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DEPARTMENT OF TRANSPORTATION

Hazardous Materials Regulations Board

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Hazard Information System

Advanced Notice of Proposed Rule Making

DEPARTMENT OF TRANSPORTATION

Hazardous Materials Regulations Board

[49 CFR Part 172]

[Docket No. HM-103]

HAZARD INFORMATION SYSTEM

Advance Notice of Proposed Rule Making

The Hazardous Materials Regulations Board is considering the adoption of regulations that would provide for more complete identification of the hazards of materials in transportation. Included in this consideration is some modification of the present hazard communications requirements and their relocation in one part of the regulations.

The need for improved hazard communications has been the subject of considerable controversy and debate during recent years. It has been pointed out that the communications requirements of the regulations (1) generally are not addressed to more than one hazard; (2) do not in all instances require disclosure of the presence of hazardous materials in transport vehicles; (3) are not addressed to the different hazard characteristics of a mixed load of hazardous materials; (4) do not provide sufficient information whereby fire fighting and other emergency response personnel can acquire adequate immediate information to handle emergency situations; and (5) are inconsistent in their application to the different modes of transport. The Board believes there are deficiencies in this area and that certain changes are necessary to provide for the adequate communication of hazards for materials in transportation. However, the Board also believes that it must consider the complexity of any regulations it adopts in this area and what is to be imposed on the personnel who will be required to follow them.

Considerable time has been spent on the development of this proposed system thereby causing a delay of final rules resulting from the proposals in Docket No. HM-8. The Board believes that it is time to place this proposal before the public for consideration and constructive comment in advance of a complete notice of proposed rule making. The complete notice would encompass all of the proposed changes and modifications necessary to implement this system which the Board has identified as the Department of Transportation Hazard Information System.

The Hazard Information System encompasses all hazardous materials regulated by the Department of Transportation except those specifically exempted, such as small quantities of certain classes of materials. Each shipping paper, label, and placard would, in addition to the classification identification bear a hazard information number consisting of two digits. The first digit represents a base hazard and, with few exceptions, would be the same as the United Nations class number. The second digit will convey (1) there are no additional significant hazards, or (2) that a material has one or more additional significant hazards. Associated with each of the 59 hazard information numbers designated so far is a hazard information action "card." Each card contains information on potential hazards of a material and, in the event of an incident, recommended action for the handling of the material. With certain exceptions, the cards have been developed on a generic basis so that different materials having similar characteristics would be covered by one set of instructions. The system is designed so that, in most instances, shippers may determine the hazard information numbers of their materials without "preclearance" by the Department. It is estimated that the exceptions to this procedure will involve only a small percentage of the different materials offered for transportation.

The Board is proposing to consolidate all of the hazard communications regulations into Part 172 except those requirements peculiar to a mode of transportation. Significant changes being proposed are as follows:

1. Assignment of hazard information number, where possible, to each hazardous material listed in a new § 172.101 (not contained herein);

2. Designation of each label by class wording, rather than color, in the list of hazardous materials and elsewhere in the regulations;

3. A requirement that the description of a hazardous material be readily identifiable on shipping papers;

4. A requirement that hazardous materials be listed first when other materials not subject to the regulations are described on the same shipping paper;

5. A requirement that the hazard information number for a material be placed immediately after the classification identification on a shipping paper;

6. A proviso that the class name need not be reentered when it is the same as the shipping name, except for the entry "n.o.s.";

7. A clarification of the requirements relating to the signing of certificates;

8. A requirement that a hazard information number be placed on labels in the hazard information block specified;

9. A table specifying the placarding requirements for highway and rail transport vehicles, based on hazard information numbers;

10. A provision for "Dangerous" placards in place of specific identification placards for not more than 1,000 pounds of certain materials;

11. Requirements pertaining to the giving and affixing of placards with alternatives provided to allow flexibility in the arrangements made between shippers and carriers;

12. A distinction between large packages and small packages to provide a break point where labeling stops and placarding begins;

13. A clarification of the placarding requirements for "Empty" cargo tank motor vehicles and a special proviso f gasoline and fuel oil;

14. Detailed requirements and pro sions for the attaching of placards t transport vehicles;

15. Specifications for new placards;

16. Specifications for new labels;

17. The method for derivation of a hazard information number when it is not assigned in the list of hazardous materials; and

18. Proposed definitions for hazard characteristics of materials to be used for derivation of hazard information numbers.

Aside from the basic concept of the use of a two-digit number to convey information on one or more hazards of a material, the Board believes the most significant concern of persons who would be affected by these proposed requirements in placarding. Except for those materials which would be exempt from these requirements, this proposal is designed to provide for the disclosure of the presence of a hazardous material in a transport vehicle regardless of quantity. Specific placards identifying certain types of hazardous materials would be required regardless of quantity. For other materials, specific identification of hazards would not be required until a single consignor offers for transportation (or transports as a private carrier) more than 1,000 pounds of a material bearing the same hazard information number in one vehicle.

Subpart F of Part 172 contains proposed revisions pertaining to placa ing. A placarding table is specified § 172.502. Column A of the table specifies the list of hazard information numbers, column B, specifies the placard for each hazard information number, and column C contains the exceptions to specific placarding when another required placard would bear a number that would provide the same hazard information for that material as for another material having similar but also additional and more significant characteristics. Paragraph (b) of that section provides for an optional "Dangerous" placard for certain materials bearing the same hazard information number received from one consignor and not exceeding 1,000 pounds. There is no requirement that a driver must add up the amount of material bearing the same hazard information number when received from different consignors in LTL motor carrier operations. This will substantially reduce the burden on pickup and delivery drivers. Subparagraph (2) of that paragraph lists hazard information numbers that would require specific placards regardless of the amount of material offered for transportation unless excepted by other placards in accordance with column C of the placarding table. This would include certain highly or extremely toxic compressed gases, water reactive materials, organ peroxides of high sensitivity or requir refrigeration, and certain radioact materials, extremely toxic liquids solids and such materials that are highly toxic by skin absorption. The Board believes that the hazards of these materials are of such significance as to require

cific identification regardless of the ntity contained in a transport vehicle.

Section 172.503 contains proposed requirements applicable to the giving and affixing of placards. This section is designed to set forth the prime responsibility for the giving of placards while providing for flexibility in the arrangements made between shippers and carriers. No distinction is made between rail and highway vehicles in these proposed requirements. The Board believes that the only practicable method to accomplish the specific placarding in this proposal is for the shipper to supply the four placards pertaining to his material. The shipper either knows the characteristics of the material he offers for transportation or has access to the person who manufactured it to obtain information concerning its characteristics. It does not appear appropriate to require rail and highway carriers to carry 59 different sets of placards in anticipation of receiving a hazardous materials shipment. However, in the case of dedicated equipment used repeatedly for the same service, such as a cargo tank used to transport gasoline, it would not be necessary for the shipper to provide placards for each trip. The proposal also recognizes the optional "Dangerous" placard which could be provided as a permanent type of device by motor carriers and which could be used for many LTL shipments of less than 1,000 pounds both prior to and owing terminal transfer operations.

new series of placards is being proed which will be the same in their application for shipments by rail and highway. They also would be affixed to portable tanks, large packages, and reusable transport containers, Each placard would communicate through its color, shape, symbol, keyword, and hazard information number. While the letters on the placards are smaller than those presently prescribed for motor vehicles, the placards will be visible from a greater distance due to their form and presentation and could eventually become a "trademark" identifying vehicles containing hazardous materials much the same as the diamond shaped label is for smaller packages today.

A number of different methods for attachment of placards to vehicles are set forth in this proposal. These methods were drawn mainly from the existing regulations for the attachment of placards to rail cars. The Board is particularly interested in comments addressed to these various methods and in any alternative suggestions. The placard holder specified in Appendix A to Subpart F appears to be a practical means for affixing placards to vehicles, particularly vehicles frequently used to transport different materials. The proposal requires placards to be affixed to each end and side of a rail or highway nsport vehicle as is required at pres-

A semitrailer by definition is a transt vehicle and no provision has been made in this proposal to permit the attachment of placards to truck tractors. Since it is proposed to require that placards be maintained on semitrailers at all times they contain hazardous materials subject to placarding, the Board believes the four placards should be displayed on them to preclude violation of the regulations when they are dropped at pickup or delivery points. Also, it is contemplated that a placarded semitrailer will be considered sufficient for the placarding of a railcar when trailer-on-flatcar operations are involved. The Board is aware that the effectiveness of a placard could be somewhat reduced when it is affixed to the front end of a semitrailer and partially obscured by the towing vehicle. Specific comments concerning the merits of one method over the other are requested.

The labels proposed in Subpart E are essentially those proposed in Docket No. HM-8 with the exception that a hazard information block, which would contain the hazard information number pertaining to the material in the package, has been added at the bottom of the label. Also, it is proposed to identify all labels by key words rather than colors to prevent confusion.

The Board is proposing to specify the colors to be used on labels and placards. Color specifications are proposed in Appendix A to Part 172 of this proposal. Each color and tolerance is identified in the Munsell Notation System. This will permit a label and placard manufacturer to use any suitable color base to make the colors for the labels and placards providing the resulting colors match the specified standard or are within the tolerances specified for each standard. Color standards have been identified in Munsell notations for several years in such standards as:

1. USAS Z53.1, "USA Standard Safety Color Code for Marking Physical Hazards,"
2. USAS Z35.1, "USA Standard Specifications for Accident Prevention Signs," and
3. USAS Z35.2, "USA Standard Specifications for Accident Prevention Tags."

In addition to the Munsell notations, chips for each color standard and allowable tolerances will be made available to facilitate production of labels and placards with specified colors.

Subpart G to Part 172 of this proposal covers the procedure for derivation of hazard information numbers. A step-by-step approach is set forth in § 172.602 which will provide for derivation of hazard information numbers for most materials shipped. The exceptions to the derivation procedure involve those materials that the Board believes should be reviewed by the Department prior to designation of their hazard information numbers. As mentioned earlier, the hazard information numbers will be designated in the list of hazardous materials for those materials listed by name. Many mixtures and "n.o.s." materials will not have hazard information numbers assigned them in the list.

Concerning the proposed definitions in Appendices A and B to Subpart G, the Board was faced with setting forth either specific definition criteria for the characteristics of materials, knowing that some of the proposed definitions could be controversial, or setting forth criteria lacking in sufficiently specific definition that could lead to inconsistent derivation of hazard information numbers. Since classification projects are in progress concerning these definitions and will be handled by separate rule making, the Board believes the better course is to propose, so far as practicable, tentative definitions for derivation purposes during the interim. Also, consideration is being given to a requirement (not proposed herein) that shippers notify the Department of their assignment of a hazard information number to a material on an after-the-fact basis in order to maintain an overview of consistency in the derivation of hazard information numbers. It is not contemplated that such a requirement would be on a preshipment basis.

The 59 hazard information cards presented at the end of this publication were developed with the assistance of knowledgeable persons both within and outside of the Department. The Board wishes to express its appreciation to those persons who expended time and effort in this endeavor. The cards are not presented in their final form, but are presented to indicate the style of their presentation and the kind of information that would be provided in relation to the hazard information numbers assigned different materials. It is planned to combine the cards into a booklet or manual that would be distributed through the Government Printing Office and possibly by any interested organization. It has been decided that the cards presented with this publication would not be suitable for use in the marine environment and that a separate publication would have to be prepared for use aboard vessels. The Board is interested in receiving comments concerning the content and format of the cards that will lead to their improvement. One factor that must be recognized is that a card must contain information that is applicable to all materials assigned the same number as that of the card. This is the principal difficulty with this system or any system that is generic in nature and addressed to thousands of different materials.

The information and instructions given on the hazard information cards should be considered advisory in nature. The intent of the cards is to give firefighters and other emergency personnel sufficient information to enable them to make informed judgments in the handling of emergency situations during their initial phases. The cards are not intended to perform the same service that could be provided by a centralized information agency having ready access to large amounts of data. The Board wishes to emphasize that, by implementation of this system, it does not intend to usurp the prerogatives of any jurisdiction in its handling of emergency situations.

This proposal does not include Subparts A, B, or D to Part 172. They will be included in a future notice of proposed rule making under this docket. Subpart A will contain general regulations pertaining to the application of Part 172; Subpart B, the list of hazardous materials; and Subpart D, the package marking

requirements. To permit a review of contemplated assignments of hazard information numbers to materials, a sample list illustrating the use of the definitions in Appendices A and B to Subpart G of Part 172 in assigning numbers is provided as follows:

30—Acetone.
67—Acetone cyanohydrin.
36—Acrolein, inhibited.
60—Aldrin mixtures, liquid, with more than 60 percent aldrin.
32—Allyl alcohol.
21—Ammonia, anhydrous.
54—Ammonium perchlorate.
85—Aniline oil, liquid.
20—Argon.
62—Arsenic chloride (arsenous), liquid.
60—Arsenic pentoxide, solid.
30—Benzene (benzol).
59—Benzoyl peroxide.
60—Calcium arsenate, solid.
26—Chlorine.
53—Chlorine trifluoride.
05—Chloroacetophenone, gas, liquid or solid.
82—Chlorosulfonic acid.
20—Dichlorodifluoromethane.
57—Dicumyl peroxide, solid.
83—Diethyl dichlorosilane.
67—Dimethyl sulfate.
23—Ethylene.
35—Ethylene oxide.
19—Explosive mine.
15—Explosive power device, class B.
11—Explosive rivets.
19—Explosive torpedo.
27—Fluorine.
80—Formic acid.
30—Gasoline (including casing head and natural).
64—Hexaethyl tetraphosphate, liquid.
32—Hydrazine, anhydrous.
29—Hydrocyanic acid, liquefied.
29—Hydrogen sulfide.
23—Liquefied petroleum gas.
53—Nitrogen tetroxide, liquid.
22—Oxygen, liquefied.
64—Parathion, liquid.
57—Peracetic acid.
54—Potassium perchlorate.
50—Potassium permanganate.
46—Sodium aluminum hydride.
60—Sodium cyanide, solid.
46—Sodium, metallic.
26—Sulfur dioxide.
84—Sulfuric acid (oil of vitriol).
64—Tetraethyl dithio pyrophosphate, liquid.
64—Tetraethyl lead, liquid.
81—Thionyl chloride.
23—Trifluorochloroethylene.
23—Vinyl chloride.

The list above also will permit association of the proposed hazard information cards with different hazardous materials, and serves to point out one other advantage of the system. Note that Acetone has the hazard information number 30, and Acetone cyanohydrin, 67. Here we have two materials that would require different kinds of response if spilled in an accident. It is not difficult to visualize that the word cyanohydrin could be lost in communications; however, incomplete communications of this type could be discovered if hazard information numbers are communicated with the names of materials. When verbal communications via radio, telephone, or other means are necessary to obtain further assistance beyond that provided by a hazard information card, the number will serve as an authenticator of the word being transmitted.

In considertion of the foregoing, the Hazardous Materials Regulations Board is considering a complete revision of Part 172, portions of which are proposed as follows:

PART 172—LIST OF HAZARDOUS MATERIALS AND HAZARDOUS MATERIALS COMMUNICATIONS REGULATIONS

Subpart C—Shipping Papers

§ 172.200 General requirements.

(a) A person who offers for transportation or a private carrier who transports a hazardous material shall describe the material on a shipping paper in the manner prescribed in this subpart.

(b) When a hazardous material and a material not classed as a hazardous material are described on the same shipping paper, the hazardous material must be described first.

(c) The shipping paper may contain other shipping information not inconsistent with the required description for a hazardous material. The required description must be readily identifiable and must be emphasized when other shipping information is included. Three recommended methods of making the description of the hazardous material identifiable and giving it emphasis are:

(1) Placing other descriptions and information within parenthesis (see Uniform Freight Classification Rule 2),

(2) Use of capital letters, and

(3) Underscoring.

(d) The required shipping description may not contain any abbreviation unless it is specifically authorized in this subpart.

§ 172.201 Description of hazardous materials on shipping papers.

(a) The description of a hazardous material on the shipping paper must include:

(1) The shipping name prescribed for the material in column (1) of § 172.101.

(2) The classification prescribed for the material in column (2) of § 172.101 except when the words of the shipping name are identical with the words of the classification (excluding the entry "n.o.s.").

(3) The hazard information number prescribed for the material in column (2) of § 172.101 or derived in accordance with § 172.602.

(4) The total quantity (by weight, volume, or as otherwise appropriate) of hazardous material covered by the description.

(b) The terms of the description specified in paragraphs (a) (1), (2), and (3) of this section must be shown in this sequence and may not be abbreviated. For example: Gasoline, Flammable Liquid 30, or Flammable Liquid, n.o.s. 30.

(c) The total quantity of material covered by one description must appear immediately before or after, or both before and after, the description. Abbreviations may be used to specify the type of container and weight or volume. For example: 40 Cyl. Nitrogen, Nonflammable Gas 20—8000#.

(d) The hazard information numb must be clearly separated from any ot numbers adjacent to it by either a da a vertical (column) line, or other effective means.

§ 172.202 Shipper's certificate.

(a) A person who offers a hazardous material for transportation shall certify in writing on the shipping paper containing the required shipping description that the material has been presented for transportation in accordance with regulations in this subchapter. A certification is not required—

(1) For a shipment in a cargo tank supplied by the carrier, or

(2) For a shipment transported by the shipper of the materials in his vehicle.

(b) The certification must read as follows:

This is to certify that the above-named materials are properly classified, described, packaged, marked, and labeled, and are in proper condition for transportation according to the applicable regulations of the Department of Transportation.

(1) The words "* * * and to the IATA Restricted Articles Regulations" may be added to the certification when appropriate.

(c) In addition, a person who offers a hazardous material for transportation aboard a passenger-carrying aircraft shall also certify as follows:

This shipment is within the limitations prescribed for passenger-carrying aircraft

(d) The certification required by this section must be signed by the person who offers the hazardous material for transportation. His signature must be placed immediately following the certificate unless the format or language of the shipping paper clearly shows that a signature elsewhere also is a signature to the certification.

§ 172.203 Additional description requirements.

(a) *Special permits.* A shipping paper issued in connection with a shipment made under a special permit must bear the notation "DOT Special Permit No." and the number assigned. The notation must appear after the entries required by § 172.201.

(b) *Label exemptions.* If packages in a shipment covered by one description are exempt from labeling under the rules in Part 173 of this subchapter, the words "No Label Required" must appear on the shipping paper following the description of the hazardous material.

(c) *Blasting caps.* The shipping paper for a shipment containing blasting caps must state the number of caps in the shipment immediately before or after the description required by § 172.201.

(d) *Anhydrous ammonia.* A person offering anhydrous ammonia for transportation in a specification MC 330 or MC 331 cargo tank constructed of quenched and tempered steel, shall state "(0.2% water)" or "(99.995%)," as appropriate, on the shipping paper. By so stating, he indicates the suitability of the material for shipment in a tank authorized by

73.315(a)(1) Note 14 of this chapter.

(e) *Liquefied petroleum gas.* A person offering "noncorrosive" liquefied petroleum gas for transportation in a specification MC 330 or MC 331 cargo tank constructed of quenched and tempered steel shall state "Noncorrosive" or "Noncor" on the shipping paper for each shipment. By so stating, he indicates the suitability of the material for shipment in a tank authorized by § 173.315(a)(1) Table, Note 15 of this subchapter.

(f) *Radioactive materials.* A person offering a radioactive material for transportation shall include the following additional information in the description required by § 172.201:

(1) The name of each radionuclide in the radioactive material, as listed in § 173.390 of this subchapter. Abbreviations (e.g., Mo-99) are authorized.

(2) A description of the physical and chemical form of the material, if the material is not in special form.

(3) The activity contained in each package of the shipment in terms of curies, millicuries, or microcuries. Abbreviations are authorized.

(4) The category of label applied to each package in the shipment, i.e., "Radioactive-White I," or the words "No Label Required," if applicable.

(5) The transport index assigned to each package in the shipment (for Category Yellow II or III packages only).

(6) For a shipment of fissile radioactive material:

(i) The words "Fissile Exempt," if the package is exempt pursuant to § 173.396 (a) of this subchapter, or

(ii) If not exempt, the fissile class of each package in the shipment, pursuant to § 173.389(a) of this subchapter, and

(iii) For a fissile class III shipment, the additional notation: "WARNING—Fissile Class III Shipment. Do Not Load More Than * * * Packages per Vehicle." (Stars to be replaced by appropriate number.) "In Loading and Storage Areas, Keep at Least 20 Feet (6 Meters) From Other Packages Bearing Radioactive Labels."

(iv) If a fissile class III is to be transported by water the supplementary notation must also include the following statement: "For shipment by water only one fissle class III shipment is permitted in a hold."

(7) For a package approved pursuant to § 173.393a of this subchapter, a notation of the package identification marking as prescribed in the applicable USAEC approval. (See § 173.393a of this subchapter.)

(8) For an export shipment or a shipment in a foreign-made package (see § 173.393b of this subchapter), a notation of the package identification marking as prescribed in the applicable IAEA Certificate of Competent Authority which has been issued for the package. (See § 173.393b(a)(3) of this subchapter.)

(g) *Etiologic agent.* For a shipment containing any etiologic agent, the following must be shown on the shipping paper:

If damaged, immediately call: (to be provided later)

(h) *Shipment by cargo aircraft.* A person who offers a hazardous material in a package required to bear the "Cargo Aircraft Only" label for transportation via aircraft shall also mark the shipping paper "Cargo Aircraft Only."

(i) *Export shipment by water.* A person who offers a hazardous material for export by water that is described by an "n.o.s." entry in the List of Hazardous Materials § 172.101 shall add the chemical name of the material in parentheses immediately following the required Hazard Information Number.

Subpart E—Labeling

§ 172.400 General requirements.

(a) A person who offers for transportation a package containing a hazardous material shall conspicuously label it in compliance with the requirements of this part except that a label is not required on a—

(1) Package exempt from labeling under conditions set forth in Part 173 of this subchapter.

