 9.25 | PE | 3864 |
| $C_3H_6S^+$ | $CH_2=CHSCH_3$ (RN-CAS Registry Number 1822-74-8) | ** | 8.45 (V) | PE | 3898 |
| $C_3H_6S^+$ | $C_5H_{10}O_2S$ (1,3,6-Dioxathiocane) (RN-CAS Registry Number 2094-92-0) | 2HCHO | 11.35 ± 0.01 | EI | 3903 |
| (TR—Other product(s) thermochemically reasonable) | | | | | |
| $C_3H_7S^+$ | $(C_2H_5)_2S$ (RN-CAS Registry Number 352-93-2) | CH_3 | 10.16 ± 0.05 | PI | 4025 |
| $C_3H_8S^+$ | <i>n</i> - C_3H_7SH (RN-CAS Registry Number 107-03-9) | ** | 9.19 | PE | 4032 |
| $C_3H_8S^+$ | <i>iso</i> - C_3H_7SH (RN-CAS Registry Number 75-33-2) | ** | 9.14 | PE | 4032 |
| $C_4H_4S^+$ | C_4H_4S (Thiophene) (RN-CAS Registry Number 110-02-1) | ** | 8.874 ± 0.005 | S | 3731 |
| $C_4H_4S^+$ | C_4H_4S (Thiophene) (RN-CAS Registry Number 110-02-1) | ** | 8.86 ± 0.01 | PI | 4058 |
| $C_4H_4S^+$ | C_4H_4S (Thiophene) (RN-CAS Registry Number 110-02-1) | ** | 8.87 (V) | PE | 3858 |
| $C_4H_4S^+$ | C_4H_4S (Thiophene) (RN-CAS Registry Number 110-02-1) | ** | 8.90 | PE | 4017 |
| $C_4H_4S^+$ | C_4H_4S (Thiophene) (RN-CAS Registry Number 110-02-1) | ** | 9.12 ± 0.05 | EI | 3482 |
| $C_4H_4S^+$ | C_4H_4S (Thiophene) (RN-CAS Registry Number 110-02-1) | ** | 9.05 | CTS | 3787 |
| $C_4D_4S^+$ | C_4D_4S (Thiophene- d_4) (RN-CAS Registry Number 2036-39-7) | ** | 8.874 ± 0.005 | S | 3731 |
| $C_4H_6S^+$ | C_4H_6S (Thiophene, 2,5-dihydro-) (RN-CAS Registry Number 1708-32-3) | ** | 8.54 (V) | PE | 3995 |
| $C_4H_8S^+$ | $CH_3SCH_2CH=CH_2$ (RN-CAS Registry Number 10152-76-8) | ** | 8.6 | PE | 4104 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|----------------|--|----------------|---|--------|------|
| $C_4H_8S^+$ | C_4H_8S (Thiophene, tetrahydro-) (RN-CAS Registry Number 110-01-0) | ** | 8.40 (V) | PE | 3995 |
| $C_4H_8S^+$ | C_4H_8S (Thiophene, tetrahydro-) (RN-CAS Registry Number 110-01-0) | ** | 8.62 ± 0.05 | EI | 3498 |
| $C_4H_9S^+$ | $(C_2H_5)_2S$ (RN-CAS Registry Number 352-93-2) | H | 10.2 ± 0.1 | PI | 4025 |
| $C_4H_{10}S^+$ | $(C_2H_5)_2S$ (RN-CAS Registry Number 352-93-2) | ** | 8.42 ± 0.01 | PI | 4025 |
| $C_4H_{10}S^+$ | $(C_2H_5)_2S$ (RN-CAS Registry Number 352-93-2) | ** | 8.44 (V) | PE | 3898 |
| $C_4H_{10}S^+$ | <i>n</i> - C_4H_9SH (RN-CAS Registry Number 109-79-5) | ** | 9.15 | PE | 4032 |
| $C_4H_{10}S^+$ | <i>sec</i> - C_4H_9SH (RN-CAS Registry Number 513-53-1) | ** | 9.10 | PE | 4032 |
| $C_4H_{10}S^+$ | <i>iso</i> - C_4H_9SH (RN-CAS Registry Number 513-44-0) | ** | 9.12 | PE | 4032 |
| $C_4H_{10}S^+$ | <i>tert</i> - C_4H_9SH (RN-CAS Registry Number 75-66-1) | ** | 9.03 | PE | 4032 |
| $C_5H_6S^+$ | $C_4H_3SCH_3$ (Thiophene, 2-methyl-) (RN-CAS Registry Number 554-14-3) | ** | 8.63 ± 0.05 | EI | 3482 |
| $C_5H_6S^+$ | $C_4H_3SCH_3$ (Thiophene, 2-methyl-) (RN-CAS Registry Number 554-14-3) | ** | 8.61 | CTS | 3787 |
| $C_5H_6S^+$ | $C_4H_3SCH_3$ (Thiophene, 3-methyl-) (RN-CAS Registry Number 616-44-4) | ** | 8.72 | EI | 3787 |
| $C_5H_6S^+$ | $C_4H_3SCH_3$ (Thiophene, 3-methyl-) (RN-CAS Registry Number 616-44-4) | ** | 8.84 | CTS | 3787 |
| $C_5H_{10}S^+$ | $C_5H_{10}S$ (2 <i>H</i> -Thiopyran, tetrahydro-) (RN-CAS Registry Number 1613-51-0) | ** | 8.45 (V) | PE | 3733 |
| $C_6H_6S^+$ | C_6H_5SH (Benzenethiol) (RN-CAS Registry Number 108-98-5) | ** | 8.28 | PE | 3678 |
| $C_6H_6S^+$ | C_6H_5SH (Benzenethiol) (RN-CAS Registry Number 108-98-5) | ** | 8.95 ± 0.1 | EI | 3817 |
| $C_6H_8S^+$ | $C_4H_2S(CH_3)_2$ (Thiophene, 2,5-dimethyl-) (RN-CAS Registry Number 638-02-8) | ** | 8.10 | EI | 3787 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|----------------|--|----------------|---|--------|------|
| $C_6H_8S^+$ | $C_4H_2S(CH_3)_2$ (Thiophene, 2,5-dimethyl-) (RN-CAS Registry Number 638-02-8) | ** | 8.18 | CTS | 3787 |
| $C_6H_8S^+$ | $C_4H_3SC_2H_5$ (Thiophene, 2-ethyl-) (RN-CAS Registry Number 872-55-9) | ** | 8.67 ± 0.05 | EI | 3482 |
| $C_6H_8S^+$ | $C_4H_3SC_2H_5$ (Thiophene, 2-ethyl-) (RN-CAS Registry Number 872-55-9) | ** | 8.57 | CTS | 3787 |
| $C_6H_{10}S^+$ | $C_6H_{10}S$ (7-Thiabicyclo[2.2.1]heptane) (RN-CAS Registry Number 279-59-4) | ** | 8.28 ± 0.04 | PE | 3842 |
| $C_6H_{14}S^+$ | $(n-C_3H_7)_2S$ (RN-CAS Registry Number 111-47-7) | ** | 8.34 (V) | PE | 3898 |
| $C_6H_{14}S^+$ | $(iso-C_3H_7)_2S$ (RN-CAS Registry Number 625-80-9) | ** | 8.26 (V) | PE | 3898 |
| $C_7H_8S^+$ | $C_6H_5CH_2SH$ (Benzenemethanethiol) (RN-CAS Registry Number 100-53-8) | ** | 8.85 (V) | PE | 3678 |
| $C_7H_8S^+$ | $C_6H_5SCH_3$ (Benzene, (methylthio)-) (RN-CAS Registry Number 100-68-5) | ** | 8.07 (V) | PE | 3781 |
| $C_7H_8S^+$ | $C_6H_5SCH_3$ (Benzene, (methylthio)-) (RN-CAS Registry Number 100-68-5) | ** | 8.07 (V) | PE | 3898 |
| $C_8H_6S^+$ | C_8H_6S (Benzo[b]thiophene) (RN-CAS Registry Number 95-15-8) | ** | 8.20 | PE | 4017 |
| $C_8H_6S^+$ | C_8H_6S (Benzo[c]thiophene) (RN-CAS Registry Number 270-82-6) | ** | 7.75 | PE | 4017 |
| $C_8H_{10}S^+$ | $C_6H_5CH_2SCH_3$ (Benzene, [(methylthio)methyl]-) (RN-CAS Registry Number 766-92-7) | ** | 9.01 (V) | PE | 3781 |
| $C_8H_{12}S^+$ | $C_4H_3SC_4H_9$ (Thiophene, 2-(1,1-dimethylethyl)-) (RN-CAS Registry Number 1689-78-7) | ** | 8.54 ± 0.05 | EI | 3482 |
| $C_8H_{18}S^+$ | $(tert-C_4H_9)_2S$ (RN-CAS Registry Number 107-47-1) | ** | 8.07 (V) | PE | 3898 |
| $C_9H_{10}S^+$ | $C_6H_5CH=CHSCH_3$ (Benzene, [2-(methylthio)ethenyl]-(Z)-) (RN-CAS Registry Number 35822-50-5) | ** | 7.75 (V) | PE | 3781 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|-------------------|--|----------------|---|--------|------|
| $C_9H_{10}S^+$ | $C_6H_5CH=CHSCH_3$ (Benzene, [2-(methylthio)ethenyl]-, (Z)-) (RN-CAS Registry Number 35822-50-5) | ** | 8.75 (V) | PE | 3898 |
| $C_{11}H_{10}S^+$ | $C_{10}H_7SCH_3$ (Naphthalene, 1-(methylthio)-) (RN-CAS Registry Number 10075-72-6) | ** | 7.67 (V) | PE | 3781 |
| $C_{11}H_{10}S^+$ | $C_{10}H_7SCH_3$ (Naphthalene, 2-(methylthio)-) (RN-CAS Registry Number 7433-79-6) | ** | 7.71 (V) | PE | 3781 |
| $C_{11}H_{10}S^+$ | $C_{10}H_7SCH_3$ (Naphthalene, 2-(methylthio)-) (RN-CAS Registry Number 7433-79-6) | ** | 7.71 (V) | PE | 3898 |
| $C_{12}H_8S^+$ | $C_{12}H_8S$ (Dibenzothiophene) (RN-CAS Registry Number 132-65-0) | ** | 8.01 (V) | PE | 3852 |
| $C_{12}H_8S^+$ | $C_{12}H_8S$ (Dibenzothiophene) (RN-CAS Registry Number 132-65-0) | ** | 8.34 | EI | 3787 |
| $C_{12}H_8S^+$ | $C_{12}H_8S$ (Dibenzothiophene) (RN-CAS Registry Number 132-65-0) | ** | 8.23 | CTS | 3787 |
| $C_{12}H_{10}S^+$ | $(C_6H_5)_2S$ (Benzene, 1,1'-thiobis-) (RN-CAS Registry Number 139-66-2) | ** | 7.88 ± 0.05 | EI | 3498 |
| $C_{12}H_{10}S^+$ | $(C_6H_5)_2S$ (Benzene, 1,1'-thiobis-) (RN-CAS Registry Number 139-66-2) | ** | 8.45 ± 0.1 | EI | 3817 |
| $C_{12}H_{10}S^+$ | $C_4H_3SCH=CHC_6H_5$ (Thiophene, 2-(2-phenylethenyl)-) (RN-CAS Registry Number 3783-65-1) | ** | 7.55 | EI | 3787 |
| $C_{12}H_{10}S^+$ | $C_4H_3SCH=CHC_6H_5$ (Thiophene, 2-(2-phenylethenyl)-) (RN-CAS Registry Number 3783-65-1) | ** | 7.78 | CTS | 3787 |
| $CH_2S_2^+$ | $C_3H_6S_2$ (1,3-Dithiolane) (RN-CAS Registry Number 4829-04-3) | C_2H_4 | 10.8 ± 0.2 | EI | 3598 |
| $C_2H_6S_2^+$ | CH_3SSCH (RN-CAS Registry Number 624-92-0) | ** | 8.97 (V) | PE | 3898 |
| $C_2H_6S_2^+$ | CH_3SSCH_3 (RN-CAS Registry Number 624-92-0) | ** | 8.82 (V) | PE | 3697 |
| $C_3H_5S_2^+$ | $C_3H_6S_2$ (1,3-Dithiolane) (RN-CAS Registry Number 4829-04-3) | H | 11.2 ± 0.2 | EI | 3598 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|------------------|---|----------------|---|--------|------|
| $C_3H_6S_2^+$ | $C_3H_6S_2$ (1,3-Dithiolane) (RN-CAS Registry Number 4829-04-3) | ** | 9.0 ± 0.05 | EI | 3598 |
| $C_3H_8S_2^+$ | $(CH_3S)_2CH_2$ (RN-CAS Registry Number 1618-26-4) | ** | 8.65 (V) | PE | 3898 |
| $C_4H_8S_2^+$ | <i>trans</i> - $CH_3SCH=CHSCH_3$ (RN-CAS Registry Number 764-45-4) | ** | 7.96 (V) | PE | 3898 |
| $C_4H_8S_2^+$ | $C_4H_8S_2$ (1,2-Dithiane) (RN-CAS Registry Number 505-20-4) | ** | 8.36 (V) | PE | 3898 |
| $C_4H_8S_2^+$ | $C_4H_8S_2$ (1,3-Dithiane) (RN-CAS Registry Number 505-23-7) | ** | 8.33 (V) | PE | 3898 |
| $C_4H_8S_2^+$ | $C_4H_8S_2$ (1,3-Dithiane) (RN-CAS Registry Number 505-23-7) | ** | 8.54 (V) | PE | 3733 |
| $C_4H_8S_2^+$ | $C_4H_8S_2$ (1,4-Dithiane) (RN-CAS Registry Number 505-29-3) | ** | 8.58 (V) | PE | 3733 |
| $C_4H_{10}S_2^+$ | $C_2H_5SSC_2H_5$ (RN-CAS Registry Number 110-81-6) | ** | 8.70 (V) | PE | 3898 |
| $C_4H_{10}S_2^+$ | $CH_3SCH_2CH_2SCH_3$ (RN-CAS Registry Number 6628-18-8) | ** | 8.64 (V) | PE | 3898 |
| $C_5H_6S_2^+$ | $C_4H_3SSCH_3$ (Thiophene, 2-(methylthio)-) (RN-CAS Registry Number 5780-36-9) | ** | 8.10 ± 0.05 | EI | 3482 |
| $C_6H_4S_2^+$ | $C_6H_4S_2$ (Thieno[2,3- <i>b</i>]thiophene) (RN-CAS Registry Number 250-84-0) | ** | 8.32 | PE | 4017 |
| $C_6H_4S_2^+$ | $C_6H_4S_2$ (Thieno[3,2- <i>b</i>]thiophene) (RN-CAS Registry Number 251-41-2) | ** | 8.10 | PE | 4017 |
| $C_6H_4S_2^+$ | $C_6H_4S_2$ (Thieno[3,2- <i>b</i>]thiophene) (RN-CAS Registry Number 251-41-1) | ** | 8.14 (V) | PE | 3852 |
| $C_6H_{10}S_2^+$ | <i>cis,cis</i> - $CH_3SCH=CHCH=CHSCH_3$ (RN-CAS Registry Number 35822-49-2) | ** | 7.48 (V) | PE | 3898 |
| $C_6H_{14}S_2^+$ | $(CH_3)_2CHSSCH(CH_3)_2$ (RN-CAS Registry Number 4253-89-8) | ** | 8.54 (V) | PE | 3898 |
| $C_6H_{14}S_2^+$ | $(n-C_3H_7)_2S_2$ (RN-CAS Registry Number 629-19-6) | ** | 8.62 (V) | PE | 3898 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|---------------------|--|----------------|---|--------|------|
| $C_8H_{10}S_2^+$ | $C_6H_4(SCH_3)_2$ (Benzene, 1,4-bis(methylthio)-) (RN-CAS Registry Number 699-20-7) | ** | 7.93 (V) | PE | 3781 |
| $C_8H_{18}S_2^+$ | $(CH_3)_3CSSC(CH_3)_3$ (RN-CAS Registry Number 110-06-5) | ** | 8.17 (V) | PE | 3898 |
| $C_3H_6S_3^+$ | $C_3H_6S_3$ (1,3,5-Trithiane) (RN-CAS Registry Number XXXXX-XX-X) | ** | 8.76 (V) | PE | 3733 |
| $C_5H_4S_3^+$ | $C_5H_4S_3$ ([1,2]Dithiolo[1,5- <i>b</i>][1,2]dithiole-7- S^{IV}) (RN-CAS Registry Number 252-09-5) (ON-Other name: Thiathiophthene) | ** | 8.11 (V) | PE | 3569 |
| $C_6H_6S_3^+$ | $C_5H_3S_3CH_3$ ([1,2]Dithiolo[1,5- <i>b</i>][1,2]dithiole-7- S^{IV} , 2-methyl-) (RN-CAS Registry Number 20718-55-2) (ON-Other name: 2-Methylthiathiophthene) | ** | 7.83 (V) | PE | 3569 |
| $C_7H_8S_3^+$ | $C_5H_2S_3(CH_3)_2$ ([1,2]Dithiolo[1,5- <i>b</i>][1,2]dithiole-7- S^{IV} , 2,5-dimethyl-) (RN-CAS Registry Number 2080-35-5) (ON-Other name: 2,5-Dimethylthiathiophthene) | ** | 7.73 (V) | PE | 3569 |
| $C_7H_8S_3^+$ | $C_5H_2S_3(CH_3)_2$ ([1,2]Dithiolo[1,5- <i>b</i>][1,2]dithiole-7- S^{IV} , 3,4-dimethyl-) (RN-CAS Registry Number 29977-00-2) (ON-Other name: 3,4-Dimethylthiathiophthene) | ** | 7.63 (V) | PE | 3569 |
| $C_{10}H_{12}S_3^+$ | $C_8H_6S_3(CH_3)_2$ (3 <i>H</i> -[1,2]Dithiolo[4,5,1- <i>hi</i>][1,2]benzodithiole-8- S^{IV} , 4,5-dihydro-2,6-dimethyl-) (RN-CAS Registry Number 35437-21-9) | ** | 7.34 (V) | PE | 3569 |
| $C_{12}H_{16}S_3^+$ | $C_8H_6S_3(C_2H_5)_2$ (3 <i>H</i> -[1,2]Dithiolo[4,5,1- <i>hi</i>][1,2]benzodithiole-8- S^{IV} , 2,6-diethyl-4,5-dihydro-) (RN-CAS Registry Number 35505-46-5) | ** | 7.33 (V) | PE | 3569 |
| $C_{14}H_{20}S_3^+$ | $C_8H_6S_3(C_3H_7)_2$ (3 <i>H</i> -[1,2]Dithiolo[4,5,1- <i>hi</i>][1,2]benzodithiole-8- S^{IV} , 4,5-dihydro-2,6-bis(1-methylethyl)-) (RN-CAS Registry Number 35505-47-6) | ** | 7.19 (V) | PE | 3569 |
| $C_{17}H_{12}S_3^+$ | $C_3H_2S_3(C_6H_5)_2$ ([1,2]Dithiolo[1,5- <i>b</i>][1,2]dithiole-7- S^{IV} , 3,4-diphenyl-) (RN-CAS Registry Number 25730-47-6) (ON-Other name: 3,4-Diphenylthiathiophthene) | ** | 7.57 (V) | PE | 3569 |
| $C_6H_4S_4^+$ | $C_6H_4S_4$ (1,3-Dithiole, 2-(1,3-dithiol-2-ylidene)-) (RN-CAS Registry Number 31366-25-3) (ON-Other name: Tetrathiofulvalene) | ** | 6.83 (V) | PE | 3981 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|---------------------|---|----------------|---|--------|------|
| $C_{10}H_{18}S_6^+$ | $C_4H_8S_2$ (1,4-Dithiane) (RN-CAS Registry Number 505-29-3) | ** | 8.46 (V) | PE | 3898 |
| $C_3H_9BS^+$ | $(CH_3)_2BSCH_3$ (RN-CAS-Registry Number 19163-05-4) | ** | 9.40 (V) | PE | 4065 |
| $C_3H_9BS_2^+$ | $(CH_3S)_2BCH_3$ (RN-CAS-Registry Number 19163-08-7) | ** | 8.74 (V) | PE | 4065 |
| $C_3H_9BS_3^+$ | $B(SCH_3)_3$ (RN-CAS-Registry Number 997-49-9) | ** | 8.74 (V) | PE | 4065 |
| $CHNS^+(^2A')$ | HNCS (RN-CAS Registry Number 3129-90-6) | ** | 9.94 ± 0.02 (V) | PE | 3670 |
| $CHNS^+(^2A)$ | HNCS (RN-CAS Registry Number 3129-90-6) | ** | 10.3 ± 0.1 (V) | PE | 3670 |
| $CHNS^{++}$ | HNCS (RN-CAS Registry Number 3129-90-6) | ** | 13.31 ± 0.02 (V) | PE | 3670 |
| $CHNS^{++}$ | HNCS (RN-CAS Registry Number 3129-90-6) | ** | 15.12 ± 0.02 (V) | PE | 3670 |
| $C_2H_3NS^+$ | CH_3NCS (RN-CAS Registry Number 556-61-6) | ** | 9.37 ± 0.02 (V) | PE | 3670 |
| $C_3H_3NS^+$ | C_3H_3NS (Isothiazole) (RN-CAS Registry Number 288-16-4) | ** | 9.55 | PE | 3587 |
| $C_3H_3NS^+$ | C_3H_3NS (Isothiazole) (RN-CAS Registry Number 288-16-4) | ** | 9.55 | PE | 3736 |
| $C_3H_3NS^+$ | C_3H_3NS (Isothiazole) (RN-CAS Registry Number 288-16-4) | ** | 9.80 | EI | 3587 |
| $C_4H_5NS^+$ | $C_3H_2NS(CH_3)$ (Isothiazole, 3-methyl-) (RN-CAS Registry Number 693-92-5) | ** | 9.60 | EI | 3587 |
| $C_4H_5NS^+$ | $C_3H_2NS(CH_3)$ (Isothiazole, 4-methyl-) (RN-CAS Registry Number 693-90-3) | ** | 9.25 | PE | 3587 |
| $C_4H_5NS^+$ | $C_3H_2NS(CH_3)$ (Isothiazole, 4-methyl-) (RN-CAS Registry Number 693-90-3) | ** | 9.25 | PE | 3736 |
| $C_4H_5NS^+$ | $C_3H_2NS(CH_3)$ (Isothiazole, 4-methyl-) (RN-CAS Registry Number 693-90-3) | ** | 9.65 | EI | 3587 |
| $C_4H_5NS^+$ | $C_3H_2NS(CH_3)$ (Isothiazole, 5-methyl-) (RN-CAS Registry Number 693-97-0) | ** | 9.65 | EI | 3587 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|--------------------|---|----------------|---|--------|------|
| $C_5H_3NS^+$ | C_4H_3SCN (2-Thiophenecarbonitrile) (RN-CAS Registry Number 1003-31-2) | ** | 9.83 ± 0.05 | EI | 3482 |
| $C_5H_3NS^+$ | $C_5H_4N(SH)$ (2-Pyridinethiol) (RN-CAS Registry Number 2637-34-5) | ** | 8.92 ± 0.02 | EI | 3636 |
| $C_5H_3NS^+$ | $C_5H_4N(SH)$ (3-Pyridinethiol) (RN-CAS Registry Number 16133-26-9) | ** | 9.41 ± 0.02 | EI | 3636 |
| $C_5H_3NS^+$ | $C_5H_4N(SH)$ (4-Pyridinethiol) (RN-CAS Registry Number 4556-23-4) | ** | 9.50 ± 0.02 | EI | 3636 |
| $C_6H_7NS^+$ | $C_5H_4N(SCH_3)$ (Pyridine, 2-(methylthio)-) (RN-CAS Registry Number 18438-38-5) | ** | 8.47 ± 0.02 | EI | 3636 |
| $C_6H_7NS^+$ | $C_5H_4N(SCH_3)$ (Pyridine, 3-(methylthio)-) (RN-CAS Registry Number 18794-33-7) | ** | 8.93 ± 0.02 | EI | 3636 |
| $C_6H_7NS^+$ | $C_5H_4N(SCH_3)$ (Pyridine, 4-(methylthio)-) (RN-CAS Registry Number 22581-72-2) | ** | 9.00 ± 0.02 | EI | 3636 |
| $C_6H_7NS^+$ | $C_5H_4N(=S)CH_3$ (2(1H)-Pyridinethione, 1-methyl-) (RN-CAS Registry Number 2044-27-1) | ** | 7.84 ± 0.02 | EI | 3636 |
| $C_6H_7NS^+$ | $C_5H_4N(=S)CH_3$ (4(1H)-Pyridinethione, 1-methyl-) (RN-CAS Registry Number 6887-59-8) | ** | 7.54 ± 0.02 | EI | 3636 |
| $C_{10}H_9NS^+$ | $C_6H_5CH_2(C_3H_2NS)$ (Isothiazole, 4-(phenylmethyl)-) (RN-CAS Registry Number 36412-26-7) | ** | 9.05 | PE | 3587 |
| $C_{10}H_9NS^+$ | $C_6H_5CH_2(C_3H_2NS)$ (Isothiazole, 4-(phenylmethyl)-) (RN-CAS Registry Number 36412-26-7) | ** | 9.35 | EI | 3587 |
| $C_{10}H_9NS^+$ | $C_3H_2NSCH_2C_6H_5$ (Isothiazole, 4-(phenylmethyl)-) (RN-CAS Registry Number 36412-26-7) | ** | 9.05 | PE | 3736 |
| $C_{12}H_9NS^+$ | $C_{12}H_9NS$ (10H-Phenothiazine) (RN-CAS Registry Number 92-84-2) | ** | 6.74 ± 0.07 | CTS | 4079 |
| $C_{12}H_9NS^+$ | $C_{12}H_9NS$ (10H-Phenothiazine) (RN-CAS Registry Number 92-84-2) | ** | 6.87 | CTS | 4035 |
| $C_{13}H_{11}NS^+$ | $C_{12}H_8NSCH_3$ (10H-Phenothiazine, 10-methyl-) (RN-CAS Registry Number 1207-72-3) | ** | 6.73 ± 0.07 | CTS | 4079 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|-------------------------------|---|----------------|---|--------|------|
| $C_3H_6N_2S^+$ | $C_2H_3N_2SCH_3$ (1,2,5-Thia(S^{IV})diazole, 3,4-dihydro-3-methyl-) (RN-CAS Registry Number 24692-43-1) | ** | 8.92 (V) | PE | 4024 |
| $C_4H_2N_2S^+$ | $C_3H_2NS(CN)$ (4-Isothiazolecarbonitrile) (RN-CAS Registry Number 3912-37-6) | ** | 10.55 | EI | 3587 |
| $C_4H_8N_2S^+$ | $C_2H_2N_2S(CH_3)_2$ (1,2,5-Thia(S^{IV})diazole, 3,4-dihydro-3,3-dimethyl-) (RN-CAS Registry Number 24692-45-3) | ** | 9.62 (V) | PE | 4024 |
| $C_6H_4N_2S^+$ | $C_6H_4N_2S$ (1,2,3-Benzothiadiazole) (RN-CAS Registry Number 273-77-8) | ** | 9.15 (V) | PE | 3852 |
| $C_6H_4N_2S^+$ | $C_6H_4N_2S$ (2,1,3-Benzothiadiazole) (RN-CAS Registry Number 273-13-2) | ** | 8.98 | PE | 4017 |
| $C_6H_4N_2S^+$ | $C_6H_4N_2S$ (2,1,3-Benzothiadiazole) (RN-CAS Registry Number 273-13-2) | ** | 9.00 (V) | PE | 3852 |
| $C_8H_{18}N_2S^+$ | $((CH_3)_3CN)_2S$ (RN-CAS Registry Number 2056-74-8) | ** | 8.65 (V) | PE | 4024 |
| $C_{16}H_{18}N_2S^+$ | $C_{12}H_8NSCH_2CH_2N(CH_3)_2$ (10 <i>H</i> -Phenothiazine-10-ethanamine, <i>N,N</i> -dimethyl-) (RN-CAS Registry Number 522-24-7) (ON-Other name: Ethizine) | ** | 8.25 ± 0.07 | CTS | 4079 |
| $C_{17}H_{20}N_2S^+$ | $C_{12}H_8NS(CH_2)_3N(CH_3)_2$ (10 <i>H</i> -Phenothiazine-10-propanamine, <i>N,N</i> -dimethyl-) (RN-CAS Registry Number 58-40-2) (ON-Other name: Promazine) | ** | 8.22 ± 0.07 | CTS | 4079 |
| $C_{18}H_{22}N_2S^+$ | $C_{12}H_8NSCH_2CH_2N(C_2H_5)_2$ (10 <i>H</i> -Phenothiazine-10-ethanamine, <i>N,N</i> -diethyl-) (RN-CAS Registry Number 60-91-3) (ON-Other name: Dinezine) | ** | 7.85 ± 0.07 | CTS | 4079 |
| $C_{20}H_{25}N_3S^+$ | $C_{12}H_8NS(CH_2)_3C_4H_8N_2CH_3$ (10 <i>H</i> -Phenothiazine, 10-[3-(4-methyl-1-piperazinyl)propyl]-) (RN-CAS Registry Number 84-97-9) (ON-Other name: Perazine) | ** | 6.87 ± 0.07 | CTS | 4079 |
| $SO^+(^2\Pi)$ (RD-Radical) | $SO(^3\Sigma^-)$ (RN-CAS Registry Number 13827-32-2) | ** | 10.32 | PE | 3701 |
| $SO^+(^4\Pi)$ (RD-Radical) | $SO(^3\Sigma^-)$ (RN-CAS Registry Number 13827-32-2) | ** | ~11.3 | PE | 3701 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|--------------------------------------|---|----------------|---|--------|------|
| $\text{SO}^+(\text{}^4\Sigma^-)$ | $\text{SO}(\text{}^3\Sigma^-)$ (RN-CAS Registry Number 13827-32-2) | ** | 14.96 | PE | 3701 |
| (RD-Radical) SO^+ | SO (RN-CAS Registry Number 13827-32-2) | ** | 10.28 ± 0.02 | EI | 3816 |
| (RD-Radical) SO^+ | COS (RN-CAS Registry Number 463-58-1) | C | 19.8 | EI | 3779 |
| $\text{SO}_2\text{}^+(^2A_1)$ | SO_2 (RN-CAS Registry Number 7446-09-5) | ** | 12.3 | PE | 3865 |
| $\text{SO}_2\text{}^+(^2A_1)$ | SO_2 (RN-CAS Registry Number 7446-09-5) | ** | 12.31 | PE | 4092 |
| $\text{SO}_2\text{}^+(^2A_1)$ | SO_2 (RN-CAS Registry Number 7446-09-5) | ** | 12.50 (V) | PE | 3879 |
| $\text{SO}_2\text{}^+(^2A_1)$ | SO_2 (RN-CAS Registry Number 7446-09-5) | ** | 12.54 (V) | PE | 4024 |
| $\text{SO}_2\text{}^+(^2A_2)$ | SO_2 (RN-CAS Registry Number 7446-09-5) | ** | 13.01 (V) | PE | 4092 |
| $\text{SO}_2\text{}^+(^2A_2)$ | SO_2 (RN-CAS Registry Number 7446-09-5) | ** | 13.24 (V) | PE | 3879 |
| $\text{SO}_2\text{}^+(^2A_2)$ | SO_2 (RN-CAS Registry Number 7446-09-5) | ** | 13.25 (V) | PE | 4024 |
| $\text{SO}_2\text{}^+(^2B_2)$ | SO_2 (RN-CAS Registry Number 7446-09-5) | ** | 13.30 (V) | PE | 4092 |
| $\text{SO}_2\text{}^+(^2B_2)$ | SO_2 (RN-CAS Registry Number 7446-09-5) | ** | 13.47 (V) | PE | 3879 |
| $\text{SO}_2\text{}^+(^2B_2)$ | SO_2 (RN-CAS Registry Number 7446-09-5) | ** | 13.56 (V) | PE | 4024 |
| $\text{SO}_2\text{}^+(^2B_1)$ | SO_2 (RN-CAS Registry Number 7446-09-5) | ** | 15.99 | PE | 3879 |
| $\text{SO}_2\text{}^+(^2B_2)$ | SO_2 (RN-CAS Registry Number 7446-09-5) | ** | 15.992 ± 0.003 | PE | 3865 |
| $\text{SO}_2\text{}^+(^2A_1)$ | SO_2 (RN-CAS Registry Number 7446-09-5) | ** | 16.324 ± 0.004 | PE | 3865 |
| $\text{SO}_2\text{}^+(^2A_1)$ | SO_2 (RN-CAS Registry Number 7446-09-5) | ** | 16.33 | PE | 3879 |
| $\text{SO}_2\text{}^+(^2B_1)$ | SO_2 (RN-CAS Registry Number 7446-09-5) | ** | 16.498 ± 0.004 | PE | 3865 |
| $\text{SO}_2\text{}^+(^2B_1)$ | SO_2 (RN-CAS Registry Number 7446-09-5) | ** | 16.57 (V) | PE | 4092 |
| $\text{SO}_2\text{}^+(^2B_1, ^2B_2)$ | SO_2 (RN-CAS Registry Number 7446-09-5) | ** | ~ 16.6 (V) | PE | 4024 |
| $\text{SO}_2\text{}^+(^2B_2, ^2A_1)$ | SO_2 (RN-CAS Registry Number 7446-09-5) | ** | 16.65 (V) | PE | 4092 |
| SO_2^* | SO_2 (RN-CAS Registry Number 7446-09-5) | ** | 20.06 ± 0.05 | PE | 3865 |
| $\text{S}_2\text{O}^+(\text{}^2A')$ | S_2O (RN-CAS Registry Number 20901-21-7) | ** | 10.52 | PE | 4092 |
| $\text{S}_2\text{O}^+(\text{}^2A')$ | S_2O (RN-CAS Registry Number 20901-21-7) | ** | 10.53 ± 0.02 | PE | 3841 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|-----------------------|---|----------------|---|--------|------|
| $S_2O^+(^2A')$ | S_2O (RN-CAS Registry Number 20901-21-7) | ** | 10.62 | PE | 3692 |
| $S_2O^+(^2A'')$ | SSO (RN-CAS Registry Number 20901-21-7) | ** | 11.22 | PE | 4092 |
| $S_2O^+(^2A')$ | S_2O (RN-CAS Registry Number 20901-21-7) | ** | 11.25 ± 0.02 | PE | 3841 |
| $S_2O^+(^2A'')$ | S_2O (RN-CAS Registry Number 20901-21-7) | ** | 11.31 ± 0.02 | PE | 3841 |
| $S_2O^+(^2A')$ | S_2O (RN-CAS Registry Number 20901-21-7) | ** | 11.32 | PE | 3692 |
| $S_2O^+(^2A')$ | SSO (RN-CAS Registry Number 20901-21-7) | ** | 11.34 | PE | 4092 |
| $S_2O^+(^2A'')$ | S_2O (RN-CAS Registry Number 20901-21-7) | ** | 11.37 | PE | 3692 |
| $S_2O^+(^2A')$ | S_2O (RN-CAS Registry Number 20901-21-7) | ** | 14.3 ± 0.02 | PE | 3841 |
| $S_2O^+(^2A'')$ | S_2O (RN-CAS Registry Number 20901-21-7) | ** | 14.3 | PE | 3692 |
| $S_2O^+(^2A'')$ | SSO (RN-CAS Registry Number 20901-21-7) | ** | 14.62 (V) | PE | 4092 |
| $S_2O^+(^2A')$ | SSO (RN-CAS Registry Number 20901-21-7) | ** | 14.84 (V) | PE | 4092 |
| $S_2O^+(^2A'')$ | S_2O (RN-CAS Registry Number 20901-21-7) | ** | 14.9 ± 0.02 | PE | 3841 |
| $S_2O^+(^2A')$ | S_2O (RN-CAS Registry Number 20901-21-7) | ** | 15.5 ± 0.02 | PE | 3841 |
| $S_2O^+(^2A')$ | S_2O (RN-CAS Registry Number 20901-21-7) | ** | 15.5 | PE | 3692 |
| $S_2O^+(^2A')$ | SSO (RN-CAS Registry Number 20901-21-7) | ** | 15.80 (V) | PE | 4092 |
| $S_2O^+(^2A')$ | SSO (RN-CAS Registry Number 20901-21-7) | ** | 18.50 (V) | PE | 4092 |
| $COS^+(X^2\Pi)$ | COS (RN-CAS Registry Number 463-58-1) | ** | 11.18 ± 0.01 | PE | 3965 |
| $COS^+(X^2\Pi_{3/2})$ | COS (RN-CAS Registry Number 463-58-1) | ** | 11.22 | PE | 4073 |
| $COS^+(A^2\Pi)$ | COS (RN-CAS Registry Number 463-58-1) | ** | 15.09 ± 0.01 | PE | 3965 |
| $COS^+(B^2\Sigma^+)$ | COS (RN-CAS Registry Number 463-58-1) | ** | 16.05 ± 0.01 | PE | 3965 |
| $COS^+(C^2\Sigma^+)$ | COS (RN-CAS Registry Number 463-58-1) | ** | 17.96 ± 0.01 | PE | 3965 |
| COS^+ | COS (RN-CAS Registry Number 463-58-1) | ** | 11.3 | EI | 3779 |
| CH_2OS^+ | C_3H_6OS (1,3-Oxathiolane) (RN-CAS Registry Number 2094-97-5) | C_2H_4 | 10.4 ± 0.3 | EI | 3598 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|--|--|----------------|---|--------|------|
| C ₂ H ₄ OS ⁺ | C ₂ H ₄ SO (Thiirane, 1-oxide) (RN-CAS Registry Number 7117-41-1) | ** | 9.66 (V) | PE | 3646 |
| C ₂ H ₆ OS ⁺ | (CH ₃) ₂ SO (RN-CAS Registry Number 67-68-5) | ** | 9.01 (V) | PE | 3646 |
| C ₂ H ₆ OS ⁺ | (CH ₃) ₂ SO (RN-CAS Registry Number 67-68-5) | ** | 9.11 (V) | PE | 3705 |
| C ₂ H ₆ OS ⁺ | (CH ₃) ₂ SO (Sulfinylbis(methane)) (RN-CAS Registry Number 67-68-5) | ** | 9.20±0.05 | EI | 3498 |
| C ₃ H ₅ OS ⁺ | C ₃ H ₆ OS (1,3-Oxathiolane) (RN-CAS Registry Number 2094-97-5) | H | 10.8±0.1 | EI | 3598 |
| C ₃ H ₆ OS ⁺ | C ₃ H ₆ OS (1,3-Oxathiolane) (RN-CAS Registry Number 2094-97-5) | ** | 9±0.05 | EI | 3598 |
| C ₄ H ₈ OS ⁺ | C ₄ H ₈ OS (1,4-Oxathiane) (RN-CAS Registry Number 15980-15-1) | ** | 8.67 (V) | PE | 3733 |
| C ₄ H ₈ OS ⁺ | C ₄ H ₈ SO (Thiophene, tetrahydro-1-oxide) (RN-CAS Registry Number 1600-44-8) | ** | 8.77 (V) | PE | 3646 |
| C ₄ H ₈ OS ⁺ | C ₄ H ₈ SO (Thiophene, tetrahydro-, 1-oxide) (RN-CAS Registry Number 1600-44-8) | ** | 9.07±0.05 | EI | 3498 |
| C ₄ H ₈ OS ⁺ | C ₅ H ₁₀ O ₂ S (1,3,6-Dioxathiocane) (RN-CAS Registry Number 2094-92-0) | HCHO | 9.1±0.01 | EI | 3903 |
| | (MT-Metastable transition(s) observed) (TR-Other product(s) thermochemically reasonable) | | | | |
| C ₄ H ₁₀ OS ⁺ | (CH ₃ CH ₂) ₂ SO (RN-CAS Registry Number 70-29-1) | ** | 8.76 (V) | PE | 3646 |
| C ₅ H ₄ OS ⁺ | C ₄ H ₃ SCHO (2-Thiophenecarboxaldehyde) (RN-CAS Registry Number 98-03-3) | ** | 9.55±0.05 | EI | 3482 |
| C ₅ H ₆ OS ⁺ | C ₄ H ₃ SOCH ₃ (Thiophene, 2-methoxy-) (RN-CAS Registry Number 16839-97-7) | ** | 8.30±0.05 | EI | 3482 |
| C ₆ H ₆ OS ⁺ | C ₄ H ₃ SCOCH ₃ (Ethanone, 1-(2-thienyl)-) (RN-CAS Registry Number 88-15-3) | ** | 9.20±0.05 | EI | 3482 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|-----------------|--|-----------------|---|--------|------|
| $C_6H_6OS^+$ | $C_4H_3SCOCH_3$ (Ethanone, 1-(3-thienyl)-) (RN-CAS Registry Number 1468-83-3) | ** | 9.32 ± 0.05 | EI | 3482 |
| $C_6H_{11}OS^+$ | $C_4H_5OS(CH_3)_3$ (1,3-Oxathiane, 2,4,6-trimethyl-, (2 α ,4 α ,6 α)-) (RN-CAS Registry Number 22521-88-6) | CH ₃ | 8.54 ± 0.01 | EI | 3803 |
| $C_6H_{11}OS^+$ | $C_4H_5OS(CH_3)_3$ (1,3-Oxathiane, 2,4,6-trimethyl-, (2 α ,4 α ,6 β)-) (RN-CAS Registry Number 22425-91-8) | CH ₃ | 8.67 | EI | 3803 |
| $C_6H_{11}OS^+$ | $C_4H_5OS(CH_3)_3$ (1,3-Oxathiane, 2,4,6-trimethyl-, (2 α ,4 β ,6 α)-) (RN-CAS Registry Number 22425-90-7) | CH ₃ | 8.64 | EI | 3803 |
| $C_6H_{12}OS^+$ | $C_4H_6OS(CH_3)_2$ (1,3-Oxathiane, 4,6-dimethyl-, <i>cis</i> -) (RN-CAS Registry Number 22452-25-1) | ** | 8.75 | EI | 3803 |
| $C_6H_{12}OS^+$ | $C_4H_6OS(CH_3)_2$ (1,3-Oxathiane, 4,6-dimethyl-, <i>trans</i> -) (RN-CAS Registry Number 22452-26-2) | ** | 8.67 ± 0.01 | EI | 3803 |
| $C_6H_{14}OS^+$ | $((CH_3)_2CH)_2SO$ (RN-CAS Registry Number 2211-89-4) | ** | 8.46 (V) | PE | 3646 |
| $C_7H_{13}OS^+$ | $C_4H_4OS(CH_3)_4$ (1,3-Oxathiane, 2,2,4,6-tetramethyl-, <i>cis</i> -) (RN-CAS Registry Number 34560-79-7) | CH ₃ | 8.63 ± 0.01 | EI | 3803 |
| $C_7H_{13}OS^+$ | $C_4H_4OS(CH_3)_4$ (1,3-Oxathiane, 2,2,4,6-tetramethyl-, <i>trans</i> -) (RN-CAS Registry Number 34560-78-6) | CH ₃ | 8.54 ± 0.01 | EI | 3803 |
| $C_7H_{14}OS^+$ | $C_4H_5OS(CH_3)_3$ (1,3-Oxathiane, 2,4,6-trimethyl-, (2 α ,4 α ,6 α)-) (RN-CAS Registry Number 22521-88-6) | ** | 8.55 | EI | 3803 |
| $C_7H_{14}OS^+$ | $C_4H_5OS(CH_3)_3$ (1,3-Oxathiane, 2,4,6-trimethyl-, (2 α ,4 α ,6 β)-) (RN-CAS Registry Number 22425-91-8) | ** | 8.54 | EI | 3803 |
| $C_7H_{14}OS^+$ | $C_4H_5OS(CH_3)_3$ (1,3-Oxathiane, 2,4,6-trimethyl-, (2 α ,4 β ,6 α)-) (RN-CAS Registry Number 22425-90-7) | ** | 8.58 | EI | 3803 |
| $C_8H_{16}OS^+$ | $C_4H_4OS(CH_3)_4$ (1,3-Oxathiane, 2,2,4,6-tetramethyl-, <i>cis</i> -) (RN-CAS Registry Number 34560-79-7) | ** | 8.48 ± 0.02 | EI | 3803 |
| $C_8H_{16}OS^+$ | $C_4H_4OS(CH_3)_4$ (1,3-Oxathiane, 2,2,4,6-tetramethyl-, <i>trans</i> -) (RN-CAS Registry Number 34560-78-6) | ** | 8.45 ± 0.01 | EI | 3803 |
| $C_8H_{18}OS^+$ | $((CH_3)_3C)_2SO$ (RN-CAS Registry Number 2211-92-9) | ** | 8.18 (V) | PE | 3646 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|----------------------|--|-----------------|---|--------|------|
| $C_{12}H_{10}OS^+$ | $(C_6H_5)_2SO$ (RN-CAS Registry Number 945-51-7) | ** | 9.02 ± 0.05 | EI | 3498 |
| $C_2H_6O_2S^+$ | $(CH_3)_2SO_2$ (RN-CAS Registry Number 67-71-0) | ** | 10.80 (V) | PE | 3993 |
| $C_2H_6O_2S^+$ | $(CH_3)_2SO_2$ (RN-CAS Registry Number 67-71-0) | ** | 10.97 (V) | PE | 3705 |
| $C_3H_6SO_2^+$ | $CH_2=CHS(CH_3)O_2$ (RN-CAS Registry Number 3680-02-2) | ** | 10.82 (V) | PE | 3993 |
| $C_4H_6SO_2^+$ | $(C_2H_5)_2SO_2$ (RN-CAS Registry Number 77-77-0) | ** | 10.62 (V) | PE | 3993 |
| $C_5H_4O_2S^+$ | C_4H_3SCOOH (2-Thiophenecarboxylic acid) (RN-CAS Registry Number 527-72-0) | ** | 9.35 | EI | 3804 |
| $C_5H_{10}O_2S^+$ | $C_5H_{10}O_2S$ (1,3,6-Dioxathiocane) (RN-CAS Registry Number 2094-92-0) | ** | 8.67 ± 0.05 | EI | 3903 |
| $C_6H_6O_2S^+$ | $C_4H_3SCOOCH_3$ (2-Thiophenecarboxylic acid, methyl ester) (RN-CAS Registry Number 5380-42-7) | ** | 9.22 ± 0.05 | EI | 3482 |
| $C_{14}H_9O_2S^+$ | $C_6H_4(COSC_6H_5)_2$ (1,2-Benzenedicarbothioic acid <i>S,S</i> -diphenyl ester) (RN-CAS-Registry Number 42797-33-1) | C_6H_5S | 10.3 ± 0.2 | EI | 4062 |
| $C_{14}H_9O_2S^+$ | $C_8H_4O(=O)(SC_6H_5)_2$ (1(3 <i>H</i>)-Isobenzofuranone, 3,3-bis(phenylthio)-) (RN-CAS-Registry Number 4792-31-8) | C_6H_5S | 10.3 ± 0.2 | EI | 4062 |
| $C_{15}H_{11}O_2S^+$ | $C_6H_4(COSC_6H_4CH_3)_2$ (1,2-Benzenedicarbothioic acid <i>S,S</i> -bis(4-methylphenyl)ester) (RN-CAS-Registry Number 42797-34-2) | $C_6H_4(S)CH_3$ | 10.1 ± 0.2 | EI | 4062 |
| $C_{15}H_{11}O_2S^+$ | $C_8H_4O(=O)(SC_6H_4CH_3)_2$ (1(3 <i>H</i>)-Isobenzofuranone, 3,3-bis[(4-methylphenyl)thio]-) (RN-CAS-Registry Number 42797-36-4) | $C_6H_4(S)CH_3$ | 9.9 ± 0.2 | EI | 4062 |
| $C_2H_4O_3S^+$ | $C_2H_4O_2SO$ (1,3,2-Dioxathiolane 2-oxide) (RN-CAS Registry Number 3741-38-6) | ** | 10.93 (V) | PE | 3646 |
| $C_2H_4O_3S^+$ | $C_2H_4O_2SO$ (1,3,2-Dioxathiolane 2-oxide) (RN-CAS Registry Number 3741-38-6) | ** | 10.30 ± 0.05 | EI | 3498 |
| $C_2H_6O_3S^+$ | $(CH_3O)_2SO$ (RN-CAS Registry Number 616-42-2) | ** | 10.25 (V) | PE | 3646 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|------------------|--|----------------|---|--------|------|
| $C_4H_3NSO^+$ | $C_3H_2NS(CHO)$ (5-Isothiazolecarboxaldehyde) (RN-CAS Registry Number 5242-57-9) | ** | 10.25 | EI | 3587 |
| $C_4H_9NOS^+$ | $(CH_3)_3CNSO$ (RN-CAS Registry Number 38662-39-4) | ** | 10.54 (V) | PE | 4024 |
| $C_6H_7NOS^+$ | $C_5H_2NH(=S)(OH)CH_3$ (2(1 <i>H</i>)-Pyridinethione, 3-hydroxy-6-methyl-) (RN-CAS Registry Number 22989-67-9) | ** | 8.04 ± 0.05 | EI | 3635 |
| $C_6H_7NOS^+$ | $C_5H_3N(OH)SCH_3$ (3-Pyridinol, 2-(methylthio)-) (RN-CAS Registry Number 32637-37-9) | ** | 8.53 ± 0.05 | EI | 3977 |
| $C_6H_{11}NOS^+$ | $C_6H_{11}NSO$ (Cyclohexanamine, <i>N</i> -sulfinyl-) (RN-CAS Registry Number 30980-11-1) | ** | ~ 10.0 (V) | PE | 4024 |
| $C_7H_5NOS^+$ | $C_7H_5NS(O)$ (Thiazolo[3,2- <i>a</i>]pyridinium, 3-hydroxy-, hydroxide, inner salt) (RN-CAS Registry Number 42715-25-3) | ** | 6.92 ± 0.05 | EI | 3977 |
| $C_7H_9NOS^+$ | $C_5H_2N(OH)(CH_3)SCH_3$ (3-Pyridinol, 6-methyl-2-(methylthio)-) (RN-CAS Registry Number 23003-25-0) | ** | 8.24 ± 0.05 | EI | 3635 |
| $C_8H_7NOS^+$ | $C_7H_4NS(O)CH_3$ (Thiazolo[3,2- <i>a</i>]pyridinium, 3-hydroxy-2-methyl-, hydroxide, inner salt) (RN-CAS Registry Number 35143-56-7) | ** | 6.82 ± 0.05 | EI | 3977 |
| $C_8H_7NOS^+$ | $C_7H_4NS(O)CH_3$ (Thiazolo[3,2- <i>a</i>]pyridinium, 8-hydroxy-5-methyl-, hydroxide, inner salt) (RN-CAS Registry Number 30277-17-9) | ** | 7.03 ± 0.05 | EI | 3635 |
| $C_8H_9NOS^+$ | $C_7H_6NOS(CH_3)$ (1,4-Oxathiino[3,2- <i>b</i>]pyridine, 2,3-dihydro-6-methyl-) (RN-CAS Registry Number 35688-70-1) | ** | 8.03 ± 0.05 | EI | 3635 |
| $C_8H_9NOS^+$ | $C_5H_2N(=S)(OH)(CH_3)C_2H_3$ (2(1 <i>H</i>)-Pyridinethione, 1-ethenyl-3-hydroxy-6-methyl-) (RN-CAS Registry Number 35688-69-8) | ** | 7.73 ± 0.05 | EI | 3635 |
| $C_8H_9NOS^+$ | $C_7H_6NS(O)CH_3$ (Thiazolo[3,2- <i>a</i>]pyridinium, 2,3-dihydro-8-hydroxy-5-methyl-, hydroxide, inner salt) (RN-CAS Registry Number 23003-43-2) | ** | 7.35 ± 0.05 | EI | 3635 |
| $C_8H_{11}NOS^+$ | $C_5H_2N(=S)(OH)(CH_3)C_2H_5$ (2(1 <i>H</i>)-Pyridinethione, 1-ethyl-3-hydroxy-6-methyl-) (RN-CAS Registry Number 24207-15-6) | ** | 7.75 ± 0.05 | EI | 3635 |
| $C_{13}H_9NOS^+$ | $C_7H_4NS(O)C_6H_5$ (Thiazolo[3,2- <i>a</i>]pyridinium, 3-hydroxy-2-phenyl-, hydroxide, inner salt) (RN-CAS Registry Number 32044-03-4) | ** | 6.70 ± 0.05 | EI | 3977 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|-----------------------|--|----------------|---|--------|------|
| $C_3H_2N_2OS^+$ | C_3H_2NSNO (Isothiazole, 4-nitro-) (RN-CAS Registry Number 931-07-7) | ** | 10.45 | PE | 3736 |
| $C_4H_{12}N_2OS^+$ | $((CH_3)_2N)_2SO$ (RN-CAS Registry Number 3768-60-3) | ** | 8.53 (V) | PE | 3646 |
| $C_{17}H_{18}N_2OS^+$ | $C_{12}H_8NSCOCH_2CH_2N(CH_3)_2$ (10 <i>H</i> -Phenothiazine, 10-[3-(dimethylamino)-1-oxopropyl]-) (RN-CAS Registry Number 3576-44-1) | ** | 8.26 ± 0.07 | CTS | 4079 |
| $C_{18}H_{22}N_2OS^+$ | $C_{12}H_7NS(OCH_3)CH_2CH(CH_3)N(CH_3)_2$ (10 <i>H</i> -Phenothiazine-10-ethanamine, 2-methoxy- <i>N,N</i> , α -trimethyl-) (RN-CAS Registry Number 7624-74-0) (ON-Other name: Thisercine) | ** | 8.18 ± 0.07 | CTS | 4079 |
| $C_{19}H_{22}N_2OS^+$ | $C_{12}H_8NSCOCH_2CH_2N(C_2H_5)_2$ (10 <i>H</i> -Phenothiazine, 10-[3-(diethylamino)-1-oxopropyl]-) (RN-CAS Registry Number 3576-47-4) (ON-Other name: Acizine) | ** | 7.85 ± 0.07 | CTS | 4079 |
| $C_{20}H_{24}N_2OS^+$ | $C_{12}H_8NSCO(CH_2)_3N(C_2H_5)_2$ (10 <i>H</i> -Phenothiazine, 10-[4-(diethylamino)-1-oxobutyl]-) (RN-CAS Registry Number 51307-45-0) | ** | 7.88 ± 0.07 | CTS | 4079 |
| $C_{19}H_{23}N_3OS^+$ | $C_{12}H_7NS(CH_3)NHCOCH_2N(C_2H_5)_2$ (Acetamide, 2-(diethylamino)- <i>N</i> -(10-methyl-10 <i>H</i> -phenothiazin-3-yl)-) (RN-CAS Registry Number 1952-62-1) | ** | 7.13 ± 0.07 | CTS | 4079 |
| $C_{22}H_{27}N_3OS^+$ | $C_{22}H_{27}N_3OS$ (Ethanone, 1-[10-[3-(4-methyl-1-piperazinyl)propyl]-10 <i>H</i> -phenothiazin-2-yl]-) (RN-CAS Registry Number 1053-74-3) | ** | 9.05 ± 0.07 | CTS | 4079 |
| $C_{23}H_{29}N_3OS^+$ | $C_{23}H_{29}N_3OS$ (1-Propanone, 1-[10-[3-(4-methyl-1-piperazinyl)propyl]-10 <i>H</i> -phenothiazin-2-yl]-) (RN-CAS Registry Number 20686-45-7) | ** | 9.08 ± 0.07 | CTS | 4079 |
| $C_3H_7NO_2S^+$ | $SHCH_2CH(NH_2)COOH$ (RN-CAS Registry Number 3374-22-9) | ** | ~9 | PI | 3766 |
| $C_4H_3NO_2S^+$ | $C_4H_3SNO_2$ (Thiophene, 2-nitro-) (RN-CAS Registry Number 609-40-5) | ** | 9.77 ± 0.05 | EI | 3482 |
| $C_5H_{11}NO_2S^+$ | $CH_3SCH_2CH_2CH(NH_2)COOH$ (RN-CAS Registry Number 59-51-8) | ** | ~9 | PI | 3766 |
| $C_7H_5NO_2S^+$ | $C_7H_4NS(O)OH$ (Thiazolo[3,2- <i>a</i>]pyridinium, 3,8-dihydroxy-, hydroxide, inner salt) (RN-CAS Registry Number 35143-55-6) | ** | 8.70 ± 0.05 | EI | 3977 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|---------------------------|--|----------------|---|--------|------|
| $C_8H_7NO_2S^+$ | $C_7H_3NS(O)(OH)CH_3$ (Thiazolo[3,2- <i>a</i>]pyridinium, 3,8-dihydroxy-2-methyl-, hydroxide, inner salt) (RN-CAS Registry Number 35191-20-9) | ** | 8.60 ± 0.05 | EI | 3977 |
| $C_8H_9NO_2S^+$ | $C_5H_3N(SCH_3)OCOCH_3$ (3-Pyridinol, 2-(methylthio)- acetate (ester)) (RN-CAS Registry Number 42715-30-0) | ** | 7.91 ± 0.05 | EI | 3977 |
| $C_{13}H_9NO_2S^+$ | $C_7H_3NS(O)(OH)C_6H_5$ (Thiazolo[3,2- <i>a</i>]pyridinium, 3,8-dihydroxy-2-phenyl-, hydroxide, inner salt) (RN-CAS Registry Number 35143-57-8) | ** | 8.42 ± 0.05 | EI | 3977 |
| $C_3H_2N_2O_2S^+$ | $C_3H_2NS(NO_2)$ (Isothiazole, 4-nitro-) (RN-CAS Registry Number 931-07-7) | ** | 10.45 | PE | 3587 |
| $C_3H_2N_2O_2S^+$ | $C_3H_2NS(NO_2)$ (Isothiazole, 4-nitro-) (RN-CAS Registry Number 931-07-7) | ** | 10.80 | EI | 3587 |
| $C_{15}H_{11}NO_3S^+$ | $C_7H_3NOS(OCOCH_3)C_6H_5$ (Thiazolo[3,2- <i>a</i>]pyridinium, 8-(acetyloxy)-3-hydroxy-2-phenyl-, hydroxide, inner salt) (RN-CAS Registry Number 32002-92-9) | ** | 6.27 ± 0.05 | EI | 3977 |
| $C_{22}H_{30}N_4O_2S_2^+$ | $C_{22}H_{30}N_4O_2S_2$ (10 <i>H</i> -Phenothiazine-2-sulfonamide, <i>N,N</i> -dimethyl-10[3-(4-methyl-1-piperazinyl)propyl]-) (RN-CAS Registry Number 316-81-4) (ON-Other name: Majepetil) | ** | 6.81 ± 0.07 | CTS | 4079 |
| SF^+ (RD-Radical) | SF (RN-CAS Registry Number 16068-96-5) | ** | 10.09 ± 0.10 | EI | 3818 |
| SF^+ | SF_6 (RN-CAS Registry Number 2551-62-4) | | 30.5 ± 0.5 | EI | 3818 |
| SF_2^+ (RD-Radical) | SF_2 (RN-CAS Registry Number 13814-25-0) | ** | 10.29 ± 0.10 | EI | 3818 |
| SF_2^+ | SF_4 (RN-CAS Registry Number 7783-60-0) | | 17.4 ± 0.5 | EI | 3818 |
| SF_2^+ | SF_6 (RN-CAS Registry Number 2551-62-4) | | 27.5 ± 0.5 | EI | 3818 |
| SF_2^+ | S_2F_2 (RN-CAS Registry Number 13709-35-8) | | 16.2 ± 0.4 | EI | 3738 |
| SF_3^+ | SF_4 (RN-CAS Registry Number 7783-60-0) | F | 12.63 ± 0.10 | EI | 3818 |
| SF_3^+ | SF_6 (RN-CAS Registry Number 2551-62-4) | | 20.0 ± 0.5 | EI | 3818 |
| SF_4^+ | SF_4 (RN-CAS Registry Number 7783-60-0) | ** | 12.03 ± 0.05 | EI | 3578 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|--|--|----------------|---|--------|------|
| SF ₄ ⁺ | SF ₄ (RN-CAS Registry Number 7783-60-0) | ** | 12.08±0.10 | EI | 3818 |
| SF ₄ ⁺ | SF ₆ (RN-CAS Registry Number 2551-62-4) | 2F | 18.44±0.10 | EI | 3818 |
| SF ₅ ⁺ | SF ₆ (RN-CAS Registry Number 2551-62-4) | F | 15.50±0.10 | EI | 3818 |
| S ₂ F ⁺ | S ₂ F ₂ (RN-CAS Registry Number 13709-35-8) | | 14.0±0.4 | EI | 3738 |
| S ₂ F ₂ ⁺ | S ₂ F ₂ (RN-CAS Registry Number 13709-35-8) | ** | 11.6±0.4 | EI | 3738 |
| CF ₂ S ⁺ (² B ₂) | F ₂ CS (RN-CAS Registry Number 420-32-6) | ** | 10.45±0.01 | PE | 3708 |
| CF ₂ S ⁺ (² B ₂) | F ₂ CS (RN-CAS Registry Number 420-32-6) | ** | 10.52 | PE | 4080 |
| | (HB-Threshold value approximately corrected for hot bands) | | | | |
| CSF ₂ ⁺ | F ₂ CS (RN-CAS Registry Number 420-32-6) | ** | 10.64 (V) | PE | 3746 |
| CF ₂ S ⁺ (² B ₁) | F ₂ CS (RN-CAS Registry Number 420-32-6) | ** | 11.34±0.01 | PE | 3708 |
| CF ₂ S ⁺ (² B ₁) | F ₂ CS (RN-CAS Registry Number 420-32-6) | ** | 11.39 | PE | 4080 |
| CF ₂ S ⁺ (² A ₁) | F ₂ CS (RN-CAS Registry Number 420-32-6) | ** | 14.87 | PE | 3708 |
| CF ₂ S ⁺⁺ | F ₂ CS (RN-CAS Registry Number 420-32-6) | ** | 14.91 | PE | 4080 |
| | (HB-Threshold value approximately corrected for hot bands) | | | | |
| CF ₂ S ⁺⁺ | F ₂ CS (RN-CAS Registry Number 420-32-6) | ** | 15.87 (V) | PE | 4080 |
| CF ₂ S ⁺⁺ | F ₂ CS (RN-CAS Registry Number 420-32-6) | ** | 16.48 (V) | PE | 4080 |
| CF ₂ S ⁺⁺ | F ₂ CS (RN-CAS Registry Number 420-32-6) | ** | 17.65 | PE | 3708 |
| CF ₂ S ⁺ (² B ₁) | F ₂ CS (RN-CAS Registry Number 420-32-6) | ** | 17.67 (V) | PE | 4080 |
| CF ₂ S ⁺⁺ | F ₂ CS (RN-CAS Registry Number 420-32-6) | ** | 18.76 (V) | PE | 4080 |
| CF ₂ S ⁺⁺ | F ₂ CS (RN-CAS Registry Number 420-32-6) | ** | 19.20 (V) | PE | 4080 |
| CF ₂ S ⁺ | F ₂ CS (RN-CAS Registry Number 420-32-6) | ** | 10.53±0.10 | EI | 3818 |
| NSF ⁺ (² A') | NSF (RN-CAS Registry Number 18820-63-8) | ** | 11.49±0.02 | PE | 3665 |
| NSF ⁺ (² A') | NSF (RN-CAS Registry Number 18820-63-8) | ** | 11.54±0.01 | PE | 3666 |
