

HOW TO USE

# The Hazardous Materials Regulations

CFR 49 Parts 100 To 185



U.S. Department  
of Transportation  
**Pipeline and  
Hazardous Materials  
Safety Administration**

## INFORMATION/RECOMMENDATIONS

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### Information

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The USDOT issues most of the “Transportation” regulations in Title 49 – Transportation, Code of Federal Regulations (49 CFR). The Hazardous Materials Regulations (HMR) are in the volume containing Parts 100-185 and govern the transportation of hazardous materials in all modes of transportation – air, highway, rail and water.

The Code of Federal Regulations (CFR) has the force of the law. The regulations are issued by Federal agencies to carry out the responsibilities imposed on those agencies by Congress.

### Objectives

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Upon completion of this workbook you should be able to:

- locate parts, subparts, sections, and references within the HMR;
- locate and tab reference sections of the HMR; and
- use the HMR to locate specific information.

### Materials Checklist

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To complete this workbook, you need:

- a current copy of the HMR in 49 CFR Parts 100 to 185;
- paper and pen or pencil for notes and exercises;
- approximately 40 gummed tabs; and
- a straight edge marker or ruler.

### Recommendations

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The HMR **must** be used to determine the requirements for shipping hazardous materials and should be treated like a technical or reference book. Read it carefully and always read other sections referenced. When determining compliance **always** use the current HMR and any Federal Register Notices issued since the publish date. It is recommended that you tab your copy of 49 CFR Parts 100 to 185. A recommended tabbing guide is on pages 6-7 of this publication.

## **STRUCTURE OF CODE OF FEDERAL REGULATIONS**

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### **Basic Outline**

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The Code of Federal Regulations follows the same basic outline used for most written material. Headings follow the descending order shown below:

|                          |   |
|--------------------------|---|
| <b>Title:</b>            | Title 49 – Transportation   |
| <b>SUBTITLE:</b>         | SUBTITLE B – OTHER REGULATIONS RELATING TO TRANSPORTATION:  |
| <b>CHAPTER:</b>          | CHAPTER I – Pipeline and Hazardous Materials Safety Administration, Department of Transportation  |
| <b>SUBCHAPTER:</b>       | SUBCHAPTER C – HAZARDOUS MATERIALS REGULATIONS  |
| <b>Part:</b>             | Part 172 – Hazardous materials tables and hazardous materials communications regulations, emergency response information, and training requirements |
| <b>Subpart*</b>          | Subpart D – Marking   |
| <b>Section*</b>          | 172.301   |
| <b>Paragraph*</b>        | 172.301(a)  |
| <b>Subparagraph*</b>     | 172.301(a)(1)   |
| <b>Sub-subparagraph*</b> | 172.301(a)(1)(i)  |

\* Listed under Parts, as needed, in descending order.

**Turn to page 1 in 49 CFR Parts 100-185.** Notice the CFR title at the top of the page:

### **Title 49 — Transportation**

The Parts contained in this volume are noted in parentheses:

(This book contains parts 100 to 185)

The SUBTITLE and CHAPTER are also listed:

|  |      |
|--|------|
|  | Part |
| SUBTITLE B – OTHER REGULATIONS RELATING TO TRANSPORTATION:   |      |
| CHAPTER I – Pipeline and Hazardous Materials Safety Administration,<br>Department of Transportation..... |      |
| 106  |      |

**Now locate the CHAPTER I index:**

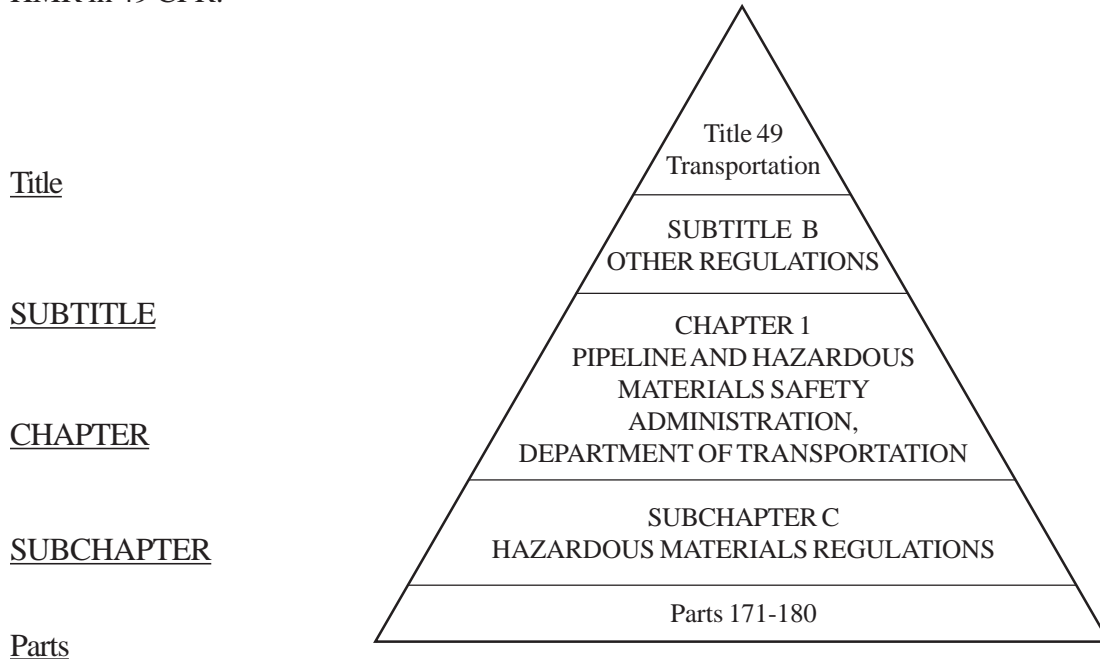
### **CHAPTER I – PIPELINE AND HAZARDOUS MATERIALS SAFETY ADMINISTRATION DEPARTMENT OF TRANSPORTATION**

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Notice that SUBCHAPTER C contains the Hazardous Materials Regulations (HMR).

## Pyramid Diagram

The pyramid diagram below illustrates the HMR format just discussed and the location of the HMR in 49 CFR.



## Rules of Construction, § 171.9

Unless specifically stated otherwise:

- singular words include the plural;
- plural words include the singular;
- masculine words include the feminine;
- “must” means **required**;
- “shall” means **required**;
- “should” means **recommended, but not required**;
- “may” means **permitted, but not required**;
- “includes” means **includes, but not limited to**; and
- “no person may ” means **no person is required, authorized, or permitted to...**

## **EXERCISE 1: PARTS**

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In 49 CFR, Parts 100-185, locate the CHAPTER I index and read the headings under SUBCHAPTERS A, B and C.