(2) Portable tank or multiunit tankcar tank.

(3) Packaging or reusable transport container having a capacity of 64 cubic feet or more.

(4) Package that is—

(i) Loaded and unloaded under the supervision of Department of Defense personnel, and

(ii) Escorted by Department of Defense personnel in a separate vehicle; or

(5) A cylinder containing a nonpoisonous compressed gas classed as flammable or nonflammable that—

(i) Is carried only by a private or contract motor carrier;

(ii) Is not overpacked, and that

(iii) Is durably and legibly marked in accordance with CGA Pamphlet C-7, Appendix A, dated (date to be provided later) entitled "A Guide for the Preparation of Precautionary Markings for Compressed Gas Containers."

§ 172.401 Prohibited labeling.

(a) No person may ship, offer for transportation, or transport any package bearing a label specified in this subpart when the material in the package is not subject to the regulations in Parts 170–189 of this subchapter.

(b) No person may ship, offer for transportation, or transport a package bearing any marking or labeling that, by its color, design, shape, or information content, could be readily confused or be in conflict with a label prescribed in this part.

(c) A label applied to a package in conformance with any of the United Nations recommendations (including the entry of the class number below the hazard information number block) in the document entitled, "Transport of Dangerous Goods (1970)" is excepted from the prohibitions set forth in paragraphs (a) and (b) of this section.

§ 172.402 Required labeling.

(a) Unless exempted by Part 172 or 173 of this subchapter, a package containing hazardous material must bear the label that is—

(1) Specified in column 3 for the material listed in column 1 of the List of Hazardous Materials in § 172.101 of this part, or

(2) Specified in the following table for each hazard information number that is assigned in accordance with § 172.602.

LABELING TABLE

Hazard information No.	Label(s) required	Hazard information No.	Label(s) required
01	Dangerous.	44	Flammable solid and dangerous when wet.
05	Irritant.		
11	Explosives C.		
15	Explosives B.		
19	Explosives A.	45	Do.
20	Nonflammable gas.	46	Do.
		47	Do.
21	Do.	50	Oxidizer.
22	Oxidizer.	51	Do.
23	Flammable gas.	53	Do.
24	Do.	54	Do.
26	Poison and nonflammable gas.	55	Do.
		56	Do.
27	Poison and oxidizer.	57	Organic peroxide.
		58	Do.
28	Poison and flammable gas.	59	Do.
		60	Poison.
29	(1).	61	Do.
30	Flammable liquid.[2]	62	Do.
		64	Do.
31	Flammable liquid.	65	Do.
		67	Do.
32	Do.	70–79	See §§ 173.399.
34	Do.	80	Corrosive.
35	Do.	81	Do.
36	Do.	82	Do.
38	Do.	83	Do.
40	Flammable solid.	84	Do.
		85	Do.
41	Do.	86	Do.
42	Do.	87	Do.
43	Do.		

[1] Will be designated by the Department if not specified in § 172.101.
[2] Does not include combustible liquids.

§ 172.403 Radioactive materials.

(a) Each package of radioactive materials, unless exempted by § 173.392 of this subchapter, must be labeled as provided in this section. (See §§ 172.437, 172.438, and 173.439 for description of labels.) The label to be used must be determined by the transport index or other considerations as follows:

(1) *Radioactive White-I label.* Each package not exceeding 0.5 millirem per hour at any point on the external surface of the package, and which:

(i) Does not contain more than a Type A quantity of radioactivity, as defined in § 173.349 of this subchapter;

(ii) Is not a Fissile Class II package; and

(iii) Does not come under the provisions of subparagraph (2) or (3) of this paragraph.

(2) *Radioactive Yellow-II label.* For each package when the limits in subparagraph (1) of this paragraph are exceeded, but the provisions of subparagraph (3) of this paragraph are not met, and

(i) Each package does not exceed 10 millirems per hour at any point on the external surface of the package and does

not exceed 0.5 millirems per hour at 3 feet from the external surface of the package; or

(ii) Each package with a transport index that does not exceed 0.5 at any time during transportation.

(3) *Radioactive Yellow-III label.* For—

(i) Each package when either of the limits in subparagraphs (2) of this paragraph is exceeded,

(ii) Each Fissile Class III package, and

(iii) Each package containing a large quantity of radioactive materials as defined in § 173.389.

§ 172.404 Labels for mixed packaging.

When materials having different hazard information numbers are packaged in separate packagings within the same outside package, as permitted by Part 173 of this subchapter, the shipper shall appropriately label the package for each material it contains.

§ 172.405 Placement of labels on a package.

(a) A label must be printed on or affixed to the surface of a package in close proximity to the marked name of contents except that, for a package having dimensions less than those of the required label, or a compressed gas cylinder. A label may be printed on or affixed to a tag attached securely to the package or cylinder if it is displayed on each side of the tag.

(1) If two or more labels are required, they must be displayed next to each other on each side of the same tag.

§ 172.406 Hazard information numbers required on a label.

(a) The hazard information number specified for the material in a package must be entered in the block identified "DOT hazard information number" of each label containing such a block. The numbers must be—

(1) At least one-half of an inch high (48 points) Gothic style;

(2) Black and moisture resistant.

§ 172.407 Label specifications.

(a) Each label must be durable and weather resistant, whether affixed to or preprinted on a package.

(b) Each diamond label prescribed in this subpart must be at least 4 inches (100 mm.) on each side with the solid line border at least 3½ inches (89 mm.) on each side.

(c) A label may contain form identification information, including the name of its maker, if printed outside the solid line border in no larger than 10-point type.

(d) Black and the colors for labels must be as specified in Appendix A of this part.

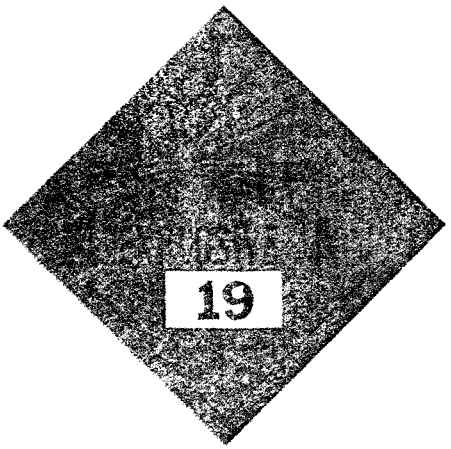
§ 172.408 [Reserved]

§ 172.409 [Reserved]

§ 172.410 [Reserved]

§ 172.411 Explosive A label.

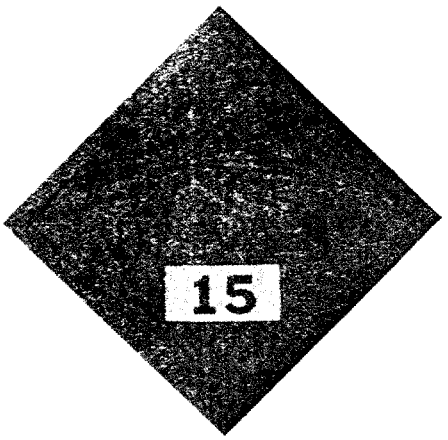
(a) The Explosive A label, except for size and color, must be as shown



(b) The Explosive A label, in addition to the requirements specified in §§ 172.406 and 172.407, must be orange with the block for the hazard information number white. Printing, border, and symbol must be black.

§ 172.412 Explosive B label.

(a) The Explosive B label, except for size and color, must be as shown:



(b) The Explosive B label, in addition to the requirements specified in §§ 172.406 and 172.407, must be orange with the block for the hazard information number white. Printing, border, and symbol must be black.

§ 172.413 Explosive C label.

(a) The Explosive C label, except for size and color, is as shown:

(b) The Explosive C label, in addition to the requirements specified in §§ 172.406 and 172.407, must be orange with the block for the hazard information number white. Printing, border, and symbol must be black.

§ 172.414 [Reserved]

§ 172.415 [Reserved]

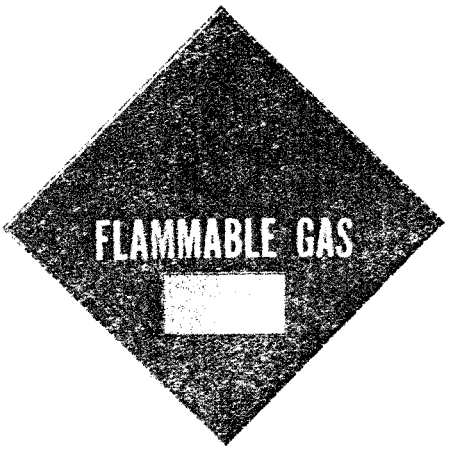
§ 172.416 Nonflammable Gas label.

(a) The Nonflammable Gas label, except for size and color, must be as shown:

(b) The Nonflammable Gas label, in addition to the requirements specified in §§ 172.406 and 172.407, must be orange with the block for the hazard information number white. Printing, border, and symbol must be black except for the words "Nonflammable Gas" which must be white.

§ 172.417 Flammable Gas label.

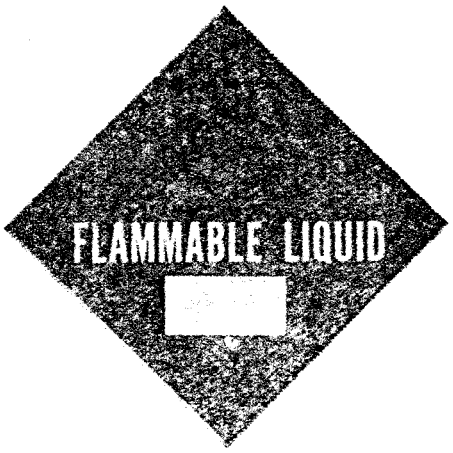
(a) The Flammable Gas label, except for size and color, must be as shown:



(b) The Flammable Gas label, in addition to the requirements specified in §§ 172.406 and 172.407, must be red with the block for the hazard information number white. Printing, border, and symbol must be black except for the words "Flammable Gas" which must be white.

§ 172.418 Flammable Liquid label.

(a) The Flammable Liquid label, except for size and color, must be shown:



(b) The Flammable Liquid label, in addition to the requirements specified in §§ 172.406 and 172.407, must be red with the block for the hazard information number white. Printing, border, and symbol must be black except for the words "Flammable Liquid" which must be white.

§ 172.419 Flammable Solid label.

(a) The Flammable Solid label, except for size and color, must be as shown:

(b) The Flammable Solid label, in addition to the requirements specified in §§ 172.406 and 172.407, must be white with vertical red stripes except for the hazard information number block which must be white. Printing, border, and symbol must be black. The words "Flammable Solid" must not contact any red stripe.

§ 172.420 [Reserved]

§ 172.421 [Reserved]

§ 172.422 Spontaneously Combustible label.[1]

(a) The Spontaneously Combustible label, except for size and color, must be as shown:

[1] For use on import and export shipment only.

(b) The Spontaneously Combustible label, in addition to the requirements specified in §§ 172.406 and 172.407, must be red in the lower half and white in the upper half. The border and symbol must be black. The words "Spontaneously Combustible" must be white.

§ 172.423 Dangerous When Wet label.

(a) The Dangerous When Wet label, except for size and color, must be as shown:

(b) The Dangerous When Wet label, in addition to the requirements specified in §§ 172.406 and 172.407, must be predominately blue with white printing. The border and symbol must be black.

(i) The –W– in the lower half must be white with a black border on the crossbar.

§ 172.424 [Reserved]

§ 172.425 [Reserved]

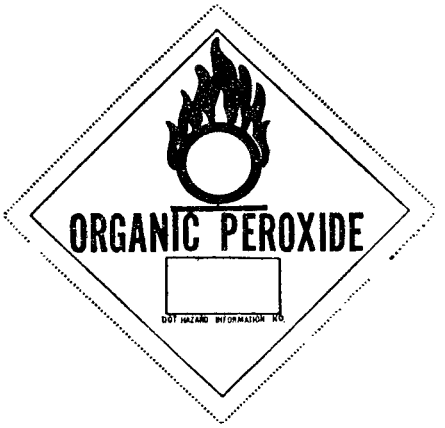
§ 172.426 Oxidizer label.

(a) The Oxidizer label, except for size and color, must be as shown:

(b) The Oxidizer label, in addition to the requirements specified in §§ 172.406 and 172.407, must be yellow except for the hazard information number block which must be white. Printing, border, and symbol must be black.

§ 172.427 Organic Peroxide label.

(a) The Organic Peroxide label, except for size and color, must be as shown:



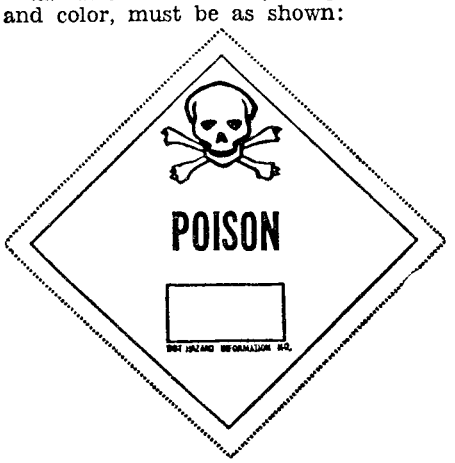
(b) The Organic Peroxide label, in addition to the requirements specified in §§ 172.406 and 172.407, must be yellow except for the hazard information number block which must be white. Printing, border, and symbol must be black.

§ 172.428 [Reserved]

§ 172.429 [Reserved]

§ 172.430 Poison label.

(a) The Poison label, except for size and color, must be as shown:



(b) The Poison label, in addition to the requirements specified in §§ 172.406 and 172.407, must be white. Printing and border must be black except for the word "Poison" which must be red, and the symbol which must be red and white.

§ 172.431 Poison Gas label.[1]

(a) The Poison Gas label, except for size and color, must be as shown:

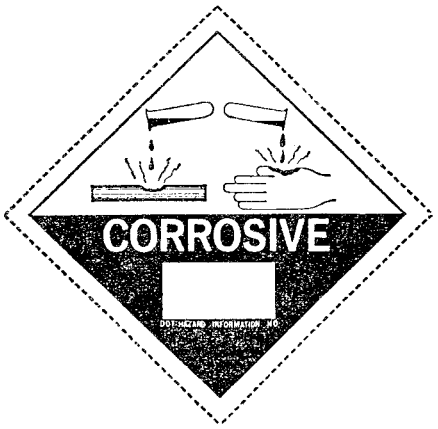
(b) The Poison Gas label, in addition to the requirements specified in §§ 172.406 and 172.407, must be white. Printing and border must be black except for the words "Poison Gas" which must be red, and the symbol which must be red and white.

§ 172.432 [Reserved]

§ 172.433 [Reserved]

§ 172.434 Corrosive label.

(a) The Corrosive label, except for size and color, must be as shown:



(b) The Corrosive label, in addition to the requirements specified in §§ 172.406 and 172.407, must be white in the top half and black in the lower half except the block for the hazard information number must be white. Printing must be white, and the border and symbol must be black.

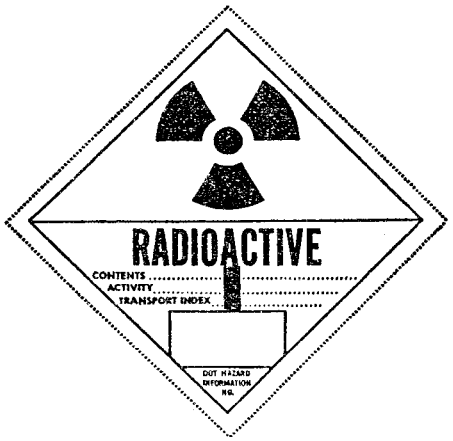
§ 172.435 [Reserved]

§ 172.436 [Reserved]

§ 172.437 Radioactive White-I label.

(a) The Radioactive White-I label, except for size and color, must be as shown:

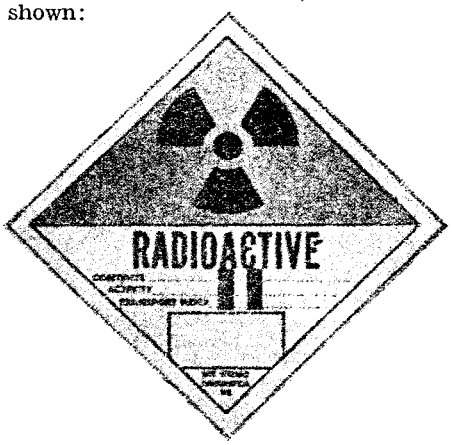
[1] For use on import and export shipments only.



(b) The Radioactive White-I label, in addition to the requirements specified in §§ 172.406 and 172.407, must be white. Printing, border, and symbol must be black except for the "I" in which must be a red overprint.

§ 172.438 Radioactive Yellow-II label.

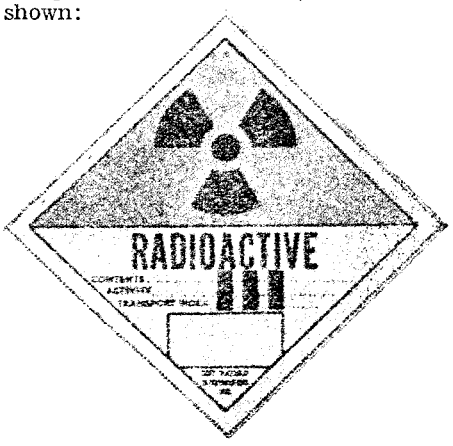
(a) The Radioactive Yellow-II label, except for size and color, must be as shown:



(b) The Radioactive Yellow-II label, in addition to the requirements specified in §§ 172.406 and 172.407, must be yellow in the top half and white in the lower half. Printing, border, and symbol must be black except for the "II" which must be a red overprint.

§ 172.439 Radioactive Yellow-III label.

(a) The Radioactive Yellow-III label, except for size and color, must be as shown:



(b) The Radioactive Yellow-III label, in addition to the requirements specified in §§ 172.406 and 172.407, must be yellow in the top half and white in the lower half. Printing, border, and symbol must be black except for the "III" which must be a red overprint.

§ 172.440 [Reserved]

§ 172.441 [Reserved]

§ 172.442 Irritant label.

(a) Irritant label, except for size and color, must be as shown:

(b) The Irritant label, in addition to the requirements specified in §§ 172.406 and 172.407, must be white. Printing, border, and symbol must be black except for the word "Irritant" which must be red.

§ 172.443 [Reserved]

§ 172.444 [Reserved]

§ 172.445 [Reserved]

§ 172.446 [Reserved]

§ 172.447 [Reserved]

§ 172.448 Magnetized Material label.

(a) The Magnetized Material label, except for size and color, must be as shown:

(b) The Magnetized Material label, in addition to the requirements specified in §§ 172.406 and 172.407, must be blue in the top half and white in the lower half. The printing and border must be blue, and the symbol must be white and blue.

172.449 [Reserved]

172.450 [Reserved]

§ 172.451 Danger—Peligro label.

(a) The Danger—Peligro label, except for size and color, must be as shown:

(b) The Danger—Peligro label, in addition to the requirements specified in §§ 172.406 and 172.407, must be orange. The printing and border must be black and the symbol must be orange and black.

§ 172.452 [Reserved]

§ 172.453 [Reserved]

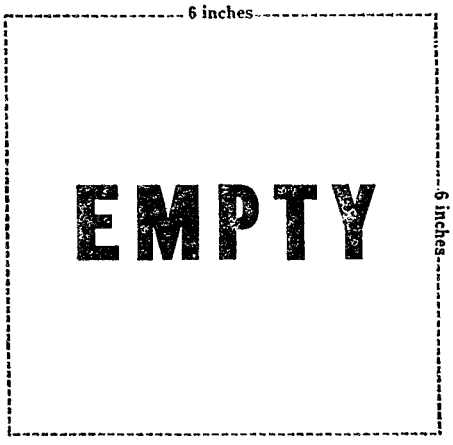
§ 172.454 [Reserved]

§ 172.455 [Reserved]

172.456 [Reserved]

172.457 Empty label.

(a) The Empty label, except for size and color must be as shown:



(b) The Empty label must be a square not less than 6 inches (153 mm.) on each side, white. Printing and border must be black, and the letters in the word "Empty" must be at least 1 inch (25 mm.) high.

§§ 172.458–172.499 [Reserved]

Subpart F—Placarding

172.500 General requirements.

A person who offers for transportation or transports any hazardous material subject to the requirements of this subchapter shall comply with the requirements of this subpart pertaining to the placarding of transport vehicles, portable tanks, large packages, and reusable transport containers at all times during the course of transportation.

§ 172.501 Prohibited placarding.

(a) No person may place or keep a placard on a transport vehicle, portable tank, large package, or reusable transport container if such a placard—

(1) Is specified in this subpart and is not required or permitted for the material it contains, or

(2) Is not required or permitted by this subpart for the material it contains and which, by its color, design, shape, or information content, could be in conflict or readily confused with the placards prescribed in this subpart.

§ 172.502 Placarding table.