| NSF ⁺ (² A') | NSF (RN-CAS Registry Number 18820-63-8) | ** | 11.82 (V) | PE | 3518 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|--|---|----------------|---|--------|------|
| NSF ⁺ (² A') | NSF (RN-CAS Registry Number 18820-63-8) | ** | 11.82 (V) | PE | 3660 |
| NSF ⁺ (² A') | NSF (RN-CAS Registry Number 18820-63-8) | ** | 13.382±0.004 | PE | 3666 |
| (HB-Threshold value approximately corrected for hot bands) | | | | | |
| NSF ⁺ (² A') | NSF (RN-CAS Registry Number 18820-63-8) | ** | 13.39±0.02 | PE | 3665 |
| NSF ⁺ (² A') | NSF (RN-CAS Registry Number 18820-63-8) | ** | 13.50 (V) | PE | 3518 |
| NSF ⁺ (² A') | NSF (RN-CAS Registry Number 18820-63-8) | ** | 13.50 (V) | PE | 3660 |
| NSF ⁺ (² A'') | NSF (RN-CAS Registry Number 18820-63-8) | ** | 13.775±0.005 | PE | 3666 |
| NSF ⁺ (² A'') | NSF (RN-CAS Registry Number 18820-63-8) | ** | 13.78±0.02 | PE | 3665 |
| NSF ⁺ (² A'') | NSF (RN-CAS Registry Number 18820-63-8) | ** | 13.87 (V) | PE | 3518 |
| NSF ⁺ (² A'') | NSF (RN-CAS Registry Number 18820-63-8) | ** | 13.87 (V) | PE | 3660 |
| NSF ⁺ (² A') | NSF (RN-CAS Registry Number 18820-63-8) | ** | 14.93±0.01 | PE | 3666 |
| NSF ⁺ (² A') | NSF (RN-CAS Registry Number 18820-63-8) | ** | 15.35±0.02 | PE | 3665 |
| NSF ⁺ (² A') | NSF (RN-CAS Registry Number 18820-63-8) | ** | 15.61 (V) | PE | 3518 |
| NSF ⁺ (² A') | NSF (RN-CAS Registry Number 18820-63-8) | ** | 15.61 (V) | PE | 3660 |
| NSF ⁺ (² A', ² A'') | NSF (RN-CAS Registry Number 18820-63-8) | ** | ~16.3 | PE | 3665 |
| NSF ⁺ (² A') | NSF (RN-CAS Registry Number 18820-63-8) | ** | 16.47 (V) | PE | 3518 |
| NSF ⁺ (² A'') | NSF (RN-CAS Registry Number 18820-63-8) | ** | 16.56±0.03 (V) | PE | 3666 |
| NSF ⁺ (² A') | NSF (RN-CAS Registry Number 18820-63-8) | ** | 17.24±0.08 (V) | PE | 3666 |
| NSF ⁺ (² A') | NSF (RN-CAS Registry Number 18820-63-8) | ** | 21.1±0.1 (V) | PE | 3666 |
| NSF ₃ ⁺ (² E) | NSF ₃ (RN-CAS Registry Number 15930-75-3) | ** | 12.50 (V) | PE | 3660 |
| NSF ₃ ⁺ (² A ₁) | NSF ₃ (RN-CAS Registry Number 15930-75-3) | ** | 14.15 (V) | PE | 3660 |
| NSF ₃ ⁺ (² E) | NSF ₃ (RN-CAS Registry Number 15930-75-3) | ** | 16.65 (V) | PE | 3660 |
| NSF ₃ ⁺ (² A ₂ ?) | NSF ₃ (RN-CAS Registry Number 15930-75-3) | ** | 18.35 (V) | PE | 3660 |
| C ₂₁ H ₂₄ N ₃ F ₃ S ⁺ | C ₁₂ H ₇ NS(CF ₃)(CH ₂) ₃ C ₄ H ₈ N ₂ CH ₃ (10 <i>H</i> -Phenothiazine, 10-[3-(4-methyl-1-piperazinyl)propyl]-2-(trifluoromethyl)-) (RN-CAS Registry Number 117-89-5) (ON-Other name: Triphthazine) | ** | 7.10±0.07 | CTS | 4079 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|--|---|----------------|---|--------|------|
| $\text{SO}_3\text{F}^+(\text{}^2\text{A}_2)$ (RD-Radical) | SO_3F (RN-CAS Registry Number 21549-02-0) | ** | 12.85 ± 0.1 (V) | PE | 3671 |
| $\text{SOF}_2(\text{}^2\text{A}')$ | SOF_2 (RN-CAS Registry Number 7783-42-8) | ** | 12.19 | PE | 3705 |
| $\text{SOF}_2(\text{}^2\text{A}')$ | SOF_2 (RN-CAS Registry Number 7783-42-8) | ** | 12.25 | PE | 3879 |
| SOF_2^+ | SOF_2 (RN-CAS Registry Number 7783-42-8) | ** | 12.58 (V) | PE | 3646 |
| $\text{SOF}_2(\text{}^2\text{A}')$ | SOF_2 (RN-CAS Registry Number 7783-42-8) | ** | 12.6 (V) | PE | 3694 |
| $\text{SOF}_2(\text{}^2\text{A}'')$ | SOF_2 (RN-CAS Registry Number 7783-42-8) | ** | ~ 13.4 | PE | 3879 |
| $\text{SOF}_2(\text{}^2\text{A}'')$ | SOF_2 (RN-CAS Registry Number 7783-42-8) | ** | 14.04 (V) | PE | 3705 |
| $\text{SOF}_2(\text{}^2\text{A}'')$ | SOF_2 (RN-CAS Registry Number 7783-42-8) | ** | 14.14 (V) | PE | 3694 |
| $\text{SOF}_2(\text{}^2\text{A}')$ | SOF_2 (RN-CAS Registry Number 7783-42-8) | ** | 14.54 | PE | 3705 |
| $\text{SOF}_2(\text{}^2\text{A}'')$ | SOF_2 (RN-CAS Registry Number 7783-42-8) | ** | 14.55 | PE | 3879 |
| $\text{SOF}_2(\text{}^2\text{A}')$ | SOF_2 (RN-CAS Registry Number 7783-42-8) | ** | 14.8 (V) | PE | 3694 |
| $\text{SOF}_2(\text{}^2\text{A}')$ | SOF_2 (RN-CAS Registry Number 7783-42-8) | ** | 16.2 (V) | PE | 3694 |
| SOF_2^* | SOF_2 (RN-CAS Registry Number 7783-42-8) | ** | 16.4 (V) | PE | 3705 |
| $\text{SOF}_2(\text{}^2\text{A}'')$ | SOF_2 (RN-CAS Registry Number 7783-42-8) | ** | 16.6 (V) | PE | 3879 |
| SOF_2^* | SOF_2 (RN-CAS Registry Number 7783-42-8) | ** | 16.97 (V) | PE | 3705 |
| $\text{SOF}_2(\text{}^2\text{A}'')$ | SOF_2 (RN-CAS Registry Number 7783-42-8) | ** | 17.0 (V) | PE | 3694 |
| $\text{SOF}_2(\text{}^2\text{A}')$ | SOF_2 (RN-CAS Registry Number 7783-42-8) | ** | 17.0 (V) | PE | 3879 |
| SOF_2^* | SOF_2 (RN-CAS Registry Number 7783-42-8) | ** | 18.03 | PE | 3705 |
| SOF_2^+ | SOF_2 (RN-CAS Registry Number 7783-42-8) | ** | 12.58 ± 0.10 | EI | 3818 |
| $\text{SO}_2\text{F}_2(\text{}^2\text{B}_2)$ | SO_2F_2 (RN-CAS Registry Number 2699-79-8) | ** | ~ 13.0 | PE | 3879 |
| $\text{SO}_2\text{F}_2(\text{}^2\text{B}_2)$ | SO_2F_2 (RN-CAS Registry Number 2699-79-8) | ** | 13.04 ± 0.01 | PE | 3675 |
| $\text{SO}_2\text{F}_2(\text{}^2\text{A}_2)$ | SO_2F_2 (RN-CAS Registry Number 2699-79-8) | ** | 13.43 (V) | PE | 3705 |
| $\text{SO}_2\text{F}_2(\text{}^2\text{A}_2)$ | SO_2F_2 (RN-CAS Registry Number 2699-79-8) | ** | 13.55 | PE | 3879 |
| $\text{SO}_2\text{F}_2(\text{}^2\text{B}_1)$ | SO_2F_2 (RN-CAS Registry Number 2699-79-8) | ** | 13.55 (V) | PE | 3694 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|---------------------------------------|---|----------------|---|--------|------|
| $\text{SO}_2\text{F}_2^+(\text{A}_2)$ | SO_2F_2 (RN-CAS Registry Number 2699-79-8) | ** | 13.57 ± 0.02 | PE | 3675 |
| $\text{SO}_2\text{F}_2^+(\text{A}_2)$ | SO_2F_2 (RN-CAS Registry Number 2699-79-8) | ** | 13.61 (V) | PE | 3694 |
| $\text{SO}_2\text{F}_2^+(\text{B}_2)$ | SO_2F_2 (RN-CAS Registry Number 2699-79-8) | ** | 13.78 (V) | PE | 3705 |
| $\text{SO}_2\text{F}_2^+(\text{A}_1)$ | SO_2F_2 (RN-CAS Registry Number 2699-79-8) | ** | 14.8 | PE | 3705 |
| $\text{SO}_2\text{F}_2^+(\text{B}_1)$ | SO_2F_2 (RN-CAS Registry Number 2699-79-8) | ** | 14.85 ± 0.01 | PE | 3675 |
| $\text{SO}_2\text{F}_2^+(\text{B}_1)$ | SO_2F_2 (RN-CAS Registry Number 2699-79-8) | ** | 14.89 | PE | 3879 |
| $\text{SO}_2\text{F}_2^+(\text{B}_2)$ | SO_2F_2 (RN-CAS Registry Number 2699-79-8) | ** | 15.18 (V) | PE | 3694 |
| $\text{SO}_2\text{F}_2^+(\text{A}_1)$ | SO_2F_2 (RN-CAS Registry Number 2699-79-8) | ** | 15.181 ± 0.006 | PE | 3675 |
| $\text{SO}_2\text{F}_2^+(\text{A}_2)$ | SO_2F_2 (RN-CAS Registry Number 2699-79-8) | ** | 15.23 | PE | 3879 |
| $\text{SO}_2\text{F}_2^+(\text{B}_1)$ | SO_2F_2 (RN-CAS Registry Number 2699-79-8) | ** | 15.30 (V) | PE | 3705 |
| $\text{SO}_2\text{F}_2^+(\text{A}_2)$ | SO_2F_2 (RN-CAS Registry Number 2699-79-8) | ** | 15.35 (V) | PE | 3694 |
| $\text{SO}_2\text{F}_2^+(\text{B}_2)$ | SO_2F_2 (RN-CAS Registry Number 2699-79-8) | ** | 16.676 ± 0.005 | PE | 3675 |
| | (HB-Threshold value approximately corrected for hot bands) | | | | |
| SO_2F_2^* | SO_2F_2 (RN-CAS Registry Number 2699-79-8) | ** | 16.68 | PE | 3705 |
| $\text{SO}_2\text{F}_2^+(\text{A}_1)$ | SO_2F_2 (RN-CAS Registry Number 2699-79-8) | ** | 16.68 | PE | 3879 |
| $\text{SO}_2\text{F}_2^+(\text{A}_1)$ | SO_2F_2 (RN-CAS Registry Number 2699-79-8) | ** | 16.68 (V) | PE | 3694 |
| $\text{SO}_2\text{F}_2^+(\text{B}_1)$ | SO_2F_2 (RN-CAS Registry Number 2699-79-8) | ** | 17.89 | PE | 3879 |
| $\text{SO}_2\text{F}_2^+(\text{B}_1)$ | SO_2F_2 (RN-CAS Registry Number 2699-79-8) | ** | 18.07 ± 0.03 | PE | 3675 |
| SO_2F_2^* | SO_2F_2 (RN-CAS Registry Number 2699-79-8) | ** | 18.29 (V) | PE | 3705 |
| $\text{SO}_2\text{F}_2^+(\text{B}_2)$ | SO_2F_2 (RN-CAS Registry Number 2699-79-8) | ** | 18.34 (V) | PE | 3694 |
| $\text{SO}_2\text{F}_2^+(\text{B}_2)$ | SO_2F_2 (RN-CAS Registry Number 2699-79-8) | ** | 19.175 ± 0.007 | PE | 3675 |
| $\text{SO}_2\text{F}_2^+(\text{A}_1)$ | SO_2F_2 (RN-CAS Registry Number 2699-79-8) | ** | 19.699 ± 0.007 | PE | 3675 |
| $\text{SO}_2\text{F}_2^+(\text{B}_2)$ | SO_2F_2 (RN-CAS Registry Number 2699-79-8) | ** | 19.70 | PE | 3879 |
| SO_2F_2^* | SO_2F_2 (RN-CAS Registry Number 2699-79-8) | ** | 19.80 (V) | PE | 3705 |
| SO_2F_2^* | SO_2F_2 (RN-CAS Registry Number 2699-79-8) | ** | 19.89 (V) | PE | 3694 |
| $\text{SO}_2\text{F}_2^+(\text{A}_1)$ | SO_2F_2 (RN-CAS Registry Number 2699-79-8) | ** | 20.5 | PE | 3879 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|---|--|----------------|---|--------|------|
| SO ₂ F ₂ [*] | SO ₂ F ₂ (RN-CAS Registry Number 2699-79-8) | ** | ~21 (V) | PE | 3694 |
| SO ₂ F ₂ ^{(2)A₁} | SO ₂ F ₂ (RN-CAS Registry Number 2699-79-8) | ** | 24.2±0.1 (V) | PE | 3675 |
| SO ₂ F ₂ ^{(2)B₁} | SO ₂ F ₂ (RN-CAS Registry Number 2699-79-8) | ** | 27.7±0.1 (V) | PE | 3675 |
| CH ₃ O ₂ FS ⁺ | CH ₃ SO ₂ F (RN-CAS Registry Number 558-25-8) | ** | 12.61 (V) | PE | 3705 |
| C ₆ H ₃ OF ₃ S ⁺ | C ₄ H ₃ SCOCF ₃ (Ethanone, 2,2,2-trifluoro-1-(2-thienyl)-) (RN-CAS Registry Number 651-70-7) | ** | 9.70±0.05 | EI | 3482 |
| C ₆ H ₃ OF ₃ S ⁺ | C ₄ H ₃ SCOCF ₃ (Ethanone, 2,2,2-trifluoro-1-(3-thienyl)-) (RN-CAS Registry Number 30933-31-4) | ** | 9.63±0.05 | EI | 3482 |
| C ₂₀ H ₂₁ N ₂ O ₂ F ₃ S ⁺ | C ₁₂ H ₇ NS(CF ₃)COCH ₂ CH ₂ N(C ₂ H ₅) ₂ [*] (10 <i>H</i> -Phenothiazine, 10-[3-(diethylamino)-1-oxopropyl]-2-(trifluoromethyl)-) (RN-CAS Registry Number 30223-48-4) (ON-Other name: Fluoracizine) | | 7.89±0.07 | CTS | 4079 |
| C ₂₂ H ₂₆ N ₃ O ₂ F ₃ S ⁺ | C ₂₂ H ₂₆ N ₃ O ₂ F ₃ S (1-Piperazineethanol, 4-[3-[2-(trifluoromethyl)-10 <i>H</i> -phenothiazin-10-yl]propyl]-) (RN-CAS Registry Number 69-23-8) (ON-Other name: Fluorphenazine) | ** | 8.64±0.07 | CTS | 4079 |
| C ₂₀ H ₁₉ N ₂ O ₂ F ₃ S ⁺ | C ₁₂ H ₇ NS(CF ₃)COCH ₂ CH ₂ C ₄ H ₈ NO [*] (10 <i>H</i> -Phenothiazine, 10-[3-(4-morpholinyl)-1-oxopropyl]-2-(trifluoromethyl)-) (RN-CAS Registry Number 33414-29-8) | | 8.54±0.07 | CTS | 4079 |
| C ₂₂ H ₂₄ N ₃ O ₂ F ₃ S ⁺ | C ₂₂ H ₂₄ N ₃ O ₂ F ₃ S (10 <i>H</i> -Phenothiazine, 10-[3-[4-(2-hydroxyethyl)-1-piperazinyl]-1-oxopropyl]-2-(trifluoromethyl)-) (RN-CAS Registry Number 33414-36-7) | ** | 8.71±0.07 | CTS | 4079 |
| SiH ₄ S ^{+(2)A''} | SiH ₃ SH (RN-CAS Registry Number 14044-97-4) | ** | 9.97 (V) | PE | 3656 |
| Si ₂ H ₆ S ⁺ | (SiH ₃) ₂ S (RN-CAS Registry Number 16544-95-9) | ** | 9.59 (V) | PE | 3867 |
| Si ₂ H ₆ S ^{+(2)B₁} | (SiH ₃) ₂ S (RN-CAS Registry Number 16544-95-9) | ** | 9.70 (V) | PE | 3656 |
| CH ₆ SiS ⁺ | CH ₃ SSiH ₃ (RN-CAS Registry Number 16643-15-5) | ** | 9.10 (V) | PE | 3867 |
| CH ₃ NSiS ⁺ | SiH ₃ NCS (RN-CAS Registry Number 14311-54-7) | ** | 9.54±0.02 (V) | PE | 3670 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|--------------------|--|----------------|---|--------|------|
| $C_4H_9NSiS^+$ | $(CH_3)_3SiNCS$ (RN-CAS Registry Number 2290-65-5) | ** | 9.3 ± 0.1 (V) | PE | 3670 |
| PS^+ | PS (RN-CAS Registry Number 12281-36-6) | ** | 9.0 | EI | 4001 |
| P_4S^+ | P_4S (RN-CAS Registry Number XXXXX-XX-X) | ** | 10.6 ± 0.5 | EI | 3615 |
| $P_4S_2^+$ | P_4S_2 (RN-CAS Registry Number 12165-70-7) | ** | 10.6 ± 0.5 | EI | 3615 |
| $P_4S_3^+$ | P_4S_3 (RN-CAS Registry Number 1314-85-8) | ** | 9.7 ± 0.5 | EI | 3615 |
| $P_4S_4^+$ | P_4S_4 (RN-CAS Registry Number XXXXX-XX-X) | ** | 10.1 ± 0.5 | EI | 3615 |
| $P_4S_5^+$ | P_4S_5 (RN-CAS Registry Number 12137-70-1) | ** | 10.4 ± 0.5 | EI | 3615 |
| $P_4S_6^+$ | P_4S_6 (RN-CAS Registry Number XXXXX-XX-X) | ** | 10.0 ± 0.5 | EI | 3615 |
| $P_4S_7^+$ | P_4S_7 (RN-CAS Registry Number 12037-82-0) | ** | 10.1 ± 0.5 | EI | 3615 |
| $P_4S_8^+$ | P_4S_8 (RN-CAS Registry Number 37295-14-0) | ** | 9.8 ± 0.5 | EI | 3615 |
| $P_4S_9^+$ | P_4S_9 (RN-CAS Registry Number 25070-46-6) | ** | 9.8 ± 0.5 | EI | 3615 |
| $P_4S_{10}^+$ | P_4S_{10} (RN-CAS Registry Number 12066-62-5) | ** | 9.6 ± 0.5 | EI | 3615 |
| CH_2PS^+ | $(CH_3O)_2P(CH_3S)S$ (RN-CAS Registry Number 2953-29-9) (MT-Metastable transition(s) observed) | H + HCHO + HS | 14.05 ± 0.30 | EI | 3989 |
| $C_6H_{18}N_3PS^+$ | $PS(N(CH_3)_2)_3$ (RN-CAS Registry Number 3732-82-9) | ** | 7.66 ± 0.003 | PE | 4086 |
| $C_2H_6OPS^+$ | $(CH_3O)_2P(CH_3S)S$ (RN-CAS Registry Number 2953-29-9) (MT-Metastable transition(s) observed) | HCHO + HS | 11.70 ± 0.20 | EI | 3989 |
| $C_2H_6O_2PS^+$ | $(CH_3O)_2P(CH_3S)O$ (RN-CAS Registry Number 152-20-5) | CH_3O | 11.82 ± 0.20 | EI | 3989 |
| $C_2H_6O_2PS^+$ | $(CH_3O)_2P(CH_3S)S$ (RN-CAS Registry Number 2953-29-9) (MT-Metastable transition(s) observed) | CH_3S | 10.10 ± 0.10 | EI | 3989 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|-------------------|---|----------------|---|--------|------|
| $C_2H_6O_2PS^+$ | $(CH_3S)_2P(CH_3O)O$ (RN-CAS Registry Number 22608-53-3) | CH_3S | 10.50 ± 0.10 | EI | 3989 |
| $C_2H_7O_2PS^+$ | $(CH_3O)_2P(CH_3S)O$ (RN-CAS Registry Number 152-20-5) (MT-Metastable transition(s) observed) | HCHO | 10.51 ± 0.10 | EI | 3989 |
| $C_2H_7O_2PS^+$ | $(CH_3O)_2P(CH_3S)S$ (RN-CAS Registry Number 2953-29-9) | HCHS | 10.35 ± 0.10 | EI | 3989 |
| $C_2H_7O_2PS^+$ | $(CH_3S)_2P(CH_3O)O$ (RN-CAS Registry Number 22608-53-3) (MT-Metastable transition(s) observed) | HCHS | 10.10 ± 0.10 | EI | 3989 |
| $C_2H_6O_3PS^+$ | $(CH_3O)_2P(CH_3S)O$ (RN-CAS Registry Number 152-20-5) (MT-Metastable transition(s) observed) | CH_3 | 10.03 ± 0.10 | EI | 3989 |
| $C_3H_9O_3PS^+$ | $(CH_3O)_2P(CH_3S)O$ (RN-CAS Registry Number 152-20-5) | ** | 9.55 ± 0.10 | EI | 3989 |
| $C_2H_6OPS_2^+$ | $(CH_3O)_2P(CH_3S)S$ (RN-CAS Registry Number 2953-29-9) | CH_3O | 10.20 ± 0.30 | EI | 3989 |
| $C_2H_6OPS_2^+$ | $(CH_3S)_2P(CH_3O)O$ (RN-CAS Registry Number 22608-53-3) | CH_3O | 10.15 ± 0.10 | EI | 3989 |
| $C_2H_7OPS_2^+$ | $(CH_3O)_2P(CH_3S)S$ (RN-CAS Registry Number 2953-29-9) (MT-Metastable transition(s) observed) | HCHO | 10.00 ± 0.10 | EI | 3989 |
| $C_2H_7OPS_2^+$ | $(CH_3S)_2P(CH_3O)O$ (RN-CAS Registry Number 22608-53-3) (MT-Metastable transition(s) observed) | HCHO | 9.90 ± 0.20 | EI | 3989 |
| $C_2H_6O_2PS_2^+$ | $(CH_3O)_2P(CH_3S)S$ (RN-CAS Registry Number 2953-29-9) | CH_3 | 9.65 ± 0.20 | EI | 3989 |
| $C_2H_6O_2PS_2^+$ | $(CH_3S)_2P(CH_3O)O$ (RN-CAS Registry Number 22608-53-3) (MT-Metastable transition(s) observed) | CH_3 | 9.47 ± 0.10 | EI | 3989 |
| $C_3H_9O_2PS_2^+$ | $(CH_3O)_2P(CH_3S)S$ (RN-CAS Registry Number 2953-29-9) | ** | 9.0 ± 0.10 | EI | 3989 |
| $C_3H_9O_2PS_2^+$ | $(CH_3S)_2P(CH_3O)O$ (RN-CAS Registry Number 22608-53-3) | ** | 9.20 ± 0.10 | EI | 3989 |
| CNF_2PS^+ | PF_2NCS (RN-CAS Registry Number 461-60-9) | ** | 10.2 ± 0.1 (V) | PE | 3662 |
| Cl^+ | CH_2Cl_2 (RN-CAS Registry Number 75-09-2) (AD-0.219 eV average translational energy of decomposition at threshold) (TR-Other product(s) thermochemically reasonable) | CH_2Cl | 17.4 | RPD | 3490 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|---|--|--------------------|---|--------|------|
| Cl ⁺ | CH ₂ Cl ₂ (RN-CAS Registry Number 75-09-2) | CH ₂ Cl | 17.4±0.1 | EI | 3442 |
| (AD-0.22 eV average translational energy of decomposition at threshold) | | | | | |
| (TR-Other product(s) thermochemically reasonable) | | | | | |
| Cl ⁺ | Ag ₃ Cl ₃ (RN-CAS Registry Number 12444-97-2) | | ~15.5 | EI | 3605 |
| Cl ⁺² | Cl ⁺ (RN-CAS Registry Number 14835-24-6) | ** | 23.8137±0.0002 | S | 3756 |
| Cl ₂ ^{+(2)Π_g} | Cl ₂ (RN-CAS Registry Number 7782-50-5) | ** | 11.49 | PE | 3507 |
| Cl ₂ ^{+(2)Π_u} | Cl ₂ (RN-CAS Registry Number 7782-50-5) | ** | 14.43 (V) | PE | 3507 |
| Cl ₂ ^{+(2)Σ⁺} | Cl ₂ (RN-CAS Registry Number 7782-50-5) | ** | 16.10 (V) | PE | 3507 |
| BCl ⁺ | BCl (RN-CAS Registry Number 20583-55-5) | ** | 12±1 | EI | 3465 |
| BCl ₂ ⁺ | BCl ₂ (RN-CAS Registry Number 13842-52-9) | ** | 12±1.0 | EI | 3465 |
| BCl ₃ ^{+(2)A₂'} | BCl ₃ (RN-CAS Registry Number 10294-34-5) | ** | 11.62 (V) | PE | 3704 |
| BCl ₃ ^{+(2)E'} | BCl ₃ (RN-CAS Registry Number 10294-34-5) | ** | 12.28 (V) | PE | 3704 |
| BCl ₃ ^{+(2)E''} | BCl ₃ (RN-CAS Registry Number 10294-34-5) | ** | 12.53 (V) | PE | 3704 |
| BCl ₃ ^{+(2)A₂} | BCl ₃ (RN-CAS Registry Number 10294-34-5) | ** | 14.35 (V) | PE | 3704 |
| BCl ₃ ^{+(2)E'} | BCl ₃ (RN-CAS Registry Number 10294-34-5) | ** | 15.49 (V) | PE | 3704 |
| BCl ₃ ^{+(2)A₁'} | BCl ₃ (RN-CAS Registry Number 10294-34-5) | ** | 17.70 (V) | PE | 3704 |
| B ₂ Cl ₄ ^{+(2)A₁} | B ₂ Cl ₄ (RN-CAS Registry Number 13701-67-2) | ** | ≤10.42±0.02 | PE | 3709 |
| B ₂ Cl ₄ ^{+(2)E} | B ₂ Cl ₄ (RN-CAS Registry Number 13701-67-2) | ** | ≤11.49±0.01 | PE | 3709 |
| B ₂ Cl ₄ ^{+(2)A₂} | B ₂ Cl ₄ (RN-CAS Registry Number 13701-67-2) | ** | 12.25±0.01 (V) | PE | 3709 |
| B ₂ Cl ₄ ^{+(2)B₁} | B ₂ Cl ₄ (RN-CAS Registry Number 13701-67-2) | ** | 12.49±0.01 (V) | PE | 3709 |
| B ₂ Cl ₄ ^{+(2)B₂} | B ₂ Cl ₄ (RN-CAS Registry Number 13701-67-2) | ** | 13.02±0.02 (V) | PE | 3709 |
| B ₂ Cl ₄ ^{+(2)E} | B ₂ Cl ₄ (RN-CAS Registry Number 13701-67-2) | ** | ≤13.34±0.02 | PE | 3709 |
| B ₂ Cl ₄ ^{+(2)E} | B ₂ Cl ₄ (RN-CAS Registry Number 13701-67-2) | ** | ≤14.42±0.02 | PE | 3709 |
| B ₂ Cl ₄ ^{+(2)A₁} | B ₂ Cl ₄ (RN-CAS Registry Number 13701-67-2) | ** | 15.20±0.01 (V) | PE | 3709 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|----------------------------|---|----------------|---|--------|------|
| $B_2Cl_4(^2B_2)$ | B_2Cl_4 (RN-CAS Registry Number 13701-67-2) | ** | $\leq 16.60 \pm 0.01$ | PE | 3709 |
| $B_2Cl_4(^2A_1)$ | B_2Cl_4 (RN-CAS Registry Number 13701-67-2) | ** | $\leq 17.90 \pm 0.03$ | PE | 3709 |
| CCl^+ | C_2F_3Cl (RN-CAS-Registry Number 79-38-9) | CF_3 | 16.9 ± 0.1 | EI | 4070 |
| CCl^+ | $CFCl=CFCl$ (RN-CAS-Registry Number 598-88-9) | CF_2Cl | 16.4 ± 0.2 | EI | 4070 |
| CCl_2^+ | $CFCl=CFCl$ (RN-CAS-Registry Number 598-88-9) (TR-Other product(s) thermochemically reasonable) | CF_2 | 13.8 ± 0.1 | EI | 4070 |
| CCl_3^+ (RD-Radical) | CCl_3 (RN-CAS Registry Number 3170-80-7) | ** | 8.28 | EM | 3732 |
| CCl_3^+ | CCl_4 (RN-CAS Registry Number 56-23-5) | Cl | 11.37 | EM | 3732 |
| CCl_3^+ | $(CCl_3)_2CO$ (RN-CAS Registry Number 116-16-5) | | 11.75 | EI | 3550 |
| $C_6Cl_4^+$ | C_6Cl_4 (1,3-Cyclohexadien-5-yne, 1,2,3,4-tetrachloro-) (RN-CAS Registry Number 13280-72-3) | ** | 10.66 ± 0.2 | RPD | 3583 |
| $C_6Cl_4^+$ | $C_8O_3Cl_4$ (1,3-Isobenzofurandione, 4,5,6,7-tetrachloro-) (RN-CAS Registry Number 117-08-8) (ON-Other name: Tetrachlorophthalic anhydride) | | 14.31 ± 0.2 | RPD | 3583 |
| $C_6Cl_4^+$ | C_6Cl_5I (Benzene, pentachloroiodo-) (RN-CAS Registry Number 16478-18-5) | | 14.51 ± 0.2 | RPD | 3583 |
| $C_6Cl_4^+$ | $C_6Cl_4I_2$ (Tetrachloro-1,2-diiodobenzene) (RN-CAS Registry Number XXXXX-XX-X) | | 12.85 ± 0.2 | RPD | 3583 |
| $C_6Cl_6^+$ | C_6Cl_6 (Benzene, hexachloro-) (RN-CAS Registry Number 118-74-1) | ** | 9.20 (V) | PE | 3873 |
| CH_2Cl^+ (RD-Radical) | CH_2Cl (RN-CAS Registry Number 6806-86-6) | ** | 8.80 | EM | 3732 |
| CH_2Cl^+ | CH_3Cl (RN-CAS Registry Number 74-87-3) | H | 12.96 | EM | 3732 |
| CH_2Cl^+ | CH_2Cl_2 (RN-CAS Registry Number 75-09-2) (TR-Other product(s) thermochemically reasonable) | Cl | 12.15 | EM | 3732 |
| CH_3Cl^+ | CH_3Cl (RN-CAS Registry Number 74-87-3) | ** | 11.27 | EM | 3732 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|--------------------|---|----------------|---|--------|------|
| C_2HCl^+ | $CH\equiv CCl$ (RN-CAS Registry Number 593-63-5) | ** | 11.044 ± 0.004 | S | 3876 |
| $C_2H_2Cl^+$ | $CH_2=CFCl$ (RN-CAS-Registry Number 2317-91-1) | F | 14.8 ± 0.1 | EI | 4070 |
| $C_2H_3Cl^+$ | C_2H_3Cl (RN-CAS Registry Number 75-01-4) | ** | 9.99 ± 0.02 | PI | 3930 |
| $C_2H_3Cl^+$ (2A') | C_2H_3Cl (RN-CAS Registry Number 75-01-4) | ** | 11.65 | PI | 3930 |
| $C_2H_3Cl^+$ | $CH_2=CHCl$ (RN-CAS Registry Number 75-01-4) | ** | 10.01 | PE | 3863 |
| $C_2H_5Cl^+$ | C_2H_5Cl (RN-CAS Registry Number 75-00-3) | ** | 11.01 (V) | PE | 4076 |
| $C_3H_5Cl^+$ | $CH_2=CHCH_2Cl$ (RN-CAS Registry Number 107-05-1) | ** | 10.05 | PE | 3863 |
| $C_3H_5Cl^+$ | $CH_2=CHCH_2Cl$ (RN-CAS Registry Number 107-05-1) | ** | 10.34 (V) | PE | 4091 |
| $C_3H_7Cl^+$ | <i>n</i> - C_3H_7Cl (RN-CAS Registry Number 540-54-5) | ** | 10.88 (V) | PE | 4076 |
| $C_3H_7Cl^+$ | <i>iso</i> - C_3H_7Cl (RN-CAS Registry Number 75-29-6) | ** | $11.0\pm <0.1$ | EI | 3735 |
| $C_4H_9Cl^+$ | <i>n</i> - C_4H_9Cl (RN-CAS Registry Number 109-69-3) | ** | 10.84 (V) | PE | 4076 |
| $C_6H_4Cl^+$ | $C_6H_4ClNO_2$ (Benzene, 1-chloro-3-nitro-) (RN-CAS Registry Number 121-73-3) | NO_2 | 12.00 ± 0.1 | EI | 3447 |
| $C_6H_4Cl^+$ | $C_6H_4ClNO_2$ (Benzene, 1-chloro-4-nitro-) (RN-CAS Registry Number 100-00-5) | NO_2 | 12.30 ± 0.1 | EI | 3447 |
| $C_6H_5Cl^+$ | C_6H_5Cl (Benzene, chloro-) (RN-CAS Registry Number 108-90-7) | ** | 9.09 (V) | PE | 3873 |
| $C_6H_5Cl^+$ | C_6H_5Cl (Benzene, chloro-) (RN-CAS Registry Number 108-90-7) | ** | 8.99 | EI | 3845 |
| $C_6H_5Cl^+$ | C_6H_5Cl (Benzene, chloro-) (RN-CAS Registry Number 108-90-7) | ** | 9.12 ± 0.1 | EI | 3788 |
| $C_6H_5Cl^+$ | $C_6H_4ClOCH_3$ (Benzene, 1-chloro-3-methoxy-) (RN-CAS Registry Number 2845-89-8) | CH_2O | 11.68 ± 0.1 | EI | 3446 |
| $C_6H_5Cl^+$ | $C_6H_4ClOCH_3$ (Benzene, 1-chloro-4-methoxy-) (RN-CAS Registry Number 623-12-1) | HCHO | 11.42 | EI | 3845 |

(CD-Metastable transition indicates 0.35 eV kinetic energy release)

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|----------------------------|--|----------------|---|--------|------|
| $C_6H_5Cl^+$ | $C_6H_4ClOCH_3$ (Benzene, 1-chloro-4-methoxy-) (RN-CAS Registry Number 623-12-1) | CH_2O | 11.56 ± 0.1 | EI | 3446 |
| $C_6H_5Cl^+$ | $C_6H_5ClCr(CO)_3$ (Chromium, tricarbonyl(η^6 -chlorobenzene)-) (RN-CAS Registry Number 12082-03-0) | | 9.15 ± 0.1 | EI | 3788 |
| $C_6H_{11}Cl^+$ | $C_6H_{11}Cl$ (Cyclohexane, chloro-) (RN-CAS Registry Number 542-18-7) | ** | 10.10 ± 0.01 | PI | 4078 |
| $C_6H_{11}Cl^+$ | $C_6H_{11}Cl$ (Cyclohexane, chloro-) (RN-CAS Registry Number 542-18-7) | ** | 10.67 (V) | PE | 4078 |
| $C_7H_6Cl^+$ | $C_6H_4ClCH_2CH_2OCOCH_3$ (Phenethyl alcohol, <i>m</i> -chloro-, acetate) (RN-CAS Registry Number 33709-41-0) | | 12.90 | EI | 3590 |
| $C_7H_7Cl^+$ | $C_6H_5CH_2Cl$ (Benzene, (chloromethyl)-) (RN-CAS Registry Number 100-44-7) | ** | 9.30 (V) | PE | 3992 |
| $C_7H_7Cl^+$ | $C_6H_4ClCH_3$ (Benzene, 1-chloro-2-methyl-) (RN-CAS Registry Number 95-49-8) | ** | 8.72 ± 0.1 | EI | 3777 |
| $C_7H_7Cl^+$ | $C_6H_4ClCH_3$ (Benzene, 1-chloro-3-methyl-) (RN-CAS Registry Number 108-41-8) | ** | 8.67 ± 0.1 | EI | 3777 |
| $C_7H_7Cl^+$ | $C_6H_4ClCH_3$ (Benzene, 1-chloro-4-methyl-) (RN-CAS Registry Number 106-43-4) | ** | 8.78 ± 0.1 | EI | 3777 |
| $C_8H_7Cl^+$ | $C_6H_4ClCH_2CH_2OCOCH_3$ (Phenethyl alcohol, <i>m</i> -chloro-, acetate) (RN-CAS Registry Number 33709-41-0) | | 8.90 | EI | 3590 |
| $C_{10}H_{15}Cl^+$ | $C_{10}H_{15}Cl$ (Tricyclo[3.3.1.1 ^{3,7}]decane, 1-chloro-) (RN-CAS Registry Number 935-56-8) (ON-Other name: 1-Chloroadamantane) | ** | 9.30 | PE | 3886 |
| $C_{12}H_9Cl^+$ | $C_6H_5C_6H_4Cl$ (1,1'-Biphenyl, 2-chloro-) (RN-CAS Registry Number 2051-60-7) | ** | 8.20 ± 0.02 | PE | 3702 |
| $C_{12}H_9Cl^+$ | $C_6H_5C_6H_4Cl$ (1,1'-Biphenyl, 4-chloro-) (RN-CAS Registry Number 2051-62-9) | ** | 8.10 ± 0.02 | PE | 3702 |
| $CHCl_2^+$ (RD-Radical) | $CHCl_2$ (RN-CAS Registry Number 3474-12-2) | ** | 8.45 | EM | 3732 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|--|---|------------------------|---|--------|------|
| CHCl_2^+ | CHCl_3 (RN-CAS Registry Number 67-66-3) | Cl | 11.52 | EM | 3732 |
| | (TR—Other product(s) thermochemically reasonable) | | | | |
| CHCl_2^+ | $\text{CHCl}_2\text{CH}_2\text{Cl}$ (RN-CAS Registry Number 79-00-5) | CH_2Cl | 11.80 | EM | 3732 |
| | (TR—Other product(s) thermochemically reasonable) | | | | |
| CH_2Cl_2^+ | CH_2Cl_2 (RN-CAS Registry Number 75-09-2) | ** | 11.28 | EM | 3732 |
| $\text{C}_2\text{H}_2\text{Cl}_2^+$ | <i>trans</i> - $\text{CHCl}=\text{CHCl}$ (RN-CAS Registry Number 156-60-5) | ** | 9.72 (V) | PE | 3648 |
| $\text{C}_2\text{H}_2\text{Cl}_2^+(\text{}^2\text{A}_g)$ | <i>trans</i> - $\text{CHCl}=\text{CHCl}$ (RN-CAS Registry Number 156-60-5) | ** | 11.92 (V) | PE | 4022 |
| $\text{C}_2\text{H}_2\text{Cl}_2^+(\text{}^2\text{B}_g)$ | <i>trans</i> - $\text{CHCl}=\text{CHCl}$ (RN-CAS Registry Number 156-60-5) | ** | 12.11 (V) | PE | 4022 |
| $\text{C}_2\text{H}_2\text{Cl}_2^+(\text{}^2\text{B}_u)$ | <i>trans</i> - $\text{CHCl}=\text{CHCl}$ (RN-CAS Registry Number 156-60-5) | ** | 12.67 (V) | PE | 4022 |
| $\text{C}_2\text{H}_2\text{Cl}_2^+(\text{}^2\text{A}_u)$ | <i>trans</i> - $\text{CHCl}=\text{CHCl}$ (RN-CAS Registry Number 156-60-5) | ** | 13.87 (V) | PE | 4022 |
| $\text{C}_6\text{H}_2\text{Cl}_2^+$ | $\text{C}_6\text{H}_2\text{Cl}_2$ (1,3-Cyclohexadien-5-yne, 1,2-dichloro-) (RN-CAS Registry Number 24634-92-2) | ** | 9.66 ± 0.2 | RPD | 3583 |
| $\text{C}_6\text{H}_2\text{Cl}_2^+$ | $\text{C}_6\text{H}_2\text{Cl}_2$ (1,3-Cyclohexadien-5-yne, 1,3-dichloro-) (RN-CAS Registry Number 24634-94-4) | ** | 9.97 ± 0.2 | RPD | 3583 |
| $\text{C}_6\text{H}_2\text{Cl}_2^+$ | $\text{C}_6\text{H}_2\text{Cl}_2$ (1,3-Cyclohexadien-5-yne, 1,4-dichloro-) (RN-CAS Registry Number XXXXX-XX-X) | ** | 9.11 ± 0.2 | RPD | 3583 |
| $\text{C}_6\text{H}_2\text{Cl}_2^+$ | $\text{C}_6\text{H}_2\text{Cl}_2$ (1,3-Cyclohexadien-5-yne, 2,3-dichloro-) (RN-CAS Registry Number 24634-93-3) | ** | 9.58 ± 0.2 | RPD | 3583 |
| $\text{C}_6\text{H}_2\text{Cl}_2^+$ | $\text{C}_8\text{H}_2\text{O}_3\text{Cl}_2$ (1,3-Isobenzofurandione, 4,7-dichloro-) (RN-CAS Registry Number 4466-59-5) (ON—Other name: 3,6-Dichlorophthalic anhydride) | | 13.60 ± 0.2 | RPD | 3583 |
| $\text{C}_6\text{H}_2\text{Cl}_2^+$ | $\text{C}_8\text{H}_2\text{O}_3\text{Cl}_2$ (1,3-Isobenzofurandione, 5,6-dichloro-) (RN-CAS Registry Number 942-06-3) (ON—Other name: 4,5-Dichlorophthalic anhydride) | | 14.06 ± 0.2 | RPD | 3583 |
| $\text{C}_6\text{H}_2\text{Cl}_2^+$ | $\text{C}_6\text{H}_2\text{Cl}_2\text{I}_2$ (3,4-Dichloro-1,2-diiodobenzene) (RN-CAS Registry Number XXXXX-XX-X) | | 14.11 ± 0.2 | RPD | 3583 |
| $\text{C}_6\text{H}_2\text{Cl}_2^+$ | $\text{C}_6\text{H}_2\text{Cl}_2\text{I}_2$ (3,5-Dichloro-1,2-diiodobenzene) (RN-CAS Registry Number XXXXX-XX-X) | | 14.43 ± 0.2 | RPD | 3583 |
| $\text{C}_6\text{H}_2\text{Cl}_2^+$ | $\text{C}_6\text{H}_2\text{Cl}_2\text{I}_2$ (4,5-Dichloro-1,2-diiodobenzene) (RN-CAS Registry Number XXXXX-XX-X) | | 14.11 ± 0.2 | RPD | 3583 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|-------------------|---|----------------|---|--------|------|
| $C_6H_4Cl_2^+$ | $C_6H_4Cl_2$ (Benzene, 1,2-dichloro-) (RN-CAS Registry Number 95-50-1) | ** | 9.08 (V) | PE | 3873 |
| $C_6H_4Cl_2^+$ | $C_6H_4Cl_2$ (Benzene, 1,3-dichloro-) (RN-CAS Registry Number 541-73-1) | ** | 9.15 (V) | PE | 3873 |
| $C_6H_4Cl_2^+$ | $C_6H_4Cl_2$ (Benzene, 1,4-dichloro-) (RN-CAS Registry Number 106-46-7) | ** | 9.00 (V) | PE | 3873 |
| $C_8H_6Cl_2^+$ | $C_6H_3(Cl)_2CH=CH_2$ (Benzene, 1,3-dichloro-2-ethenyl-) (RN-CAS Registry Number 28469-92-3) | ** | 8.70 ± 0.02 | PE | 3854 |
| $CHCl_3^+$ | $CHCl_3$ (RN-CAS Registry Number 67-66-3) | ** | 11.41 | EM | 3732 |
| $C_6H_3Cl_3^+$ | $C_6H_3Cl_3$ (Benzene, 1,2,3-trichloro-) (RN-CAS Registry Number 87-61-6) | ** | 9.22 (V) | PE | 3873 |
| $C_6H_3Cl_3^+$ | $C_6H_3Cl_3$ (Benzene, 1,3,5-trichloro-) (RN-CAS Registry Number 108-70-3) | ** | 9.36 (V) | PE | 3873 |
| $C_6H_2Cl_4^+$ | $C_6H_2Cl_4$ (Benzene, 1,2,3,4-tetrachloro-) (RN-CAS Registry Number 634-66-2) | ** | 9.11 (V) | PE | 3873 |
| $C_6H_2Cl_4^+$ | $C_6H_2Cl_4$ (Benzene, 1,2,3,5-tetrachloro-) (RN-CAS Registry Number 634-90-2) | ** | 9.16 (V) | PE | 3873 |
| $C_6H_2Cl_4^+$ | $C_6H_2Cl_4$ (Benzene, 1,2,4,5-tetrachloro-) (RN-CAS Registry Number 95-94-3) | ** | 9.06 (V) | PE | 3873 |
| $C_6HCl_5^+$ | C_6HCl_5 (Benzene, pentachloro-) (RN-CAS Registry Number 608-93-5) | ** | 9.11 (V) | PE | 3873 |
| $B_3H_3N_3Cl_3^+$ | $B_3H_3N_3Cl_3$ (Borazine, 2,4,6-trichloro-) (RN-CAS Registry Number 933-18-6) | ** | 10.55 (V) | PE | 3944 |
| $B_3H_3N_3Cl_3^+$ | $B_3H_3N_3Cl_3$ (Borazine, 2,4,6-trichloro-) (RN-CAS Registry Number 933-18-6) | ** | 10.55 (V) | PE | 3673 |
| $C_6H_6NCl^+$ | $C_6H_4ClNHCOCH_3$ (Acetamide, <i>N</i> -(2-chlorophenyl)-) (RN-CAS Registry Number 533-17-5) | $CH_2=C=O$ | 10.76 ± 0.03 | EI | 3483 |
| $C_6H_6NCl^+$ | $C_6H_4ClNHCOCH_3$ (Acetamide, <i>N</i> -(4-chlorophenyl)-) (RN-CAS Registry Number 539-03-7) | $CH_2=C=O$ | 10.11 ± 0.03 | EI | 3483 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|--|--|----------------|---|--------|------|
| $C_{16}H_{12}NCl^+$ | $C_6H_4(Cl)C_3H_3(CN)C_6H_5$ (Cyclopropanecarbonitrile, 1-(<i>p</i> -chlorophenyl)-2-phenyl-) (RN-CAS Registry Number 32589-55-2) | ** | 8.18 ± 0.10 | EDD | 3575 |
| $C_6H_5NCl_2^+$ | $C_6H_3(Cl)_2NH_2$ (Benzenamine, 2,6-dichloro-) (RN-CAS Registry Number 608-31-1) | ** | 7.60 ± 0.02 | PE | 3890 |
| $C_6H_5NCl_2^+$ | $C_6H_3Cl_2NHCOCH_3$ (Acetamide, <i>N</i> -(2,4-dichlorophenyl)-) (RN-CAS Registry Number 6975-29-7) | $CH_2=C=O$ | 10.09 ± 0.03 | EI | 3480 |
| $C_6H_5NCl_2^+$ | $C_6H_3Cl_2NHCOCH_3$ (Acetamide, <i>N</i> -(2,6-dichlorophenyl)-) (RN-CAS Registry Number 17700-54-8) | $CH_2=C=O$ | 9.93 ± 0.03 | EI | 3480 |
| $C_4H_{12}BN_2Cl^+$ | $B(N(CH_3)_2)_2Cl$ (RN-CAS Registry Number 6562-41-0) | ** | 8.15 (V) | PE | 3704 |
| $C_4H_{12}BN_2Cl^+$ | $((CH_3)_2N)_2BCl_2$ (RN-CAS Registry Number 6562-41-0) | ** | 8.08 | PE | 3584 |
| $C_2H_6BNCl_2^+$ | $(CH_3)_2NBCl_2$ (RN-CAS Registry Number 1113-31-1) | ** | 9.56 | PE | 3584 |
| $C_2H_6BNCl_2^+$ | $(CH_3)_2NBCl_2$ (RN-CAS Registry Number 1113-31-1) | ** | 9.68 (V) | PE | 3704 |
| $C_3H_3B_3N_3Cl_3^+$ | $(CH_3)_3B_3N_3Cl_3$ (Borazine, 2,4,6-trichloro-1,3,5-trimethyl-) (RN-CAS Registry Number 703-86-6) | ** | 9.45 (V) | PE | 3944 |
| ClO_2^+ (RD-Radical) | ClO_2 (RN-CAS Registry Number 10049-04-4) | ** | 10.36 ± 0.02 | PE | 3499 |
| $ClO_2^+(\ ^2A_1)$ (RD-Radical) | ClO_2 (RN-CAS Registry Number 10049-04-4) | ** | 10.5 ± 0.1 (V) | PE | 3671 |
| $ClO_2^+(\ ^3B_1?)$ (RD-Radical) | ClO_2 (RN-CAS Registry Number 10049-04-4) | ** | 12.32 ± 0.02 | PE | 3499 |
| $ClO_2^+(\ ^3B_1, \ ^1B_1, \ ^3B_2)$ (RD-Radical) | ClO_2 (RN-CAS Registry Number 10049-04-4) | ** | 12.9 ± 0.1 (V) | PE | 3671 |
| $ClO_2^+(\ ^3B_1, \ ^1B_1, \ ^3B_2)$ (RD-Radical) | ClO_2 (RN-CAS Registry Number 10049-04-4) | ** | 13.4 ± 0.1 (V) | PE | 3671 |
| $ClO_2^+(\ ^1B_1?)$ (RD-Radical) | ClO_2 (RN-CAS Registry Number 10049-04-4) | ** | 15.27 ± 0.02 | PE | 3499 |
| $ClO_2^+(\ ^1B_2)$ (RD-Radical) | ClO_2 (RN-CAS Registry Number 10049-04-4) | ** | 15.5 ± 0.1 (V) | PE | 3671 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|---|---|----------------|---|--------|------|
| $\text{ClO}_2^+(\text{}^3\text{A}_2)$ (RD-Radical) | ClO_2 (RN-CAS Registry Number 10049-04-4) | ** | >17 (V) | PE | 3671 |
| $\text{Cl}_2\text{O}^+(\text{}^2\text{B}_1)$ | Cl_2O (RN-CAS Registry Number 7791-21-1) | ** | 11.02 (V) | PE | 3694 |
| $\text{Cl}_2\text{O}^+(\text{}^2\text{B}_2)$ | Cl_2O (RN-CAS Registry Number 7791-21-1) | ** | 12.37 (V) | PE | 3694 |
| $\text{Cl}_2\text{O}^+(\text{}^2\text{A}_1)$ | Cl_2O (RN-CAS Registry Number 7791-21-1) | ** | 12.65 (V) | PE | 3694 |
| $\text{Cl}_2\text{O}^+(\text{}^2\text{A}_2)$ | Cl_2O (RN-CAS Registry Number 7791-21-1) | ** | 12.79 (V) | PE | 3694 |
| $\text{Cl}_2\text{O}^+(\text{}^2\text{B}_1)$ | Cl_2O (RN-CAS Registry Number 7791-21-1) | ** | 15.90 (V) | PE | 3694 |
| $\text{Cl}_2\text{O}^{+\ast}$ | Cl_2O (RN-CAS Registry Number 7791-21-1) | ** | 16.65 (V) | PE | 3694 |
| $\text{Cl}_2\text{O}^{+\ast}$ | Cl_2O (RN-CAS Registry Number 7791-21-1) | ** | 17.68 (V) | PE | 3694 |
| $\text{Cl}_2\text{O}^{+\ast}$ | Cl_2O (RN-CAS Registry Number 7791-21-1) | ** | 20.64 (V) | PE | 3694 |
| COCl_2^+ | CCl_2O (RN-CAS Registry Number 75-44-5) | ** | ~11.2 | PE | 3726 |
| $\text{COCl}_2^+(\text{}^2\text{B}_2)$ | CCl_2O (RN-CAS Registry Number 75-44-5) | ** | 11.55±0.02 | PE | 3667 |
| COCl_2^{\ast} | CCl_2O (RN-CAS Registry Number 75-44-5) | ** | ~12.3 (V) | PE | 3726 |
| $\text{COCl}_2^+(\text{}^2\text{B}_1, \text{}^2\text{B}_2)$ | CCl_2O (RN-CAS Registry Number 75-44-5) | ** | 12.6±0.1 (V) | PE | 3667 |
| $\text{COCl}_2^+(\text{}^2\text{B}_2?)$ | CCl_2O (RN-CAS Registry Number 75-44-5) | ** | 12.6 (V) | PE | 3726 |
| COCl_2^{\ast} | CCl_2O (RN-CAS Registry Number 75-44-5) | ** | ~13.0 (V) | PE | 3726 |
| $\text{COCl}_2^+(\text{}^2\text{A}_1)$ | CCl_2O (RN-CAS Registry Number 75-44-5) | ** | 13.05±0.05 (V) | PE | 3667 |
| COCl_2^{\ast} | CCl_2O (RN-CAS Registry Number 75-44-5) | ** | 13.31 | PE | 3726 |
| $\text{COCl}_2^+(\text{}^2\text{A}_2)$ | CCl_2O (RN-CAS Registry Number 75-44-5) | ** | 13.39±0.02 | PE | 3667 |
| $\text{COCl}_2^+(\text{}^2\text{A}_1)$ | CCl_2O (RN-CAS Registry Number 75-44-5) | ** | 15.80±0.02 | PE | 3667 |
| COCl_2^{\ast} | CCl_2O (RN-CAS Registry Number 75-44-5) | ** | 16.63 | PE | 3726 |
| $\text{COCl}_2^+(\text{}^2\text{B}_1)$ | CCl_2O (RN-CAS Registry Number 75-44-5) | ** | 16.66±0.02 | PE | 3667 |
| COCl_2^{\ast} | CCl_2O (RN-CAS Registry Number 75-44-5) | ** | 16.75 | PE | 3726 |
| COCl_2^{\ast} | CCl_2O (RN-CAS Registry Number 75-44-5) | ** | 17.0 (V) | PE | 3726 |
| $\text{COCl}_2^+(\text{}^2\text{B}_2)$ | CCl_2O (RN-CAS Registry Number 75-44-5) | ** | 17.11±0.02 (V) | PE | 3667 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|-------------------------------------|--|---------------------------------|---|--------|------|
| $\text{COCl}_2^+(\text{A}_1)$ | CCl_2O (RN-CAS Registry Number 75-44-5) | ** | 19.29 ± 0.02 | PE | 3667 |
| COCl_2^* | CCl_2O (RN-CAS Registry Number 75-44-5) | ** | 19.5 (V) | PE | 3726 |
| C_2OCl_3^+ | $(\text{CCl}_3)_2\text{CO}$ (RN-CAS Registry Number 116-16-5) | | 12.0 | EI | 3550 |
| $\text{C}_8\text{O}_3\text{Cl}_4^+$ | $\text{C}_8\text{O}_3\text{Cl}_4$ (1,3-Isobenzofurandione, 4,5,6,7-tetrachloro-) (RN-CAS Registry Number 117-08-8) (ON-Other name: Tetrachlorophthalic anhydride) | ** | 10.77 ± 0.2 | RPD | 3583 |
| $\text{C}_3\text{H}_5\text{OCl}^+$ | $\text{CH}_3\text{COCH}_2\text{Cl}$ (RN-CAS Registry Number 78-95-5) | ** | 9.91 ± 0.03 | PI | 3765 |
| $\text{C}_6\text{H}_4\text{OCl}^+$ | $\text{C}_6\text{H}_4\text{ClOCH}_3$ (Benzene, 1-chloro-3-methoxy-) (RN-CAS Registry Number 2845-89-8) | CH_3 | 11.89 ± 0.1 | EI | 3446 |
| $\text{C}_6\text{H}_4\text{OCl}^+$ | $\text{C}_6\text{H}_4\text{ClOCH}_3$ (Benzene, 1-chloro-4-methoxy-) (RN-CAS Registry Number 623-12-1) | CH_3 | 11.84 ± 0.1 | EI | 3446 |
| $\text{C}_6\text{H}_4\text{OCl}^+$ | $\text{C}_6\text{H}_4\text{ClNO}_2$ (Benzene, 1-chloro-3-nitro-) (RN-CAS Registry Number 121-73-3) | NO | 10.31 ± 0.1 | EI | 3447 |
| $\text{C}_6\text{H}_4\text{OCl}^+$ | $\text{C}_6\text{H}_4\text{ClNO}_2$ (Benzene, 1-chloro-4-nitro-) (RN-CAS Registry Number 100-00-5) | NO | 10.61 ± 0.1 | EI | 3447 |
| $\text{C}_6\text{H}_5\text{OCl}^+$ | $\text{C}_6\text{H}_4\text{ClOOCCH}_3$ (Acetic acid, 2-chlorophenyl ester) (RN-CAS Registry Number 4525-75-1) | $\text{CH}_2=\text{C}=\text{O}$ | 9.19 ± 0.03 | EI | 3483 |
| $\text{C}_6\text{H}_5\text{OCl}^+$ | $\text{C}_6\text{H}_4\text{ClOOCCH}_3$ (Acetic acid, 3-chlorophenyl ester) (RN-CAS Registry Number 13031-39-5) | $\text{CH}_2=\text{C}=\text{O}$ | 10.11 ± 0.2 | EI | 3484 |
| $\text{C}_6\text{H}_5\text{OCl}^+$ | $\text{C}_6\text{H}_4\text{ClOOCCH}_3$ (Acetic acid, 4-chlorophenyl ester) (RN-CAS Registry Number 876-27-7) | $\text{CH}_2=\text{C}=\text{O}$ | 9.60 ± 0.03 | EI | 3483 |
| $\text{C}_6\text{H}_5\text{OCl}^+$ | $\text{C}_6\text{H}_4\text{ClOOCCH}_3$ (Acetic acid, 4-chlorophenyl ester) (RN-CAS Registry Number 876-27-7) | $\text{CH}_2=\text{C}=\text{O}$ | 10.17 ± 0.2 | EI | 3484 |
| $\text{C}_7\text{H}_5\text{OCl}^+$ | $\text{C}_6\text{H}_5\text{COCl}$ (Benzoyl chloride) (RN-CAS Registry Number 98-88-4) | ** | 9.85 | EI | 3792 |
| $\text{C}_7\text{H}_7\text{OCl}^+$ | $\text{C}_6\text{H}_4\text{ClOCH}_3$ (Benzene, 1-chloro-3-methoxy-) (RN-CAS Registry Number 2845-89-8) | ** | 8.72 ± 0.1 | EI | 3446 |
| $\text{C}_7\text{H}_7\text{OCl}^+$ | $\text{C}_6\text{H}_4\text{ClOCH}_3$ (Benzene, 1-chloro-4-methoxy-) (RN-CAS Registry Number 623-12-1) | ** | 8.18 | EI | 3845 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|-------------------|---|----------------|---|--------|------|
| $C_7H_7OCl^+$ | $C_6H_4ClOCH_3$ (Benzene, 1-chloro-4-methoxy-) (RN-CAS Registry Number 623-12-1) | ** | 8.52 ± 0.1 | EI | 3446 |
| $C_2H_3O_2Cl^+$ | $CH_2ClCOOH$ (RN-CAS Registry Number 79-11-8) | ** | 10.99 (V) | PE | 3874 |
| $C_8H_7O_2Cl^+$ | $C_6H_4ClOOCCH_3$ (Acetic acid, 2-chlorophenyl ester) (RN-CAS Registry Number 4525-75-1) | ** | 8.67 ± 0.03 | EI | 3483 |
| $C_8H_7O_2Cl^+$ | $C_6H_4ClOOCCH_3$ (Acetic acid, 3-chlorophenyl ester) (RN-CAS Registry Number 13031-39-5) | ** | 8.83 ± 0.2 | EI | 3484 |
| $C_8H_7O_2Cl^+$ | $C_6H_4ClOOCCH_3$ (Acetic acid, 4-chlorophenyl ester) (RN-CAS Registry Number 876-27-7) | ** | 8.42 ± 0.03 | EI | 3483 |
| $C_8H_7O_2Cl^+$ | $C_6H_4ClOOCCH_3$ (Acetic acid, 4-chlorophenyl ester) (RN-CAS Registry Number 876-27-7) | ** | 8.79 ± 0.2 | EI | 3484 |
| $C_6H_4OCl_2^+$ | $C_6H_3(Cl)_2OH$ (Phenol, 2,6-dichloro-) (RN-CAS Registry Number 87-65-0) | ** | 8.65 ± 0.02 | PE | 3890 |
| $C_6H_4OCl_2^+$ | $C_6H_3Cl_2OOCCH_3$ (Phenol, 2,4-dichloro-, acetate) (RN-CAS Registry Number 6341-97-5) | $CH_2=C=O$ | 9.37 ± 0.03 | EI | 3480 |
| $C_6H_4OCl_2^+$ | $C_6H_3Cl_2OOCCH_3$ (Phenol, 2,6-dichloro-, acetate) (RN-CAS Registry Number 28165-71-1) | $CH_2=C=O$ | 9.88 ± 0.03 | EI | 3480 |
| $C_8H_6O_2Cl_2^+$ | $C_6H_3Cl_2OOCCH_3$ (Phenol, 2,4-dichloro-, acetate) (RN-CAS Registry Number 6341-97-5) | ** | 8.16 ± 0.03 | EI | 3480 |
| $C_8H_6O_2Cl_2^+$ | $C_6H_3Cl_2OOCCH_3$ (Phenol, 2,6-dichloro-, acetate) (RN-CAS Registry Number 28165-71-1) | ** | 8.68 ± 0.03 | EI | 3480 |
| $C_8H_7NOCl^+$ | $C_6H_3Cl_2NHCOCH_3$ (Acetamide, <i>N</i> -(2,4-dichlorophenyl)-) (RN-CAS Registry Number 6975-29-7) | | 8.81 ± 0.03 | EI | 3480 |
| $C_8H_7NOCl^+$ | $C_6H_3Cl_2NHCOCH_3$ (Acetamide, <i>N</i> -(2,6-dichlorophenyl)-) (RN-CAS Registry Number 17700-54-8) | | 8.79 ± 0.03 | EI | 3480 |
| $C_8H_8NOCl^+$ | $C_6H_4ClNHCOCH_3$ (Acetamide, <i>N</i> -(2-chlorophenyl)-) (RN-CAS Registry Number 533-17-5) | ** | 8.07 ± 0.03 | EI | 3483 |