Fill in the blanks designating the Part where each subject is addressed in the HMR.

| <b>Part (Number)</b> | <b>Heading</b>  |
|----------------------|---|
| _____                | Carriage by aircraft  |
| _____                | Carriage by rail  |
| _____                | Carriage by vessel  |
| _____                | Carriage by public highway  |
| _____                | General information, regulations and definitions  |
| _____                | Hazardous materials tables, special provisions, hazardous materials communications, emergency response information, and training requirements |
| _____                | Shippers – General requirements for shipments and packagings  |
| _____                | Specifications for packagings   |
| _____                | Specifications for tank cars  |
| _____                | Continuing qualification and maintenance of packagings  |

## EXERCISE 2: LOCATING REFERENCE NUMBERS

**CFR Reference Numbers.** Bold numbers referring to sections are at the top outside corners of each page of the HMR. These reference numbers have the same location and purpose as dictionary locator words at the top of each page in a dictionary. That is, the number on the top left is the CFR reference number that begins that page. The number on the top right of the facing page is the reference number for the last CFR reference number on that page.

It is important to use these reference numbers rather than page numbers to locate HMR information. The page numbers in 49 CFR are always changing because of revisions, additions, deletions, and the annual reprinting of the CFR.

### Turn to Subchapter C, the beginning of the HMR.

Subchapter C – Hazardous Materials Regulations

Part 171 – GENERAL INFORMATION, REGULATIONS, AND DEFINITIONS.

Use the reference numbers at the top of the HMR. Notice that Part 171 begins with a table of contents. The table of contents lists headings within Part 171 by section numbers, not page numbers.

**Scan the sections of Part 171.** Notice the Part and Section numbers in **bold** at the top of each page; these numbers refer to the section that begins or ends the page.

|   |  |  |       |                    |       |                       |       |                  |       |                    |       |  |       |                     |       |                                |       |                        |        |                   |        |                                     |        |                              |         |                                    |   |
|---|--|--|-------|--------------------|-------|-----------------------|-------|------------------|-------|--------------------|-------|--|-------|---------------------|-------|--------------------------------|-------|------------------------|--------|-------------------|--------|-------------------------------------|--------|------------------------------|---------|------------------------------------|---|
| <b>§ 171.1</b>  | <b>49 CFR Ch. 1 (10-01 Edition)</b>                |  |       |                    |       |                       |       |                  |       |                    |       |  |       |                     |       |                                |       |                        |        |                   |        |                                     |        |                              |         |                                    |   |
| <b>Subchapter C - Hazardous Materials Regulations</b>   |  |  |       |                    |       |                       |       |                  |       |                    |       |  |       |                     |       |                                |       |                        |        |                   |        |                                     |        |                              |         |                                    |   |
| <b>Part 171 – GENERAL<br/>INFORMATION, REGULATIONS,<br/>AND DEFINITIONS</b>   |  |  |       |                    |       |                       |       |                  |       |                    |       |  |       |                     |       |                                |       |                        |        |                   |        |                                     |        |                              |         |                                    |   |
| <table> <tr><td>Sec.</td><td></td></tr> <tr><td>171.1</td><td>Purpose and scope.</td></tr> <tr><td>171.2</td><td>General requirements.</td></tr> <tr><td>171.3</td><td>Hazardous Waste.</td></tr> <tr><td>171.4</td><td>Marine pollutants.</td></tr> <tr><td>171.6</td><td>Control numbers under the Paperwork Reduction Act.</td></tr> <tr><td>171.7</td><td>Reference Material.</td></tr> <tr><td>171.8</td><td>Definitions and Abbreviations.</td></tr> <tr><td>171.9</td><td>Rules of construction.</td></tr> <tr><td>171.10</td><td>Units of measure.</td></tr> <tr><td>171.11</td><td>Use of ICAO Technical Instructions.</td></tr> <tr><td>171.12</td><td>Import and export shipments.</td></tr> <tr><td>171.12a</td><td>Canadian shipments and packagings.</td></tr> </table> | Sec.   |  | 171.1 | Purpose and scope. | 171.2 | General requirements. | 171.3 | Hazardous Waste. | 171.4 | Marine pollutants. | 171.6 | Control numbers under the Paperwork Reduction Act. | 171.7 | Reference Material. | 171.8 | Definitions and Abbreviations. | 171.9 | Rules of construction. | 171.10 | Units of measure. | 171.11 | Use of ICAO Technical Instructions. | 171.12 | Import and export shipments. | 171.12a | Canadian shipments and packagings. | <p>(4) The use of terms and symbols prescribed in this subchapter for the marking, labeling, placarding and description of hazardous materials and packagings used in their transport.</p> <p>(b) Any person who, under contract with any department, agency, or instrumentality of the executive, legislative, or judicial branch of the Federal Governments, transports, or causes to be transported or shipped, a hazardous material or manufactures, fabricates, marks, maintains, reconditions, repairs, or tests a package or container which is represented, marked, certified, or sold by such person as qualified for use in the transportation of a hazardous material shall be subject to and comply with all provisions of the Federal hazardous materials transportation law, all orders and regulations issued thereunder, and all other substantive and procedural re-</p> |
| Sec.  |  |  |       |                    |       |                       |       |                  |       |                    |       |  |       |                     |       |                                |       |                        |        |                   |        |                                     |        |                              |         |                                    |   |
| 171.1   | Purpose and scope.                                 |  |       |                    |       |                       |       |                  |       |                    |       |  |       |                     |       |                                |       |                        |        |                   |        |                                     |        |                              |         |                                    |   |
| 171.2   | General requirements.                              |  |       |                    |       |                       |       |                  |       |                    |       |  |       |                     |       |                                |       |                        |        |                   |        |                                     |        |                              |         |                                    |   |
| 171.3   | Hazardous Waste.                                   |  |       |                    |       |                       |       |                  |       |                    |       |  |       |                     |       |                                |       |                        |        |                   |        |                                     |        |                              |         |                                    |   |
| 171.4   | Marine pollutants.                                 |  |       |                    |       |                       |       |                  |       |                    |       |  |       |                     |       |                                |       |                        |        |                   |        |                                     |        |                              |         |                                    |   |
| 171.6   | Control numbers under the Paperwork Reduction Act. |  |       |                    |       |                       |       |                  |       |                    |       |  |       |                     |       |                                |       |                        |        |                   |        |                                     |        |                              |         |                                    |   |
| 171.7   | Reference Material.                                |  |       |                    |       |                       |       |                  |       |                    |       |  |       |                     |       |                                |       |                        |        |                   |        |                                     |        |                              |         |                                    |   |
| 171.8   | Definitions and Abbreviations.                     |  |       |                    |       |                       |       |                  |       |                    |       |  |       |                     |       |                                |       |                        |        |                   |        |                                     |        |                              |         |                                    |   |
| 171.9   | Rules of construction.                             |  |       |                    |       |                       |       |                  |       |                    |       |  |       |                     |       |                                |       |                        |        |                   |        |                                     |        |                              |         |                                    |   |
| 171.10  | Units of measure.                                  |  |       |                    |       |                       |       |                  |       |                    |       |  |       |                     |       |                                |       |                        |        |                   |        |                                     |        |                              |         |                                    |   |
| 171.11  | Use of ICAO Technical Instructions.                |  |       |                    |       |                       |       |                  |       |                    |       |  |       |                     |       |                                |       |                        |        |                   |        |                                     |        |                              |         |                                    |   |
| 171.12  | Import and export shipments.                       |  |       |                    |       |                       |       |                  |       |                    |       |  |       |                     |       |                                |       |                        |        |                   |        |                                     |        |                              |         |                                    |   |
| 171.12a   | Canadian shipments and packagings.                 |  |       |                    |       |                       |       |                  |       |                    |       |  |       |                     |       |                                |       |                        |        |                   |        |                                     |        |                              |         |                                    |   |