(a) Except as provided in paragraph (b) of this section, each highway and rail transport vehicle containing a hazardous material must be placarded in accordance with the following table:

A	B	C
If in accordance with § 172.101 or § 172.602, a material is assigned a hazard information number	The highway or rail transport vehicle must be placarded on each side and each end	Unless the same transport vehicle is placarded with required placards bearing the hazard information number.[1]
05	Dangerous	Any number.[2]
11	Flammable	15, 19, 23, 24, 34, 35, 36.
15	Explosives B	19.
19	Explosives A	No exception.
20	Nonflammable gas.	21, 22, 23, 24, 26, 27, 28, 29, 30, 31, 32, 34, 35, 36, 38, 50, 51, 53, 54, 55, 56, 57, 58, 59, 61, 65, 67, 83, 85, 86, 87.
21	do	24, 26, 27, 28, 29, 31, 32, 35, 36, 51, 53, 55, 56, 61, 65, 67, 83, 85, 86, 87.
22	Oxidizer	23, 24.
23	Flammable gas	24.
24	do	No exception.
26	Poison	27, 28, 29.
27	do	No exception.
28	do	29.
29	Poison 29	No exception.
30	Flammable [3]	23, 24, 31, 32, 34, 35, 36, 38.
31	Flammable	32, 34, 35, 36, 38.
32	do	36.
34	Flammable [3]	35, 36, 38.
35	do	36, 38.
36	do [2]	No exception.
38	Flammable	Do.
40	do	11, 15, 23, 24, 30, 31, 32, 34, 35, 36, 38, 41, 42, 43, 44, 45, 46, 47.
41	do	32, 35, 36, 43, 45, 47.
42	do	36, 38, 43, 46, 47.
43	do	45, 47.
44	Flammable W	45, 46, 47.
45	do	47.
46	do	47.
47	do	No exception.
50	Oxidizer	34, 35, 36, 51, 53, 54, 55, 56, 57, 59.
51	do	35, 36, 53, 55, 56.
53	do	36, 55, 56.
54	do	34, 35, 36, 55, 56.
55	do	35, 36, 56.
56	do	36.
57	do	59.
58	do	No exception.
59	do	Do.
60	Poison	61, 62, 64, 65, 67.
61	do	65, 67.
62	do	64, 65, 67.
64	do	67.
65	do	67.
67	do	No exception.
70	Dangerous	71, 72, 73, 74.
71	Radioactive	No exception.
72	do	Do.
73	do	Do.
74	do	Do.
78	do	Do.
79	do	Do.
80	Corrosive	31, 32, 35, 36, 41, 43, 45, 47, 51, 53, 55, 56, 60, 61, 81, 82, 83, 84, 85, 86, 87.
81	do	32, 36, 41, 43, 45, 47, 53, 56, 60, 61, 84, 85, 87.
82	do	44, 45, 46, 47, 84, 85, 87.
83	do	31, 32, 35, 36, 41, 43, 45, 47, 61, 85, 86, 87.
84	do	45, 47, 87.
85	do	32, 36, 43, 45, 47, 87.
86	do	45, 47, 87.
87	do	45, 47.

[1] The purpose of column C is to list permitted exceptions to the required placards listed in column B. Its application is not mandatory.

[2] Any other required placard may replace the Dangerous placard for Irritants.

[3] Flammable or combustible, as appropriate.

(b) Except as specified in paragraph (c) of this section, a Dangerous placard may be used in place of the placard specified in paragraph (a) of this section for hazardous materials that—

(1) Do not exceed an aggregate gross weight of more than 1,000 pounds;

(2) Bear the same hazard information number;

(3) Are offered by and received from one consignor; and

(4) Are loaded into or on one transport vehicle.

(c) The placard specified in paragraph (a) of this section is required for any quantity of—

(1) A hazardous material in a cargo tank or tank car; and

(2) A hazardous material assigned one of the following hazard information numbers: 15, 19, 26, 27, 28, 29, 44, 45, 46, 58, 59, 62, 64, 65, 67, 71, 72, 73, 74, 78, and 79.

§ 172.503 Giving and affixing placards—transport vehicles.

(a) A person who gives a hazardous material to another person for transportation by highway or rail shall, at the same time, give him the placards that pertain to the material as specified in § 172.502, by prior arrangement, the person accepting the material for transportation has agreed to provide the required placards.

(1) A prior arrangement, as referred to in this section, may be accomplished by publication in a tariff or schedule, or at any time up to the commencement of the loading of a hazardous material into or on a transport vehicle.

(b) A person who loads a hazardous material into or on a highway or rail transport vehicle shall affix placards to the vehicle, as specified in § 172.502, if he retains possession or control of the vehicle while the hazardous material is being loaded unless the person accepting the material for transportation has affixed or agreed to affix the required placards to the vehicle.

(c) A person who accepts a hazardous material for transportation by highway

or rail shall affix placards to his transport vehicle, as specified in § 172.502, if he retains possession or control of his vehicle at the time the hazardous material is loaded unless the required placards have been affixed to the vehicle by another person.

§ 172.504 Large packages and containers.

(a) A person who loads or places a hazardous material into—

(1) An outside packaging or reusable transport container having a capacity of more than 64 cubic feet, shall affix to it a placard that is specified for the material in § 172.502.

(2) A reusable transport container having a capacity of 640 cubic feet or more shall affix placards to it in the same manner specified in this subpart for transport vehicles.

§ 172.505 Cargo tanks and portable tanks.

(a) A person who loads a hazardous material into a portable tank having a capacity of less than 1,000 gallons, or a multiunit tank-car tank, shall affix to it a placard that is specified for the material in § 172.502.

(b) A cargo tank, or a portable tank of 1,000 gallons capacity or more, must be placarded in accordance with the requirements of § 172.502 whether loaded or empty unless, following transportation of a hazardous material—

(1) It has been reloaded with a material not subject to the regulations of Parts 170–189 of this subchapter, or

(2) It has been cleaned and purged of vapors sufficiently to remove any potential hazard.

(c) The word "Gasoline" may be used in place of the word "Flammable" on the placard, specified in § 172.533, that is affixed to a cargo tank being used to transport gasoline, whether empty or loaded. The word "Gasoline" must have letters of the same size as those in the word "Flammable."

(d) The words "Fuel Oil" may be used in place of the word "Combustible" on the placard specified in § 172.535, that is affixed to a cargo tank being used to transport a fuel oil that is not classed as flammable, whether empty or loaded. The words "Fuel Oil" must have letters of the same size as those in the words "Combustible."

§ 172.506 Placing, attaching, and maintenance of placards.

(a) Any placard on a highway or rail transport vehicle—

(1) Must be readily visible from the direction it faces;

(2) Must not be obscured by appurtenances and devices, such as ladders, pipes, doors, and tarpaulins,

(3) Must not, so far as practicable, have dirt and water directed to it from the wheels of the vehicle;

(4) Must not be near marking that could substantially reduce its effectiveness, and

(5) Must have the words printed on it displayed horizontally, reading from left to right.

(b) Each diamond placard must be placed, by attachment either to the surface of a transport vehicle, a placard board, or mounted in a holder by one of the following methods:

(1) Insertion in a placard holder meeting the specifications set forth in Appendix A of this subpart.

(2) Attachment of an adhesive backed placard to a surface compatible with the adhesive;

(3) Attachment to a placard board, of sufficient size for the purpose, using tacks or staples in the following manner:

(i) No less than five tacks having ¼ inch (6.3 mm.) heads may be used—one at each corner and one in the middle of the placard, or

(ii) Staples may be used if made of not less than 19-gage metal having at least ¾ inch (19 mm.) between legs of not less than ¼ inch (6.3 mm.) in length. No less than nine staples must be used with one at each corner, one at midlength of each side, and one at the center of the placard.

(iii) A placard board must be free of protruding tacks and staples prior to attachment of a new or replacement placard.

(4) Attachment to a metal surface by application of adhesive tape no less than 1¼ inches (31 mm.) wide applied around the entire perimeter of the placard.

(i) No more than ⅝ inch (15.9 mm.) inside the prescribed border of a placard may be covered by adhesive tape.

(ii) The adhesive must be compatible with the metal surface to which it is applied.

(5) By a permanent placard if intended to be used more than once and designed for such a purpose.

(c) Each rectangular placard must be placed by attachment either to the surface of a transport vehicle or a placard board by one of the following methods:

(1) In the same manner specified in paragraphs (b) (2), (4), and (5) of this section; or

(2) In the same manner as specified in paragraph (b) (3) of this section except that—

(i) At least nine tacks must be used—one at each corner, one at midlength of each side, and one in the middle of the placard, or

(ii) At least 14 staples must be used—one at each corner, two distributed evenly along each side, three distributed evenly along the top and along the bottom, and two spaced 6 inches (152 mm.) apart near the middle of the placard.

(d) Each placard must be maintained in good condition so that its effectiveness will not be substantially reduced due to damage, deterioration, or obscurement, as could be caused by dirt.

§ 172.507 Placard specifications.

(a) A placard made of tagboard must be of material—

(1) Not less than that designated commercially as 100 percent sulfate,

(2) Not less than 125 pounds per ream of 24- by 36-inch sheets,

(3) Capable of passing no less than a 60 p.s.i. Mullen test, and

(4) Capable of withstanding ope weather exposure for no less than 30 da without a substantial reduction in effe tiveness.

(b) A placard may be constructed of plastic, metal, or other material if equivalent to or better than the tagboard specified in paragraph (a) of this section.

(c) A permanent placard intended for reuse may be hinged horigontally above, below, or between the words. For example: The Dangerous placard may have a hinge located horizontally below the word "Dangerous" so that when the vehicle does not contain any hazardous material covered by the placard, the placard may be folded and considered "removed" or "not displayed."

(d) The color(s) of each placard must be as specified in this subpart for the particular placard described.

(e) Black and the colors for each placard must be as specified in Appendix A to this part.

§ 172.508 Hazardous information numbers on placards.

(a) The hazard information number assigned to a hazardous material must be printed on each placard required in § 172.502.

(b) If more than one placard is required for the same material, the same hazard information number must be printed on each placard.

§ 172.509 Empty tank cars.

(a) An empty tank car must be pl carded with an Empty placard that c responds to the placard that is requir for the material the tank last containea unless the tank has been—

(1) Reloaded with a material not subject to the regulations of Parts 170–189 of this subchapter, or

(2) Cleaned and purged of vapors sufficiently to remove any potential hazard.

§ 172.510 [Reserved]

§ 172.511 [Reserved]

§ 172.512 Standard requirements for rectangular placards.

(a) Each rectangular placard must be 23 inches (584 mm.) wide and 16 inches (406 mm.) high.

(b) The solid red line border forming the diamond on the Poison 29 placard must be ⅛ inch (3.2 mm.) wide.

(c) The diamond must be 10¾ inches (273 mm.) on each side and 15$\frac{7}{32}$ inches (387 mm.) across the diagonal.

(d) The diamond must be centered on a 9½ inch (241 mm.) radius white circle which must be centered on the placard.

(e) The area outside the circle to the edges of the placard must be black.

(f) The hazard information number block must be 3⅝ inches (92 mm.) wide and 3 inches (76 mm.) high.

(g) The size of the printing and numbers on the rectangular placard:

(1) Must be 15-Line Poster Gothic Condensed for hazard information nur bers and letters on the "Explosives and "Explosives B" placards.

(2) Must be 20-Line Poster Gothic Condensed for the hazard information number and letters on the Poison 29 placard.

(h) The words "Explosives A" and "Explosives B" must be on a white background across the center of the orange diamond. The resulting two orange triangles, one at the top and one at the bottom of the diamond must have the right and left sides measure 8½ inches (216 mm.). The base of the upper triangle and the top horizontal side of the lower triangle must each measure 12 inches (305 mm.).

(i) Each letter and number must be black, except the letters in the word "Poison" which must be red.

(j) The spacing between the letters in each placard name must be such that the terminal letters on the—

(i) Poison placard are 2 inches (51 mm.) from the respective edge of the circle, and

(ii) Explosives A and Explosives B placards are ⅝ inch (15.9 mm.) from the edge of the circle.

(k) The spacing between the digits in the hazard information number must be such that the space between the sides of the hazard information block and the edges of the number—

(i) In the Poison placard is ⅜ inch (9.5 mm.), and

(ii) In the Explosives A and Explosives B placards is ½ inch (12.7 mm.).

(l) If a rectangular placard is made larger than specified in this section it must be increased proportionately in each specified measurement.

72.513 [Reserved]

§ 172.514 Explosives A placard.

(a) The Explosives A placard, except for size and color, must be as shown:

(b) The background color except for the orange triangles must be white surrounded with black at the ends of the rectangle.

(c) The symbol must be black, and measure 2⅛ inches (54 mm.) across the longest vertical dimension and 2¼ inches (57 mm.) across the longest horizontal dimension.

172.515 [Reserved]

172.516 Explosives B placard.

(a) The Explosives B placard, except for size and color, must be as shown:

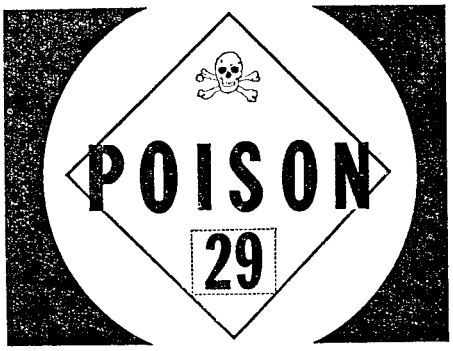
(b) The background color, except for the orange triangles must be white surrounded with black at the ends of the rectangle.

(c) The symbol must be black, and measure 2⅛ inches (54 mm.) across the longest vertical dimension and 2¼ inches (56 mm.) across the longest horizontal dimension.

§ 172.517 [Reserved]

§ 172.518 Poison 29 placard.

(a) The Poison 29 placard, except for size and color, must be shown:



(b) The background color must be white surrounded at the ends of the rectangle with black.

(c) The symbol must be red with the skull measuring 3¾ inches (70 mm.) high and the crossbones measuring 4 inches (102 mm.) long.

§ 172.519 [Reserved]

§ 172.520 Specifications for diamond placards.

(a) The black border of each placard must be one-eighth inch (3.2 mm.) wide.

(b) Each placard must be 10¾ inches (273 mm.) on each side 15$\frac{7}{32}$ inches (387 mm.) across the horizontal diagonal.

(c) The hazard information number block of each placard must be 3½ inches (89 mm.) wide and 2¼ inches (57 mm.) high. The top of the hazard information number block must be 3¾ inches (95 mm.) from the lower white tip of the diamond.

(d) The words "DOT Hazard Information Number" must be in letters one-eighth inch (3.2 mm.) high.

(e) The digit size in the hazard information number must be 12-Line Poster Gothic Condensed.

(f) Each letter and number must be black on white background except—

(1) The letters in the "Corrosive" must be white, and

(2) The letters in the word "Poison" must be red.

(g) Each diamond placard, except the Dangerous and the Poison placards must have a white triangle in the lower point of the diamond with left and right sides measuring 5¾ inches (146 mm.) and a top horizontal side 8$\frac{1}{16}$ inches (205 mm.).

(h) The letter size in the placard name must be 12-Line Poster Gothic Condensed in each diamond placard, except the Non-Flammable Gas and Poison placards.

(1) The letter size in the word "Non-Flammable" must be 10-Line Gothic Extra Condensed, and in the word "Gas", 12-Line Poster Gothic Condensed.

(2) The letter size in the word "Poison" must be 20-Line Poster Gothic Condensed.

(i) The spacing between the digits in the hazard information number must be such that the space between the sides of the hazard information block and the edge of the number is $\frac{7}{16}$ inch (11.1 mm.) on each diamond placard.

(j) The placard name must be centered across the horizontal diagonal of each placard except the Non-Flammable Gas and Flammable Gas placards.

(i) The lower edge of the words "Non-Flammable" in the Non-Flammable Gas placard must be ¼ inch (6.3 mm.) above the horizontal diagonal; and the letters must be so spaced that the top outer edges of the terminal letters are ½ inch (12.7 mm.) from the border.

(ii) The word "Gas" in the Non-Flammable Gas and Flammable Gas placard must be centered on the respective placard and be ¼ inch (6.3 mm.) below the base of the words Non-Flammable and Flammable as appropriate.

(iii) The spacing between the letters in the word "Gas" must be ½ inch (12.7 mm.) at the closest point.

(iv) The lower edge of the word "Flammable" in the Flammable Gas placard must be $\frac{9}{32}$ inch (7.1 mm.) below the horizontal diagonal, and the letters must be so spaced that the top outer edges of the terminal letters are ½ inch (12.7 mm.) from the border.

(k) The spacing between the letters must be such that the outer extremity of the terminal letters are ½ inch (12.7 mm.) from the outside edge of the placard in the Flammable, Combustible, Corrosive, Radioactive, Poison, and Dangerous placards, and 1¼ inches (31 mm.) from the outside edge of the Oxidizer placard.

(l) If a diamond placard is made larger than specified in this section it must be increased proportionally in each specified measurement.

§ 172.521 [Reserved]

§ 172.522 Dangerous placard.

(a) The Dangerous placard, except for size and color, must be as shown:

(b) The Dangerous placard specifications, in addition to the requirements specified in § 172.520, are:

(1) The triangle at the top must be red with the left and right sides measuring 6½ inches (165 mm.) and the base 9¼ inches (235 mm.).

(2) The letter size in the word "Dangerous" must be 12-Line Poster Gothic Condensed.

(3) The background of the placard, except for the red triangle, must be white.

§ 172.523 [Reserved]

§ 172.524 [Reserved]

§ 172.525 [Reserved]

§ 172.526 [Reserved]

§ 172.527 Standard requirements for diamond Empty placards.

(a) In addition to the specifications in § 172.520, the following apply to each diamond Empty placard:

(1) The triangle at the top of the placard must be black with the word "Empty" in white letters.

(i) The letter size in the word "Empty" must be 96-point Gothic Extra Condensed.

(ii) The left and right sides of the black triangle must be 7¾ inches (197 mm.) and the base 11 inches (279 mm.) in each Empty placard except the Non-Flammable Gas—Empty and the Corrosive—Empty placards.

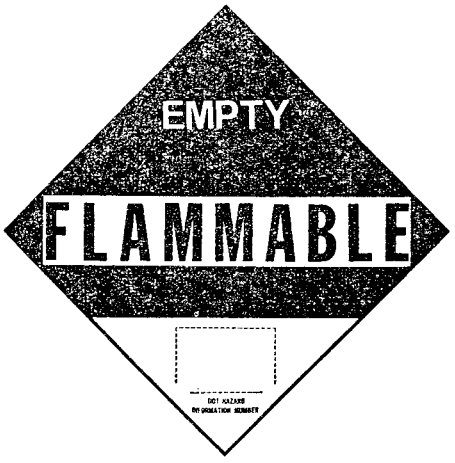
(iii) The left and right sides of the black triangle at the top of the Non-Flammable Gas—Empty placard must be 7⅜ inches (187 mm.) and the base 10⁷⁄₁₆ inches (265 mm.).

(iv) The area above the lower white triangle must be black in the Corrosive—Empty placard except for the words "Corrosive" and "Empty" which must be white.

(v) The lower ends of the letters in the word "Empty" must be 2⅜ inches (60 mm.) above the word "Corrosive."

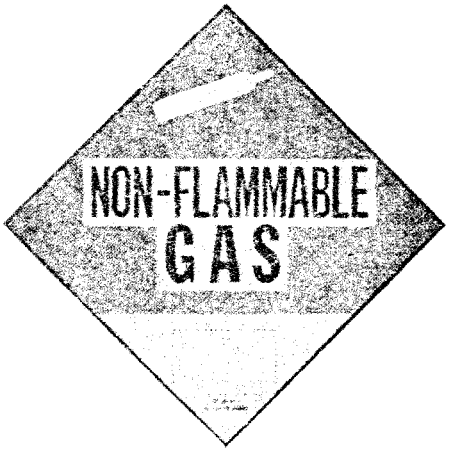
(vi) The midsection and lower triangle on the Empty placard must be as specified in §§ 172.520, 172.528, 172.531, 172.533, 172.535, 172.538, 172.541, 172.544, and 172.547 as appropriate for the residue of the commodity being transported.

(b) The top part of each Empty placard must be as illustrated on the Flammable-Empty placard which, except for size and color, is as shown:



§ 172.528 Non-Flammable Gas placard.

(a) The Non-Flammable Gas placard, except for size and color, must be as shown:



(b) The Non-Flammable Gas placard specifications, in addition to the requirements specified in § 172.520 are:

(1) The triangle at the top of the placard must be green with the left and right sides measuring 7⅜ inches (187 mm.) and the base 10⁷⁄₁₆ inches (265 mm.).

(2) The lower area of the diamond must be green, except for the background for the words "Non-Flammable Gas" and the lower triangle which must be white.

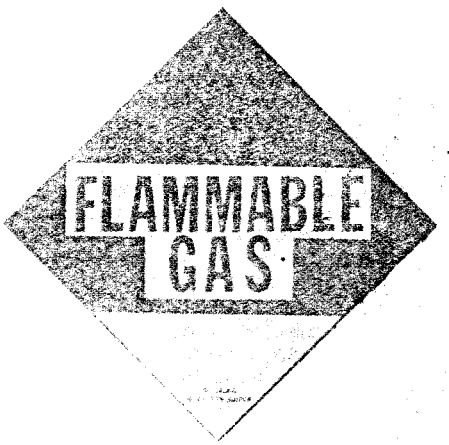
(3) The symbol must be white and its lower extremity must be 1¼ inches (31 mm.) above the base of the green triangle.

§ 172.529 [Reserved]

§ 172.530 [Reserved]

§ 172.530 Flammable Gas placard.

(a) The Flammable Gas placard, except for size and color, must be as shown:



(b) The Flammable Gas placard specifications, in addition to the requirements specified in § 172.520 are:

(1) The triangle at the top of the placard must be red with the left and right sides measuring 7¾ inches (197 mm.) and the base 10⅞ inches (276 mm.).

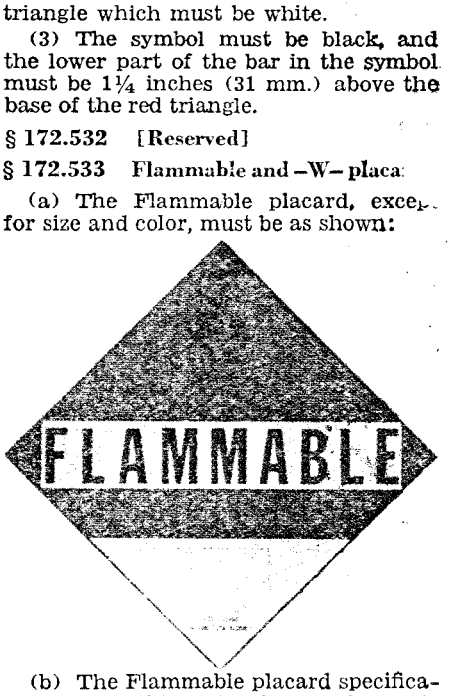
(2) The lower area of the diamond must be red, except the background for the word "Flammable Gas" and the lower triangle which must be white.