| $C_8H_8NOCl^+$ | $C_6H_4ClNHCOCH_3$ (Acetamide, <i>N</i> -(4-chlorophenyl)-) (RN-CAS Registry Number 539-03-7) | ** | 8.07 ± 0.03 | EI | 3483 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|-----------------------------------|---|----------------|---|--------|------|
| $C_{17}H_{14}NOCl^+$ | $C_6H_4(Cl)C_3H_3(CN)C_6H_4(OCH_3)$ (Cyclopropanecarbonitrile, 1-(<i>p</i> -chlorophenyl)-2-(<i>p</i> -methoxyphenyl)-) (RN-CAS Registry Number 32589-54-1) | ** | 7.70 ± 0.05 | EDD | 3575 |
| $C_6H_4NO_2Cl^+$ | $C_6H_4ClNO_2$ (Benzene, 1-chloro-3-nitro-) (RN-CAS Registry Number 121-73-3) | ** | 9.92 ± 0.1 | EI | 3447 |
| $C_6H_4NO_2Cl^+$ | $C_6H_4ClNO_2$ (Benzene, 1-chloro-4-nitro-) (RN-CAS Registry Number 100-00-5) | ** | 9.96 ± 0.1 | EI | 3447 |
| $C_8H_7NOCl_2^+$ | $C_6H_3Cl_2NHCOCH_3$ (Acetamide, <i>N</i> -(2,4-dichlorophenyl)-) (RN-CAS Registry Number 6975-29-7) | ** | 8.09 ± 0.03 | EI | 3480 |
| $C_8H_7NOCl_2^+$ | $C_6H_3Cl_2NHCOCH_3$ (Acetamide, <i>N</i> -(2,6-dichlorophenyl)-) (RN-CAS Registry Number 17700-54-8) | ** | 8.25 ± 0.03 | EI | 3480 |
| $ClF^+(^2\Pi_{3/2g})$ | ClF (RN-CAS Registry Number 7790-89-8) | ** | 12.66 ± 0.01 | PE | 3507 |
| $ClF^+(^2\Pi_{3/2})$ | ClF (RN-CAS Registry Number 7790-89-8) | ** | 12.66 ± 0.01 | PE | 3680 |
| | (HB-Threshold value approximately corrected for hot bands) | | | | |
| $ClF^+(^2\Pi_{1/2g})$ | ClF (RN-CAS Registry Number 7790-89-8) | ** | 12.74 ± 0.01 | PE | 3507 |
| $ClF^+(^2\Pi_{1/2})$ | ClF (RN-CAS Registry Number 7790-89-8) | ** | 12.74 ± 0.01 | PE | 3680 |
| $ClF^+(^2\Pi_{3/2}, ^2\Pi_{1/2})$ | ClF (RN-CAS Registry Number 7790-89-8) | ** | 16.25 ± 0.08 | PE | 3680 |
| $ClF^+(^2\Pi_u)$ | ClF (RN-CAS Registry Number 7790-89-8) | ** | 16.39 ± 0.01 | PE | 3507 |
| $ClF^+(^2\Sigma^+)$ | ClF (RN-CAS Registry Number 7790-89-8) | ** | 17.80 ± 0.01 | PE | 3507 |
| $ClF^+(^2\Sigma^+)$ | ClF (RN-CAS Registry Number 7790-89-8) | ** | 17.81 ± 0.08 | PE | 3680 |
| $ClF_3(^2B_2, ^2A_1)$ | ClF_3 (RN-CAS Registry Number 7790-91-2) | ** | 12.65 ± 0.05 | PE | 3680 |
| $ClF_3(^2A_1)$ | ClF_3 (RN-CAS Registry Number 7790-91-2) | ** | 13.76 ± 0.06 | PE | 3680 |
| $ClF_3(^2B_1)$ | ClF_3 (RN-CAS Registry Number 7790-91-2) | ** | 14.83 ± 0.03 (V) | PE | 3680 |
| $ClF_3(^2A_2)$ | ClF_3 (RN-CAS Registry Number 7790-91-2) | ** | 15.36 ± 0.03 (V) | PE | 3680 |
| $ClF_3(^2B_2)$ | ClF_3 (RN-CAS Registry Number 7790-91-2) | ** | 16.07 ± 0.01 (V) | PE | 3680 |
| $ClF_3(^2B_1)$ | ClF_3 (RN-CAS Registry Number 7790-91-2) | ** | 16.82 ± 0.06 | PE | 3680 |
| $ClF_3(^2A_1, ^2B_2)$ | ClF_3 (RN-CAS Registry Number 7790-91-2) | ** | ~ 19 (V) | PE | 3680 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|--|---|----------------|---|--------|------|
| $\text{ClF}_3(^2\text{B}_1)$ | ClF_3 (RN-CAS Registry Number 7790-91-2) | ** | ~ 19.5 (V) | PE | 3680 |
| BClF^+ | BClF (RN-CAS Registry Number 22395-93-3) | ** | 11 ± 1 | EI | 3465 |
| BClF_2^+ | BClF_2 (RN-CAS Registry Number 14720-30-0) | ** | 13 ± 1 | EI | 3465 |
| BCl_2F^+ | BCl_2F (RN-CAS Registry Number 14720-31-1) | ** | 14 ± 1 | EI | 3465 |
| CFCl^+ | $\text{C}_2\text{F}_3\text{Cl}$ (RN-CAS Registry Number 79-38-9) | CF_2 | 15.0 ± 0.1 | EI | 3539 |
| CFCl^+ | $\text{CFCl}=\text{CFCl}$ (RN-CAS Registry Number 598-88-9) | CFCl | 15.3 ± 0.15 | EI | 3539 |
| CFCl^+ | CFCl_3 (RN-CAS Registry Number 75-69-4) | 2Cl | 17.1 ± 0.1 | EI | 3539 |
| CFCl^+ | $\text{CH}_2=\text{CFCl}$ (RN-CAS Registry Number 2317-91-1) | CH_2 | 16.8 ± 0.1 | EI | 3539 |
| CF_2Cl^+ | $\text{C}_2\text{F}_3\text{Cl}$ (RN-CAS-Registry Number 79-38-9) | CF | 14.9 ± 0.1 | EI | 4070 |
| CF_2Cl^+ | (TR—Other product(s) thermochemically reasonable) $(\text{CF}_2\text{Cl})_2\text{CO}$ (RN-CAS Registry Number 127-21-9) | | 11.95 | EI | 3550 |
| $\text{C}_2\text{F}_2\text{Cl}^+$ | $\text{C}_2\text{F}_3\text{Cl}$ (RN-CAS-Registry Number 79-38-9) | F | 15.9 ± 0.2 | EI | 4070 |
| $\text{C}_2\text{F}_2\text{Cl}^+$ | $\text{CFCl}=\text{CFCl}$ (RN-CAS-Registry Number 598-88-9) | Cl | 14.8 ± 0.1 | EI | 4070 |
| $\text{CF}_3\text{Cl}^+(^2\text{E})$ | CF_3Cl (RN-CAS Registry Number 75-72-9) | ** | 13.0 (V) | PE | 3914 |
| $\text{CF}_3\text{Cl}^+(^2\text{E})$ | CF_3Cl (RN-CAS Registry Number 75-72-9) | ** | 13.08 ± 0.02 (V) | PE | 4026 |
| $\text{CF}_3\text{Cl}^+(^2\text{A}_1)$ | CF_3Cl (RN-CAS Registry Number 75-72-9) | ** | 15.0 (V) | PE | 3914 |
| $\text{CF}_3\text{Cl}^+(^2\text{A}_1)$ | CF_3Cl (RN-CAS Registry Number 75-72-9) | ** | 15.15 ± 0.02 (V) | PE | 4026 |
| $\text{CF}_3\text{Cl}^+(^2\text{A}_2)$ | CF_3Cl (RN-CAS Registry Number 75-72-9) | ** | 15.55 (V) | PE | 3914 |
| $\text{CF}_3\text{Cl}^+(^2\text{A}_2)$ | CF_3Cl (RN-CAS Registry Number 75-72-9) | ** | 15.82 ± 0.02 (V) | PE | 4026 |
| $\text{CF}_3\text{Cl}^+(^2\text{E})$ | CF_3Cl (RN-CAS Registry Number 75-72-9) | ** | 16.5 (V) | PE | 3914 |
| $\text{CF}_3\text{Cl}^+(^2\text{E})$ | CF_3Cl (RN-CAS Registry Number 75-72-9) | ** | 16.56 ± 0.02 (V) | PE | 4026 |
| $\text{CF}_3\text{Cl}^+(^2\text{E})$ | CF_3Cl (RN-CAS Registry Number 75-72-9) | ** | 17.4 (V) | PE | 3914 |
| $\text{CF}_3\text{Cl}^+(^2\text{E})$ | CF_3Cl (RN-CAS Registry Number 75-72-9) | ** | 17.53 ± 0.02 (V) | PE | 4026 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|---|---|----------------|---|--------|------|
| $\text{CF}_3\text{Cl}^+(\text{}^2\text{A}_1)$ | CF_3Cl (RN-CAS Registry Number 75-72-9) | ** | 20.1 (V) | PE | 4026 |
| $\text{CF}_3\text{Cl}^+(\text{}^2\text{E})$ | CF_3Cl (RN-CAS Registry Number 75-72-9) | ** | ~21.0 (V) | PE | 4026 |
| $\text{C}_2\text{F}_3\text{Cl}^+$ | $\text{C}_2\text{F}_3\text{Cl}$ (RN-CAS Registry Number 79-38-9) | ** | 9.76 | S | 3776 |
| $\text{C}_2\text{F}_3\text{Cl}^+$ | $\text{C}_2\text{F}_3\text{Cl}$ (RN-CAS Registry Number 79-38-9) | ** | 9.82 | PE | 3589 |
| $\text{C}_2\text{F}_3\text{Cl}^+$ | $\text{C}_2\text{F}_3\text{Cl}$ (RN-CAS-Registry Number 79-38-9) | ** | 10.6±0.1 | EI | 4070 |
| CFCl_2^+ | $\text{CFCl}=\text{CFCl}$ (RN-CAS-Registry Number 598-88-9) (TR-Other product(s) thermochemically reasonable) | CF | 14.3±0.1 | EI | 4070 |
| C_2FCl_2^+ | $\text{CFCl}=\text{CFCl}$ (RN-CAS-Registry Number 598-88-9) | F | 15.7±0.1 | EI | 4070 |
| CF_2Cl_2^+ | CF_2Cl_2 (RN-CAS Registry Number 75-71-8) | ** | 12.3 (V) | PE | 3914 |
| $\text{CF}_2\text{CCl}_2^+$ | $\text{CF}_2=\text{CCl}_2$ (RN-CAS Registry Number 79-35-6) | ** | 9.62 | PE | 3589 |
| $\text{C}_2\text{F}_2\text{Cl}_2^+$ | $\text{CFCl}=\text{CFCl}$ (RN-CAS-Registry Number 598-88-9) | ** | 10.2±0.1 | EI | 4070 |
| CFCl_3^+ | CFCl_3 (RN-CAS Registry Number 75-69-4) | ** | 11.9 (V) | PE | 3914 |
| CH_2FCl^+ | CH_2FCl (RN-CAS Registry Number 593-70-4) | ** | 11.74 | PE | 3914 |
| C_2HFCl^+ | $\text{CH}_2=\text{CFCl}$ (RN-CAS-Registry Number 2317-91-1) | H | 16.2±0.2 | EI | 4070 |
| $\text{C}_2\text{H}_2\text{FCl}^+$ | $\text{CH}_2=\text{CFCl}$ (RN-CAS Registry Number 2317-91-1) | ** | 9.97 | S | 3776 |
| $\text{C}_2\text{H}_2\text{FCl}^+$ | $\text{CH}_2=\text{CFCl}$ (RN-CAS-Registry Number 2317-91-1) | ** | 10.7±0.2 | EI | 4070 |
| $\text{C}_2\text{H}_2\text{FCl}^+$ | $\text{CH}_2=\text{CFCl}$ (RN-CAS Registry Number 2317-91-1) | ** | 10.7±0.2 | EI | 3539 |
| CHF_2Cl^+ | CHF_2Cl (RN-CAS Registry Number 75-45-6) | ** | 12.6 (V) | PE | 3914 |
| $\text{C}_2\text{HF}_2\text{Cl}^+$ | $\text{CF}_2=\text{CHCl}$ (RN-CAS Registry Number 359-10-4) | ** | 9.76 | S | 3776 |
| CHFC_2Cl^+ | CHFC_2Cl (RN-CAS Registry Number 75-43-4) | ** | 12.0 (V) | PE | 3914 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|---|---|----------------|---|--------|------|
| $\text{ClO}_3\text{F}^+(\text{}^2\text{A}_2)$ | ClO_3F (RN-CAS Registry Number 7616-94-6) | ** | 12.945 ± 0.005 | PE | 3675 |
| $\text{ClO}_3\text{F}^+(\text{}^2\text{E})$ | ClO_3F (RN-CAS Registry Number 7616-94-6) | ** | 13.68 ± 0.02 | PE | 3675 |
| $\text{ClO}_3\text{F}^+(\text{}^2\text{A}_1)$ | ClO_3F (RN-CAS Registry Number 7616-94-6) | ** | 14.29 ± 0.02 (V) | PE | 3675 |
| $\text{ClO}_3\text{F}^+(\text{}^2\text{E})$ | ClO_3F (RN-CAS Registry Number 7616-94-6) | ** | 15.385 ± 0.008 | PE | 3675 |
| $\text{ClO}_3\text{F}^+(\text{}^2\text{E})$ | ClO_3F (RN-CAS Registry Number 7616-94-6) | ** | 19.70 ± 0.01 | PE | 3675 |
| $\text{ClO}_3\text{F}^+(\text{}^2\text{A}_1)$ | ClO_3F (RN-CAS Registry Number 7616-94-6) | ** | 21.3 ± 0.1 (V) | PE | 3675 |
| $\text{ClO}_3\text{F}^+(\text{}^2\text{A}_1)$ | ClO_3F (RN-CAS Registry Number 7616-94-6) | ** | 23.8 ± 0.1 (V) | PE | 3675 |
| AlOCl^+ | AlOCl (RN-CAS Registry Number 13596-11-7) | ** | 12 ± 1 | EI | 3462 |
| SiCl^+ | $\text{Cl}_3\text{SiCo}(\text{Co})_2(\text{PF}_3)_2$ (RN-CAS Registry Number 37769-29-2) | | 16.4 ± 0.5 | EI | 3653 |
| SiCl^+ | $\text{Cl}_3\text{SiCo}(\text{CO})_3\text{PF}_3$ (RN-CAS Registry Number 37769-28-1) | | 16.2 ± 0.5 | EI | 3653 |
| $\text{SiCl}_4^+(\text{}^2\text{T}_1)$ | SiCl_4 (RN-CAS Registry Number 10026-04-7) | ** | 12.06 (V) | PE | 3514 |
| $\text{SiCl}_4^+(\text{}^2\text{T}_2)$ | SiCl_4 (RN-CAS Registry Number 10026-04-7) | ** | 12.95 (V) | PE | 3514 |
| $\text{SiCl}_4^+(\text{}^2\text{E})$ | SiCl_4 (RN-CAS Registry Number 10026-04-7) | ** | 13.44 (V) | PE | 3514 |
| $\text{SiH}_3\text{Cl}^+(\text{}^2\text{E})$ | SiH_3Cl (RN-CAS Registry Number 13465-78-6) | ** | 11.61 ± 0.02 (V) | PE | 3510 |
| SiH_3Cl^+ | SiH_3Cl (RN-CAS Registry Number 13465-78-6) | ** | 11.61 ± 0.05 (V) | PE | 3502 |
| $\text{SiH}_3\text{Cl}^+(\text{}^2\text{E})$ | SiH_3Cl (RN-CAS Registry Number 13465-78-6) | ** | 11.65 (V) | PE | 3511 |
| $\text{SiH}_3\text{Cl}^+(\text{}^2\text{A}_1)$ | SiH_3Cl (RN-CAS Registry Number 13465-78-6) | ** | 13.4 ± 0.1 (V) | PE | 3510 |
| $\text{SiH}_3\text{Cl}^+(\text{}^2\text{A}_1?)$ | SiH_3Cl (RN-CAS Registry Number 13465-78-6) | ** | 13.51 (V) | PE | 3511 |
| $\text{SiH}_3\text{Cl}^+(\text{}^2\text{E})$ | SiH_3Cl (RN-CAS Registry Number 13465-78-6) | ** | 13.7 ± 0.1 (V) | PE | 3510 |
| $\text{SiH}_3\text{Cl}^+(\text{}^2\text{E}?)$ | SiH_3Cl (RN-CAS Registry Number 13465-78-6) | ** | 13.99 (V) | PE | 3511 |
| $\text{SiH}_3\text{Cl}^+(\text{}^2\text{A}_1)$ | SiH_3Cl (RN-CAS Registry Number 13465-78-6) | ** | 18.04 ± 0.02 (V) | PE | 3510 |
| $\text{SiH}_3\text{Cl}^+(\text{}^2\text{A}_1)$ | SiH_3Cl (RN-CAS Registry Number 13465-78-6) | ** | 18.13 (V) | PE | 3511 |
| $\text{SiH}_2\text{Cl}_2^+$ | SiH_2Cl_2 (RN-CAS Registry Number 4109-96-0) | ** | 11.64 ± 0.02 (V) | PE | 3510 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|--|--|----------------|---|--------|------|
| $\text{SiH}_2\text{Cl}_2^+(\text{B}_2)$ | SiH_2Cl_2 (RN-CAS Registry Number 4109-96-0) | ** | 11.70 (V) | PE | 3511 |
| $\text{SiH}_2\text{Cl}_2^+(\text{B}_2)$ | SiH_2Cl_2 (RN-CAS Registry Number 4109-96-0) | ** | 11.70 (V) | PE | 3694 |
| $\text{SiH}_2\text{Cl}_2^+(\text{B}_1)$ | SiH_2Cl_2 (RN-CAS Registry Number 4109-96-0) | ** | 12.09 (V) | PE | 3511 |
| $\text{SiH}_2\text{Cl}_2^+(\text{B}_1)$ | SiH_2Cl_2 (RN-CAS Registry Number 4109-96-0) | ** | 12.09 (V) | PE | 3694 |
| $\text{SiH}_2\text{Cl}_2^+(\text{A}_2)$ | SiH_2Cl_2 (RN-CAS Registry Number 4109-96-0) | ** | 12.53 (V) | PE | 3511 |
| $\text{SiH}_2\text{Cl}_2^+(\text{A}_2)$ | SiH_2Cl_2 (RN-CAS Registry Number 4109-96-0) | ** | 12.53 (V) | PE | 3694 |
| $\text{SiH}_2\text{Cl}_2^+(\text{A}_1)$ | SiH_2Cl_2 (RN-CAS Registry Number 4109-96-0) | ** | 12.76 (V) | PE | 3694 |
| $\text{SiH}_2\text{Cl}_2^+(\text{A}_1)$ | SiH_2Cl_2 (RN-CAS Registry Number 4109-96-0) | ** | ~12.76 (V) | PE | 3511 |
| $\text{SiH}_2\text{Cl}_2^+(\text{B}_2?)$ | SiH_2Cl_2 (RN-CAS Registry Number 4109-96-0) | ** | 14.20 (V) | PE | 3511 |
| $\text{SiH}_2\text{Cl}_2^+$ | SiH_2Cl_2 (RN-CAS Registry Number 4109-96-0) | ** | 14.20 (V) | PE | 3694 |
| $\text{SiH}_2\text{Cl}_2^+(\text{A}_1?)$ | SiH_2Cl_2 (RN-CAS Registry Number 4109-96-0) | ** | 14.45 (V) | PE | 3511 |
| $\text{SiH}_2\text{Cl}_2^+$ | SiH_2Cl_2 (RN-CAS Registry Number 4109-96-0) | ** | 14.45 (V) | PE | 3694 |
| $\text{SiH}_2\text{Cl}_2^+(\text{B}_1?)$ | SiH_2Cl_2 (RN-CAS Registry Number 4109-96-0) | ** | 14.60 (V) | PE | 3511 |
| $\text{SiH}_2\text{Cl}_2^+$ | SiH_2Cl_2 (RN-CAS Registry Number 4109-96-0) | ** | 14.60 (V) | PE | 3694 |
| $\text{SiH}_2\text{Cl}_2^+(\text{A}_1)$ | SiH_2Cl_2 (RN-CAS Registry Number 4109-96-0) | ** | 18.32 (V) | PE | 3511 |
| $\text{SiH}_2\text{Cl}_2^+$ | SiH_2Cl_2 (RN-CAS Registry Number 4109-96-0) | ** | 18.32 (V) | PE | 3694 |
| $\text{SiHCl}_3^+(\text{A}_2)$ | SiHCl_3 (RN-CAS Registry Number 10025-78-2) | ** | 11.94 (V) | PE | 3511 |
| $\text{SiHCl}_3^+(\text{A}_1)$ | SiHCl_3 (RN-CAS Registry Number 10025-78-2) | ** | 12.41 (V) | PE | 3511 |
| $\text{SiHCl}_3^+(\text{E}')$ | SiHCl_3 (RN-CAS Registry Number 10025-78-2) | ** | 12.41 (V) | PE | 3511 |
| $\text{SiHCl}_3^+(\text{E}')$ | SiHCl_3 (RN-CAS Registry Number 10025-78-2) | ** | 13.07 (V) | PE | 3511 |
| $\text{SiHCl}_3^+(\text{E})$ | SiHCl_3 (RN-CAS Registry Number 10025-78-2) | ** | 14.75 (V) | PE | 3511 |
| $\text{SiHCl}_3^+(\text{A}_1)$ | SiHCl_3 (RN-CAS Registry Number 10025-78-2) | ** | 14.98 (V) | PE | 3511 |
| $\text{SiHCl}_3^+(\text{A}_1)$ | SiHCl_3 (RN-CAS Registry Number 10025-78-2) | ** | 18.14 (V) | PE | 3511 |
| $\text{C}_3\text{H}_9\text{SiCl}^+$ | $(\text{CH}_3)_3\text{SiCl}$ (RN-CAS Registry Number 75-77-4) | ** | 10.76 (V) | PE | 3503 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|------------------------|--|----------------|---|--------|------|
| $C_4H_9SiCl^+$ | $C_3H_6Si(Cl)CH_3$ (Silacyclobutane, 1-chloro-1-methyl-) (RN-CAS Registry Number 2351-34-0) | ** | 9.95 (V) | PE | 4077 |
| $C_4H_{11}SiCl^+$ | $(CH_3)_3SiCH_2Cl$ (RN-CAS Registry Number 2344-80-1) | ** | 10.17 ± 0.1 (V) | PE | 3830 |
| $C_5H_9SiCl^+$ | $(CH_3)_3SiC \equiv CCl$ (RN-CAS Registry Number 7652-06-4) | ** | 9.4 ± 0.1 | PE | 4002 |
| $C_2H_6SiCl_2^+$ | $(CH_3)_2SiCl_2$ (RN-CAS Registry Number 75-78-5) | ** | 10.99 (V) | PE | 3503 |
| $C_3H_6SiCl_2^+$ | $C_3H_6SiCl_2$ (Silacyclobutane, 1,1-dichloro-) (RN-CAS Registry Number 2351-33-9) | ** | 10.50 (V) | PE | 4077 |
| $C_6H_{12}Si_4Cl_4^+$ | $C_6H_{12}Si_4Cl_4$ (1,3,5,7-Tetrasilatricyclo[3.3.1.1 ^{3,7}]decane, 1,3,5,7-tetrachloro-) (RN-CAS Registry Number 18222-89-4) (ON-Other name: 1,3,5,7-Tetrachloro-1,3,5,7-tetrasilaadamantane) | ** | 9.4 ± 0.05 | PE | 3855 |
| $C_4H_{12}N_2SiCl_2^+$ | $((CH_3)_2N)_2SiCl_2$ (RN-CAS Registry Number 13328-30-8) | ** | 8.81 (V) | PE | 3503 |
| $C_2H_6NSiCl_3^+$ | $((CH_3)_2N)SiCl_3$ (RN-CAS Registry Number 13307-04-5) | ** | 9.30 (V) | PE | 3503 |
| $C_6H_{15}O_3SiCl^+$ | $(C_2H_5O)_3SiCl$ (RN-CAS Registry Number 4667-99-6) | ** | 10.52 (V) | PE | 3503 |
| $C_4H_{10}O_2SiCl_2^+$ | $(C_2H_5O)_2SiCl_2$ (RN-CAS Registry Number 4667-38-3) | ** | 10.78 (V) | PE | 3503 |
| $C_2H_5OSiCl_3^+$ | $(C_2H_5O)SiCl_3$ (RN-CAS Registry Number 1825-82-7) | ** | 11.30 (V) | PE | 3503 |
| $SiF_3Cl^+(^2E)$ | SiF_3Cl (RN-CAS Registry Number 14049-36-6) | ** | 13.44 ± 0.02 (V) | PE | 4026 |
| $SiF_3Cl^+(^2A_1)$ | SiF_3Cl (RN-CAS Registry Number 14049-36-6) | ** | 15.33 ± 0.02 (V) | PE | 4026 |
| $SiF_3Cl^+(^2A_2)$ | SiF_3Cl (RN-CAS Registry Number 14049-36-6) | ** | 16.35 ± 0.02 (V) | PE | 4026 |
| $SiF_3Cl^+(^2E)$ | SiF_3Cl (RN-CAS Registry Number 14049-36-6) | ** | 16.70 ± 0.02 (V) | PE | 4026 |
| $SiF_3Cl^+(^2E)$ | SiF_3Cl (RN-CAS Registry Number 14049-36-6) | ** | 17.49 ± 0.02 (V) | PE | 4026 |
| $SiF_3Cl^+(^2A_1)$ | SiF_3Cl (RN-CAS Registry Number 14049-36-6) | ** | 18.26 ± 0.02 (V) | PE | 4026 |
| $SiF_3Cl^+(^2E)$ | SiF_3Cl (RN-CAS Registry Number 14049-36-6) | ** | 18.92 ± 0.02 (V) | PE | 4026 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|---|--|----------------|---|--------|------|
| PCI ⁺ | PCI ₃ (RN-CAS Registry Number 7719-12-2) | | 16.0±0.2 | EDD | 3556 |
| PCI ₂ ⁺ | PCI ₃ (RN-CAS Registry Number 7719-12-2) | Cl | 11.9±0.1 | EDD | 3556 |
| PCI ₂ ⁺ | PCI ₂ Br (RN-CAS Registry Number 13536-48-6) | Br | 11.3±0.1 | EDD | 3556 |
| PCI ₃ (² A ₁) | PCI ₃ (RN-CAS Registry Number 7719-12-2) | ** | 10.51 (V) | PE | 4023 |
| PCI ₃ (² A ₁) | PCI ₃ (RN-CAS Registry Number 7719-12-2) | ** | 10.52±0.03 (V) | PE | 3669 |
| PCI ₃ (² A ₂) | PCI ₃ (RN-CAS Registry Number 7719-12-2) | ** | 11.69±0.03 (V) | PE | 3669 |
| PCI ₃ (² A ₂) | PCI ₃ (RN-CAS Registry Number 7719-12-2) | ** | 11.70 (V) | PE | 4023 |
| PCI ₃ (² E) | PCI ₃ (RN-CAS Registry Number 7719-12-2) | ** | 11.97±0.03 (V) | PE | 3669 |
| PCI ₃ (² E) | PCI ₃ (RN-CAS Registry Number 7719-12-2) | ** | 12.00 (V) | PE | 4023 |
| PCI ₃ (² E) | PCI ₃ (RN-CAS Registry Number 7719-12-2) | ** | 12.94±0.03 (V) | PE | 3669 |
| PCI ₃ (² E) | PCI ₃ (RN-CAS Registry Number 7719-12-2) | ** | 12.97 (V) | PE | 4023 |
| PCI ₃ (² A ₁) | PCI ₃ (RN-CAS Registry Number 7719-12-2) | ** | 14.23±0.03 (V) | PE | 3669 |
| PCI ₃ (² A ₁) | PCI ₃ (RN-CAS Registry Number 7719-12-2) | ** | 14.23 (V) | PE | 4023 |
| PCI ₃ (² E) | PCI ₃ (RN-CAS Registry Number 7719-12-2) | ** | 15.19±0.03 (V) | PE | 3669 |
| PCI ₃ (² E) | PCI ₃ (RN-CAS Registry Number 7719-12-2) | ** | 15.20 (V) | PE | 4023 |
| PCI ₃ (² A ₁) | PCI ₃ (RN-CAS Registry Number 7719-12-2) | ** | 18.81±0.03 (V) | PE | 3669 |
| PCI ₃ ⁺ | PCI ₃ (RN-CAS Registry Number 7719-12-2) | ** | 10.5±0.1 | EDD | 3556 |
| PCI ₅ ⁺ | PCI ₅ (RN-CAS Registry Number 10026-13-8) | ** | 10.88 (V) | PE | 3669 |
| POCI ⁺ (² E) | POCl (RN-CAS Registry Number 21295-50-1) | ** | 11.85 (V) | PE | 4023 |
| POCI ⁺ (² A ₂) | POCl (RN-CAS Registry Number 21295-50-1) | ** | 12.35 (V) | PE | 4023 |
| POCI ⁺ (² E _{3/2}) | POCl (RN-CAS Registry Number 21295-50-1) | ** | 12.93 (V) | PE | 4023 |
| POCI ⁺ (² E _{1/2}) | POCl (RN-CAS Registry Number 21295-50-1) | ** | 12.98 (V) | PE | 4023 |
| POCI ⁺ (² A ₁) | POCl (RN-CAS Registry Number 21295-50-1) | ** | 13.48 (V) | PE | 4023 |
| POCI ⁺ (² E) | POCl (RN-CAS Registry Number 21295-50-1) | ** | 13.85 (V) | PE | 4023 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|--------------------------------------|--|----------------|---|--------|------|
| $\text{POCl}^+(\text{}^2\text{A}_1)$ | POCl (RN-CAS Registry Number 21295-50-1) | ** | 15.37 (V) | PE | 4023 |
| $\text{POCl}^+(\text{}^2\text{E})$ | POCl (RN-CAS Registry Number 21295-50-1) | ** | 16.53 (V) | PE | 4023 |
| $\text{POCl}_3(\text{}^2\text{E})$ | POCl_3 (RN-CAS Registry Number 10025-87-3) | ** | 11.36 ± 0.02 | PE | 3835 |
| $\text{POCl}_3(\text{}^2\text{E})$ | POCl_3 (RN-CAS Registry Number 10025-87-3) | ** | 11.58 ± 0.05 | PE | 3641 |
| $\text{POCl}_3(\text{}^2\text{E})$ | POCl_3 (RN-CAS Registry Number 10025-87-3) | ** | 11.89 ± 0.03 (V) | PE | 3669 |
| $\text{POCl}_3(\text{}^2\text{A}_2)$ | POCl_3 (RN-CAS Registry Number 10025-87-3) | ** | 12.36 ± 0.03 (V) | PE | 3669 |
| $\text{POCl}_3(\text{}^2\text{A}_2)$ | POCl_3 (RN-CAS Registry Number 10025-87-3) | ** | 12.38 ± 0.02 (V) | PE | 3835 |
| $\text{POCl}_3(\text{}^2\text{A}_2)$ | POCl_3 (RN-CAS Registry Number 10025-87-3) | ** | 12.52 ± 0.04 (V) | PE | 3641 |
| $\text{POCl}_3(\text{}^2\text{E})$ | POCl_3 (RN-CAS Registry Number 10025-87-3) | ** | 12.97 ± 0.03 (V) | PE | 3669 |
| $\text{POCl}_3(\text{}^2\text{E})$ | POCl_3 (RN-CAS Registry Number 10025-87-3) | ** | 12.98 ± 0.01 (V) | PE | 3835 |
| $\text{POCl}_3(\text{}^2\text{E})$ | POCl_3 (RN-CAS Registry Number 10025-87-3) | ** | 13.18 ± 0.05 (V) | PE | 3641 |
| $\text{POCl}_3(\text{}^2\text{A}_1)$ | POCl_3 (RN-CAS Registry Number 10025-87-3) | ** | 13.46 ± 0.03 (V) | PE | 3669 |
| $\text{POCl}_3(\text{}^2\text{A}_1)$ | POCl_3 (RN-CAS Registry Number 10025-87-3) | ** | 13.47 ± 0.01 (V) | PE | 3835 |
| $\text{POCl}_3(\text{}^2\text{A}_1)$ | POCl_3 (RN-CAS Registry Number 10025-87-3) | ** | 13.63 ± 0.04 (V) | PE | 3641 |
| $\text{POCl}_3(\text{}^2\text{E})$ | POCl_3 (RN-CAS Registry Number 10025-87-3) | ** | 13.84 ± 0.03 (V) | PE | 3669 |
| $\text{POCl}_3(\text{}^2\text{E})$ | POCl_3 (RN-CAS Registry Number 10025-87-3) | ** | 13.85 ± 0.02 (V) | PE | 3835 |
| $\text{POCl}_3(\text{}^2\text{E})$ | POCl_3 (RN-CAS Registry Number 10025-87-3) | ** | 13.99 ± 0.05 (V) | PE | 3641 |
| $\text{POCl}_3(\text{}^2\text{A}_1)$ | POCl_3 (RN-CAS Registry Number 10025-87-3) | ** | 15.10 ± 0.01 | PE | 3835 |
| $\text{POCl}_3(\text{}^2\text{A}_1)$ | POCl_3 (RN-CAS Registry Number 10025-87-3) | ** | 15.35 ± 0.06 | PE | 3641 |
| $\text{POCl}_3(\text{}^2\text{A}_1)$ | POCl_3 (RN-CAS Registry Number 10025-87-3) | ** | 15.36 ± 0.03 (V) | PE | 3669 |
| $\text{POCl}_3(\text{}^2\text{E})$ | POCl_3 (RN-CAS Registry Number 10025-87-3) | ** | 16.13 ± 0.02 | PE | 3835 |
| $\text{POCl}_3(\text{}^2\text{E})$ | POCl_3 (RN-CAS Registry Number 10025-87-3) | ** | 16.34 ± 0.02 | PE | 3641 |
| $\text{POCl}_3(\text{}^2\text{E})$ | POCl_3 (RN-CAS Registry Number 10025-87-3) | ** | 16.53 ± 0.03 (V) | PE | 3669 |
| $\text{POCl}_3(\text{}^2\text{A}_1)$ | POCl_3 (RN-CAS Registry Number 10025-87-3) | ** | 19.48 ± 0.03 | PE | 3641 |
| $\text{POCl}_3(\text{}^2\text{A}_1)$ | POCl_3 (RN-CAS Registry Number 10025-87-3) | ** | 19.53 ± 0.03 (V) | PE | 3669 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|-------------------------------------|--|----------------|---|--------|------|
| $\text{POCl}_3(^2\text{A}_1)$ | POCl_3 (RN-CAS Registry Number 10025-87-3) | ** | 19.55 ± 0.04 (V) | PE | 3835 |
| PF_2Cl^+ | PF_2Cl (RN-CAS Registry Number 14335-40-1) | ** | 12.8 ± 0.1 (V) | PE | 3662 |
| $\text{CSCl}_2(^2\text{B}_2)$ | CCl_2S (RN-CAS Registry Number 463-71-8) | ** | 9.61 ± 0.02 | PE | 3667 |
| | (HB-Threshold value approximately corrected for hot bands) | | | | |
| $\text{CSCl}_2(^2\text{B}_2)$ | Cl_2CS (RN-CAS Registry Number 463-71-8) | ** | 9.68 | PE | 4080 |
| CSCl_2^+ | Cl_2CS (RN-CAS Registry Number 463-71-8) | ** | 9.80 (V) | PE | 3746 |
| $\text{CSCl}_2(^2\text{B}_1)$ | Cl_2CS (RN-CAS Registry Number 463-71-8) | ** | 10.63 | PE | 4080 |
| $\text{CSCl}_2(^2\text{B}_1)$ | CCl_2S (RN-CAS Registry Number 463-71-8) | ** | 10.65 ± 0.02 | PE | 3667 |
| $\text{CSCl}_2(^2\text{B}_2)$ | CCl_2S (RN-CAS Registry Number 463-71-8) | ** | 11.67 ± 0.02 | PE | 3667 |
| CSCl_2^* | Cl_2CS (RN-CAS Registry Number 463-71-8) | ** | 11.93 (V) | PE | 4080 |
| CSCl_2^* | Cl_2CS (RN-CAS Registry Number 463-71-8) | ** | 12.36 (V) | PE | 4080 |
| $\text{CSCl}_2(^2\text{A}_1)$ | CCl_2S (RN-CAS Registry Number 463-71-8) | ** | 12.38 ± 0.02 (V) | PE | 3667 |
| CSCl_2^* | Cl_2CS (RN-CAS Registry Number 463-71-8) | ** | 12.68 (V) | PE | 4080 |
| $\text{CSCl}_2(^2\text{A}_2)$ | CCl_2S (RN-CAS Registry Number 463-71-8) | ** | 12.69 ± 0.02 (V) | PE | 3667 |
| $\text{CSCl}_2(^2\text{A}_1)$ | Cl_2CS (RN-CAS Registry Number 463-71-8) | ** | 14.23 ± 0.02 | PE | 3667 |
| $\text{CSCl}_2(^2\text{B}_1)$ | Cl_2CS (RN-CAS Registry Number 463-71-8) | ** | 14.27 | PE | 4080 |
| $\text{CSCl}_2(^2\text{B}_1)$ | CCl_2S (RN-CAS Registry Number 463-71-8) | ** | 14.99 ± 0.02 | PE | 3667 |
| CSCl_2^* | Cl_2CS (RN-CAS Registry Number 463-71-8) | ** | 15.11 (V) | PE | 4080 |
| $\text{CSCl}_2(^2\text{B}_2)$ | CCl_2S (RN-CAS Registry Number 463-71-8) | ** | 15.99 ± 0.02 | PE | 3667 |
| CSCl_2^* | Cl_2CS (RN-CAS Registry Number 463-71-8) | ** | 16.22 (V) | PE | 4080 |
| $\text{CSCl}_2(^2\text{A}_1)$ | CCl_2S (RN-CAS Registry Number 463-71-8) | ** | 18.09 ± 0.02 | PE | 3667 |
| CSCl_2^* | Cl_2CS (RN-CAS Registry Number 463-71-8) | ** | 18.32 (V) | PE | 4080 |
| $\text{C}_2\text{S}_2\text{Cl}_4^+$ | $\text{C}_2\text{S}_2\text{Cl}_4$ (1,3-Dithietane, 2,2,4,4-tetrachloro-) (RN-CAS Registry Number 20464-23-7) | ** | 9.69 (V) | PE | 3898 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|-------------------------|---|----------------|---|--------|------|
| $C_4H_3SCl^+$ | C_4H_3SCl (Thiophene, 2-chloro-) (RN-CAS Registry Number 96-43-5) | ** | 9.06 ± 0.05 | EI | 3482 |
| $C_4H_3SCl^+$ | C_4H_3SCl (Thiophene, 2-chloro-) (RN-CAS Registry Number 96-43-5) | ** | 8.83 | CTS | 3787 |
| $NSCl^+(^2A')$ | $NSCl$ (RN-CAS Registry Number 17178-58-4) | ** | 10.96 (V) | PE | 3660 |
| $NSCl^+(^2A', ^2A'')$ | $NSCl$ (RN-CAS Registry Number 17178-58-4) | ** | 11.80 (V) | PE | 3660 |
| $NSCl^+(^2A')$ | $NSCl$ (RN-CAS Registry Number 17178-58-4) | ** | 13.77 (V) | PE | 3660 |
| $NSCl^+(^2A)$ | $NSCl$ (RN-CAS Registry Number 17178-58-4) | ** | 14.46 (V) | PE | 3660 |
| $C_{17}H_{19}N_2SCl^+$ | $C_{12}H_7NS(Cl)(CH_2)_3N(CH_3)_2$ (10 <i>H</i> -Phenothiazine-10-propanamine, 2-chloro- <i>N,N</i> -dimethyl-) (RN-CAS Registry Number 50-53-3) (ON-Other name: Aminazine) | ** | 8.25 ± 0.07 | CTS | 4079 |
| $C_{20}H_{24}N_3SCl^+$ | $C_{12}H_7NS(Cl)(CH_2)_3C_4H_8N_2CH_3$ (10 <i>H</i> -Phenothiazine, 2-chloro-10-[3-(4-methyl-1-piperazinyl)propyl]-) (RN-CAS Registry Number 58-38-8) (ON-Other name: Metherazine) | ** | 7.03 ± 0.07 | CTS | 4079 |
| $SOCl_2^+$ | $SOCl_2$ (RN-CAS Registry Number 7719-09-7) | ** | 11.12 (V) | PE | 3705 |
| $SOCl_2^+$ | $soCl_2$ (RN-CAS Registry Number 7719-09-7) | ** | 11.13 (V) | PE | 3646 |
| $SOCl_2^+(^2A')$ | $SOCl_2$ (RN-CAS Registry Number 7719-09-7) | ** | 11.3 (V) | PE | 3694 |
| $SOCl_2^+(^2A)$ | $SOCl_2$ (RN-CAS Registry Number 7719-09-7) | ** | 11.3 (V) | PE | 3879 |
| $SOCl_2^*$ | $SOCl_2$ (RN-CAS Registry Number 7719-09-7) | ** | 11.89 (V) | PE | 3705 |
| $SOCl_2^+(^2A'')$ | $SOCl_2$ (RN-CAS Registry Number 7719-09-7) | ** | 11.9 (V) | PE | 3694 |
| $SOCl_2^+(^2A'')$ | $SOCl_2$ (RN-CAS Registry Number 7719-09-7) | ** | 11.9 (V) | PE | 3879 |
| $SOCl_2^+(^2A')$ | $SOCl_2$ (RN-CAS Registry Number 7719-09-7) | ** | 12.15 (V) | PE | 3705 |
| $SOCl_2^+(^2A')$ | $SOCl_2$ (RN-CAS Registry Number 7719-09-7) | ** | 12.21 (V) | PE | 3694 |
| $SOCl_2^+(^2A')$ | $SOCl_2$ (RN-CAS Registry Number 7719-09-7) | ** | 12.21 (V) | PE | 3879 |
| $SOCl_2^+(^2A'')$ | $SOCl_2$ (RN-CAS Registry Number 7719-09-7) | ** | 12.55 (V) | PE | 3694 |
| $SOCl_2^*$ | $SOCl_2$ (RN-CAS Registry Number 7719-09-7) | ** | 12.55 (V) | PE | 3705 |
| $SOCl_2^+(^2A'', ^2A')$ | $SOCl_2$ (RN-CAS Registry Number 7719-09-7) | ** | 12.55 (V) | PE | 3879 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|--|--|----------------|---|--------|------|
| $\text{SOCl}_2^+(\text{}^2\text{A}', \text{}^2\text{A}'')$ | SOCl_2 (RN-CAS Registry Number 7719-09-7) | ** | 13.04 (V) | PE | 3694 |
| $\text{SOCl}_2^+(\text{}^2\text{A}'')$ | SOCl_2 (RN-CAS Registry Number 7719-09-7) | ** | 13.04 (V) | PE | 3879 |
| SOCl_2^* | SOCl_2 (RN-CAS Registry Number 7719-09-7) | ** | 13.15 (V) | PE | 3705 |
| SOCl_2^* | SOCl_2 (RN-CAS Registry Number 7719-09-7) | ** | 13.25 (V) | PE | 3705 |
| $\text{SOCl}_2^+(\text{}^2\text{A}')$ | SOCl_2 (RN-CAS Registry Number 7719-09-7) | ** | 15.69 (V) | PE | 3705 |
| $\text{SOCl}_2^+(\text{}^2\text{A}')$ | SOCl_2 (RN-CAS Registry Number 7719-09-7) | ** | 15.8 (V) | PE | 3694 |
| $\text{SOCl}_2^+(\text{}^2\text{A}')$ | SOCl_2 (RN-CAS Registry Number 7719-09-7) | ** | 16 (V) | PE | 3879 |
| SOCl_2^* | SOCl_2 (RN-CAS Registry Number 7719-09-7) | ** | 16.32 (V) | PE | 3705 |
| SO_2Cl_2^+ | SO_2Cl_2 (RN-CAS Registry Number 7791-25-5) | ** | 12.05 | PE | 3879 |
| $\text{SO}_2\text{Cl}_2^+(\text{}^2\text{A}_2, \text{}^2\text{B}_1)$ | SO_2Cl_2 (RN-CAS Registry Number 7791-25-5) | ** | 12.4 (V) | PE | 3694 |
| SO_2Cl_2^+ | SO_2Cl_2 (RN-CAS Registry Number 7791-25-5) | ** | 12.42 (V) | PE | 3705 |
| $\text{SO}_2\text{Cl}_2^+(\text{}^2\text{A}_1)$ | SO_2Cl_2 (RN-CAS Registry Number 7791-25-5) | ** | 13.0 | PE | 3879 |
| $\text{SO}_2\text{Cl}_2^+(\text{}^2\text{B}_2)$ | SO_2Cl_2 (RN-CAS Registry Number 7791-25-5) | ** | 13.25 (V) | PE | 3694 |
| SO_2Cl_2^* | SO_2Cl_2 (RN-CAS Registry Number 7791-25-5) | ** | 13.26 (V) | PE | 3705 |
| $\text{SO}_2\text{Cl}_2^+(\text{}^2\text{A}_1)$ | SO_2Cl_2 (RN-CAS Registry Number 7791-25-5) | ** | 13.74 (V) | PE | 3694 |
| SO_2Cl_2^+ | SO_2Cl_2 (RN-CAS Registry Number 7791-25-5) | ** | 13.74 (V) | PE | 3879 |
| $\text{SO}_2\text{Cl}_2^+(\text{}^2\text{B}_2?)$ | SO_2Cl_2 (RN-CAS Registry Number 7791-25-5) | ** | 13.74 (V) | PE | 3879 |
| SO_2Cl_2^* | SO_2Cl_2 (RN-CAS Registry Number 7791-25-5) | ** | 13.81 (V) | PE | 3705 |
| $\text{SO}_2\text{Cl}_2^+(\text{}^2\text{A}_2, \text{}^2\text{B}_1)$ | SO_2Cl_2 (RN-CAS Registry Number 7791-25-5) | ** | 14.1 (V) | PE | 3694 |
| SO_2Cl_2^* | SO_2Cl_2 (RN-CAS Registry Number 7791-25-5) | ** | 14.20 (V) | PE | 3705 |
| $\text{SO}_2\text{Cl}_2^+(\text{}^2\text{A}_1?)$ | SO_2Cl_2 (RN-CAS Registry Number 7791-25-5) | ** | 16.93 | PE | 3879 |
| $\text{SO}_2\text{Cl}_2^+(\text{}^2\text{A}_1)$ | SO_2Cl_2 (RN-CAS Registry Number 7791-25-5) | ** | 16.93 (V) | PE | 3694 |
| SO_2Cl_2^* | SO_2Cl_2 (RN-CAS Registry Number 7791-25-5) | ** | 16.98 (V) | PE | 3705 |
| SO_2Cl_2^+ | SO_2Cl_2 (RN-CAS Registry Number 7791-25-5) | ** | 17.61 (V) | PE | 3694 |
| $\text{SO}_2\text{Cl}_2^+(\text{}^2\text{B}_1)$ | SO_2Cl_2 (RN-CAS Registry Number 7791-25-5) | ** | 17.61 (V) | PE | 3879 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|--|--|----------------|---|--------|------|
| SO ₂ Cl ₂ * ⁺ | SO ₂ Cl ₂ (RN-CAS Registry Number 7791-25-5) | ** | 17.70 (V) | PE | 3705 |
| SO ₂ Cl ₂ ⁺ | SO ₂ Cl ₂ (RN-CAS Registry Number 7791-25-5) | ** | 18.12 (V) | PE | 3694 |
| SO ₂ Cl ₂ (² B ₂) | SO ₂ Cl ₂ (RN-CAS Registry Number 7791-25-5) | ** | 18.12 (V) | PE | 3879 |
| SO ₂ Cl ₂ * ⁺ | SO ₂ Cl ₂ (RN-CAS Registry Number 7791-25-5) | ** | 18.20 (V) | PE | 3705 |
| SOCl ₃ (² E) | SOCl ₃ (RN-CAS Registry Number XXXXX-XX-X) | ** | 9.63±0.02 | PE | 3835 |
| SOCl ₃ (² A ₂) | SOCl ₃ (RN-CAS Registry Number XXXXX-XX-X) | ** | 10.67±0.02 | PE | 3835 |
| SOCl ₃ (² A ₁) | SOCl ₃ (RN-CAS Registry Number XXXXX-XX-X) | ** | ~ 12.4 (V) | PE | 3835 |
| SOCl ₃ (² E) | SOCl ₃ (RN-CAS Registry Number XXXXX-XX-X) | ** | 12.54±0.01 (V) | PE | 3835 |
| SOCl ₃ (² E) | SOCl ₃ (RN-CAS Registry Number XXXXX-XX-X) | ** | 13.39±0.02 (V) | PE | 3835 |
| SOCl ₃ (² A ₁) | SOCl ₃ (RN-CAS Registry Number XXXXX-XX-X) | ** | 14.54±0.01 | PE | 3835 |
| SOCl ₃ (² E) | SOCl ₃ (RN-CAS Registry Number XXXXX-XX-X) | ** | 15.36±0.01 | PE | 3835 |
| SOCl ₃ (² A ₁) | SOCl ₃ (RN-CAS Registry Number XXXXX-XX-X) | ** | ~ 18.7 (V) | PE | 3835 |
| CH ₃ O ₂ SCI ⁺ | CH ₃ SO ₂ Cl (RN-CAS Registry Number 124-63-0) | ** | 11.74 (V) | PE | 3705 |
| C ₁₇ H ₁₇ N ₂ OSCI ⁺ | C ₁₂ H ₇ NS(Cl)COCH ₂ CH ₂ N(CH ₃) ₂ (10 <i>H</i> -Phenothiazine, 2-chloro-10-[3-(dimethylamino)-1-oxopropyl]-) (RN-CAS Registry Number 3576-45-2) | ** | 8.24±0.07 | CTS | 4079 |
| C ₁₉ H ₂₁ N ₂ OSCI ⁺ | C ₁₂ H ₇ NS(Cl)COCH ₂ CH ₂ N(C ₂ H ₅) ₂ (10 <i>H</i> -Phenothiazine, 2-chloro-10-[3-(diethylamino)-1-oxopropyl]-) (RN-CAS Registry Number 800-22-6) (ON-Other name: Chloracizine) | ** | 7.87±0.07 | CTS | 4079 |
| C ₂₁ H ₂₆ N ₃ OSCI ⁺ | C ₂₁ H ₂₆ N ₃ OSCI (1-Piperazineethanol, 4-[3-(2-chloro-10 <i>H</i> -phenothiazin-10-yl)propyl]-) (RN-CAS Registry Number 58-39-9) (ON-Other name: Ethaperazine) | ** | 8.63±0.07 | CTS | 4079 |
| SF ₅ Cl ⁺ | SF ₅ Cl (RN-CAS Registry Number 13780-57-9) | ** | 12.335±0.005 | PE | 3655 |
| CFSCI ⁺ | FCICS (RN-CAS Registry Number 1495-18-7) | ** | 10.20 (V) | PE | 3746 |
| SO ₂ FCI ⁺ | SO ₂ FCI (RN-CAS Registry Number 13637-84-8) | ** | 12.61 (V) | PE | 3705 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|---|--|----------------|---|--------|------|
| SO ₂ FCl ⁺ | SO ₂ FCl (RN-CAS Registry Number 13637-84-8) | ** | 13.36 (V) | PE | 3705 |
| SO ₂ FCl ⁺ | SO ₂ FCl (RN-CAS Registry Number 13637-84-8) | ** | 14.14 (V) | PE | 3705 |
| SO ₂ FCl ⁺ | SO ₂ FCl (RN-CAS Registry Number 13637-84-8) | ** | 14.63 (V) | PE | 3705 |
| SO ₂ FCl ⁺ | SO ₂ FCl (RN-CAS Registry Number 13637-84-8) | ** | 15.04 (V) | PE | 3705 |
| SO ₂ FCl ⁺ | SO ₂ FCl (RN-CAS Registry Number 13637-84-8) | ** | 16.58 (V) | PE | 3705 |
| SO ₂ FCl ⁺ | SO ₂ FCl (RN-CAS Registry Number 13637-84-8) | ** | 16.8 (V) | PE | 3705 |
| SO ₂ FCl ⁺ | SO ₂ FCl (RN-CAS Registry Number 13637-84-8) | ** | 18.8 (V) | PE | 3705 |
| PSCl ₃ (² E) | PSCl ₃ (RN-CAS Registry Number 3982-91-0) | ** | 9.71±0.003 | PE | 4086 |
| PSCl ₃ (² E) | PSCl ₃ (RN-CAS Registry Number 3982-91-0) | ** | 10.11 (V) | PE | 4023 |
| PSCl ₃ (² E) | PSCl ₃ (RN-CAS Registry Number 3982-91-0) | ** | 10.13±0.03 (V) | PE | 3669 |
| PSCl ₃ (² A ₂) | PSCl ₃ (RN-CAS Registry Number 3982-91-0) | ** | 11.74±0.1 | PE | 4086 |
| PSCl ₃ (² A ₂) | PSCl ₃ (RN-CAS Registry Number 3982-91-0) | ** | 11.99 (V) | PE | 4023 |
| PSCl ₃ (² A ₂) | PSCl ₃ (RN-CAS Registry Number 3982-91-0) | ** | 12.01±0.03 (V) | PE | 3669 |
| PSCl ₃ (² A ₁) | PSCl ₃ (RN-CAS Registry Number 3982-91-0) | ** | 12.15±0.1 | PE | 4086 |
| PSCl ₃ (² A ₁) | PSCl ₃ (RN-CAS Registry Number 3982-91-0) | ** | 12.56±0.03 (V) | PE | 3669 |
| PSCl ₃ (² A ₁) | PSCl ₃ (RN-CAS Registry Number 3982-91-0) | ** | ~ 12.65 (V) | PE | 4023 |
| PSCl ₃ (² E) | PSCl ₃ (RN-CAS Registry Number 3982-91-0) | ** | ~ 12.65 (V) | PE | 4023 |
| PSCl ₃ (² E) | PSCl ₃ (RN-CAS Registry Number 3982-91-0) | ** | 12.68±0.1 (V) | PE | 4086 |
| PSCl ₃ (² E) | PSCl ₃ (RN-CAS Registry Number 3982-91-0) | ** | 13.11±0.1 | PE | 4086 |
| PSCl ₃ (² E) | PSCl ₃ (RN-CAS Registry Number 3982-91-0) | ** | 13.39±0.03 (V) | PE | 3669 |
| PSCl ₃ (² E) | PSCl ₃ (RN-CAS Registry Number 3982-91-0) | ** | 13.39 (V) | PE | 4023 |
| PSCl ₃ (² A ₁) | PSCl ₃ (RN-CAS Registry Number 3982-91-0) | ** | 14.59±0.1 | PE | 4086 |
| PSCl ₃ (² A ₁) | PSCl ₃ (RN-CAS Registry Number 3982-91-0) | ** | 14.77±0.03 (V) | PE | 3669 |
| PSCl ₃ (² A ₁) | PSCl ₃ (RN-CAS Registry Number 3982-91-0) | ** | 14.78 (V) | PE | 4023 |
| PSCl ₃ (² E) | PSCl ₃ (RN-CAS Registry Number 3982-91-0) | ** | 15.37±0.1 | PE | 4086 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|---|--|----------------|---|--------|------|
| PSCl ₃ (² E) | PSCl ₃ (RN-CAS Registry Number 3982-91-0) | ** | 15.80±0.03 (V) | PE | 3669 |
| PSCl ₃ (² E) | PSCl ₃ (RN-CAS Registry Number 3982-91-0) | ** | 15.80 (V) | PE | 4023 |
| PSCl ₃ (² A ₁) | PSCl ₃ (RN-CAS Registry Number 3982-91-0) | ** | 18.34±0.1 | PE | 4086 |
| PSCl ₃ (² A ₁) | PSCl ₃ (RN-CAS Registry Number 3982-91-0) | ** | 18.62±0.03 (V) | PE | 3669 |
| C ₄ H ₁₂ N ₂ PSCl ⁺ | PSCl(N(CH ₃) ₂) ₂ (RN-CAS Registry Number 3732-81-8) | ** | 8.23±0.003 | PE | 4086 |
| C ₂ H ₆ NPSCl ₂ ⁺ | PSCl ₂ N(CH ₃) ₂ (RN-CAS Registry Number 1498-65-3) | ** | 8.97±0.003 | PE | 4086 |
| Ar ⁺ (² P _{3/2}) | Ar (RN-CAS Registry Number 7440-37-1) | ** | 15.75973±0.00001 S | | 3923 |
| Ar ⁺ (² P _{3/2}) | Ar (RN-CAS Registry Number 7440-37-1) | ** | 15.753±0.002 | TPE | 3525 |
| Ar ⁺ (² P _{1/2}) | Ar (RN-CAS Registry Number 7440-37-1) | ** | 15.930±0.002 | TPE | 3525 |
| Ar ⁺ (² P _{3/2}) | Ar (RN-CAS Registry Number 7440-37-1) | ** | 15.713±0.003 | PEN | 3541 |
| Ar ⁺² | Ar (RN-CAS Registry Number 7440-37-1) | ** | 43.7±0.5 | SRP | 3625 |
| Ar ⁺² | Ar (RN-CAS Registry Number 7440-37-1) | ** | ~43 | EI | 3445 |
| Ar ⁺³ | Ar (RN-CAS Registry Number 7440-37-1) | ** | ~84 | EI | 3445 |
| Ar ⁺⁴ | Ar (RN-CAS Registry Number 7440-37-1) | ** | ~145 | EI | 3445 |
| Ca ⁺ | Ca (RN-CAS Registry Number 7440-70-2) | ** | ~6.1 | EI | 3486 |
| Ca ⁺² | Ca (RN-CAS Registry Number 7440-70-2) | ** | 18 | EI | 3486 |
| Ca ⁺³ | Ca (RN-CAS Registry Number 7440-70-2) | ** | ~69 | EI | 3486 |
| Ca ⁺³ (² P _{3/2}) | Ca ⁺² (RN-CAS-Registry Number 14127-61-8) | ** | 50.91357±0.0003 S | | 4059 |
| Ca ⁺³ (² P _{1/2}) | Ca ⁺² (RN-CAS-Registry Number 14127-61-8) | ** | 51.30014±0.0003 S | | 4059 |
| Sc ⁺ | Sc (RN-CAS Registry Number 7440-20-2) | ** | 6.7 | EI | 3600 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|---|---|----------------|---|--------|------|
| Sc^{+3} | Sc^{+2} (RN-CAS Registry Number 14336-96-0) | ** | 24.75700±0.00006 S | | 3905 |
| Sc^{+3} | Sc^{+2} (RN-CAS Registry Number 14336-96-0) | ** | 24.75704±0.00001 S | | 4007 |
| $\text{Sc}^{+4}(^2\text{P}_{3/2})$ | Sc^{+3} (RN-CAS-Registry Number 22537-29-7) | ** | 73.49004±.00037 S | S | 4064 |
| $\text{Sc}^{+4}(^2\text{P}_{1/2})$ | Sc^{+3} (RN-CAS-Registry Number 22537-29-7) | ** | 74.02635±.00037 S | S | 4064 |
| ScC_2^+ | ScC_2 (RN-CAS Registry Number 12175-91-6) | ** | 7.7±0.2 | EI | 3470 |
| $\text{C}_{15}\text{H}_3\text{O}_6\text{F}_{18}\text{Sc}^+$ | $(\text{CF}_3\text{COCHCOCF}_3)_3\text{Sc}$ (Scandium, tris(1,1,1,5,5,5-hexafluoro-2,4-pentanedionato- <i>O,O'</i>)-, (<i>OC</i> -6-11)-) (RN-CAS Registry Number 18990-42-6) | ** | 10.13±0.07 (V) | PE | 3682 |
| Ti^+ | Ti (RN-CAS Registry Number 7440-32-6) | ** | 6.6±0.5 | EI | 3449 |
| Ti^+ | Ti (RN-CAS Registry Number 7440-32-6) | ** | 7.3±0.6 | EI | 3902 |
| Ti^+ | Ti (RN-CAS Registry Number 7440-32-6) | ** | 7.4±0.5 | EI | 3594 |
| Ti^+ | TiO (RN-CAS Registry Number 12137-20-1) | | 14.5±0.7 | EI | 3594 |
| Ti^+ | TiO (RN-CAS Registry Number 12137-20-1) | O | 14.51±0.36 | EI | 4103 |
| TiC_2^+ | TiC_2 (RN-CAS Registry Number 12071-32-8) | ** | 8.2±0.6 | EI | 3902 |
| TiO^+ | TiO (RN-CAS Registry Number 12137-20-1) | ** | 6.8±0.5 | EI | 3449 |
| TiO^+ | TiO (RN-CAS Registry Number 12137-20-1) | ** | 7.22±0.35 | EI | 4103 |
| TiO^+ | TiO (RN-CAS Registry Number 12137-20-1) | ** | 7.3±0.5 | EI | 3594 |
| TiO_2^+ | TiO_2 (RN-CAS Registry Number 13463-67-7) | ** | 8.5±0.5 | EI | 3594 |
| TiO_2^+ | TiO_2 (RN-CAS Registry Number 13463-67-7) | ** | 11.56±0.14 | EI | 4103 |
| $\text{C}_{15}\text{H}_3\text{O}_6\text{F}_{18}\text{Ti}^+$ | $(\text{CF}_3\text{COCHCOCF}_3)_3\text{Ti}$ (Titanium, tris(1,1,1,5,5,5-hexafluoro-2,4-pentanedionato- <i>O,O'</i>)-, (<i>OC</i> -6-11)-) (RN-CAS Registry Number 22854-59-7) | ** | 7.94±0.07 (V) | PE | 3682 |
| $\text{C}_{15}\text{H}_3\text{O}_6\text{F}_{18}\text{Ti}^+$ | $(\text{CF}_3\text{COCHCOCF}_3)_3\text{Ti}$ (Titanium, tris(1,1,1,5,5,5-hexafluoro-2,4-pentanedionato- <i>O,O'</i>)-, (<i>OC</i> -6-11)-) (RN-CAS Registry Number 22854-59-7) | ** | 7.98 (V) | PE | 3681 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|--|---|--|---|--------|------|
| TiS ⁺ | TiS (RN-CAS Registry Number 12039-07-5) | ** | 7.1±0.3 | EI | 3449 |
| V ⁺ | V (RN-CAS Registry Number 7440-62-2) | ** | 7±1 | EI | 3801 |
| VN ⁺ | VN (RN-CAS Registry Number 24646-85-3) | ** | 8±1 | EI | 3801 |
| VO ⁺ | VO (RN-CAS Registry Number 12035-98-2) | ** | 8±1 | EI | 3620 |