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**EXERCISE 3: SUGGESTED TABBING OF THE HMR**


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| <b>Subject</b>   | <b>Reference</b>    | <b>Suggested Tab</b> |
|--|---------------------|----------------------|
| <b>General</b>   |                     |                      |
| Exemptions, Preemptions, Registration  | Part 107            | 107                  |
| Definitions/Abbreviations  | 171.8               | DEF                  |
| Hazardous Materials Table  | 172.101             | HMT                  |
| Appendix A (Hazardous Substances)  | Appendix A          | APA                  |
| Appendix B (Marine Pollutants)   | Appendix B          | APB                  |
| Special Provisions   | 172.102             | SPPR                 |
| Shipping Papers  | 172.200             | SHPPAP               |
| Certification  | 172.204             | CERT                 |
| Hazardous Waste Manifest   | 172.205             | MANFST               |
| Marking  | 172.300             | MRK                  |
| Labeling   | 172.400             | LBL                  |
| Placarding   | 172.500             | PLAC                 |
| Emergency Response Information   | 172.600             | ERI                  |
| Training   | 172.700             | TRNG                 |
| Classes & Definitions  | 173.2               | CLASS                |
| Precedence Table   | 173.2a              | PRE TBL              |
| Waste Packaging Exception  | 173.12              | LAB PK               |
| Packaging-General Requirements   | 173.24              | GEN PKG              |
| Packaging-Add'l Req.-Non-Bulk  | 173.24a             | NB                   |
| Packaging-Add'l Req.-Bulk  | 173.24b             | BULK                 |
| Packaging-Reuse  | 173.28              | PKG REUSE            |
| Empty packagings   | 173.29              | MT PKG               |
| <b>Specific Packaging</b>  |                     |                      |
| Packaging-Non-Bulk   | Part 173, Subpart E | NB                   |
| Packaging Bulk   | Part 173, Subpart F | BULK                 |
| <b>Hazard Class Definitions/Divisions/Packing Groups</b>                       |                     |                      |
| Class 1 (Explosives)   | 173.50              | CL 1                 |
| Class 2 (Gases)  | 173.115/116         | CL 2                 |
| Class 3 (Flammable/Combustible Liquids)  | 173.120/121         | CL 3                 |
| Class 4 (Flammable Solid,<br>Spontaneously Combustible,<br>Dangerous When Wet) | 173.124/125         | CL 4                 |
| Class 5 (Oxidizers, Organic Peroxides)   | 173.127/128/129     | CL 5                 |
| Class 6 (Poisonous Materials/<br>Infectious Substances)                        | 173.132/133/134     | CL 6                 |
| Class 7 (Radioactive Materials)  | 173.403             | CL 7                 |
| Class 8 (Corrosive Materials)  | 173.136/137         | CL 8                 |
| Class 9 (Miscellaneous Hazardous Materials)                                    | 173.140/141         | CL 9                 |
| Other Regulated Materials  | 173.144/145         | ORM                  |

**EXERCISE 3: SUGGESTED TABBING OF THE HMR** (Continued)

| <b>Subject</b>                              | <b>Reference</b> | <b>Suggested Tab</b> |
|---|------------------|----------------------|
| <b>Exceptions</b>                           |                  |                      |
| Class 2 (Gases)                             | 173.306/307      | CL 2 EXC             |
| Class 3 (Flammable/Combustible Liquids)     | 173.150          | CL 3 EXC             |
| Class 4 (Flammable Solids)                  | 173.151          | CL 4 EXC             |
| Class 5 (Oxidizers, Organic Peroxides)      | 173.152          | CL 5 EXC             |
| Div. 6.1 (Poisonous Materials)              | 173.153          | DIV 6.1 EXC          |
| Class 8 (Corrosive Materials)               | 173.154          | CL 8 EXC             |
| Class 9 (Miscellaneous Hazardous Materials) | 173.155          | CL 9 EXC             |
| Other Regulated Materials                   | 173.156          | ORM-D EXC            |
| <b>Carrier Requirements</b>                 |                  |                      |
| Rail  | PART 174         | RAIL                 |
| Aircraft                                    | PART 175         | AIR                  |
| Vessel                                      | PART 176         | VES                  |
| Highway                                     | PART 177         | HWY                  |
| <b>Packagings Specs</b>                     |                  |                      |
| Purpose and Scope                           | 178.1            | Scope                |
| Applicability & Responsibility              | 178.2            | App                  |
| Specs for Inner Receptacles                 | 178.33           | Inner                |
| Specs for Cylinders                         | 178.35           | Cyl                  |
| Specs for Portable Tanks                    | 178.245          | PT                   |
| Specs for Cargo Tanks                       |                  |                      |
| – MC331                                     | 178.337          | 331                  |
| – MC338                                     | 178.338          | 338                  |
| – DOT406                                    | 178.346          | 406                  |
| – DOT407                                    | 178.347          | 407                  |
| – DOT412                                    | 178.348          | 412                  |
| Pkgs for Class 7                            | 178.350          | RAM                  |
| NB Performance Oriented Pkgs.               | 178.500          | POP                  |
| Tests – NB Pkgs.                            | 178.600          | NBTest               |
| Intermediate Bulk Container Stds.           | 178.700          | IBCs                 |
| Testing of IBCs                             | 178.800          | IBCTest              |



## EXERCISE 4: FINDING A SPECIFIC SECTION

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### A. Locate the definition of a hazard class, for example: Class 1 – Explosives.

- Start by looking in §171.8
- § 171.8 refers you to § 173.50
- Use the reference numbers at the top of the HMR pages to locate “§ 173.50 Class 1 – definitions”
- Read the definition

### B. Locate a specific reference, such as “§ 172.201(a)(1)(iii)”

- Use the reference numbers at the top of the HMR pages to find the number closest to § 172.201.
- Follow the step-by-step process illustrated below:

#### § 172.201

1. Look at the top of the pages in 49 CFR for the bold number (§ 172.201). The first three numbers indicate the Part (172).

#### § 172.201 General Entries

(a) *Contents.* When a description of hazardous material is required to be included on a shipping paper, that description must conform to the following requirements:

(1) When a hazardous material and a material not subject to the requirements of this subchapter are described on the same shipping paper, the hazardous material description entries required by §172.202 and those additional entries that may be required by §172.203:

(i) Must be entered first, or

(ii) Must be entered in a color that clearly contrasts with any description on the shipping paper of a material not subject to the requirements of this subchapter, except that a description on a reproduction of a shipping paper may be highlighted, rather than printed, in a contrasting color (the provisions of this paragraph apply only to the basic description required by § 172.202(a) (1) and (2), and (3), or

(iii) Must be identified by the entry of an “X” placed before the proper shipping name in a column captioned “HM.” (The “X” may be replaced by “RQ” if appropriate.)

(2) The required shipping description on a shipping paper and all copies thereof used for transportation purposes, must be legible and printed (manually or mechanically) in English.