(3) The symbol must be black, and the lower part of the bar in the symbol must be 1¼ inches (31 mm.) above the base of the red triangle.

§ 172.532 [Reserved]

§ 172.533 Flammable and –W– placa

(a) The Flammable placard, except for size and color, must be as shown:



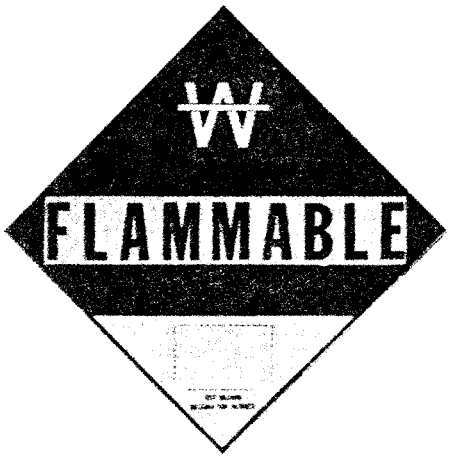
(b) The Flammable placard specifications, in addition to the requirements specified in § 172.520, are:

(1) The triangle at the top of the placard must be red with the left and right sides measuring 9 inches (229 mm.) and the base 13⁷⁄₁₆ inches (341 mm.).

(2) The lower area of the diamond must be red except the background for the word "Flammable" and the lower triangle which must be white.

(3) The symbol must be black, and lower part of the bar in the symbol m be 2⅛ inches (54 mm.) above the bas of the red triangle.

(e) The -W- placard, except for size and color must be as shown:



(d) The -W- placard specifications are the same as the specifications for the Flammable placard, except—

(1) A blue triangle with a black border measuring ⅛ inch (3.2 mm.) must be located in the top triangle of the placard.

(i) The left and right sides of the -W- blue triangle must measure 7¾ inches (197 mm.) and the base, 11 inches (279 mm.).

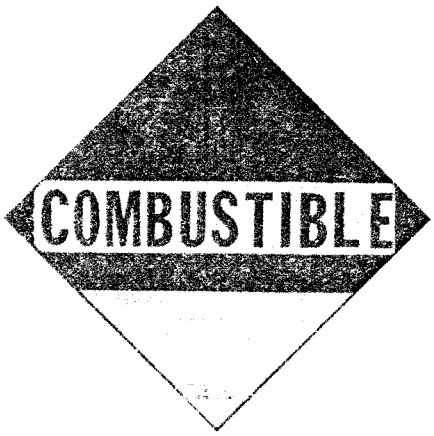
(ii) The -W- symbol must be white, and the lower part of the symbol must be ⅝ inch (15.9 mm.) above the base of the blue triangle.

(iii) The measurements of the white symbol must be 1¾ inches (44 mm.) wide at the base, 2¾ inches (70 mm.) wide at the top with the right and left sides 2 5/16 inches (58.9 mm.) high.

§ 172.534 [Reserved]

§ 172.535 Combustible placard.

(a) The Combustible placard, except for size and color, must be as shown:



(b) The Combustible placard specifications, in addition to the requirements specified in § 172.520, are:

(1) The triangle at the top of the placard must be red with the left and right sides measuring 8 7/16 inches (214 mm.) and with the base 13 3/16 inches (335 mm.).

(2) The lower area of the diamond must be red, except the background of the word "Combustible" and the lower triangle which must be white.

(3) The symbol must be black and the lower part of the bar of the symbol must be 2½ inches (64 mm.) above the base of the red triangle.

§ 172.536 [Reserved]

§ 172.537 [Reserved]

§ 172.538 Oxidizer placard.

(a) The Oxidizer placard, except for size and color, must be as shown:

(b) The Oxidizer placard specifications, in addition to the requirement specified in § 172.520, are:

(1) The background of the placard must be yellow except the lower triangle and the 2½ inches (64 mm.) high by 10¼ inches (260 mm.) long white rectangle in which the word "Oxidizer" must be centered must be white.

(2) The symbol must be black, and the lower part of the bar of the symbol must be 2¼ inches (57 mm.) above the top of the white block for the word "Oxidizer."

§ 172.539 [Reserved]

§ 172.540 [Reserved]

§ 172.541 Poison placard.

(a) The poison placard, except for size and color, must be as shown:

(b) The poison placard specifications, in addition to the requirements specified in § 172.520, are:

(1) The background space of the diamond must be white.

(2) The symbol must be red and white with its lower extremity 2 inches (51 mm.) above the letters in the word "Poison".

§ 172.542 [Reserved]

§ 172.543 [Reserved]

§ 172.544 Corrosive placard.

(a) The "Corrosive" placard, except for the size and color, must be as shown:

(b) The Corrosive placard specifications, in addition to the requirements specified in § 172.520, are:

(1) The triangle at the top of the placard must be white with the left and right sides measuring 6¼ inches (159 mm.) and the base 9 inches (229 mm.).

(2) The center area of the placard between the upper and lower white triangles must be black, except for the letters in the word "Corrosive" which must be white.

(3) The symbol must be black and its lower extremity must be ¾ inch (19 mm.) above the base of the top triangle.

§ 172.545 [Reserved]

§ 172.546 [Reserved]

§ 172.547 Radioactive placard.

(a) The Radioactive placard, except for size and color, must be as shown:

(b) The Radioactive placard specifications, in addition to the requirements specified in § 172.520, are:

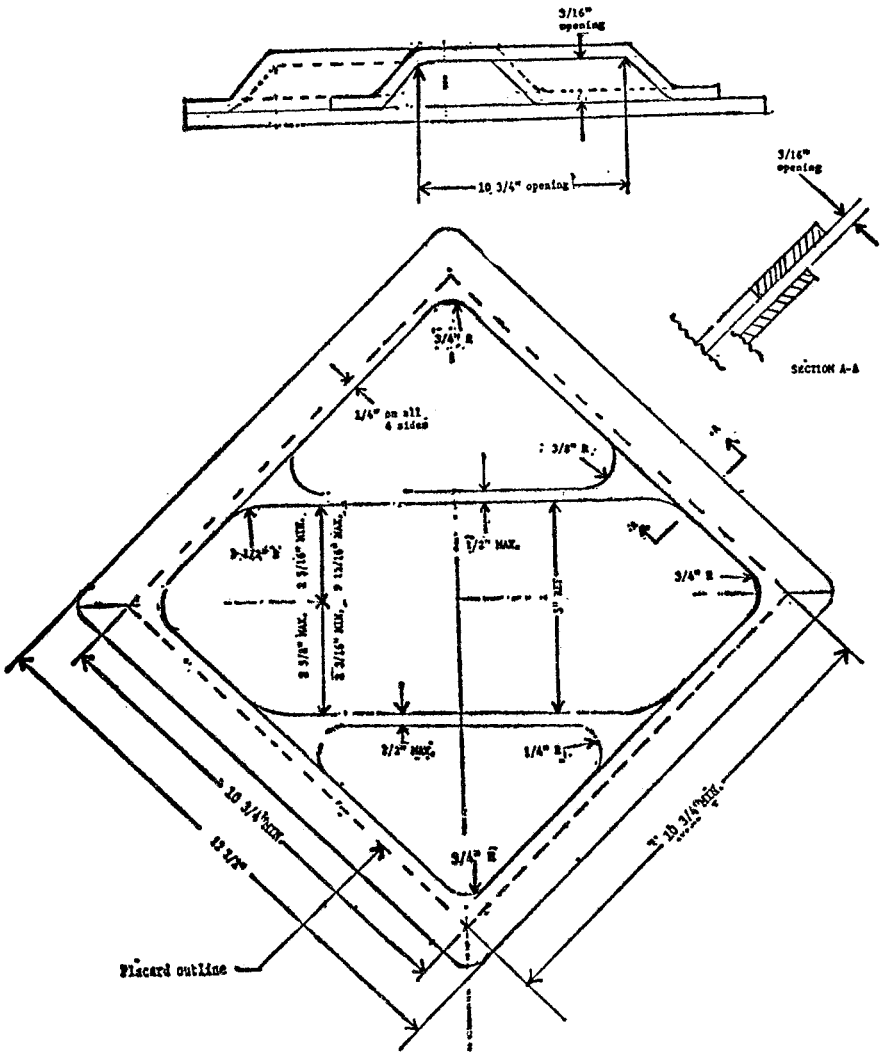
(1) The triangle at the top of the placard must be yellow with the left and right sides measuring 6½ inches (165 mm.) and with the base 9¼ inches (235 mm.).

(2) The center area between the top and bottom triangles must be purple except for the 2½ inches (64 mm.) high by 11¼ inches (286 mm.) long block for the word "Radioactive" which must be white.

(3) The symbol must be purple and overprinted on the yellow. The lower extremity of the symbol must be 1 inch (25.4 mm.) above the base of the top triangle. (The overprinting may cause the color of the symbol to be magenta.)

- 64a -

Appendix to Subpart F
Appendix A - Dimensional Specifications for Placard Holder



Subpart G—Hazard Information Numbers

§ 172.600 Hazard information number required.

(a) Before a person offers for transportation, or transports as a private carrier, any hazardous material subject to the requirements of Parts 170–189 of this subchapter he shall—

(1) Determine that a hazard information number has been designated for the material in § 172.101; or

(2) Assign a hazard information number to the material in accordance with the requirements of this subpart; or

(3) Determine that the material is not required to have a hazard information number according to the regulations in Parts 170–189 of this subchapter.

§ 172.601 Origin of the hazard information number.

(a) A hazard information number is either designated for a material listed in § 172.101, is derived by the person who offers a hazardous material for shipment in accordance with § 177.602 of this subchapter, or is designated by the Department.

(b) If a hazard information number has been assigned to a material, and the material has not been mixed with another material or otherwise changed, a subsequent shipper is not required to rederive the hazard information number.

§ 172.602 Derivation of the hazard information number.

(a) When a hazard information number is not designated for a hazardous material listed in § 172.101, the shipper shall assign it a hazard information number in accordance with the following procedure:

(1) He shall determine from Appendices A and B of this subpart the definitions that apply to the material;

(i) If any definition in Appendix B applies to the material, he may not assign a hazard information number to the material (see paragraph (d) of this section).

(2) If only one definition in Appendix A of this subpart applies to the material, he shall assign a hazard information number to the material in accordance with the following table:

TABLE I

hazard information number	*Type of material as defined in Appendix A*
20----	Nonflammable gas, compressed or liquefied.
23----	Flammable gas, compressed or liquefied.
30----	Flammable or combustible liquid.
38----	Pyroforic liquid.
40----	Flammable solid.
42----	Pyroforic solid.
50----	Oxidizer, liquid or solid.
60----	Highly toxic liquid or solid by ingestion or inhalation.
62----	Extremely toxic liquid or solid by ingestion or inhalation.
64----	Extremely or highly toxic liquid or solid by skin absorption.
80----	Corrosive, liquid or solid.

(3) If more than one definition in Appendix A of this subpart applies to the material, he shall determine the first digit of the hazard information number from the first entry in the following table (reading from the top) that applies to the material:

TABLE II

First	Type of material as defined in Appendix A
2	Flammable or nonflammable gas.
6	Extremely toxic liquid or solid.
6	Highly toxic by skin absorption, liquid or solid.
3	Flammable liquid.
5	Oxidizing material, liquid or solid.
4	Flammable solid.
8	Corrosive liquid or solid.
6	Highly toxic by ingestion or inhalation, liquid or solid.
3	Combustible liquid.

For example, if a material is a "Flammable liquid" and a "Corrosive liquid," the first digit of its hazard information number is 3 because 3 (flammable) comes before 8 (corrosive) when reading from the top downward in Table II.

(4) He shall then determine the complete hazard information number for the material where—

(i) The first digit of the number is the number derived in accordance with paragraph (a)(3) of this section, and

(ii) The complete number is the number in Table III below that corresponds to the adjacent "Hazards" entry that applies to the material.

GASES, COMPRESSED OR LIQUEFIED

TABLE III

Hazard information number	Hazards
21	Nonflammable and corrosive.
[illegible]	Flammable and corrosive.
	LIQUIDS
31	Flammable and corrosive.
32	Flammable and highly toxic by ingestion or inhalation.[1]
	SOLIDS
41	Flammable and highly toxic by ingestion or inhalation (corrosive).[1]
43	Flammable, pyroforic, and highly toxic by ingestion or inhalation (corrosive).[1]
	LIQUIDS OR SOLIDS
51	Oxidizer and corrosive.
53	Oxidizer and highly toxic by inhalation or ingestion (corrosive).[1]
	LIQUIDS OR SOLIDS
61	Highly toxic by ingestion or inhalation and combustible.
64	Extremely or highly toxic by skin absorption and corrosive.
65	Extremely toxic by ingestion or inhalation and flammable or combustible (corrosive).[1]
67	Extremely or highly toxic by skin absorption and flammable or combustible (corrosive).[1]
	LIQUIDS OR SOLIDS
81	Corrosive and highly toxic by ingestion or inhalation.
82	Corrosive and HOD.[2]
83	Corrosive and combustible.
84	Corrosive, HOD,[2] and highly toxic by ingestion or inhalation.
85	Corrosive, combustible, and highly toxic by ingestion or inhalation.
[illegible]	Corrosive, combustible, and HOD.[2]
[illegible]	Corrosive, combustible, HOD,[2] and highly toxic by ingestion or inhalation.

[1] Means that material also may be corrosive.
[2] Means heat of dilution as defined in Appendix A to this subpart.

(b) *Low specific activity radioactive materials.* Unless a hazard information number is assigned to a low specific activity radioactive material that is listed by name in § 172.101, the number 71 shall be assigned when the material is offered for transportation under the conditions set forth in § 173.392(b) of this subchapter.

(c) *Explosives.* Hazard information numbers may not be assigned to new explosives and explosive devices until they have been classified in accordance with the requirements of § 173.86 of this subchapter.

(d) The Department will provide a written designation of the hazard information number to be assigned to a material if—

(1) A hazard information number is not assigned § 172.101.

(2) A hazard information number may not be assigned in accordance with paragraph (a) of this section.

APPENDICES—SUBPART G

APPENDIX A—DEFINITIONS

I—Non-Flammable gas, compressed or liquefied.
II—Flammable gas, compressed or liquefied.
III—Flammable liquid.
IV—Combustible liquid.
V—Flammable solid.
VI—Oxidizing material.
VII—Highly toxic liquid or solid by ingestion or inhalation.
VIII—Highly toxic liquid or solid by skin absorption.
IX—Extremely toxic liquid or solid by ingestion or inhalation.
X—Extremely toxic liquid or solid by skin absorption.
XI—Corrosive liquid or solid.
XII—Corrosive gas.
XIII—HOD (heat of dilution).
XIV—Pyroforic liquid.
XV—Pyroforic solid.

APPENDIX B—DEFINITIONS

I—Highly or extremely toxic gas—compressed or liquefied.
II—Organic peroxide.
III—Thermally unstable material.
IV—Water reactive material.

APPENDIX A—DEFINITIONS

I *Non-Flammable gas, compressed or liquefied.* As defined in § 173.300 of this subchapter..

II *Flammable gas, compressed or liquefied.* As defined in § 173.300 of this subchapter.

III *Flammable liquid.* (Docket HM-102) Any liquid having a flash point below 100° F. (37.8° C.) excluding any mixture having components with flash points of 100° F. (37.8° C.) or higher, the total of which make up 99 percent or more of the total volume of the mixture.

(a) "Flash point" means the minimum temperature at which a liquid gives off vapor within a test vessel in sufficient concentration to form an ignitable mixture with air near the surface of the liquid and shall be determined as follows:

(1) For a liquid having a viscosity of less than 45 SUS at 100° F. (37.8° C.), that does not contain suspended solids, or have a tendency to form a surface film while under test, the procedure specified in the Standard Method of Test for Flash Point by Tag (Tagliabue) Closed Tester (ASTM D56-70) shall be used.

(2) For a liquid having a viscosity of 45 SUS or more at 100° F. (37.8° C.), or that contains suspended solids, or has a tendency to form a surface film while under test, the procedures specified in the Standard Method of Test for Flash Point by Pensky-Martens Closed Tester (ASTM D93-71) shall be used.

(3) For a liquid that is a mixture of compounds that have different volatility and flash points, the flash point shall be determined as specified in subparagraphs (1) or (2) of this paragraph on the material in the form in which it is to be shipped and on a partially evaporated sample obtained by placing a measured volume of the liquid in an open vessel at room temperature between 70–80° F. (21.1° C.–26.7° C.) until 10 to 15 percent of the material by volume is evaporated. The lower value of the two tests shall be the flash point of the material.

IV *Combustible liquid.* (Docket HM-102) Any liquid having a flash point at or above 100° F. (37.8° C.) and below 200° F. (93.4° C.) excluding any mixture having components with flash points of 200° F. (93.4° C.) or higher, the total of which make up 99 percent or more of the total volume of the mixture.

(a) "Flash point" shall be determined in accordance with section III(a) of this Appendix.

V *Flammable solids.* (See note) Any material, other than an explosive that is liable to cause fires through friction, absorption of moisture, spontaneous chemical changes, retained heat from manufacturing or processing, or that can be ignited readily and when ignited burns so vigorously and persistently as to create a serious transportation hazard.

NOTE: The above is a partial definition that is not fully defined at this time. A complete definition will be proposed in a separate rulemaking action.

VI *Oxidizing materials.* (See note) Any material, other than an explosive, that—

(a) Although themselves not necessarily combustible may initiate and promote combustion in other materials causing fires themselves or through the release of oxygen or of other strong oxidizing gases.

(b) When mixed with dry or wet red oak sawdust and heated at below 200° F. in an open container, ignites spontaneously.

(c) When by themselves or mixed with a combustible may react violently when heated under confinement or subjected to shock.

NOTE: The above is a partial definition that is not fully defined at this time. The complete definition will be proposed in a separate rulemaking action.

VII *Highly toxic liquid or solid by ingestion or inhalation.* (Docket HM-51) (a) *Ingestion (oral).* Any material that has a single dose LD_{50} or more than 5 milligrams but not more than 50 milligrams per kilogram of body weight when orally administered to both male and female white rats (young adults).

(b) *Inhalation.* Any material that when administered by continuous inhalation for 1 hour or less to both male and female white rats (young adults) has an LC_{50} of:

(1) More than 50 but not more than 200 parts per million by volume of gas or vapor, or

(2) More than 0.50 but not more than 2 milligrams of mist or dust per liter or air.

If the product is administered to the animals as a dust or mist, more than 90 percent of the particles available for inhalation in the test must have a diameter of 10 microns or less provided it is reasonable foreseeable that such concentrations could be encountered by man.

VIII *Highly toxic liquid or solid by skin absorption.* (Docket HM-51) Any material

that has an LD_{50} of greater than 20 milligrams but not more than 200 milligrams per kilogram of body weight when administered by continuous contact for 24 hours with the bare skin of rabbits, according to the test procedures described in Title 21, § 191.10 of the Code of Federal Regulations.

IX *Extremely toxic liquid or solid by ingestion or inhalation.* (Docket HM-51) (a) *Ingestion (oral).* Any material that has a single dose LD_{50} of 5 milligrams or less per kilogram of body weight when administered orally to both male and female rats (young adults).

(b) *Inhalation.* Any material that when administered by continuous inhalation for 1 hour or less to both male and female white rats (young adults) has an LC_{50} or less parts per million by volume of gas or vapor, or 0.50 or less milligrams of mist or dust per liter of air. If the material is administered to the animals as a dust or mist, more than 90 percent of the particles available for inhalation in the test must have a diameter of 10 microns or less, provided it is reasonably foreseeable that such concentrations could be encountered by man.

X *Extremely toxic liquid or solid by skin absorption.* (Docket HM-51) Any material that has an LD_{50} of 20 milligrams or less per kilogram of body weight when administered by continuous contact for 24 hours with the bare skin of rabbits, according to test procedures described in Title 21, § 191.10 of the Code of Federal Regulations.

XI *Corrosive liquid or solid.* Any liquid or solid material that—

(a) Causes irreversible change or destruction to the intact skin of an albino rabbit after an exposure period of 4 hours or less when tested in accordance with the technique described in 21 CFR 191.11.

(b) Has a corrosion rate exceeding 0.250 inch per year (IPY) on steel (SAE 1020) or aluminum (nonclad 7075-T6) at a test temperature of 130° F. An acceptable test is described in NACE Standard TM-01-69.

XII *Corrosive gas.* Any gas as defined in section I or II of this Appendix and when tested as a saturated aqueous solution meets the definition in section XI above.

XIII *HOD (heat of dilution).* Any material that when diluted at a weight ratio of 1:1 with water exhibits a temperature rise of more than 80° F.

XIV *Pyroforic liquid.* Any liquid that will ignite spontaneously in dry or moist air at temperatures at or below 130° F. (54.4° C).

XV *Pyroforic solid.* Any solid material that will ignite spontaneously in dry or moist air at temperatures at or below 130° F. (54.4° C).

APPENDIX B—DEFINITIONS

I *Highly or extremely toxic gas—compressed or liquefied.* (Docket HM-51) As defined in § 173.300 of this subchapter and having a LC_{50} value of 200 parts per million or less by volume of gas or vapor when administered to both male and female white rats (young adults) by continuous inhalation for 1 hour or less.

II *Organic peroxide.* Any organic compound containing the bivalent -O-O- structure and may be considered as a derivative or hydrogen peroxide where one or more of the hydrogen atoms have been replaced by organic radicals.

III *Self-reactive or thermally unstable material.* Any material that as shipped in its packaging which by itself (i.e., without the utilization of any additional material) is thermodynamically able to undergo a violent and destructive exothermic chemical reaction (e.g., decomposition, polymerization, etc.) for which the reaction rate is accelerated by the thermal energy released.