| VO ₂ ⁺ | VO ₂ (RN-CAS Registry Number 12036-21-4) | ** | 10±2 | EI | 3620 |
| V ₄ O ₈ ⁺ | V ₄ O ₈ (RN-CAS Registry Number 12503-87-6) | ** | 13±1 | EI | 3620 |
| V ₄ O ₁₀ ⁺ | V ₄ O ₁₀ (RN-CAS Registry Number 12503-98-9) | ** | 12±1 | EI | 3620 |
| C ₁₅ H ₃ O ₆ F ₁₈ V ⁺ | (CF ₃ COCHCOCF ₃) ₃ V (Vanadium, tris(1,1,1,5,5,5-hexafluoro-2,4-pentanedionato- <i>O,O'</i>)-, (OC-6-11)-) (RN-CAS Registry Number 15695-77-9) | ** | 8.68±0.07 (V) | PE | 3682 |
| C ₁₅ H ₃ O ₆ F ₁₈ V ⁺ | (CF ₃ COCHCOCF ₃) ₃ V (Vanadium, tris(1,1,1,5,5,5-hexafluoro-2,4-pentanedionato- <i>O,O'</i>)-, (OC-6-11)-) (RN-CAS Registry Number 15695-77-9) | ** | 8.68 (V) | PE | 3681 |
| Cr ⁺ | C ₆ H ₆ Cr(CO) ₃ (Chromium, (η ⁶ -benzene)tricarbonyl-) (RN-CAS Registry Number 12082-08-5) (MT-Metastable transition(s) observed) | C ₆ H ₆ +3CO | 12.2±0.2 | EI | 3786 |
| Cr ⁺ | C ₆ H ₆ Cr(CO) ₃ (Chromium, (η ⁶ -benzene)tricarbonyl-) (RN-CAS Registry Number 12082-08-5) (MT-Metastable transition(s) observed) | C ₆ H ₆ +3CO | 13.50±0.1 | EI | 3788 |
| Cr ⁺ | C ₆ H ₅ CH ₃ Cr(CO) ₃ (Chromium, tricarbonyl[(1,2,3,4,5,6-η)-methylbenzene]-) (RN-CAS Registry Number 12083-24-8) (MT-Metastable transition(s) observed) | C ₆ H ₅ CH ₃ +3CO | 13.42±0.1 | EI | 3788 |
| Cr ⁺ | C ₆ H ₄ (CH ₃) ₂ Cr(CO) ₃ (Chromium, tricarbonyl[(1,2,3,4,5,6-η)-1,2-dimethylbenzene]-) (RN-CAS Registry Number 12129-29-2) (MT-Metastable transition(s) observed) | | 13.06±0.1 | EI | 3788 |
| Cr ⁺ | C ₆ H ₃ (CH ₃) ₃ Cr(CO) ₃ (Chromium, tricarbonyl[(1,2,3,4,5,6-η)-1,3,5-trimethylbenzene]-) (RN-CAS Registry Number 12129-67-8) (OP-The other product(s) is(are): C ₆ H ₄ (CH ₃) ₂ +3CO) (MT-Metastable transition(s) observed) | | 13.90±0.1 | EI | 3788 |
| | (OP-The other product(s) is(are): C ₆ H ₃ (CH ₃) ₃ +3CO) | | | | |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|--|---|---|---|--------|------|
| Cr ⁺ | C ₆ (CH ₃) ₆ Cr(CO) ₃ (Chromium, tricarbonyl[(1,2,3,4,5,6-η)-hexamethylbenzene]-) (RN-CAS Registry Number 12088-11-8) (MT-Metastable transition(s) observed) | C ₆ (CH ₃) ₆ +3CO | 13.00±0.1 | EI | 3788 |
| Cr ⁺ | C ₆ H ₅ CH ₂ OHCr(CO) ₃ (Chromium, [(1,2,3,4,5,6-η)-benzenemethanol]tricarbonyl-) (RN-CAS Registry Number 12116-45-9) (MT-Metastable transition(s) observed) (OP-The other product(s) is(are): C ₆ H ₅ CH ₂ OH+3CO) | | 14.01±0.1 | EI | 3788 |
| Cr ⁺ | C ₆ H ₅ OCH ₃ Cr(CO) ₃ (Chromium, tricarbonyl[(1,2,3,4,5,6-η)-methoxybenzene]-) (RN-CAS Registry Number 12116-44-8) (MT-Metastable transition(s) observed) (OP-The other product(s) is(are): C ₆ H ₅ OCH ₃ +3CO) | | 12.65±0.1 | EI | 3788 |
| Cr ⁺ | C ₆ H ₅ COOCH ₃ Cr(CO) ₃ (Chromium, tricarbonyl[(1,2,3,4,5,6-η)-methylbenzoate]-) (RN-CAS Registry Number 12125-87-0) (OP-The other product(s) is(are): C ₆ H ₅ COOCH ₃ +3CO) (MT-Metastable transition(s) observed) | | 14.00±0.1 | EI | 3788 |
| Cr ⁺ | C ₆ H ₅ NH ₂ Cr(CO) ₃ (Chromium, (η ⁶ -benzenamine)tricarbonyl-) (RN-CAS Registry Number 12108-11-1) (MT-Metastable transition(s) observed) | C ₆ H ₅ NH ₂ +3CO | 13.17±0.1 | EI | 3788 |
| Cr ⁺ | ((CH ₃) ₂ N) ₃ PCr(CO) ₅ (RN-CAS Registry Number XXXXX-XX-X) | | 22.3±0.05 | EI | 3952 |
| Cr ⁺ | ((CH ₃) ₂ N) ₃ P) ₂ Cr(CO) ₄ (RN-CAS Registry Number 19976-85-3) | | 22.2±0.05 | EI | 3952 |
| Cr ⁺ | C ₆ H ₅ ClCr(CO) ₃ (Chromium, tricarbonyl(η ⁶ -chlorobenzene)-) (RN-CAS Registry Number 12082-03-0) (MT-Metastable transition(s) observed) | C ₆ H ₅ Cl+3CO | 14.10±0.1 | EI | 3788 |
| C ₆ H ₆ Cr ⁺ | C ₆ H ₆ Cr(CO) ₃ (Chromium, (η ⁶ -benzene)tricarbonyl-) (RN-CAS Registry Number 12082-08-5) (MT-Metastable transition(s) observed) | 3CO | 9.0±0.2 | EI | 3786 |
| C ₆ H ₆ Cr ⁺ | C ₆ H ₆ Cr(CO) ₃ (Chromium, (η ⁶ -benzene)tricarbonyl-) (RN-CAS Registry Number 12082-08-5) (MT-Metastable transition(s) observed) | 3CO | 10.34±0.1 | EI | 3788 |
| C ₇ H ₈ Cr ⁺ | C ₆ H ₅ CH ₃ Cr(CO) ₃ (Chromium, tricarbonyl[(1,2,3,4,5,6-η)-methylbenzene]-) (RN-CAS Registry Number 12083-24-8) (MT-Metastable transition(s) observed) | 3CO | 10.04±0.1 | EI | 3788 |
| C ₈ H ₁₀ Cr ⁺ | C ₆ H ₄ (CH ₃) ₂ Cr(CO) ₃ (Chromium, tricarbonyl[(1,2,3,4,5,6-η)-1,2-dimethylbenzene]-) (RN-CAS Registry Number 12129-29-2) (MT-Metastable transition(s) observed) | 3CO | 9.60±0.1 | EI | 3788 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|--------------------|--|----------------|---|--------|------|
| $C_9H_{12}Cr^+$ | $C_6H_3(CH_3)_3Cr(CO)_3$ (Chromium, tricarbonyl[(1,2,3,4,5,6- η)-1,3,5-trimethylbenzene]-) (RN-CAS Registry Number 12129-67-8) (MT-Metastable transition(s) observed) | 3CO | 10.35 ± 0.1 | EI | 3788 |
| $C_{10}H_{10}Cr^+$ | $(C_5H_5)_2Cr$ (Chromocene) (RN-CAS Registry Number 1271-24-5) | ** | 5.50 | PE | 3725 |
| $C_{11}H_{11}Cr^+$ | $C_5H_5CrC_6H_6$ (Chromium, (η^6 -benzene)(η^5 -2,4-cyclopentadien-1-yl)-) (RN-CAS Registry Number 12093-16-2) | ** | 6.20 ± 0.1 (V) | PE | 3686 |
| $C_{12}H_{12}Cr^+$ | $(C_6H_6)_2Cr$ (Chromium, bis(benzene)-) (RN-CAS Registry Number 1271-54-1) | ** | 5.4 ± 0.1 (V) | PE | 3686 |
| $C_{12}H_{18}Cr^+$ | $C_6(CH_3)_6Cr(CO)_3$ (Chromium, tricarbonyl[(1,2,3,4,5,6- η)-hexamethylbenzene]-) (RN-CAS Registry Number 12088-11-8) (MT-Metastable transition(s) observed) | 3CO | 9.82 ± 0.1 | EI | 3788 |
| $C_{14}H_{16}Cr^+$ | $(C_6H_5CH_3)_2Cr$ (Chromium, bis(η^6 -methyl benzene)-) (RN-CAS Registry Number 12087-58-0) | ** | 5.24 ± 0.1 (V) | PE | 3686 |
| $C_{20}H_{44}Cr^+$ | $((CH_3)_3CCH_2)_4Cr$ (RN-CAS Registry Number 37007-84-4) | ** | 7.25 ± 0.1 (V) | PE | 3830 |
| $C_6H_7NCr^+$ | $C_6H_5NH_2Cr(CO)_3$ (Chromium, (η^6 -benzenamine)tricarbonyl-) (RN-CAS Registry Number 12108-11-1) (MT-Metastable transition(s) observed) | 3CO | 9.96 ± 0.1 | EI | 3788 |
| $CrCO^{+2}$ | CrCO (RN-CAS Registry Number XXXXX-XX-X) | ** | 17.3 ± 1.0 | EI | 3572 |
| $C_6O_6Cr^+$ | $Cr(CO)_6$ (RN-CAS Registry Number 13007-92-6) | ** | 8.40 ± 0.02 (V) | PE | 3979 |
| $C_6O_6Cr^+$ | $Cr(CO)_6$ (RN-CAS Registry Number 13007-92-6) | ** | 8.19 ± 0.1 | EI | 3582 |
| $C_7H_6OCr^+$ | $C_6H_6Cr(CO)_3$ (Chromium, (η^6 -benzene)tricarbonyl-) (RN-CAS Registry Number 12082-08-5) (MT-Metastable transition(s) observed) | 2CO | 7.9 ± 0.2 | EI | 3786 |
| $C_7H_6OCr^+$ | $C_6H_6Cr(CO)_3$ (Chromium, (η^6 -benzene)tricarbonyl-) (RN-CAS Registry Number 12082-08-5) (MT-Metastable transition(s) observed) | 2CO | 8.09 ± 0.1 | EI | 3788 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|---------------------|--|----------------|---|--------|------|
| $C_7H_8OCr^+$ | $C_6H_5CH_2OHCr(CO)_3$ (Chromium, [(1,2,3,4,5,6- η)-benzenemethanol]tricarbonyl-) (RN-CAS Registry Number 12116-45-9) | 3CO | 10.35 ± 0.1 | EI | 3788 |
| | (MT-Metastable transition(s) observed) | | | | |
| $C_7H_8OCr^+$ | $C_6H_5OCH_3Cr(CO)_3$ (Chromium, tricarbonyl[(1,2,3,4,5,6- η)-methoxybenzene]-) (RN-CAS Registry Number 12116-44-8) | 3CO | 9.90 ± 0.1 | EI | 3788 |
| | (MT-Metastable transition(s) observed) | | | | |
| $C_8H_8OCr^+$ | $C_6H_5CH_3Cr(CO)_3$ (Chromium, tricarbonyl[(1,2,3,4,5,6- η)-methylbenzene]-) (RN-CAS Registry Number 12083-24-8) | 2CO | 8.11 ± 0.1 | EI | 3788 |
| | (MT-Metastable transition(s) observed) | | | | |
| $C_9H_{10}OCr^+$ | $C_6H_4(CH_3)_2Cr(CO)_3$ (Chromium, tricarbonyl[(1,2,3,4,5,6- η)-1,2-dimethylbenzene]-) (RN-CAS Registry Number 12129-29-2) | 2CO | 7.85 ± 0.1 | EI | 3788 |
| | (MT-Metastable transition(s) observed) | | | | |
| $C_{10}H_{12}OCr^+$ | $C_6H_3(CH_3)_3Cr(CO)_3$ (Chromium, tricarbonyl[(1,2,3,4,5,6- η)-1,3,5-trimethylbenzene]-) (RN-CAS Registry Number 12129-67-8) | 2CO | 8.00 ± 0.1 | EI | 3788 |
| | (MT-Metastable transition(s) observed) | | | | |
| $C_{13}H_{18}OCr^+$ | $C_6(CH_3)_6Cr(CO)_3$ (Chromium, tricarbonyl[(1,2,3,4,5,6- η)-hexamethylbenzene]-) (RN-CAS Registry Number 12088-11-8) | 2CO | 7.70 ± 0.1 | EI | 3788 |
| | (MT-Metastable transition(s) observed) | | | | |
| $C_8H_6O_2Cr^+$ | $C_6H_6Cr(CO)_3$ (Chromium, (η^6 -benzene)tricarbonyl-) (RN-CAS Registry Number 12082-08-5) | CO | 7.25 ± 0.1 | EI | 3788 |
| | (MT-Metastable transition(s) observed) | | | | |
| $C_8H_6O_2Cr^+$ | $C_6H_6Cr(CO)_3$ (Chromium, (η^6 -benzene)tricarbonyl-) (RN-CAS Registry Number 12082-08-5) | CO | 7.4 ± 0.2 | EI | 3786 |
| | (MT-Metastable transition(s) observed) | | | | |
| $C_8H_8O_2Cr^+$ | $C_6H_5CH_2OHCr(CO)_3$ (Chromium, [(1,2,3,4,5,6- η)-benzenemethanol]tricarbonyl-) (RN-CAS Registry Number 12116-45-9) | 2CO | 8.19 ± 0.1 | EI | 3788 |
| | (MT-Metastable transition(s) observed) | | | | |
| $C_8H_8O_2Cr^+$ | $C_6H_5OCH_3Cr(CO)_3$ (Chromium, tricarbonyl[(1,2,3,4,5,6- η)-methoxybenzene]-) (RN-CAS Registry Number 12116-44-8) | 2CO | 7.90 ± 0.1 | EI | 3788 |
| | (MT-Metastable transition(s) observed) | | | | |
| $C_8H_8O_2Cr^+$ | $C_6H_5COOCH_3Cr(CO)_3$ (Chromium, tricarbonyl[(1,2,3,4,5,6- η)-methylbenzoate]-) (RN-CAS Registry Number 12125-87-0) | 3CO | 10.00 ± 0.1 | EI | 3788 |
| | (MT-Metastable transition(s) observed) | | | | |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|-----------------------|--|----------------|---|--------|------|
| $C_9H_8O_2Cr^+$ | $C_6H_5CH_3Cr(CO)_3$ (Chromium, tricarbonyl[(1,2,3,4,5,6- η)-methylbenzene]-) (RN-CAS Registry Number 12083-24-8) | CO | 7.09 ± 0.1 | EI | 3788 |
| | (MT-Metastable transition(s) observed) | | | | |
| $C_{10}H_{10}O_2Cr^+$ | $C_6H_4(CH_3)_2Cr(CO)_3$ (Chromium, tricarbonyl[(1,2,3,4,5,6- η)-1,2-dimethylbenzene]-) (RN-CAS Registry Number 12129-29-2) | CO | 7.00 ± 0.1 | EI | 3788 |
| | (MT-Metastable transition(s) observed) | | | | |
| $C_{11}H_{12}O_2Cr^+$ | $C_6H_3(CH_3)_3Cr(CO)_3$ (Chromium, tricarbonyl[(1,2,3,4,5,6- η)-1,3,5-trimethylbenzene]-) (RN-CAS Registry Number 12129-67-8) | CO | 6.69 ± 0.1 | EI | 3788 |
| | (MT-Metastable transition(s) observed) | | | | |
| $C_{14}H_{18}O_2Cr^+$ | $C_6(CH_3)_6Cr(CO)_3$ (Chromium, tricarbonyl[(1,2,3,4,5,6- η)-hexamethylbenzene]-) (RN-CAS Registry Number 12088-11-8) | CO | 6.45 ± 0.1 | EI | 3788 |
| | (MT-Metastable transition(s) observed) | | | | |
| $C_9H_6O_3Cr^+$ | $C_6H_6Cr(CO)_3$ (Chromium, (η^6 -benzene)tricarbonyl-) (RN-CAS Registry Number 12082-08-5) | ** | 6.74 ± 0.1 | EI | 3788 |
| $C_9H_6O_3Cr^+$ | $C_6H_6Cr(CO)_3$ (Chromium, (η^6 -benzene)tricarbonyl-) (RN-CAS Registry Number 12082-08-5) | ** | 7.0 ± 0.2 | EI | 3786 |
| $C_9H_6O_3Cr^+$ | $C_6H_6Cr(CO)_3$ (Chromium, (η^6 -benzene)tricarbonyl-) (RN-CAS Registry Number 12082-08-5) | ** | 7.28 | CTS | 4029 |
| | (AV-Average of two values) | | | | |
| $C_9H_8O_3Cr^+$ | $C_6H_5CH_2OHCr(CO)_3$ (Chromium, [(1,2,3,4,5,6- η)-benzenemethanol]tricarbonyl-) (RN-CAS Registry Number 12116-45-9) | CO | 7.32 ± 0.1 | EI | 3788 |
| | (MT-Metastable transition(s) observed) | | | | |
| $C_9H_8O_3Cr^+$ | $C_6H_5OCH_3Cr(CO)_3$ (Chromium, tricarbonyl[(1,2,3,4,5,6- η)-methoxybenzene]-) (RN-CAS Registry Number 12116-44-8) | CO | 6.95 ± 0.1 | EI | 3788 |
| | (MT-Metastable transition(s) observed) | | | | |
| $C_9H_8O_3Cr^+$ | $C_6H_5COOCH_3Cr(CO)_3$ (Chromium, tricarbonyl[(1,2,3,4,5,6- η)-methylbenzoate]-) (RN-CAS Registry Number 12125-87-0) | 2CO | 8.27 ± 0.1 | EI | 3788 |
| | (MT-Metastable transition(s) observed) | | | | |
| $C_{10}H_8O_3Cr^+$ | $C_6H_5CH_3Cr(CO)_3$ (Chromium, tricarbonyl[(1,2,3,4,5,6- η)-methylbenzene]-) (RN-CAS Registry Number 12083-24-8) | ** | 6.69 ± 0.1 | EI | 3788 |
| $C_{10}H_8O_3Cr^+$ | $C_6H_5CH_3Cr(CO)_3$ (Chromium, tricarbonyl[(1,2,3,4,5,6- η)-methylbenzene]-) (RN-CAS Registry Number 12083-24-8) | ** | 7.29 | CTS | 4029 |
| | (AV-Average of two values) | | | | |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|--|---|----------------|---|--------|------|
| $C_{11}H_{10}O_3Cr^+$ | $C_6H_4(CH_3)_2Cr(CO)_3$ (Chromium, tricarbonyl[(1,2,3,4,5,6- η)-1,2-dimethylbenzene]-) (RN-CAS Registry Number 12129-29-2) | ** | 6.70 ± 0.1 | EI | 3788 |
| $C_{11}H_{10}O_3Cr^+$ | $C_6H_4(CH_3)_2Cr(CO)_3$ (Chromium, tricarbonyl[(1,2,3,4,5,6- η)-1,2-dimethylbenzene]-) (RN-CAS Registry Number 12129-29-2) | ** | 7.29 | CTS | 4029 |
| (AV—Average of two values) | | | | | |
| $C_{12}H_{12}O_3Cr^+$ | $C_6H_3(CH_3)_3Cr(CO)_3$ (Chromium, tricarbonyl[(1,2,3,4,5,6- η)-1,3,5-trimethylbenzene]-) (RN-CAS Registry Number 12129-67-8) | ** | 6.60 ± 0.1 | EI | 3788 |
| $C_{12}H_{12}O_3Cr^+$ | $C_6H_3(CH_3)_3Cr(CO)_3$ (Chromium, tricarbonyl[(1,2,3,4,5,6- η)-1,3,5-trimethylbenzene]-) (RN-CAS Registry Number 12129-67-8) | ** | 7.29 | CTS | 4029 |
| (AV—Average of two values) | | | | | |
| $C_{15}H_{18}O_3Cr^+$ | $C_6(CH_3)_6Cr(CO)_3$ (Chromium, tricarbonyl[(1,2,3,4,5,6- η)-hexamethylbenzene]-) (RN-CAS Registry Number 12088-11-8) | ** | 6.35 ± 0.1 | EI | 3788 |
| $C_{10}H_8O_4Cr^+$ | $C_6H_5CH_2OHCr(CO)_3$ (Chromium, [(1,2,3,4,5,6- η)-benzenemethanol]tricarbonyl-) (RN-CAS Registry Number 12116-45-9) | ** | 6.92 ± 0.1 | EI | 3788 |
| $C_{10}H_8O_4Cr^+$ | $C_6H_5OCH_3Cr(CO)_3$ (Chromium, tricarbonyl[(1,2,3,4,5,6- η)-methoxybenzene]-) (RN-CAS Registry Number 12116-44-8) | ** | 6.75 ± 0.1 | EI | 3788 |
| $C_{10}H_8O_4Cr^+$ | $C_6H_5OCH_3Cr(CO)_3$ (Chromium, tricarbonyl[(1,2,3,4,5,6- η)-methoxybenzene]-) (RN-CAS Registry Number 12116-44-8) | ** | 7.32 | CTS | 4029 |
| (AV—Average of two values) | | | | | |
| $C_{10}H_8O_4Cr^+$ | $C_6H_5COOCH_3Cr(CO)_3$ (Chromium, tricarbonyl[(1,2,3,4,5,6- η)-methylbenzoate]-) (RN-CAS Registry Number 12125-87-0) | CO | 7.60 ± 0.1 | EI | 3788 |
| (MT—Metastable transition(s) observed) | | | | | |
| $C_{11}H_8O_5Cr^+$ | $C_6H_5COOCH_3Cr(CO)_3$ (Chromium, tricarbonyl[(1,2,3,4,5,6- η)-methylbenzoate]-) (RN-CAS Registry Number 12125-87-0) | ** | 7.02 ± 0.1 | EI | 3788 |
| $C_8H_6O_6Cr^+$ | $(CO)_5CrC(OCH_3)CH_3$ (Chromium, pentacarbonyl(1-methoxyethylidene)-, (OC-6-21)) (RN-CAS Registry Number 20540-69-6) | ** | 7.46 ± 0.1 | EI | 3582 |
| $C_{13}H_8O_6Cr^+$ | $C_6H_5C(OCH_3)Cr(CO)_5$ (Chromium, pentacarbonyl(methoxyphenylmethylene)-, (OC-6-21)-) (RN-CAS Registry Number 27436-93-7) | ** | 7.26 ± 0.1 | EI | 3582 |
| $C_{14}H_{10}O_6Cr^+$ | $C_6H_4(CH_3)C(OCH_3)Cr(CO)_5$ (Chromium, pentacarbonyl(methoxy(4-methylphenyl)methylene)-, (OC-6-21)-) (RN-CAS Registry Number 29160-36-9) | ** | 7.13 ± 0.1 | EI | 3582 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|--------------------------|---|----------------|---|--------|------|
| $C_{15}H_{21}O_6Cr^+$ | $(CH_3COCHCOCH_3)_3Cr$ (Chromium, tris(2,4-pentanedionato- <i>O,O'</i>)-, (<i>OC</i> -6-11)-) (RN-CAS Registry Number 21679-31-2) | ** | 7.46 ± 0.07 (V) | PE | 3682 |
| $C_{14}H_{10}O_7Cr^+$ | $C_6H_4(OCH_3)C(OCH_3)Cr(CO)_5$ (Chromium, pentacarbonyl(<i>o,o'</i> -dimethoxybenzylidene)-) (RN-CAS Registry Number 27436-99-3) | ** | 7.05 ± 0.1 | EI | 3582 |
| $C_7H_7NOCr^+$ | $C_6H_5NH_2Cr(CO)_3$ (Chromium, (η^6 -benzenamine)tricarbonyl-) (RN-CAS Registry Number 12108-11-1) (MT-Metastable transition(s) observed) | 2CO | 7.84 ± 0.1 | EI | 3788 |
| $C_8H_7NO_2Cr^+$ | $C_6H_5NH_2Cr(CO)_3$ (Chromium, (η^6 -benzenamine)tricarbonyl-) (RN-CAS Registry Number 12108-11-1) (MT-Metastable transition(s) observed) | CO | 6.75 ± 0.1 | EI | 3788 |
| $C_7H_5NO_3Cr^+$ | $C_5H_5Cr(NO)(CO)_2$ (Chromium, dicarbonyl(η^5 -2,4-cyclopentadien-1-yl)nitrosyl-) (RN-CAS Registry Number 36312-04-6) | ** | 7.80 | EI | 3579 |
| $C_9H_7NO_3Cr^+$ | $C_6H_5NH_2Cr(CO)_3$ (Chromium, (η^6 -benzenamine)tricarbonyl-) (RN-CAS Registry Number 12108-11-1) | ** | 6.52 ± 0.1 | EI | 3788 |
| $C_{11}H_{11}NO_3Cr^+$ | $C_6H_5N(CH_3)_2Cr(CO)_3$ (Chromium, tricarbonyl(<i>N,N</i> -dimethylbenzenamine)-) (RN-CAS Registry Number 12109-10-3) | ** | 7.38 | CTS | 4029 |
| $C_{13}H_7O_6FCr^+$ | $C_6H_4FC(OCH_3)Cr(CO)_5$ (Chromium, pentacarbonyl[(4-fluorophenyl)methoxymethylene]-, (<i>OC</i> -6-21)-) (RN-CAS Registry Number 27436-94-8) | ** | 7.32 ± 0.1 | EI | 3582 |
| $C_{14}H_7O_6F_3Cr^+$ | $C_6H_4(CF_3)C(OCH_3)Cr(CO)_5$ (Chromium, pentacarbonyl[α -methoxy- <i>o</i> -(trifluoromethyl)benzylidene]-) (RN-CAS Registry Number 32011-10-2) | ** | 7.34 ± 0.1 | EI | 3582 |
| $C_{14}H_7O_6F_3Cr^+$ | $C_6H_4(CF_3)C(OCH_3)Cr(CO)_5$ (Chromium, pentacarbonyl[methoxy[4-(trifluoromethyl)phenyl]methylene]-, (<i>OC</i> -6-21)-) (RN-CAS Registry Number 27637-27-0) | ** | 7.42 ± 0.1 | EI | 3582 |
| $C_{15}H_{12}O_6F_9Cr^+$ | $(CF_3COCHCOCH_3)_3Cr$ (Chromium, tris(1,1,1-trifluoro-2,4-pentanedionato- <i>O,O'</i>)-) (RN-CAS Registry Number 14592-89-3) | ** | 8.58 ± 0.07 (V) | PE | 3682 |
| $C_{15}H_3O_6F_{18}Cr^+$ | $(CF_3COCHCOCF_3)_3Cr$ (Chromium, tris(1,1,1,5,5,5-hexafluoro-2,4-pentanedionato- <i>O,O'</i>)-, (<i>OC</i> -6-11)-) (RN-CAS Registry Number 14592-80-4) | ** | 9.53 (V) | PE | 3681 |
| $C_{15}H_3O_6F_{18}Cr^+$ | $(CF_3COCHCOCF_3)_3Cr$ (Chromium, tris(1,1,1,5,5,5-hexafluoro-2,4-pentanedionato- <i>O,O'</i>)-, (<i>OC</i> -6-11)-) (RN-CAS Registry Number 14592-80-4) | ** | 9.57 ± 0.07 (V) | PE | 3682 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|-----------------------------|---|----------------|---|--------|------|
| $C_{16}H_{44}Si_4Cr^+$ | $((CH_3)_2SiCH_2)_4Cr$ (RN-CAS Registry Number 35394-18-4) | ** | 7.26 ± 0.1 (V) | PE | 3830 |
| $C_6H_{18}N_3PCr^+$ | $((CH_3)_2N)_3PCr(CO)_5$ (RN-CAS Registry Number XXXXX-XX-X) | 5CO | 12.5 ± 0.05 | EI | 3952 |
| $C_6H_{18}N_3PCr^+$ | $((CH_3)_2N)_3P_2Cr(CO)_4$ (RN-CAS Registry Number 19976-85-3) | | 11.0 ± 0.05 | EI | 3952 |
| $C_7H_{18}N_3OPCr^+$ | $((CH_3)_2N)_3PCr(CO)_5$ (RN-CAS Registry Number XXXXX-XX-X) | 4CO | 9.8 ± 0.05 | EI | 3952 |
| $C_9H_{18}N_3O_3PCr^+$ | $((CH_3)_2N)_3PCr(CO)_5$ (RN-CAS Registry Number XXXXX-XX-X) | 2CO | 8.6 ± 0.05 | EI | 3952 |
| $C_{10}H_{18}N_3O_4PCr^+$ | $((CH_3)_2N)_3PCr(CO)_5$ (RN-CAS Registry Number XXXXX-XX-X) | CO | 7.6 ± 0.05 | EI | 3952 |
| $C_{11}H_{18}N_3O_5PCr^+$ | $((CH_3)_2N)_3PCr(CO)_5$ (RN-CAS Registry Number XXXXX-XX-X) | ** | 6.6 ± 0.05 | EI | 3952 |
| $C_{15}H_{36}N_6O_3P_2Cr^+$ | $((CH_3)_2N)_3P_2Cr(CO)_4$ (RN-CAS Registry Number 19976-85-3) | CO | 9.5 ± 0.05 | EI | 3952 |
| $C_{16}H_{36}N_6O_4P_2Cr^+$ | $((CH_3)_2N)_3P_2Cr(CO)_4$ (RN-CAS Registry Number 19976-85-3) | ** | 6.5 ± 0.05 | EI | 3952 |
| $CrP_6F_{18}^+$ | $Cr(PF_3)_6$ (RN-CAS Registry Number 26117-61-3) | ** | 9.0 | PE | 4021 |
| $C_9H_8O_5SCr^+$ | $C_4H_8SCr(CO)_5$ ((OC-6-22)-Pentacarbonyl(tetrahydrothiophene)chromium) (RN-CAS Registry Number 15038-40-1) | ** | 7.45 ± 0.05 | EI | 3498 |
| $C_7H_6O_6SCr^+$ | $SO(CH_3)_2Cr(CO)_5$ ((OC-6-22)-Pentacarbonyl(sulfinylbis(methane)-S)chromium) (RN-CAS Registry Number 36083-80-4) | ** | 7.64 ± 0.05 | EI | 3498 |
| $C_7H_4O_8SCr^+$ | $C_2H_4O_2SOCr(CO)_5$ ((OC-6-22)-Pentacarbonyl(1,3,2-dioxathiolane 2-oxide-S)chromium) (RN-CAS Registry Number 36252-44-5) | ** | 7.80 ± 0.05 | EI | 3498 |
| $C_6H_5ClCr^+$ | $C_6H_5ClCr(CO)_3$ (Chromium, tricarbonyl(η^6 -chlorobenzene)-) (RN-CAS Registry Number 12082-03-0) (MT-Metastable transition(s) observed) | 3CO | 10.10 ± 0.1 | EI | 3788 |
| $C_7H_5OClCr^+$ | $C_6H_5ClCr(CO)_3$ (Chromium, tricarbonyl(η^6 -chlorobenzene)-) (RN-CAS Registry Number 12082-03-0) (MT-Metastable transition(s) observed) | 2CO | 8.18 ± 0.1 | EI | 3788 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|-----------------------|--|----------------|---|--------|------|
| $C_8H_5O_2ClCr^+$ | $C_6H_5ClCr(CO)_3$ (Chromium, tricarbonyl(η^6 -chlorobenzene)-) (RN-CAS Registry Number 12082-03-0) (MT-Metastable transition(s) observed) | CO | 7.45 ± 0.1 | EI | 3788 |
| $C_9H_5O_3ClCr^+$ | $C_6H_5ClCr(CO)_3$ (Chromium, tricarbonyl(η^6 -chlorobenzene)-) (RN-CAS Registry Number 12082-03-0) | ** | 7.00 ± 0.1 | EI | 3788 |
| $C_{13}H_7O_6ClCr^+$ | $C_6H_4ClCr(OCH_3)Cr(CO)_5$ (Chromium, pentacarbonyl[(4-chlorophenyl)methoxymethylene]-, (OC-6-21)-) (RN-CAS Registry Number 29160-37-0) | ** | 7.34 ± 0.1 | EI | 3582 |
| Mn^+ | $HMn(CO)_5$ (RN-CAS Registry Number 16972-33-1) | | 17.3 | EI | 3814 |
| Mn^+ | $(CH_3)_3SiMn(CO)_5$ (RN-CAS Registry Number 26500-16-3) | | 21.7 | EI | 3814 |
| Mn^+ | $(CH_3)_3SiMn(CO)_4PF_3$ (RN-CAS Registry Number 33989-27-4) | | 21.9 | EI | 3814 |
| MnH^+ | $HMn(CO)_5$ (RN-CAS Registry Number 16972-33-1) | 5CO | 13.8 | EI | 3814 |
| $C_{10}H_{10}Mn^+$ | $(C_5H_5)_2Mn$ (Manganocene) (RN-CAS Registry Number 1271-27-8) | ** | 6.55 | PE | 3725 |
| $C_{11}H_{11}Mn^+$ | $C_5H_5MnC_6H_6$ (Manganese, (η^6 -benzene)(η^5 -2,4-cyclopentadien-1-yl)-) (RN-CAS Registry Number 1271-43-8) | ** | 6.36 ± 0.1 (V) | PE | 3686 |
| $C_{32}H_{16}N_8Mn^+$ | $C_{32}H_{16}N_8Mn$ (Manganese, [29 <i>H</i> ,31 <i>H</i> -phthalocyaninato(2 ⁻)- <i>N</i> ²⁹ , <i>N</i> ³⁰ , <i>N</i> ³¹ , <i>N</i> ³²]- (SP-4-1)-) (RN-CAS Registry Number 14325-24-7) (ON-Other name: Manganese phthalocyanine) | ** | 7.26 ± 0.10 | EI | 3829 |
| $MnCO^+$ | $(CH_3)_3SiMn(CO)_5$ (RN-CAS Registry Number 26500-16-3) | | 17.9 | EI | 3814 |
| $MnC_2O_2^+$ | $HMn(CO)_5$ (RN-CAS Registry Number 16972-33-1) | | 13.7 | EI | 3814 |
| $MnC_3O_3^+$ | $HMn(CO)_5$ (RN-CAS Registry Number 16972-33-1) | | 13.2 | EI | 3814 |
| $MnC_4O_4^+$ | $HMn(CO)_5$ (RN-CAS Registry Number 16972-33-1) | | 11.2 | EI | 3814 |
| $CHOMn^+$ | $HMn(CO)_5$ (RN-CAS Registry Number 16972-33-1) | 4CO | 12.7 | EI | 3814 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|--------------------------|---|----------------|---|--------|------|
| $C_2HO_2Mn^+$ | $HMn(CO)_5$ (RN-CAS Registry Number 16972-33-1) | 3CO | 10.3 | EI | 3814 |
| $C_3HO_3Mn^+$ | $HMn(CO)_5$ (RN-CAS Registry Number 16972-33-1) | 2CO | 9.9 | EI | 3814 |
| $C_8H_5O_3Mn^+$ | $C_5H_5Mn(CO)_3$ (Manganese, tricarbonyl(η^5 -2,4-cyclopentadien-1-yl)-) (RN-CAS Registry Number 12079-65-1) | ** | 8.12 ± 0.1 | EI | 3578 |
| $C_4HO_4Mn^+$ | $HMn(CO)_5$ (RN-CAS Registry Number 16972-33-1) | CO | 8.7 | EI | 3814 |
| $C_5HO_5Mn^+$ | $HMn(CO)_5$ (RN-CAS Registry Number 16972-33-1) | ** | 8.5 ± 0.1 | EI | 3814 |
| $C_{15}H_{21}O_6Mn^+$ | $(CH_3COCHCOCH_3)_3Mn$ (Manganese, tris(2,4-pentanedionato- O,O')-, (OC-6-11)-) (RN-CAS Registry Number 14284-89-0) | ** | 7.32 ± 0.07 (V) | PE | 3682 |
| MnF^+ | MnF (RN-CAS Registry Number 13569-25-0) (TW-Threshold value approximately corrected to 298°K) | ** | 8.51 ± 0.2 | EI | 3623 |
| MnF^+ | MnF_2 (RN-CAS Registry Number 7782-64-1) (TW-Threshold value approximately corrected to 298°K) | ** | 13.60 ± 0.2 | EI | 3623 |
| MnF_2^+ | MnF_2 (RN-CAS Registry Number 7782-64-1) (TW-Threshold value approximately corrected to 298°K) | ** | 11.38 ± 0.2 | EI | 3623 |
| MnF_2^+ | MnF_3 (RN-CAS Registry Number 7783-53-1) (TW-Threshold value approximately corrected to 298°K) | ** | 14.79 ± 0.2 | EI | 3623 |
| MnF_3^+ | MnF_3 (RN-CAS Registry Number 7783-53-1) (TW-Threshold value approximately corrected to 298°K) | ** | 12.57 ± 0.2 | EI | 3623 |
| MnF_3^+ | MnF_4 (RN-CAS Registry Number 15195-58-1) (TW-Threshold value approximately corrected to 298°K) | ** | 15.50 ± 0.2 | EI | 3623 |
| MnF_4^+ | MnF_4 (RN-CAS Registry Number 15195-58-1) (TW-Threshold value approximately corrected to 298°K) | ** | 13.46 ± 0.2 | EI | 3623 |
| $C_{15}H_3O_6F_{18}Mn^+$ | $(CF_3COCHCOCF_3)_3Mn$ (Manganese, tris(1,1,1,5,5,5-hexafluoro-2,4-pentanedionato- O,O')-, (OC-6-11)-) (RN-CAS Registry Number 14354-50-8) | ** | 9.2 (V) | PE | 3682 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|-----------------------------|--|-----------------------|---|--------|------|
| $C_{19}H_3O_{10}F_{18}Mn^+$ | $(CF_3COCHCOCF_3)_3(CO)_4Mn$ (Tris(1,1,1,5,5,5-hexafluoro-2,4-pentanedionato)manganese tetracarbonyl) (RN-CAS Registry Number XXXXX-XX-X) | ** | 8.11 ± 0.07 (V) | PE | 3682 |
| $C_3H_9SiMn^+$ | $(CH_3)_3SiMn(CO)_5$ (RN-CAS Registry Number 26500-16-3) | | 12.8 | EI | 3814 |
| $C_4H_9OSiMn^+$ | $(CH_3)_3SiMn(CO)_5$ (RN-CAS Registry Number 26500-16-3) | 4CO | 12.0 | EI | 3814 |
| $C_4H_9OSiMn^+$ | $(CH_3)_3SiMn(CO)_4PF_3$ (RN-CAS Registry Number 33989-27-4) | 3CO + PF ₃ | 12.7 | EI | 3814 |
| $C_5H_9O_2SiMn^+$ | $(CH_3)_3SiMn(CO)_5$ (RN-CAS Registry Number 26500-16-3) | 3CO | 10.8 | EI | 3814 |
| $C_5H_9O_2SiMn^+$ | $(CH_3)_3SiMn(CO)_4PF_3$ (RN-CAS Registry Number 33989-27-4) | 2CO + PF ₃ | 11.1 | EI | 3814 |
| $C_6H_9O_3SiMn^+$ | $(CH_3)_3SiMn(CO)_5$ (RN-CAS Registry Number 26500-16-3) | 2CO | 10.2 | EI | 3814 |
| $C_7H_9O_4SiMn^+$ | $(CH_3)_3SiMn(CO)_5$ (RN-CAS Registry Number 26500-16-3) | CO | 9.2 | EI | 3814 |
| $C_7H_9O_4SiMn^+$ | $(CH_3)_3SiMn(CO)_4PF_3$ (RN-CAS Registry Number 33989-27-4) | PF ₃ | 9.9 | EI | 3814 |
| $C_5H_3O_5SiMn^+$ | $SiH_3Mn(CO)_5$ (RN-CAS Registry Number 15770-61-3) | ** | 8.99 ± 0.02 (V) | PE | 3827 |
| $C_8H_9O_5SiMn^+$ | $Si(CH_3)_3Mn(CO)_5$ (RN-CAS Registry Number XXXXX-XX-X) | ** | 9.0 ± 0.1 (V) | PE | 3827 |
| $C_8H_9O_5SiMn^+$ | $(CH_3)_3SiMn(CO)_5$ (RN-CAS Registry Number 26500-16-3) | ** | 8.7 ± 0.2 | EI | 3814 |
| $C_7H_9O_4F_3SiPMn^+$ | $(CH_3)_3SiMn(CO)_4PF_3$ (RN-CAS Registry Number 33989-27-4) | ** | 8.7 ± 0.2 | EI | 3814 |
| $C_6H_9O_3F_6SiP_2Mn^+$ | $(CH_3)_3SiMn(CO)_3(PF_3)_2$ (RN-CAS Registry Number 36087-62-4) | ** | 8.1 ± 0.1 | EI | 3814 |
| $C_5H_9O_2F_9SiP_3Mn^+$ | $(CH_3)_3SiMn(CO)_2(PF_3)_3$ (RN-CAS Registry Number 36087-61-3) | ** | 9.1 ± 0.2 | EI | 3814 |
| $C_{10}H_{15}SMn^+$ | $C_4H_8SC_5H_4CH_3Mn(CO)_2$ (Dicarbonyl((1,2,3,4,5)-1-methyl-2,4-cyclopentadien-1-yl)(tetrahydrothiophene)manganese) (RN-CAS Registry Number 12153-94-5) | 2CO | 7.9 ± 0.1 | EI | 3498 |
| $C_{18}H_{17}SMn^+$ | $(C_6H_5)_2SC_5H_4CH_3Mn(CO)_2$ (Dicarbonyl((1,2,3,4,5)-1-methyl-2,4-cyclopentadien-1-yl)(1,1'-thiobis(benzene)-S)manganese) (RN-CAS Registry Number 36154-47-9) | 2CO | 8.0 ± 0.1 | EI | 3498 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|------------------------|---|----------------|---|--------|------|
| $C_8H_{13}OSMn^+$ | $C_5H_4CH_3Mn(CO)_2SO(CH_3)_2$ (Dicarbonyl((1,2,3,4,5-)-1-methyl-2,4-cyclopentadien-1-yl)(sulfinylbis(methane)-S)manganese) (RN-CAS Registry Number 12153-02-5) | 2CO | 7.9 ± 0.1 | EI | 3498 |
| $C_{10}H_{15}OSMn^+$ | $C_4H_8SOC_5H_4CH_3Mn(CO)_2$ (Dicarbonyl((1,2,3,4,5-)-1-methyl-2,4-cyclopentadiene-1-yl)(tetrahydrothiophene 1-oxide-S)manganese) (RN-CAS Registry Number 12153-95-6) | 2CO | 7.5 ± 0.1 | EI | 3498 |
| $C_{18}H_{17}OSMn^+$ | $(C_6H_5)_2SOC_5H_4CH_3Mn(CO)_2$ (Dicarbonyl((1,2,3,4,5-)-1-methyl-2,4-cyclopentadien-1-yl)(1,1'-sulfinylbis(benzene)-S)manganese) (RN-CAS Registry Number 36154-49-1) | 2CO | 7.8 ± 0.1 | EI | 3498 |
| $C_{12}H_{15}O_2SMn^+$ | $C_4H_8SC_5H_4CH_3Mn(CO)_2$ (Dicarbonyl((1,2,3,4,5-)-1-methyl-2,4-cyclopentadien-1-yl)(tetrahydrothiophene)manganese) (RN-CAS Registry Number 12153-94-5) | ** | 6.45 ± 0.05 | EI | 3498 |
| $C_{20}H_{17}O_2SMn^+$ | $(C_6H_5)_2SC_5H_4CH_3Mn(CO)_2$ (Dicarbonyl((1,2,3,4,5-)-1-methyl-2,4-cyclopentadien-1-yl)(1,1'-thiobis(benzene)-S)manganese) (RN-CAS Registry Number 36154-47-9) | ** | 6.27 ± 0.05 | EI | 3498 |
| $C_8H_{11}O_3SMn^+$ | $C_2H_4O_2SOC_5H_4CH_3Mn(CO)_2$ (Dicarbonyl(1,3,2-dioxathiolane 2-oxide-S)((1,2,3,4,5-)-1-methyl-2,4-cyclopentadien-1-yl)manganese) (RN-CAS Registry Number 12152-97-5) | 2CO | 7.75 ± 0.1 | EI | 3498 |
| $C_{10}H_{13}O_3SMn^+$ | $C_5H_4CH_3Mn(CO)_2SO(CH_3)_2$ (Dicarbonyl((1,2,3,4,5-)-1-methyl-2,4-cyclopentadien-1-yl)(sulfinylbis(methane)-S)manganese) (RN-CAS Registry Number 12153-02-5) | ** | 7.19 ± 0.05 | EI | 3498 |
| $C_{12}H_{15}O_3SMn^+$ | $C_4H_8SOC_5H_4CH_3Mn(CO)_2$ (Dicarbonyl((1,2,3,4,5-)-1-methyl-2,4-cyclopentadiene-1-yl)(tetrahydrothiophene 1-oxide-S)manganese) (RN-CAS Registry Number 12153-95-6) | ** | 6.79 ± 0.05 | EI | 3498 |
| $C_{20}H_{17}O_3SMn^+$ | $(C_6H_5)_2SOC_5H_4CH_3Mn(CO)_2$ (Dicarbonyl((1,2,3,4,5-)-1-methyl-2,4-cyclopentadien-1-yl)(1,1'-sulfinylbis(benzene)-S)manganese) (RN-CAS Registry Number 36154-49-1) | ** | 6.76 ± 0.05 | EI | 3498 |
| $C_{10}H_{11}O_5SMn^+$ | $C_2H_4O_2SOC_5H_4CH_3Mn(CO)_2$ (Dicarbonyl(1,3,2-dioxathiolane 2-oxide-S)((1,2,3,4,5-)-1-methyl-2,4-cyclopentadien-1-yl)manganese) (RN-CAS Registry Number 12152-97-5) | ** | 7.38 ± 0.05 | EI | 3498 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|--------------------|--|----------------|---|--------|------|
| $C_5O_5ClMn^+$ | $Mn(CO)_5Cl$ (RN-CAS Registry Number 14100-30-2) | ** | 8.94 (V) | PE | 3866 |
| Fe^+ | $(C_5H_5)_2Fe$ (Ferrocene) (RN-CAS Registry Number 102-54-5) | | 12.0 ± 1.5 | RPD | 3793 |
| Fe^+ | $(C_5H_5)_2Fe$ (Ferrocene) (RN-CAS-Registry Number 102-54-5) | | 14.10 ± 0.15 | EDD | 4072 |
| Fe^+ | $(C_5H_5)_2Fe$ (Ferrocene) (RN-CAS Registry Number 102-54-5) | $(C_5H_5)_2$ | 14.00 ± 0.25 | DC | 3628 |
| | (MT-Metastable transition(s) observed) | | | | |
| Fe^+ | $(C_5H_5)_2Fe$ (Ferrocene) (RN-CAS Registry Number 102-54-5) | $(C_5H_5)_2$ | 14.4 ± 0.5 | EI | 3628 |
| | (PC-Appearance potential of the corresponding metastable transition) | | | | |
| Fe^+ | $(C_5H_5)_2Fe$ (Ferrocene) (RN-CAS Registry Number 102-54-5) | $2C_5H_5$ | 18.9 ± 0.5 | EI | 3628 |
| | (PC-Appearance potential of the corresponding metastable transition) | | | | |
| Fe^+ | $((CH_3)_2N)_3PFe(CO)_4$ (RN-CAS Registry Number 19372-47-5) | | 17.0 ± 0.05 | EI | 3952 |
| $C_3H_3Fe^+$ | $(C_5H_5)_2Fe$ (Ferrocene) (RN-CAS-Registry Number 102-54-5) | | 17.75 ± 0.2 | EDD | 4072 |
| $C_3H_3Fe^+$ | $(C_5H_5)_2Fe$ (Ferrocene) (RN-CAS Registry Number 102-54-5) | | 18.06 ± 0.10 | EI | 3628 |
| $C_5H_5Fe^+$ | $(C_5H_5)_2Fe$ (Ferrocene) (RN-CAS Registry Number 102-54-5) | | 13.9 ± 0.2 | RPD | 3793 |
| $C_5H_5Fe^+$ | $(C_5H_5)_2Fe$ (Ferrocene) (RN-CAS-Registry Number 102-54-5) | | 12.95 ± 0.15 | EDD | 4072 |
| $C_5H_3Fe^+$ | $(C_5H_5)_2Fe$ (Ferrocene) (RN-CAS Registry Number 102-54-5) | C_3H_5 | 14.25 ± 0.25 | DC | 3628 |
| | (MT-Metastable transition(s) observed) | | | | |
| $C_5H_5Fe^+$ | $(C_5H_5)_2Fe$ (Ferrocene) (RN-CAS Registry Number 102-54-5) | C_3H_5 | 14.0 ± 0.5 | EI | 3628 |
| | (PC-Appearance potential of the corresponding metastable transition) | | | | |
| $C_{10}H_{10}Fe^+$ | $(C_5H_5)_2Fe$ (Ferrocene) (RN-CAS Registry Number 102-54-5) | ** | 6.78 ± 0.05 | PI | 3729 |
| $C_{10}H_{10}Fe^+$ | $(C_5H_5)_2Fe$ (Ferrocene) (RN-CAS Registry Number 102-54-5) | ** | 6.72 | PE | 3725 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|--------------------------|---|----------------|---|--------|------|
| $C_{10}H_{10}Fe^+$ | $(C_5H_5)_2Fe$ (Ferrocene) (RN-CAS Registry Number 102-54-5) | ** | 6.88 (V) | PE | 3688 |
| $C_{10}H_{10}Fe^+$ | $(C_5H_5)_2Fe$ (Ferrocene) (RN-CAS Registry Number 102-54-5) | ** | ~7.0 (V) | PE | 3527 |
| $C_{10}H_{10}Fe^+$ | $(C_5H_5)_2Fe$ (Ferrocene) (RN-CAS-Registry Number 102-54-5) | ** | 7.10 (V) | PE | 4072 |
| $C_{10}H_{10}Fe^+$ | $(C_5H_5)_2Fe$ (Ferrocene) (RN-CAS Registry Number 102-54-5) | ** | 6.9 ± 0.1 | RPD | 3793 |
| $C_{10}H_{10}Fe^+$ | $(C_5H_5)_2Fe$ (Ferrocene) (RN-CAS-Registry Number 102-54-5) | ** | 6.90 ± 0.1 | EDD | 4072 |
| $C_{10}H_{10}Fe^+$ | $(C_5H_5)_2Fe$ (Ferrocene) (RN-CAS Registry Number 102-54-5) | ** | 6.75 ± 0.25 | DC | 3628 |
| $C_{12}H_{12}Fe^+$ | $C_5H_5FeC_5H_4C_2H_3$ (Ferrocene, ethenyl-) (RN-CAS Registry Number 1271-51-8) | ** | 6.75 ± 0.05 | PI | 3729 |
| $C_{12}H_{14}Fe^+$ | $(C_5H_4CH_3)_2Fe$ (Ferrocene, 1,1'-dimethyl-) (RN-CAS Registry Number 1291-47-0) | ** | 6.72 (V) | PE | 3688 |
| $C_{12}H_{14}Fe^+$ | $C_5H_5FeC_5H_4C_2H_5$ (Ferrocene, ethyl-) (RN-CAS Registry Number 1273-89-8) | ** | 6.70 ± 0.05 | PI | 3729 |
| $C_{32}H_{16}N_8Fe^+$ | $C_{32}H_{16}N_8Fe$ (Iron, [29 <i>H</i> ,31 <i>H</i> -phthalocyaninato(2 ⁻)- <i>N</i> ²⁹ , <i>N</i> ³⁰ , <i>N</i> ³¹ , <i>N</i> ³²]- (<i>SP</i> -4-1)-) (RN-CAS Registry Number 132-16-1) (ON-Other name: Iron phthalocyanine) | ** | 7.22 ± 0.10 | EI | 3829 |
| $C_{15}H_{21}O_6Fe^+$ | $(CH_3COCHCOCH_3)_3Fe$ (Iron, tris(2,4-pentanedionato- <i>O,O'</i>)-, (<i>OC</i> -6-11)-) (RN-CAS Registry Number 14024-18-1) | ** | 8.10 ± 0.07 (V) | PE | 3682 |
| $C_{33}H_{57}O_6Fe^+$ | $((CH_3)_3CCOCHCOC(CH_3)_3)_3Fe$ (Iron, tris(2,2,6,6-tetramethyl-3,5-heptanedionato- <i>O,O'</i>)-) (RN-CAS Registry Number 14876-47-2) | ** | 7.92 ± 0.07 (V) | PE | 3682 |
| $C_{15}H_{12}O_6F_9Fe^+$ | $(CF_3COCHCOCH_3)_3Fe$ (Iron, tris(1,1,1-trifluoro-2,4-pentanedionato- <i>O,O'</i>)-) (RN-CAS Registry Number 14526-22-8) | ** | 9.18 ± 0.07 (V) | PE | 3682 |
| $C_{15}H_3O_6F_{18}Fe^+$ | $(CF_3COCHCOCF_3)_3Fe$ (Iron, tris(1,1,1,5,5,5-hexafluoro-2,4-pentanedionato- <i>O,O'</i>)-, (<i>OC</i> -6-11)-) (RN-CAS Registry Number 17786-67-3) | ** | 10.13 ± 0.07 (V) | PE | 3682 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|-----------------------------|---|----------------|---|--------|------|
| $C_{13}H_{18}SiFe^+$ | $C_5H_5FeC_5H_4Si(CH_3)_3$ (Ferrocene, (trimethylsilyl)-) (RN-CAS Registry Number 12215-68-8) | ** | 9.5 ± 0.10 | PI | 3729 |
| $C_6H_{18}N_3PFe^+$ | $((CH_3)_2N)_3PFe(CO)_4$ (RN-CAS Registry Number 19372-47-5) | 4CO | 10.2 ± 0.05 | EI | 3952 |
| $C_{12}H_{36}N_6P_2Fe^+$ | $((CH_3)_2N)_3P)_2Fe(CO)_3$ (RN-CAS Registry Number 19372-46-4) | 3CO | 11.7 ± 0.05 | EI | 3952 |
| $C_7H_{18}N_3OPFe^+$ | $((CH_3)_2N)_3PFe(CO)_4$ (RN-CAS Registry Number 19372-47-5) | 3CO | 10.2 ± 0.05 | EI | 3952 |
| $C_8H_{18}N_3O_2PFe^+$ | $((CH_3)_2N)_3PFe(CO)_4$ (RN-CAS Registry Number 19372-47-5) | 2CO | 9.8 ± 0.05 | EI | 3952 |
| $C_9H_{18}N_3O_3PFe^+$ | $((CH_3)_2N)_3PFe(CO)_4$ (RN-CAS Registry Number 19372-47-5) | CO | 9.4 ± 0.05 | EI | 3952 |
| $C_{10}H_{18}N_3O_4PFe^+$ | $((CH_3)_2N)_3PFe(CO)_4$ (RN-CAS Registry Number 19372-47-5) | ** | 9.0 ± 0.05 | EI | 3952 |
| $C_{13}H_{36}N_6OP_2Fe^+$ | $((CH_3)_2N)_3P)_2Fe(CO)_3$ (RN-CAS Registry Number 19372-46-4) | 2CO | 10.2 ± 0.05 | EI | 3952 |
| $C_{14}H_{36}N_6O_2P_2Fe^+$ | $((CH_3)_2N)_3P)_2Fe(CO)_3$ (RN-CAS Registry Number 19372-46-4) | CO | 9.7 ± 0.05 | EI | 3952 |
| $C_{15}H_{36}N_6O_3P_2Fe^+$ | $((CH_3)_2N)_3P)_2Fe(CO)_3$ (RN-CAS Registry Number 19372-46-4) | ** | 7.7 ± 0.05 | EI | 3952 |
| $FeP_5F_{15}^+$ | $Fe(PF_3)_5$ (RN-CAS Registry Number 13815-34-4) | ** | 8.9 | PE | 4021 |
| $C_{10}H_9ClFe^+$ | $C_5H_5FeC_5H_4Cl$ (Ferrocene, chloro-) (RN-CAS Registry Number 1273-74-1) | ** | 6.83 ± 0.05 | PI | 3729 |
| $C_{10}H_8Cl_2Fe^+$ | $(C_5H_4Cl)_2Fe$ (Ferrocene, 1,1'-dichloro-) (RN-CAS Registry Number 1293-67-0) | ** | 7.03 (V) | PE | 3688 |
| Co^+ | $(C_5H_5)_2Co$ (Cobaltocene) (RN-CAS-Registry Number 1277-43-6) | | 14.10 ± 0.15 | EDD | 4072 |
| Co^+ | $Cl_3SiCo(CO)_3PF_3$ (RN-CAS Registry Number 37769-28-1) | | 18.9 ± 0.5 | EI | 3653 |
| Co^+ | $Cl_3SiCo(CO)_2(PF_3)_2$ (RN-CAS Registry Number 37769-29-2) | | 18.9 ± 0.4 | EI | 3653 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|-----------------------|--|----------------|---|--------|------|
| $C_3H_3Co^+$ | $(C_5H_5)_2Co$ (Cobaltocene) (RN-CAS-Registry Number 1277-43-6) | | 17.50 ± 0.2 | EDD | 4072 |
| $C_5H_5Co^+$ | $(C_5H_5)_2Co$ (Cobaltocene) (RN-CAS Registry Number 1277-43-6) | | 14.0 ± 0.3 | RPD | 3793 |
| $C_5H_5Co^+$ | $(C_5H_5)_2Co$ (Cobaltocene) (RN-CAS-Registry Number 1277-43-6) | | 13.20 ± 0.2 | EDD | 4072 |
| $C_{10}H_{10}Co^+$ | $(C_5H_5)_2Co$ (Cobaltocene) (RN-CAS Registry Number 1277-43-6) | ** | 5.7 ± 0.2 | RPD | 3793 |
| $C_{10}H_{10}Co^+$ | $(C_5H_5)_2Co$ (Cobaltocene) (RN-CAS-Registry Number 1277-43-6) | ** | 5.95 ± 0.1 | EDD | 4072 |
| $C_{11}H_{13}BCo^+$ | $C_5H_5CoC_5H_5BCH_3$ (Cobalt, $(\eta^5-2,4-cyclopentadien-1-yl)[(1,2,3,4,5,6-\eta)-1-methylboratabenzene]-$) (RN-CAS Registry Number 36534-25-5) | ** | 6.56 ± 0.1 | EI | 3545 |
| $C_{12}H_{16}B_2Co^+$ | $(C_5H_5BCH_3)_2Co$ (Cobalt, bis[(1,2,3,4,5,6- η)-1-methylboratabenzene]-) (RN-CAS Registry Number 36534-27-7) | ** | 7.15 ± 0.1 | EI | 3545 |
| $C_{16}H_{15}BCo^+$ | $C_5H_5CoC_5H_5BC_6H_5$ (Cobalt, $(\eta^5-2,4-cyclopentadien-1-yl)[(1,2,3,4,5,6-\eta)-1-phenylboratabenzene]-$) (RN-CAS Registry Number 36682-12-9) | ** | 6.63 ± 0.1 | EI | 3545 |
| $C_{22}H_{20}B_2Co^+$ | $(C_5H_5BC_6H_5)_2Co$ (Cobalt, bis[(1,2,3,4,5,6- η)-1-phenylboratabenzene]-) (RN-CAS Registry Number 36534-31-3) | ** | 7.25 ± 0.1 | EI | 3545 |
| $C_{32}H_{16}N_8Co^+$ | $C_{32}H_{16}N_8Co$ (Cobalt, [29 <i>H</i> ,31 <i>H</i> -phthalocyaninato(2 ⁻)- $N^{29},N^{30},N^{31},N^{32}$]- (<i>SP-4-1</i>)-) (RN-CAS Registry Number 3317-67-7) (ON-Other name: Cobalt phthalocyanine) | ** | 7.46 ± 0.10 | EI | 3829 |
| $CoCo^+$ | $Cl_3SiCo(CO)_3PF_3$ (RN-CAS Registry Number 37769-28-1) | | 16.7 ± 0.3 | EI | 3653 |
| $CoCo^+$ | $Cl_3SiCo(CO)_2(PF_3)_2$ (RN-CAS Registry Number 37769-29-2) | | 16.9 ± 0.4 | EI | 3653 |
| $C_2O_2Co^+$ | $Cl_3SiCo(CO)_3PF_3$ (RN-CAS Registry Number 37769-28-1) | | 15.5 ± 0.4 | EI | 3653 |
| $C_2O_2Co^+$ | $Cl_3SiCo(CO)_2(PF_3)_2$ (RN-CAS Registry Number 37769-29-2) | | 15.5 ± 0.3 | EI | 3653 |
| $C_4HO_4Co^+$ | $HCo(CO)_4$ (RN-CAS Registry Number 16842-03-8) | ** | 8.90 ± 0.02 (V) | PE | 3827 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|--------------------------|--|----------------|---|--------|------|
| $C_{15}H_{21}O_6Co^+$ | $(CH_3COCHCOCH_3)_3Co$ (Cobalt, tris(2,4-pentanedionato- <i>O,O'</i>)-, (<i>OC</i> -6-11)-) (RN-CAS Registry Number 21679-46-9) | ** | 7.52 ± 0.07 (V) | PE | 3682 |
| $C_{12}H_{16}B_2O_2Co^+$ | $(C_5H_5BOCH_3)_2Co$ (Cobalt, bis[(1,2,3,4,5,6- η)-1-methoxyboratabenzene]-) (RN-CAS Registry Number 36534-20-0) | ** | 7.02 ± 0.1 | EI | 3545 |
| $C_{15}H_3O_6F_{18}Co^+$ | $(CF_3COCHCOCF_3)_3Co$ (Cobalt, tris(1,1,1,5,5,5-hexafluoro-2,4-pentanedionato- <i>O,O'</i>)-, (<i>OC</i> -6-11)-) (RN-CAS Registry Number 16702-37-7) | ** | 9.73 ± 0.07 (V) | PE | 3682 |
| $C_4H_3O_4SiCo^+$ | $SiH_3Co(CO)_4$ (RN-CAS Registry Number 14652-62-1) | ** | 8.85 ± 0.02 (V) | PE | 3827 |
| F_3PCo^+ | $Cl_3SiCo(CO)_3PF_3$ (RN-CAS Registry Number 37769-28-1) | | 16.9 ± 0.4 | EI | 3653 |
| F_3PCo^+ | $Cl_3SiCo(CO)_2(PF_3)_2$ (RN-CAS Registry Number 37769-29-2) | | 16.7 ± 0.3 | EI | 3653 |
| $ClCo^+$ | $Cl_3SiCo(CO)_3PF_3$ (RN-CAS Registry Number 37769-28-1) | | 18.7 ± 0.4 | EI | 3653 |
| $ClCo^+$ | $Cl_3SiCo(CO)_2(PF_3)_2$ (RN-CAS Registry Number 37769-29-2) | | 18.9 ± 0.5 | EI | 3653 |
| $SiCl_2Co^+$ | $Cl_3SiCo(CO)_3PF_3$ (RN-CAS Registry Number 37769-28-1) | | 18.4 ± 0.6 | EI | 3653 |
| $SiCl_2Co^+$ | $Cl_3SiCo(CO)_2(PF_3)_2$ (RN-CAS Registry Number 37769-29-2) | | 18.4 ± 0.3 | EI | 3653 |
| $SiCl_3Co^+$ | $Cl_3SiCo(CO)_3PF_3$ (RN-CAS Registry Number 37769-28-1) | | 13.5 ± 0.4 | EI | 3653 |
| $SiCl_3Co^+$ | $Cl_3SiCo(CO)_2(PF_3)_2$ (RN-CAS Registry Number 37769-29-2) | | 13.6 ± 0.2 | EI | 3653 |
