

p-Chlorophenyl methyl sulfide; CASRN 123-09-1

Human health assessment information on a chemical substance is included in the IRIS database only after a comprehensive review of toxicity data, as outlined in the [IRIS assessment development process](#). Sections I (Health Hazard Assessments for Noncarcinogenic Effects) and II (Carcinogenicity Assessment for Lifetime Exposure) present the conclusions that were reached during the assessment development process. Supporting information and explanations of the methods used to derive the values given in IRIS are provided in the [guidance documents located on the IRIS website](#).

STATUS OF DATA FOR p-Chlorophenyl methyl sulfide

File First On-Line 02/01/1993

| Category (section) | Assessment Available? | Last Revised |
|---|-----------------------|--------------|
| Oral RfD (I.A.) | message | 06/01/1993* |
| Inhalation RfC (I.B.) | not evaluated | |
| Carcinogenicity Assessment (II.) | yes | 02/01/1993* |

*A comprehensive review of toxicological studies was completed (05/27/05) - please see sections I.A. and II.D.2. for more information.

I. Chronic Health Hazard Assessments for Noncarcinogenic Effects

I.A. Reference Dose for Chronic Oral Exposure (RfD)

Substance Name — p-Chlorophenyl methyl sulfide
CASRN — 123-09-1

The health effects data for p-chlorophenyl methyl sulfide were reviewed by the U.S. EPA RfD/RfC Work Group and determined to be inadequate for the derivation of an oral RfD. For additional information on the health effects of this chemical, interested parties are referred to the EPA documentation listed below.

U.S. EPA. 1992. Data Deficiencies, Problem Areas, and Recommendations for Additional Database Development for p-Chlorophenyl Methyl Sulfide, -Sulfoxide, and -Sulfone (PCPMS, PCPMSO, and PCPMSO₂). Office of Water, Office of Science and Technology, Washington, DC. Available from the National Technical Information Service (NTIS), Springfield, VA. PB93-116986.

Agency Work Group Review — 06/24/1992

A comprehensive review of toxicological studies published through May 2005 indicated that there is insufficient health effects data to derive an RfD for p-Chlorophenyl methyl sulfide at this time. For more information, IRIS users may contact the IRIS Hotline at hotline.iris@epa.gov or (202)566-1676.

EPA Contacts:

Please contact the IRIS Hotline for all questions concerning this assessment or IRIS, in general, at (202)566-1676 (phone), (202)566-1749 (FAX) or hotline.iris@epa.gov (internet address).

I.B. Reference Concentration for Chronic Inhalation Exposure (RfC)

Substance Name — p-Chlorophenyl methyl sulfide

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Not available at this time.

II. Carcinogenicity Assessment for Lifetime Exposure

Substance Name — p-Chlorophenyl methyl sulfide

CASRN — 123-09-1

Last Revised — 02/01/1993

Section II provides information on three aspects of the carcinogenic assessment for the substance in question; the weight-of-evidence judgment of the likelihood that the substance is a human carcinogen, and quantitative estimates of risk from oral exposure and from inhalation exposure. The quantitative risk estimates are presented in three ways. The slope factor is the result of application of a low-dose extrapolation procedure and is presented as the risk per (mg/kg)/day. The unit risk is the quantitative estimate in terms of either risk per ug/L drinking water or risk

per ug/cu.m air breathed. The third form in which risk is presented is a drinking water or air concentration providing cancer risks of 1 in 10,000, 1 in 100,000 or 1 in 1,000,000. The rationale and methods used to develop the carcinogenicity information in IRIS are described in The Risk Assessment Guidelines of 1986 (EPA/600/8-87/045) and in the IRIS Background Document. IRIS summaries developed since the publication of EPA's more recent Proposed Guidelines for Carcinogen Risk Assessment also utilize those Guidelines where indicated (Federal Register 61(79):17960-18011, April 23, 1996). Users are referred to Section I of this IRIS file for information on long-term toxic effects other than carcinogenicity.

II.A. Evidence for Human Carcinogenicity

II.A.1. Weight-of-Evidence Characterization

Classification — D; not classifiable as to human carcinogenicity

Basis — No human or animal studies found in the available literature

II.A.2. Human Carcinogenicity Data

None.

II.A.3. Animal Carcinogenicity Data

None.