NOTE: Quantitative testing criteria for this group of materials are presently under development and will be proposed in a separate rulemaking action.

IV *Water reactive material.* Any material that can undergo a chemical reaction with water to produce a flammable gas.

APPENDIX TO PART 172

APPENDIX A—SPECIFICATIONS FOR COLORS

Specifications for colors (in Munsell notations) on labels and placards are as follows:

Color	Paint, lacquer, enamel and plastic: Centroid or standard	Tolerances: Hue +	Hue −	Value +	Value −	Chroma +	Chroma −	Printing ink: Centroid or standard
Red	7.5R 4.0/13	8.5R	6.5R	4.5/	3.5/	/15	/12	6.7R 3.54/13.1
Orange	5.0YR 6.0/14	6.25YR	3.75YR	6.5/	5.5/	/15	/12	2.2YR 5.76/15.7
Yellow	5.0Y 8.0/12	7.5Y	3.5Y	8.5/	7.0/	/14	/10	5.5Y 8.48/14.2
Green	7.5G 4.0/9	0.5BG	5.0G	4.5/	3.5/	/11	/7	7.0G 3.83/11.1
Blue	2.5PB 3.5/10	5.0PB	10.0B	4.0/	3.0/	/12	/8	1.2PB 3.10/10.2
Purple	10.0P 4.5/10	2.5RP	7.5P	5.0/	4.0/	/12	/8	10P 5.0/14.

NOTE 1: Black and colors on labels and placards must be capable of withstanding a 72 hour fadeometer test, and withstanding open weather exposure for no less than 30 days without a substantial reduction in effectiveness.

NOTE 2: The maximum chroma is not limited. Colors within the specified hue and value limits may have any saturation above that specified for the chroma minimum, however, chroma at least as strong as the centroid is desired.

NOTE 3: Color chips will be available from the National Technical Information Service (NTIS), Springfield, Va. 22151, as a set of the six colors and prescribed tolerances for (price to be announced later) per set after _____ date.

List of hazard information cards:

HAZARD INFORMATION

No.	Card
01	Dangerous.
02	
03	
04	
05	Irritant.
07	
08	
09	
10	
11	Explosives Class "C."
12	
13	
14	
15	Explosives Class "B."
16	
17	
18	
19	Explosives Class "A."
20	Non-flammable gas.
21	Non-flammable gas—corrosive.
22	Oxygen.
23	Flammable gas.
24	Flammable gas—corrosive.
25	
26	Non-flammable gas—poison.
27	Oxidizer gas—poison.
28	Flammable gas—poison.
29	Flammable gas—poison—extremely hazardous.
30	Combustible or flammable liquid.
31	Flammable liquid—corrosive.
32	Flammable liquid—poison.
33	
34	Combustible or flammable liquid—self-reactive or thermally unstable.
35	Combustible or flammable liquid—corrosive—self-reactive or thermally unstable.
36	Combustible or flammable liquid—poison—self-reactive or thermally unstable.
37	
38	Pyroforic liquid.
39	
40	Flammable solid.
41	Flammable solid—poison.
42	Flammable solid—pyroforic.
43	Flammable solid—pyroforic—poison.
44	Flammable solid—water reactive.
45	Flammable solid—poison—water reactive.
46	Flammable solid—pyroforic—water reactive.
47	Flammable solid—pyroforic—poison—water reactive.
48	
49	
50	Oxidizer.
51	Oxidizer—corrosive.
52	
53	Oxidizer—poison—corrosive.
54	Oxidizer—thermally unstable.
55	Oxidizer—thermally unstable—corrosive.
56	Oxidizer—thermally unstable—poison.
57	Organic peroxide.
58	Organic peroxide — refrigerated, highly sensitive.
59	Organic peroxide—extremely sensitive.
60	Poison—highly toxic.
61	Poison—highly toxic—combustible.
62	Extremely toxic.
63	
64	Extremely or highly toxic by skin absorption.
65	Extremely toxic—flammable or combustible.
66	
67	Extremely or highly toxic by skin absorption, flammable or combustible.
68	
69	
70	Radioactive—low hazard.
71	Radioactive.
72	Radioactive—oxidizer.
73	Radioactive—corrosive.
74	Radioactive—pyroforic.
75	
76	
77	
78	Radioactive—poison—corrosive.
79	Radioactive—plutonium nitrate acid.
80	Corrosive.
81	Corrosive—poison.
82	Corrosive—HOD.[1]
83	Corrosive—combustible.
84	Corrosive—poison—HOD.[1]
85	Corrosive—combustible—poison.
86	Corrosive—combustible—HOD.[1]
87	Corrosive — combustible—poiso. HOD.[1]
88	
89	

[1] HOD = Heat of dilution.

01

DANGEROUS

CONTAINS HAZARDOUS MATERIAL

Get the shipping papers.

They should contain a hazard information number for each listed hazardous material in the vehicle or container.

If shipping papers are not available, use the following for minimum guidance.

IMMEDIATE ACTION INFORMATION

General	No unnecessary personnel. Keep upwind. Identify and isolate hazard area. Wear self-contained breathing apparatus and full protective clothing.
Fire	On small fires, use dry chemical or carbon dioxide. On large fires, use standard firefighting agents. Cool containers with water from maximum distance. Continue cooling after fires have been extinguished. Move exposed containers from fire area, if without risk.
Spill or Leak	Within hazard area: Eliminate ignition sources. No flares, no smoking, no open flames. Stop leak, if without risk. Use water spray to reduce vapors. Use noncombustible absorbent material (sand, etc.) to collect small spills. Dike large spills for later disposal.
First Aid	Remove to fresh air. Call physician. If not breathing, give artifical respiration. If breathing is difficult, give oxygen. In case of contact with material or water solution, immediately flush skin or eyes with running water for at least 15 minutes. Remove contaminated clothing and shoes. Keep patient at rest.

FOR ADDITIONAL INFORMATION, DISPOSAL AND CLEANUP INSTRUCTIONS, CALL: (800) 424-9300.
IMMEDIATELY REPORT POLLUTION OR CONTAMINATION TO PROPER AUTHORITIES.

IRRITANT

POTENTIAL HAZARDS

Health	Gas very irritating, if breathed. May cause extreme burning of the eyes resulting in a copious flow of tears. May also cause coughing, difficult breathing and nausea. If exposure is brief, effects last only a few minutes. Effects may be serious if exposed to product in an enclosed unventilated area.

IMMEDIATE ACTION INFORMATION

First Aid	Remove to fresh air. Remove contaminated clothing. In case of contact with material, immediately flush skin or eyes with running water for at least 15 minutes. Effects should disappear after individual has been explosed to fresh air for 5 - 10 minutes.

OBTAIN SHIPPING PAPERS.
FOR ADDITIONAL INFORMATION OR DISPOSAL AND CLEANUP INSTRUCTIONS CALL: (800) 424-9300
IMMEDIATELY REPORT POLLUTION OR CONTAMINATION TO PROPER AUTHORITIES.

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EXPLOSIVES CLASS "C"

POTENTIAL HAZARDS

Fire	May burn very rapidly.
Explosion	Individual items may explode when subjected to heat or fire.
Health	Fire may produce irritating gases.

IMMEDIATE ACTION INFORMATION

General	No unnecessary personnel. Identify and isolate hazard area. Self-contained breathing apparatus should be available. Except under emergency conditions, explosives should be handled only under the supervision of an expert.
Fire	If fire not in cargo area, extinguish by conventional methods. If fire in cargo area, use unmanned hose holder or monitor nozzles from maximum distance or behind barrier. Withdraw from hazard area if fire advanced or massive in cargo area.
Spill or Leak	Within hazard area: Eliminate ignition sources. No flares, no open flames, no smoking.
First Aid	Use standard first aid procedures.

OBTAIN SHIPPING PAPERS.
FOR ADDITIONAL INFORMATION OR DISPOSAL AND CLEANUP INSTRUCTIONS CALL: (800) 424-9300
IMMEDIATELY REPORT POLLUTION OR CONTAMINATION TO PROPER AUTHORITIES.

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EXPLOSIVES CLASS "B"

POTENTIAL HAZARDS

Fire	May burn very rapidly. Fire very difficult to extinguish by conventional methods.
Explosion	May explode if confined when fire is massive or advanced in cargo area.
Health	Fire may produce irritating gases.

IMMEDIATE ACTION INFORMATION

General	No unnecessary personnel. Keep upwind. Identify and isolate hazard area. Self-contained breathing apparatus should be available. Wear full protective clothing. Except under emergency conditions, explosives should be handled only under the supervision of an expert.
Fire	If fire not in cargo area, extinguish by conventional methods. If fire in cargo area, use unmanned hose holder or monitor nozzles from maximum distance or behind barrier. Continue cooling after flames have been extinguished. If cargo must be moved, use extreme care in handling and evacuate unnecessary personnel from area. Withdraw from hazard area if fire advanced or massive in cargo area.
Spill or Leak	Within hazard area: Eliminate ignition sources. No flares, no open flames, no smoking. Avoid contact with spilled material.
First Aid	Use standard first aid procedures.

OBTAIN SHIPPING PAPERS.
FOR ADDITIONAL INFORMATION OR DISPOSAL AND CLEANUP INSTRUCTIONS CALL: (800) 424-9300
IMMEDIATELY REPORT POLLUTION OR CONTAMINATION TO PROPER AUTHORITIES.

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EXPLOSIVES CLASS "A"

POTENTIAL HAZARDS

Explosion	May detonate violently if subjected to heat, flame or shock. Probability of explosion increases when heated.
Health	Fire may produce irritating gases.

IMMEDIATE ACTION INFORMATION

General	No unnecessary personnel. Identify and isolate hazard area. (Recommended minimum radius 1/2 mile.) Except under emergency conditions, explosives should be handled only under the supervision of an expert.
Fire	If fire or heat from fire not in cargo area, use unmanned hose holder or monitor nozzle from maximum distance or behind barrier, or if without risk, use conventional methods. Do not move cargo or vehicle if cargo has been exposed to fire or heat. If cargo must be moved, use extreme care in handling to avoid shocks, and evacuate unnecessary personnel from area. Continue cooling after flames have been extinguished. Do not fight fire in cargo area, and withdraw from hazard area.
Spill or Leak	Within immediate area: Eliminate ignition sources. No flares, no open flames, no smoking. Avoid contact with spilled material.
First Aid	Use standard first aid procedures.

OBTAIN SHIPPING PAPERS.
FOR ADDITIONAL INFORMATION OR DISPOSAL AND CLEANUP INSTRUCTIONS CALL: (800) 424-9300
IMMEDIATELY REPORT POLLUTION OR CONTAMINATION TO PROPER AUTHORITIES.

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NON FLAMMABLE GAS

POTENTIAL HAZARDS

Fire	Some material in this group cannot catch fire, others can catch fire but do not ignite readily. Heated container may rupture violently and produce flying missiles.
Health	Little or no hazard except in confined areas. Vapors may cause dizziness or suffocation, if breathed.

IMMEDIATE ACTION INFORMATION

General	No unnecessary personnel. Identify and isolate hazard area. Self-contained breathing apparatus should be available.
Fire	Move exposed containers from fire area, if without risk. Cool containers with water. Do not approach ends of horizontal tanks. Use standard firefighting agents.
Spill or Leak	Avoid contact with liquefied gas. Stop leak if without risk.
First Aid	Remove to fresh air. Use standard first aid procedures.

OBTAIN SHIPPING PAPERS.
FOR ADDITIONAL INFORMATION, DISPOSAL AND CLEANUP INSTRUCTIONS, CALL: (800) 424-9300
IMMEDIATELY REPORT POLLUTION OR CONTAMINATION TO PROPER AUTHORITIES.

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NON-FLAMMABLE GAS

CORROSIVE

POTENTIAL HAZARDS

Fire	Some material in this group cannot catch fire, others can catch fire but do not ignite readily. Heated container may rupture violently and produce flying missiles.
Health	Gas very irritating, if breathed. Contact with material may cause severe burns to skin and eyes.

IMMEDIATE ACTION INFORMATION

General	No unnecessary personnel. Keep upwind. Identify and isolate hazard area. Wear self-contained breathing apparatus and full protective clothing.
Fire	Move exposed containers from fire area, if without risk. Cool containers with water. Do not approach ends of horizontal tanks. Use standard firefighting agents.
Spill or Leak	Stop leak if without risk. Use water spray to reduce vapors. Keep area isolated until gas has dispersed.
First Aid	Remove to fresh air. Call physician. If not breathing give artificial respiration. In case of contact with material or water solution, immediately flush skin or eyes with running water for at least 15 minutes. Remove contaminated clothing and shoes. Keep patient at rest.

OBTAIN SHIPPING PAPERS.
FOR ADDITIONAL INFORMATION, DISPOSAL AND CLEANUP INSTRUCTIONS, CALL: (800) 424-9300
IMMEDIATELY REPORT POLLUTION OR CONTAMINATION TO PROPER AUTHORITIES.

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OXYGEN

FOR USE ON OXYGEN ONLY

POTENTIAL HAZARDS

Fire	Materials that do not burn in air may be ignited in oxygen vapor Reaction with fuel may be violent. Heated container may rupture violently and produce flying missiles. Internal combustion engine may catch fire in oxygen enriched air.
Explosion	Mixture with fuels may explode. Vapor entering sewers or other closed spaces may create explosion hazard.
Health	Contact with liquid or cold gas may cause severe skin and eye injury similar to a burn.

IMMEDIATE ACTION INFORMATION

General	No unnecessary personnel. Identify and isolate hazard area. Wear fire fighters full protective clothing.
Fire	Move exposed containers from fire area, if without risk. Use standard fire fighting agent. Cool containers with water from maximum distance. Use water from maximum distance to protect surrounding property. Withdraw from hazard area, if fire in cargo area is massive or advanced.
Spill or Leak	Within hazard area: Eliminate ignition source. No flares, no smoking, no open flames. Stop leak if without risk. Avoid contact with spilled material. Keep spilled material away from combustibles. Keep area isolated until gas has dispersed.
First Aid	Remove to fresh air. Call physician. Remove contaminated clothing and shoes. Thaw frosted parts with water. Use standard first aid procedures.

OBTAIN SHIPPING PAPERS.
FOR ADDITIONAL INFORMATION CALL: (800) 424-9300
IMMEDIATELY REPORT POLLUTION OR CONTAMINATION TO PROPER AUTHORITIES.

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FLAMMABLE GAS

POTENTIAL HAZARDS

Fire	May be ignited by heat, sparks or open flame. Ignition of vapor may occur at some distance from leaking container. Heated container may rupture violently and produce flying missiles. Vapor entering sewers or other closed spaces may create fire or explosion hazard.
Explosion	May form explosive mixtures with air.
Health	Vapors may cause dizziness or suffocation, if breathed.

IMMEDIATE ACTION INFORMATION

General	No unnecessary personnel. Keep upwind. Identify and isolate hazard area. Self-contained breathing apparatus should be available.
Fire	Do not approach ends of horizontal tanks. Do not extinguish fire unless leak can be stopped. Use standard firefighting agents. Cool containers with water. Move exposed containers from fire area, if without risk. If fire in cargo area is massive or advanced, use unmanned hose holder or monitor nozzles. If this is impossible, withdraw from area and let fire burn.
Spill or Leak	Within hazard area: Eliminate ignition source. No flares, no smoking, no open flames. Stop leak if without risk. Use water spray to reduce vapors. Keep area isolated until gas has dispersed.
First Aid	Remove to fresh air. Use standard first aid procedures.

OBTAIN SHIPPING PAPERS.
FOR ADDITIONAL INFORMATION OR DISPOSAL AND CLEANUP INSTRUCTIONS CALL: (800) 424-9300
IMMEDIATELY REPORT POLLUTION OR CONTAMINATION TO PROPER AUTHORITIES.

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FLAMMABLE GAS

CORROSIVE

POTENTIAL HAZARDS

Fire	May be ignited by heat, sparks or open flames. Ignition of vapor may occur at some distance from leaking container Heated container may rupture violently and produce flying missiles. Vapor entering sewers or other closed spaces may create fire or explosion hazard.
Explosion	May form explosive mixtures with air.
Health	Gas very irritating, if breathed. Contact with material may cause severe burns to skin and eyes.

IMMEDIATE ACTION INFORMATION

General	No unnecessary personnel. Keep upwind. Identify and isolate hazard area. Wear self-contained breathing apparatus and full protective clothing.
Fire	Do not extinugish fire unless leak can be stopped. Use standard firefighting agents. Do not approach ends of horizontal tanks. Cool containers with water. Move exposed containers from fire area, if without risk. If fire in cargo area is massive or advanced, use unmanned hose holder or monitor nozzles. If this is impossible, withdraw from area and let fire burn.
Spill or Leak	Within hazard area: Eliminate ignition source. No flares, no smoking, no open flames. Stop leak if without risk. Use water spray to reduce vapors. Keep area isolated until gas has dispersed.
First Aid	Remove to fresh air. Call physician. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Remove contaminated clothing and shoes. In case of contact with material or water solution, immediately flush skin or eyes with running water for at least 15 minutes. Use standard first air procedures. Keep patient at rest.

OBTAIN SHIPPING PAPERS.
FOR ADDITIONAL INFORMATION OR DISPOSAL AND CLEANUP INSTRUCTIONS CALL: (800) 424-9300
IMMEDIATELY REPORT POLLUTION OR CONTAMINATION TO PROPER AUTHORITIES.

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NON-FLAMMABLE GAS

POISON

POTENTIAL HAZARDS

Fire	Heated container may rupture violently and produce flying missiles. Some material in this group cannot catch fire, others can catch fire but do not ignite readily.
Health	Vapor is poisonous, can be fatal if breathed in high concentrations. Contact with material may cause severe burns to skin and eyes. Contaminated water or material runoff may pollute water supply.

IMMEDIATE ACTION INFORMATION

General	No unnecessary personnel. Keep upwind. Identify and isolate hazard area. Wear self-contained breathing apparatus and full protective clothing.
Fire	Evacuate where poison gas may endanger inhabited area. Do not approach ends of horizontal tanks. Cool containers with water. Move exposed containers from fire area, if without risk. Use standard firefighting agents.
Spill or Leak	Evacuate where poison gas may endanger inhabited area. Stop leak if without risk. Use water spray to reduce vapors. Keep area isolated until gas has dispersed.
First Aid	Remove to fresh air. Call physician. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Remove contaminated clothing and shoes. In case of contact with material or water solution, immediately flush skin or eyes with running water for at least 15 minutes. Keep patient at rest. Effects of contact or inhalation may be delayed.

OBTAIN SHIPPING PAPERS.
FOR ADDITIONAL INFORMATION, DISPOSAL AND CLEANUP INSTRUCTIONS, CALL: (800) 424-9300
IMMEDIATELY REPORT POLLUTION OR CONTAMINATION TO PROPER AUTHORITIES.

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OXIDIZER

POISON, OXIDIZER

POTENTIAL HAZARDS

Fire	May cause fire on contact with combustibles. Reaction with fuels may be violent. Vapors entering sewers of other closed spaces may create fire or explosion hazard. Heated container may rupture violently and produce flying missiles.
Explosion	Mixture with fuels may explode.
Health	Vapor is poisonous, can be fatal if breathed in high concentrations. Contact with material may cause severe burns to skin and eyes. Contaminated water or material runoff may pollute water supply.

IMMEDIATE ACTION INFORMATION

General	No unnecessary personnel. Keep upwind. Identify and isolate hazard area. Wear self-contained breathing apparatus and full protective clothing.
Fire	Evacuate where poison gas may endanger inhabited area. Cool containers with water. On small fires, use dry chemical. On large fires, use water spray or fog. Use water spray to protect surrounding area.
Spill or Leak	Evacuate where poison gas may endanger inhabited area. Stop leak if without risk. Avoid contact with spilled material. Keep spilled material away from combustibles. Use water spray to reduce vapors. Dilute spill with large amounts of water. Dike for later disposal. Keep area isolated until gas has dispersed.
First Aid	Remove to fresh air. Call physician. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. In case of contact with material or water solution, immediately flush skin or eyes with running water for at least 15 minutes. Remove contaminated clothing and shoes. Keep patient at rest.

OBTAIN SHIPPING PAPERS.
FOR ADDITIONAL INFORMATION CALL: (800) 424-9300
IMMEDIATELY REPORT POLLUTION OR CONTAMINATION TO PROPER AUTHORITIES.

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FLAMMABLE GAS

POISON

POTENTIAL HAZARDS

Fire	May be ignited by heat, sparks or open flames. Ignition of vapor may occur at some distance from leaking container. Heated container may rupture violently and produce flying missiles. Vapor entering sewers or other closed spaces may create fire, explosion or poison hazard.
Explosion	May form explosive mixtures with air.
Health	Vapor is poisonous, can be fatal if breathed in high concentrations. Contact with material may cause severe burns to skin and eyes. Contaminated water or material runoff may pollute water supply.

IMMEDIATE ACTION INFORMATION

General	No unnecessary personnel. Keep upwind. Identify and isolate hazard area. Wear self-contained breathing apparatus and full protective clothing.
Fire	Evacuate where poison gas may endanger inhabited area. Do not extinguish fire unless leak can be stopped. Do not approach ends of horizontal tanks. Cool containers with water. Move exposed containers from fire area, if without risk. Use standard firefighting agents.
Spill or Leak	Within hazard area: Eliminate ignition source. No flares, no smoking, no open flames. Evacuate where poison gas may endanger inhabited area Stop leak if without risk. Use water spray to reduce vapors. Keep area isolated until gas has dispersed.
First Aid	Remove to fresh air. Call physician. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. In case of contact with material or water solution, immediately flush skin or eyes with running water for at least 15 minutes. Remove contaminated clothing and shoes. Keep patient at rest. Effects of contact or inhalation may be delayed.

OBTAIN SHIPPING PAPERS.
FOR ADDITIONAL INFORMATION OR DISPOSAL AND CLEANUP INSTRUCTIONS CALL: (800) 424-9300
IMMEDIATELY REPORT POLLUTION OR CONTAMINATION TO PROPER AUTHORITIES.