| $COSiCl_3Co^+$ | $Cl_3SiCo(CO)_3PF_3$ (RN-CAS Registry Number 37769-28-1) | | 11.9 ± 0.3 | EI | 3653 |
| $COSiCl_3Co^+$ | $Cl_3SiCo(CO)_2(PF_3)_2$ (RN-CAS Registry Number 37769-29-2) | | 11.9 ± 0.3 | EI | 3653 |
| $C_2O_2SiCl_3Co^+$ | $Cl_3SiCo(CO)_3PF_3$ (RN-CAS Registry Number 37769-28-1) | | 10.8 ± 0.4 | EI | 3653 |
| $C_2O_2SiCl_3Co^+$ | $Cl_3SiCo(CO)_2(PF_3)_2$ (RN-CAS Registry Number 37769-29-2) | | 11.0 ± 0.2 | EI | 3653 |
| $C_3O_3SiCl_3Co^+$ | $Cl_3SiCo(CO)_3PF_3$ (RN-CAS Registry Number 37769-28-1) | | 9.6 ± 0.3 | EI | 3653 |
| $F_3SiPCl_3Co^+$ | $Cl_3SiCo(CO)_3PF_3$ (RN-CAS Registry Number 37769-28-1) | | 10.2 ± 0.5 | EI | 3653 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|--------------------------|--|----------------|---|--------|------|
| $F_3SiP_3Cl_3Co^+$ | $Cl_3SiCo(CO)_2(PF_3)_2$ (RN-CAS Registry Number 37769-29-2) | | 10.2 ± 0.4 | EI | 3653 |
| $C_3O_3F_3SiP_3Cl_3Co^+$ | $Cl_3SiCo(CO)_3PF_3$ (RN-CAS Registry Number 37769-28-1) | | 9.8 ± 0.2 | EI | 3653 |
| $COF_3SiP_3Cl_3Co^+$ | $Cl_3SiCo(CO)_3PF_3$ (RN-CAS Registry Number 37769-28-1) | | 10.7 ± 0.3 | EI | 3653 |
| $COF_3SiP_3Cl_3Co^+$ | $Cl_3SiCo(CO)_2(PF_3)_2$ (RN-CAS Registry Number 37769-29-2) | | 10.9 ± 0.2 | EI | 3653 |
| $C_3O_3F_3SiP_3Cl_3Co^+$ | $Cl_3SiCo(CO)_3PF_3$ (RN-CAS Registry Number 37769-28-1) | ** | 9.4 ± 0.2 | EI | 3653 |
| $COF_6SiP_2Cl_3Co^+$ | $Cl_3SiClCo(CO)_2(PF_3)_2$ (RN-CAS Registry Number 37769-29-2) | | 9.7 ± 0.2 | EI | 3653 |
| $C_2O_2F_6SiP_2Cl_3Co^+$ | $Cl_3SiCo(CO)_2(PF_3)_2$ (RN-CAS Registry Number 37769-29-2) | ** | 9.3 ± 0.2 | EI | 3653 |
| Ni^+ | $(C_5H_5)_2Ni$ (Nickelocene) (RN-CAS Registry Number 1271-28-9) | | 13.9 ± 0.4 | RPD | 3793 |
| Ni^+ | $(C_5H_5)_2Ni$ (Nickelocene) (RN-CAS Registry Number 1271-28-9) | $(C_5H_5)_2$ | 13.00 ± 0.25 | DC | 3628 |
| | (MT-Metastable transition(s) observed) | | | | |
| Ni^+ | $(C_5H_5)_2Ni$ (Nickelocene) (RN-CAS Registry Number 1271-28-9) | $(C_5H_5)_2$ | 14.3 ± 0.5 | EI | 3628 |
| | (PC-Appearance potential of the corresponding metastable transition) | | | | |
| Ni^+ | $(C_5H_5)_2Ni$ (Nickelocene) (RN-CAS Registry Number 1271-28-9) | $2C_5H_5$ | 17.7 ± 0.5 | EI | 3628 |
| Ni^+ | C_5H_5NiNO (Nickel, (η^5 -2,4-cyclopentadien-1-yl)nitrosyl-) (RN-CAS Registry Number 12071-73-7) | | 14.8 | EI | 4015 |
| $C_3H_3Ni^+$ | $(C_5H_5)_2Ni$ (Nickelocene) (RN-CAS Registry Number 1271-28-9) | | 16.7 ± 0.1 | EI | 3628 |
| $C_3H_5Ni^+$ | $(C_5H_5)_2Ni$ (Nickelocene) (RN-CAS Registry Number 1271-28-9) | | 12.6 ± 0.2 | RPD | 3793 |
| $C_3H_5Ni^+$ | $(C_5H_5)_2Ni$ (Nickelocene) (RN-CAS Registry Number 1271-28-9) | C_5H_5 | 13.00 ± 0.25 | DC | 3628 |
| | (MT-Metastable transition(s) observed) | | | | |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|---|--|-------------------------------|---|--------|------|
| C ₅ H ₅ Ni ⁺ | (C ₅ H ₅) ₂ Ni (Nickelocene) (RN-CAS Registry Number 1271-28-9) | C ₅ H ₅ | 13.0±0.5 | EI | 3628 |
| | (PC-Appearance potential of the corresponding metastable transition) | | | | |
| C ₅ H ₅ Ni ⁺ | C ₅ H ₅ NiNO (Nickel, (η ⁵ -2,4-cyclopentadien-1-yl)nitrosyl-) (RN-CAS Registry Number 12071-73-7) | | 10.5 | EI | 4015 |
| C ₆ H ₁₀ Ni ⁺ | (C ₃ H ₅) ₂ Ni (Nickel, bis(η ³ -2-propenyl)-) (RN-CAS Registry Number 12077-85-9) | ** | 7.33±0.04 | PE | 3711 |
| C ₈ H ₈ Ni ⁺ | (C ₅ H ₅) ₂ Ni (Nickelocene) (RN-CAS Registry Number 1271-28-9) | C ₂ H ₂ | 12.6±0.1 | EI | 3628 |
| | (MT-Metastable transition(s) observed) | | | | |
| C ₁₀ H ₁₀ Ni ⁺ | (C ₅ H ₅) ₂ Ni (Nickelocene) (RN-CAS Registry Number 1271-28-9) | ** | 6.2 | PE | 3725 |
| C ₁₀ H ₁₀ Ni ⁺ | (C ₅ H ₅) ₂ Ni (Nickelocene) (RN-CAS Registry Number 1271-28-9) | ** | 6.8±0.1 | RPD | 3793 |
| C ₁₀ H ₁₀ Ni ⁺ | (C ₅ H ₅) ₂ Ni (Nickelocene) (RN-CAS Registry Number 1271-28-9) | ** | 6.50±0.25 | DC | 3628 |
| C ₃₂ H ₁₆ N ₈ Ni ⁺ | C ₃₂ H ₁₆ N ₈ Ni (Nickel, [29 <i>H</i> ,31 <i>H</i> -phthalocyaninato(2 ⁻)-N ²⁹ ,N ³⁰ ,N ³¹ ,N ³²]- (SP-4-1)-) (RN-CAS Registry Number 14055-02-8) (ON-Other name: Nickel phthalocyanine) | ** | 7.45±0.10 | EI | 3829 |
| C ₅ H ₅ NONi ⁺ | C ₅ H ₅ NiNO (Nickel, (η ⁵ -2,4-cyclopentadien-1-yl)nitrosyl-) (RN-CAS Registry Number 12071-73-7) | ** | 8.5 | EI | 4015 |
| C ₁₂ H ₁₈ N ₂ O ₂ Ni ⁺ | C ₁₂ H ₁₈ O ₂ N ₂ Ni (Nickel, [[4,4'-(1,2-ethanediyldinitrilo)bis[2-pentanonato]](2 ⁻)-N,N',O,O']-) (RN-CAS Registry Number 13878-48-3) | ** | 6.80 (V) | PE | 3822 |
| Cu ⁺ | Cu (RN-CAS Registry Number 7440-50-8) | ** | 7.72634±0.00002 S | | 4011 |
| Cu ⁺ | Cu (RN-CAS Registry Number 7440-50-8) | ** | 7.71±0.05 | RPD | 3745 |
| Cu ⁺ | Cu ₃ Cl ₃ ? (RN-CAS Registry Number 11093-65-5) | | 14.0±0.5 | EI | 3455 |
| Cu ⁺ | Cu ₄ Cl ₄ ? (RN-CAS Registry Number 11093-67-7) | | 14.0±0.5 | EI | 3455 |
| Cu ⁺ | Cu ₃ I ₃ (RN-CAS Registry Number XXXXX-XX-X) | | 15.2±0.5 | EI | 3603 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|---|---|--|---|--------|------|
| Cu_2^+ | Cu_2 (RN-CAS Registry Number 34015-11-7) | ** | 7.8 | EI | 3775 |
| Cu_2^+ | Cu_3I_3 (RN-CAS Registry Number XXXXX-XX-X) | | 15.2 ± 0.5 | EI | 3603 |
| Cu_3^+ | Cu_3I_3 (RN-CAS Registry Number XXXXX-XX-X) | | 17.0 ± 0.5 | EI | 3603 |
| $\text{C}_{32}\text{H}_{16}\text{N}_8\text{Cu}^+$ | $\text{C}_{32}\text{H}_{16}\text{N}_8\text{Cu}$ (Copper, [29 <i>H</i> ,31 <i>H</i> -phthalocyaninato(2 ⁻)- <i>N</i> ²⁹ , <i>N</i> ³⁰ , <i>N</i> ³¹ , <i>N</i> ³²]- (<i>SP</i> -4-1)-) (RN-CAS Registry Number 147-14-8) (ON-Other name: Copper phthalocyanine) | ** | 7.37 ± 0.10 | EI | 3829 |
| $\text{C}_{12}\text{H}_{18}\text{N}_2\text{O}_2\text{Cu}^+$ | $\text{C}_{12}\text{H}_{18}\text{O}_2\text{N}_2\text{Cu}$ (Copper, [[4,4'-(1,2-ethanediyldinitrilo)bis[2-pentanonato]](2 ⁻)- <i>N,N',O,O'</i>]-) (RN-CAS Registry Number 14263-53-7) | ** | 7.00 (V) | PE | 3822 |
| CuCl^+ | CuCl (RN-CAS Registry Number 7758-89-6) | ** | 10.7 ± 0.3 | EI | 3901 |
| Cu_2Cl^+ | Cu_3Cl_3 (RN-CAS Registry Number 11093-65-5) | CuCl_2 | 12.0 ± 0.5 | EI | 3455 |
| Cu_2Cl^+ | Cu_3Cl_3 (RN-CAS Registry Number 11093-65-5) | $\text{CuCl}^? + \text{Cl}^?$ | 14.8 ± 0.5 | EI | 3455 |
| Cu_2Cl^+ | $\text{Cu}_4\text{Cl}_4^?$ (RN-CAS Registry Number 11093-67-7) | $\text{CuCl}_2^? + \text{Cl}^?$ | 14.8 ± 0.5 | EI | 3455 |
| Cu_2Cl^+ | $\text{Cu}_4\text{Cl}_4^?$ (RN-CAS Registry Number 11093-67-7) | $\text{Cu}_2\text{Cl}_2^? + \text{Cl}^?$ | 14.8 ± 0.5 | EI | 3455 |
| Cu_2Cl_2^+ | Cu_2Cl_2 (RN-CAS Registry Number 12258-96-7) | ** | 9.6 ± 0.03 | EI | 3901 |
| Cu_2Cl_2^+ | Cu_4Cl_4 (RN-CAS Registry Number 11093-67-7) | | 14.0 ± 0.5 | EI | 3455 |
| Cu_3Cl_2^+ | $\text{Cu}_3\text{Cl}_3^?$ (RN-CAS Registry Number 11093-65-5) | | 12.7 ± 0.5 | EI | 3455 |
| Cu_3Cl_2^+ | $\text{Cu}_4\text{Cl}_4^?$ (RN-CAS Registry Number 11093-67-7) | $\text{CuCl}_2^?$ | 12.7 ± 0.5 | EI | 3455 |
| Cu_3Cl_3^+ | Cu_3Cl_3 (RN-CAS Registry Number 11093-65-5) | ** | 9.9 ± 0.5 | EI | 3455 |
| Cu_4Cl_3^+ | Cu_4Cl_4 (RN-CAS Registry Number 11093-67-7) | | 12.4 ± 0.5 | EI | 3455 |
| Cu_4Cl_4^+ | Cu_4Cl_4 (RN-CAS Registry Number 11093-67-7) | ** | 9.9 ± 0.5 | EI | 3455 |
| Cu_5Cl_4^+ | Cu_5Cl_5 (RN-CAS Registry Number 11093-68-8) | | 10.6 ± 0.5 | EI | 3455 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|---|---|---|---|--------|------|
| Cu_5Cl_5^+ | Cu_5Cl_5 (RN-CAS Registry Number 11093-68-8) | ** | 9.7 ± 0.5 | EI | 3455 |
| Zn^+ | Zn (RN-CAS Registry Number 7440-66-6) | ** | 9.57 ± 0.07 | RPD | 3745 |
| $\text{C}_{32}\text{H}_{16}\text{N}_8\text{Zn}^+$ | $\text{C}_{32}\text{H}_{16}\text{N}_8\text{Zn}$ (Zinc, [29 <i>H</i> ,31 <i>H</i> -phthalocyaninato(2 ⁻)- <i>N</i> ²⁹ , <i>N</i> ³⁰ , <i>N</i> ³¹ , <i>N</i> ³²]- (<i>SP</i> -4-1)-) (RN-CAS Registry Number 14320-04-8) (ON-Other name: Zinc phthalocyanine) | ** | 7.37 ± 0.10 | EI | 3829 |
| $\text{ZnCl}_2(^2\Pi_g)$ | ZnCl_2 (RN-CAS Registry Number 7646-85-7) | ** | 11.7 (V) | PE | 3963 |
| ZnCl_2^+ | ZnCl_2 (RN-CAS Registry Number 7646-85-7) | ** | 11.87 ± 0.05 (V) | PE | 3833 |
| $\text{ZnCl}_2(^2\Pi_u)$ | ZnCl_2 (RN-CAS Registry Number 7646-85-7) | ** | 12.3 (V) | PE | 3963 |
| $\text{ZnCl}_2(^2\Pi_u)$ | ZnCl_2 (RN-CAS Registry Number 7646-85-7) | ** | 12.39 ± 0.05 (V) | PE | 3833 |
| $\text{ZnCl}_2(^2\Sigma_u)$ | ZnCl_2 (RN-CAS Registry Number 7646-85-7) | ** | 13.0 (V) | PE | 3963 |
| $\text{ZnCl}_2(^2\Sigma_u)$ | ZnCl_2 (RN-CAS Registry Number 7646-85-7) | ** | 13.07 ± 0.05 (V) | PE | 3833 |
| $\text{ZnCl}_2(^2\Sigma_g)$ | ZnCl_2 (RN-CAS Registry Number 7646-85-7) | ** | 14.0 (V) | PE | 3963 |
| $\text{ZnCl}_2(^2\Sigma_g)$ | ZnCl_2 (RN-CAS Registry Number 7646-85-7) | ** | 14.10 ± 0.05 (V) | PE | 3833 |
| ZnCl_2^* | ZnCl_2 (RN-CAS Registry Number 7646-85-7) | ** | 19.02 ± 0.05 (V) | PE | 3833 |
| Ga^+ | Ga (RN-CAS Registry Number 7440-55-3) | ** | 6.1 | EI | 3472 |
| Ga^+ | $(\text{CH}_3)_3\text{Ga}$ (RN-CAS Registry Number 1445-79-0) (MT-Metastable transition(s) observed) | $\text{C}_2\text{H}_6 + \text{CH}_3$ | 13.24 ± 0.03 | EI | 3474 |
| Ga^+ | $(\text{CH}_2=\text{CH})_3\text{Ga}$ (RN-CAS Registry Number 1188-13-2) (MT-Metastable transition(s) observed) | $\text{C}_4\text{H}_6 + \text{C}_2\text{H}_3$ | 11.17 ± 0.05 | EI | 3474 |
| CH_3Ga^+ | $(\text{CH}_3)_3\text{Ga}$ (RN-CAS Registry Number 1445-79-0) (MT-Metastable transition(s) observed) | 2CH_3 | 13.65 ± 0.07 | EI | 3474 |
| $\text{C}_2\text{H}_3\text{Ga}^+$ | $(\text{CH}_2=\text{CH})_3\text{Ga}$ (RN-CAS Registry Number 1188-13-2) | C_4H_6 | 10.95 ± 0.05 | EI | 3474 |
| $\text{C}_2\text{H}_4\text{Ga}^+$ | $(\text{CH}_2=\text{CH})_3\text{Ga}$ (RN-CAS Registry Number 1188-13-2) (MT-Metastable transition(s) observed) | $\text{C}_2\text{H}_3 + \text{C}_2\text{H}_2$ | 11.85 ± 0.05 | EI | 3474 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|--------------------------|--|----------------|---|--------|------|
| $C_2H_6Ga^+$ | $(CH_3)_3Ga$ (RN-CAS Registry Number 1445-79-0) (MT-Metastable transition(s) observed) | CH_3 | 10.16 ± 0.03 | EI | 3474 |
| $C_3H_9Ga^+$ | $(CH_3)_3Ga$ (RN-CAS Registry Number 1445-79-0) | ** | 9.87 ± 0.02 | EI | 3474 |
| $C_4H_6Ga^+$ | $(CH_2=CH)_3Ga$ (RN-CAS Registry Number 1188-13-2) | C_2H_3 | 11.04 ± 0.08 | EI | 3474 |
| $C_6H_6Ga^+$ | $(CH_2=CH)_3Ga$ (RN-CAS Registry Number 1188-13-2) | ** | 10.81 ± 0.1 | EI | 3474 |
| $C_{12}H_{10}Ga^+$ | $(C_6H_5)_3Ga$ (Gallium, triphenyl-) (RN-CAS-Registry Number 1088-02-4) | C_6H_5 | 8.63 | PI | 4055 |
| $C_{18}H_{15}Ga^+$ | $(C_6H_5)_3Ga$ (Gallium, triphenyl-) (RN-CAS-Registry Number 1088-02-4) | ** | 8.46 ± 0.03 | PI | 4055 |
| GaF^+ | GaF (RN-CAS Registry Number 13966-78-4) | ** | 10.7 ± 0.6 | EI | 3613 |
| GaF_2^+ | GaF_3 (RN-CAS Registry Number 7783-51-9) | | 15.1 ± 0.5 | EI | 3613 |
| $Ga_2F_5^+$ | Ga_2F_6 (RN-CAS Registry Number 38586-87-7) | | 15.6 ± 0.5 | EI | 3613 |
| $C_{15}H_3O_6F_{18}Ga^+$ | $(CF_3COCHCOCF_3)_3Ga$ (Gallium, tris(1,1,1,5,5,5-hexafluoro-2,4-pentanedionato- <i>O,O'</i>)-, (OC-6-11)-) (RN-CAS Registry Number 19648-92-1) | ** | 10.19 ± 0.07 (V) | PE | 3682 |
| GaP^+ | GaP (RN-CAS Registry Number 12063-98-8) | ** | ≤ 9 | EI | 3472 |
| Ge^+ | Ge (RN-CAS Registry Number 7440-56-4) | ** | 8.0 ± 0.3 | EI | 3610 |
| Ge_2^+ | Ge_2 (RN-CAS Registry Number 12596-05-3) | ** | 7.8 | EI | 3775 |
| $GeH_4(^2B_2)$ | GeH_4 (RN-CAS Registry Number 7782-65-2) | ** | 11.34 | PE | 3716 |
| $GeH_4(^2T_2)$ | GeH_4 (RN-CAS Registry Number 7782-65-2) | ** | 12.0 (V) | PE | 3508 |
| $GeH_4(^2A_1)$ | GeH_4 (RN-CAS Registry Number 7782-65-2) | ** | 18.21 | PE | 3716 |
| $GeH_4(^2A_1)$ | GeH_4 (RN-CAS Registry Number 7782-65-2) | ** | 18.65 (V) | PE | 3508 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|--------------------|---|-------------------|---|--------|------|
| $C_3H_9Ge^+$ | $(CH_3)_4Ge$ (RN-CAS Registry Number 865-52-1) | CH_3 | 10.05 ± 0.14 | EI | 3548 |
| $C_3H_9Ge^+$ | $(CH_3)_3CGe(CH_3)_3$ (RN-CAS Registry Number 1184-91-4) | $(CH_3)_3C$ | 9.91 ± 0.22 | EI | 3548 |
| $C_3H_9Ge^+$ | $(CH_3)_3GeGe(CH_3)_3$ (RN-CAS Registry Number 993-52-2) | $(CH_3)_3Ge$ | 9.96 ± 0.16 | EI | 3548 |
| $C_3H_9Ge^+$ | $(CH_3)_3SiGe(CH_3)_3$ (RN-CAS Registry Number 31608-80-7) | $(CH_3)_3Si$ | 9.99 ± 0.14 | EI | 3548 |
| $C_3H_9Ge^+$ | $(CH_3)_3GeCl$ (RN-CAS Registry Number 1529-47-1) | Cl | 11.75 ± 0.04 | EI | 3939 |
| $C_3H_9Ge^+$ | $C_5H_5(CO)_3CrGe(CH_3)_3$ (Tricarbonyl(η^5 -2,4-cyclopentadien-1-yl)(trimethylgermyl)chromium) (RN-CAS Registry Number 34962-34-0) | $C_5H_5(CO)_3Cr?$ | 9.06 ± 0.1 | EI | 3495 |
| $C_3H_9Ge^+$ | $C_5H_5(CO)_3MoGe(CH_3)_3$ (Tricarbonyl(η^5 -2,4-cyclopentadien-1-yl)(trimethylgermyl)molybdenum) (RN-CAS Registry Number 33306-91-1) | $C_5H_5(CO)_3Mo?$ | 9.63 ± 0.14 | EI | 3495 |
| $C_3H_9Ge^+$ | $(CH_3)_3GeSn(CH_3)_3$ (RN-CAS Registry Number 16393-89-8) | $(CH_3)_3Sn$ | 10.01 ± 0.18 | EI | 3548 |
| $C_3H_9Ge^+$ | $C_5H_5(CO)_3WGe(CH_3)_3$ (Tricarbonyl(η^5 -2,4-cyclopentadien-1-yl)(trimethylgermyl)tungsten) (RN-CAS Registry Number 33306-93-3) | $C_5H_5(CO)_3W?$ | 9.84 ± 0.1 | EI | 3495 |
| $C_4H_{12}Ge^+$ | $(CH_3)_4Ge$ (RN-CAS Registry Number 865-52-1) | ** | 9.33 ± 0.04 | PE | 3880 |
| $C_4H_{12}Ge^+$ | $(CH_3)_4Ge$ (RN-CAS Registry Number 865-52-1) | ** | 9.38 ± 0.1 | PE | 3677 |
| $C_4H_{12}Ge^+$ | $(CH_3)_4Ge$ (RN-CAS Registry Number 865-52-1) | ** | 9.29 ± 0.14 | EI | 3548 |
| $C_7H_{18}Ge^+$ | $(CH_3)_3CGe(CH_3)_3$ (RN-CAS Registry Number 1184-91-4) | ** | 8.98 ± 0.12 | EI | 3548 |
| $C_8H_{18}Ge^+$ | $CH_2=CHGe(C_2H_5)_3$ (RN-CAS Registry Number 6207-41-6) | ** | 9.2 (V) | PE | 3850 |
| $C_8H_{20}Ge^+$ | $(C_2H_5)_4Ge$ (RN-CAS Registry Number 597-63-7) | ** | 9.3 (V) | PE | 3850 |
| $C_9H_{14}Ge^+$ | $C_6H_5Ge(CH_3)_3$ (Germane, trimethylphenyl-) (RN-CAS Registry Number 1626-00-2) | ** | ~ 8.75 | CTS | 3922 |
| $C_9H_{20}Ge^+$ | $CH_2=CHCH_2Ge(C_2H_5)_3$ (RN-CAS Registry Number 1793-90-4) | ** | 8.8 (V) | PE | 3850 |
| $C_{10}H_{14}Ge^+$ | $C_8H_8Ge(CH_3)_2$ (1 <i>H</i> -2-Benzogermole, 2,3-dihydro-2,2-dimethyl-) (RN-CAS Registry Number 27490-21-7) | ** | 8.39 | CTS | 3546 |
| $C_{10}H_{16}Ge^+$ | $C_6H_5CH_2Ge(CH_3)_3$ (Germane, trimethyl(phenylmethyl)-) (RN-CAS Registry Number 2848-62-6) | ** | 8.19 | CTS | 3922 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|---------------------|---|----------------|---|--------|------|
| $C_{10}H_{16}Ge^+$ | $C_6H_5CH_2Ge(CH_3)_3$ (Germane, trimethyl(phenylmethyl)-) (RN-CAS Registry Number 2848-62-6) | ** | 8.26 | CTS | 3546 |
| $C_{12}H_{18}Ge^+$ | $C_9H_9Ge(CH_3)_3$ (Germane, 1-indanyltrimethyl-) (RN-CAS Registry Number 27490-24-0) | ** | 8.02 | CTS | 3546 |
| $C_{13}H_{15}Ge^+$ | $C_{10}H_7Ge(CH_3)_3$ (Germane, trimethyl-1-naphthalenyl-) (RN-CAS Registry Number XXXXX-XX-X) | ** | 8.00 | CTS | 3922 |
| $C_{14}H_{18}Ge^+$ | $C_{10}H_7CH_2Ge(CH_3)_3$ (Germane, trimethyl(1-naphthalenylmethyl)-) (RN-CAS Registry Number 51220-35-0) | ** | 7.78 | CTS | 3922 |
| $C_6H_{18}Ge_2^+$ | $(CH_3)_3GeGe(CH_3)_3$ (RN-CAS Registry Number 993-52-2) | ** | 8.18 ± 0.11 | EI | 3548 |
| $GeH_3N_3(^2A'')$ | GeH_3N_3 (RN-CAS Registry Number 21138-22-7) | ** | 10.01 ± 0.02 (V) | PE | 3670 |
| $Ge_3H_9N^+$ | $(GeH_3)_3N$ (RN-CAS Registry Number 22856-27-5) | ** | 9.2 ± 0.1 (V) | PE | 3661 |
| GeO^+ | GeO (RN-CAS Registry Number 20619-16-3) | ** | 11.0 ± 0.3 | EI | 3610 |
| $Ge_2H_6O^+(^2B_1)$ | $(GeH_3)_2O$ (RN-CAS Registry Number 14939-17-4) | ** | 10.40 (V) | PE | 3656 |
| CH_3NOGe^+ | GeH_3NCO (RN-CAS Registry Number 6928-42-3) | ** | 10.76 ± 0.02 (V) | PE | 3670 |
| GeF_2^+ | GeF_2 (RN-CAS Registry Number 13940-63-1) | ** | 12.9 ± 0.3 | EI | 3570 |
| $GeF_4(^2T_1)$ | GeF_4 (RN-CAS Registry Number 7783-58-6) | ** | 16.06 ± 0.04 (V) | PE | 3880 |
| $GeF_4(^2T_2)$ | GeF_4 (RN-CAS Registry Number 7783-58-6) | ** | 16.08 (V) | PE | 3508 |
| GeF_4^* | GeF_4 (RN-CAS Registry Number 7783-58-6) | ** | 16.50 (V) | PE | 3508 |
| $GeF_4(^2T_2)$ | GeF_4 (RN-CAS Registry Number 7783-58-6) | ** | 16.55 ± 0.04 (V) | PE | 3880 |
| GeF_4^* | GeF_4 (RN-CAS Registry Number 7783-58-6) | ** | 17.04 (V) | PE | 3508 |
| $GeF_4(^2A_1)$ | GeF_4 (RN-CAS Registry Number 7783-58-6) | ** | 17.06 ± 0.04 (V) | PE | 3880 |
| $GeF_4(^2T_2)$ | GeF_4 (RN-CAS Registry Number 7783-58-6) | ** | 18.55 ± 0.04 (V) | PE | 3880 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|---|--|-----------------|---|--------|------|
| GeF ₄ ⁺ * | GeF ₄ (RN-CAS Registry Number 7783-58-6) | ** | 18.60 (V) | PE | 3508 |
| GeF ₄ ⁺ (² A ₁) | GeF ₄ (RN-CAS Registry Number 7783-58-6) | ** | 21.3 (V) | PE | 3508 |
| Ge ₂ F ₄ ⁺ | Ge ₂ F ₄ (RN-CAS Registry Number 12332-08-0) | ** | 13.1±0.3 | EI | 3570 |
| GeH ₃ F ⁺ (² E) | GeH ₃ F (RN-CAS Registry Number 13537-30-9) | ** | 12.3±0.1 (V) | PE | 3510 |
| GeH ₃ F ⁺ (² A ₁) | GeH ₃ F (RN-CAS Registry Number 13537-30-9) | ** | ~ 15 (V) | PE | 3510 |
| GeH ₃ F ⁺ | GeH ₃ F (RN-CAS Registry Number 13537-30-9) | ** | 15.0±0.1 (V) | PE | 3502 |
| GeH ₃ F ⁺ (² E) | GeH ₃ F (RN-CAS Registry Number 13537-30-9) | ** | 15.0±0.1 (V) | PE | 3510 |
| GeH ₂ F ₂ ⁺ | GeH ₂ F ₂ (RN-CAS Registry Number 14986-65-3) | ** | 13.0±0.1 (V) | PE | 3510 |
| GeOF ₂ ⁺ | GeOF ₂ (RN-CAS Registry Number XXXXX-XX-X) | ** | 12.3±0.3 | EI | 3570 |
| C ₆ H ₁₈ SiGe ⁺ | (CH ₃) ₃ SiGe(CH ₃) ₃ (RN-CAS Registry Number 31608-80-7) | ** | 8.31±0.10 | EI | 3548 |
| GeH ₃ P ⁺ | GeH ₃ PH ₂ (RN-CAS Registry Number 13573-06-3) | ** | 9.7±0.1 (V) | PE | 3661 |
| Ge ₃ H ₉ P ⁺ | (GeH ₃) ₃ P (RN-CAS Registry Number 15587-38-9) | ** | 9.0±0.1 (V) | PE | 3661 |
| GeH ₄ S ⁺ (² A ⁺) | GeH ₃ SH (RN-CAS Registry Number 21847-06-3) | ** | 9.69 (V) | PE | 3656 |
| Ge ₂ H ₆ S ⁺ (² B ₁) | (GeH ₃) ₂ S (RN-CAS Registry Number 18852-54-5) | ** | 9.25 (V) | PE | 3656 |
| CH ₃ NSGe ⁺ | GeH ₃ NCS (RN-CAS Registry Number 16475-45-9) | ** | 9.14±0.02 (V) | PE | 3670 |
| Cl ₃ Ge ⁺ | GeCl ₄ (RN-CAS Registry Number 10038-98-9) | Cl | 12.12±0.04 | EI | 3939 |
| Cl ₃ Ge ⁺ | CH ₃ GeCl ₃ (RN-CAS Registry Number 993-10-2) | CH ₃ | 12.22±0.05 | EI | 3939 |
| Cl ₄ Ge ⁺ | GeCl ₄ (RN-CAS Registry Number 10038-98-9) | ** | 11.68±0.05 | EI | 3939 |
| GeH ₃ Cl ⁺ (² E) | GeH ₃ Cl (RN-CAS Registry Number 13637-65-5) | ** | 11.30±0.02 (V) | PE | 3510 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|--|---|-----------------|---|--------|------|
| GeH ₃ Cl ⁺ | GeH ₃ Cl (RN-CAS Registry Number 13637-65-5) | ** | 11.34±0.05 (V) | PE | 3502 |
| GeH ₃ Cl ⁺ (² A ₁) | GeH ₃ Cl (RN-CAS Registry Number 13637-65-5) | ** | 13.05±0.02 (V) | PE | 3510 |
| GeH ₃ Cl ⁺ (² E) | GeH ₃ Cl (RN-CAS Registry Number 13637-65-5) | ** | 13.3±0.1 (V) | PE | 3510 |
| GeH ₂ Cl ₂ ⁺ | GeH ₂ Cl ₂ (RN-CAS Registry Number 15230-48-5) | ** | 11.42±0.02 (V) | PE | 3510 |
| C ₂ H ₆ ClGe ⁺ | (CH ₃) ₃ GeCl (RN-CAS Registry Number 1529-47-1) | CH ₃ | 10.44±0.04 | EI | 3939 |
| C ₂ H ₆ ClGe ⁺ | (CH ₃) ₂ GeCl ₂ (RN-CAS Registry Number 1529-48-2) | Cl | 11.56±0.04 | EI | 3939 |
| C ₃ H ₉ ClGe ⁺ | (CH ₃) ₃ GeCl (RN-CAS Registry Number 1529-47-1) | ** | 9.62±0.04 | EI | 3939 |
| CH ₃ Cl ₂ Ge ⁺ | (CH ₃) ₂ GeCl ₂ (RN-CAS Registry Number 1529-48-2) | CH ₃ | 11.08±0.05 | EI | 3939 |
| CH ₃ Cl ₂ Ge ⁺ | CH ₃ GeCl ₃ (RN-CAS Registry Number 993-10-2) | Cl | 11.78±0.05 | EI | 3939 |
| C ₂ H ₆ Cl ₂ Ge ⁺ | (CH ₃) ₂ GeCl ₂ (RN-CAS Registry Number 1529-48-2) | ** | 10.18±0.05 | EI | 3939 |
| CH ₃ Cl ₃ Ge ⁺ | CH ₃ GeCl ₃ (RN-CAS Registry Number 993-10-2) | ** | 11.11±0.04 | EI | 3939 |
| C ₈ H ₁₄ CrGe ⁺ | C ₅ H ₅ (CO) ₃ CrGe(CH ₃) ₃ (Tricarbonyl(η ⁵ -2,4-cyclopentadien-1-yl)(trimethylgermyl)chromium) (RN-CAS Registry Number 34962-34-0) | 3CO | 10.57±0.24 | EI | 3495 |
| C ₉ H ₁₄ OCrGe ⁺ | C ₅ H ₅ (CO) ₃ CrGe(CH ₃) ₃ (Tricarbonyl(η ⁵ -2,4-cyclopentadien-1-yl)(trimethylgermyl)chromium) (RN-CAS Registry Number 34962-34-0) | 2CO | 9.53±0.15 | EI | 3495 |
| C ₁₀ H ₁₄ O ₂ CrGe ⁺ | C ₅ H ₅ (CO) ₃ CrGe(CH ₃) ₃ (Tricarbonyl(η ⁵ -2,4-cyclopentadien-1-yl)(trimethylgermyl)chromium) (RN-CAS Registry Number 34962-34-0) | CO | 9.13±0.1 | EI | 3495 |
| C ₁₁ H ₁₄ O ₃ CrGe ⁺ | C ₅ H ₅ (CO) ₃ CrGe(CH ₃) ₃ (Tricarbonyl(η ⁵ -2,4-cyclopentadien-1-yl)(trimethylgermyl)chromium) (RN-CAS Registry Number 34962-34-0) | ** | 7.79±0.1 | EI | 3495 |
| C ₃ H ₃ O ₅ MnGe ⁺ | GeH ₃ Mn(CO) ₅ (RN-CAS Registry Number 25069-08-3) | ** | 8.90±0.02 (V) | PE | 3827 |
| C ₄ H ₃ O ₄ GeCo ⁺ | GeH ₃ Co(CO) ₄ (RN-CAS Registry Number 28360-37-4) | ** | 8.80±0.02 (V) | PE | 3827 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|---|--|----------------|---|--------|------|
| GeCu ⁺ | GeCu (RN-CAS Registry Number 12394-89-7) | ** | 7.5 | EI | 3775 |
| As ⁺ | As (RN-CAS Registry Number 7440-38-2) | ** | >10.0 | EI | 3475 |
| As ₂ ⁺ | As ₂ (RN-CAS Registry Number 23878-46-8) | ** | 10.1±0.2 | S | 3567 |
| As ₂ ⁺ | As ₂ ? (RN-CAS Registry Number 23878-46-8) | ** | 9.7±0.7 | EI | 3475 |
| As ₂ ⁺ | As ₂ (RN-CAS Registry Number 23878-46-8) | ** | 11.0±0.5 | EI | 3555 |
| As ₄ ⁺ | As ₄ ? (RN-CAS Registry Number 12597-17-0) | ** | 8.5±0.7 | EI | 3475 |
| As ₄ ⁺ | As ₄ (RN-CAS Registry Number 12597-17-0) | ** | 9.9±0.2 | EI | 3555 |
| AsH ₃ ^{†2A₁} | AsH ₃ (RN-CAS Registry Number 7784-42-1) | ** | 9.89 | PE | 3719 |
| AsH ₃ ^{†2E} | AsH ₃ (RN-CAS Registry Number 7784-42-1) | ** | 12.12±0.03 | PE | 3719 |
| C ₂ H ₇ As ⁺ | (CH ₃) ₂ AsH (RN-CAS Registry Number 593-57-7) | ** | 8.58 | PE | 3589 |
| C ₅ H ₅ As ⁺ | C ₅ H ₅ As (Arsenin) (RN-CAS Registry Number 289-31-6) | ** | 8.8 (V) | PE | 3832 |
| C ₁₂ H ₁₃ As ⁺ | C ₆ H ₅ C ₄ H ₂ As(CH ₃) ₂ (1 <i>H</i> -Arsole, 2,5-dimethyl-1-phenyl-) (RN-CAS Registry Number 20527-10-0) | ** | 8.0 (V) | PE | 4090 |
| C ₁₉ H ₁₃ As ⁺ | C ₁₃ H ₈ AsC ₆ H ₅ (Acridarsine, 10-phenyl-) (RN-CAS Registry Number 28660-45-9) | ** | 7.05 (V) | PE | 3896 |
| AsF ₃ ⁺ | AsF ₃ (RN-CAS Registry Number 7784-35-2) | ** | 12.84±0.05 | EI | 3578 |
| C ₆ H ₇ F ₆ As ⁺ | <i>cis</i> -(CH ₃) ₂ AsC(CF ₃)=C(CF ₃)H (RN-CAS Registry Number 4648-64-0) | ** | 8.61 | PE | 3589 |
| C ₆ H ₇ F ₆ As ⁺ | <i>trans</i> -(CH ₃) ₂ AsC(CF ₃)=C(CF ₃)H (RN-CAS Registry Number 4648-63-9) | ** | 8.71 | PE | 3589 |
| C ₈ H ₁₁ F ₆ As ⁺ | (C ₂ H ₅) ₂ AsC(CF ₃)=C(CF ₃)H (RN-CAS Registry Number XXXXX-XX-X) | ** | 8.44 | PE | 3589 |
| Si ₃ H ₉ As ⁺ | (SiH ₃) ₃ As (RN-CAS Registry Number 15110-34-6) | ** | 9.3±0.1 (V) | PE | 3661 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|--|---|----------------|---|--------|------|
| AsP ⁺ | AsP (RN-CAS Registry Number 12255-33-3) | ** | 11.2±0.5 | EI | 3555 |
| AsP ₃ ⁺ | AsP ₃ (RN-CAS Registry Number 12511-95-4) | ** | 10.3±0.3 | EI | 3555 |
| As ₂ P ₂ ⁺ | As ₂ P ₂ (RN-CAS Registry Number 12512-03-7) | ** | 10.3±0.3 | EI | 3555 |
| As ₃ P ⁺ | As ₃ P (RN-CAS Registry Number 12512-11-7) | ** | 10.0±0.3 | EI | 3555 |
| AsS ⁺ | AsS? (RN-CAS Registry Number 12044-79-0) | ** | 9.0±0.7 | EI | 3475 |
| As ₂ S ₂ ⁺ | As ₂ S ₂ ? (RN-CAS Registry Number 1303-32-8) | ** | 9.0±0.7 | EI | 3475 |
| As ₃ S ₂ ⁺ | As ₃ S ₂ ? (RN-CAS Registry Number 39350-11-3) | ** | ~11.0±0.7 | EI | 3475 |
| As ₃ S ₃ ⁺ | As ₄ S ₄ (RN-CAS Registry Number 12279-90-2) | | 9.0±0.7 | EI | 3475 |
| As ₄ S ₃ ⁺ | As ₄ S ₃ ? (RN-CAS Registry Number 12512-13-9) | ** | 8.7±0.7 | EI | 3475 |
| As ₄ S ₄ ⁺ | As ₄ S ₄ (RN-CAS Registry Number 12279-90-2) | ** | 9.0±0.7 | EI | 3475 |
| AsCl ₃ ⁺ | AsCl ₃ (RN-CAS Registry Number 7784-34-1) | ** | 10.55±0.025 | PE | 3626 |
| AsCl ₃ ⁺ | AsCl ₃ (RN-CAS Registry Number 7784-34-1) | ** | 10.57±0.03 | EDD | 3626 |
| Se ⁺ | Se (RN-CAS Registry Number 7782-49-2) | ** | 9.9±0.5 | EI | 3600 |
| Se ⁺ | H ₂ Se (RN-CAS Registry Number 7783-07-5) | | 12.6±0.1 | EI | 3633 |
| Se ⁺⁴ | Se ⁺³ (RN-CAS Registry Number 14700-98-2) | ** | 42.947±0.003 | S | 3562 |
| SeH ⁺ | SeH (RN-CAS Registry Number 13940-22-2) | ** | 9.79 | S | 3742 |
| SeH ⁺ | H ₂ Se (RN-CAS Registry Number 7783-07-5) | H | 13.8±0.2 | EI | 3633 |
| H ₂ Se ^{+(2)B₁} | H ₂ Se (RN-CAS Registry Number 7783-07-5) | ** | 9.88 | PE | 3719 |
| H ₂ Se ^{+(2)B₁} | H ₂ Se (RN-CAS-Registry Number 7783-07-5) | ** | 9.93 | PE | 4073 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|---|--|----------------|---|--------|------|
| H ₂ Se ⁺ (² A ₁) | H ₂ Se (RN-CAS Registry Number 7783-07-5) | ** | 12.40 | PE | 3719 |
| H ₂ Se ⁺ (² B ₂) | H ₂ Se (RN-CAS Registry Number 7783-07-5) | ** | 14.11 | PE | 3719 |
| H ₂ Se ⁺ (² A ₁) | H ₂ Se (RN-CAS Registry Number 7783-07-5) | ** | 21.0 (V) | PE | 3719 |
| CSe ₂ (X ² Π _{3/2}) | CSe ₂ (RN-CAS Registry Number 506-80-9) | ** | 9.27±0.01 | PE | 3965 |
| CSe ₂ (X ² Π _{1/2}) | CSe ₂ (RN-CAS Registry Number 506-80-9) | ** | 9.54±0.01 | PE | 3965 |
| CSe ₂ (A ² Π _u) | CSe ₂ (RN-CAS Registry Number 506-80-9) | ** | 11.49±0.01 | PE | 3965 |
| CSe ₂ (B ² Σ _u ⁺) | CSe ₂ (RN-CAS Registry Number 506-80-9) | ** | 13.63±0.01 | PE | 3965 |
| CSe ₂ (C ² Σ _g ⁺) | CSe ₂ (RN-CAS Registry Number 506-80-9) | ** | 15.90±0.01 | PE | 3965 |
| C ₂ H ₅ Se ⁺ | CH ₃ SeCH ₂ CH ₂ CH(NH ₂)COOH (RN-CAS Registry Number 1464-42-2) | | 12.03±0.06 | EI | 3443 |
| C ₂ H ₆ Se ⁺ | (CH ₃) ₂ Se (RN-CAS Registry Number 593-79-3) | ** | 8.400±0.010 | S | 3970 |
| | (RS—Average of three Rydberg series limits) | | | | |
| C ₂ H ₆ Se ⁺ (² B ₁) | (CH ₃) ₂ Se (RN-CAS Registry Number 593-79-3) | ** | 8.40 (V) | PE | 3656 |
| C ₃ H ₇ Se ⁺ | CH ₃ SeCH ₂ CH ₂ CH(NH ₂)COOH C ₂ H ₄ NO ₂ (RN-CAS Registry Number 1464-42-2) | | 9.34±0.15 | EI | 3443 |
| | (MT—Metastable transition(s) observed) | | | | |
| C ₄ H ₄ Se ⁺ | C ₄ H ₄ Se (Selenophene) (RN-CAS Registry Number 288-05-1) | ** | 8.80 (V) | PE | 3858 |
| C ₄ H ₄ Se ⁺ | C ₄ H ₄ Se (Selenophene) (RN-CAS Registry Number 288-05-1) | ** | <8.92 (V) | PE | 3804 |
| C ₄ H ₄ Se ⁺ | C ₄ H ₄ Se (Selenophene) (RN-CAS Registry Number 288-05-1) | ** | 9.01±0.05 | EI | 3482 |
| C ₅ H ₆ Se ⁺ | C ₄ H ₃ SeCH ₃ (Selenophene, 2-methyl-) (RN-CAS Registry Number 7559-42-4) | ** | 8.38±0.1 | EI | 3804 |
| C ₃ H ₆ NSe ⁺ | CH ₃ SeCH ₂ CH ₂ CH(NH ₂)COOH (RN-CAS Registry Number 1464-42-2) | | 10.33±0.07 | EI | 3443 |
| C ₄ H ₁₀ NSe ⁺ | CH ₃ SeCH ₂ CH ₂ CH(NH ₂)COOH CO ₂ H (RN-CAS Registry Number 1464-42-2) | | 9.83±0.16 | EI | 3443 |
| | (MT—Metastable transition(s) observed) | | | | |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|---|---|------------------------------------|---|--------|------|
| COSe ⁺ (X ² Π _{3/2}) (RD-Radical) | COSe (RN-CAS Registry Number 1603-84-5) | ** | 10.36±0.01 | PE | 3965 |
| COSe ⁺ (X ² Π _{1/2}) (RD-Radical) | COSe (RN-CAS Registry Number 1603-84-5) | ** | 10.57±0.01 | PE | 3965 |
| COSe ⁺ (A ² Π) (RD-Radical) | COSe (RN-CAS Registry Number 1603-84-5) | ** | 14.58±0.01 | PE | 3965 |
| COSe ⁺ (B ² Σ ⁺) (RD-Radical) | COSe (RN-CAS Registry Number 1603-84-5) | ** | 15.75±0.01 | PE | 3965 |
| COSe ⁺ (C ² Σ ⁺) (RD-Radical) | COSe (RN-CAS Registry Number 1603-84-5) | ** | 17.90±0.01 | PE | 3965 |
| C ₅ H ₄ OSe ⁺ | C ₄ H ₃ SeCHO (2-Selenophenecarboxaldehyde) (RN-CAS Registry Number 25109-26-6) | ** | 9.47±0.05 | EI | 3482 |
| C ₆ H ₆ OSe ⁺ | C ₄ H ₃ SeCOCH ₃ (Ethanone, 1-selenophene-2-yl-) (RN-CAS Registry Number 15429-03-5) | ** | 9.30±0.05 | EI | 3482 |
| C ₅ H ₄ O ₂ Se ⁺ | C ₄ H ₃ SeCOOH (2-Selenophenecarboxylic acid) (RN-CAS Registry Number 22968-45-2) | ** | 9.25±0.1 | EI | 3804 |
| C ₄ H ₆ NOSe ⁺ (MT-Metastable transition(s) observed) | CH ₃ SeCH ₂ CH ₂ CH(NH ₂)COOH (RN-CAS Registry Number 1464-42-2) | H ₂ O + CH ₃ | 10.00±0.05 | EI | 3443 |
| C ₅ H ₉ NOSe ⁺ (MT-Metastable transition(s) observed) | CH ₃ SeCH ₂ CH ₂ CH(NH ₂)COOH (RN-CAS Registry Number 1464-42-2) | H ₂ O | 8.73±0.10 | EI | 3443 |
| C ₄ H ₈ NO ₂ Se ⁺ (MT-Metastable transition(s) observed) | CH ₃ SeCH ₂ CH ₂ CH(NH ₂)COOH (RN-CAS Registry Number 1464-42-2) | CH ₃ | 9.35±0.10 | EI | 3443 |
| C ₅ H ₁₁ NO ₂ Se ⁺ | CH ₃ SeCH ₂ CH ₂ CH(NH ₂)COOH (RN-CAS Registry Number 1464-42-2) | ** | 8.26±0.03 | EI | 3443 |
| C ₆ H ₃ OF ₃ Se ⁺ | C ₄ H ₃ SeCOCF ₃ (Ethanone, 2,2,2-trifluoro-1-(selenophene-2-yl)-) (RN-CAS Registry Number 26149-08-6) | ** | 9.64±0.05 | EI | 3482 |
| Si ₂ H ₆ Se ⁺ (² B ₁) | (SiH ₃) ₂ Se (RN-CAS Registry Number 14939-45-8) | ** | 9.18 (V) | PE | 3656 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|--|---|--------------------|---|--------|------|
| SeP ⁺ | SeP (RN-CAS Registry Number 12509-41-0) | ** | 8.2 | EI | 4001 |
| CSSe ⁺ (X ² Π _{3/2}) (RD-Radical) | SCSe (RN-CAS Registry Number 5951-19-9) | ** | 9.58±0.01 | PE | 3965 |
| CSSe ⁺ (X ² Π _{1/2}) (RD-Radical) | SCSe (RN-CAS Registry Number 5951-19-9) | ** | 9.77±0.01 | PE | 3965 |
| CSSe ⁺ (A ² Π) (RD-Radical) | SCSe (RN-CAS Registry Number 5951-19-9) | ** | 12.13±0.01 | PE | 3965 |
| CSSe ⁺ (B ² Σ ⁺) (RD-Radical) | SCSe (RN-CAS Registry Number 5951-19-9) | ** | 14.07±0.01 | PE | 3965 |
| CSSe ⁺ (C ² Σ ⁺) (RD-Radical) | SCSe (RN-CAS Registry Number 5951-19-9) | ** | 16.06±0.01 | PE | 3965 |
| ScSe ⁺ (RD-Radical) | ScSe (RN-CAS Registry Number 12138-19-1) | ** | 7.5 | EI | 3600 |
| Ge ₂ H ₆ Se ⁺ (² B ₁) | (GeH ₃) ₂ Se (RN-CAS Registry Number 24254-18-0) | ** | 8.84 (V) | PE | 3656 |
| Br ⁺ | CH ₂ Br ₂ (RN-CAS Registry Number 74-95-3) | CH ₂ Br | 16.0 | RPD | 3490 |
| | (AD-0.192 eV average translational energy of decomposition at threshold) (TR-Other product(s) thermochemically reasonable) | | | | |
| Br ⁺ | CH ₂ Br ₂ (RN-CAS Registry Number 74-95-3) | CH ₂ Br | 15.5±0.1 | EI | 3442 |
| | (AD-0.19 eV average translational energy of decomposition at threshold) (TR-Other product(s) thermochemically reasonable) | | | | |
| Br ⁺⁴ (² P _{1/2} ⁰) | Br ⁺³ (RN-CAS Registry Number 22788-29-0) | ** | 45.0556 | S | 3593 |
| Br ⁺⁵ | Br ⁺⁴ (RN-CAS Registry Number 22541-82-8) | ** | 62.35 | S | 3592 |
| HBr ⁺ (X ² Π _{3/2}) | HBr (RN-CAS Registry Number 10035-10-6) | ** | 11.645±0.005 | PE | 3839 |
| HBr ⁺ (X ² Π _{1/2}) | HBr (RN-CAS Registry Number 10035-10-6) | ** | 11.979±0.005 | PE | 3839 |
| HBr ⁺ (A ² Σ ⁺) | HBr (RN-CAS Registry Number 10035-10-6) | ** | 15.288±0.005 | PE | 3839 |
| DBr ⁺ (X ² Π _{3/2}) | DBr (RN-CAS Registry Number 13536-59-9) | ** | 11.673±0.005 | PE | 3839 |
| DBr ⁺ (X ² Π _{1/2}) | DBr (RN-CAS Registry Number 13536-59-9) | ** | 12.002±0.005 | PE | 3839 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|---|---|----------------|---|--------|------|
| $\text{DBr}^+(\text{A}^2\Sigma^+)$ | DBr (RN-CAS Registry Number 13536-59-9) | ** | 15.284 ± 0.005 | PE | 3839 |
| C_2HBr^+ | $\text{CH}\equiv\text{CBr}$ (RN-CAS Registry Number 593-61-3) (RS-Average of two Rydberg series limits) | ** | 10.762 ± 0.004 | S | 3876 |
| $\text{C}_2\text{H}_3\text{Br}^+(\text{A}^2\text{A}')$ | $\text{CH}_2=\text{CHBr}$ (RN-CAS Registry Number 593-60-2) | ** | 9.80 ± 0.02 | PE | 3659 |
| $\text{C}_2\text{H}_3\text{Br}^+$ | $\text{CH}_2=\text{CHBr}$ (RN-CAS Registry Number 593-60-2) | ** | 9.83 | PE | 3863 |
| $\text{C}_2\text{H}_3\text{Br}^+(\text{A}^2\text{A}')$ | $\text{CH}_2=\text{CHBr}$ (RN-CAS Registry Number 593-60-2) | ** | 10.90 ± 0.02 | PE | 3659 |
| $\text{C}_2\text{H}_3\text{Br}^+(\text{A}^2\text{A}'')$ | $\text{CH}_2=\text{CHBr}$ (RN-CAS Registry Number 593-60-2) | ** | 12.28 ± 0.02 (V) | PE | 3659 |
| $\text{C}_2\text{H}_3\text{Br}^+(\text{A}^2\text{A}')$ | $\text{CH}_2=\text{CHBr}$ (RN-CAS Registry Number 593-60-2) | ** | 12.94 ± 0.02 (V) | PE | 3659 |
| $\text{C}_2\text{H}_3\text{Br}^+(\text{A}^2\text{A}')$ | $\text{CH}_2=\text{CHBr}$ (RN-CAS Registry Number 593-60-2) | ** | 15.02 ± 0.02 (V) | PE | 3659 |
| $\text{C}_2\text{H}_3\text{Br}^+(\text{A}^2\text{A}')$ | $\text{CH}_2=\text{CHBr}$ (RN-CAS Registry Number 593-60-2) | ** | 16.21 ± 0.02 (V) | PE | 3659 |
| $\text{C}_2\text{H}_3\text{Br}^{+*}$ | $\text{CH}_2=\text{CHBr}$ (RN-CAS Registry Number 593-60-2) | ** | 19.20 ± 0.02 (V) | PE | 3659 |
| $\text{C}_2\text{H}_5\text{Br}^+(\text{E}_{3/2})$ | $\text{C}_2\text{H}_5\text{Br}$ (RN-CAS Registry Number 74-96-4) | ** | 10.28 (V) | PE | 4076 |
| $\text{C}_2\text{H}_5\text{Br}^+(\text{E}_{1/2})$ | $\text{C}_2\text{H}_5\text{Br}$ (RN-CAS Registry Number 74-96-4) | ** | 10.60 (V) | PE | 4076 |
| $\text{C}_3\text{H}_5\text{Br}^+$ | $\text{CH}_2=\text{CHCH}_2\text{Br}$ (RN-CAS Registry Number 106-95-6) | ** | 10.06 | PE | 3863 |
| $\text{C}_3\text{H}_5\text{Br}^+$ | $\text{CH}_2=\text{CHCH}_2\text{Br}$ (RN-CAS Registry Number 106-95-6) | ** | 10.18 (V) | PE | 4091 |
| $\text{C}_3\text{H}_5\text{Br}^+(\text{A}^2\text{A}'')$ | $\text{CH}_2=\text{CBrCH}_3$ (RN-CAS Registry Number 557-93-7) | ** | 9.58 ± 0.02 (V) | PE | 3659 |
| $\text{C}_3\text{H}_5\text{Br}^+(\text{A}^2\text{A}')$ | $\text{CH}_2=\text{CBrCH}_3$ (RN-CAS Registry Number 557-93-7) | ** | 10.51 ± 0.02 | PE | 3659 |
| $\text{C}_3\text{H}_5\text{Br}^+(\text{A}^2\text{A}'')$ | $\text{CH}_2=\text{CBrCH}_3$ (RN-CAS Registry Number 557-93-7) | ** | 11.62 ± 0.02 (V) | PE | 3659 |
| $\text{C}_3\text{H}_5\text{Br}^+(\text{A}^2\text{A}')$ | $\text{CH}_2=\text{CBrCH}_3$ (RN-CAS Registry Number 557-93-7) | ** | 12.40 ± 0.02 (V) | PE | 3659 |
| $\text{C}_3\text{H}_5\text{Br}^{+*}$ | $\text{CH}_2=\text{CBrCH}_3$ (RN-CAS Registry Number 557-93-7) | ** | 13.53 ± 0.01 (V) | PE | 3659 |
| $\text{C}_3\text{H}_5\text{Br}^{+*}$ | $\text{CH}_2=\text{CBrCH}_3$ (RN-CAS Registry Number 557-93-7) | ** | 15.15 ± 0.02 (V) | PE | 3659 |
| $\text{C}_3\text{H}_5\text{Br}^{+*}$ | $\text{CH}_2=\text{CBrCH}_3$ (RN-CAS Registry Number 557-93-7) | ** | 15.84 ± 0.02 (V) | PE | 3659 |
| $\text{C}_3\text{H}_7\text{Br}^+(\text{E}_{3/2})$ | <i>n</i> - $\text{C}_3\text{H}_7\text{Br}$ (RN-CAS Registry Number 106-94-5) | ** | 10.18 | PE | 4076 |
| $\text{C}_3\text{H}_7\text{Br}^+(\text{E}_{1/2})$ | <i>n</i> - $\text{C}_3\text{H}_7\text{Br}$ (RN-CAS Registry Number 106-94-5) | ** | 10.50 | PE | 4076 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|-----------------------------|---|-------------------|---|--------|------|
| $C_3H_7Br^+$ | <i>iso</i> - C_3H_7Br (RN-CAS Registry Number 75-26-3) | ** | $10.4 \pm <0.1$ | EI | 3735 |
| $C_4H_7Br^+$ | $CH_2=CHCH_2CH_2Br$ (RN-CAS Registry Number 5162-44-7) | ** | 9.9 | EI | 3900 |
| $C_4H_9Br^+ (^2E_{3/2})$ | <i>n</i> - C_4H_9Br (RN-CAS Registry Number 109-65-9) | ** | 10.15 | PE | 4076 |
| $C_4H_9Br^+ (^2E_{1/2})$ | <i>n</i> - C_4H_9Br (RN-CAS Registry Number 109-65-9) | ** | 10.44 | PE | 4076 |
| $C_5H_9Br^+$ | $CH_2=CH(CH_2)_3Br$ (RN-CAS Registry Number 1119-51-3) | ** | 9.6 | EI | 3900 |
| $C_5H_9Br^+$ | C_5H_9Br (Cyclopentane, bromo-) (RN-CAS Registry Number 137-43-9) | ** | 9.94 ± 0.02 | PE | 4003 |
| $C_5H_{11}Br^+ (^2E_{3/2})$ | <i>n</i> - $C_5H_{11}Br$ (RN-CAS Registry Number 110-53-2) | ** | 10.09 | PE | 3532 |
| $C_5H_{11}Br^+ (^2E_{1/2})$ | <i>n</i> - $C_5H_{11}Br$ (RN-CAS Registry Number 110-53-2) | ** | 10.40 | PE | 3532 |
| $C_6H_4Br^+$ | $C_6H_4(Br)COOH$ (Benzoic acid, 3-bromo-) (RN-CAS Registry Number 585-76-2) (MT—Metastable transition(s) observed) | CO+OH | 14.91 ± 0.2 | EI | 3973 |
| $C_6H_4Br^+$ | $C_6H_4(Br)COOH$ (Benzoic acid, 4-bromo-) (RN-CAS Registry Number 586-76-5) (MT—Metastable transition(s) observed) | CO+OH | 15.13 ± 0.2 | EI | 3973 |
| $C_6H_4Br^+$ | $C_6H_4BrNO_2$ (Benzene, 1-bromo-3-nitro-) (RN-CAS Registry Number 585-79-5) | NO ₂ | 12.01 ± 0.1 | EI | 3447 |
| $C_6H_4Br^+$ | $C_6H_4BrNO_2$ (Benzene, 1-bromo-4-nitro-) (RN-CAS Registry Number 586-78-7) | NO ₂ | 12.19 ± 0.1 | EI | 3447 |
| $C_6H_5Br^+$ | C_6H_5Br (Benzene, bromo-) (RN-CAS Registry Number 108-86-1) | ** | 9.00 (V) | PE | 3873 |
| $C_6H_5Br^+$ | $C_6H_4BrOCH_3$ (Benzene, 1-bromo-3-methoxy-) (RN-CAS Registry Number 2398-37-0) | CH ₂ O | 11.59 ± 0.1 | EI | 3446 |
| $C_6H_5Br^+$ | $C_6H_4BrOCH_3$ (Benzene, 1-bromo-4-methoxy-) (RN-CAS Registry Number 104-92-7) | CH ₂ O | 11.52 ± 0.1 | EI | 3446 |
| $C_6H_{11}Br^+$ | $C_6H_{11}Br$ (Cyclohexane, bromo-) (RN-CAS Registry Number 108-85-0) | ** | 9.85 ± 0.01 | PI | 4078 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|----------------------------|---|----------------|---|--------|------|
| $C_6H_{11}Br^+$ | $C_6H_{11}Br$ (Cyclohexane, bromo-) (RN-CAS Registry Number 108-85-0) | ** | 9.90 ± 0.02 | PE | 4003 |
| $C_6H_{11}Br^+$ | $C_6H_{11}Br$ (Cyclohexane, bromo-) (RN-CAS Registry Number 108-85-0) | ** | 10.00 (V) | PE | 4078 |
| $C_7H_7Br^+$ | $C_6H_5CH_2Br$ (Benzene, (bromomethyl)-) (RN-CAS Registry Number 100-39-0) | ** | 9.23 (V) | PE | 3992 |
| $C_7H_7Br^+$ | $C_6H_4BrCH_3$ (Benzene, 1-bromo-2-methyl-) (RN-CAS Registry Number 95-46-5) | ** | 8.58 ± 0.1 | EI | 3777 |
| $C_7H_7Br^+$ | $C_6H_4BrCH_3$ (Benzene, 1-bromo-3-methyl-) (RN-CAS Registry Number 591-17-3) | ** | 8.77 | PE | 4089 |
| $C_7H_7Br^+$ | $C_6H_4BrCH_3$ (Benzene, 1-bromo-3-methyl-) (RN-CAS Registry Number 591-17-3) | ** | 8.60 ± 0.1 | EI | 3777 |
| $C_7H_7Br^+$ | $C_6H_4BrCH_3$ (Benzene, 1-bromo-4-methyl-) (RN-CAS Registry Number 106-38-7) | ** | 8.67 | PE | 4089 |
| $C_7H_7Br^+$ | $C_6H_4BrCH_3$ (Benzene, 1-bromo-4-methyl-) (RN-CAS Registry Number 106-38-7) | ** | 8.70 ± 0.1 | EI | 3777 |
| $C_7H_9Br^+$ | C_7H_9Br (bicyclo[2.2.1]hept-2-ene, 5-bromo-, <i>exo</i> -) (RN-CAS Registry Number 5810-82-2) | ** | 9.2 | EI | 3900 |
| $C_7H_9Br^+$ | C_7H_9Br (Bicyclo[2.2.1]hept-2-ene, 5-bromo-, <i>endo</i> -) (RN-CAS Registry Number 5810-82-2) | ** | 9.2 | EI | 3900 |
| $C_{10}H_{15}Br^+$ | $C_{10}H_{15}Br$ (tricyclo[3.3.1.1 ^{3,7}]decane, 1-bromo-) (RN-CAS Registry Number 768-90-1) (ON-Other name: 1-Bromoadamantane) | ** | 9.2 | PE | 3907 |
| $C_{10}H_{15}Br^+$ | $C_{10}H_{15}Br$ (Tricyclo[3.3.1.1 ^{3,7}]decane, 1-bromo-) (RN-CAS Registry Number 768-90-1) (ON-Other name: 1-Bromoadamantane) | ** | 9.30 ± 0.06 | PE | 3886 |
| $C_{10}H_{15}Br^+$ | $C_{10}H_{15}Br$ (Tricyclo[3.3.1.1 ^{3,7}]decane, 2-bromo-) (RN-CAS Registry Number 7314-85-4) (ON-Other name: 2-Bromoadamantane) | ** | 9.31 ± 0.05 | PE | 3886 |
| $C_{12}H_9Br^+$ | $C_6H_5C_6H_4Br$ (1,1'-Biphenyl, 4-bromo-) (RN-CAS Registry Number 92-66-0) | ** | 8.05 ± 0.02 | PE | 3702 |
| $C_2H_2Br_2^+(\text{B}_1)$ | <i>cis</i> -CHBr=CHBr (RN-CAS Registry Number 590-11-4) | ** | 9.32 ± 0.02 | PE | 3659 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|----------------------------|---|----------------|---|--------|------|
| $C_2H_2Br_2(^2B_2)$ | <i>cis</i> -CHBr=CHBr (RN-CAS Registry Number 590-11-4) | ** | 10.74±0.02 (V) | PE | 3659 |