2. The title of § 172.201 is “General Entries.”
3. Paragraph – “(a)” the first paragraph under General Entries pertains to contents of the shipping paper. § 172.201(a)
4. Subparagraph – There are four subparagraphs under paragraph (a). § 172.201(a)(1)-(4)
5. Sub-subparagraph – § 172.201(a)(1) has three sub-subparagraphs: (i)-(iii).
6. Find “§ 172.201(a)(1)(iii)” and complete this sentence: “Must be identified by the entry of an \_\_\_\_\_ placed before the proper shipping name . . .”
7. ”X” is the correct answer.

## EXERCISE 5: COMMUNICATING THE HAZARD

The proper shipping name, hazard class or division, packing group, markings, labels, and placards communicate the hazards of a material. To locate the proper shipping name and transportation requirements of a hazardous material, turn to the Hazardous Materials Table (HMT) in Part 172. The Hazardous Materials Table is the backbone of the regulations.

Use the **table of contents** at the beginning of Part 172 to complete the exercise below.  
**Fill in the blanks.**

| Subpart | Heading                     | Section         |
|---------|-----------------------------|-----------------|
| A       | General                     | 172.1-172.3     |
| B       | Hazardous Materials Table*  | _____           |
| B       | _____                       | 172.102         |
| _____   | Shipping Papers             | 172.200-172.205 |
| D       | _____                       | 172.300-172.338 |
| E       | Labeling                    | 172.400- _____  |
| F       | Placarding                  | 172.500-172.560 |
| G       | Emergency _____ Information | 172.600-172.604 |

### APPENDICES

Appendix A, Table 1 and 2 to § 172.101– \_\_\_\_\_

Appendix B to § 172.101– \_\_\_\_\_

Appendix C to PART 172 – \_\_\_\_\_

\* includes: Appendix A – Hazardous Substances  
Appendix B – Marine Pollutants

## **FREQUENTLY USED REFERENCES**

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- Part 106**      **Rulemaking Procedures**
- Part 107**      **Hazardous Materials Program Procedures**  
(Exemptions, Preemption, Designation of Approval and Certification Agencies, Enforcement, and Registration)
- Part 171**      **General Information, Regulations, and Definitions**
- 171.8          Definitions and abbreviations
  - 171.9          Rules of construction
  - 171.11        Use of ICAO Technical Instructions
  - 171.12        Import and export shipments
  - 171.12a       Canadian shipments and packagings
  - 171.15/16     Hazardous material incidents - notify/report
- Part 172**      **Hazardous Materials Table, Special Provisions, Hazardous Materials Communications, Emergency Response Information, and Training Requirements**
- 172.1          Purpose and scope
  - 172.101       Hazardous Materials Table
  - 172.102       Special provisions
  - 172.200       Shipping papers – Applicability
  - 172.300       Marking – Applicability
  - 172.400       General labeling requirements
  - 172.500       Placarding – Applicability
  - 172.600       Emergency response information
  - 172.700       Training requirements
- Part 173**      **Shippers – General Requirements for Shipments and Packagings**
- 173.1          Purpose and scope
  - 173.2          Hazardous materials classes and index to definitions
  - 173.3          Packaging and exceptions
  - 173.4          Small quantity exceptions
  - 173.5          Agricultural operations
  - 173.6          Materials of trade exceptions
  - 173.21        Forbidden materials and packages
  - 173.22        Shipper’s responsibility
  - 173.24        General Requirements for Packagings and Packages
  - 173.24a       Additional requirements for non-bulk packagings and packages
  - 173.24b       Additional requirements for bulk packagings
  - 173.25        Authorized packages and overpacks
  - 173.27        General requirements for transportation by aircraft
  - 173.28        Reuse, reconditioning, and remanufacture of packagings
  - 173.29        Empty packagings
  - 173.30        Loading and unloading of transport vehicles
  - 173.301       General requirements for shipments of compressed gases in cylinders and spherical pressure vessels

## SPECIFIC HAZARD CLASSES

### References

- 173.50 Class 1 (Explosives)
- 173.115 Class 2 (Divisions 2.1, 2.2, & 2.3) (Gases)
- 173.120 Class 3 (Flammable liquids/Combustible liquids)
- 173.124 Class 4 (Divisions 4.1, 4.2, and 4.3)
  - Division 4.1 (Flammable Solid)
  - Division 4.2 (Spontaneously Combustible Material)
  - Division 4.3 (Dangerous When Wet)
- 173.127 Class 5, Division 5.1 (Oxidizers)
- 173.128 Class 5, Division 5.2 (Organic Peroxide)
- 173.132 Class 6, Division 6.1 (Poisonous Materials)
- 173.134 Class 6, Division 6.2 (Infectious Substances)
- 173.403 Class 7 (Radioactive Materials)
- 173.136 Class 8 (Corrosive Materials)
- 173.140 Class 9 (Miscellaneous Hazardous Materials)
- 173.144 Other Regulated Materials (ORM)

**Packing groups** are designated in Column 5 of the § 172.101 Table and indicate the degree of danger presented by the material. Packing groups are not assigned to all classes of materials. The shipper is responsible for determining the appropriate packing group.

|                   |        |               |
|-------------------|--------|---------------|
| Packing Group I   | PG I   | Great Danger  |
| Packing Group II  | PG II  | Medium Danger |
| Packing Group III | PG III | Minor Danger  |

If more than one packing group is indicated for an entry, the packing group for the hazardous material must be determined using the criteria found in Subpart D of Part 173.

**For example: Ketones, liquid, n.o.s.** is listed in the HMT as a PG I, II, and III material. The shipper must determine the packing group for the material by applying the criteria in § 173.121, Class 3 – Assignment of packing group.

| Packing Group | Flash Point            | Initial Boiling Point |
|---------------|------------------------|-----------------------|
| I             |                        | ≤35°C (95°F)          |
| II            | <23°C (73°F)           | >35°C (95°F)          |
| III           | ≥23°C, ≤60.5°C (141°F) | >35°C (95°F)          |

< = less than; ≤ = less than, or equal to; > = more than; ≥ = more than, or equal to

**Example of HMT, § 172.101**

|               |  | §172.101 Hazardous Materials Table |                        |                 |             |                            |                 |                      |           |                              |                          |                |                |  |
|---------------|--|------------------------------------|------------------------|-----------------|-------------|----------------------------|-----------------|----------------------|-----------|------------------------------|--------------------------|----------------|----------------|--|
|               |  | STEP 1 CLASSIFY                    |                        | STEP 4 LABELING |             | STEP 3 DETERMINE PACKAGING |                 | STEP 5 AIR/RAIL      |           | STEP 6 WATER                 |                          |                |                |  |
| STEP 2 SYMBOL | Hazardous materials descriptions and proper shipping names | Hazard class or Division           | Identification Numbers | PG              | Label Codes | Special provisions         |                 | Packaging (§173.***) |           |                              | Quantity limitations     |                | Vessel stowage |  |
| (1)           | (2)  | (3)                                | (4)                    | (5)             | (6)         | (7)                        | Exceptions (8A) | Non-bulk (8B)        | Bulk (8C) | Passenger aircraft/rail (9A) | Cargo aircraft only (9B) | Location (10A) | Other (10B)    |  |
|               | Sodium peroxide.....                                       | 5.1                                | UN1504                 | I               | 5.1.....    | A20, N34.....              | None....        | 211....              | None...   | Forbidden                    | 15 kg.....               | B              | 13, 75, 106    |  |
|               | Sodium peroxoborate, anhydrous                             | 5.1                                | UN3247                 | II              | 5.1.....    | .....                      | 152....         | 212....              | 240....   | 5 kg.....                    | 25 kg.....               | A              | 13, 25, 106    |  |
|               | Sodium Persulfate.....                                     | 5.1                                | UN1505                 | III             | 5.1.....    | A1.....                    | 152....         | 213....              | 240....   | 25 kg.....                   | 100 kg...                | A              | .....          |  |