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FLAMMABLE GAS

POISON - EXTREMELY HAZARDOUS

POTENTIAL HAZARDS

Fire	Some gases in this group are easily ignited by heat, sparks or open flame, others can catch fire but do not ignite readily, or may react violently with combustibles. Heated container may rupture violently and produce flying missiles. Vapor entering sewers or closed spaces may create poison, explosion or fire hazard.
Health	Vapor very poisonous. Breathing of vapor causes little irritation. Fatal concentrations can be readily inhaled without noticing. Runoff may pollute water supply.

IMMEDIATE ACTION INFORMATION

General	No unnecessary personnel. Keep upwind. Identify and isolate hazard area. Wear self-contained breathing apparatus and full protective clothing.
Fire	Use water spray or fog. Fight fire from maximum distance and from behind barrier. Use water from maximum distance and from behind barrier. Evacuate where poison gas may endanger inhabited area. Do not extinguish fire unless gas flow can be stopped.
Spill or Leak	Within hazard area: Eliminate ignition source. No flares, no smoking, no open flames. Evacuate where poison gas may endanger inhabited area. Stop leak if without risk. Use water spray to reduce vapors. Keep area isolated until gas has dispersed.
First Aid	Remove to fresh air. Call physician. If not breathing give artificial respiration. If breathing is difficult give oxygen. Remove contaminated clothing and shoes. In case of contact with material or water solution, immediately flush skin or eyes with running water for at least 15 minutes. Keep patient at rest. Effects of contact or inhalation may be delayed.

OBTAIN SHIPPING PAPERS.
FOR ADDITIONAL INFORMATION, DISPOSAL AND CLEANUP INSTRUCTIONS, CALL: (800) 424-9300
IMMEDIATELY REPORT POLLUTION OR CONTAMINATION TO PROPER AUTHORITIES.

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COMBUSTIBLE OR FLAMMABLE LIQUID

POTENTIAL HAZARDS

Fire	May be ignited by heat, sparks, or open flames. Heated container may rupture violently and produce flying missiles. Ignition of vapor may occur at some distance from leaking container. Vapor entering sewer or other closed spaces may create explosion hazard.
Health	Fire may produce irritating gases. Vapors may cause dizziness or suffocation, if breathed.

IMMEDIATE ACTION INFORMATION

General	No unnecessary personnel. Keep upwind. Identify and isolate hazard area. Self-contained breathing apparatus should be available.
Fire	On small fire use dry chemical or carbon dioxide. On large fires use standard firefighting agents. Do not approach ends of horizontal tanks. Move exposed containers from fire area, if without risk. Cool containers with water. Continue cooling after fires have been extinguished.
Spill or Leak	Within hazard area: Eliminate ignition source. No flares, no smoking, no open flames. Stop leak if without risk. Use water spray to reduce vapors. Dike large spills for later disposal. Use noncombustible absorbent material (sand,etc.) to collect small spills.
First Aid	Remove to fresh air. Use standard first aid procedures.

OBTAIN SHIPPING PAPERS.
FOR ADDITIONAL INFORMATION, DISPOSAL AND CLEANUP INSTRUCTIONS, CALL: (800) 424-9300
IMMEDIATELY REPORT POLLUTION OR CONTAMINATION TO PROPER AUTHORITIES.

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FLAMMABLE LIQUID

CORROSIVE

POTENTIAL HAZARDS

Fire	May be ignited by heat, sparks, or open flames. Heated container may rupture violently and produce flying missiles. Ignition of vapor may occur at some distance from leaking container. Vapor entering sewers or other closed spaces may create fire or explosion hazards.
Health	Fire may produce irritating gases. Vapor may be irritating, if breathed. Contact with material may cause severe burns to skin and eyes. Contaminated water or material runoff may pollute water supply.

IMMEDIATE ACTION INFORMATION

General	No unnecessary personnel. Keep upwind. Identify and isolate hazard area. Self-contained breathing apparatus should be available.
Fire	On small fire use dry chemical or carbon dioxide. On large fires use standard firefighting agents. Do not approach ends of horizontal tanks. Cool containers with water. Continue cooling after fires have been extinguished. Move exposed containers from fire area, if without risk.
Spill or Leak	Within hazard area: Eliminate ignition source. No flares, no smoking, no open flames. Stop leak if without risk. Use water spray to reduce vapors. Dike large spills for later disposal. Use noncombustible absorbent material (sand,etc.) to collect small spills.
First Aid	Remove to fresh air. Call physician. In case of contact with material or water solution, immediately flush skin or eyes with running water for at least 15 minutes. Remove contaminated clothing and shoes. Keep patient at rest.

OBTAIN SHIPPING PAPERS.
FOR ADDITIONAL INFORMATION, DISPOSAL AND CLEANUP INSTRUCTIONS, CALL: (800) 424-9300
IMMEDIATELY REPORT POLLUTION OR CONTAMINATION TO PROPER AUTHORITIES.

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FLAMMABLE LIQUID

POISON

POTENTIAL HAZARDS

Fire	May be ignited by heat, sparks, or open flames. Heated container may rupture violently and produce flying missiles. Ignition of vapor may occur at some distance from leaking container. Vapor entering sewers or other closed spaces may create fire or explosion hazard.
Health	Vapor is poisonous if breathed. Contact with material may cause severe burns to skin and eyes. Liquid may cause death, if consumed. Runoff may pollute water supply.

IMMEDIATE ACTION INFORMATION

General	No unnecessary personnel. Keep upwind. Identify and isolate hazard area. Wear self-contained breathing apparatus and full protective clothing.
Fire	On small fires use dry chemical or carbon dioxide. On large fires use standard firefighting agents. Cool containers with water from maximum distance. Continue cooling after fires have been extinguished. Do not approach ends of horizontal tanks. Move exposed containers from fire area, if without risk.
Spill or Leak	Within hazard area: Eliminate ignition sources. No flares, no smoking, no open flames. Stop leak, if without risk. Use water spray to reduce vapors. Use noncombustible absorbent material (sand, etc.) to collect small spills. Dike large spills for later disposal.
First Aid	Remove to fresh air. Call physician. If not breathing, give artifical respiration. If breathing is difficult, give oxygen. In case of contact with material or water solution, immediately flush skin or eyes with running water for at least 15 minutes. Remove contaminated clothing and shoes. Keep patient at rest. Effects of contact or inhalation may be delayed.

OBTAIN SHIPPING PAPERS.
FOR ADDITIONAL INFORMATION, DISPOSAL AND CLEANUP INSTRUCTIONS, CALL: (800) 424-9300
IMMEDIATELY REPORT POLLUTION OR CONTAMINATION TO PROPER AUTHORITIES.

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FLAMMABLE LIQUID

SELF REACTIVE OR THERMALLY UNSTABLE

POTENTIAL HAZARDS

Fire	May be ignited by heat, sparks, or open flame. Ignition of vapor may occur at some distance from leaking container. Heated container may rupture violently and produce flying missiles even if water applied for cooling. Vapor entering sewers or other closed spaces may create fire or explosion hazard.
Health	Contact with material may cause severe burns to skin and eyes. Fire may produce poisoning gases. Contaminated water or material runoff may pollute water supply.

IMMEDIATE ACTION INFORMATION

General	No unnecessary personnel. Keep upwind. Identify and isolate hazard area. Wear fire fighters full protective clothing. Self-contained breathing apparatus should be available.
Fire	Cool containers with water from maximum distance. Continue cooling after fires have been extinguished. Do not approach ends of horizontal tanks. On small fires use dry chemical or carbon dioxide. On large fires use standard firefighting agents. Move exposed containers from fire area, if without risk. Withdraw from hazard area in case of rising sound from venting safety device. If fire in cargo area is massive or advanced, withdraw from hazard area and use unmanned hoseholder or monitor nozzles.
Spill or Leak	Within hazard area: Eliminate ignition source. No flares, no smoking, no open flames. Stop leak if without risk. Use water spray to reduce vapors. Dike large spills for later disposal.
First Aid	Remove to fresh air. Use standard first air procedures.

OBTAIN SHIPPING PAPERS.
FOR ADDITIONAL INFORMATION, DISPOSAL AND CLEANUP INSTRUCTIONS, CALL: (800) 424-9300
IMMEDIATELY REPORT POLLUTION OR CONTAMINATION TO PROPER AUTHORITIES.

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FLAMMABLE LIQUID

CORROSIVE, SELF REACTIVE, OR THERMALLY UNSTABLE

POTENTIAL HAZARDS

Fire	May be ignited by heat, sparks, or open flame. Ignition of vapor may occur at some distance from leaking container. Heated container may rupture violently and produce flying missiles even if water applied for cooling. Vapor entering sewers or other closed spaces may create fire or explosion hazard.
Health	Contact with material may cause severe burns to skin and eyes. Fire may produce poisoning gases. Contaminated water or material runoff may pollute water supply.

IMMEDIATE ACTION INFORMATION

General	No unnecessary personnel. Keep upwind. Identify and isolate hazard area. Wear fire fighters full protective clothing. Self-contained breathing apparatus should be available.
Fire	Cool containers with water from maximum distance. Continue cooling after fires have been extinguished. Do not approach ends of horizontal tanks. On small fires use dry chemical or carbon dioxide. On large fires use standard firefighting agents. Move exposed containers from fire area, if without risk. Withdraw from hazard area in case of rising sound from venting safety device. If fire in cargo area is massive or advanced, withdraw from hazard area and use unmanned hoseholder or monitor nozzles.
Spill or Leak	Within hazard area: Eliminate ignition source. No flares, no smoking, no open flames. Stop leak if without risk. Use water spray to reduce vapors; Dike large spills or later disposal.
First Aid	Remove to fresh air. Call physician. In case of contact with material or water solution, immediately flush skin or eyes with running water for at least 15 minutes. Remove contaminated clothing and shoes. Keep patient at rest. Effects of contact or inhalation may be delayed.

OBTAIN SHIPPING PAPERS.
FOR ADDITIONAL INFORMATION, DISPOSAL AND CLEANUP INSTRUCTIONS, CALL: (800) 424-9300
IMMEDIATELY REPORT POLLUTION OR CONTAMINATION TO PROPER AUTHORITIES.

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FLAMMABLE LIQUID

POISON, SELF REACTIVE, OR THERMALLY UNSTABLE

POTENTIAL HAZARDS

Fire	May be ignited by heat, sparks, or open flame. Ignition of vapor may occur at some distance from leaking container. Heated container may rupture violently and produce flying missiles even if water applied for cooling. Vapor entering sewers or other closed spaces may create fire or explosion hazard.
Health	Vapor is poisonous, if breathed. Liquid or solid may cause death, if consumed. Fire may produce poisonous gases. Contact with material may cause severe burns to skin and eyes. Contaminated water or material runoff may pollute water supply.

IMMEDIATE ACTION INFORMATION

General	No unnecessary personnel. Keep upwind. Identify and isolate hazard area. Wear self-contained breathing apparatus and full protective clothing.
Fire	Cool containers with water from maximum distance. Continue cooling after fires have been extinguished. Do not approach ends of horizontal tanks. On small fires use dry chemical or carbon dioxide. On large fires use standard firefighting agents. Move exposed containers from fire area, if without risk. Withdraw from hazard area in case of rising sound from venting safety device. If fire in cargo area is massive or advanced, withdraw from hazard area and use unmanned hoseholder or monitor nozzles.
Spill or Leak	Within hazard area: Eliminate ignition source. No flares, no smoking, no open flames. Stop leak if without risk. Use water spray to reduce vapors. Dike large spills for later disposal.
First Aid	Remove to fresh air. Call physician. If not breathing give artificial respiration. If breathing is difficult give oxygen. In case of contact with material or water solution, immediately flush skin or eyes with running water for at least 15 minutes. Remove contaminated clothing and shoes. Keep patient at rest. Effects of contact or inhalation may be delayed.

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IMMEDIATELY REPORT POLLUTION OR CONTAMINATION TO PROPER AUTHORITIES.

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PYROFORIC LIQUIDS

POTENTIAL HAZARDS

Fire	Burns very rapidly and intensely, sometimes with flare-burning effect. May re-ignite after fire is extinguished. May catch fire spontaneously in air. May react with water to release flammable gas. Runoff to sewer may create fire or explosion hazard.
Health	Contact with material may cause severe burns to skin and eyes. Vapor may be irritating, if breathed. Some material in this group may be poisonous.

IMMEDIATE ACTION INFORMATION

General	No unnecessary personnel. Keep upwind. Identify and isolate hazard area. Self-contained breathing apparatus should be available.
Fire	On small fires use dry chemical or carbon dioxide. On large fires use flooding amounts of water. Move exposed containers from fire area, if without risk. Continue cooling after fires have been extinguished. Use water from maximum distance to protect surrounding property. If fire in cargo area is massive or advanced, withdraw from hazard area and use unmanned hoseholder or monitor nozzles.
Spill or Leak	Stop leak if without risk. Cover small spills with dry sand or similar inert absorbent. Collect into clean, dry metal container and keep tightly covered. Dilute spill with large amounts of water. Dike for later disposal.
First Aid	Remove to fresh air. Call physician. Remove contaminated clothing and shoes. In case of contact with material or water solution, immediately flush skin or eyes with running water for at least 15 minutes. Keep patient at rest.

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FLAMMABLE SOLID

POTENTIAL HAZARDS

Fire	Burns very rapidly and intensely, sometimes with flare-burning effect. May be ignited by heat, sparks or open flame.
Health	Contact with material may cause severe burns to skin and eyes.

IMMEDIATE ACTION INFORMATION

General	No unnecessary personnel. Keep upwind. Identify and isolate hazard area. Wear fire fighters full protective clothing.
Fire	On small fires, use dry chemical. On large fires, use standard firefighting agents. Move exposed containers from fire area, if without risk. Cool containers with water from maximum distance. If fire in cargo area is massive or advanced, withdraw from hazard area and use unmanned hoseholder or monitor nozzles.
Spill or Leak	Within hazard area: Eliminate ignition source. No flares, no smoking, no open flames. Stop leak if without risk. Collect into clean, dry metal container and keep tightly covered. Flush small spill area with water spray.
First Aid	Call physician. Use standard first aid procedures. In case of contact with material or water solution, immediately flush skin or eyes with running water for at least 15 minutes.

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FLAMMABLE SOLID
POISON

POTENTIAL HAZARDS

Fire	Burns very rapidly and intensely, sometimes with flare-burning effect. May be ignited by heat, sparks, or open flame.
Health	Vapor, mist, or dust is poisonous, if breathed. Contact with material may cause severe burns. Fire may produce poisoning gases.

IMMEDIATE ACTION INFORMATION

General	No unnecessary personnel. Keep upwind. Identify and isolate hazard area. Wear self-contained breathing apparatus.
Fire	On small fires use dry chemical. On large fires use standard firefighting agents. Move exposed containers from fire area, if without risk. Cool containers with water from maximum distance. If fire in cargo area is massive or advanced, withdraw from hazard area and use unmanned hoseholder or monitor nozzles.
Spill or Leak	Within hazard area: Eliminate ignition source. No flares, no smoking, no open flames. Stop leak if without risk. Collect small spills with dry sand or similar inert absorbent. Flush small spill area with water spray.
First Aid	Remove to fresh air. Call physician. If not breathing give artificial respiration. If breathing is difficult give oxygen. In case of contact with material or water solution, immediately flush skin or eyes with running water for at least 15 minutes. Remove contaminated clothing and shoes. Keep patient at rest.

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FLAMMABLE SOLID
PYROFORIC

POTENTIAL HAZARDS

Fire	May catch fire spontaneously in air. May re-ignite after fire is extinguished.
Health	Materials have little health hazard. Contact with material may cause severe burns to skin and eyes.

IMMEDIATE ACTION INFORMATION

General	No unnecessary personnel. Keep upwind. Identify and isolate hazard area. Self-contained breathing apparatus should be available.
Fire	On small fires use dry chemical, sand or earth. On large fires use flooding amounts of water. Move exposed containers from fire area, if without risk. Cool containers with water from maximum distance. Continue cooling after fires have been extinguished. If fire in cargo area is massive or advanced, withdraw from hazard area and use unmanned hoseholder or monitor nozzles.
Spill or Leak	Within hazard area: Eliminate ignition source. No flares, no smoking, no open flames. Stop leak if without risk. Cover small spills with dry sand or similar inert absorbent. Collect into clean, dry metal container and keep tightly covered. Flush small spill area with water spray.
First Aid	Call physician. In case of contact with material or water solution, immediately flush skin or eyes with running water for at least 15 minutes. Remove contaminated clothing and shoes.

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FLAMMABLE SOLID

PYROFORIC, POISON

POTENTIAL HAZARDS

Fire	May catch fire spontaneously in air. May re-ignite after fire is extinguished.
Health	Vapor, mist or dust is poisonous, if breathed. Contact with material may cause severe burns. Fire may produce poisoning gases.

IMMEDIATE ACTION INFORMATION

General	No unnecessary personnel. Keep upwind. Identify and isolate hazard area. Wear self-contained breathing apparatus.
Fire	On small fires use dry chemical, sand or earth. On large fires use flooding amounts of water. Move exposed containers from fire area, if without risk. Cool containers with water from maximum distance. Continue cooling after fires have been extinguished. If fire in cargo area is massive or advanced, withdraw from hazard area and use unmanned hoseholder or monitor nozzles.
Spill or Leak	Within hazard area: Eliminate ignition source. No flares, no smoking, no open flames. Stop leak if without risk. Cover small spills with dry sand or similar inert absorbent. Collect into clean, dry metal container and keep tightly covered. Flush small spill area with water spray.
First Aid	Remove to fresh air. Call physician. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. In case of contact with material or water solution, immediately flush skin or eyes with running water for at least 15 minutes. Speed in removing material from skin is of extreme importance. Keep patient at rest. Effects of contact or inhalation may be delayed.

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FLAMMABLE SOLID

WATER REACTIVE

POTENTIAL HAZARDS

Fire	Burns very rapidly and intensely, sometimes with flare-burning effect. May catch fire spontaneously in air. May react with water to release flammable gas.
Health	Contact with material may cause severe burns.

IMMEDIATE ACTION INFORMATION

General	No unnecessary personnel. Keep upwind. Identify and isolate hazard area. Self-contained breathing apparatus should be available.
Fire	On small fires use dry chemical, sand or earth. DO NOT USE WATER. Move exposed containers from fire area, if without risk. Let large fire burn. Use water from maximum distance to protect surrounding property.. Do not get water inside containers. Withdraw from hazard area, if fire in cargo area is massive or advanced
Spill or Leak	With hazard area: Eliminate ignition source. No flares, no smoking, no open flames. Stop leak if without risk. Collect into clean, dry metal container and keep tightly covered.
First Aid	Call physician. In case of contact with material or water solution, immediately flush skin or eyes with running water for at least 15 minutes. Remove contaminated clothing and shoes.

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FLAMMABLE SOLID

POISON, WATER REACTIVE

POTENTIAL HAZARDS

Fire	Burns very rapidly and intensely, sometimes with flare-burning effect. May catch fire spontaneously in air. May react with water to release flammable gas.
Health	Vapor, mist or dust is poisonous, can be fatal if breathed in high concentrations. Contact with material may cause severe burns. Fire may produce poisoning gases.

IMMEDIATE ACTION INFORMATION

General	No unnecessary personnel. Keep upwind. Identify and isolate hazard area. Wear self-contained breathing apparatus.
Fire	On small fire use dry chemical, sand or earth. Move exposed containers from fire area, if without risk. DO NOT USE WATER. Let large fire burn. Use water from maximum distance to protect surrounding property. Withdraw from hazard area, if fire in cargo area is massive or advanced
Spill or Leak	Stop leak if without risk. Collect into clean, dry metal container and keep tightly covered.
First Aid	Remove to fresh air. Call physician. If not breathing give artificial respiration. If breathing is difficult, give oxygen. In case of contact with material or water solution, immediately flush skin or eyes with running water for at least 15 minutes. Remove contaminated clothing and shoes. Keep patient at rest.

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FLAMMABLE SOLID

PYROPHORIC, WATER REACTIVE

POTENTIAL HAZARDS

Fire	May catch fire spontaneously in air. May react with water to release flammable gas. May re-ignite after fire is extinguished. Burns very rapidly and intensely, sometimes with flare-burning effect.
Health	Contact with material may cause severe burns.

IMMEDIATE ACTION INFORMATION

General	No unnecessary personnel. Keep upwind. Identify and isolate hazard area. Self-contained breathing apparatus should be available.
Fire	On small fires, use dry chemical, sand or earth. Move exposed containers from fire area, if without risk. DO NOT USE WATER. Let large fire burn. Use water from maximum distance to protect surrounding property. Cool containers with water from maximum distance. Continue cooling after fires have been extinguished. Withdraw from hazard area, if fire in cargo area is massive or advanced.
Spill or Leak	Stop leak if without risk. Cover small spills with dry sand or similar inert absorbent. Collect into clean, dry metal container and keep tightly covered.
First Aid	Call physician. In case of contact with material or water solution, immediately flush skin or eyes with running water for at least 15 minutes. Remove contaminated clothing and shoes.

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FLAMMABLE SOLID

PYROFORIC, POISON, WATER REACTIVE

POTENTIAL HAZARDS

Fire	May catch fire spontaneously in air. May react with water to release flammable gas. May re-ignite after fire is extinguished. Burns very rapidly and intensely, sometimes with flare-burning effect.
Health	Vapor, mist or dust is poisonous, can be fatal if breathed in high concentrations. Contact with material may cause severe burns. Fire may produce poisoning gases.