| $C_2H_2Br_2(^2A_2)$ | <i>cis</i> -CHBr=CHBr (RN-CAS Registry Number 590-11-4) | ** | 11.24±0.02 (V) | PE | 3659 |
| $C_2H_2Br_2(^2A_1)$ | <i>cis</i> -CHBr=CHBr (RN-CAS Registry Number 590-11-4) | ** | 11.56±0.02 (V) | PE | 3659 |
| $C_2H_2Br_2(^2B_2)$ | <i>cis</i> -CHBr=CHBr (RN-CAS Registry Number 590-11-4) | ** | 12.85±0.02 (V) | PE | 3659 |
| $C_2H_2Br_2(^2B_1)$ | <i>cis</i> -CHBr=CHBr (RN-CAS Registry Number 590-11-4) | ** | 13.27±0.02 (V) | PE | 3659 |
| $C_2H_2Br_2(^2B_2)$ | <i>cis</i> -CHBr=CHBr (RN-CAS Registry Number 590-11-4) | ** | 14.80±0.02 (V) | PE | 3659 |
| $C_2H_2Br_2(^2A_1)$ | <i>cis</i> -CHBr=CHBr (RN-CAS Registry Number 590-11-4) | ** | 16.49±0.02 (V) | PE | 3659 |
| $C_2H_2Br_2(^2A_u)$ | <i>trans</i> -CHBr=CHBr (RN-CAS Registry Number 590-12-5) | ** | 9.30±0.02 | PE | 3659 |
| $C_2H_2Br_2^+$ | <i>trans</i> -CHBr=CHBr (RN-CAS Registry Number 590-12-5) | ** | 9.56 (V) | PE | 3648 |
| $C_2H_2Br_2(^2A_g, ^2B_g)$ | <i>trans</i> -CHBr=CHBr (RN-CAS Registry Number 590-12-5) | ** | 11.05±0.02 | PE | 3659 |
| $C_2H_2Br_2(^2Bu)$ | <i>trans</i> -CHBr=CHBr (RN-CAS Registry Number 590-12-5) | ** | 11.60±0.02 (V) | PE | 3659 |
| $C_2H_2Br_2(^2A_g, ^2A_u)$ | <i>trans</i> -CHBr=CHBr (RN-CAS Registry Number 590-12-5) | ** | 13.00±0.02 (V) | PE | 3659 |
| $C_2H_2Br_2(^2A_g, ^2B_u)$ | <i>trans</i> -CHBr=CHBr (RN-CAS Registry Number 590-12-5) | ** | 15.90±0.02 (V) | PE | 3659 |
| $C_2H_2Br_2^*$ | <i>trans</i> -CHBr=CHBr (RN-CAS Registry Number 590-12-5) | ** | 19.14±0.02 (V) | PE | 3659 |
| $C_5H_8Br_2^+$ | $C_5H_8Br_2$ (Cyclopentane, 1,2-dibromo-, <i>cis</i> -) (RN-CAS Registry Number 33547-17-0) | ** | 10.02±0.02 | PE | 4003 |
| $C_5H_8Br_2^+$ | $C_5H_8Br_2$ (Cyclopentane, 1,2-dibromo-, <i>trans</i> -) (RN-CAS Registry Number 10230-26-9) | ** | 10.08±0.02 | PE | 4003 |
| $C_6H_4Br_2^+$ | $C_6H_4Br_2$ (Benzene, 1,2-dibromo-) (RN-CAS Registry Number 583-53-9) | ** | 9.02 (V) | PE | 3873 |
| $C_6H_4Br_2^+$ | $C_6H_4Br_2$ (Benzene, 1,3-dibromo-) (RN-CAS Registry Number 108-36-1) | ** | 9.10 (V) | PE | 3873 |
| $C_6H_4Br_2^+$ | $C_6H_4Br_2$ (Benzene, 1,4-dibromo-) (RN-CAS Registry Number 106-37-6) | ** | 8.91 (V) | PE | 3873 |
| $C_6H_{10}Br_2^+$ | $C_6H_{10}Br_2$ (Cyclohexane, 1,2-dibromo- <i>cis</i> -) (RN-CAS Registry Number 19246-38-9) | ** | 9.94±0.02 | PE | 4003 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|-----------------------|--|----------------|---|--------|------|
| $C_6H_{10}Br_2^+$ | $C_6H_{10}Br_2$ (Cyclohexane, 1,2-dibromo-, <i>trans</i> -) (RN-CAS Registry Number 7429-37-0) | ** | 10.02 ± 0.02 | PE | 4003 |
| $C_{12}H_8Br_2^+$ | $(C_6H_4Br)_2$ (1,1'-Biphenyl, 2,2'-dibromo-) (RN-CAS Registry Number 13029-09-9) | ** | 8.40 ± 0.02 | PE | 3702 |
| $C_6H_3Br_3^+$ | $C_6H_3Br_3$ (Benzene, 1,3,5-tribromo-) (RN-CAS Registry Number 626-39-1) | ** | 8.91 (V) | PE | 3873 |
| $C_6H_6NBr^+$ | $C_6H_4BrNHCOCH_3$ (Acetamide, <i>N</i> -(2-bromophenyl)-) (RN-CAS Registry Number 614-76-6) | $CH_2=C=O$ | 11.17 ± 0.03 | EI | 3483 |
| $C_6H_6NBr^+$ | $C_6H_4BrNHCOCH_3$ (Acetamide, <i>N</i> -(4-bromophenyl)-) (RN-CAS Registry Number 103-88-8) | $CH_2=C=O$ | 10.56 ± 0.03 | EI | 3483 |
| $C_{18}H_{17}N_2Br^+$ | $C_6H_4(Br)C_3H_3(CN)C_6H_4N(CH_3)_2$ (Cyclopropanecarbonitrile, 1-(<i>p</i> -bromophenyl)-2-(<i>p</i> -(dimethylamino)phenyl)-) (RN-CAS Registry Number 32589-49-4) | ** | 7.10 ± 0.05 | EDD | 3575 |
| $C_6H_5NBr_2^+$ | $C_6H_3Br_2NHCOCH_3$ (Acetamide, <i>N</i> -(2,4-dibromophenyl)-) (RN-CAS Registry Number 23373-04-8) | $CH_2=C=O$ | 10.24 ± 0.03 | EI | 3480 |
| $C_6H_5NBr_2^+$ | $C_6H_3Br_2NHCOCH_3$ (Acetamide, <i>N</i> -(2,6-dibromophenyl)-) (RN-CAS Registry Number 33098-80-5) | $CH_2=C=O$ | 10.02 ± 0.03 | EI | 3480 |
| $C_4H_{12}BN_2Br^+$ | $((CH_3)_2N)_2BBr$ (RN-CAS Registry Number 6990-27-8) | ** | 8.13 | PE | 3584 |
| $C_4H_{12}BN_2Br^+$ | $B(N(CH_3)_2)_2Br$ (RN-CAS Registry Number 6990-27-8) | ** | 8.16 (V) | PE | 3704 |
| $C_2H_6BNBr_2^+$ | $(CH_3)_2NBBR$ (RN-CAS Registry Number 7360-64-7) | ** | 9.55 (V) | PE | 3704 |
| $C_2H_6BNBr_2^+$ | $(CH_3)_2NBBR$ (RN-CAS Registry Number 7360-64-7) | ** | 9.60 | PE | 3584 |
| $COBr_2^+$ | CBr_2O (RN-CAS Registry Number 593-95-3) | ** | 11.0 (V) | PE | 3726 |
| $COBr_2^*$ | CBr_2O (RN-CAS Registry Number 593-95-3) | ** | 11.5 (V) | PE | 3726 |
| $COBr_2(^2B_2)$ | CBr_2O (RN-CAS Registry Number 593-95-3) | ** | 11.6 (V) | PE | 3726 |
| $COBr_2^+$ | CBr_2O (RN-CAS Registry Number 593-95-3) | ** | 12.0 (V) | PE | 3726 |
| $COBr_2^*$ | CBr_2O (RN-CAS Registry Number 593-95-3) | ** | 12.4 (V) | PE | 3726 |
| $COBr_2(^2B_1)$ | CBr_2O (RN-CAS Registry Number 593-95-3) | ** | 14.8 | PE | 3726 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|------------------------------------|--|---------------------------------|---|--------|------|
| COBr_2^+ | CBr_2O (RN-CAS Registry Number 593-95-3) | ** | 16.2 (V) | PE | 3726 |
| $\text{C}_5\text{H}_9\text{OBr}^+$ | $\text{C}_5\text{H}_8(\text{Br})\text{OH}$ (Cyclopentanol, 2-bromo-, <i>cis</i> -) (RN-CAS Registry Number 28435-62-3) | ** | 10.19 ± 0.02 | PE | 4003 |
| $\text{C}_5\text{H}_9\text{OBr}^+$ | $\text{C}_5\text{H}_8(\text{Br})\text{OH}$ (Cyclopentanol, 2-bromo-, <i>trans</i> -) (RN-CAS Registry Number 20377-79-1) | ** | 10.11 ± 0.02 | PE | 4003 |
| $\text{C}_6\text{H}_4\text{OBr}^+$ | $\text{C}_6\text{H}_4\text{BrOCH}_3$ (Benzene, 1-bromo-3-methoxy-) (RN-CAS Registry Number 2398-37-0) | CH_3 | 12.29 ± 0.1 | EI | 3446 |
| $\text{C}_6\text{H}_4\text{OBr}^+$ | $\text{C}_6\text{H}_4\text{BrOCH}_3$ (Benzene, 1-bromo-4-methoxy-) (RN-CAS Registry Number 104-92-7) | CH_3 | 11.89 ± 0.1 | EI | 3446 |
| $\text{C}_6\text{H}_4\text{OBr}^+$ | $\text{C}_6\text{H}_4\text{BrNO}_2$ (Benzene, 1-bromo-3-nitro-) (RN-CAS Registry Number 585-79-5) | NO | 10.26 ± 0.1 | EI | 3447 |
| $\text{C}_6\text{H}_4\text{OBr}^+$ | $\text{C}_6\text{H}_4\text{BrNO}_2$ (Benzene, 1-bromo-4-nitro-) (RN-CAS Registry Number 586-78-7) | NO | 10.55 ± 0.1 | EI | 3447 |
| $\text{C}_6\text{H}_5\text{OBr}^+$ | $\text{C}_6\text{H}_4(\text{OH})\text{Br}$ (Phenol, 2-bromo-) (RN-CAS Registry Number 95-56-7) | ** | 9.09 ± 0.1 | EI | 3553 |
| $\text{C}_6\text{H}_5\text{OBr}^+$ | $\text{C}_6\text{H}_4\text{BrOOCCH}_3$ (Phenol, 2-bromo-, acetate) (RN-CAS Registry Number 1829-37-4) | $\text{CH}_2=\text{C}=\text{O}$ | 9.62 ± 0.03 | EI | 3483 |
| $\text{C}_6\text{H}_5\text{OBr}^+$ | $\text{C}_6\text{H}_4\text{BrOOCCH}_3$ (Phenol, 3-bromo-, acetate) (RN-CAS Registry Number 35065-86-2) | $\text{CH}_2=\text{C}=\text{O}$ | 10.02 ± 0.2 | EI | 3484 |
| $\text{C}_6\text{H}_5\text{OBr}^+$ | $\text{C}_6\text{H}_4\text{BrOOCCH}_3$ (Phenol, 4-bromo-, acetate) (RN-CAS Registry Number 1927-95-3) | $\text{CH}_2=\text{C}=\text{O}$ | 9.84 ± 0.03 | EI | 3483 |
| $\text{C}_6\text{H}_5\text{OBr}^+$ | $\text{C}_6\text{H}_4\text{BrOOCCH}_3$ (Phenol, 4-bromo-, acetate) (RN-CAS Registry Number 1927-95-3) | $\text{CH}_2=\text{C}=\text{O}$ | 10.08 ± 0.2 | EI | 3484 |
| $\text{C}_7\text{H}_4\text{OBr}^+$ | $\text{C}_6\text{H}_4(\text{Br})\text{COOH}$ (Benzoic acid, 3-bromo-) (RN-CAS Registry Number 585-76-2) | OH | 12.23 ± 0.2 | EI | 3973 |
| $\text{C}_7\text{H}_4\text{OBr}^+$ | $\text{C}_6\text{H}_4(\text{Br})\text{COOH}$ (Benzoic acid, 4-bromo-) (RN-CAS Registry Number 586-76-5) | OH | 12.34 ± 0.2 | EI | 3973 |
| $\text{C}_7\text{H}_7\text{OBr}^+$ | $\text{C}_6\text{H}_4\text{BrOCH}_3$ (Benzene, 1-bromo-3-methoxy-) (RN-CAS Registry Number 2398-37-0) | ** | 8.69 ± 0.1 | EI | 3446 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|--------------------|--|----------------|---|--------|------|
| $C_7H_7OBr^+$ | $C_6H_4BrOCH_3$ (Benzene, 1-bromo-4-methoxy-) (RN-CAS Registry Number 104-92-7) | ** | 8.39 ± 0.1 | EI | 3446 |
| $C_2H_3O_2Br^+$ | $CH_2BrCOOH$ (RN-CAS Registry Number 79-08-3) | ** | 11.0 (V) | PE | 3874 |
| $C_7H_5O_2Br^+$ | $C_6H_4(Br)COOH$ (Benzoic acid, 3-bromo-) (RN-CAS Registry Number 585-76-2) | ** | 9.66 ± 0.2 | EI | 3973 |
| $C_7H_5O_2Br^+$ | $C_6H_4(Br)COOH$ (Benzoic acid, 4-bromo-) (RN-CAS Registry Number 586-76-5) | ** | 9.72 ± 0.2 | EI | 3973 |
| $C_7H_{11}O_2Br^+$ | $C_5H_8(Br)OCOCH_3$ (Cyclopentanol, 2-bromo-, acetate, <i>cis</i> -) (RN-CAS Registry Number 53093-41-7) | ** | 10.00 ± 0.02 | PE | 4003 |
| $C_7H_{11}O_2Br^+$ | $C_5H_8(Br)OCOCH_3$ (Cyclopentanol, 2-bromo-, acetate, <i>trans</i> -) (RN-CAS Registry Number 53093-42-8) | ** | 10.07 ± 0.02 | PE | 4003 |
| $C_8H_7O_2Br^+$ | $C_6H_4BrOOCCH_3$ (Phenol, 2-bromo-, acetate) (RN-CAS Registry Number 1829-37-4) | ** | 8.66 ± 0.03 | EI | 3483 |
| $C_8H_7O_2Br^+$ | $C_6H_4BrOOCCH_3$ (Phenol, 3-bromo-, acetate) (RN-CAS Registry Number 35065-86-2) | ** | 8.79 ± 0.2 | EI | 3484 |
| $C_8H_7O_2Br^+$ | $C_6H_4BrOOCCH_3$ (Phenol, 4-bromo-, acetate) (RN-CAS Registry Number 1927-95-3) | ** | 8.42 ± 0.03 | EI | 3483 |
| $C_8H_7O_2Br^+$ | $C_6H_4BrOOCCH_3$ (Phenol, 4-bromo-, acetate) (RN-CAS Registry Number 1927-95-3) | ** | 8.61 ± 0.2 | EI | 3484 |
| $C_6H_4OBr_2^+$ | $C_6H_3Br_2OOCCH_3$ (Phenol, 2,4-dibromo-, acetate) (RN-CAS Registry Number 36914-79-1) | $CH_2=C=O$ | 9.45 ± 0.03 | EI | 3480 |
| $C_6H_4OBr_2^+$ | $C_6H_3Br_2OOCCH_3$ (Phenol, 2,6-dibromo-, acetate) (RN-CAS Registry Number 28165-72-2) | $CH_2=C=O$ | 9.74 ± 0.03 | EI | 3480 |
| $C_8H_6O_2Br_2^+$ | $C_6H_3Br_2OOCCH_3$ (Phenol, 2,4-dibromo-, acetate) (RN-CAS Registry Number 36914-79-1) | ** | 8.21 ± 0.03 | EI | 3480 |
| $C_8H_6O_2Br_2^+$ | $C_6H_3Br_2OOCCH_3$ (Phenol, 2,6-dibromo-, acetate) (RN-CAS Registry Number 28165-72-2) | ** | 8.42 ± 0.03 | EI | 3480 |
| $C_8H_7NOBr^+$ | $C_6H_3Br_2NHCOCH_3$ (Acetamide, <i>N</i> -(2,4-dibromophenyl)-) (RN-CAS Registry Number 23373-04-8) | | 8.84 ± 0.03 | EI | 3480 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|-------------------------|--|----------------|---|--------|------|
| $C_8H_7NOBr^+$ | $C_6H_3Br_2NHCOCH_3$ (Acetamide, <i>N</i> -(2,6-dibromophenyl)-) (RN-CAS Registry Number 33098-80-5) | | 8.88 ± 0.03 | EI | 3480 |
| $C_8H_8NOBr^+$ | $C_6H_4BrNHCOCH_3$ (Acetamide, <i>N</i> -(2-bromophenyl)-) (RN-CAS Registry Number 614-76-6) | ** | 8.17 ± 0.03 | EI | 3483 |
| $C_8H_8NOBr^+$ | $C_6H_4BrNHCOCH_3$ (Acetamide, <i>N</i> -(4-bromophenyl)-) (RN-CAS Registry Number 103-88-8) | ** | 8.17 ± 0.03 | EI | 3483 |
| $C_6H_4NO_2Br^+$ | $C_6H_4BrNO_2$ (Benzene, 1-bromo-3-nitro-) (RN-CAS Registry Number 585-79-5) | ** | 9.82 ± 0.1 | EI | 3447 |
| $C_6H_4NO_2Br^+$ | $C_6H_4BrNO_2$ (Benzene, 1-bromo-4-nitro-) (RN-CAS Registry Number 586-78-7) | ** | 9.76 ± 0.1 | EI | 3447 |
| $C_8H_7NOBr_2^+$ | $C_6H_3Br_2NHCOCH_3$ (Acetamide, <i>N</i> -(2,4-dibromophenyl)-) (RN-CAS Registry Number 23373-04-8) | ** | 8.08 ± 0.03 | EI | 3480 |
| $C_8H_7NOBr_2^+$ | $C_6H_3Br_2NHCOCH_3$ (Acetamide, <i>N</i> -(2,6-dibromophenyl)-) (RN-CAS Registry Number 33098-80-5) | ** | 8.32 ± 0.03 | EI | 3480 |
| $BrF^+(X^2\Pi_{3/2})$ | BrF (RN-CAS Registry Number 13863-59-7) | ** | 11.78 ± 0.01 | PE | 3680 |
| $BrF^+(X^2\Pi_{1/2})$ | BrF (RN-CAS Registry Number 13863-59-7) | ** | 12.09 ± 0.01 | PE | 3680 |
| $BrF_3^+(^2B_2, ^2A_1)$ | BrF ₃ (RN-CAS Registry Number 7787-71-5) | ** | 12.15 ± 0.04 | PE | 3680 |
| $BrF_3^+(^2A_1)$ | BrF ₃ (RN-CAS Registry Number 7787-71-5) | ** | 13.58 ± 0.01 | PE | 3680 |
| $BrF_3^+(^2B_1)$ | BrF ₃ (RN-CAS Registry Number 7787-71-5) | ** | 14.60 ± 0.04 (V) | PE | 3680 |
| $BrF_3^+(^2A_2)$ | BrF ₃ (RN-CAS Registry Number 7787-71-5) | ** | 15.05 ± 0.03 (V) | PE | 3680 |
| $BrF_3^+(^2B_2)$ | BrF ₃ (RN-CAS Registry Number 7787-71-5) | ** | 15.61 ± 0.03 (V) | PE | 3680 |
| $BrF_3^+(^2B_1)$ | BrF ₃ (RN-CAS Registry Number 7787-71-5) | ** | 16.26 ± 0.03 | PE | 3680 |
| $BrF_3^+(^2A_1, ^2B_2)$ | BrF ₃ (RN-CAS Registry Number 7787-71-5) | ** | 17.59 ± 0.02 (V) | PE | 3680 |
| $BrF_3^+(^2B_1)$ | BrF ₃ (RN-CAS Registry Number 7787-71-5) | ** | 18.76 ± 0.04 (V) | PE | 3680 |
| BrF_5^+ | BrF ₅ (RN-CAS Registry Number 7789-30-2) | ** | 13.172 ± 0.005 | PE | 3655 |
| CF_3Br^+ | CF ₃ Br (RN-CAS Registry Number 75-63-8) | ** | 12.0 (V) | PE | 3914 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|--|---|----------------|---|--------|------|
| CF ₃ Br ⁺ (² E) | CF ₃ Br (RN-CAS Registry Number 75-63-8) | ** | 12.12±0.02 (V) | PE | 4026 |
| CF ₃ Br ⁺ (² A ₁) | CF ₃ Br (RN-CAS Registry Number 75-63-8) | ** | 14.26±0.02 (V) | PE | 4026 |
| CF ₃ Br ⁺ (² A ₂) | CF ₃ Br (RN-CAS Registry Number 75-63-8) | ** | 15.78±0.02 (V) | PE | 4026 |
| CF ₃ Br ⁺ (² E) | CF ₃ Br (RN-CAS Registry Number 75-63-8) | ** | 16.51±0.02 (V) | PE | 4026 |
| CF ₃ Br ⁺ (² E) | CF ₃ Br (RN-CAS Registry Number 75-63-8) | ** | 17.42±0.02 (V) | PE | 4026 |
| CF ₃ Br ⁺ (² A ₁) | CF ₃ Br (RN-CAS Registry Number 75-63-8) | ** | 19.8 (V) | PE | 4026 |
| C ₂ F ₃ Br ⁺ | C ₂ F ₃ Br (RN-CAS Registry Number 598-73-2) | ** | 9.67 | PE | 3589 |
| C ₅ H ₈ FBr ⁺ | C ₅ H ₈ FBr (Cyclopentane, 1-bromo-2-fluoro-, <i>cis</i> -) (RN-CAS Registry Number 51422-72-1) | ** | 10.10±0.02 | PE | 4003 |
| C ₅ H ₈ FBr ⁺ | C ₅ H ₈ FBr (Cyclopentane, 1-bromo-2-fluoro-, <i>trans</i> -) (RN-CAS Registry Number 51422-73-2) | ** | 10.25±0.02 | PE | 4003 |
| C ₆ H ₁₀ FBr ⁺ | C ₆ H ₁₀ FBr (Cyclohexane, 1-bromo-2-fluoro-, <i>cis</i> -) (RN-CAS Registry Number 51422-74-3) | ** | 10.04±0.02 | PE | 4003 |
| C ₆ H ₁₀ FBr ⁺ | C ₆ H ₁₀ FBr (Cyclohexane, 1-bromo-2-fluoro-, <i>trans</i> -) (Rn 17170-96-6) | ** | 10.18±0.02 | PE | 4003 |
| C ₁₂ H ₈ FBr ⁺ | C ₆ H ₄ (Br)C ₆ H ₄ F (1,1'-Biphenyl, 4-bromo-4'-fluoro-) (RN-CAS Registry Number 398-21-0) | ** | 8.10±0.02 | PE | 3702 |
| SiBr ⁺ | SiBr (RN-CAS Registry Number 14791-57-2) | ** | 7.3 | D | 3558 |
| SiH ₃ Br ⁺ (² E) | SiH ₃ Br (RN-CAS Registry Number 13465-73-1) | ** | 10.90 (V) | PE | 3511 |
| SiH ₃ Br ⁺ (² E _{3/2}) | SiH ₃ Br (RN-CAS Registry Number 13465-73-1) | ** | 10.96±0.02 (V) | PE | 3510 |
| SiH ₃ Br ⁺ | SiH ₃ Br (RN-CAS Registry Number 13465-73-1) | ** | 11.03±0.05 (V) | PE | 3502 |
| SiH ₃ Br ⁺ (² E _{1/2}) | SiH ₃ Br (RN-CAS Registry Number 13465-73-1) | ** | 11.10±0.02 (V) | PE | 3510 |
| SiH ₃ Br ⁺ (² A ₁) | SiH ₃ Br (RN-CAS Registry Number 13465-73-1) | ** | 12.85±0.02 (V) | PE | 3510 |
| SiH ₃ Br ⁺ (² A ₁) | SiH ₃ Br (RN-CAS Registry Number 13465-73-1) | ** | 12.96 (V) | PE | 3511 |
| SiH ₃ Br ⁺ (² E) | SiH ₃ Br (RN-CAS Registry Number 13465-73-1) | ** | 13.3±0.1 (V) | PE | 3510 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|--|--|----------------|---|--------|------|
| SiH ₃ Br ⁺ (² E) | SiH ₃ Br (RN-CAS Registry Number 13465-73-1) | ** | 13.43 (V) | PE | 3511 |
| SiH ₃ Br ⁺ (² A ₁) | SiH ₃ Br (RN-CAS Registry Number 13465-73-1) | ** | 18.04 (V) | PE | 3511 |
| SiH ₃ Br ⁺ (² A ₁) | SiH ₃ Br (RN-CAS Registry Number 13465-73-1) | ** | 18.1±0.1 (V) | PE | 3510 |
| SiH ₃ Br ⁺ (² A ₁) | SiH ₃ Br (RN-CAS Registry Number 13465-73-1) | ** | 19.5±0.1 (V) | PE | 3510 |
| SiH ₂ Br ₂ ⁺ | SiH ₂ Br ₂ (RN-CAS Registry Number 13768-94-0) | ** | 10.92±0.02 (V) | PE | 3510 |
| C ₅ H ₉ SiBr ⁺ | (CH ₃) ₃ SiC≡CBr (RN-CAS Registry Number 18243-59-9) | ** | 9.4±0.1 | PE | 4002 |
| SiF ₃ Br ⁺ (² E) | SiF ₃ Br (RN-CAS Registry Number 14049-39-9) | ** | 12.46±0.02 (V) | PE | 4026 |
| SiF ₃ Br ⁺ (² A ₁) | SiF ₃ Br (RN-CAS Registry Number 14049-39-9) | ** | 14.55±0.02 (V) | PE | 4026 |
| SiF ₃ Br ⁺ (² A ₂) | SiF ₃ Br (RN-CAS Registry Number 14049-39-9) | ** | 16.10±0.02 (V) | PE | 4026 |
| SiF ₃ Br ⁺ (² E) | SiF ₃ Br (RN-CAS Registry Number 14049-39-9) | ** | 16.63±0.02 (V) | PE | 4026 |
| SiF ₃ Br ⁺ (² E) | SiF ₃ Br (RN-CAS Registry Number 14049-39-9) | ** | 17.36±0.02 (V) | PE | 4026 |
| SiF ₃ Br ⁺ (² A ₁) | SiF ₃ Br (RN-CAS Registry Number 14049-39-9) | ** | 18.10±0.02 (V) | PE | 4026 |
| SiF ₃ Br ⁺ (² E) | SiF ₃ Br (RN-CAS Registry Number 14049-39-9) | ** | 18.80±0.02 (V) | PE | 4026 |
| SiF ₃ Br ⁺ (² A ₁) | SiF ₃ Br (RN-CAS Registry Number 14049-39-9) | ** | 20.80±0.02 (V) | PE | 4026 |
| PBr ⁺ | PBr ₃ (RN-CAS Registry Number 7789-60-8) | | 14.2±0.2 | EDD | 3556 |
| PBr ₂ ⁺ | PBr ₃ (RN-CAS Registry Number 7789-60-8) | Br | 11.2±0.1 | EDD | 3556 |
| PBr ₃ ⁺ (² A ₁) | PBr ₃ (RN-CAS Registry Number 7789-60-8) | ** | 9.96 (V) | PE | 4023 |
| PBr ₃ ⁺ (² A ₁) | PBr ₃ (RN-CAS Registry Number 7789-60-8) | ** | 10.00±0.03 (V) | PE | 3669 |
| PBr ₃ ⁺ (² A ₂) | PBr ₃ (RN-CAS Registry Number 7789-60-8) | ** | 10.61 (V) | PE | 4023 |
| PBr ₃ ⁺ (² A ₂) | PBr ₃ (RN-CAS Registry Number 7789-60-8) | ** | 10.67±0.03 (V) | PE | 3669 |
| PBr ₃ ⁺ (² E _{3/2}) | PBr ₃ (RN-CAS Registry Number 7789-60-8) | ** | 10.83 (V) | PE | 4023 |
| PBr ₃ ⁺ (² E) | PBr ₃ (RN-CAS Registry Number 7789-60-8) | ** | 10.87±0.03 (V) | PE | 3669 |
| PBr ₃ ⁺ (² E _{1/2}) | PBr ₃ (RN-CAS Registry Number 7789-60-8) | ** | 11.16 (V) | PE | 4023 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|-----------------------------------|---|----------------|---|--------|------|
| $\text{PBr}_3(^2\text{E})$ | PBr_3 (RN-CAS Registry Number 7789-60-8) | ** | 11.79 (V) | PE | 4023 |
| $\text{PBr}_3(^2\text{E})$ | PBr_3 (RN-CAS Registry Number 7789-60-8) | ** | 11.85 ± 0.03 (V) | PE | 3669 |
| $\text{PBr}_3(^2\text{A}_1)$ | PBr_3 (RN-CAS Registry Number 7789-60-8) | ** | 13.09 ± 0.03 (V) | PE | 3669 |
| $\text{PBr}_3(^2\text{A}_1)$ | PBr_3 (RN-CAS Registry Number 7789-60-8) | ** | 13.13 (V) | PE | 4023 |
| $\text{PBr}_3(^2\text{E})$ | PBr_3 (RN-CAS Registry Number 7789-60-8) | ** | 14.09 ± 0.03 (V) | PE | 3669 |
| $\text{PBr}_3(^2\text{E})$ | PBr_3 (RN-CAS Registry Number 7789-60-8) | ** | 14.12 (V) | PE | 4023 |
| PBr_3^+ | PBr_3 (RN-CAS Registry Number 7789-60-8) | ** | 10.1 ± 0.1 | EDD | 3556 |
| $\text{POBr}_3(^2\text{E}_{3/2})$ | POBr_3 (RN-CAS Registry Number 7789-59-5) | ** | 10.75 ± 0.02 | PE | 3835 |
| $\text{POBr}_3(^2\text{E}_{3/2})$ | POBr_3 (RN-CAS Registry Number 7789-59-5) | ** | 10.99 (V) | PE | 4023 |
| $\text{POBr}_3(^2\text{E})$ | POBr_3 (RN-CAS Registry Number 7789-59-5) | ** | 11.03 ± 0.03 (V) | PE | 3669 |
| $\text{POBr}_3(^2\text{E}_{1/2})$ | POBr_3 (RN-CAS Registry Number 7789-59-5) | ** | 11.13 ± 0.02 (V) | PE | 3835 |
| $\text{POBr}_3(^2\text{E}_{1/2})$ | POBr_3 (RN-CAS Registry Number 7789-59-5) | ** | 11.13 (V) | PE | 4023 |
| $\text{POBr}_3(^2\text{A}_2)$ | POBr_3 (RN-CAS Registry Number 7789-59-5) | ** | 11.36 (V) | PE | 4023 |
| $\text{POBr}_3(^2\text{A}_2)$ | POBr_3 (RN-CAS Registry Number 7789-59-5) | ** | 11.38 ± 0.02 (V) | PE | 3835 |
| $\text{POBr}_3(^2\text{A}_2)$ | POBr_3 (RN-CAS Registry Number 7789-59-5) | ** | 11.38 ± 0.03 (V) | PE | 3669 |
| $\text{POBr}_3(^2\text{E}_{3/2})$ | POBr_3 (RN-CAS Registry Number 7789-59-5) | ** | 11.73 (V) | PE | 4023 |
| $\text{POBr}_3(^2\text{E}_{3/2})$ | POBr_3 (RN-CAS Registry Number 7789-59-5) | ** | 11.74 ± 0.02 (V) | PE | 3835 |
| $\text{POBr}_3(^2\text{E})$ | POBr_3 (RN-CAS Registry Number 7789-59-5) | ** | 11.75 ± 0.03 (V) | PE | 3669 |
| $\text{POBr}_3(^2\text{E}_{1/2})$ | POBr_3 (RN-CAS Registry Number 7789-59-5) | ** | 11.97 (V) | PE | 4023 |
| $\text{POBr}_3(^2\text{E}_{1/2})$ | POBr_3 (RN-CAS Registry Number 7789-59-5) | ** | 11.98 ± 0.02 (V) | PE | 3835 |
| $\text{POBr}_3(^2\text{A}_1)$ | POBr_3 (RN-CAS Registry Number 7789-59-5) | ** | 12.39 (V) | PE | 4023 |
| $\text{POBr}_3(^2\text{A}_1)$ | POBr_3 (RN-CAS Registry Number 7789-59-5) | ** | 12.41 ± 0.03 (V) | PE | 3669 |
| $\text{POBr}_3(^2\text{A}_1)$ | POBr_3 (RN-CAS Registry Number 7789-59-5) | ** | 12.43 ± 0.02 (V) | PE | 3835 |
| $\text{POBr}_3(^2\text{E})$ | POBr_3 (RN-CAS Registry Number 7789-59-5) | ** | 12.60 ± 0.03 (V) | PE | 3669 |
| $\text{POBr}_3(^2\text{E})$ | POBr_3 (RN-CAS Registry Number 7789-59-5) | ** | 12.61 (V) | PE | 4023 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|---------------------------------------|---|----------------|---|--------|------|
| $\text{POBr}_3(^2E_{3/2}, ^2E_{1/2})$ | POBr_3 (RN-CAS Registry Number 7789-59-5) | ** | 12.66 ± 0.03 (V) | PE | 3835 |
| $\text{POBr}_3(^2A_1)$ | POBr_3 (RN-CAS Registry Number 7789-59-5) | ** | 14.37 ± 0.02 | PE | 3835 |
| $\text{POBr}_3(^2A_1)$ | POBr_3 (RN-CAS Registry Number 7789-59-5) | ** | 14.57 ± 0.03 (V) | PE | 3669 |
| $\text{POBr}_3(^2A_1)$ | POBr_3 (RN-CAS Registry Number 7789-59-5) | ** | 14.60 (V) | PE | 4023 |
| $\text{POBr}_3(^2E)$ | POBr_3 (RN-CAS Registry Number 7789-59-5) | ** | 15.34 ± 0.03 (V) | PE | 3669 |
| $\text{POBr}_3(^2E)$ | POBr_3 (RN-CAS Registry Number 7789-59-5) | ** | 15.35 (V) | PE | 4023 |
| $\text{POBr}_3(^2E_{3/2}, ^2E_{1/2})$ | POBr_3 (RN-CAS Registry Number 7789-59-5) | ** | 15.39 ± 0.02 (V) | PE | 3835 |
| PF_2Br^+ | PF_2Br (RN-CAS Registry Number 15597-40-7) | ** | 11.08 ± 0.1 (V) | PE | 3662 |
| $\text{C}_4\text{H}_3\text{SBr}^+$ | $\text{C}_4\text{H}_3\text{SBr}$ (Thiophene, 2-bromo-) (RN-CAS Registry Number 1003-09-4) | ** | 8.664 ± 0.005 | PE | 3911 |
| $\text{C}_4\text{H}_3\text{SBr}^+$ | $\text{C}_4\text{H}_3\text{SBr}$ (Thiophene, 2-bromo-) (RN-CAS Registry Number 1003-09-4) | ** | 8.664 | PE | 3645 |
| $\text{C}_4\text{H}_3\text{SBr}^+$ | $\text{C}_4\text{H}_3\text{SBr}$ (Thiophene, 2-bromo-) (RN-CAS Registry Number 1003-09-4) | ** | 8.93 ± 0.05 | EI | 3482 |
| $\text{C}_4\text{H}_3\text{SBr}^+$ | $\text{C}_4\text{H}_3\text{SBr}$ (Thiophene, 2-bromo-) (RN-CAS Registry Number 1003-09-4) | ** | 8.80 | CTS | 3787 |
| $\text{C}_4\text{H}_3\text{SBr}^+$ | $\text{C}_4\text{H}_3\text{SBr}$ (Thiophene, 3-bromo-) (RN-CAS Registry Number 872-31-1) | ** | 8.812 ± 0.005 | PE | 3911 |
| $\text{C}_4\text{H}_3\text{SBr}^+$ | $\text{C}_4\text{H}_3\text{SBr}$ (Thiophene, 3-bromo-) (RN-CAS Registry Number 872-31-1) | ** | 8.812 | PE | 3645 |
| $\text{C}_4\text{H}_3\text{SBr}^+$ | $\text{C}_4\text{H}_3\text{SBr}$ (Thiophene, 3-bromo-) (RN-CAS Registry Number 872-31-1) | ** | 9.02 ± 0.05 | EI | 3482 |
| SOBr_2^+ | SOBr_2 (RN-CAS Registry Number 507-16-4) | ** | 10.54 (V) | PE | 3646 |
| SOBr_2^+ | SOBr_2 (RN-CAS Registry Number 507-16-4) | ** | 10.63 (V) | PE | 3705 |
| SOBr_2^{*+} | SOBr_2 (RN-CAS Registry Number 507-16-4) | ** | 10.92 (V) | PE | 3705 |
| SOBr_2^{*+} | SOBr_2 (RN-CAS Registry Number 507-16-4) | ** | 11.24 (V) | PE | 3705 |
| SOBr_2^{*+} | SOBr_2 (RN-CAS Registry Number 507-16-4) | ** | 11.68 (V) | PE | 3705 |
| $\text{SOBr}_2(^2A')$ | SOBr_2 (RN-CAS Registry Number 507-16-4) | ** | 12.13 (V) | PE | 3705 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|---------------------------------------|--|----------------|---|--------|------|
| $\text{SOBr}_2(^2A'')$ | SOBr_2 (RN-CAS Registry Number 507-16-4) | ** | 12.37 (V) | PE | 3705 |
| $\text{SOBr}_2(^2A')$ | SOBr_2 (RN-CAS Registry Number 507-16-4) | ** | 14.70 (V) | PE | 3705 |
| SOBr_2^* | SOBr_2 (RN-CAS Registry Number 507-16-4) | ** | 15.81 (V) | PE | 3705 |
| $\text{SOBr}_3(^2E_{3/2}, ^2E_{1/2})$ | SOBr_3 (RN-CAS Registry Number XXXXX-XX-X) | ** | 9.41 ± 0.02 | PE | 3835 |
| $\text{SOBr}_3(^2A_2)$ | SOBr_3 (RN-CAS Registry Number XXXXX-XX-X) | ** | 10.92 ± 0.01 (V) | PE | 3835 |
| $\text{SOBr}_3(^2E_{3/2})$ | SOBr_3 (RN-CAS Registry Number XXXXX-XX-X) | ** | 11.20 ± 0.02 (V) | PE | 3835 |
| $\text{SOBr}_3(^2E_{1/2})$ | SOBr_3 (RN-CAS Registry Number XXXXX-XX-X) | ** | 11.42 ± 0.01 (V) | PE | 3835 |
| $\text{SOBr}_3(^2A_1)$ | SOBr_3 (RN-CAS Registry Number XXXXX-XX-X) | ** | 11.83 ± 0.01 (V) | PE | 3835 |
| $\text{SOBr}_3(^2E_{3/2}, ^2E_{1/2})$ | SOBr_3 (RN-CAS Registry Number XXXXX-XX-X) | ** | 12.20 ± 0.01 (V) | PE | 3835 |
| $\text{SOBr}_3(^2A_1)$ | SOBr_3 (RN-CAS Registry Number XXXXX-XX-X) | ** | 13.68 ± 0.02 | PE | 3835 |
| $\text{SOBr}_3(^2E_{3/2}, ^2E_{1/2})$ | SOBr_3 (RN-CAS Registry Number XXXXX-XX-X) | ** | 14.68 ± 0.02 (V) | PE | 3835 |
| SOBr_3^* | SOBr_3 (RN-CAS Registry Number XXXXX-XX-X) | ** | ~ 18.2 (V) | PE | 3835 |
| SOBr_3^* | SOBr_3 (RN-CAS Registry Number XXXXX-XX-X) | ** | ~ 18.9 (V) | PE | 3835 |
| SOBr_3^* | SOBr_3 (RN-CAS Registry Number XXXXX-XX-X) | ** | ~ 20.2 (V) | PE | 3835 |
| $\text{PSBr}_3(^2E)$ | PSBr_3 (RN-CAS Registry Number 3931-89-3) | ** | 9.82 (V) | PE | 4023 |
| $\text{PSBr}_3(^2E)$ | PSBr_3 (RN-CAS Registry Number 3931-89-3) | ** | 9.89 ± 0.03 (V) | PE | 3669 |
| $\text{PSBr}_3(^2A_2)$ | PSBr_3 (RN-CAS Registry Number 3931-89-3) | ** | 10.86 (V) | PE | 4023 |
| $\text{PSBr}_3(^2A_2)$ | PSBr_3 (RN-CAS Registry Number 3931-89-3) | ** | 10.94 ± 0.03 (V) | PE | 3669 |
| $\text{PSBr}_3(^2E_{3/2})$ | PSBr_3 (RN-CAS Registry Number 3931-89-3) | ** | 11.16 (V) | PE | 4023 |
| $\text{PSBr}_3(^2E)$ | PSBr_3 (RN-CAS Registry Number 3931-89-3) | ** | 11.21 ± 0.03 (V) | PE | 3669 |
| $\text{PSBr}_3(^2E_{1/2})$ | PSBr_3 (RN-CAS Registry Number 3931-89-3) | ** | 11.38 (V) | PE | 4023 |
| $\text{PSBr}_3(^2A_1)$ | PSBr_3 (RN-CAS Registry Number 3931-89-3) | ** | 11.80 (V) | PE | 4023 |
| $\text{PSBr}_3(^2A_1)$ | PSBr_3 (RN-CAS Registry Number 3931-89-3) | ** | 11.87 ± 0.03 (V) | PE | 3669 |
| $\text{PSBr}_3(^2E)$ | PSBr_3 (RN-CAS Registry Number 3931-89-3) | ** | 12.15 (V) | PE | 4023 |
| $\text{PSBr}_3(^2E)$ | PSBr_3 (RN-CAS Registry Number 3931-89-3) | ** | 12.23 ± 0.03 (V) | PE | 3669 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|--|---|----------------|---|--------|------|
| $\text{PSBr}_3(^2A_1)$ | PSBr_3 (RN-CAS Registry Number 3931-89-3) | ** | 13.91 (V) | PE | 4023 |
| $\text{PSBr}_3(^2A_1)$ | PSBr_3 (RN-CAS Registry Number 3931-89-3) | ** | 13.97 ± 0.03 (V) | PE | 3669 |
| $\text{PSBr}_3(^2E)$ | PSBr_3 (RN-CAS Registry Number 3931-89-3) | ** | 14.59 (V) | PE | 4023 |
| $\text{PSBr}_3(^2E)$ | PSBr_3 (RN-CAS Registry Number 3931-89-3) | ** | 14.63 ± 0.03 (V) | PE | 3669 |
| $\text{C}_5\text{H}_8\text{ClBr}^+$ | $\text{C}_5\text{H}_8\text{ClBr}$ (Cyclopentane, 1-bromo-2-chloro-, <i>cis</i> -) (RN-CAS Registry Number 37722-39-7) | ** | 10.13 ± 0.02 | PE | 4003 |
| $\text{C}_5\text{H}_8\text{ClBr}^+$ | $\text{C}_5\text{H}_8\text{ClBr}$ (Cyclopentane, 1-bromo-2-chloro-, <i>trans</i> -) (RN-CAS Registry Number 14376-82-0) | ** | 10.23 ± 0.02 | PE | 4003 |
| $\text{C}_6\text{H}_{10}\text{ClBr}^+$ | $\text{C}_6\text{H}_{10}\text{ClBr}$ (Cyclohexane, 1-bromo-2-chloro-, <i>cis</i> -) (RN-CAS Registry Number 51422-75-4) | ** | 10.03 ± 0.02 | PE | 4003 |
| $\text{C}_6\text{H}_{10}\text{ClBr}^+$ | $\text{C}_6\text{H}_{10}\text{ClBr}$ (Cyclohexane, 1-bromo-2-chloro-, <i>trans</i> -) (RN-CAS Registry Number 13898-96-9) | ** | 10.13 ± 0.02 | PE | 4003 |
| PClBr^+ | PClBr_2 (RN-CAS Registry Number 13550-32-8) (TR—Other product(s) thermochemically reasonable) | Br | 11.3 ± 0.1 | EDD | 3556 |
| PCl_2Br^+ | PCl_2Br (RN-CAS Registry Number 13536-48-6) | ** | 10.4 ± 0.1 | EDD | 3556 |
| PClBr_2^+ | PClBr_2 (RN-CAS Registry Number 13550-32-8) | ** | 10.2 ± 0.1 | EDD | 3556 |
| $\text{C}_5\text{O}_5\text{BrMn}^+$ | $\text{Mn}(\text{CO})_5\text{Br}$ (RN-CAS Registry Number 14516-54-2) | ** | 8.86 (V) | PE | 3866 |
| $\text{C}_6\text{H}_3\text{NO}_4\text{MnBr}^+$ | <i>cis</i> - $\text{BrMn}(\text{CO})_4(\text{CCH}_3)$ (RN-CAS Registry Number 37474-14-9) | ** | 8.26 (V) | PE | 3866 |
| Cu_3Br_3^+ | Cu_3Br_3 (RN-CAS Registry Number 37190-22-0) | ** | 9.7 | EI | 3954 |
| Cu_4Br_3^+ | Cu_4Br_4 (RN-CAS Registry Number XXXXX-XX-X) | ** | 10.4 | EI | 3954 |
| Cu_4Br_4^+ | Cu_4Br_4 (RN-CAS Registry Number XXXXX-XX-X) | ** | 9.2 | EI | 3954 |
| $\text{ZnBr}_2(^2\Pi_{3/2g})$ | ZnBr_2 (RN-CAS Registry Number XXXXX-XX-X) | ** | 10.89 ± 0.05 (V) | PE | 3833 |
| $\text{ZnBr}_2(^2\Pi_{1/2g})$ | ZnBr_2 (RN-CAS Registry Number XXXXX-XX-X) | ** | 11.22 ± 0.05 (V) | PE | 3833 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|--|---|----------------|---|--------|------|
| ZnBr ₂ (² Π _u) | ZnBr ₂ (RN-CAS Registry Number XXXXX-XX-X) | ** | 11.40±0.05 (V) | PE | 3833 |
| ZnBr ₂ (² Σ _u) | ZnBr ₂ (RN-CAS Registry Number XXXXX-XX-X) | ** | 12.28±0.05 (V) | PE | 3833 |
| ZnBr ₂ (² Σ _g) | ZnBr ₂ (RN-CAS Registry Number XXXXX-XX-X) | ** | 13.55±0.05 (V) | PE | 3833 |
| ZnBr ₂ * | ZnBr ₂ (RN-CAS Registry Number XXXXX-XX-X) | ** | 18.69±0.05 (V) | PE | 3833 |
| ZnBr ₂ (² Π _{3/2g}) | ZnBr ₂ (RN-CAS Registry Number 7699-45-8) | ** | 10.8 (V) | PE | 3963 |
| ZnBr ₂ (² Π _{3/2u}) | ZnBr ₂ (RN-CAS Registry Number 7699-45-8) | ** | 11.1 (V) | PE | 3963 |
| ZnBr ₂ (² Π _{1/2g}) | ZnBr ₂ (RN-CAS Registry Number 7699-45-8) | ** | 11.2 (V) | PE | 3963 |
| ZnBr ₂ (² Π _{1/2u}) | ZnBr ₂ (RN-CAS Registry Number 7699-45-8) | ** | 11.4 (V) | PE | 3963 |
| ZnBr ₂ (² Σ _u) | ZnBr ₂ (RN-CAS Registry Number 7699-45-8) | ** | 12.3 (V) | PE | 3963 |
| ZnBr ₂ (² Σ _g) | ZnBr ₂ (RN-CAS Registry Number 7699-45-8) | ** | 13.0 (V) | PE | 3963 |
| GeH ₃ Br ⁺ (² E _{3/2}) | GeH ₃ Br (RN-CAS Registry Number 13569-43-2) | ** | 10.61±0.02 (V) | PE | 3510 |
| GeH ₃ Br ⁺ | GeH ₃ Br (RN-CAS Registry Number 13569-43-2) | ** | 10.72±0.05 (V) | PE | 3502 |
| GeH ₃ Br ⁺ (² E _{1/2}) | GeH ₃ Br (RN-CAS Registry Number 13569-43-2) | ** | 10.83±0.02 (V) | PE | 3510 |
| GeH ₃ Br ⁺ (² A ₁) | GeH ₃ Br (RN-CAS Registry Number 13569-43-2) | ** | 12.51±0.02 (V) | PE | 3510 |
| GeH ₃ Br ⁺ (² E) | GeH ₃ Br (RN-CAS Registry Number 13569-43-2) | ** | 12.9±0.1 (V) | PE | 3510 |
| GeH ₂ Br ₂ ⁺ | GeH ₂ Br ₂ (RN-CAS Registry Number 13769-36-3) | ** | 10.69±0.02 (V) | PE | 3510 |
| Kr ⁺ (² P _{3/2}) | Kr (RN-CAS Registry Number 7439-90-9) | ** | 14.0010±0.0012 | S | 3881 |
| | (RS-Average of eight Rydberg series limits) | | | | |
| Kr ⁺ (² P _{3/2}) | Kr (RN-CAS Registry Number 7439-90-9) | ** | 13.992±0.002 | TPE | 3525 |
| Kr ⁺ (² P _{1/2}) | Kr (RN-CAS Registry Number 7439-90-9) | ** | 14.661±0.002 | TPE | 3525 |
| Kr ⁺ (² P _{3/2}) | Kr (RN-CAS Registry Number 7439-90-9) | ** | 13.974±0.004 | PEN | 3541 |
| KrF ₂ (² Π _u) | KrF ₂ (RN-CAS Registry Number 13773-81-4) | ** | 13.06-13.16 | PE | 3642 |
| KrF ₂ (² Π _{3/2u}) | KrF ₂ (RN-CAS Registry Number 13773-81-4) | ** | 13.34 (V) | PE | 3501 |
| KrF ₂ (² Π _{1/2u}) | KrF ₂ (RN-CAS Registry Number 13773-81-4) | ** | 13.47 (V) | PE | 3501 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|--------------------------------------|---|----------------|---|--------|------|
| $\text{KrF}_2^+(\text{}^2\Sigma_g)$ | KrF_2 (RN-CAS Registry Number 13773-81-4) | ** | 13.75 | PE | 3642 |
| $\text{KrF}_2^+(\text{}^2\Sigma_g)$ | KrF_2 (RN-CAS Registry Number 13773-81-4) | ** | 13.90 (V) | PE | 3501 |
| $\text{KrF}_2^+(\text{}^2\Pi_g)$ | KrF_2 (RN-CAS Registry Number 13773-81-4) | ** | 14.0 | PE | 3642 |
| $\text{KrF}_2^+(\text{}^2\Pi_g)$ | KrF_2 (RN-CAS Registry Number 13773-81-4) | ** | 14.37 (V) | PE | 3501 |
| $\text{KrF}_2^+(\text{}^2\Pi_u)$ | KrF_2 (RN-CAS Registry Number 13773-81-4) | ** | 16.25 | PE | 3642 |
| $\text{KrF}_2^+(\text{}^2\Pi_u)$ | KrF_2 (RN-CAS Registry Number 13773-81-4) | ** | 16.92 (V) | PE | 3501 |
| $\text{KrF}_2^+(\text{}^2\Sigma_u)$ | KrF_2 (RN-CAS Registry Number 13773-81-4) | ** | 17.7 (V) | PE | 3501 |
| $\text{KrF}_2^+(\text{}^2\Sigma_u)$ | KrF_2 (RN-CAS Registry Number 13773-81-4) | ** | 17.7 (V) | PE | 3642 |
| $\text{KrF}_2^+(\text{}^2\Sigma_g?)$ | KrF_2 (RN-CAS Registry Number 13773-81-4) | ** | 22.0 | PE | 3642 |
| $\text{KrF}_2^+(\text{}^2\Sigma_g)$ | KrF_2 (RN-CAS Registry Number 13773-81-4) | ** | 23.0 (V) | PE | 3501 |
| Rb^+ | RbOH (RN-CAS Registry Number 1310-82-3) | OH | ~ 10 | EI | 3461 |
| Rb^+ | RbCl (RN-CAS Registry Number 7791-11-9) | Cl | 8.695 ± 0.03 | PI | 3536 |
| Rb^+ | RbBr (RN-CAS Registry Number 7789-39-1) | Br | 8.12 ± 0.03 | PI | 3536 |
| Rb^+ | RbI (RN-CAS Registry Number 7790-29-6) | I | 7.53 ± 0.03 | PI | 3536 |
| Rb^{+2} | Rb^+ (RN-CAS Registry Number 22537-38-8) | ** | 27.285 ± 0.003 | S | 3924 |
| RbCl^+ | RbCl (RN-CAS Registry Number 7791-11-9) | ** | 8.50 ± 0.03 | PI | 3536 |
| RbBr^+ | RbBr (RN-CAS Registry Number 7789-39-1) | ** | 7.935 ± 0.03 | PI | 3536 |
| Rb_2Br^+ | Rb_2Br_2 (RN-CAS Registry Number 12409-58-4) | Br | 8.485 ± 0.05 | PI | 3536 |
| Sr^+ | Sr (RN-CAS Registry Number 7440-24-6) | ** | ~ 5.7 | EI | 3486 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|------------------------------------|---|----------------|---|--------|------|
| Sr^{+2} | Sr (RN-CAS Registry Number 7440-24-6) | ** | 16 | EI | 3486 |
| Sr^{+3} | Sr (RN-CAS Registry Number 7440-24-6) | ** | ~ 60 | EI | 3486 |
| $\text{Sr}^{+3}(^2\text{P}_{3/2})$ | Sr^{+2} (RN-CAS Registry Number 22537-39-9) | ** | 42.88388 ± 0.00019 S | | 3926 |
| $\text{Sr}^{+3}(^2\text{P}_{1/2})$ | Sr^{+2} (RN-CAS Registry Number 22537-39-9) | ** | 44.08999 ± 0.00019 D | | 3926 |
| SrCl^+ | SrCl (RN-CAS Registry Number 14989-33-4) | ** | 5.10 ± 0.06 | SI | 3526 |
| Y^+ | Y (RN-CAS Registry Number 7440-65-5) | ** | 6.7 ± 0.5 | EI | 3600 |
| $\text{Y}^{+6}(^4\text{S}_{3/2})$ | Y^{+5} (RN-CAS Registry Number 39956-79-1) | ** | 89.26 ± 0.25 | S | 3917 |
| $\text{Y}^{+6}(^2\text{D}_{5/2})$ | Y^{+5} (RN-CAS Registry Number 39956-79-1) (RS-Average of two Rydberg series limits) | ** | 92.57 ± 0.20 | S | 3917 |
| YS^+ | YS (RN-CAS Registry Number 12210-79-6) | ** | 6.0 | EI | 4001 |
| YSe^+ | YSe (RN-CAS Registry Number 12067-44-6) | ** | 7.9 ± 0.5 | EI | 3600 |
| $\text{Zr}^{+5}(^2\text{P}_{3/2})$ | $\text{Zr}^{+4}(^1\text{S}_0)$ (RN-CAS Registry Number 15543-40-5) | ** | 78.95 ± 0.01 | S | 3591 |
| $\text{Zr}^{+5}(^2\text{P}_{1/2})$ | $\text{Zr}^{+4}(^1\text{S}_0)$ (RN-CAS Registry Number 15543-40-5) | ** | 80.89 ± 0.01 | S | 3591 |
| Zr^{+6} | Zr^{+5} (RN-CAS Registry Number 20679-76-9) | ** | 95.8 ± 0.6 | S | 3895 |
| Zr^{+6} | Zr^{+5} (RN-CAS Registry Number 20679-76-9) | ** | 95.8 ± 0.6 | S | 3912 |
| ZrCl^+ | ZrCl_4 (RN-CAS Registry Number 10026-11-6) | | 21.9 | EI | 3783 |
| ZrCl_2^+ | ZrCl_4 (RN-CAS Registry Number 10026-11-6) | | 16.8 | EI | 3783 |
| ZrCl_3^+ | ZrCl_4 (RN-CAS Registry Number 10026-11-6) | | 12.3 | EI | 3783 |
| ZrCl_4^+ | ZrCl_4 (RN-CAS Registry Number 10026-11-6) | ** | 10.6 | EI | 3783 |
| $\text{Nb}^{+6}(^2\text{P}_{3/2})$ | $\text{Nb}^{+5}(^1\text{S}_0)$ (RN-CAS Registry Number 22537-41-3) | ** | 102.73 ± 0.01 | S | 3591 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|--|--|----------------|---|--------|------|
| Nb ⁺⁶ (² P _{1/2}) | Nb ⁺⁵ (¹ S ₀) (RN-CAS Registry Number 22537-41-3) | ** | 105.11±0.01 | S | 3591 |
| Nb ⁺⁷ | Nb ⁺⁶ (RN-CAS Registry Number 23844-85-1) | ** | 118.9±0.07 | PE | 3894 |
| NbF ₃ ⁺ | NbF ₄ ? (RN-CAS Registry Number 13842-88-1) | F? | 21.0 | EI | 3783 |
| NbF ₄ ⁺ | NbF ₄ ? (RN-CAS Registry Number 13842-88-1) | ** | 14.0 | EI | 3783 |
| Nb ₂ F ₉ ⁺ | Nb ₂ F ₉ ? (RN-CAS Registry Number XXXXX-XX-X) | ** | 14.2 | EI | 3783 |
| Nb ₃ F ₁₄ ⁺ | Nb ₃ F ₁₄ ? (RN-CAS Registry Number XXXXX-XX-X) | ** | 13.0 | EI | 3783 |
| NbCl ⁺ | NbCl ₅ (RN-CAS Registry Number 10026-12-7) | | 24.2 | EI | 3783 |
| NbCl ₂ ⁺ | NbCl ₅ (RN-CAS Registry Number 10026-12-7) | | 19.5 | EI | 3783 |
| NbCl ₃ ⁺ | NbCl ₅ (RN-CAS Registry Number 10026-12-7) | | 14.6 | EI | 3783 |
| NbCl ₄ ⁺ | NbCl ₅ (RN-CAS Registry Number 10026-12-7) | | 10.7 | EI | 3783 |
| Mo ⁺ | ((CH ₃) ₂ N) ₃ PMo(CO) ₅ (RN-CAS Registry Number 14971-43-8) | | 18.4±0.05 | EI | 3952 |
| Mo ⁺ | (((CH ₃) ₂ N) ₃ P) ₂ Mo(CO) ₄ (RN-CAS Registry Number 27342-90-1) | | 15.3±0.05 | EI | 3952 |
| Mo ⁺ | MoCl ₅ (RN-CAS Registry Number 10241-05-1) | | 23.1 | EI | 3783 |
| Mo ⁺⁷ (² P _{3/2}) | Mo ⁺⁶ (¹ S ₀) (RN-CAS Registry Number 16065-87-5) | ** | 126.81±0.01 | S | 3591 |
| Mo ⁺⁷ (² P _{1/2}) | Mo ⁺⁶ (¹ S ₀) (RN-CAS Registry Number 16065-87-5) | ** | 129.70±0.01 | S | 3591 |
| Mo ⁺⁸ | Mo ⁺⁷ (RN-CAS Registry Number 20908-14-9) | ** | 144.0±1.0 | PE | 3893 |
| C ₆ O ₆ Mo ⁺ | Mo(CO) ₆ (RN-CAS Registry Number 13939-06-5) | ** | 8.50±0.02 (V) | PE | 3979 |
| C ₆ H ₁₈ N ₃ PMo ⁺ | ((CH ₃) ₂ N) ₃ PMo(CO) ₅ (RN-CAS Registry Number 14971-43-8) | 5CO | 10.3±0.05 | EI | 3952 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|-----------------------------|---|----------------|---|--------|------|
| $C_6H_{18}N_3PMo^+$ | $((CH_3)_2N)_3P_2Mo(CO)_4$ (RN-CAS Registry Number 27342-90-1) | | 16.1 ± 0.05 | EI | 3952 |
| $C_{12}H_{36}N_6P_2Mo^+$ | $((CH_3)_2N)_3P_2Mo(CO)_4$ (RN-CAS Registry Number 27342-90-1) | 4CO | 14.8 ± 0.05 | EI | 3952 |
| $C_7H_{18}N_3OPMo^+$ | $((CH_3)_2N)_3PMo(CO)_5$ (RN-CAS Registry Number 14971-43-8) | 4CO | 12.1 ± 0.05 | EI | 3952 |
| $C_8H_{18}N_3O_2PMo^+$ | $((CH_3)_2N)_3PMo(CO)_5$ (RN-CAS Registry Number 14971-43-8) | 3CO | 9.9 ± 0.05 | EI | 3952 |
| $C_9H_{18}N_3O_3PMo^+$ | $((CH_3)_2N)_3PMo(CO)_5$ (RN-CAS Registry Number 14971-43-8) | 2CO | 9.6 ± 0.05 | EI | 3952 |
| $C_{10}H_{18}N_3O_4PMo^+$ | $((CH_3)_2N)_3PMo(CO)_5$ (RN-CAS Registry Number 14971-43-8) | CO | 7.8 ± 0.05 | EI | 3952 |
| $C_{11}H_{18}N_3O_5PMo^+$ | $((CH_3)_2N)_3PMo(CO)_5$ (RN-CAS Registry Number 14971-43-8) | ** | 5.7 ± 0.05 | EI | 3952 |
| $C_{13}H_{36}N_6OP_2Mo^+$ | $((CH_3)_2N)_3P_2Mo(CO)_4$ (RN-CAS Registry Number 27342-90-1) | 3CO | 14.0 ± 0.05 | EI | 3952 |
| $C_{14}H_{36}N_6O_2P_2Mo^+$ | $((CH_3)_2N)_3P_2Mo(CO)_4$ (RN-CAS Registry Number 27342-90-1) | 2CO | 11.2 ± 0.05 | EI | 3952 |
| $C_{15}H_{36}N_6O_3P_2Mo^+$ | $((CH_3)_2N)_3P_2Mo(CO)_4$ (RN-CAS Registry Number 27342-90-1) | CO | 11.1 ± 0.05 | EI | 3952 |
| $C_{16}H_{36}N_6O_4P_2Mo^+$ | $((CH_3)_2N)_3P_2Mo(CO)_4$ (RN-CAS Registry Number 27342-90-1) | ** | 6.8 ± 0.05 | EI | 3952 |
| $MoCl^+$ | $MoCl_5$ (RN-CAS Registry Number 10241-05-1) | | 20.3 | EI | 3783 |
| $MoCl_2^+$ | $MoCl_5$ (RN-CAS Registry Number 10241-05-1) | | 17.1 | EI | 3783 |
| $MoCl_3^+$ | $MoCl_5$ (RN-CAS Registry Number 10241-05-1) | | 12.9 | EI | 3783 |
| $MoCl_4^+$ | $MoCl_5$ (RN-CAS Registry Number 10241-05-1) | | 10.1 | EI | 3783 |
| $MoCl_5^+$ | $MoCl_5$ (RN-CAS Registry Number 10241-05-1) | ** | 9.2 | EI | 3783 |
| $MoO_2Cl_2^+$ | MoO_2Cl_2 (RN-CAS Registry Number 13637-68-8) | ** | $12.2 \pm \sim 0.5$ | EI | 3604 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|---|---|--|---|--------|------|
| MoOCl ₃ ⁺ | MoOCl ₄ (RN-CAS Registry Number 13814-75-0) | | 10.9±0.5 | EI | 3604 |
| MoOCl ₄ ⁺ | MoOCl ₄ (RN-CAS Registry Number 13814-75-0) | ** | 10.6±1 | EI | 3604 |
| MoO ₂ Br ₂ ⁺ | MoO ₂ Br ₂ (RN-CAS Registry Number 13595-98-7) | ** | 10.9±~0.5 | EI | 3604 |
| MoO ₂ ClBr ⁺ | MoO ₂ ClBr (RN-CAS Registry Number XXXXX-XX-X) | ** | 11.1±~0.5 | EI | 3604 |