| STEP   | TASK  | HMT COLUMN               | STEP | TASK                               | HMT COLUMN |
|--|---|--------------------------|------|------------------------------------|------------|
| 1  | Determine proper shipping name*<br>Hazard class or division<br>Identification number<br>Packing group (PG)                              | 2<br>3<br>4<br>5         | 4    | Determine labels                   | 6          |
| 2  | Determine symbol  | 1                        | 5    | Determine air/rail quantity limits | 9A & 9B    |
| 3  | Determine Packaging<br>Exceptions<br>Non-Bulk Packaging<br>Bulk Packaging<br>Determine if any special provisions for the material apply | 8<br>8A<br>8B<br>8C<br>7 | 6    | Determine water requirements       | 10A & 10B  |
| *Note: Check the Appendices. The material may also be a hazardous substance (Appendix A) or a marine pollutant (Appendix B). |   |                          |      |                                    |            |

## HAZARDOUS MATERIALS TABLE - SUMMARY

The process of complying (or determining compliance) with the HMR, always centers around the § 172.101 Hazardous Materials Table. **Review part 172, Subpart B, § 172.101(a)-(k).** A very brief description of this process follows:

- Step One: Identify the material by:**
- Proper Shipping Name (Col. 2)
  - Hazard Class or Division (Col. 3)
  - Identification Number (Col. 4)
  - Packing Group, (if appropriate) (Col. 5)

REMEMBER, ALWAYS CHECK THE APPENDICES TO THE HMT (172.101)

Appendix A – The hazardous material may also be a **hazardous substance**.

Appendix B – The hazardous material may also be a **marine pollutant**.

- Step Two: Check symbols** and determine if restrictions (+, A, D, G, I or W) apply. (Col. 1)

- Step Three: Determine Packaging** – For the material selected, determine the authorized packaging. (Col. 8A, 8B, 8C)

**Check Special Provisions** – For the material selected, determine if any Special Provisions apply. (Col. 7)

- Step Four: Label the package(s)** – For the material selected, determine the required hazard warning label(s). (Col. 6)

[Note: Marking (§ 172.300) and Placarding (§ 172.500), as required.]

- Step Five: Check Air or Rail Limitations** – For transportation by air and/or rail, determine packaging limits. (Col. 9A, 9B)

- Step Six: Check Water Limitations** – For transportation by water, determine vessel shipment requirements. (Col. 10A, 10B)

### Additional requirements

- 172.204 Shipper's certification
- 172.301/302 Package Marking
- 172.402 Additional Labeling
- 172.504 Placarding
- 172.602/604 Emergency Response Information and Telephone Number

## **HAZARDOUS MATERIALS TABLE – SUMMARY** (Continued)

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### **Appendix A: Hazardous Substances**

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1. The hazardous material is also a hazardous substance when:
  - the material is listed in Appendix A (HMT § 172.101),
  - concentration limits are exceeded,

**and**

  - the amount **in one package**, equals or exceeds the reportable quantity (RQ).

**Note:** Petroleum lubricants and fuel products are not considered hazardous substances.

2. Read the footnotes to Appendix A; the footnotes may affect the proper shipping name selection.

### **Appendix B: Marine Pollutants**

---

1. The hazardous material is also a marine pollutant when:
  - the material is listed in Appendix B (HMT § 172.101),

**and**

  - when in solution or mixture, the concentration by weight is:
    - 10% for material listed in Appendix B,

**or**

  - 1% for material identified as “severe marine pollutant” in Appendix B.
2. Requirements specific to marine pollutants:
  - apply to all Marine Pollutants transported by vessel

**and**

  - do not apply to non-bulk shipments by rail, air, or highway.

---

**TEST YOUR KNOWLEDGE OF THE HMR**


---

**A. Are You Subject to the HMR?**


---

- |  | <b>Yes</b>               | <b>No</b>                |
|--|--------------------------|--------------------------|
| 1. Do you prepare and offer and/or transport any hazardous material(s) by motor vehicle, rail car, aircraft or vessel? | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. Do you manufacture, repair or recondition containers for the transportation of hazardous materials?                 | <input type="checkbox"/> | <input type="checkbox"/> |

**B. Do You Understand the Scope of the HMR?**


---

- |   | <b>T</b>                 | <b>F</b>                 |
|---|--------------------------|--------------------------|
| 1. Industry standards have been incorporated into the hazardous materials regulations.  | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. Some words have different meanings when used in conjunction with the HMR.  | <input type="checkbox"/> | <input type="checkbox"/> |
| 3. Air shipments may be transported in accordance with the International Civil Aviation Organization (ICAO) Technical Instructions. | <input type="checkbox"/> | <input type="checkbox"/> |
| 4. Import shipments require certification prior to acceptance by the initial carrier in the US.                                     | <input type="checkbox"/> | <input type="checkbox"/> |
| 5. Shipments can move through the United States under Canadian regulations.   | <input type="checkbox"/> | <input type="checkbox"/> |
| 6. Hazardous materials incidents/spills may require immediate and/or written notification to the USDOT.                             | <input type="checkbox"/> | <input type="checkbox"/> |



## **TEST YOUR KNOWLEDGE OF THE HMR – ANSWERS**

---

### **A. Are You Subject to the HMR?**

---

If you answered **Yes** to question 1 and/or question 2, the Hazardous Materials Regulations apply to you. You must comply with all aspects of the HMR, including training of hazmat employees (see Subpart H, § 172.700.) You may also be required to register with and pay a fee to the USDOT (see Subpart G, § 107.601.)

**Recommendation:** Read §§ 171.1 and 171.2 of the HMR to determine how the regulations apply to you.

### **B. Do You Understand the Scope of the HMR?**

---

1. True  
Industry standards have been incorporated by reference and have the force of the law. See § 171.7.
2. True  
Some words do have different meanings when used in conjunction with the HMR. Become familiar with the definitions in § 171.8 and use the Glossary on page 18 of this document.
3. True  
Air shipments may be transported in accordance with the ICAO Technical Instructions. For more details read § 171.11.
4. True  
Import shipments require certification prior to acceptance by the initial carrier in the US. See § 171.12.
5. True  
Shipments prepared according to Canada's TDG regulations may enter and/or transit the United States. See § 171.12a.
6. True  
Hazardous materials incidents and/or spills meeting the conditions in 171.15 require notification to the USDOT. Please read the details in §§ 171.15 and 171.16.

## **RESOURCES FOR TRAINING AND ASSISTANCE**

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**THE OFFICE OF HAZARDOUS MATERIALS INITIATIVES AND TRAINING (OHMIT)** – The USDOT’s Pipeline and Hazardous Materials Safety Administration’s (PHMSA) OHMIT is responsible for the development and dissemination of hazmat training, technical assistance, and information to enhance compliance, enforcement uniformity and emergency preparedness.