IMMEDIATE ACTION INFORMATION

General	No unnecessary personnel. Keep upwind. Identify and isolate hazard area. Wear self-contained breathing apparatus.
Fire	On small fire use dry chemical, sand or earth. Move exposed containers from fire area, if without risk. DO NOT USE WATER. Let large fire burn. Use water from maximum distance to protect surrounding property. Cool containers with water from maximum distance. Continue cooling after fires have been extinguished.
Spill or Leak	Wear self-contained breathing apparatus. Stop leak if without risk. Cover small spills with dry sand or similar inert absorbent. Collect into clean, dry metal container and keep tightly covered.
First Aid	Remove to fresh air. Call physician. If not breathing give artificial respiration. If breathing is difficult give oxygen. In case of contact with material or water solution, immediately flush skin or eyes with running water for at least 15 minutes. Remove contaminated clothing and shoes. Keep patient at rest.

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OXIDIZER

POTENTIAL HAZARDS

Fire	May cause fire and react violently on contact with combustible. Reaction with fuels may be violent.
Explosion	Mixture with fuels may explode.
Health	Materials have little health hazard.

IMMEDIATE ACTION INFORMATION

General	No unnecessary personnel. Keep upwind. Identify and isolate hazard area. Self-contained breathing apparatus should be available.
Fire	On small fires use dry chemical or carbon dioxide. On large fires use water spray or fog. Move exposed containers from fire area, if without risk. Cool containers with water from maximum distance. Fight fire from maximum distance and from behind barrier. Use water spray to protect surrounding area.
Spill or Leak	Avoid contact with spilled material. Stop leak if without risk. Keep spilled material away from combustibles. Dike large spills for later disposal. Collect small dry spills into clean, dry metal container and keep tightly covered. Use noncombustible absorbent material (sand,etc.) to collect small spills. Dilute liquid spill with large amounts of water. Dike for later disposal.
First Aid	Remove contaminated clothing and shoes. Use standard first aid procedures.

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OXIDIZER

CORROSIVE

POTENTIAL HAZARDS

Fire	May cause fire and react violently on contact with combustibles. Reactions with fuels may be violent.
Explosion	Mixture with fuels may explode.
Health	Contact with material may cause severe burns to skin and eyes.

IMMEDIATE ACTION INFORMATION

General	No unnecessary personnel. Keep upwind. Identify and isolate hazard area. Wear fire fighters full protective clothing. Self-contained breathing apparatus should be available.
Fire	On small fires, use dry chemical or carbon dioxide. On large fires, use water spray or fog. Move exposed containers from fire area, if without risk. Cool containers with water from maximum distance. Fight fire from maximum distance and from behind barrier. Use water spray to protect surrounding area.
Spill or Leak	Stop leak if without risk. Keep spilled material away from combustibles. Dike large spills for later disposal. Collect small, dry spills into clean, dry metal container and keep tightly covered. Use noncombustible absorbent material (sand,etc.) to collect small spills. Dilute liquid spill with large amounts of water. Dike for later disposal.
First Aid	Remove to fresh air. Call physician. Remove contaminated clothing and shoes. In case of contact with material or water solution, immediately flush skin or eyes with running water for at least 15 minutes.

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OXIDIZER

POISON - CORROSIVE

POTENTIAL HAZARDS

Fire	May cause fire and react violently on contact with combustibles. Reaction with fuels may be violent.
Explosion	Mixture with fuels may explode.
Health	Vapor, mist or dust in poisonous, can be fatal if breathed in high concentrations. Contact with material may cause severe burns to skin and eyes. Contaminated water or material run off may pollute water supply. Runoff to sewer may create poison and explosion hazard.

IMMEDIATE ACTION INFORMATION

General	No unnecessary personnel. Keep upwind. Identify and isolate hazard area. Wear self-contained breathing apparatus and full protective clothing.
Fire	On small fires, use dry chemical or carbon dioxide. On large fires, use water spray or fog. Move exposed containers from fire area, if without risk. Cool containers with water from maximum distance. Fight fire from maximum distance and from behind barrier. Use water spray to protect surrounding area.
Spill or Leak	Stop leak if without risk. Keep spilled material away from combustibles. Collect small solid spills into clean, dry metal container and keep tightly covered. Use noncombustible absorbent material (sand,etc.) to collect small spills. Dilute liquid spill with large amounts of water using spray or fog nozzle. Dike for later disposal.
First Aid	Remove to fresh air. Call physician. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Remove contaminated clothing and shoes. In case of contact with material or water solution, immediately flush skin or eyes with running water for at least 15 minutes. Keep patient at rest. Effects of contact or inhalation may be delayed.

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OXIDIZER

SELF REACTIVE, THERMALLY UNSTABLE

POTENTIAL HAZARDS

Fire	May cause fire and react violently on contact with combustibles. Reaction with fuels may be violent. Heated container may rupture violently and produce flying missiles.
Explosion	Mixture with fuels may explode. Decomposition with explosive violence may be caused by friction, shock, heat or contamination. Runoff to sewer may create explosion hazards.
Health	Contact with material may cause severe burns to skin and eyes.

IMMEDIATE ACTION INFORMATION

General	No unnecessary personnel. Keep upwind. Identify and isolate hazard area. Wear fire fighters full protective clothing. Self-contained breathing apparatus should be available.
Fire	On small fires, use dry chemical or carbon dioxide. On large fires, use flooding amounts of water. Cool containers with water from maximum distance. Withdraw from hazard area, if fire in cargo area is massive or advanced, and if firefighting is necessary, use unmanned hose holder or monitor from maximum distance or behind barrier. Use water spray to protect surrounding area.
Spill or Leak	Stop leak if without risk. Keep spilled material away from combustibles. Use noncombustible absorbent material (sand,etc.) to collect small spills. Dilute large liquid spills with large amounts of water, dike for later disposal.
First Aid	Remove contaminated clothing and shoes. In case of contact with material or water solution, immediately flush skin or eyes with running water for at least 15 minutes. Use standard first aid procedures.

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OXIDIZER

CORROSIVE, SELF REACTIVE OR THERMALLY UNSTABLE

POTENTIAL HAZARDS

Fire	May cause fire and react violently on contact with combustibles. Reaction with fuels may be violent. Heated container may rupture violently and produce flying missiles. Runoff to sewer may create fire or explosion hazard.
Explosion	Mixture with fuels may explode. Decomposition with explosive violence may be cause by friction, shock, heat or contamination.
Health	Contact with material may cause severe burns to skin and eyes.

IMMEDIATE ACTION INFORMATION

General	No unnecessary personnel. Keep upwind. Identify and isolate hazard area. Wear fire fighters full protective clothing. Self-contained breathing apparatus should be available.
Fire	On small fires, use dry chemical or carbon dioxide. On large fires, use flooding amounts of water. In early stages cool containers with water from maximum distance. Withdraw from hazard area, if fire in cargo area is massive or advanced, and if firefighting is necessary, use unmanned hose holder or monitor from maximum distance behind barrier. Use water spray to protect surrounding area.
Spill or Leak	Stop leak if without risk. Keep spilled material away from combustibles. Use noncombustible absorbent material (sand,etc.) to collect small spills. Dilute liquid spill with large amounts of water. Dike for later disposal.
First Aid	Remove to fresh air. Call physician. Remove contaminated clothing and shoes. In case of contact with material or water solution, immediately flush skin or eyes with running water for at least 15 minutes.

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OXIDIZER

POISON, SELF REACTIVE OR THERMALLY UNSTABLE

POTENTIAL HAZARDS

Fire	May cause fire and react violently on contact with combustibles. Reaction with fuels may be violent. Heated container may rupture violently and produce flying missiles.
Explosion	Mixture with fuels may explode. Decomposition with explosive violence may be caused by friction, shock, heat or contamination.
Health	Vapor, mist or dust is poisonous, can be fatal if breathed in high concentrations. Contact with material may cause severe burns to skin and eyes. Runoff to sewer may create poison hazard.

IMMEDIATE ACTION INFORMATION

General	No unnecessary personnel. Keep upwind. Identify and isolate hazard area. Wear self-contained breathing apparatus and full protective clothing.
Fire	On small fires, use dry chemical or carbon dioxide. On large fires, use flooding amounts of water. Cool containers with water from maximum distance. Withdraw from hazard area, if fire in cargo area is massive or advanced, and if firefighting is necessary, use unmanned hose or monitor from maximum distance behind barrier. Use water spray to protect surrounding area.
Spill or Leak	Stop leak if without risk. Keep spilled material away from combustibles. Use water spray to reduce vapors. Use noncombustible absorbent material (sand,etc.) to collect small spills. Dilute liquid spill with large amounts of water. Dike for later disposal.
First Aid	Remove to fresh air. Call physician. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Remove contaminated clothing and shoes. In case of contact with material or water solution, immediately flush skin and eyes with running water for at least 15 minutes. Keep patient at rest. Effects of contact or inhalation may be delayed.

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ORGANIC PEROXIDE

POTENTIAL HAZARDS

Fire	May be ignited by heat, sparks, or open flame. May cause fire on contact with combustibles. Reaction with fuels may be violent. Heated container may rupture violently and produce flying missiles even if water applied for cooling.
Explosion	Decomposition with explosive violence may be caused by friction, shock, heat or contamination.
Health	Contact with material may cause severe burns to skin and eyes.

IMMEDIATE ACTION INFORMATION

General	No unnecessary personnel. Keep upwind. Identify and isolate hazard area. Wear fire fighters full protective clothing. Self-contained breathing apparatus should be available.
Fire	In early stages cool containers with water from maximum distance. On small fires, use dry chemical or carbon dioxide. On large fires, use flooding amounts of water. Withdraw from hazard area if fire in cargo area is massive or advanced, and if firefighting is necessary use unmanned hoseholder or monitor nozzles.
Spill or Leak	Stop leak if without risk. Keep spilled material away from combustibles. Dilute large liquid spills with large amounts of water, dike for later disposal.
First Aid	Remove to fresh air. Remove contaminated clothing and shoes. In case of contact with material or water solution, immediately flush skin or eyes with running water for at least 15 minutes. Keep patient at rest.

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ORGANIC PEROXIDE

HIGHLY SENSITIVE, NEED REFRIGERATION

POTENTIAL HAZARDS

Fire	Auto ignition may occur. May be ignited by heat, sparks or open flames. Burns very rapidly and intensely, sometimes with flare-burning effect. May cause fire on contact with combustibles. Heated container may rupture violently and produce flying missiles.
Explosion	Decomposition with explosive violence may be caused by loss of refrigeration, friction, shock or contamination.
Health	Contact with material may cause severe burns to skin and eyes.

IMMEDIATE ACTION INFORMATION

General	No unnecessary personnel. Keep upwind. Identify and isolate hazard area. Wear fire fighters full protective clothing. Self-contained breathing apparatus should be available.
Loss of Cooling	Specified temperature of material must be maintained to prevent explosion or dangerous decomposition. Obtain emergency source of cooling such as dry ice, or liquid nitrogen. If no source of cooling can be obtained, evacuate area.
Fire	In confined space such as refrigerator, use liquid nitrogen or carbon dioxide if available to cool material and exclude air. Water will extinguish flames but may also raise material temperature above decomposition point. Withdraw from hazard area if fire in cargo area is massive or advanced.
Spill or Leak	In case of small spill, deposit material in a shallow trench and ignite with torch from a safe distance. Flush area of spill with water.
First Aid	Remove to fresh air. Call physician. Use standard first aid procedures.

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ORGANIC PEROXIDE

EXTREMELY SENSITIVE

POTENTIAL HAZARDS

Fire	Auto ignition may occur. May be ignited by heat, sparks or open flames. Burns very rapidly and intensely, sometimes with flare-burning effect. May cause fire on contact with combustibles. Reaction with fuels may be violent. Heated container may rupture violently and produce flying missiles.
Explosion	Decomposition with explosive violence may be caused by: friction, shock, heat or contamination.
Health	Contact with material may cause severe burns to skin and eyes.

IMMEDIATE ACTION INFORMATION

General	No unnecessary personnel. Keep upwind. Identify and isolate hazard area. Wear fire fighters full protective clothing. Self-contained breathing apparatus should be available.
Fire	On small fires, use dry chemical or carbon dioxide. Withdraw from hazard area, if fire in cargo area is massive or advanced, and use unmanned hose holder or monitor from maximum distance or behind barrier to protect surrounding area.
Spill or Leak	Within hazard area: Eliminate ignition source. No flares, no smoking, no open flames. Stop leak if without risk. Keep spilled material away from combustibles. Flush area of spill with water.
First Aid	Remove to fresh air. Call physician. In case of contact with material or water solution, immediately flush skin or eyes with running water for at least 15 minutes. Keep patient at rest.

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POISON

HIGHLY TOXIC

POTENTIAL HAZARDS

Fire	Some material in this group cannot catch fire, others can catch fire but do not ignite readily.
Health	Vapor, mist, or dust is poisonous, if breathed. Liquid or solid may cause death, if consumed. Contaminated water or material runoff may pollute water supply. Runoff to sewer may create poison hazard.

IMMEDIATE ACTION INFORMATION

General	No unnecessary personnel. Keep upwind. Identify and isolate hazard area. Wear self-contained breathing apparatus and full protective clothing.
Fire	On small fires use dry chemical or carbon dioxide. On large fires use standard firefighting agents. Move exposed containers from fire area, if without risk.
Spill or Leak	Avoid contact with spilled material. Stop leak if without risk. Dike large spills for later disposal. Use water spray to reduce vapors.
First Aid	Remove to fresh air. Call physician. If not breathing, give artifical respiration. If breathing is difficult, give oxygen. Remove contaminated clothing and shoes. In case of contact with material or water solution, immediately flush skin or eyes with running water for at least 15 minutes. Keep patient at rest. Effects of contact or inhalation may be delayed.

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POISON

HIGHLY TOXIC, COMBUSTIBLE

POTENTIAL HAZARDS

Fire	May be ignited by heat, sparks, or open flames. Heated container may rupture violently and produce flying missiles. Ignition of vapor may occur at some distance from leaking container. Vapor entering sewer or other closed spaces may create fire or explosion hazard.
Health	Vapor, mist, or dust is poisonous, if breathed. Liquid or solid may cause death, if consumed. Contaminated water or material runoff may pollute water supply. Runoff to sewer may create poison hazard.

IMMEDIATE ACTION INFORMATION

General	No unnecessary personnel. Keep upwind. Identify and isolate hazard area. Wear self-contained breathing apparatus and full protective clothing.
Fire	On small fires, use dry chemical or carbon dioxide. On large fires, use standard firefighting agents. Do not approach ends of horizontal tanks. Move exposed containers from fire area, if without risk. Cool containers with water. Continue cooling after fires have been extinguished.
Spill or Leak	Within hazard area: Eliminate ignition source. No flares, no smoking, no open flames. Stop leak if without risk. Dike large spills for later disposal. Use water spray to reduce vapors. Use noncombustible absorbent material (sand,etc.) to collect small spills.
First Aid	Remove to fresh air. Call physician. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Remove contaminated clothing and shoes. In case of contact with material or water solution, immediately flush skin or eyes with running water for at least 15 minutes. Keep patient at rest. Effects of contact or inhalation may be delayed.

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POISON

EXTREMELY TOXIC

POTENTIAL HAZARDS

Fire	Some material in this group cannot catch fire, others can catch fire but do not ignite readily.
Health	Vapor, mist, or dust is poisonous, can be fatal if breathed in high concentrations. Contact with material may cause severe burns to skin and eyes. Small amounts of liquid or solid may cause death, if consumed. Contaminated water or material runoff may pollute water supply. Runoff to sewer may create poison hazard.

IMMEDIATE ACTION INFORMATION

General	No unnecessary personnel. Keep upwind. Identify and isolate hazard area. Wear self-contained breathing apparatus and full protective clothing.
Fire	On small fires, use dry chemical or carbon dioxide. On large fires, use standard firefighting agents. Move exposed containers from fire area, if without risk.
Spill or Leak	Avoid contact with spilled material. Stop leak if without risk. Dike large spills for later disposal. Use water spray to reduce vapors.
First Aid	Remove to fresh air. Call physician. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Remove contaminated clothing and shoes. In case of contact with material or water solution, immediately flush skin or eyes with running water for at least 15 minutes. Keep patient at rest. Effects of contact or inhalation may be delayed.

OBTAIN SHIPPING PAPERS.
FOR ADDITIONAL INFORMATION, DISPOSAL AND CLEANUP INSTRUCTIONS, CALL: (800) 424-9300
IMMEDIATELY REPORT POLLUTION OR CONTAMINATION TO PROPER AUTHORITIES.

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POISON

POISONOUS THROUGH SKIN ABSORPTION

EXTREMELY OR HIGHLY TOXIC

POTENTIAL HAZARDS

Fire	Some material in this group cannot catch fire, others can catch fire but do not ignite readily.
Health	Vapor, mist, or dust is poisonous, can be fatal if breathed in high concentrations. Poisonous by skin absorption. Contact with material may cause severe burns to skin and eyes. Small amounts of liquid or solid may cause death, if consumed. Contaminated water or material runoff may pollute water supply. Runoff to sewer may create poison hazard.

IMMEDIATE ACTION INFORMATION

General	No unnecessary personnel. Keep upwind. Identify and isolate hazard area. Wear self-contained breathing apparatus and full protective clothing
Fire	On small fires, use dry chemical or carbon dioxide. On large fires, use standard firefighting agents. Move exposed containers from fire area, if without risk.
Spill or Leak	Do not come into contact with spilled material. Stop leak if without risk. Dike large spills for later disposal.
First Aid	Remove to fresh air. Call physician. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Remove contaminated clothing and shoes. Speed in removing liquid from skin is of extreme importance. In case of contact with material or water solution, immediately flush skin or eyes with running water for at least 15 minutes. Keep patient at rest. Effects of contact or inhalation may be delayed.

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FOR ADDITIONAL INFORMATION OR DISPOSAL AND CLEANUP INSTRUCTIONS CALL: (800) 424-9300
IMMEDIATELY REPORT POLLUTION OR CONTAMINATION TO PROPER AUTHORITIES.

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POISON

EXTREMELY TOXIC, FLAMMABLE

POTENTIAL HAZARDS

Fire	May be ignited by heat, sparks, or open flames. Heated container may rupture violently and produce flying missiles. Ignition of vapor may occur at some distance from leaking container. Vapor entering sewer or other closed spaces may create fire or explosion hazard.
Health	Vapor, mist, or dust is poisonous, can be fatal if breathed in high concentration. Contact with material may cause severe burns to skin and eyes. Small amounts of liquid or solid may cause death, if consumed. Contaminated water or material runoff may pollute water supply. Runoff to sewer may create poison hazard.

IMMEDIATE ACTION INFORMATION

General	No unnecessary personnel. Keep upwind. Identify and isolate hazard area. Wear self-contained breathing apparatus and full protective clothing.
Fire	On small fires, use dry chemical or carbon dioxide. On large fires, use standard firefighting agents. Do not approach ends of horizontal tanks. Move exposed containers from fire area, if without risk. Cool containers with water. Continue cooling after fires have been extinguished.
Spill or Leak	Within hazard area: Eliminate ignition source. No flares, no smoking, no open flames. Avoid contact with spilled material. Stop leak if without risk. Dike large spills for later disposal. Use water spray to reduce vapors. Use noncombustible absorbent material (sand,etc.) to collect small spills.
First Aid	Remove to fresh air. Call physician. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Remove contaminated clothing and shoes. In case of contact with material or water solution, immediately flush skin or eyes with running water for at least 15 minutes. Keep patient at rest. Effects of contact or inhalation may be delayed.

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IMMEDIATELY REPORT POLLUTION OR CONTAMINATION TO PROPER AUTHORITIES.

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POISON

FLAMMABLE, POISONOUS THROUGH SKIN ABSORPTION
EXTREMELY TOXIC

POTENTIAL HAZARDS

Fire	May be ignited by heat, sparks, or open flames. Heated container may rupture violently and produce flying missiles. Ignition of vapor may occur at some distance from leaking container. Vapor entering sewer or other closed spaces may create fire or explosion hazard.
Health	Vapor, mist, or dust is poisonous, can be fatal if breathed in high concentrations. Contact with material may cause severe burns to skin and eyes. Poisonous by skin absorption. Small amounts of liquid or solid may cause death, if consumed. Contaminated water or material runoff may pollute water supply. Runoff to sewer may create poison hazard.

IMMEDIATE ACTION INFORMATION

General	No unnecessary personnel. Keep upwind. Identify and isolate hazard area. Wear self-contained breathing apparatus and full protective clothing.
Fire	On small fires use dry chemical or carbon dioxide. On large fires, use standard firefighting agents. Do not approach ends of horizontal tanks. Move exposed containers from fire area, if without risk. Cool containers with water. Continue cooling after fires have been extinguished.
Spill or Leak	Within hazard area: Eliminate ignition source. No flares, no smoking, no open flames. Do not come into contact with spilled material. Stop leak if without risk. Dike large spills for later disposal. Use water spray to reduce vapors. Use noncombustible absorbent material (sand,etc.) to collect small spills.
First Aid	Remove to fresh air. Call physician. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Remove contaminated clothing and shoes. Speed in removing liquid from skin is of extreme importance. In case of contact with material or water solution, immediately flush skin or eyes with running water for at least 15 minut... Keep patient at rest. Effects of contact or inhalation may be delayed.

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IMMEDIATELY REPORT POLLUTION OR CONTAMINATION TO PROPER AUTHORITIES.

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RADIOACTIVE

LOW HAZARD

POTENTIAL HAZARDS

Health	Degree of hazard due to radioactivity will vary depending upon type, quantity and form of the material. Hazard may be from internal radiation from breathing gases, vapor, or dust from airborne material or contamination of skin, open cuts, sores; or external radiation (as from X-rays) from contamination on skin or from exposure to unshielded radioactive material. Radiation hazard will generally be of low order and does not pose an immediate or serious threat to life or health.