| Ru ⁺ | (C ₅ H ₅) ₂ Ru (Ruthenocene) (RN-CAS Registry Number 1287-13-4) (MT-Metastable transition(s) observed) | (C ₅ H ₅) ₂ | 16.50±0.25 | DC | 3628 |
| C ₃ H ₃ Ru ⁺ | (C ₅ H ₅) ₂ Ru (Ruthenocene) (RN-CAS Registry Number 1287-13-4) | | 19.6±0.2 | EI | 3628 |
| C ₅ H ₅ Ru ⁺ | (C ₅ H ₅) ₂ Ru (Ruthenocene) (RN-CAS Registry Number 1287-13-4) (MT-Metastable transition(s) observed) | C ₅ H ₅ | 14.75±0.25 | DC | 3628 |
| C ₅ H ₅ Ru ⁺ | (C ₅ H ₅) ₂ Ru (Ruthenocene) (RN-CAS Registry Number 1287-13-4) (PC-Appearance potential of the corresponding metastable transition) | C ₅ H ₅ | 14.2±1 | EI | 3628 |
| C ₅ H ₅ Ru ⁺ | (C ₅ H ₅) ₂ Ru (Ruthenocene) (RN-CAS Registry Number 1287-13-4) | C ₃ H ₃ +C ₂ H ₂ | 16.5±1 | EI | 3628 |
| C ₈ H ₈ Ru ⁺ | (C ₅ H ₅) ₂ Ru (Ruthenocene) (RN-CAS Registry Number 1287-13-4) (PC-Appearance potential of the corresponding metastable transition) | C ₂ H ₂ | 14.1±1 | EI | 3628 |
| C ₈ H ₈ Ru ⁺ | (C ₅ H ₅) ₂ Ru (Ruthenocene) (RN-CAS Registry Number 1287-13-4) (MT-Metastable transition(s) observed) | C ₂ H ₂ | 14.6±0.2 | EI | 3628 |
| C ₁₀ H ₁₀ Ru ⁺ | (C ₅ H ₅) ₂ Ru (Ruthenocene) (RN-CAS Registry Number 1287-13-4) | ** | 7.45 (V) | PE | 3688 |
| C ₁₀ H ₁₀ Ru ⁺ | (C ₅ H ₅) ₂ Ru (Ruthenocene) (RN-CAS Registry Number 1287-13-4) | ** | 7.50±0.25 | DC | 3628 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|--------------------------|--|----------------|---|--------|------|
| $C_{12}H_{14}Ru^+$ | $(C_5H_4CH_3)_2Ru$ (Ruthenocene, 1,1'-dimethyl-) (RN-CAS Registry Number 33292-37-4) | ** | 7.25 (V) | PE | 3688 |
| $RuO_4(^2T_2)$ | RuO_4 (RN-CAS Registry Number 20427-56-9) | ** | 12.09 | PE | 3836 |
| RuO_4^+ | RuO_4 (RN-CAS Registry Number 20427-56-9) | ** | 12.16 | PE | 3838 |
| $RuO_4(^2T_1)$ | RuO_4 (RN-CAS Registry Number 20427-56-9) | ** | 12.91 | PE | 3836 |
| $RuO_4(^2A_1)$ | RuO_4 (RN-CAS Registry Number 20427-56-9) | ** | 13.78 | PE | 3836 |
| $RuO_4(^2E)$ | RuO_4 (RN-CAS Registry Number 20427-56-9) | ** | 13.88 | PE | 3836 |
| $RuO_4(^2T_2)$ | RuO_4 (RN-CAS Registry Number 20427-56-9) | ** | 16.03 (V) | PE | 3836 |
| $C_{15}H_3O_6F_{18}Ru^+$ | $(CF_3COCHCOCF_3)_3Ru$ (Ruthenium, tris(1,1,1,5,5,5-hexafluoropentanedionato- <i>O,O'</i>)-, (<i>OC</i> -6-11)-) (RN-CAS Registry Number 16827-63-7) | ** | 8.85 ± 0.07 (V) | PE | 3682 |
| RhC^+ | RhC (RN-CAS Registry Number 12127-42-3) | ** | 8.1 ± 0.6 | EI | 3978 |
| RhC^+ | RhC (RN-CAS Registry Number 12127-42-3) | ** | 8.6 ± 0.04 | EI | 3902 |
| RhC_2^+ | RhC_2 (RN-CAS Registry Number 37306-47-1) | ** | 8.1 ± 0.04 | EI | 3902 |
| $C_7H_7O_4Rh^+$ | $(CH_3COCHCOCH_3)Rh(CO)_2$ (Dicarbonyl(2,4-pentanedionato)rhodium) (RN-CAS Registry Number 14874-82-9) | ** | 8.6 ± 0.1 | EI | 3497 |
| $C_{12}H_9O_4Rh^+$ | $(CH_3COCHCOCH_2C_6H_5)Rh(CO)_2$ (Dicarbonyl(1-phenyl-1,3-butanedionato)rhodium) (RN-CAS Registry Number 24151-55-1) | ** | 8.4 ± 0.1 | EI | 3497 |
| $C_{17}H_{11}O_4Rh^+$ | $(C_6H_5COCHCOCH_2C_6H_5)Rh(CO)_2$ (Dicarbonyl(1,3-diphenyl-1,3-propanedionato)rhodium) (RN-CAS Registry Number 24151-56-2) | ** | 8.4 ± 0.1 | EI | 3497 |
| $C_{15}H_{21}O_6Rh^+$ | $(CH_3COCHCOCH_3)_3Rh$ (Tris(2,4-pentanedionato)rhodium) (RN-CAS Registry Number 14284-92-5) | ** | 7.34 ± 0.01 | EI | 3496 |
| $C_{15}H_{21}O_6Rh^+$ | $(CH_3COCHCOCH_3)_3Rh$ (Tris(2,4-pentanedionato)rhodium) (RN-CAS Registry Number 14284-92-5) | ** | 7.75 ± 0.05 | EI | 3497 |
| $C_{15}H_{20}NO_8Rh^+$ | $((CH_3CO)_2CH)_2Rh(NO_2C(OCCH_3)_2)$ (<i>OC</i> -6-22-(3-Nitro-2,4-pentanedionato- <i>O^2,O^4</i>)bis(2,4-pentanedionato- <i>O,O'</i>)rhodium) (RN-CAS Registry Number 36530-11-7) | ** | 7.65 ± 0.02 | EI | 3496 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|-----------------------------|---|----------------|---|--------|------|
| $C_{15}H_{19}N_2O_{10}Rh^+$ | $((CH_3CO)_2CNO_2)_2Rh(CH(OCCH_3)_2)$ ** (<i>OC</i> -6-21-Bis(3-nitro-2,4-pentanedionato- <i>O</i> ² , <i>O</i> ⁴)(2,4-pentanedionato- <i>O</i> , <i>O</i> ¹)rhodium) (RN-CAS Registry Number 36530-12-8) | | 7.97 ± 0.03 | EI | 3496 |
| $C_{15}H_{18}N_3O_{12}Rh^+$ | $(CH_3COC(NO_2)COCH_3)_3Rh$ ** (<i>OC</i> -6-11-Tris(3-nitro-2,4-pentanedionato- <i>O</i> ² , <i>O</i> ⁴)rhodium) (RN-CAS Registry Number 36530-13-9) | | 8.39 ± 0.04 | EI | 3496 |
| $C_7H_4O_4F_3Rh^+$ | $(CH_3COCHCOCF_3)Rh(CO)_2$ ** (Dicarbonyl(1,1,1-trifluoro-2,4-pentanedionato)rhodium) (RN-CAS Registry Number 18517-13-0) | | 8.85 ± 0.05 | EI | 3497 |
| $C_7HO_4F_6Rh^+$ | $(CF_3COCHCOCF_3)Rh(CO)_2$ ** (Dicarbonyl(1,1,1,5,5,5-hexafluoro-2,4-pentanedionato)rhodium) (RN-CAS Registry Number 18517-12-9) | | 9.2 ± 0.1 | EI | 3497 |
| $RhP_4F_{12}H^+$ | $HRh(PF_3)_4$ ** (RN-CAS Registry Number 16949-48-7) | | 9.7 | PE | 4021 |
| Pd^+ | Pd ** (RN-CAS Registry Number 7440-05-3) | | 8.0 ± 0.4 | EI | 3597 |
| $C_6H_{10}Pd^+$ | $(C_3H_5)_2Pd$ ** (Palladium, bis(η^3 -2-propenyl)-) (RN-CAS Registry Number 12240-87-8) | | 7.24 ± 0.03 | PE | 3711 |
| $C_{12}H_{18}N_2O_2Pd^+$ | $C_{12}H_{18}O_2N_2Pd$ ** (Palladium, [[4,4'-(1,2-ethanediyldinitrilo)bis[2-pentanonato]](2 ⁻ - <i>N,N',O,O'</i>)-(SP-4-2)-) (RN-CAS Registry Number 38337-62-1) | | 6.88 (V) | PE | 3822 |
| Ag^+ | Ag ** (RN-CAS Registry Number 7440-22-4) | | 7.51 ± 0.07 | RPD | 3574 |
| Ag^+ | Ag ** (RN-CAS Registry Number 7440-22-4) | | 7.6 | EI | 3472 |
| Ag^+ | Ag ** (RN-CAS Registry Number 7440-22-4) | | 7.8 ± 0.2 | EI | 3609 |
| Ag^+ | $AgCl$ ** (RN-CAS Registry Number 7783-90-6) | | 11.1 ± 0.3 | EI | 3622 |
| Ag^+ | Ag_3Cl_3 ** (RN-CAS Registry Number 12444-97-2) | | 14.5 | EI | 3622 |
| Ag^+ | $Ag_3Br_2?$ ** (RN-CAS Registry Number 11078-32-3) | | 11.2 ± 0.4 | EI | 3467 |
| Ag^+ | $Ag_3Br_3?$ ** (RN-CAS Registry Number 11078-33-4) | | 11.2 ± 0.4 | EI | 3467 |
| Ag_2^+ | Ag_2 ** (RN-CAS Registry Number 12187-06-3) | | 7.35 ± 0.05 | RPD | 3574 |
| Ag_2^+ | Ag_2 ** (RN-CAS Registry Number 12187-06-3) | | 6.4 ± 0.7 | EI | 3440 |
| Ag_2^+ | Ag_2 ** (RN-CAS Registry Number 12187-06-3) | | 7.4 ± 0.8 | EI | 3597 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|--|--|----------------|---|--------|------|
| Ag ₂ ⁺ | Ag ₂ (RN-CAS Registry Number 12187-06-3) | ** | 8.0±1.0 | EI | 3609 |
| Ag ₂ ⁺ | Ag ₃ Cl ₃ (RN-CAS Registry Number 12444-97-2) | | 18.0±0.5 | EI | 3622 |
| Ag ₂ ⁺ | Ag ₃ Br ₂ ? (RN-CAS Registry Number 11078-32-3) | | 12.5±1.0 | EI | 3467 |
| Ag ₂ ⁺ | Ag ₃ Br ₃ ? (RN-CAS Registry Number 11078-33-4) | | 12.5±1.0 | EI | 3467 |
| Ag ₃ ⁺ | Ag ₃ Cl ₃ (RN-CAS Registry Number 12444-97-2) | | 18.4±0.5 | EI | 3605 |
| NaAg ⁺ | NaAg (RN-CAS Registry Number 38782-42-2) | ** | ≤9±2 | EI | 3609 |
| AgAl ⁺ | AgAl (RN-CAS Registry Number 12379-67-8) | ** | 7.8±0.5 | EI | 3796 |
| AgPO ₂ ⁺ | AgPO ₂ (RN-CAS Registry Number XXXXX-XX-X) | ** | 9.3 | EI | 4098 |
| AgCl ⁺ | AgCl (RN-CAS Registry Number 7783-90-6) | ** | 10.8±0.4 | EI | 3622 |
| AgCl ⁺ | AgCl (RN-CAS Registry Number 7783-90-6) | ** | 11.3±0.5 | EI | 3605 |
| AgCl ⁺ | Ag ₃ Cl ₃ (RN-CAS Registry Number 12444-97-2) | | 14.2 | EI | 3622 |
| Ag ₂ Cl ⁺ | Ag ₂ Cl ₂ ? (RN-CAS Registry Number XXXXX-XX-X) | | 10.8±0.5 | EI | 3622 |
| Ag ₂ Cl ⁺ | Ag ₃ Cl ₃ (RN-CAS Registry Number 12444-97-2) | | 12.9 | EI | 3622 |
| Ag ₂ Cl ₂ ⁺ | Ag ₂ Cl ₂ (RN-CAS Registry Number XXXXX-XX-X) | ** | 10.3±0.5 | EI | 3605 |
| Ag ₃ Cl ⁺ | Ag ₃ Cl ₃ (RN-CAS Registry Number 12444-97-2) | | 14.9±0.5 | EI | 3605 |
| Ag ₃ Cl ₂ ⁺ | Ag ₃ Cl ₃ (RN-CAS Registry Number 12444-97-2) | | 11.1±0.3 | EI | 3622 |
| Ag ₃ Cl ₂ ⁺ | Ag ₃ Cl ₃ (RN-CAS Registry Number 12444-97-2) | | 11.1±0.5 | EI | 3605 |
| Ag ₃ Cl ₃ ⁺ | Ag ₃ Cl ₃ (RN-CAS Registry Number 12444-97-2) | ** | 10.0±0.5 | EI | 3605 |
| Ag ₃ Cl ₃ ⁺ | Ag ₃ Cl ₃ (RN-CAS Registry Number 12444-97-2) | ** | 10.4±0.3 | EI | 3622 |
| Ag ₄ Cl ₃ ⁺ | Ag ₄ Cl ₄ (RN-CAS Registry Number XXXXX-XX-X) | | 10.9±0.5 | EI | 3605 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|---------------------------------|--|----------------|---|--------|------|
| Ag_4Cl_4^+ | Ag_4Cl_4 (RN-CAS Registry Number XXXXX-XX-X) | ** | 9.6 ± 1.0 | EI | 3605 |
| Ag_5Cl_4^+ | $\text{Ag}_5\text{Cl}_5?$ (RN-CAS Registry Number XXXXX-XX-X) | | 10.0 ± 1.5 | EI | 3605 |
| AgBr^+ | AgBr (RN-CAS Registry Number 7785-23-1) | ** | 9.5 ± 0.3 | EI | 3467 |
| Ag_2Br^+ | $\text{Ag}_3\text{Br}_2?$ (RN-CAS Registry Number 11078-32-3) | | 11.4 ± 0.7 | EI | 3467 |
| Ag_2Br^+ | $\text{Ag}_3\text{Br}_3?$ (RN-CAS Registry Number 11078-33-4) | | 11.4 ± 0.7 | EI | 3467 |
| Ag_3Br_2^+ | Ag_3Br_2 (RN-CAS Registry Number 11078-32-3) | ** | 10.0 ± 0.2 | EI | 3467 |
| Ag_3Br_3^+ | Ag_3Br_3 (RN-CAS Registry Number 11078-33-4) | ** | 9.8 ± 0.2 | EI | 3467 |
| $\text{Cd}^+(^2\text{S}_{1/2})$ | Cd (RN-CAS Registry Number 7440-43-9) | ** | 8.99 | PEN | 3537 |
| $\text{Cd}^+(^2\text{P}_{1/2})$ | Cd (RN-CAS Registry Number 7440-43-9) | ** | 14.5 | PEN | 3537 |
| $\text{Cd}^+(^2\text{P}_{3/2})$ | Cd (RN-CAS Registry Number 7440-43-9) | ** | 14.9 | PEN | 3537 |
| $\text{Cd}^+(^2\text{D}_{5/2})$ | Cd (RN-CAS Registry Number 7440-43-9) | ** | 17.6 | PEN | 3537 |
| $\text{Cd}^+(^2\text{D}_{3/2})$ | Cd (RN-CAS Registry Number 7440-43-9) | ** | 18.4 | PEN | 3537 |
| $\text{Cd}^+(^2\text{D}_{3/2})$ | Cd (RN-CAS Registry Number 7440-43-9) | ** | 20.2 | PEN | 3537 |
| Cd^+ | Cd (RN-CAS Registry Number 7440-43-9) | ** | 9.07 ± 0.07 | RPD | 3745 |
| $\text{CdCl}_2(^2\Pi_g)$ | CdCl_2 (RN-CAS Registry Number 10108-64-2) | ** | 11.3 (V) | PE | 3963 |
| CdCl_2^+ | CdCl_2 (RN-CAS Registry Number 10108-64-2) | ** | 11.44 ± 0.05 (V) | PE | 3833 |
| $\text{CdCl}_2(^2\Pi_u)$ | CdCl_2 (RN-CAS Registry Number 10108-64-2) | ** | 11.8 (V) | PE | 3963 |
| $\text{CdCl}_2(^2\Pi_u)$ | CdCl_2 (RN-CAS Registry Number 10108-64-2) | ** | 11.93 ± 0.05 (V) | PE | 3833 |
| $\text{CdCl}_2(^2\Sigma_u)$ | CdCl_2 (RN-CAS Registry Number 10108-64-2) | ** | 12.4 (V) | PE | 3963 |
| $\text{CdCl}_2(^2\Sigma_u)$ | CdCl_2 (RN-CAS Registry Number 10108-64-2) | ** | 12.53 ± 0.05 (V) | PE | 3833 |
| $\text{CdCl}_2(^2\Sigma_g)$ | CdCl_2 (RN-CAS Registry Number 10108-64-2) | ** | 13.1 (V) | PE | 3963 |
| $\text{CdCl}_2(^2\Sigma_g)$ | CdCl_2 (RN-CAS Registry Number 10108-64-2) | ** | 13.12 ± 0.05 (V) | PE | 3833 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|--|---|----------------|---|--------|------|
| $\text{CdBr}_2^+(\text{}^2\Pi_{3/2g})$ | CdBr_2 (RN-CAS Registry Number 7789-42-6) | ** | 10.3 (V) | PE | 3963 |
| $\text{CdBr}_2^+(\text{}^2\Pi_{3/2g})$ | CdBr_2 (RN-CAS Registry Number 7789-42-6) | ** | 10.58 ± 0.05 (V) | PE | 3833 |
| $\text{CdBr}_2^+(\text{}^2\Pi_{3/2u})$ | CdBr_2 (RN-CAS Registry Number 7789-42-6) | ** | 10.6 (V) | PE | 3963 |
| $\text{CdBr}_2^+(\text{}^2\Pi_{1/2g})$ | CdBr_2 (RN-CAS Registry Number 7789-42-6) | ** | 10.7 (V) | PE | 3963 |
| $\text{CdBr}_2^+(\text{}^2\Pi_{1/2u})$ | CdBr_2 (RN-CAS Registry Number 7789-42-6) | ** | 10.8 (V) | PE | 3963 |
| $\text{CdBr}_2^+(\text{}^2\Pi_{1/2g})$ | CdBr_2 (RN-CAS Registry Number 7789-42-6) | ** | 10.94 ± 0.05 (V) | PE | 3833 |
| $\text{CdBr}_2^+(\text{}^2\Pi_u)$ | CdBr_2 (RN-CAS Registry Number 7789-42-6) | ** | 11.15 ± 0.05 (V) | PE | 3833 |
| $\text{CdBr}_2^+(\text{}^2\Sigma_u)$ | CdBr_2 (RN-CAS Registry Number 7789-42-6) | ** | 11.7 (V) | PE | 3963 |
| $\text{CdBr}_2^+(\text{}^2\Sigma_u)$ | CdBr_2 (RN-CAS Registry Number 7789-42-6) | ** | 11.85 ± 0.05 (V) | PE | 3833 |
| $\text{CdBr}_2^+(\text{}^2\Sigma_g)$ | CdBr_2 (RN-CAS Registry Number 7789-42-6) | ** | 12.4 (V) | PE | 3963 |
| $\text{CdBr}_2^+(\text{}^2\Sigma_g)$ | CdBr_2 (RN-CAS Registry Number 7789-42-6) | ** | 12.78 ± 0.05 (V) | PE | 3833 |
| In^+ | In (RN-CAS Registry Number 7440-74-6) | ** | 5.85 ± 0.07 | RPD | 3745 |
| In_2^+ | $\text{In}_2\text{O}?$ (RN-CAS Registry Number 12030-22-7) | | 12.9 ± 0.5 | EI | 3491 |
| InO^+ | $\text{In}_2\text{O}?$ (RN-CAS Registry Number 12030-22-7) | $\text{In}?$ | 14.8 ± 0.5 | EI | 3491 |
| In_2O^+ | $\text{In}_2\text{O}?$ (RN-CAS Registry Number 12030-22-7) | ** | 8.3 ± 0.3 | EI | 3491 |
| $\text{InCl}^+(\text{}^2\Sigma)$ | InCl (RN-CAS Registry Number 13465-10-6) | ** | 9.51 | PE | 3640 |
| $\text{InCl}^+(\text{}^2\Pi)$ | InCl (RN-CAS Registry Number 13465-10-6) | ** | 10.17 | PE | 3640 |
| $\text{InCl}^+(\text{}^2\Sigma)$ | InCl (RN-CAS Registry Number 13465-10-6) | ** | 12.82 | PE | 3640 |
| $\text{InBr}^+(\text{}^2\Pi)$ | InBr (RN-CAS Registry Number 14280-53-6) | ** | 6.62 | PE | 3640 |
| $\text{InBr}^+(\text{}^2\Sigma)$ | InBr (RN-CAS Registry Number 14280-53-6) | ** | 9.09 | PE | 3640 |
| $\text{InBr}^+(\text{}^2\Sigma)$ | InBr (RN-CAS Registry Number 14280-53-6) | ** | 12.38 | PE | 3640 |
| Sn^+ | Sn (RN-CAS Registry Number 7440-31-5) | ** | 7.28 ± 0.07 | RPD | 3745 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|---|---|---|---|--------|------|
| $\text{SnH}_4^+(\text{B}_2)$ | SnH_4 (RN-CAS Registry Number 2406-52-2) | ** | 10.75 | PE | 3716 |
| $\text{SnH}_4^+(\text{A}_1)$ | SnH_4 (RN-CAS Registry Number 2406-52-2) | ** | 16.68 | PE | 3716 |
| $\text{C}_3\text{H}_9\text{Sn}^+$ | $(\text{CH}_3)_4\text{Sn}$ (RN-CAS Registry Number 594-27-4) | CH_3 | 9.58 ± 0.19 | EI | 3548 |
| $\text{C}_3\text{H}_9\text{Sn}^+$ | $(\text{CH}_3)_3\text{CSn}(\text{CH}_3)_3$ (RN-CAS Registry Number 3531-47-3) | $(\text{CH}_3)_3\text{C}$ | 9.32 ± 0.16 | EI | 3548 |
| $\text{C}_3\text{H}_9\text{Sn}^+$ | $(\text{CH}_3)_3\text{SnSn}(\text{CH}_3)_3$ (RN-CAS Registry Number 661-69-8) | $(\text{CH}_3)_3\text{Sn}$ | 9.51 ± 0.22 | EI | 3548 |
| $\text{C}_3\text{H}_9\text{Sn}^+$ | $(\text{CH}_3)_3\text{SiSn}(\text{CH}_3)_3$ (RN-CAS Registry Number 16393-88-7) | $(\text{CH}_3)_3\text{Si}$ | 9.80 ± 0.24 | EI | 3548 |
| $\text{C}_3\text{H}_9\text{Sn}^+$ | $\text{C}_5\text{H}_5(\text{CO})_3\text{CrSn}(\text{CH}_3)_3$ (Tricarbonyl(η^5 -2,4-cyclopentadien-1-yl)(trimethylstannyl)chromium) (RN-CAS Registry Number 31854-87-2) | $\text{C}_5\text{H}_5(\text{CO})_3\text{Cr?}$ | 9.09 ± 0.1 | EI | 3495 |
| $\text{C}_3\text{H}_9\text{Sn}^+$ | $(\text{CH}_3)_3\text{GeSn}(\text{CH}_3)_3$ (RN-CAS Registry Number 16393-89-8) | $(\text{CH}_3)_3\text{Ge}$ | 9.85 ± 0.22 | EI | 3548 |
| $\text{C}_3\text{H}_9\text{Sn}^+$ | $\text{C}_5\text{H}_5(\text{CO})_3\text{MoSn}(\text{CH}_3)_3$ (Tricarbonyl(η^5 -2,4-cyclopentadien-1-yl)(trimethylstannyl)molybdenum) (RN-CAS Registry Number 12214-92-5) | $\text{C}_5\text{H}_5(\text{CO})_3\text{Mo?}$ | 9.85 ± 0.1 | EI | 3495 |
| $\text{C}_3\text{H}_9\text{Sn}^+$ | $\text{C}_5\text{H}_5(\text{CO})_3\text{WSn}(\text{CH}_3)_3$ (Tricarbonyl(η^5 -2,4-cyclopentadien-1-yl)(trimethylstannyl)tungsten) (RN-CAS Registry Number 12093-29-7) | $\text{C}_5\text{H}_5(\text{CO})_3\text{W?}$ | 10.05 ± 0.15 | EI | 3495 |
| $\text{C}_4\text{H}_{12}\text{Sn}^+$ | $(\text{CH}_3)_4\text{Sn}$ (RN-CAS Registry Number 594-27-4) | ** | 8.85 ± 0.1 | PE | 3677 |
| $\text{C}_4\text{H}_{12}\text{Sn}^+$ | $(\text{CH}_3)_4\text{Sn}$ (RN-CAS Registry Number 594-27-4) | ** | 8.93 ± 0.04 | PE | 3880 |
| $\text{C}_4\text{H}_{12}\text{Sn}^+$ | $(\text{CH}_3)_4\text{Sn}$ (RN-CAS Registry Number 594-27-4) | ** | 8.76 ± 0.12 | EI | 3548 |
| $\text{C}_7\text{H}_{18}\text{Sn}^+$ | $(\text{CH}_3)_3\text{CSn}(\text{CH}_3)_3$ (RN-CAS Registry Number 3531-47-3) | ** | 8.34 ± 0.11 | EI | 3548 |
| $\text{C}_9\text{H}_{14}\text{Sn}^+$ | $\text{C}_6\text{H}_5\text{Sn}(\text{CH}_3)_3$ (Stannane, trimethylphenyl-) (RN-CAS Registry Number 934-56-5) | ** | ~ 8.75 | CTS | 3922 |
| $\text{C}_{10}\text{H}_{16}\text{Sn}^+$ | $\text{C}_6\text{H}_5\text{CH}_2\text{Sn}(\text{CH}_3)_3$ (Stannane, trimethyl(phenylmethyl)-) (RN-CAS Registry Number 4314-94-7) | ** | 7.91 | CTS | 3922 |
| $\text{C}_{12}\text{H}_{16}\text{Sn}^+$ | $\text{C}_9\text{H}_7\text{Sn}(\text{CH}_3)_3$ (Stannane, 1 <i>H</i> -inden-1-yltrimethyl-) (RN-CAS Registry Number 23022-40-4) | ** | 7.29 ± 0.01 | EI | 3805 |
| $\text{C}_{12}\text{H}_{18}\text{Sn}^+$ | $\text{C}_9\text{H}_9\text{Sn}(\text{CH}_3)_3$ (Stannane, (2,3-dihydro-1 <i>H</i> -inden-1-yl)trimethyl-) (RN-CAS Registry Number 41273-55-6) | ** | 7.29 ± 0.01 | EI | 3805 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|------------------------|--|----------------|---|--------|------|
| $C_{13}H_{16}Sn^+$ | $C_{10}H_7Sn(CH_3)_3$ (Stannane, trimethyl-1-naphthalenyl-) (RN-CAS Registry Number 944-85-4) | ** | 7.99 | CTS | 3922 |
| $C_{14}H_{18}Sn^+$ | $C_{10}H_7CH_2Sn(CH_3)_3$ (Stannane, trimethyl(1-naphthalenylmethyl)-) (RN-CAS Registry Number 51220-36-1) | ** | ~7.6 | CTS | 3922 |
| $C_{14}H_{30}Sn^+$ | $CH_2=CHSn(n-C_4H_9)_3$ (RN-CAS Registry Number 7486-35-3) | ** | 8.6 (V) | PE | 3850 |
| $C_{15}H_{32}Sn^+$ | $CH_2=CHCH_2Sn(n-C_4H_9)_3$ (RN-CAS Registry Number 24850-33-7) | ** | 8.4 (V) | PE | 3850 |
| $C_{16}H_{36}Sn^+$ | $(n-C_4H_9)_4Sn$ (RN-CAS Registry Number 1461-25-2) | ** | 8.7 (V) | PE | 3850 |
| $C_{24}H_{20}Sn^+$ | $(C_6H_5)_4Sn$ (Stannane, tetraphenyl-) (RN-CAS-Registry Number 595-90-4) | ** | 8.34 ± 0.03 | PI | 4055 |
| $C_6H_{18}Sn_2^+$ | $(CH_3)_3SnSn(CH_3)_3$ (RN-CAS Registry Number 661-69-8) | ** | 8.02 ± 0.15 | EI | 3548 |
| SnO^+ | SnO (RN-CAS Registry Number 21651-19-4) | ** | 9.5 ± 1 | EI | 3819 |
| $C_6H_{18}SiSn^+$ | $(CH_3)_3SiSn(CH_3)_3$ (RN-CAS Registry Number 16393-88-7) | ** | 8.18 ± 0.14 | EI | 3548 |
| $C_{16}H_{44}Si_4Sn^+$ | $((CH_3)_3SiCH_2)_4Sn$ (RN-CAS Registry Number 18547-12-1) | ** | 8.71 ± 0.1 (V) | PE | 3830 |
| $C_6H_{18}GeSn^+$ | $(CH_3)_3GeSn(CH_3)_3$ (RN-CAS Registry Number 16393-89-8) | ** | 8.20 ± 0.10 | EI | 3548 |
| $SnBrCl^+$ | $SnBrCl$ (RN-CAS Registry Number 13595-90-9) | ** | 10.3 ± 0.3 | EI | 3800 |
| $SnBr_2Cl^+$ | $SnBr_2Cl_2?$ (RN-CAS Registry Number 13550-35-1) | | 12.0 | EI | 3800 |
| $SnBr_2Cl^+$ | $SnBr_3Cl?$ (RN-CAS Registry Number 14779-73-8) | | 12.0 | EI | 3800 |
| $SnBr_3Cl^+$ | $SnBr_3Cl$ (RN-CAS Registry Number 14779-73-8) | ** | 11.1 ± 0.3 | EI | 3800 |
| Sb^+ | Sb (RN-CAS Registry Number 7440-36-0) | ** | 8.68 ± 0.06 | EI | 3956 |
| Sb_2^+ | Sb_2 (RN-CAS Registry Number 32679-33-7) | ** | 9.3 ± 0.2 | S | 3567 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|-----------------------------------|---|----------------|---|--------|------|
| Sb_2^+ | Sb_2 (RN-CAS Registry Number 32679-33-7) | ** | 8.4 ± 0.3 | RPD | 3599 |
| Sb_2^+ | Sb_2 (RN-CAS Registry Number 32679-33-7) | ** | 8.64 ± 0.06 | EI | 3956 |
| Sb_2^+ | Sb_2 (RN-CAS Registry Number 32679-33-7) | ** | 8.9 ± 0.3 | EI | 3961 |
| Sb_2^+ | Sb_2 (RN-CAS Registry Number 32679-33-7) | ** | 9.5 ± 0.5 | EI | 3555 |
| Sb_2^+ | Sb_4 (RN-CAS Registry Number 12597-17-0) | | 11.4 ± 0.4 | RPD | 3599 |
| Sb_3^+ | Sb_3 (RN-CAS Registry Number 37267-70-2) | ** | 8.5 ± 0.3 | RPD | 3599 |
| Sb_3^+ | Sb_3 (RN-CAS Registry Number 37267-70-2) | ** | 7.50 ± 0.13 | EI | 3956 |
| Sb_3^+ | Sb_3 (RN-CAS Registry Number 37267-70-2) | ** | 9.0 ± 0.2 | EI | 3961 |
| Sb_3^+ | Sb_4 (RN-CAS Registry Number 12597-17-0) | | 10.8 ± 0.5 | RPD | 3599 |
| Sb_3^+ | Sb_4 (RN-CAS Registry Number 12597-17-0) | Sb | 10.8 ± 0.3 | EI | 3961 |
| Sb_4^+ | Sb_4 (RN-CAS Registry Number 12597-17-0) | ** | 7.70 ± 0.06 | EI | 3956 |
| Sb_4^+ | Sb_4 (RN-CAS Registry Number 12597-17-0) | ** | 8.4 ± 0.3 | EI | 3961 |
| Sb_4^+ | Sb_4 (RN-CAS Registry Number 12597-17-0) | ** | 9.1 ± 0.3 | EI | 3555 |
| $\text{SbH}_3(^2A_1)$ | SbH_3 (RN-CAS Registry Number 7803-52-3) | ** | 9.51 | PE | 3719 |
| $\text{SbH}_3(^2E)$ | SbH_3 (RN-CAS Registry Number 7803-52-3) | ** | 11.39 ± 0.02 | PE | 3719 |
| $\text{C}_5\text{H}_5\text{Sb}^+$ | $\text{C}_5\text{H}_5\text{Sb}$ (Antimonin) (RN-CAS Registry Number 289-75-8) | ** | 8.3 (V) | PE | 3832 |
| SbF_3^+ | SbF_3 (RN-CAS Registry Number 7783-56-4) | ** | 12.61 ± 0.1 | EI | 3578 |
| SbP^+ | SbP (RN-CAS Registry Number 25889-81-0) | ** | 9.9 ± 0.3 | EI | 3596 |
| TeH^+ | TeH (RN-CAS Registry Number 13940-36-8) | ** | 9.09 | S | 3742 |
| $\text{H}_2\text{Te}^+(^2B_1)$ | H_2Te (RN-CAS Registry Number 7783-09-7) | ** | 9.14 | PE | 3719 |
| $\text{H}_2\text{Te}^+(^2A_1)$ | H_2Te (RN-CAS Registry Number 7783-09-7) | ** | 11.63 | PE | 3719 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|--|---|----------------|---|--------|------|
| H ₂ Te ⁺ (² B ₂) | H ₂ Te (RN-CAS Registry Number 7783-09-7) | ** | 13.04 | PE | 3719 |
| H ₂ Te ⁺ (² A ₁) | H ₂ Te (RN-CAS Registry Number 7783-09-7) | ** | 18.6 (V) | PE | 3719 |
| C ₂ H ₆ Te ⁺ | (CH ₃) ₂ Te (RN-CAS Registry Number 593-80-6) (RS-Average of three Rydberg series limits) | ** | 7.926±0.010 | S | 3970 |
| C ₂ H ₆ Te ⁺ (² B ₁) | (CH ₃) ₂ Te (RN-CAS Registry Number 593-80-6) | ** | 7.89 (V) | PE | 3656 |
| C ₄ H ₄ Te ⁺ | C ₄ H ₄ Te (Tellurophene) (RN-CAS Registry Number 288-08-4) | ** | 8.27 | PE | 3858 |
| C ₄ H ₄ Te ⁺ | C ₄ H ₄ Te (Tellurophene) (RN-CAS Registry Number 288-08-4) | ** | 8.40±0.03 | PE | 3804 |
| C ₄ H ₄ Te ⁺ | C ₄ H ₄ Te (Tellurophene) (RN-CAS Registry Number 288-08-4) | ** | 8.60±0.1 | EI | 3804 |
| C ₅ H ₆ Te ⁺ | C ₄ H ₃ TeCH ₃ (Tellurophene, 2-methyl-) (RN-CAS Registry Number 35246-25-4) | ** | 8.25±0.1 | EI | 3804 |
| C ₅ H ₄ OTe ⁺ | C ₄ H ₃ TeCHO (2-Tellurophenecarboxaldehyde) (RN-CAS Registry Number 35273-64-4) | ** | 8.88±0.1 | EI | 3804 |
| C ₆ H ₆ OTe ⁺ | C ₄ H ₃ TeCOCH ₃ (Ethanone, 1-tellurophene-2-yl-) (RN-CAS Registry Number 35273-65-5) | ** | 8.60±0.1 | EI | 3804 |
| C ₅ H ₄ O ₂ Te ⁺ | C ₄ H ₃ TeCOOH (2-Tellurophenecarboxylic acid) (RN-CAS Registry Number 35246-22-1) | ** | 8.80±0.1 | EI | 3804 |
| C ₆ H ₆ O ₂ Te ⁺ | C ₄ H ₃ TeCOOCH ₃ (2-Tellurophenecarboxylic acid methyl ester) (RN-CAS Registry Number 35246-23-2) | ** | 8.64±0.1 | EI | 3804 |
| TeP ⁺ | TeP (RN-CAS Registry Number 51890-39-2) | ** | 7.8±1.0 | EI | 4001 |
| C ₅ H ₆ S ⁺ Te ⁺ | C ₄ H ₃ TeSCH ₃ (Tellurophene, 2-(methylthio)-) (RN-CAS Registry Number 51299-95-7) | ** | 8.15±0.1 | EI | 3804 |
| Ge ₂ H ₆ Te ⁺ (² B ₁) | (GeH ₃) ₂ Te (RN-CAS Registry Number 24312-07-0) | ** | 8.34 (V) | PE | 3656 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|--|---|-------------------|---|--------|------|
| I ⁺ | CH ₂ I ₂ (RN-CAS Registry Number 75-11-6) | CH ₂ I | 13.8 | RPD | 3490 |
| | (AD-0.131 eV average translational energy of decomposition at threshold) (TR-Other product(s) thermochemically reasonable) | | | | |
| I ⁺ | CH ₂ I ₂ (RN-CAS Registry Number 75-11-6) | CH ₂ I | 13.2±0.1 | EI | 3442 |
| | (AD-0.13 eV average translational energy of decomposition at threshold) (TR-Other product(s) thermochemically reasonable) | | | | |
| I ₂ ⁺ (² Π _{3/2g}) | I ₂ (RN-CAS Registry Number 7553-56-2) | ** | 9.311±0.002 | PE | 3870 |
| | (HB-Threshold value approximately corrected for hot bands) | | | | |
| I ₂ ⁺ (² Π _{1/2g}) | I ₂ (RN-CAS Registry Number 7553-56-2) | ** | 9.953±0.002 | PE | 3870 |
| | (HB-Threshold value approximately corrected for hot bands) | | | | |
| I ₂ ⁺ | WO ₂ I ₂ (RN-CAS Registry Number 14447-89-3) | | 15.0±0.8 | EI | 3451 |
| I ₂ ²⁺ | I ₂ (RN-CAS Registry Number 7553-56-2) | ** | 25.5±0.4 | EI | 4052 |
| CH ₃ I ⁺ (² E _{3/2}) | CH ₃ I (RN-CAS Registry Number 74-88-4) | ** | 9.538 | S | 3748 |
| | (RS-Average of three Rydberg series limits) | | | | |
| CH ₃ I ⁺ (² E _{1/2}) | CH ₃ I (RN-CAS Registry Number 74-88-4) | ** | 10.17 | S | 3748 |
| | (RS-Average of three Rydberg series limits) | | | | |
| CH ₃ I ⁺ (² E _{3/2}) | CH ₃ I (RN-CAS Registry Number 74-88-4) | ** | 9.52 | PE | 3532 |
| CH ₃ I ⁺ (² E _{1/2}) | CH ₃ I (RN-CAS Registry Number 74-88-4) | ** | 10.14 | PE | 3532 |
| CH ₃ I ⁺ | CH ₃ I (RN-CAS Registry Number 74-88-4) | ** | 9.48±0.03 | EDD | 3626 |
| C ₂ HI ⁺ (² E _{3/2}) | CH≡CI (RN-CAS Registry Number 14545-08-5) | ** | 9.7397 | S | 3751 |
| C ₂ HI ⁺ (² E _{1/2}) | CH≡CI (RN-CAS Registry Number 14545-08-5) | ** | 10.143 | S | 3751 |
| C ₂ H ₃ I ⁺ | CH ₂ =CHI (RN-CAS Registry Number 593-66-8) | ** | 9.33 | PE | 3863 |
| C ₂ H ₅ I ⁺ (² E _{3/2}) | C ₂ H ₅ I (RN-CAS Registry Number 75-03-6) | ** | 9.346 | S | 3748 |
| | (RS-Average of three Rydberg series limits) | | | | |
| C ₂ H ₅ I ⁺ (² E _{1/2}) | C ₂ H ₅ I (RN-CAS Registry Number 75-03-6) | ** | 9.929 | S | 3748 |
| | (RS-Average of three Rydberg series limits) | | | | |
| C ₂ H ₅ I ⁺ (² E _{3/2}) | C ₂ H ₅ I (RN-CAS Registry Number 75-03-6) | ** | 9.34 (V) | PE | 4076 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|------------------------|---|----------------|---|--------|------|
| $C_2H_5I^+(^2E_{3/2})$ | C_2H_5I (RN-CAS Registry Number 75-03-6) | ** | 9.35 | PE | 3532 |
| $C_2H_5I^+$ | C_2H_5I (RN-CAS Registry Number 75-03-6) | ** | 9.45 ± 0.02 (V) | PE | 3987 |
| $C_2H_5I^+(^2E_{1/2})$ | C_2H_5I (RN-CAS Registry Number 75-03-6) | ** | 9.93 | PE | 3532 |
| $C_2H_5I^+(^2E_{1/2})$ | C_2H_5I (RN-CAS Registry Number 75-03-6) | ** | 9.93 (V) | PE | 4076 |
| $C_3H_5I^+$ | $CH_2=CHCH_2I$ (RN-CAS Registry Number 556-56-9) | ** | 9.30 | PE | 4091 |
| $C_3H_5I^+$ | $CH_2=CHCH_2I$ (RN-CAS Registry Number 556-56-9) | ** | 9.30 (V) | PE | 3863 |
| $C_3H_7I^+(^2E_{3/2})$ | $n-C_3H_7I$ (RN-CAS Registry Number 107-08-4) (RS-Average of three Rydberg series limits) | ** | 9.269 | S | 3748 |
| $C_3H_7I^+(^2E_{1/2})$ | $n-C_3H_7I$ (RN-CAS Registry Number 107-08-4) (RS-Average of three Rydberg series limits) | ** | 9.847 | S | 3748 |
| $C_3H_7I^+(^2E_{3/2})$ | $n-C_3H_7I$ (RN-CAS Registry Number 107-08-4) | ** | 9.25 | PE | 3532 |
| $C_3H_7I^+(^2E_{3/2})$ | $n-C_3H_7I$ (RN-CAS Registry Number 107-08-4) | ** | 9.27 | PE | 4076 |
| $C_3H_7I^+(^2E_{1/2})$ | $n-C_3H_7I$ (RN-CAS Registry Number 107-08-4) | ** | 9.82 | PE | 4076 |
| $C_3H_7I^+(^2E_{1/2})$ | $n-C_3H_7I$ (RN-CAS Registry Number 107-08-4) | ** | 9.83 | PE | 3532 |
| $C_3H_7I^+(^2E_{3/2})$ | $iso-C_3H_7I$ (RN-CAS Registry Number 75-30-9) | ** | 9.19 | PE | 3532 |
| $C_3H_7I^+(^2E_{1/2})$ | $iso-C_3H_7I$ (RN-CAS Registry Number 75-30-9) | ** | 9.75 | PE | 3532 |
| $C_3H_7I^+$ | $iso-C_3H_7I$ (RN-CAS Registry Number 75-30-9) | ** | $9.2 \pm < 0.1$ | EI | 3735 |
| $C_4H_9I^+(^2E_{3/2})$ | $n-C_4H_9I$ (RN-CAS Registry Number 542-69-8) (RS-Average of four Rydberg series limits) | ** | 9.229 | S | 3748 |
| $C_4H_9I^+(^2E_{1/2})$ | $n-C_4H_9I$ (RN-CAS Registry Number 542-69-8) (RS-Average of three Rydberg series limits) | ** | 9.791 | S | 3748 |
| $C_4H_9I^+(^2E_{3/2})$ | $n-C_4H_9I$ (RN-CAS Registry Number 542-69-8) | ** | 9.23 | PE | 3532 |
| $C_4H_9I^+$ | $n-C_4H_9I$ (RN-CAS Registry Number 542-69-8) | ** | 9.24 | PE | 4076 |
| $C_4H_9I^+(^2E_{1/2})$ | $n-C_4H_9I$ (RN-CAS Registry Number 542-69-8) | ** | 9.79 | PE | 4076 |
| $C_4H_9I^+(^2E_{1/2})$ | $n-C_4H_9I$ (RN-CAS Registry Number 542-69-8) | ** | 9.81 | PE | 3532 |
| $C_4H_9I^+(^2E_{3/2})$ | $tert-C_4H_9I$ (RN-CAS Registry Number 558-17-8) | ** | 9.08 | PE | 3532 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|--------------------------------|---|----------------------|---|--------|------|
| $C_4H_9I^+$ ($^2E_{1/2}$) | <i>tert</i> -C ₄ H ₉ I (RN-CAS Registry Number 558-17-8) | ** | 9.64 | PE | 3532 |
| $C_5H_{11}I^+$ ($^2E_{3/2}$) | <i>n</i> -C ₅ H ₁₁ I (RN-CAS Registry Number 628-17-1) (RS-Average of three Rydberg series limits) | ** | 9.201 | S | 3748 |
| $C_5H_{11}I^+$ ($^2E_{1/2}$) | <i>n</i> -C ₅ H ₁₁ I (RN-CAS Registry Number 628-17-1) (RS-Average of two Rydberg series limits) | ** | 9.760 | S | 3748 |
| $C_5H_{11}I^+$ ($^2E_{3/2}$) | <i>n</i> -C ₅ H ₁₁ I (RN-CAS Registry Number 628-17-1) | ** | 9.22 | PE | 3532 |
| $C_5H_{11}I^+$ ($^2E_{1/2}$) | <i>n</i> -C ₅ H ₁₁ I (RN-CAS Registry Number 628-17-1) | ** | 9.78 | PE | 3532 |
| $C_6H_{13}I^+$ ($^2E_{3/2}$) | <i>n</i> -C ₆ H ₁₃ I (RN-CAS Registry Number 638-45-9) (RS-Average of three Rydberg series limits) | ** | 9.179 | S | 3748 |
| $C_6H_{13}I^+$ ($^2E_{1/2}$) | <i>n</i> -C ₆ H ₁₃ I (RN-CAS Registry Number 638-45-9) (RS-Average of three Rydberg series limits) | ** | 9.742 | S | 3748 |
| $C_7H_7I^+$ | C ₆ H ₅ CH ₂ I (Benzene, (iodomethyl)-) (RN-CAS Registry Number 620-05-3) | ** | 8.91 (V) | PE | 3992 |
| $C_7H_7I^+$ | C ₆ H ₄ ICH ₃ (Benzene, 1-iodo-2-methyl-) (RN-CAS Registry Number 615-37-2) | ** | 8.53±0.1 | EI | 3777 |
| $C_7H_7I^+$ | C ₆ H ₄ ICH ₃ (Benzene, 1-iodo-3-methyl-) (RN-CAS Registry Number 625-95-6) | ** | 8.55±0.1 | EI | 3777 |
| $C_7H_7I^+$ | C ₆ H ₄ ICH ₃ (Benzene, 1-iodo-4-methyl-) (RN-CAS Registry Number 624-31-7) | ** | 8.60±0.1 | EI | 3777 |
| $C_{12}H_9I^+$ | C ₆ H ₅ C ₆ H ₄ I (1,1'-Biphenyl, 2-iodo-) (RN-CAS Registry Number 2113-51-1) | ** | 8.20±0.02 | PE | 3702 |
| $C_2H_2I_2^+$ | <i>trans</i> -CHI=CHI (RN-CAS Registry Number 590-27-2) | ** | 8.92 (V) | PE | 3648 |
| $C_6H_6NI^+$ | C ₆ H ₄ INHCOCH ₃ (Acetamide, <i>N</i> -(2-iodophenyl)-) (RN-CAS Registry Number 19591-17-4) | CH ₂ =C=O | 10.48±0.03 | EI | 3483 |
| $C_6H_6NI^+$ | C ₆ H ₄ INHCOCH ₃ (Acetamide, <i>N</i> -(4-iodophenyl)-) (RN-CAS Registry Number 622-50-4) | CH ₂ =C=O | 9.72±0.03 | EI | 3483 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|----------------------|--|----------------|---|--------|------|
| $C_{25}H_{25}N_2I^+$ | $C_{25}H_{25}N_2I$ (Quinolinium, 1-ethyl-2-[3-(1-ethyl-2(1 <i>H</i>)-quinolinylidene)-1-propenyl]-, iodide) (RN-CAS Registry Number 605-91-4) (ON-Other name: Pinacyanol) | ** | 7.25 | PI | 3586 |
| $C_{29}H_{35}N_2I^+$ | $C_{29}H_{35}N_2I$ (Quinolinium, 1-(3-methylbutyl)-4-[[1-(3-methylbutyl)-4(1 <i>H</i>)-quinolinylidene]methyl]-, iodide) (RN-CAS Registry Number 523-42-2) (ON-Other name: Quinoline Blue) | ** | 7.35 | PI | 3586 |
| $C_4H_{12}BN_2I^+$ | $((CH_3)_2N)_2BI$ (RN-CAS Registry Number 7318-71-0) | ** | 8.11 (V) | PE | 3704 |
| $C_2H_6BNI_2^+$ | $(CH_3)_2NBI_2$ (RN-CAS Registry Number 7318-72-1) | ** | 8.95 (V) | PE | 3704 |
| $C_2H_5OI^+$ | CH_2ICH_2OH (RN-CAS Registry Number 624-76-0) | ** | 9.66 ± 0.07 (V) | PE | 3987 |
| $C_3H_7OI^+$ | $CH_3OCH_2CH_2I$ (RN-CAS Registry Number 4296-15-5) | ** | 9.43 ± 0.04 (V) | PE | 3987 |
| $C_6H_5OI^+$ | $C_6H_4IOOCCH_3$ (Phenol, 2-iodo-, acetate) (RN-CAS Registry Number 32865-61-5) | $CH_2=C=O$ | 9.72 ± 0.03 | EI | 3483 |
| $C_6H_5OI^+$ | $C_6H_4IOOCCH_3$ (Phenol, 4-iodo-, acetate) (RN-CAS Registry Number 33527-94-5) | $CH_2=C=O$ | 9.38 ± 0.03 | EI | 3483 |
| $C_2H_3O_2I^+$ | CH_2ICOOH (RN-CAS Registry Number 64-69-7) | ** | 11.03 (V) | PE | 3874 |
| $C_8H_7O_2I^+$ | $C_6H_4IOOCCH_3$ (Phenol, 2-iodo-, acetate) (RN-CAS Registry Number 32865-61-5) | ** | 8.25 ± 0.03 | EI | 3483 |
| $C_8H_7O_2I^+$ | $C_6H_4IOOCCH_3$ (Phenol, 4-iodo-, acetate) (RN-CAS Registry Number 33527-94-5) | ** | 8.20 ± 0.03 | EI | 3483 |
| $C_6H_4OI_2^+$ | $C_6H_3I_2OOCCH_3$ (Phenol, 2,4-diiido-, acetate) (RN-CAS Registry Number 36914-80-4) | $CH_2=C=O$ | 8.94 ± 0.03 | EI | 3480 |
| $C_6H_4OI_2^+$ | $C_6H_3I_2OOCCH_3$ (Phenol, 2,6-diiido-, acetate) (RN-CAS Registry Number 28165-73-3) | $CH_2=C=O$ | 9.18 ± 0.03 | EI | 3480 |
| $C_8H_6O_2I_2^+$ | $C_6H_3I_2OOCCH_3$ (Phenol, 2,4-diiido-, acetate) (RN-CAS Registry Number 36914-80-4) | ** | 7.90 ± 0.03 | EI | 3480 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|-----------------------|---|----------------|---|--------|------|
| $C_8H_6O_2I_2^+$ | $C_6H_3I_2OOCCH_3$ (Phenol, 2,6-diiodo-, acetate) (RN-CAS Registry Number 28165-73-3) | ** | 8.07 ± 0.03 | EI | 3480 |
| $C_8H_8NOI^+$ | $C_6H_4INHCOCH_3$ (Acetamide, <i>N</i> -(2-iodophenyl)-) (RN-CAS Registry Number 19591-17-4) | ** | 7.98 ± 0.03 | EI | 3483 |
| $C_8H_8NOI^+$ | $C_6H_4INHCOCH_3$ (Acetamide, <i>N</i> -(4-iodophenyl)-) (RN-CAS Registry Number 622-50-4) | ** | 7.87 ± 0.03 | EI | 3483 |
| IF_5^+ | IF_5 (RN-CAS Registry Number 7783-66-6) | ** | 12.943 ± 0.005 | PE | 3655 |
| NaI^+ | NaI (RN-CAS Registry Number 7681-82-5) (HB-Threshold value approximately corrected for hot bands) | ** | 7.64 ± 0.02 | PI | 3536 |
| MgI_2^+ | MgI_2 (RN-CAS Registry Number 10377-58-9) | ** | 9.57 ± 0.03 | PI | 3536 |
| $SiH_3I^+(^2E_{3/2})$ | SiH_3I (RN-CAS Registry Number 13598-42-0) | ** | 9.78 ± 0.02 (V) | PE | 3510 |
| SiH_3I^+ | SiH_3I (RN-CAS Registry Number 13598-42-0) | ** | 10.05 ± 0.05 (V) | PE | 3502 |
| $SiH_3I^+(^2E_{1/2})$ | SiH_3I (RN-CAS Registry Number 13598-42-0) | ** | 10.33 ± 0.02 (V) | PE | 3510 |
| $SiH_3I^+(^2A_1)$ | SiH_3I (RN-CAS Registry Number 13598-42-0) | ** | 12.04 ± 0.02 (V) | PE | 3510 |
| $SiH_3I^+(^2E)$ | SiH_3I (RN-CAS Registry Number 13598-42-0) | ** | 12.8 ± 0.1 (V) | PE | 3510 |
| $SiH_2I_2^+$ | SiH_2I_2 (RN-CAS Registry Number 13760-02-6) | ** | 9.69 ± 0.02 (V) | PE | 3510 |
| $C_5H_9SiI^+$ | $(CH_3)_3SiC \equiv CI$ (RN-CAS Registry Number 18163-47-8) | ** | 9.1 ± 0.1 | PE | 4002 |
| $PI_3(^2A_1)$ | PI_3 (RN-CAS Registry Number 13455-01-1) | ** | 9.15 (V) | PE | 4023 |
| $PI_3(^2A_2)$ | PI_3 (RN-CAS Registry Number 13455-01-1) | ** | 9.42 (V) | PE | 4023 |
| $PI_3(^2E_{3/2})$ | PI_3 (RN-CAS Registry Number 13455-01-1) | ** | 9.57 (V) | PE | 4023 |
| $PI_3(^2E_{1/2})$ | PI_3 (RN-CAS Registry Number 13455-01-1) | ** | 10.24 (V) | PE | 4023 |
| $PI_3(^2E_{1/2})$ | PI_3 (RN-CAS Registry Number 13455-01-1) | ** | 10.53 (V) | PE | 4023 |
| $PI_3(^2E_{3/2})$ | PI_3 (RN-CAS Registry Number 13455-01-1) | ** | 10.68 (V) | PE | 4023 |
| $PI_3(^2A_1)$ | PI_3 (RN-CAS Registry Number 13455-01-1) | ** | 11.80 (V) | PE | 4023 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|-------------------------------------|--|----------------|---|--------|------|
| $\text{PI}_3^+(\text{}^2\text{E})$ | PI_3 (RN-CAS Registry Number 13455-01-1) | ** | 12.70 (V) | PE | 4023 |
| PF_2I^+ | PF_2I (RN-CAS Registry Number 13819-11-9) | ** | 10.1 ± 0.1 (V) | PE | 3662 |
| $\text{C}_4\text{H}_2\text{SI}_2^+$ | $\text{C}_4\text{H}_2\text{S(I)}_2$ (Thiophene, 2,5-diiodo-) (RN-CAS Registry Number 625-88-7) | ** | 8.32 | EI | 3787 |
| $\text{C}_4\text{H}_2\text{SI}_2^+$ | $\text{C}_4\text{H}_2\text{S(I)}_2$ (Thiophene, 2,5-diiodo-) (RN-CAS Registry Number 625-88-7) | ** | 8.35 | CTS | 3787 |
| $\text{ICl}^+(\text{}^2\Pi_{3/2})$ | ICl (RN-CAS Registry Number 7790-99-0) | ** | 10.088 ± 0.01 | S | 4027 |
| $\text{ICl}^+(\text{}^2\Pi_{1/2})$ | ICl (RN-CAS Registry Number 7790-99-0) | ** | 10.662 ± 0.01 | S | 4027 |
| $\text{C}_5\text{O}_5\text{IMn}^+$ | $\text{Mn(CO)}_5\text{I}$ (RN-CAS Registry Number 14879-42-6) | ** | $8.44\text{--}8.74$ (V) | PE | 3866 |
| CuI^+ | CuI (RN-CAS Registry Number 7681-65-4) | ** | 8.7 ± 0.5 | EI | 3603 |
| CuI^+ | Cu_3I_3 (RN-CAS Registry Number XXXXX-XX-X) | | 14.4 ± 0.5 | EI | 3603 |
| Cu_2I^+ | Cu_3I_3 (RN-CAS Registry Number XXXXX-XX-X) | | 13.4 ± 0.5 | EI | 3603 |
| Cu_3I^+ | Cu_3I_3 (RN-CAS Registry Number XXXXX-XX-X) | | 15.2 ± 0.5 | EI | 3603 |
| CuI_2^+ | Cu_3I_3 (RN-CAS Registry Number XXXXX-XX-X) | | 16.1 ± 0.5 | EI | 3603 |
| Cu_2I_2^+ | Cu_2I_2 (RN-CAS Registry Number XXXXX-XX-X) | ** | 9.3 ± 0.5 | EI | 3603 |
| Cu_2I_2^+ | Cu_3I_3 (RN-CAS Registry Number XXXXX-XX-X) | | 14.8 ± 0.5 | EI | 3603 |
| Cu_3I_2^+ | Cu_3I_3 (RN-CAS Registry Number XXXXX-XX-X) | | 10.8 ± 0.5 | EI | 3603 |
| Cu_2I_3^+ | Cu_3I_3 (RN-CAS Registry Number XXXXX-XX-X) | | 13.6 ± 0.5 | EI | 3603 |
| Cu_3I_3^+ | Cu_3I_3 (RN-CAS Registry Number XXXXX-XX-X) | ** | 9.1 ± 0.5 | EI | 3603 |
| Cu_4I_3^+ | Cu_4I_4 (RN-CAS Registry Number XXXXX-XX-X) | | 9.5 ± 0.5 | EI | 3603 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|---------------------------------------|--|----------------|---|--------|------|
| Cu_4I_4^+ | Cu_4I_4 (RN-CAS Registry Number XXXXX-XX-X) | ** | 8.7 ± 0.5 | EI | 3603 |
| $\text{ZnI}_2(^2\Pi_{3/2g})$ | ZnI_2 (RN-CAS Registry Number 10139-47-6) | ** | 9.73 ± 0.05 (V) | PE | 3833 |
| $\text{ZnI}_2(^2\Pi_{3/2g})$ | ZnI_2 (RN-CAS Registry Number 10139-47-6) | ** | 9.7 (V) | PE | 3963 |
| $\text{ZnI}_2(^2\Pi_{3/2u})$ | ZnI_2 (RN-CAS Registry Number 10139-47-6) | ** | 10.2 (V) | PE | 3963 |
| $\text{ZnI}_2(^2\Pi_{1/2g}, ^2\Pi_u)$ | ZnI_2 (RN-CAS Registry Number 10139-47-6) | ** | 10.32 ± 0.05 (V) | PE | 3833 |
| $\text{ZnI}_2(^2\Pi_{1/2g})$ | ZnI_2 (RN-CAS Registry Number 10139-47-6) | ** | 10.35 (V) | PE | 3963 |
| $\text{ZnI}_2(^2\Pi_{1/2u})$ | ZnI_2 (RN-CAS Registry Number 10139-47-6) | ** | 10.5 (V) | PE | 3963 |
| $\text{ZnI}_2(^2\Sigma_u)$ | ZnI_2 (RN-CAS Registry Number 10139-47-6) | ** | 11.4 (V) | PE | 3963 |
| $\text{ZnI}_2(^2\Sigma_u)$ | ZnI_2 (RN-CAS Registry Number 10139-47-6) | ** | 11.45 ± 0.05 (V) | PE | 3833 |
| $\text{ZnI}_2(^2\Sigma_g)$ | ZnI_2 (RN-CAS Registry Number 10139-47-6) | ** | 12.4 (V) | PE | 3963 |
| $\text{ZnI}_2(^2\Sigma_g)$ | ZnI_2 (RN-CAS Registry Number 10139-47-6) | ** | 12.74 ± 0.05 (V) | PE | 3833 |
| ZnI_2^* | ZnI_2 (RN-CAS Registry Number 10139-47-6) | ** | 18.39 ± 0.05 (V) | PE | 3833 |
| $\text{GeH}_3\text{I}^+(^2E_{3/2})$ | GeH_3I (RN-CAS Registry Number 13573-02-9) | ** | 9.59 ± 0.02 (V) | PE | 3510 |
| GeH_3I^+ | GeH_3I (RN-CAS Registry Number 13573-02-9) | ** | 9.84 ± 0.05 (V) | PE | 3502 |
| $\text{GeH}_3\text{I}^+(^2E_{1/2})$ | GeH_3I (RN-CAS Registry Number 13573-02-9) | ** | 10.14 ± 0.02 (V) | PE | 3510 |
| $\text{GeH}_3\text{I}^+(^2A_1)$ | GeH_3I (RN-CAS Registry Number 13573-02-9) | ** | 11.71 ± 0.02 (V) | PE | 3510 |
| $\text{GeH}_3\text{I}^+(^2E)$ | GeH_3I (RN-CAS Registry Number 13573-02-9) | ** | 12.6 ± 0.1 (V) | PE | 3510 |
| GeH_2I_2^+ | GeH_2I_2 (RN-CAS Registry Number 14694-31-6) | ** | 9.56 ± 0.02 (V) | PE | 3510 |
| $\text{IBr}^+(^2\Pi_{3/2})$ | IBr (RN-CAS Registry Number 7789-33-5) (HB-Threshold value approximately corrected for hot bands) | ** | 9.790 ± 0.004 | PE | 3870 |
| $\text{IBr}^+(^2\Pi_{1/2})$ | IBr (RN-CAS Registry Number 7789-33-5) (HB-Threshold value approximately corrected for hot bands) | ** | 10.386 ± 0.004 | PE | 3870 |
| RbI^+ | RbI (RN-CAS Registry Number 7790-29-6) (HB-Threshold value approximately corrected for hot bands) | ** | 7.308 ± 0.03 | PI | 3536 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|---------------------------------------|---|----------------|---|--------|------|
| Rb_2I^+ | Rb_2I_2 (RN-CAS Registry Number 12532-37-5) (TV-Threshold value approximately corrected to 0°K) | I | 7.674 | PI | 3536 |
| AgI^+ | AgI (RN-CAS Registry Number 7783-96-2) | ** | ~8.4 | PI | 3536 |
| $\text{CdI}_2(^2\Pi_{3/2g})$ | CdI_2 (RN-CAS Registry Number 7790-80-9) | ** | 9.5 (V) | PE | 3963 |