- **HAZMAT SAFETY ASSISTANCE TEAM (HMSAT)** – The HMSAT was established to make industry aware of the regulatory requirements, to help businesses find the resources needed to comply with the HMR, and to provide technical assistance to the emergency response and planning community. Field staff are located in GA, NJ, TX, IL, and CA.

For more information:

**<http://hazmat.dot.gov>**

**Hazardous Materials  
Information Center**

**(800) 467-4922**  
(202) 366-4488

**U.S. Department of Transportation  
Pipeline and Hazardous Materials Safety Administration  
Office of Hazardous Materials Initiatives and Training, PHH-50  
Washington, DC 20590-0001**

**E-Mail: [Training@dot.gov](mailto:Training@dot.gov)  
Fax: (202) 366-7342  
Phone: (202) 366-2301**

## GLOSSARY

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### Acronyms and Common Abbreviations

|          |   |
|----------|---|
| AAR      | Association of American Railroads   |
| API      | American Petroleum Institute  |
| ASME     | American Society of Mechanical Engineers  |
| ATA      | American Trucking Associations, Inc.  |
| ATAA     | Air Transport Association of America  |
| B of E   | Bureau of Explosives (AAR)  |
| Btu      | British Thermal Unit  |
| C        | Celsius or Centigrade   |
| CAER     | Community Awareness and Emergency Response Program (CMA)                                  |
| CAS No.  | Chemical Abstract Service number  |
| CDG      | Carriage of Dangerous Goods Subcommittee  |
| CERCLA   | Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (Superfund) |
| CERT     | Council of Energy Resource Tribes   |
| CFR      | Code of Federal Regulations   |
| CGA      | Compressed Gas Association  |
| CHEMTREC | Chemical Transportation Emergency Center (CMA)  |
| CHLOREP  | The Chlorine Emergency Plan   |
| CHRIS    | Chemical Hazards Response Information System (USDOT/USCG)                                 |
| CMA      | Chemical Manufacturers Association  |
| COE      | Committee of Experts on the Transportation of Dangerous Goods (UN)                        |
| CTDG     | Canadian Transportation of Dangerous Goods  |
| CVSA     | Commercial Vehicle Safety Alliance  |
| DEA      | Drug Enforcement Administration (US)  |
| DOC      | Department of Commerce (US)   |
| DOD      | Department of Defense (US)  |
| DOE      | Department of Energy (US)   |
| DOJ      | Department of Justice (US)  |
| DOT      | Department of Transportation (US)   |
| EPA      | Environmental Protection Agency (US)  |
| FAA      | Federal Aviation Administration (USDOT)   |
| FEMA     | Federal Emergency Management Agency   |
| FHSA     | Federal Hazardous Substance Act   |
| FHWA     | Federal Highway Administration (USDOT)  |
| FIFRA    | Federal Insecticide, Fungicide, and Rodenticide Act                                       |
| FMCSR    | Federal Motor Carrier Safety Regulations (USDOT)  |
| FRA      | Federal Railroad Administration (USDOT)   |
| HM       | Hazardous Materials   |
| HAZMAT   | Hazardous Materials   |
| HMIS     | Hazardous Materials Information System (USDOT/PHMSA)                                      |

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**Acronyms and Common Abbreviations** (Continued)

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|            |  |
|------------|--|
| HMR        | Hazardous Materials Regulations                                      |
| HMT        | Hazardous Materials Table  |
| HMTA       | Hazardous Materials Transportation Act                               |
| HMTUSA     | Hazardous Materials Transportation Uniform Safety Act                |
| IAEA       | International Atomic Energy Agency                                   |
| IATA       | International Air Transport Association                              |
| IATA/DGR   | International Air Transport Association, Dangerous Goods Regulations |
| ICAO       | International Civil Aviation Organization                            |
| ICAO/TI    | International Civil Aviation Organization/Technical Instructions     |
| IFFA       | International Federation of Forwarding Agents                        |
| ID No.     | Identification Number  |
| IM         | Intermodal Portable Tank   |
| IME        | Institute of Makers of Explosives                                    |
| IMO        | International Maritime Organization                                  |
| IMO/IMDG   | International Maritime Dangerous Goods Code                          |
| INTEREC    | International Regulations Committee (HMAC)                           |
| LEPC       | Local Emergency Planning Committee                                   |
| Ltd. Qty.  | Limited Quantity   |
| MAWP       | Maximum Allowable Working Pressure                                   |
| MCSAP      | Motor Carrier Safety Assistance Program (USDOT/FHWA)                 |
| MOU        | Memorandum of Understanding  |
| MRHT       | Marked Rated Holding Time  |
| MSDS       | Material Safety Data Sheet   |
| NA         | North America  |
| NAERG      | North American Emergency Response Guidebook                          |
| NASTTPO    | National Association of SARA Title III Program Officers              |
| NCITD      | National Council on International Trade Documentation                |
| NCCEM      | National Coordination Council of Emergency Management                |
| NCP        | National Contingency Plan  |
| NEMA       | National Emergency Management Association                            |
| NESHAP     | National Emissions Standards for Hazardous Air Pollutants            |
| NFPA       | National Fire Protection Association                                 |
| NIOSH      | National Institute of Occupational Safety and Health                 |
| NMFC       | National Motor Freight Classification                                |
| NOAA       | National Oceanic and Atmospheric Administration                      |
| N.O.I.     | Not Otherwise Indexed  |
| N.O.I.B.N. | Not Otherwise Indexed by Name  |
| N.O.S.     | Not Otherwise Specified  |
| NPGA       | National Propane Gas Association                                     |
| NRC        | National Response Center (USDOT/USCG)                                |
| NRT        | National Response Team   |
| NSWMA      | National Solid Waste Management Association                          |

**Acronyms and Common Abbreviations** (Continued)

---

|             |  |
|-------------|--|
| NTTC        | National Tank Truck Carriers   |
| NVOCC       | Non-Vessel Operating Common Carrier                                  |
| OHMIT       | Office of Hazardous Materials Initiatives and Training (USDOT/PHMSA) |
| OHMS        | Office of Hazardous Materials Safety (USDOT/PHMSA)                   |
| OIC         | Officer in Charge  |
| OPA         | Oil Pollution Act (1990)   |
| ORANGE BOOK | UN Recommendations on Transport of Dangerous Goods                   |
| ORM         | Other Regulated Materials  |
| OSHA        | Occupational Safety and Health Administration                        |
| OWTT        | One Way Travel Time  |
| PG          | Packing Group  |
| PHMSA       | Pipeline and Hazardous Materials Safety Administration               |
| PIH         | Poison-Inhalation Hazard   |
| PL          | Public Law   |
| POP         | Performance-Oriented Packaging                                       |
| P.s.i.      | Pounds per square inch   |
| P.s.i.a.    | Pounds per square inch absolute                                      |
| P.s.i.g.    | Pounds per square inch gauge   |
| QT          | Quenched and Tempered  |
| RAM         | Radioactive Materials  |
| RCRA        | Resource Conservation and Recovery Act (1980)                        |
| RL          | Regulated Limit (Canadian equivalent to RQ)                          |
| RQ          | Reportable Quantity  |
| SARA        | Superfund Amendments and Reauthorization Act of 1986                 |
| SERC        | State Emergency Response Commission                                  |
| SCF         | Standard Cubic Foot  |
| STC         | Single Trip Container  |
| TC          | Transport Canada   |
| TDG         | Transportation of Dangerous Goods (Canada)                           |
| TI          | Transport Index  |
| TIH         | Toxic Inhalation Hazard  |
| Title III   | “Emergency Planning and Community Right-to-Know”<br>section of SARA  |
| TOFC        | Trailer-On-Flatcar   |
| TSCA        | Toxic Substance and Control Act                                      |
| TSI         | Transportation Safety Institute (USDOT/RITA)                         |
| TTMA        | Truck Trailer Manufacturers Association                              |
| UN          | United Nations   |
| UFC         | Uniform Freight Classification                                       |
| UHWM        | Uniform Hazardous Waste Manifest                                     |
| USCG        | United States Coast Guard  |
| VNTSC       | Volpe National Transportation Systems Center (USDOT/RITA)            |