II.A.4. Supporting Data for Carcinogenicity

Thake et al. (1979) evaluated the mutagenic potential of p-chlorophenyl methyl sulfide (purity greater than 95%) in a reverse mutation assay with *Salmonella typhimurium* strains TA1535, TA1537, TA1538, TA98 and TA100. Five nonactivated and five S9-activated (with Arochlor 1254) doses ranging from 0.1 to 100 uL/plate were not mutagenic in any test strain. Cytotoxicity was apparent for all strains at the two highest doses (10 and 100 uL/plate +/-S9).

II.B. Quantitative Estimate of Carcinogenic Risk from Oral Exposure

None.

II.C. Quantitative Estimate of Carcinogenic Risk from Inhalation Exposure

None.

II.D. EPA Documentation, Review, and Contacts (Carcinogenicity Assessment)

II.D.1. EPA Documentation

Source Document — U.S. EPA, 1992

The document, Data Deficiencies, Problem Areas and Recommendations for Additional database Development for p-Chlorophenyl Methyl Sulfide, -Sulfoxide and -Sulfone (PCPMS, PCPMSO and PCPMSO₂) (U.S. EPA, 1992) has been reviewed by the Office of Water.

II.D.2. EPA Review (Carcinogenicity Assessment)

Agency Work Group Review — 12/03/1991

Verification Date — 12/03/1991

A comprehensive review of toxicological studies published through May 2005 was conducted. No new health effects data were identified that would be directly useful in the revision of the existing carcinogenicity assessment for p-Chlorophenyl methyl sulfide and a change in the assessment is not warranted at this time. For more information, IRIS users may contact the IRIS Hotline at hotline.iris@epa.gov or (202)566-1676.

II.D.3. EPA Contacts (Carcinogenicity Assessment)

Please contact the IRIS Hotline for all questions concerning this assessment or IRIS, in general, at (202)566-1676 (phone), (202)566-1749 (FAX) or hotline.iris@epa.gov (internet address).

III. [reserved]

IV. [reserved]

V. [reserved]

VI. Bibliography

Substance Name — p-Chlorophenyl methyl sulfide
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VI.A. Oral RfD References

U.S. EPA. 1992. Data Deficiencies, Problem Areas, and Recommendations for Additional Database Development for p-Chlorophenyl Methyl Sulfide, -Sulfoxide, and -Sulfone (PCPMS, PCPMSO, and PCPMSO₂). Office of Water, Office of Science and Technology, Washington, DC. Available from the National Technical Information Service (NTIS), Springfield, VA. PB93-116986.

VI.B. Inhalation RfD References

None.

VI.C. Carcinogenicity Assessment References

Thake D., D. Mays, P. Leber, D. Metcalf and L. Bavda. 1979. Mammalian toxicological evaluation of p-chlorophenyl methyl sulfide, p-chlorophenyl methyl sulfoxide and p-chlorophenyl methyl sulfone. U.S. Army Medical Research and Development Command, Fort Detrick, MD. Contract No. DAMD17-77- C-7038. Available from NTIS, Springfield, VA. Order No. ADA082824.

U.S. EPA. 1992. Data Deficiencies, Problem Areas, and Recommendations for Additional Database Development for p-Chlorophenyl Methyl Sulfide, -Sulfoxide, and -Sulfone (PCPMS, PCPMSO, and PCPMSO₂). Office of Water, Office of Science and Technology, Washington, DC.

VII. Revision History

Substance Name — p-Chlorophenyl methyl sulfide
CASRN — 123-09-1

| Date | Section | Description |
|------------|------------------|--|
| 02/01/1993 | II. | Carcinogenicity assessment on-line |
| 06/01/1993 | I.A. | Oral RfD message on-line |
| 12/03/2002 | I.A., II.D.2. | Screening-Level Literature Review Findings message has been added. |
| 06/22/2005 | I.A., II.D.2. | Screening-Level Literature Review Findings message has been removed and replaced by comprehensive literature review conclusions. |

VIII. Synonyms

Substance Name — p-Chlorophenyl methyl sulfide
CASRN — 123-09-1
Last Revised — 08/01/1992

- 123-09-1
- Benzene, 1-chloro-4-(methylthio)-
- 4-chlorophenyl methyl sulfide
- METHYL p-CHLOROPHENYL SULFIDE
- METHYL 4-CHLOROPHENYL SULFIDE
- p-CHLOROPHENYL METHYL SULFIDE
- p-CHLOROTHIOANISOLE
- Sulfide, p-chlorophenyl methyl
- 1-Chloro-4-(methylthio)benzene
- 4-CHLOROTHIOANISOLE