| $\text{CdI}_2(^2\Pi_{3/2g})$ | CdI_2 (RN-CAS Registry Number 7790-80-9) | ** | 9.57 ± 0.05 (V) | PE | 3833 |
| $\text{CdI}_2(^2\Pi_{3/2u})$ | CdI_2 (RN-CAS Registry Number 7790-80-9) | ** | 10.0 (V) | PE | 3963 |
| $\text{CdI}_2(^2\Pi_{1/2g}, ^2\Pi_u)$ | CdI_2 (RN-CAS Registry Number 7790-80-9) | ** | 10.11 ± 0.05 (V) | PE | 3833 |
| $\text{CdI}_2(^2\Pi_{1/2g})$ | CdI_2 (RN-CAS Registry Number 7790-80-9) | ** | 10.2 (V) | PE | 3963 |
| $\text{CdI}_2(^2\Pi_{1/2u})$ | CdI_2 (RN-CAS Registry Number 7790-80-9) | ** | 10.4 (V) | PE | 3963 |
| $\text{CdI}_2(^2\Sigma_u)$ | CdI_2 (RN-CAS Registry Number 7790-80-9) | ** | 11.15 ± 0.05 (V) | PE | 3833 |
| $\text{CdI}_2(^2\Sigma_u)$ | CdI_2 (RN-CAS Registry Number 7790-80-9) | ** | 11.2 (V) | PE | 3963 |
| $\text{CdI}_2(^2\Sigma_g)$ | CdI_2 (RN-CAS Registry Number 7790-80-9) | ** | 12.10 ± 0.05 (V) | PE | 3833 |
| $\text{CdI}_2(^2\Sigma_g)$ | CdI_2 (RN-CAS Registry Number 7790-80-9) | ** | 12.3 (V) | PE | 3963 |
| $\text{InI}^+(^2\Sigma)$ | InI (RN-CAS Registry Number 13966-94-4) | ** | 8.50 | PE | 3640 |
| $\text{InI}^+(^2\Pi_{3/2})$ | InI (RN-CAS Registry Number 13966-94-4) | ** | 8.78 | PE | 3640 |
| $\text{InI}^+(^2\Pi_{1/2})$ | InI (RN-CAS Registry Number 13966-94-4) | ** | 9.46 | PE | 3640 |
| $\text{InI}^+(^2\Sigma)$ | InI (RN-CAS Registry Number 13966-94-4) | ** | 11.89 | PE | 3640 |
| $\text{Xe}^+(^2P_{3/2})$ | Xe (RN-CAS Registry Number 7440-63-3) | ** | 12.127 ± 0.002 | TPE | 3525 |
| $\text{Xe}^+(^2P_{1/2})$ | Xe (RN-CAS Registry Number 7440-63-3) | ** | 13.434 ± 0.002 | TPE | 3525 |
| $\text{Xe}^+(^2P_{3/2})$ | Xe (RN-CAS Registry Number 7440-63-3) | ** | 12.125 ± 0.004 | PEN | 3541 |
| Xe^+ | Xe (RN-CAS Registry Number 7440-63-3) | ** | 12.09 ± 0.03 | EDD | 3626 |
| XeOF_4^+ | XeOF_4 (RN-CAS Registry Number 13774-85-1) | ** | ≥ 12.0 | PE | 3943 |
| XeOF_4^* | XeOF_4 (RN-CAS Registry Number 13774-85-1) | ** | ~14.6 | PE | 3943 |
| XeOF_4^* | XeOF_4 (RN-CAS Registry Number 13774-85-1) | ** | <15.3 | PE | 3943 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|--|--|----------------|---|--------|------|
| XeOF ₄ ⁺ | XeOF ₄ (RN-CAS Registry Number 13774-85-1) | ** | <16.2 | PE | 3943 |
| XeOF ₄ ⁺ | XeOF ₄ (RN-CAS Registry Number 13774-85-1) | ** | 16.90 (V) | PE | 3943 |
| XeOF ₄ ⁺ | XeOF ₄ (RN-CAS Registry Number 13774-85-1) | ** | 18.10 | PE | 3943 |
| XeOF ₄ ⁺ | XeOF ₄ (RN-CAS Registry Number 13774-85-1) | ** | ~19.3 | PE | 3943 |
| XeOF ₄ ⁺ | XeOF ₄ (RN-CAS Registry Number 13774-85-1) | ** | <20.3 | PE | 3943 |
| Cs ⁺ | CsOH (RN-CAS Registry Number 21351-79-1) | OH | ~10 | EI | 3461 |
| Cs ⁺ | CsNO ₃ (RN-CAS Registry Number XXXXX-XX-X) | | 10.50±0.5 | EI | 4100 |
| Cs ⁺³ | Cs ⁺² (RN-CAS Registry Number 18933-37-4) | ** | 37.3±~2 | SEQ | 3568 |
| Cs ⁺⁴ | Cs ⁺³ (RN-CAS Registry Number 18933-38-5) | ** | 50±~2 | SEQ | 3568 |
| Cs ⁺⁵ | Cs ⁺⁴ (RN-CAS Registry Number XXXXX-XX-X) | ** | 62±~2 | SEQ | 3568 |
| Cs ⁺⁶ | Cs ⁺⁵ (RN-CAS Registry Number XXXXX-XX-X) | ** | 74±~2 | SEQ | 3568 |
| Cs ⁺⁷ | Cs ⁺⁶ (RN-CAS Registry Number XXXXX-XX-X) | ** | 86±~2 | SEQ | 3568 |
| Cs ⁺⁸ | Cs ⁺⁷ (RN-CAS Registry Number XXXXX-XX-X) | ** | 114±~2 | SEQ | 3568 |
| Cs ⁺⁹ | Cs ⁺⁸ (RN-CAS Registry Number XXXXX-XX-X) | ** | 130±~2 | SEQ | 3568 |
| Cs ⁺¹⁰ | Cs ⁺⁹ (RN-CAS Registry Number XXXXX-XX-X) | ** | ~250 | SEQ | 3568 |
| Cs ₂ ⁺ | Cs ₂ (RN-CAS Registry Number 12184-83-7) | ** | 3.60-3.71 | PI | 3772 |
| Cs ₂ NO ₃ ⁺ | (CsNO ₃) ₂ (RN-CAS Registry Number XXXXX-XX-X) | | 14.1±1.0 | EI | 4100 |
| CsF ⁺ | CsF (RN-CAS Registry Number 13400-13-0) | ** | 8.80±0.10 | PE | 3958 |
| CsCl ⁺ | CsCl (RN-CAS Registry Number 7647-17-8) | ** | 7.84±0.05 | PE | 3958 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|--|---|----------------|---|--------|------|
| CsBr ⁺ | CsBr (RN-CAS Registry Number 7787-69-1) | ** | 7.46±0.05 | PE | 3958 |
| CsI ⁺ (² Π _{3/2}) | CsI (RN-CAS Registry Number 7789-17-5) | ** | 7.10±0.05 | PE | 3958 |
| CsI ⁺ (² Π _{1/2}) | CsI (RN-CAS Registry Number 7789-17-5) | ** | 8.00±0.10 | PE | 3958 |
| Ba ⁺ | Ba (RN-CAS Registry Number 7440-39-3) | ** | ~5.2 | EI | 3486 |
| Ba ⁺ | BaO (RN-CAS Registry Number 1304-28-5) (HB-Threshold value approximately corrected for hot bands) | O | 10.95±0.18 | EI | 3821 |
| Ba ⁺² | Ba (RN-CAS Registry Number 7440-39-3) | ** | 12 | EI | 3486 |
| Ba ⁺³ | Ba (RN-CAS Registry Number 7440-39-3) | ** | ~53 | EI | 3486 |
| Ba ⁺³ | Ba ⁺² (RN-CAS Registry Number 22541-12-4) | ** | 36.3±3 | SEQ | 3568 |
| Ba ⁺⁴ | Ba ⁺³ (RN-CAS Registry Number XXXXX-XX-X) | ** | 55±3 | SEQ | 3568 |
| Ba ⁺⁵ | Ba ⁺⁴ (RN-CAS Registry Number XXXXX-XX-X) | ** | 67±3 | SEQ | 3568 |
| Ba ⁺⁶ | Ba ⁺⁵ (RN-CAS Registry Number XXXXX-XX-X) | ** | 80±3 | SEQ | 3568 |
| Ba ⁺⁷ | Ba ⁺⁶ (RN-CAS Registry Number XXXXX-XX-X) | ** | 94±3 | SEQ | 3568 |
| Ba ⁺⁸ | Ba ⁺⁷ (RN-CAS Registry Number XXXXX-XX-X) | ** | 105±3 | SEQ | 3568 |
| Ba ⁺⁹ | Ba ⁺⁸ (RN-CAS Registry Number XXXXX-XX-X) | ** | 141±3 | SEQ | 3568 |
| Ba ⁺¹⁰ | Ba ⁺⁹ (RN-CAS Registry Number XXXXX-XX-X) | ** | 167±3 | SEQ | 3568 |
| BaO ⁺ | BaO (RN-CAS Registry Number 1304-28-5) | ** | 6.97±0.12 | EI | 3821 |
| La ⁺ | La (RN-CAS Registry Number 7439-91-0) | ** | 5.0±0.5 | EI | 3600 |
| La ⁺ | La (RN-CAS Registry Number 7439-91-0) | ** | 6.9±1.2 | EI | 3978 |
| La ⁺ | LaF ₃ (RN-CAS Registry Number 13709-38-1) | | 26 | EI | 3456 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|---|---|----------------|---|--------|------|
| La ⁺ | LaF ₃ (RN-CAS Registry Number 13709-38-1) | | 26.9 | EI | 3466 |
| LaC ⁺ | LaC ₂ (RN-CAS Registry Number 12071-15-7) | C? | 14.9±0.5 | EI | 3457 |
| LaC ₂ ⁺ | LaC ₂ (RN-CAS Registry Number 12071-15-7) | ** | 5.4±0.3 | EI | 3457 |
| LaC ₃ ⁺ | LaC ₃ (RN-CAS Registry Number 12602-63-0) | ** | 6.8±0.5 | EI | 3457 |
| LaC ₄ ⁺ | LaC ₄ (RN-CAS Registry Number 12603-31-5) | ** | 4.7±0.5 | EI | 3457 |
| LaF ⁺ | LaF ₃ (RN-CAS Registry Number 13709-38-1) | | 16 | EI | 3456 |
| LaF ⁺ | LaF ₃ (RN-CAS Registry Number 13709-38-1) | | 18.5 | EI | 3466 |
| LaF ₂ ⁺ | LaF ₃ (RN-CAS Registry Number 13709-38-1) | | 9 | EI | 3456 |
| LaF ₂ ⁺ | LaF ₃ (RN-CAS Registry Number 13709-38-1) | | 11.8 | EI | 3466 |
| La ₂ F ₅ ⁺ | (LaF ₃) ₂ (RN-CAS Registry Number 12592-31-3) | | 12.4 | EI | 3466 |
| LaSe ⁺ | LaSe (RN-CAS Registry Number 12031-31-1) | ** | 6.0±0.5 | EI | 3600 |
| LaRh ⁺ | LaRh (RN-CAS Registry Number 12142-68-6) | ** | 7.7±1.0 | EI | 3978 |
| Ce ⁺ | Ce (RN-CAS Registry Number 7440-45-1) | ** | 5.6±0.5 | EI | 3969 |
| Ce ⁺ | Ce (RN-CAS Registry Number 7440-45-1) | ** | 5.7±0.3 | EI | 3597 |
| Ce ⁺ | Ce? (RN-CAS Registry Number 7440-45-1) | ** | 5.9±0.4 | EI | 3471 |
| Ce ⁺ | Ce (RN-CAS Registry Number 7440-45-1) | ** | 5.9±0.4 | EI | 3468 |
| Ce ⁺ | Ce (RN-CAS Registry Number 7440-45-1) | ** | 5.9±0.6 | EI | 3621 |
| Ce ⁺ | Ce (RN-CAS Registry Number 7440-45-1) | ** | 6.0±0.5 | EI | 3986 |
| Ce ⁺ | Ce (RN-CAS Registry Number 7440-45-1) | ** | 6.0±0.5 | EI | 3473 |
| Ce ⁺ | CeO (RN-CAS-Registry Number 12014-74-3) | | ~13.5 | EI | 4061 |
| Ce ⁺ | CeF ₃ (RN-CAS Registry Number 7758-88-5) | | 25.2 | EI | 3607 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|---|---|----------------|---|--------|------|
| Ce ⁺ | CeI ₃ (RN-CAS Registry Number 7790-87-6) | 3I | 17.7±0.5 | EI | 3820 |
| Ce ⁺² | Ce [?] (RN-CAS Registry Number 7440-45-1) | ** | 22.7±0.8 | EI | 3471 |
| Ce ⁺³ | Ce ⁺² (RN-CAS Registry Number 16679-11-1) | ** | 20.197±0.003 | S | 3744 |
| Ce ⁺⁴ | Ce ⁺³ (RN-CAS Registry Number 18923-26-7) | ** | 36.758±0.005 | S | 3744 |
| Ce ₂ ⁺ | Ce ₂ (RN-CAS Registry Number 12595-88-9) | ** | 5.9±0.4 | EI | 3471 |
| C ₂ Ce ⁺ | C ₂ Ce (RN-CAS Registry Number 12012-32-7) | ** | 5.6±0.4 | EI | 3597 |
| CeC ₂ ⁺ | CeC ₂ (RN-CAS Registry Number 12012-32-7) | ** | 6.2±0.5 | EI | 3969 |
| CeN ⁺ | CeN (RN-CAS Registry Number 25764-08-3) | ** | 5.8±0.6 | EI | 3469 |
| CeO ⁺ | CeO (RN-CAS Registry Number 12014-74-3) | ** | 5.2±0.2 | EI | 4061 |
| CeO ⁺ | CeO (RN-CAS Registry Number 12014-74-3) | ** | 5.3±0.5 | EI | 3986 |
| CeO ⁺ | CeO (RN-CAS Registry Number 12014-74-3) | ** | 6.0±0.5 | EI | 3473 |
| CeO ⁺ | CeO ₂ (RN-CAS Registry Number 1306-38-3) | ** | ~11 | EI | 4061 |
| CeO ⁺ | CeO ₂ ? (RN-CAS Registry Number 1306-38-3) | ** | 13±1 | EI | 3986 |
| CeO ₂ ⁺ | CeO ₂ (RN-CAS Registry Number 1306-38-3) | ** | 9.7±0.5 | EI | 3986 |
| CeO ₂ ⁺ | CeO ₂ (RN-CAS Registry Number 1306-38-3) | ** | 10.3±0.2 | EI | 4061 |
| Ce ₂ O ₂ ⁺ | (CeO) ₂ (RN-CAS Registry Number 12258-89-8) | ** | 8±1 | EI | 3986 |
| CeF ⁺ | CeF ₃ (RN-CAS Registry Number 7758-88-5) | | 17.2 | EI | 3607 |
| CeF ₂ ⁺ | CeF ₃ (RN-CAS Registry Number 7758-88-5) | | 13.5 | EI | 3607 |
| CeF ₃ ⁺ | CeF ₃ (RN-CAS Registry Number 7758-88-5) | ** | 11.4 | EI | 3607 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|---|---|----------------|---|--------|------|
| Ce ₂ F ₅ ⁺ | Ce ₂ F ₆ (RN-CAS Registry Number 37346-47-7) | | 13.1 | EI | 3607 |
| CSiCe ⁺ | CSiCe (RN-CAS Registry Number 51257-45-5) | ** | ~9 | EI | 3969 |
| CeS ⁺ | CeS (RN-CAS Registry Number 12014-82-3) | ** | 6.0±0.6 | EI | 3621 |
| CeS ₂ ⁺ | CeS ₂ (RN-CAS Registry Number 12133-58-3) | ** | 13.5±1 | EI | 3621 |
| CePd ⁺ | CePd (RN-CAS Registry Number 12292-14-7) | ** | 6.2±0.5 | EI | 3597 |
| CeI ⁺ | CeI ₃ (RN-CAS Registry Number 7790-87-6) | 2I | 13.6±0.5 | EI | 3820 |
| CeI ⁺² | CeI ₃ (RN-CAS Registry Number 7790-87-6) | | 28±1 | EI | 3820 |
| CeI ₂ ⁺ | CeI ₃ (RN-CAS Registry Number 7790-87-6) | I | 9.7±0.5 | EI | 3820 |
| CeI ₃ ⁺ | CeI ₃ (RN-CAS Registry Number 7790-87-6) | ** | 9.6±0.5 | EI | 3820 |
| Pr ⁺ | PrI ₃ (RN-CAS Registry Number 13813-23-5) | 3I | 17.0±0.2 | EI | 3820 |
| Pr ⁺³ | Pr ⁺² (RN-CAS Registry Number 14700-75-5) | ** | 21.624±0.003 | S | 3744 |
| Pr ⁺⁴ | Pr ⁺³ (RN-CAS Registry Number 22541-14-6) | ** | 38.981±0.025 | S | 3744 |
| Pr ⁺⁵ | Pr ⁺⁴ (RN-CAS Registry Number 20334-17-2) | ** | 57.45±0.05 | S | 3563 |
| PrI ⁺ | PrI ₃ (RN-CAS Registry Number 13813-23-5) | 2I | 12.9±0.2 | EI | 3820 |
| PrI ₂ ⁺ | PrI ₃ (RN-CAS Registry Number 13813-23-5) | I | 10.0±0.2 | EI | 3820 |
| PrI ₃ ⁺ | PrI ₃ (RN-CAS Registry Number 13813-23-5) | ** | 9.2±0.2 | EI | 3820 |
| Nd ⁺ | Nd (RN-CAS Registry Number 7440-00-8) | ** | 6.5 | EI | 4030 |
| Nd ⁺ | NdCl ₃ (RN-CAS Registry Number 10024-93-8) | 3Cl? | 20.9±1.0 | EI | 3802 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|--------------------------------|--|----------------|---|--------|------|
| Nd ⁺ | NdBr ₃ (RN-CAS Registry Number 13536-80-6) | | 16.9±0.7 | EI | 3976 |
| Nd ⁺ | NdI ₃ (RN-CAS Registry Number 13813-24-6) | 3I | 15.9±0.2 | EI | 3820 |
| Nd ⁺³ | Nd ⁺² (RN-CAS Registry Number 16727-26-7) | ** | 22.14±0.30 | S | 3744 |
| Nd ⁺⁴ | Nd ⁺³ (RN-CAS Registry Number 14913-52-1) | ** | 40.42±0.30 | S | 3744 |
| NdCl ⁺ | NdCl ₃ (RN-CAS Registry Number 10024-93-8) | 2Cl? | 17.3±1.0 | EI | 3802 |
| NdCl ₂ ⁺ | NdCl ₃ (RN-CAS Registry Number 10024-93-8) | Cl? | 11.9±0.3 | EI | 3802 |
| NdCl ₃ ⁺ | NdCl ₃ (RN-CAS Registry Number 10024-93-8) | ** | < 11.4 | EI | 3802 |
| NdBr ₂ ⁺ | NdBr ₃ (RN-CAS Registry Number 13536-80-6) | | 10.5±0.7 | EI | 3976 |
| NdI ⁺ | NdI ₃ (RN-CAS Registry Number 13813-24-6) | 2I | 13.6±0.5 | EI | 3820 |
| NdI ₂ ⁺ | NdI ₃ (RN-CAS Registry Number 13813-24-6) | I | 9.3±0.5 | EI | 3820 |
| NdI ₃ ⁺ | NdI ₃ (RN-CAS Registry Number 13813-24-6) | ** | 9.2±0.5 | EI | 3820 |
| Pm ⁺³ | Pm ⁺² (RN-CAS Registry Number 24151-74-4) | ** | 22.42±0.41 | S | 3744 |
| Pm ⁺⁴ | Pm ⁺³ (RN-CAS Registry Number 22541-16-8) | ** | 41.09±0.32 | S | 3744 |
| Sm ⁺ | SmI ₂ (RN-CAS Registry Number 32248-43-4) | | 12.5 | EI | 3820 |
| Sm ⁺³ | Sm ⁺² (RN-CAS Registry Number 16396-66-0) | ** | 23.45±0.30 | S | 3744 |
| Sm ⁺⁴ | Sm ⁺³ (RN-CAS Registry Number 22541-17-9) | ** | 41.47±0.43 | S | 3744 |
| SmI ⁺ | SmI ₂ (RN-CAS Registry Number 32248-43-4) | | 9.2 | EI | 3820 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|--------------------------------|--|----------------|---|--------|------|
| SmI ₂ ⁺ | SmI ₂ (RN-CAS Registry Number 32248-43-4) | ** | 8.7 | EI | 3820 |
| Eu ⁺ | Eu (RN-CAS Registry Number 7440-53-1) | ** | 5.6±0.5 | EI | 3611 |
| Eu ⁺ | Eu (RN-CAS Registry Number 7440-53-1) | ** | 5.9±0.2 | EI | 3459 |
| Eu ⁺ | EuI ₂ (RN-CAS Registry Number 22015-35-6) | | 12.45±0.2 | EI | 3612 |
| Eu ⁺³ | Eu ⁺² (RN-CAS Registry Number 16910-54-6) | ** | 24.71±0.32 | S | 3744 |
| Eu ⁺⁴ | Eu ⁺³ (RN-CAS Registry Number 22541-18-0) | ** | 42.65±0.32 | S | 3744 |
| Eu ₂ ⁺ | Eu ₂ (RN-CAS Registry Number 12596-00-8) | ** | 6.3±1.0 | EI | 4012 |
| EuC ₂ ⁺ | EuC ₂ (RN-CAS Registry Number 12127-44-5) | ** | 6.6±0.7 | EI | 3611 |
| EuCN ⁺ | EuCN (RN-CAS Registry Number 50647-38-6) | ** | 5.5±1.5 | EI | 3798 |
| EuAg ⁺ | EuAg (RN-CAS Registry Number 12249-50-2) | ** | 6.1±0.5 | EI | 4012 |
| EuI ⁺ | EuI ₂ (RN-CAS Registry Number 22015-35-6) | | 9.90±0.2 | EI | 3612 |
| EuI ₂ ⁺ | EuI ₂ (RN-CAS Registry Number 22015-35-6) | ** | 8.85±0.2 | EI | 3612 |
| Gd ⁺ | GdCl ₃ (RN-CAS Registry Number 10138-52-0) | 3Cl? | 20.9±1.0 | EI | 3802 |
| Gd ⁺ | GdI ₃ (RN-CAS Registry Number 13572-98-0) | 3I | 17.0±0.2 | EI | 3820 |
| Gd ⁺³ | Gd ⁺² (RN-CAS Registry Number 18195-96-5) | ** | 20.38±0.21 | S | 3744 |
| Gd ⁺⁴ | Gd ⁺³ (RN-CAS Registry Number 22541-19-1) | ** | 44.03±0.35 | S | 3744 |
| GdCl ⁺ | GdCl ₃ (RN-CAS Registry Number 10138-52-0) | 2Cl? | 16.5±1.0 | EI | 3802 |
| GdCl ₂ ⁺ | GdCl ₃ (RN-CAS Registry Number 10138-52-0) | Cl? | 11.9±0.3 | EI | 3802 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|----------------------------------|--|----------------|---|--------|------|
| NaGdCl ₃ ⁺ | NaGdCl ₃ (RN-CAS Registry Number XXXXX-XX-X) | | 10.1±0.5 | EI | 3802 |
| GdI ⁺ | GdI ₃ (RN-CAS Registry Number 13572-98-0) | 2I | 13.5±0.2 | EI | 3820 |
| GdI ₂ ⁺ | GdI ₃ (RN-CAS Registry Number 13572-98-0) | I | 10.1±0.2 | EI | 3820 |
| GdI ₃ ⁺ | GdI ₃ (RN-CAS Registry Number 13572-98-0) | ** | 9.2±0.2 | EI | 3820 |
| Tb ⁺ | TbI ₃ (RN-CAS Registry Number 13813-40-6) | 3I | 17.6±0.2 | EI | 3820 |
| Tb ⁺³ | Tb ⁺² (RN-CAS Registry Number 18195-97-6) | ** | 21.98±0.21 | S | 3744 |
| Tb ⁺⁴ | Tb ⁺³ (RN-CAS Registry Number 22541-20-4) | ** | 39.84±0.35 | S | 3744 |
| TbI ⁺ | TbI ₃ (RN-CAS Registry Number 13813-40-6) | 2I | 13.7±0.2 | EI | 3820 |
| TbI ₂ ⁺ | TbI ₃ (RN-CAS Registry Number 13813-40-6) | I | 10.5±0.2 | EI | 3820 |
| TbI ₃ ⁺ | TbI ₃ (RN-CAS Registry Number 13813-40-6) | ** | 9.5±0.2 | EI | 3820 |
| Dy ⁺ | DyI ₃ (RN-CAS Registry Number 15474-63-2) | 3I | 16.4±0.2 | EI | 3820 |
| Dy ⁺³ | Dy ⁺² (RN-CAS Registry Number 14701-44-1) | ** | 22.83±0.32 | S | 3744 |
| Dy ⁺⁴ | Dy ⁺³ (RN-CAS Registry Number 22541-21-5) | ** | 41.56±0.35 | S | 3744 |
| DyI ⁺ | DyI ₃ (RN-CAS Registry Number 15474-63-2) | 2I | 13.1±0.2 | EI | 3820 |
| DyI ₂ ⁺ | DyI ₃ (RN-CAS Registry Number 15474-63-2) | I | 10.5±0.2 | EI | 3820 |
| DyI ₃ ⁺ | DyI ₃ (RN-CAS Registry Number 15474-63-2) | ** | 9.6±0.2 | EI | 3820 |
| Ho ⁺ | Ho (RN-CAS Registry Number 7440-60-0) | ** | 5.8±0.2 | EI | 3440 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|-------------------------------|--|----------------|---|--------|------|
| Ho ⁺ | HoI ₃ (RN-CAS Registry Number 13813-41-7) | 3I | 16.7±0.2 | EI | 3820 |
| Ho ⁺³ | Ho ⁺² (RN-CAS Registry Number 16468-44-3) | ** | 22.84±0.10 | S | 3744 |
| Ho ⁺⁴ | Ho ⁺³ (RN-CAS Registry Number 22541-22-6) | ** | 42.51±0.35 | S | 3744 |
| Ho ₂ ⁺ | Ho ₂ (RN-CAS Registry Number 12596-28-0) | ** | 6.0±1.0 | EI | 3440 |
| HoAg ⁺ | HoAg (RN-CAS Registry Number 12002-74-3) | ** | 5.7±0.6 | EI | 3440 |
| HoI ⁺ | HoI ₃ (RN-CAS Registry Number 13813-41-7) | 2I | 13.2±0.2 | EI | 3820 |
| HoI ₂ ⁺ | HoI ₃ (RN-CAS Registry Number 13813-41-7) | I | 10.4±0.2 | EI | 3820 |
| HoI ₃ ⁺ | HoI ₃ (RN-CAS Registry Number 13813-41-7) | ** | 9.2±0.2 | EI | 3820 |
| Er ⁺ | ErI ₃ (RN-CAS Registry Number 13813-42-8) | 3I | 16.2±0.2 | EI | 3820 |
| Er ⁺³ | Er ⁺² (RN-CAS Registry Number 18195-92-1) | ** | 22.74±0.10 | S | 3744 |
| Er ⁺⁴ | Er ⁺³ (RN-CAS Registry Number 18472-30-5) | ** | 42.66±0.20 | S | 3744 |
| ErI ⁺ | ErI ₃ (RN-CAS Registry Number 13813-42-8) | 2I | 13.3±0.2 | EI | 3820 |
| ErI ₂ ⁺ | ErI ₃ (RN-CAS Registry Number 13813-42-8) | I | 10.2±0.2 | EI | 3820 |
| ErI ₃ ⁺ | ErI ₃ (RN-CAS Registry Number 13813-42-8) | ** | 9.0±0.2 | EI | 3820 |
| Tm ⁺ | Tm (RN-CAS Registry Number 7440-30-4) | ** | 5.7 | EI | 3460 |
| Tm ⁺ | TmBr ₃ (RN-CAS Registry Number 14456-51-0) | | 17.5±0.7 | EI | 3976 |
| Tm ⁺³ | Tm ⁺² (RN-CAS Registry Number 16910-52-4) | ** | 23.68±0.10 | S | 3744 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|--------------------------------|--|----------------|---|--------|------|
| Tm ⁺⁴ | Tm ⁺³ (RN-CAS Registry Number 22541-23-7) | ** | 42.69±0.30 | S | 3744 |
| TmBr ₂ ⁺ | TmBr ₃ (RN-CAS Registry Number 14456-51-0) | | 11.1±0.7 | EI | 3976 |
| TmBr ₃ ⁺ | TmBr ₃ (RN-CAS Registry Number 14456-51-0) | ** | 9.6±0.7 | EI | 3976 |
| Yb ⁺ | Yb (RN-CAS Registry Number 7440-64-4) | ** | 6.3±0.3 | EI | 4105 |
| Yb ⁺ | YbCl ₂ (RN-CAS Registry Number 13874-77-6) | | 15.05±0.26 | EI | 3614 |
| Yb ⁺ | YbBr ₃ ? (RN-CAS Registry Number 13759-89-2) | | 14.7±0.7 | EI | 3976 |
| Yb ⁺² | Yb ⁺ (RN-CAS Registry Number 20205-78-1) | ** | 12.184±0.006 | S | 3974 |
| Yb ⁺³ | Yb ⁺² (RN-CAS Registry Number 22541-96-4) | ** | 25.03±0.02 | S | 3744 |
| Yb ⁺⁴ | Yb ⁺³ (RN-CAS Registry Number 18923-27-8) | ** | 43.74±0.30 | S | 3744 |
| Yb ₂ ⁺ | Yb ₂ (RN-CAS Registry Number 12771-79-8) | ** | 4-5 | EI | 4105 |
| YbCl ⁺ | YbCl ₂ (RN-CAS Registry Number 13874-77-6) | | 10.70±0.21 | EI | 3614 |
| YbCl ₂ ⁺ | YbCl ₂ (RN-CAS Registry Number 13874-77-6) | ** | 9.73±0.21 | EI | 3614 |
| YbBr ⁺ | YbBr ₂ ? (RN-CAS Registry Number 25502-05-0) | | 10.0±0.7 | EI | 3976 |
| YbBr ₂ ⁺ | YbBr ₃ ? (RN-CAS Registry Number 13759-89-2) | | 10.0±0.7 | EI | 3976 |
| Lu ⁺ | Lu (RN-CAS-Registry Number 7439-94-3) | ** | 5.425889±0.00001 | S | 4060 |
| Lu ⁺ | Lu (RN-CAS Registry Number 7439-94-3) | ** | 5.3±0.3 | EI | 3618 |
| Lu ⁺⁴ | Lu ⁺³ (RN-CAS Registry Number 22541-24-8) | ** | 45.20±0.025 | PE | 3899 |
| LuC ₂ ⁺ | LuC ₂ (RN-CAS Registry Number 12175-89-2) | ** | 7.8±1 | EI | 3618 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|---|--|----------------|---|--------|------|
| LuC_4^+ | LuC_4 (RN-CAS Registry Number 37215-84-2) | ** | 11.1 ± 1 | EI | 3618 |
| Hf^{+4} | Hf^{+3} (RN-CAS Registry Number 36756-51-1) | ** | 33.319 ± 0.025 | S | 3744 |
| Ta^{+5} | Ta^{+4} (RN-CAS Registry Number 16044-71-6) | ** | 48.4 ± 0.1 | S | 4101 |
| TaF_3^+ | $\text{TaF}_4^?$ (RN-CAS Registry Number 15192-46-8) | F? | 22.0 | EI | 3783 |
| TaF_4^+ | $\text{TaF}_4^?$ (RN-CAS Registry Number 15192-46-8) | ** | 14.6 | EI | 3783 |
| Ta_2F_9^+ | $\text{Ta}_2\text{F}_9^?$ (RN-CAS Registry Number XXXXX-XX-X) | ** | 14.9 | EI | 3783 |
| $\text{Ta}_3\text{F}_{14}^+$ | $\text{Ta}_3\text{F}_{14}^?$ (RN-CAS Registry Number XXXXX-XX-X) | ** | 14.0 | EI | 3783 |
| TaCl_2^+ | TaCl_5 (RN-CAS Registry Number 7721-01-9) | | 20.3 | EI | 3783 |
| TaCl_3^+ | TaCl_5 (RN-CAS Registry Number 7721-01-9) | | 15.2 | EI | 3783 |
| TaCl_4^+ | TaCl_5 (RN-CAS Registry Number 7721-01-9) | | 10.9 | EI | 3783 |
| $\text{C}_6\text{H}_{18}\text{W}^+$ | $(\text{CH}_3)_6\text{W}$ (RN-CAS Registry Number 36133-73-0) | ** | 9.8 | PE | 3663 |
| $\text{C}_6\text{O}_6\text{W}^+$ | $\text{W}(\text{CO})_6$ (RN-CAS Registry Number 14040-11-0) | ** | 8.30 ± 0.02 (V) | PE | 3979 |
| $\text{C}_{10}\text{H}_5\text{NO}_5\text{W}^+$ | $\text{C}_5\text{H}_5\text{NW}(\text{CO})_5$ (OC-6-22)-Pentacarbonyl(pyridine)tungsten (RN-CAS Registry Number 14586-49-3) | ** | 7.53 ± 0.05 | EI | 3498 |
| $\text{C}_{11}\text{H}_7\text{NO}_5\text{W}^+$ | $\text{C}_5\text{H}_4\text{N}(\text{CH}_3)\text{W}(\text{CO})_5$ (Pentacarbonyl(4-methylpyridine)tungsten) (RN-CAS Registry Number 17000-14-5) | ** | 7.46 ± 0.05 | EI | 3498 |
| $\text{C}_{12}\text{H}_9\text{NO}_5\text{W}^+$ | $\text{C}_5\text{H}_3\text{N}(\text{CH}_3)_2\text{W}(\text{CO})_5$ (OC-6-22)-Pentacarbonyl(2,6-dimethylpyridine)tungsten (RN-CAS Registry Number 36252-39-8) | ** | 7.43 ± 0.05 | EI | 3498 |
| $\text{C}_{11}\text{H}_4\text{N}_2\text{O}_5\text{W}^+$ | $\text{C}_5\text{H}_4\text{N}(\text{CN})\text{W}(\text{CO})_5$ (OC-6-22)-Pentacarbonyl(2-pyridinecarbonitrile- <i>N</i> ¹)tungsten (RN-CAS Registry Number 36252-42-3) | ** | 7.65 ± 0.05 | EI | 3498 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|----------------------------|--|----------------|---|--------|------|
| $C_{12}H_{36}N_6P_2W^+$ | $(((CH_3)_2N)_3P)_2W(CO)_4$ (RN-CAS Registry Number 19976-86-4) | 4CO | 10.7 ± 0.05 | EI | 3952 |
| $C_{14}H_{36}N_6O_2P_2W^+$ | $(((CH_3)_2N)_3P)_2W(CO)_4$ (RN-CAS Registry Number 19976-86-4) | 2CO | 12.2 ± 0.05 | EI | 3952 |
| $C_{15}H_{36}N_6O_3P_2W^+$ | $(((CH_3)_2N)_3P)_2W(CO)_4$ (RN-CAS Registry Number 19976-86-4) | CO | 10.3 ± 0.05 | EI | 3952 |
| $C_{16}H_{36}N_6O_4P_2W^+$ | $(((CH_3)_2N)_3P)_2W(CO)_4$ (RN-CAS Registry Number 19976-86-4) | ** | 5.5 ± 0.05 | EI | 3952 |
| WCl^+ | WCl_6 (RN-CAS Registry Number 13283-01-7) | | 22.9 | EI | 3783 |
| WCl_2^+ | WCl_6 (RN-CAS Registry Number 13283-01-7) | | 19.4 | EI | 3783 |
| WCl_3^+ | WCl_6 (RN-CAS Registry Number 13283-01-7) | | 15.4 | EI | 3783 |
| WCl_4^+ | WCl_6 (RN-CAS Registry Number 13283-01-7) | | 11.4 | EI | 3783 |
| WCl_4^+ | $WOCl_4$ (RN-CAS Registry Number 13520-78-0) | | 16.0 ± 1 | EI | 3604 |
| WCl_5^+ | WCl_6 (RN-CAS Registry Number 13283-01-7) | | 10.9 | EI | 3783 |
| WCl_6^+ | WCl_6 (RN-CAS Registry Number 13283-01-7) | ** | 9.5 | EI | 3783 |
| $WOCl_3^+$ | $WOCl_4$ (RN-CAS Registry Number 13520-78-0) | | 10.0 ± 0.5 | EI | 3604 |
| $WOCl_4^+$ | $WOCl_4$ (RN-CAS Registry Number 13520-78-0) | ** | 10.8 ± 0.5 | EI | 3604 |
| WS_2Cl^+ | WS_2Cl_2 (RN-CAS Registry Number 24664-20-8) | | 12.6 ± 0.5 | EI | 3604 |
| $WS_2Cl_2^+$ | WS_2Cl_2 (RN-CAS Registry Number 24664-20-8) | ** | 10.5 ± 0.5 | EI | 3604 |
| $WScI_3^+$ | $WScI_4$ (RN-CAS Registry Number 25127-53-1) | | 9.5 ± 0.5 | EI | 3604 |
| $WScI_4^+$ | $WScI_4$ (RN-CAS Registry Number 25127-53-1) | ** | 10.4 ± 1 | EI | 3604 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|--|---|----------------|---|--------|------|
| WOSCl ⁺ | WOSCl ₂ (RN-CAS Registry Number XXXXX-XX-X) | | 13.8±0.5 | EI | 3604 |
| WOSCl ₂ ⁺ | WOSCl ₂ (RN-CAS Registry Number XXXXX-XX-X) | ** | 10.6±0.5 | EI | 3604 |
| WBr ₂ ⁺ | WOBBr ₄ (RN-CAS Registry Number 13520-77-9) | | 21.4±0.5 | EI | 3450 |
| WBr ₃ ⁺ | WOBBr ₄ (RN-CAS Registry Number 13520-77-9) | | 18.1±0.5 | EI | 3450 |
| WOBBr ⁺ | WO ₂ Br ₂ (RN-CAS Registry Number 13520-75-7) | | 20.0±0.8 | EI | 3450 |
| WOBBr ⁺ | WOBBr ₄ (RN-CAS Registry Number 13520-77-9) | | 18.1±0.8 | EI | 3450 |
| WO ₂ Br ⁺ | WO ₂ Br ₂ (RN-CAS Registry Number 13520-75-7) | | 13.0±0.4 | EI | 3450 |
| WOBBr ₂ ⁺ | WOBBr ₄ (RN-CAS Registry Number 13520-77-9) | | 14.4±0.5 | EI | 3450 |
| WO ₂ Br ₂ ⁺ | WO ₂ Br ₂ (RN-CAS Registry Number 13520-75-7) | ** | 11.4±0.2 | EI | 3450 |
| WOBBr ₃ ⁺ | WOBBr ₄ (RN-CAS Registry Number 13520-77-9) | | 10.3±0.2 | EI | 3450 |
| WOBBr ₃ ⁺ | WOBBr ₄ (RN-CAS Registry Number 13520-77-9) | | 10.5±0.5 | EI | 3604 |
| WOBBr ₄ ⁺ | WOBBr ₄ (RN-CAS Registry Number 13520-77-9) | ** | 10.3±0.3 | EI | 3450 |
| WOBBr ₄ ⁺ | WOBBr ₄ (RN-CAS Registry Number 13520-77-9) | ** | 11.5±0.5 | EI | 3604 |
| WO ₂ I ⁺ | WO ₂ I ₂ (RN-CAS Registry Number 14447-89-3) | | 12.5±0.5 | EI | 3451 |
| WO ₂ I ₂ ⁺ | WO ₂ I ₂ (RN-CAS Registry Number 14447-89-3) | ** | 10.4±0.4 | EI | 3451 |
| ReO ⁺ | ReO ₃ (RN-CAS Registry Number 1314-28-9) (TR—Other product(s) thermochemically reasonable) | | ~18 | EI | 4016 |
| ReO ₂ ⁺ | ReO ₃ (RN-CAS Registry Number 1314-28-9) (TR—Other product(s) thermochemically reasonable) | | 14.4±1.0 | EI | 4016 |
| ReO ₂ ⁺ | Re ₂ O ₇ (RN-CAS Registry Number 1314-68-7) | | 21.9±1.0 | EI | 4016 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|---|---|----------------|---|--------|------|
| ReO_3^+ | ReO_3 (RN-CAS Registry Number 1314-28-9) | ** | 12.5 ± 0.4 | EI | 4016 |
| | (TR—Other product(s) thermochemically reasonable) | | | | |
| ReO_3^+ | Re_2O_7 (RN-CAS Registry Number 1314-68-7) | | 16.2 ± 0.5 | EI | 4016 |
| ReO_3^+ | ReO_3Cl (RN-CAS Registry Number 7791-09-5) | | 15.6 ± 0.5 | EI | 3604 |
| Re_2O_5^+ | Re_2O_7 (RN-CAS Registry Number 1314-68-7) | | 17.5 ± 0.2 | EI | 4016 |
| Re_2O_6^+ | Re_2O_7 (RN-CAS Registry Number 1314-68-7) | | 16.2 ± 0.5 | EI | 4016 |
| Re_2O_7^+ | Re_2O_7 (RN-CAS Registry Number 1314-68-7) | ** | 12.7 ± 0.2 | EI | 4016 |
| $\text{C}_3\text{HO}_3\text{Re}^+$ | $\text{HRe}(\text{CO})_5$ (RN-CAS Registry Number 16457-30-0) | ** | 8.86 ± 0.02 (V) | PE | 3827 |
| ReF_6^+ | ReF_6 (RN-CAS Registry Number 10049-17-9) | ** | 7.99 | S | 3565 |
| $\text{C}_3\text{H}_3\text{O}_5\text{SiRe}^+$ | $\text{SiH}_3\text{Re}(\text{CO})_5$ (RN-CAS Registry Number 40628-33-9) | ** | 8.9 ± 0.1 (V) | PE | 3827 |
| ReCl_4^+ | ReOCl_4 (RN-CAS Registry Number 13814-76-1) | | 16.5 ± 0.5 | EI | 3604 |
| ReO_2Cl^+ | ReO_3Cl (RN-CAS Registry Number 7791-09-5) | | 12.3 ± 0.5 | EI | 3604 |
| ReOCl_3^+ | ReOCl_4 (RN-CAS Registry Number 13814-76-1) | | 12.3 ± 0.5 | EI | 3604 |
| ReOCl_4^+ | ReOCl_4 (RN-CAS Registry Number 13814-76-1) | ** | 10.7 ± 0.5 | EI | 3604 |
| $\text{C}_3\text{H}_3\text{O}_5\text{GeRe}^+$ | $\text{GeH}_3\text{Re}(\text{CO})_5$ (RN-CAS Registry Number 30012-26-1) | ** | 8.9 ± 0.1 (V) | PE | 3827 |
| ReO_3I^+ | ReO_3I (RN-CAS Registry Number 39327-80-5) | ** | 10.9 ± 0.5 | EI | 4013 |
| BaReO_4^+ | $\text{Ba}(\text{ReO}_4)_2?$ (RN-CAS Registry Number XXXXX-XX-X) | | 13.4 ± 0.5 | EI | 4108 |
| $\text{C}_{12}\text{H}_{14}\text{Os}^+$ | $(\text{C}_5\text{H}_4\text{CH}_3)_2\text{Os}$ (Osmocene, 1,1'-dimethyl-) (RN-CAS Registry Number 40672-07-9) | ** | 6.93 (V) | PE | 3688 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|--|---|----------------|---|--------|------|
| $\text{OsO}_4^+(\text{}^2\text{T}_2)$ | OsO_4 (RN-CAS Registry Number 20816-12-0) | ** | 12.320 | PE | 3836 |
| OsO_4^+ | OsO_4 (RN-CAS Registry Number 20816-12-0) | ** | 12.39 | PE | 3838 |
| $\text{OsO}_4^+(\text{}^2\text{T}_1)$ | OsO_4 (RN-CAS Registry Number 20816-12-0) | ** | 13.138 | PE | 3836 |
| $\text{OsO}_4^+(\text{}^2\text{E})$ | OsO_4 (RN-CAS Registry Number 20816-12-0) | ** | 13.502 | PE | 3836 |
| $\text{OsO}_4^+(\text{}^2\text{A}_1)$ | OsO_4 (RN-CAS Registry Number 20816-12-0) | ** | 14.543 | PE | 3836 |
| $\text{OsO}_4^+(\text{}^2\text{T}_2)$ | OsO_4 (RN-CAS Registry Number 20816-12-0) | ** | 16.31 (V) | PE | 3836 |
| OsOCl_3^+ | OsOCl_4 (RN-CAS Registry Number 14998-32-4) | | 12.4 ± 0.5 | EI | 3604 |
| OsOCl_4^+ | OsOCl_4 (RN-CAS Registry Number 14998-32-4) | ** | 11.3 ± 0.5 | EI | 3604 |
| $\text{C}_7\text{H}_7\text{O}_4\text{Ir}^+$ | $(\text{CH}_3\text{COCHCOCH}_3)\text{Ir}(\text{CO})_2$ (Dicarbonyl(2,4-pentanedionato)iridium) (RN-CAS Registry Number 14023-80-4) | ** | 8.6 ± 0.1 | EI | 3497 |
| $\text{C}_7\text{HO}_4\text{F}_6\text{Ir}^+$ | $(\text{CF}_3\text{COCHCOCF}_3)\text{Ir}(\text{CO})_2$ (Dicarbonyl(1,1,1,5,5,5-hexafluoro-2,4-pentanedionato)iridium) (RN-CAS Registry Number 14049-69-5) | ** | 8.85 ± 0.05 | EI | 3497 |
| Au^+ | Au (RN-CAS Registry Number 7440-57-5) | ** | 9.21 ± 0.05 | RPD | 3745 |
| Au^+ | Au (RN-CAS Registry Number 7440-57-5) | ** | 8.5 ± 0.8 | EI | 3978 |
| Au^+ | Au (RN-CAS Registry Number 7440-57-5) | ** | 9.0 ± 0.5 | EI | 3473 |
| Au_2^+ | Au_2 (RN-CAS Registry Number XXXXX-XX-X) | ** | 9.5 ± 0.3 | EI | 4014 |
| Au_2^+ | Au_2 (RN-CAS Registry Number 12187-09-6) | ** | 9.5 ± 0.3 | EI | 4005 |
| Au_2^+ | Au_2 (RN-CAS Registry Number 12187-09-6) | ** | 9.7 ± 0.4 | EI | 3468 |
| AuB^+ | AuB (RN-CAS Registry Number 12408-81-0) | ** | 8.7 ± 0.5 | EI | 3468 |
| AuB^+ | AuBO? (RN-CAS Registry Number 12588-90-8) | | 14.5 ± 0.5 | EI | 3473 |
| AuBO^+ | AuBO (RN-CAS Registry Number 12588-90-8) | ** | 9.7 ± 0.2 | EI | 3473 |
| AuAl^+ | AuAl (RN-CAS Registry Number XXXXX-XX-X) | ** | 7.6 ± 0.3 | EI | 4014 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|---|---|-----------------|---|--------|------|
| AuAl ⁺ | AuAl (RN-CAS Registry Number 12250-38-3) | ** | 7.6±0.3 | EI | 4005 |
| AuAl ⁺ | AuAl (RN-CAS Registry Number 12250-38-3) | ** | 7.8±0.3 | EI | 3440 |
| AuAl ⁺ | AuAl (RN-CAS Registry Number 12250-38-3) | ** | 9.0±1.0 | EI | 3796 |
| AuAl ₂ ⁺ | AuAl ₂ (RN-CAS Registry Number 12004-03-4) | ** | 6.2±1.0 | EI | 3966 |
| Au ₂ Al ⁺ | Au ₂ Al (RN-CAS Registry Number 12250-39-4) | ** | 7.7±1.0 | EI | 3966 |
| AuGe ⁺ | AuGe (RN-CAS Registry Number 12256-41-6) | ** | 7.7 | EI | 3775 |
| AuCe ⁺ | AuCe (RN-CAS Registry Number 12408-82-1) | ** | 6.0±0.3 | EI | 3468 |
| AuHo ⁺ | AuHo (RN-CAS Registry Number 12044-80-3) | ** | 6.2±0.5 | EI | 3440 |
| Hg ⁺ (² S _{1/2}) | Hg (RN-CAS Registry Number 7439-97-6) | ** | 10.4 | PE | 3672 |
| Hg ⁺ (² D _{5/2}) | Hg (RN-CAS Registry Number 7439-97-6) | ** | 14.8 | PE | 3672 |
| Hg ⁺ (² S _{1/2}) | Hg (RN-CAS Registry Number 7439-97-6) | ** | 10.487±0.005 | PEN | 3541 |
| Hg ⁺ (² D _{5/2}) | Hg (RN-CAS Registry Number 7439-97-6) | ** | 14.907±0.015 | PEN | 3541 |
| Hg ⁺ (² D _{3/2}) | Hg (RN-CAS Registry Number 7439-97-6) | ** | 16.787±0.015 | PEN | 3541 |
| Hg ⁺ (² P _{3/2}) | Hg (RN-CAS Registry Number 7439-97-6) | ** | 18.050±0.050 | PEN | 3541 |
| Hg ⁺ | Hg (RN-CAS Registry Number 7439-97-6) | ** | 10.47±0.05 | RPD | 3745 |
| C ₁₂ H ₁₀ Hg | (C ₆ H ₅) ₂ Hg (Mercury, diphenyl-) (RN-CAS-Registry Number 587-85-9) | ** | 8.30±0.03 | PI | 4055 |
| HgCl ₂ ⁺ | HgCl ₂ (RN-CAS Registry Number 7487-94-7) | ** | 11.5 (V) | PE | 3963 |
| C ₃ H ₅ ClHg ⁺ | CH ₂ =CHCH ₂ HgCl (RN-CAS Registry Number 14155-77-2) | ** | 9.35 (V) | PE | 3859 |
| Tl ⁺ | TlBO ₂ (RN-CAS Registry Number XXXXX-XX-X) | BO ₂ | 10.43±0.07 | EI | 4096 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|---|--|----------------|---|--------|------|
| Tl ³⁺ | Tl ²⁺ (RN-CAS Registry Number 14877-28-2) | ** | 29.8523±0.0006 | S | 4093 |
| Tl ₂ ⁺ | Tl ₂ O (RN-CAS Registry Number 1314-12-1) | | 11.97±0.09 | EI | 4096 |
| TlO ⁺ | TlBO ₂ (RN-CAS Registry Number XXXXX-XX-X) | | 10.68±0.11 | EI | 4096 |
| Tl ₂ O ⁺ | Tl ₂ O (RN-CAS Registry Number 1314-12-1) | ** | 8.02±0.10 | EI | 4096 |
| TlBO ⁺ | TlBO? (RN-CAS Registry Number XXXXX-XX-X) | ** | 11.8±0.6 | EI | 4096 |
| TlBO ⁺ | TlBO ₂ ? (RN-CAS Registry Number XXXXX-XX-X) | ** | 15.02±0.23 | EI | 4096 |
| TlBO ₂ ⁺ | TlBO ₂ (RN-CAS Registry Number XXXXX-XX-X) | ** | 9.92±0.11 | EI | 4096 |
| Tl ₂ BO ₂ ⁺ | (TlBO ₂) ₂ (RN-CAS Registry Number XXXXX-XX-X) | | 9.17±0.10 | EI | 4096 |
| TlF ⁺ (² Σ) | TlF (RN-CAS Registry Number 7789-27-7) | ** | 10.52 | PE | 3971 |
| TlF ⁺ (² Π) | TlF (RN-CAS Registry Number 7789-27-7) | ** | 11.15 | PE | 3971 |
| TlF ⁺ (² Σ) | TlF (RN-CAS Registry Number 7789-27-7) | ** | ~14.05 | PE | 3971 |
| Tl ₂ F ⁺ | (TlF) ₂ (RN-CAS Registry Number 31970-97-5) | | 9.97±0.02 | PI | 3971 |
| Tl ₂ F ₂ ⁺ | (TlF) ₂ (RN-CAS Registry Number 31970-97-5) | ** | 9.71±0.02 | PI | 3971 |
| Tl ₂ F ₂ ⁺ (² Π _u) | (TlF) ₂ (RN-CAS Registry Number 31970-97-5) | ** | 9.62 | PE | 3971 |
| Tl ₂ F ₂ ⁺ (² Π _g , ² Π _u , ² Σ _g) | (TlF) ₂ (RN-CAS Registry Number 31970-97-5) | ** | 13.63 | PE | 3971 |
| Tl ₂ F ₂ ⁺ (² Σ _u) | (TlF) ₂ (RN-CAS Registry Number 31970-97-5) | ** | 17.07 | PE | 3971 |
| Tl ₂ F ₂ ⁺ (² Σ _g) | (TlF) ₂ (RN-CAS Registry Number 31970-97-5) | ** | ~17.80 | PE | 3971 |
| TlCl ⁺ (² Σ) | TlCl | ** | 13.79 | PE | 3913 |
| TlCl ⁺ (X ² Σ) | TlCl (RN-CAS Registry Number 7791-12-0) | ** | 9.894 (V) | PE | 3913 |
| TlCl ⁺ (² Π) | TlCl (RN-CAS Registry Number 7791-12-0) | ** | 9.925 (V) | PE | 3536 |
| TlCl ⁺ (² Π) | TlCl (RN-CAS Registry Number 7791-12-0) | ** | 10.384 (V) | PE | 3913 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|--|---|------------------------------------|---|--------|------|
| TlAs ⁺ | TlAs (RN-CAS Registry Number 12006-09-6) | ** | 9±1 | EI | 3947 |
| TlBr ⁺ (² Π) | TlBr (RN-CAS Registry Number 7789-40-4) | ** | 9.832 (V) | PE | 3913 |
| TlBr ⁺ (² Σ) | TlBr (RN-CAS Registry Number 7789-40-4) | ** | 13.57 | PE | 3913 |
| TlI ⁺ | TlI (RN-CAS Registry Number 7790-30-9) | ** | 8.47±0.02 | PI | 3536 |
| (HB-Threshold value approximately corrected for hot bands) | | | | | |
| TlI ⁺ (² Σ _{1/2} , ² Π _{3/2}) | TlI (RN-CAS Registry Number 7790-30-9) | ** | 8.47±0.02 | PE | 3913 |
| TlI ⁺ | TlI (RN-CAS Registry Number 7790-30-9) | ** | 8.93 (V) | PE | 3676 |
| TlI ⁺ (² Π) | TlI (RN-CAS Registry Number 7790-30-9) | ** | 9.39 | PE | 3913 |
| TlI ⁺ * | TlI (RN-CAS Registry Number 7790-30-9) | ** | 9.71 (V) | PE | 3676 |
| TlI ⁺ (² Σ) | TlI (RN-CAS Registry Number 7790-30-9) | ** | 13.0 | PE | 3913 |
| TlI ⁺ * | TlI (RN-CAS Registry Number 7790-30-9) | ** | 13.52 (V) | PE | 3676 |
| Pb ⁺⁴ | Pb ⁺³ (RN-CAS Registry Number 18466-73-4) | ** | 42.3333±0.0006 | S | 4093 |
| C ₃ H ₉ Pb ⁺ | (CH ₃) ₄ Pb (RN-CAS Registry Number 75-74-1) | CH ₃ | 8.77±0.16 | EI | 3548 |
| C ₃ H ₉ Pb ⁺ | (CH ₃) ₃ CPb(CH ₃) ₃ (RN-CAS Registry Number 32997-03-8) | (CH ₃) ₃ C | 8.67±0.21 | EI | 3548 |
| C ₃ H ₉ Pb ⁺ | (CH ₃) ₃ PbPb(CH ₃) ₃ (RN-CAS Registry Number 6713-83-3) | (CH ₃) ₃ Pb | 9.02±0.14 | EI | 3548 |
| C ₄ H ₁₂ Pb ⁺ | (CH ₃) ₄ Pb (RN-CAS Registry Number 75-74-1) | ** | 8.50±0.04 | PE | 3880 |
| C ₄ H ₁₂ Pb ⁺ | (CH ₃) ₄ Pb (RN-CAS Registry Number 75-74-1) | ** | 8.83±0.1 | PE | 3677 |
| C ₄ H ₁₂ Pb ⁺ | (CH ₃) ₄ Pb (RN-CAS Registry Number 75-74-1) | ** | 8.26±0.17 | EI | 3548 |
| C ₇ H ₁₈ Pb ⁺ | (CH ₃) ₃ CPb(CH ₃) ₃ (RN-CAS Registry Number 32997-03-8) | ** | 7.99±0.13 | EI | 3548 |
| C ₆ H ₁₈ Pb ₂ ⁺ | (CH ₃) ₃ PbPb(CH ₃) ₃ (RN-CAS Registry Number 6713-83-3) | ** | 7.41±0.10 | EI | 3548 |
| C ₁₆ H ₄₄ Si ₄ Pb ⁺ | ((CH ₃) ₃ SiCH ₂) ₄ Pb (RN-CAS Registry Number 18547-13-2) | ** | 8.14±0.1 (V) | PE | 3830 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|---|---|----------------|---|--------|------|
| PbCl ₂ ⁺ | PbCl ₂ (RN-CAS Registry Number 7758-95-4) | ** | 10.11 (V) | PE | 3650 |
| PbI ₂ ⁺ | PbI ₂ (RN-CAS Registry Number 10101-63-0) | ** | 8.86±0.03 | PI | 3536 |
| Bi ₃ ⁺ | Bi ₃ ? (RN-CAS Registry Number 12595-63-0) | ** | 7.6±0.3 | EI | 3599 |
| Bi ₄ ⁺ | Bi ₄ (RN-CAS Registry Number XXXXX-XX-X) | ** | 7.7±0.3 | EI | 3599 |
| BiF ₃ ⁺ | BiF ₃ (RN-CAS Registry Number 7787-62-4) | ** | ~12 | EI | 3551 |
| BiF ₄ ⁺ | BiF ₅ (RN-CAS Registry Number 7787-62-4) | | 14.5-15 | EI | 3551 |
| Bi ₂ F ₉ ⁺ | (BiF ₃) ₂ ? (RN-CAS Registry Number XXXXX-XX-X) | | 14.5-15 | EI | 3551 |
| GaBi ⁺ | GaBi (RN-CAS Registry Number 12010-43-4) | ** | 7±1 | EI | 3608 |
| BiTl ⁺ | BiTl (RN-CAS Registry Number 26257-16-9) | ** | 7.5±0.4 | EI | 3949 |
| Ac ⁺ | Ac (RN-CAS Registry Number 7440-34-8) | ** | 5.17±0.12 | D | 3875 |
| Th ⁺ | Th (RN-CAS Registry Number 7440-29-1) | ** | 5.9±0.15 | EI | 3962 |
| Th ⁺ | Th (RN-CAS Registry Number 7440-29-1) | ** | 7.83±0.25 | SI | 4042 |
| Th ⁺ | Th (RN-CAS Registry Number 7440-29-1) | ** | 6.08±0.12 | D | 3875 |
| ThO ⁺ | ThO (RN-CAS Registry Number 12035-93-7) | ** | 6.1±0.15 | EI | 3962 |
| ThO ₂ ⁺ | ThO ₂ (Rn 1314-20-1) | ** | 8.7±0.15 | EI | 3962 |
| ThCl ₄ ⁺ | ThCl ₄ (RN-CAS Registry Number 10026-08-1) | ** | 12.7±0.3 | EI | 3795 |
| ThPt ⁺ | ThPt (RN-CAS Registry Number 12038-30-1) | ** | 8±2 | EI | 3968 |
| Pa ⁺ | Pa (RN-CAS Registry Number 7440-13-3) | ** | 5.89±0.12 | D | 3875 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|-------------------------------|---|----------------|---|--------|------|
| U ⁺ | U (RN-CAS Registry Number 7440-61-1) | ** | 6.22±0.5 | S | 3566 |
| U ⁺ | U (RN-CAS Registry Number 7440-61-1) | ** | 6.1±0.3 | RPD | 3557 |
| U ⁺ | U (RN-CAS Registry Number 7440-61-1) | ** | 6.8±1.5 | EI | 3595 |
| U ⁺ | U (RN-CAS Registry Number 7440-61-1) | ** | ~6±0.5 | EI | 3448 |
| U ⁺ | U (RN-CAS Registry Number 7440-61-1) | ** | 6.05±0.07 | D | 3875 |
| U ⁺² | U ⁺ (RN-CAS Registry Number 15721-70-7) | ** | 10.6±1 | S | 3566 |
| UO ⁺ | UO (RN-CAS Registry Number 12035-97-1) | ** | 5.7±0.4 | RPD | 3557 |
| UO ⁺ | UO (RN-CAS Registry Number 12035-97-1) | ** | 4.3±1.5 | EI | 3595 |
| UO ⁺ | UO (RN-CAS Registry Number 12035-97-1) | ** | ~6±0.5 | EI | 3448 |
| UO ₂ ⁺ | UO ₂ (RN-CAS Registry Number 1344-57-6) | ** | 5.5±0.4 | RPD | 3557 |
| UO ₂ ⁺ | UO ₂ (RN-CAS Registry Number 1344-57-6) | ** | 4.5±1.5 | EI | 3595 |
| UO ₂ ⁺ | UO ₂ ? (RN-CAS Registry Number 1344-57-6) | ** | ~6±0.5 | EI | 3448 |
| UO ₃ ⁺ | UO ₃ (RN-CAS Registry Number 1344-58-7) | ** | 11.1±0.4 | RPD | 3557 |
| UO ₃ ⁺ | UO ₃ (RN-CAS Registry Number 1344-58-7) | ** | 9.5±1.5 | EI | 3595 |
| US ⁺ | US? (RN-CAS Registry Number 12039-11-1) | ** | ~6±0.5 | EI | 3448 |
| UOS ⁺ | UOS (RN-CAS Registry Number 22201-28-1) | ** | ~8±0.5 | EI | 3448 |
| UCl ₃ ⁺ | UCl ₃ ? (RN-CAS Registry Number 10025-93-1) | ** | ~10.0±0.5 | EI | 3795 |
| UCl ₄ ⁺ | UCl ₄ (RN-CAS Registry Number 10026-10-5) | ** | 11.0±0.3 | EI | 3795 |
| Np ⁺ | Np (RN-CAS Registry Number 7439-99-8) | ** | 6.32±0.12 | SI | 4042 |
| Np ⁺ | Np (RN-CAS Registry Number 7439-99-8) | ** | 6.20±0.12 | D | 3875 |
| Pu ⁺ | Pu (RN-CAS Registry Number 7440-07-5) | ** | 4.99±0.15 | SI | 4042 |

Table of Ion Energetics Measurements—Continued

| Ion | Reactant | Other products | Ionization or appearance potential (eV) | Method | Ref. |
|-----------------|---|----------------|---|--------|------|
| Pu ⁺ | Pu (RN-CAS Registry Number 7440-07-5) | ** | 6.06±0.02 | D | 3875 |
| Am ⁺ | Am (RN-CAS Registry Number 7440-35-9) | ** | 5.993±0.010 | D | 3875 |
| Cm ⁺ | Cm (RN-CAS Registry Number 7440-51-9) | ** | 6.09±0.02 | D | 3875 |
| Bk ⁺ | Bk (RN-CAS Registry Number 7440-40-6) | ** | 6.30±0.09 | D | 3875 |
| Cf ⁺ | Cf (RN-CAS Registry Number 7440-71-3) | ** | 6.41±0.10 | D | 3875 |
| Es ⁺ | Es (RN-CAS Registry Number 7429-92-7) | ** | 6.52±0.10 | D | 3875 |
| Fm ⁺ | Fm (RN-CAS Registry Number 7440-72-4) | ** | 6.64±0.11 | D | 3875 |
| Md ⁺ | Md (RN-CAS Registry Number 7440-11-1) | ** | 6.74±0.12 | D | 3875 |
| No ⁺ | No (RN-CAS Registry Number 10028-14-5) | ** | 6.84±0.12 | D | 3875 |

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