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## **Hazardous Materials Transportation Terms**

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**NOTE:** See 49 CFR § 171.8 for in-depth definitions

|                                       |   |
|---------------------------------------|---|
| <b>Bulk Packaging</b>                 | A packaging (transport vehicle or freight container) in which hazardous materials are loaded with no intermediate form of containment, when the internal volume is greater than: <ol style="list-style-type: none"> <li>(1) 450 liters (119 gallons) for a liquid;</li> <li>(2) 400 kilograms (882 pounds) net mass for a solid; or</li> <li>(3) 454 kilograms (1,000 pounds) water capacity for a gas.</li> </ol> <p>Note: A bulk packaging is <b>not</b> a vessel or barge.</p> |
| <b>Cargo</b>                          | Product, including its packaging.   |
| <b>Cargo Tank</b>                     | A bulk packaging that is loaded or unloaded without being removed from the motor vehicle. (The tank may or may not be permanently attached to the motor vehicle).   |
| <b>Chart 12</b>                       | DOT's Hazardous Materials Marking, Labeling and Placarding Guide.   |
| <b>Compatibility</b>                  | Relates to possible interactions between a material and <ol style="list-style-type: none"> <li>(1) its container, or</li> <li>(2) other products that may be loaded or transported together.</li> </ol>   |
| <b>Compressed Gas</b>                 | Material or mixture meeting criteria in § 173.115(b), (absolute pressure of 280 kPa [41 psia] at 20°C [68° F] or greater).  |
| <b>Compound</b>                       | Two or more ingredients that are chemically united.   |
| <b>Consist</b>                        | Sequentially lists the location of each rail car in a train. May serve as the shipping paper if the consist has all the information required by the USDOT.  |
| <b>Dangerous Goods</b>                | International term for hazardous materials.   |
| <b>Documentation</b>                  | Completed forms required to accompany hazardous materials. For example, shipping papers, certificates, emergency response information, or manifests.  |
| <b>Emergency Response Information</b> | Information that can be used in the mitigation of an incident involving hazardous materials.  |
| <b>Etiologic Agent</b>                | See Infectious Substance.   |
| <b>Exceptions</b>                     | Relief from certain HM regulations; applies to everyone.  |
| <b>Exemptions</b>                     | Specific USDOT-written relief from certain HM Regulations, for shippers, carriers, or manufacturers; 2 year limit but may be renewed. (Part 107, Subpart B of 49 CFR)   |

**Hazardous Materials Transportation Terms** (continued)

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|                                 |   |
|---------------------------------|---|
| <b>Flash Point</b>              | The minimum temperature at which a substance gives off flammable vapor(s). Substance will ignite when coming in contact with a spark or flame.  |
| <b>Forbidden</b>                | A material that is prohibited from being offered or accepted for transportation. This prohibition does not apply if these materials are: <ul style="list-style-type: none"><li>• diluted, stabilized, or incorporated into devices</li></ul> <b>and</b> <ul style="list-style-type: none"><li>• classed in accordance with Part 173. (See § 172.101(d)(1)).</li></ul>                       |
| <b>Generator</b>                | An EPA term used for a hazardous waste producer and/or shipper.   |
| <b>Grants</b>                   | Planning and training grants to deal with hazardous materials emergencies.  |
| <b>Gross Weight</b>             | Total weight of packaging, including its contents.  |
| <b>Hazard Class</b>             | A group of hazardous materials that share dangerous characteristics. The USDOT has identified nine hazard classes based on the dangers posed in transportation.   |
| <b>Hazard Division</b>          | A means of sub-dividing similar hazardous materials which require different hazard communications.  |
| <b>Hazardous Material</b>       | A substance or material capable of posing an unreasonable risk to health, safety, or property when transported in commerce.   |
| <b>Hazardous Substance</b>      | A material listed in Appendix A to § 172.101 <b>and</b> the quantity in one package equals or exceeds the reportable quantity (RQ). Material may be in solution or mixture. This definition <u>does not</u> apply to petroleum (lubricants or fuel) products.<br><i>Note: For radionuclides, refer to Table 2 of Appendix A to the HMT.</i>   |
| <b>Hazardous Waste</b>          | Any material that is subject to the Hazardous Waste Manifest requirements of the EPA. Refer to 40 CFR Part 262.   |
| <b>Hazardous Waste Manifest</b> | A specific shipping document required by the USDOT and the EPA for hazardous waste shipments. Also referred to as the Uniform Hazardous Waste Manifest (UHWM).<br>If all USDOT requirements [i.e., the basic description (proper shipping name, hazard class/division, ID No., and packing group) are entered on the UHWM, the manifest may be used as a shipping paper. (49 CFR § 172.205) |

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**Hazardous Materials Transportation Terms** (continued)

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|                                       |  |
|---------------------------------------|--|
| <b>Identification Number (ID No.)</b> | The UN or NA “four-digit number” assigned to hazardous materials, i.e., UN 1203. ID numbers are listed in Col. 4 of the HMT. Used for identification and emergency response.   |
| <b>In-association-with</b>            | Refers to the placement of required additional entries on the shipping paper. Usually placed after the complete description for a hazardous material. May be any format, as long as it is clearly part of the entry.   |
| <b>Incident</b>                       | Unintentional release of hazardous material(s).  |
| <b>Infectious Substance</b>           | Living microorganism or its toxin which may cause severe, disabling or fatal disease. Term synonymous with Etiologic Agent. (49 CFR, § 173.134)  |
| <b>Irritating Material</b>            | A liquid or solid substance. Upon contact with fire or air, the material gives off dangerous or intensely irritating fumes.<br><b>Irritating Material does not include any poisonous material.</b>   |
| <b>Labels</b>                         | Hazard class identifiers required on hazardous materials packaging; 100 mm diamond shaped (square-on-point); identify hazard class by symbol, color and sometimes, by name.  |
| <b>Limited Quantity (Ltd. Qty.)</b>   | The amount of material for which there is a specific labeling or packaging exception.  |
| <b>Marine Pollutant</b>               | Hazardous material which is: <ul style="list-style-type: none"> <li>• listed in <b>Appendix B</b> to § 172.101 and,</li> <li>• when in a solution or mixture of one or more marine pollutants, is packaged in a concentration (<i>for materials listed in Appendix B</i>) which equals or exceeds: <ol style="list-style-type: none"> <li>(1) 10% by weight of the solution or mixture, or</li> <li>(2) 1% by weight of the solution or mixture <i>for materials that are identified as severe marine pollutants.</i></li> </ol> </li> </ul> |
| <b>Markings</b>                       | Information required to be placed on the outside of the shipping container; may include one or more of the following: <ul style="list-style-type: none"> <li>• proper shipping name;</li> <li>• identification number;</li> <li>• UN standard packaging marks;</li> <li>• instructions/caution.</li> </ul>   |
| <b>Mitigate</b>                       | <i>To make less severe.</i> Measures to prevent, or lessen the results of a release of hazardous materials.  |
| <b>Mixture</b>                        | A material composed of one or more compounds.  |



**Hazardous Materials Transportation Terms** (continued)

---

|                                       |   |
|---------------------------------------|---|
| <b>Motor Vehicle Common Carrier</b>   | A motor carrier that transports property for hire.  |
| <b>Motor Vehicle Contract Carrier</b> | A motor carrier that transports only property for those shippers with whom they have a contractual agreement.   |
| <b>Motor Vehicle Private Carrier</b>  | A motor carrier that transports property of which it is owner, lessee, or bailee. Such transportation is for the purpose of sale, lease, or rent.   |
| <b>Multiple Hazards</b>               | A material meeting the definition of more than one hazard class/division. The material must be classed according to its position on the Precedence of Hazard Table in 49 CFR, § 173.2a.   |
| <b>Net Weight</b>                     | A measure of weight referring only to the contents of a package. It does not include the weight of any packaging material.  |
| <b>Non-Bulk Packaging</b>             | A packaging which has an internal volume equal to or less than:<br>(1) 450 liters (119 gallons) for a liquid; or<br>(2) 400 kilograms (882 pounds) net mass for a solid; or<br>(3) 454 kilograms (1,000 pounds) water capacity for a gas. |
| <b>Overpack</b>                       | An enclosure that is used by a single consignor to provide protection or convenience in the handling of a package. It may consolidate two or more packages.   |
| <b>Package</b>                        | Packaging <b>plus</b> its contents.   |
| <b>Packaging</b>                      | A receptacle and any other components or materials used to provide containment. The packaging must perform its containment function in conformance with the HMR.  |
| <b>Packaging Exception</b>            | Provides general relief from certain specification packaging requirements of the HMR.   |
| <b>Packaging Exemption</b>            | Specific written administrative relief granted by PHMSA from certain requirements of the HMR. Packaging must provide equivalent levels of safety.   |
| <b>Packing Group</b>                  | Assigned based on the degree of danger presented by the hazardous material:<br>PG I – Great Danger<br>PG II – Medium Danger<br>PG III – Minor Danger  |
| <b>Performance-Oriented Packaging</b> | Container and any other components or materials necessary for the packaging to perform its containment function. Specific testing procedures must be performed and so marked on the packaging.  |

**Hazardous Materials Transportation Terms** (continued)

|                                     |   |
|-------------------------------------|---|
| <b>Person</b>                       | Any of the following: <ul style="list-style-type: none"> <li>• Individual</li> <li>• Firm</li> <li>• Co-Partner</li> <li>• Corporation</li> <li>• Company</li> <li>• Association</li> <li>• Joint-stock association (including any trustee, receiver, assignee, or similar representative thereof), or</li> <li>• Government or Indian tribe, (agency or instrumentality of any government or Indian Tribe).</li> </ul> |
| <b>Placard</b>                      | Hazard class identifiers required on transport vehicles or freight containers; placards are 273 mm (10.8 inches) diamond shaped (square-on-point) and hazard class color-coded. May require numbers for identification and emergency response. (Part 172, Subpart F)  |
| <b>Placarding</b>                   | Process of determining and applying correct placards. (Part 172, Subpart F)   |
| <b>Portable Tank</b>                | A bulk packaging designed to be loaded on or temporarily attached to a transport vehicle or vessel.   |
| <b>Preemption</b>                   | State or local requirements that conflict with the Federal hazardous materials transportation law may be set aside by the Federal Government. (See Subpart C – Preemption, § 107.201.)  |
| <b>Primary Label</b>                | Label for primary hazard of the material. Class number in lower part of label is required. (49 CFR § 172.402)   |
| <b>Proper Shipping Name</b>         | Name listed in Roman type in the HMT, § 172.101. <i>Italicized</i> names are not proper shipping names.   |
| <b>Radioactive Materials</b>        | Materials having a specific activity of greater than 0.002 microcuries per gram. (49 CFR § 173.403)   |
| <b>Registration</b>                 | A person who transports or offers for transportation certain hazardous materials is required to register and pay a fee to the USDOT. (See § 107.601.)   |
| <b>Registration for Cargo Tanks</b> | Procedure for persons who manufacture, assemble, inspect, test, certify or repair a cargo tank or cargo tank motor vehicle. (See § 107.501.)  |
| <b>Reportable Quantity (RQ)</b>     | RQ means the quantity specified in Column 2 of Appendix A to § 172.101 for any material identified in Column 1 of the appendix.   |

**Hazardous Materials Transportation Terms** (continued)

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|                                   |  |
|-----------------------------------|--|
| <b>Residue</b>                    | The hazardous materials remaining in a packaging, tank car, etc. after unloading.  |
| <b>Shipping Papers</b>            | Manifest, bill of lading, shipping order, or document to accompany hazardous materials shipments. Must contain information required by USDOT. (See Part 172, Subpart C.)         |
| <b>Solution</b>                   | Homogenous liquid mixture of two (2) or more chemical compounds. The mixture will not separate during transportation.  |
| <b>Specification Packaging</b>    | Packaging specifically designed for a particular class or classes of hazardous material. Packaging identified by UN standard packaging and/or USDOT specification number.        |
| <b>State Variations</b>           | Listed in the ICAO Technical Instructions; governmental options differing from the ICAO Technical Instructions.  |
| <b>Strong Outside Container</b>   | Outermost enclosure for protecting inner packages and preventing unintentional release of contents during transportation.  |
| <b>Subsidiary Labels/Placards</b> | Identify the subsidiary or secondary hazard(s). Class number must <b>not</b> be shown on the label/placard. (See §§ 172.402, and 172.519(b)(4))                                  |
| <b>Technical Name</b>             | A recognized chemical name currently used in scientific and technical handbooks, journals and texts. Trade names may not be used as technical names, unless they are in the HMT. |
| <b>Transport Index</b>            | The dimensionless number on the label of a radioactive materials package. Designates the degree of control necessary during transportation.                                      |
| <b>Unit Load Device</b>           | Any type of freight container, aircraft container, aircraft pallet with a net, or aircraft pallet with a net over an igloo.  |

**Notes**

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**Notes**

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For information about other  
**Hazmat Publications**

Visit our web site:

**<http://hazmat.dot.gov>**

**Or write:**

U.S. Department of Transportation  
Pipeline and Hazardous Materials Safety Administration  
1200 New Jersey Avenue, SE, PHH-50  
Washington, DC 20590-0001

Fax: (202)366-7342

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