IMMEDIATE ACTION INFORMATION

General	No unnecessary personnel. Keep upwind. Identify and isolate hazard area. Wear fire fighters full protective clothing. Self-contained breathing apparatus should be available.
Fire	Use standard firefighting agents. Avoid contact with leaking or damaged packages. Move undamaged packages out of fire zone if without risk. Delay clean up until arrival of qualified radiation monitoring assistance.
Spill or Leak	Avoid contact with leaking or damaged packages. If damaged packages must be moved, use gloves to place damaged packages in metal containers if available. Shutoff liquid leak or dike flow or use absorbent materials to contain leakage. Move undamaged packages from spill area. Delay cleanup until arrival of qualified radiation monitoring assistance.
First Aid	Call physician. Use standard first aid procedures. Assume radioactive contamination on persons and equipment close to damaged packages or spilled material. Remove contaminated clothing and wash or shower with soap and water, if possible. Advise rescue personnel and physicians that injured persons may be radioactively contaminated.

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IMMEDIATELY REPORT POLLUTION OR CONTAMINATION TO PROPER AUTHORITIES.
[illegible] OFFICE OF USAEC
[illegible]

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RADIOACTIVE

POTENTIAL HAZARDS

Health	Degree of hazard due to radioactivity will vary depending upon type, quantity, and form of the material. Hazard may be from internal radiation from breathing gases, vapors, or dust from airborne material or contamination of skin, open cuts, sores; or external radiation (as from X-rays) from contamination on skin or from exposure to unshielded radioactive material. Prolonged exposure may be threat to health or life.

IMMEDIATE ACTION INFORMATION

General	No unnecessary personnel. Keep upwind. Identify and isolate hazard area. Wear self-contained breathing apparatus and full protective clothing.
Fire	Use standard firefighting agents. Fight fire from maximum distance. Avoid contact with leaking or damaged packages. Do not move damaged packages. Move undamaged packages out of fire zone if without risk. Delay cleanup until arrival of qualified radiation monitoring assistance.
Spill or Leak	Avoid contact with leaking or damaged packages. Prevent spread of loose material by diking or other suitable means. Limit entries to hazard area to shortest possible time. Alternate persons used for entries if possible. Do not enter hazard area unless necessary to rescue injured persons or retard flow of material from massive spills or leaks. Delay cleanup until arrival of qualified radiation monitoring assistance.
First Aid	Call physician. Use standard first aid procedures. Assume radioactive contamination on persons or equipment close to damaged packages or spilled material. Remove contaminated clothing and wash or shower with soap and water, if possible. Observable effects of serious radiation exposure may be delayed. Advise rescue personnel and physicians that injured persons may be radioactively contaminated.

OBTAIN SHIPPING PAPERS.
FOR ADDITIONAL INFORMATION OR DISPOSAL AND CLEANUP INSTRUCTIONS CALL: (800) 424-9300
IMMEDIATELY REPORT POLLUTION OR CONTAMINATION TO PROPER AUTHORITIES.
REQUEST RADIOLOGICAL MONITORING ASSISTANCE FROM NEAREST REGIONAL OFFICE OF USAEC
RADIOLOGICAL EMERGENCY ASSISTANCE PLAN (SEE MAP PAGE ____).

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RADIOACTIVE
OXIDIZER

POTENTIAL HAZARDS

Fire	May cause fire on contact with combustibles. Reaction with fuels may be violent.
Health	Material is of relatively low order of hazard due to external radiation (as from X-rays). Primary radiation hazard is internal, due to breathing gases, vapors, dust from airborne material; or contamination of skin, open cuts, sores. Fire may produce poisonous gases.

IMMEDIATE ACTION INFORMATION

General	No unnecessary personnel. Keep upwind. Identify and isolate hazard area. Wear self-contained breathing apparatus and full protective clothing.
Fire	On small fires, use dry chemical or carbon dioxide. On large fires, use flooding amounts of water. Move exposed packages from hazard area. Large volumes of burning material may cause scattering of molten material when water is applied. Delay cleanup until arrival of qualified radiation monitoring assistance.
Spill or Leak	Gather spilled material and place in closed metal containers as soon as possible to prevent combustion. Move undamaged packages away from spill area. Delay cleanup until arrival of qualified radiation monitoring assistance.
First Aid	Call physician. Use standard first aid procedures. Assume radioactive contamination on persons or equipment close to damaged packages or spilled material. Wash hands and exposed parts of the body with soap and water, and shower, if available. Advise rescue personnel and physicians of possibility of radioactive contamination.

OBTAIN SHIPPING PAPERS.
FOR ADDITIONAL INFORMATION OR DISPOSAL AND CLEANUP INSTRUCTIONS CALL: (800) 424-9300.
IMMEDIATELY REPORT POLLUTION OR CONTAMINATION TO PROPER AUTHORITIES.
REQUEST RADIOLOGICAL MONITORING ASSISTANCE FROM NEAREST REGIONAL OFFICE OF USAEC
RADIOLOGICAL EMERGENCY ASSISTANCE PLAN (SEE MAP PAGE___).

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RADIOACTIVE
CORROSIVE

POTENTIAL HAZARDS

Health	Material is of a relatively low order of hazard due to external radiation (as from X-rays). Primary radiation hazard is internal, due to breathing gases or vapor or from contamination of skin, open cuts, sores. Vapor, dust or mist is poisonous, can be fatal if breathed in high concentrations. Contact with material may cause severe burns to skin and eyes. Fire may produce poisoning gases.

IMMEDIATE ACTION INFORMATION

General	No unnecessary personnel. Keep upwind. Identify and isolate hazard area. Wear self-contained breathing apparatus and full protective clothing
Fire	On small fires, use dry chemical or carbon dioxide. On large fires, use flooding amounts of water. Cool containers with water from maximum distance. Delay cleanup until arrival of qualified radiation monitoring assistance.
Spill or Leak	Stop leak if without risk. Dilute spill with large amounts of water. Dike for later disposal. Delay cleanup until arrival of qualified radiation monitoring assistance.
First Aid	Call physician. Use standard first air procedures. Assume radioactive contamination on persons or equipment close to spill area. Wash all exposed parts of body with soap and water, and shower if available. Advise personnel and physicians of possibility of radioactive contamination.

OBTAIN SHIPPING PAPERS.
FOR ADDITIONAL INFORMATION OR DISPOSAL AND CLEANUP INSTRUCTIONS CALL: (800) 424-9300
IMMEDIATELY REPORT POLLUTION OR CONTAMINATION TO PROPER AUTHORITIES.
REQUEST RADIOLOGICAL MONITORING ASSISTANCE FROM NEAREST REGIONAL OFFICE OF USAEC
RADIOLOGICAL EMERGENCY ASSISTANCE PLAN (SEE MAP PAGE___).

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RADIOACTIVE

PYROFORIC

POTENTIAL HAZARDS

Fire	May catch fire spontaneously in air. Burns very rapidly and intensely, sometimes with flare-burning effect. May reignite after fire is extinguished.
Health	Material is of relatively low order of hazard due to external radiation (as from X-rays). Primary radiation hazard is internal due to breathing vapors or dusts from airborne material or contamination of skin, open cuts, sores, etc.

IMMEDIATE ACTION INFORMATION

General	No unnecessary personnel. Keep upwind. Identify and isolate hazard area. Wear self-contained breathing apparatus and full protective clothing.
Fire	On small fires, use dry chemical or sand. If fire cannot be controlled, use flooding amounts of water. Delay cleanup until arrival of qualified radiation monitoring assistance.
Spill or Leak	Gather spilled material using shovel and place under water or mineral oil in metal container as soon as possible to prevent self-ignition. Move undamaged packages from spill area. Delay cleanup until arrival of qualified radiation monitoring assistance.
First Aid	Call physician. Use standard first air procedures. Assume radioactive contamination on persons or equipment close to damaged packages or spilled material. All exposed persons should wash hands and exposed parts of body with soap and water, and shower, if available. Advise rescue personnel and physicians of possibility of radioactive contamination.

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FOR ADDITIONAL INFORMATION OR DISPOSAL AND CLEANUP INSTRUCTIONS CALL: (800) 424-9300
IMMEDIATELY REPORT POLLUTION OR CONTAMINATION TO PROPER AUTHORITIES.
REQUEST RADIOLOGICAL MONITORING ASSISTANCE FROM NEAREST REGIONAL OFFICES OF USAEC
RADIOLOGICAL EMERGENCY ASSISTANCE PLAN (SEE MAP PAGE ___).

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RADIOACTIVE

POISON, CORROSIVE
(FOR USE ON URANIUM HEXAFLUORIDE (UF6) ONLY)

POTENTIAL HAZARDS

Health	Material is of a relatively low order of hazard due to external radiation (as from X-rays). Vapor, dust or mist is poisonous, can be fatal if breathed in high concentrations. Contact with material may cause severe burns to skin and eyes. The reaction product with air is readily visible as a white cloud, settling as a dust on surfaces.

IMMEDIATE ACTION INFORMATION

Fire	No unnecessary personnel. Keep upwind. Identify and isolate hazard area. Wear self-contained breathing apparatus and full protective clothing.
General	On small fires, use dry chemical or carbon dioxide. On large fires, use water spray or fog. Move exposed containers from fire area, if without risk. Keep undamaged packages cool with large volumes of water. Delay cleanup until arrival of qualified radiation monitoring assistance.
Spill or Leak	Attempt to plug releases from container openings using wooden plugs or "freeze" leakage by cooling with water stream at point of opening. Use water spray to reduce vapors. Pressurized CO_2 may also be effective in "freezing" leakage. Dilute spill with large amounts of water, dike for later disposal. Delay cleanup until arrival of qualified radiation monitoring assistance.
First Aid	Call physician. Use standard first aid procedures. Assume radioactive contamination on persons or equipment close to damaged packages in spill area. All exposed persons should wash hands and exposed parts of the body with soap and water, and shower, if available. Advise rescue personnel and physicians of possibility of radioactive contamination, chemical burns from exposure to spilled material.

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IMMEDIATELY REPORT POLLUTION OR CONTAMINATION TO PROPER AUTHORITIES.
REQUEST RADIOLOGICAL MONITORING ASSISTANCE FROM NEAREST REGIONAL OFFICE OF USAEC
RADIOLOGICAL EMERGENCY ASSISTANCE PLAN (SEE MAP PAGE___).

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RADIOACTIVE

(FOR USE ON ACID SOLUTIONS OF PLUTONIUM NITRATE)

POTENTIAL HAZARDS

Health	Direct external radiation (as from X-rays) is relatively low. Spilled material is extremely hazardous due to internal radiation from contact with skin, cuts, wounds, or breathing airborne dusts, fumes, etc. An extremely radiotoxic material when taken into the body.

IMMEDIATE ACTION INFORMATION

General	No unnecessary personnel. Keep upwind. Identify and isolate hazard area. Wear self-contained breathing apparatus and full protective clothing.
Fire	Use standard firefighting agents. Fight fire from maximum distance. Do not come into contact with leaking or damaged packages. Do not move damaged packages. Move undamaged packages from fire zone, if without risk. Delay cleanup until arrival of qualified radiation monitoring assistance.
Spill or Leak	Do not come into contact with leaking or damaged packages or enter spill area unless absolutely necessary to save life. Delay any actions until arrival of qualified radiation monitoring assistance unless action is needed to rescue injured person.
First Aid	Call physician. Use standard first aid procedures. Assume highly radioactive contamination on persons or equipment close to damaged packages or spilled material. Remove contaminated clothing and shower thoroughly with soap and water. Observable effects of serious inhalation or absorption of spilled material may be delayed. Advise rescue personnel and physicians that injured persons, clothing, etc., may be contaminated with highly radioactive material (plutonium).

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IMMEDIATELY REPORT POLLUTION OR CONTAMINATION TO PROPER AUTHORITIES.
REQUEST RADIOLOGICAL MONITORING ASSISTANCE FROM NEAREST REGIONAL OFFICE OF USAEC RADIOLOGICAL EMERGENCY ASSISTANCE PLAN (SEE MAP PAGE ___).

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CORROSIVE

POTENTIAL HAZARDS

Fire	Some material in this group cannot catch fire, others can catch fire but do not ignite readily.
Health	Vapor may be irritating, if breathed. Contact with material may cause severe burns to skin and eyes. Contaminated water or material runoff may pollute water supply.

IMMEDIATE ACTION INFORMATION

General	No unnecessary personnel. Keep upwind. Identify and isolate hazard area. Wear fire fighters full protective clothing.
Fire	On small fires use dry chemical or carbon dioxide. On large fires use standard firefighting agents. Move exposed containers from fire area, if without risk. Cool containers with water.
Spill or Leak	Stop leak if without risk. Dilute spill with large amounts of water. Dike for later disposal.
First Aid	Remove to fresh air. Call physician. In case of contact with material or water solution, immediately flush skin or eyes with running water for at least 15 minutes. Remove contaminated clothing and shoes. Keep patient at rest. Effects of contact or inhalation may be delayed.

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IMMEDIATELY REPORT POLLUTION OR CONTAMINATION TO PROPER AUTHORITIES.

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CORROSIVE

POISON

POTENTIAL HAZARDS

Fire	Some material in this group cannot catch fire, others can catch fire but do not ignite readily.
Health	Vapor, mist or dust is poisonous if breathed. Contact with material may cause severe burns to skin and eyes. Contaminated water or material runoff may pollute water supply. Runoff to sewer may create poison hazard.

IMMEDIATE ACTION INFORMATION

General	No unnecessary personnel. Keep upwind. Identify and isolate hazard area. Wear self-contained breathing apparatus and full protective clothing.
Fire	On small fires use dry chemical or carbon dioxide. On large fires use standard firefighting agents. Move exposed containers from fire area, if without risk. Cool containers with water.
Spill or Leak	Stop leak if without risk. Dilute spill with large amounts of water. Dike for later disposal.
First Aid	Remove to fresh air. Call physician. In case of contact with material or water solution, immediately flush skin or eyes with running water for at least 15 minutes. Remove contaminated clothing and shoes. Keep patient at rest. Effects of contact or inhalation may be delayed.

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CORROSIVE

HOD (HEAT OF DILUTION)

POTENTIAL HAZARDS

Fire	Some material in this group cannot catch fire, others can catch fire but do not ignite readily.
Explosion	Explosive concentrations of gas may accumulate in tanks containing acid.
Health	Vapor may be irritating, if breathed. Contact with material may cause severe burns to skin and eyes. Contaminated water or material runoff may pollute water supply.

IMMEDIATE ACTION INFORMATION

General	No unnecessary personnel. Keep upwind. Identify and isolate hazard area. Wear firefighters full protective clothing. Self-contained breathing apparatus should be available.
Fire	On small fires, use dry chemical or carbon dioxide. On large fires, use water spray or fog. Move exposed containers from fire area, if without risk. Do not get water inside containers.
Spill or Leak	Stop leak if without risk. Dilute spill with large amounts of water. Dike for later disposal. Do not get water inside containers.
First Aid	Remove to fresh air. Call physician. In case of contact with material or water solution, immediately flush skin or eyes with running water for at least 15 minutes. Remove contaminated clothing and shoes. Keep patient at rest. Effects of contact or inhalation may be delayed.

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CORROSIVE

COMBUSTIBLE

POTENTIAL HAZARDS

Fire	May be ignited by heat, sparks, or open flames. Heated container may rupture violently and produce flying missiles. Ignition of vapor may occur at some distance from leaking container. Vapor entering sewer or other closed spaces may create fire or explosion hazard.
Health	Vapor may be irritating, if breathed. Contact with material may cause severe burns to skin and eyes. Contaminated water or material runoff may pollute water supply. Runoff to sewer may create poison.

IMMEDIATE ACTION INFORMATION

General	No unnecessary personnel. Keep upwind. Identify and isolate hazard area. Wear fire fighters full protective clothing. Self-contained breathing apparatus should be available.
Fire	On small fires, use dry chemical or carbon dioxide. On large fires, use standard firefighting agents. Do not approach ends of horizontal tanks. Move exposed containers from fire area, if without risk. Cool containers with water. Continue cooling after fires have been extinguished.
Spill or Leak	Within hazard area: Eliminate ignition source. No flares, no smoking, no open flames. Stop leak if without risk. Use water spray to reduce vapors. Dike large spills for later disposal. Use noncombustible absorbent material (sand, etc.) to collect small spills.
First Aid	Remove to fresh air. Call physician. In case of contact with material or water solution, immediately flush skin or eyes with running water for at least 15 minutes. Remove contaminated clothing and shoes. Keep patient at rest. Effects of contact or inhalation may be delayed.

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CORROSIVE

POISON, MOD (HEAT OF DILUTION)

POTENTIAL HAZARDS

Fire	Some material in this group cannot catch fire, others can catch fire but do not ignite readily.
Explosion	Explosive concentrations of gas may accumulate in tanks containing acids.
Health	Vapor, mist or dust is poisonous, if breathed. Contact with material may cause severe burns to skin and eyes. Contaminated water or material runoff may pollute water supply. Runoff to sewer may create poison hazard.

IMMEDIATE ACTION INFORMATION

General	No unnecessary personnel. Keep upwind. Identify and isolate hazard area. Wear self-contained breathing apparatus and full protective clothing.
Fire	On small fires, use dry chemical or carbon dioxide. On large fires, use water spray or fog. Move exposed containers from fire area, if without risk. Do not get water inside containers.
Spill or Leak	Stop leak if without risk. Dilute spill with large amounts of water. Dike for later disposal. Do not get water inside containers.
First Aid	Remove to fresh air. Call physician. In case of contact with material or water solution, immediately flush skin or eyes with running water for at least 15 minutes. Remove contaminated clothing and shoes. Keep patient at rest. Effects of contact or inhalation may be delayed.

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CORROSIVE

COMBUSTIBLE, POISON

POTENTIAL HAZARDS

Fire	May be ignited by heat, sparks, or open flames. Heated container may rupture violently and produce flying missiles. Ignition of vapor may occur at some distance from leaking container. Vapor entering sewer or other closed spaces may create fire or explosion hazard.
Health	Vapor, mist, or dust is poisonous, if breathed. Contact with material may cause severe burns to skin and eyes. Contaminated water or material runoff may pollute water supply. Runoff to sewer may create poison hazard.

IMMEDIATE ACTION INFORMATION

General	No unnecessary personnel. Keep upwind. Identify and isolate hazard area. Wear self-contained breathing apparatus and full protective clothing.
Fire	On small fires, use dry chemical or carbon dioxide. On large fires, use standard firefighting agents. Do not approach ends of horizontal tanks. Move exposed containers from fire area, if without risk. Cool containers with water. Continue cooling after fires have been extinguished.
Spill or Leak	Within hazard area: Eliminate ignition source. No flares, no smoking, no open flames. Avoid contact with spilled material. Stop leak if wothout risk. Dilute spill with large amounts of water. Dike for later disposal.
First Aid	Remove to fresh air. Call physician. In case of contact with material or water solution, immediately flush skin or eyes with running water for at least 15 minutes. Remove contaminated clothing and shoes. Keep patient at rest. Effects of contact or inhalation may be delayed.

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CORROSIVE

COMBUSTIBLE, MOD (HEAT OF DILUTION)

POTENTIAL HAZARDS

Fire	May be ignited by heat, sparks, or open flames. Heated container may rupture violently and produce flying missiles. Ignition of vapor may occur at some distance from leaking container. Vapor entering sewer or other closed spaces may create fire or explosion hazard.
Explosion	Explosive concentrations of gas may accumulate in tanks containing acid.
Health	Vapor, or mist may be irritating, if breathed. Contact with material may cause severe burns to skin and eyes. Contaminated water or material runoff may pollute water supply. Runoff to sewer may create poison hazard.

IMMEDIATE ACTION INFORMATION

General	No unnecessary personnel. Keep upwind. Identify and isolate hazard area. Wear firefighters full protective clothing. Self-contained breathing apparatus should be available.
Fire	On small fires, use dry chemical or carbon dioxide. On large fires, use water spray or fog. Move exposed containers from fire area, if without risk. Cool containers with water. Do not get water inside containers.
Spill or Leak	Within hazard area: Eliminate ignition source. No flares, no smoking, no open flames. Stop leak if without risk. Dilute spill with large amounts of water. Dike for later disposal. Do not get water inside containers.
First Aid	Remove to fresh air. Call physician. In case of contact with material or water solution, immediately flush skin or eyes with running water for at least 15 minutes. Remove contaminated clothing and shoes. Keep patient at rest. Effects of contact or inhalation may be delayed.

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IMMEDIATELY REPORT POLLUTION OR CONTAMINATION TO PROPER AUTHORITIES.

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CORROSIVE

COMBUSTIBLE, POISON HOD (HEAT OF DILUTION)

POTENTIAL HAZARDS

Fire	May be ignited by heat, sparks, or open flames. Heated container may rupture violently and produce flying missiles. Ignition of vapor may occur at some distance from leaking container. Vapor entering sewer or other closed spaces may create fire or explosion hazard.
Explosion	Explosive concentrations of gas may accumulate in tanks containing acid.
Health	Vapor or mist is poisonous if breathed. Contact with material may cause severe burns to skin and eyes. Contaminated water or material runoff may pollute water supply. Runoff to sewer may create poison hazard.

IMMEDIATE ACTION INFORMATION

General	No unnecessary personnel. Keep upwind. Identify and isolate hazard area. Wear self-contained breathing apparatus and full protective clothing.
Fire	On small fires, use dry chemical or carbon dioxide. On large fires, use water spray or fog. Move exposed containers from fire area, if without risk. In early stages cool containers with water. Do not get water inside containers.
Spill or Leak	Within hazard area: Eliminate ignition source. No flares, no smoking, no open flames. Stop leak if without risk. Dilute spill with large amounts of water. Dike for later disposal. Do not get water inside containers.
First Aid	Remove to fresh air. Call physician. In case of contact with material or water solution, immediately flush skin or eyes with running water for at least 15 minutes. Remove contaminated clothing and shoes. Keep patient at rest. Effects of contact or inhalation may be delayed.

OBTAIN SHIPPING PAPERS.
FOR ADDITIONAL INFORMATION OR DISPOSAL AND CLEANUP INSTRUCTIONS CALL: (800) 424-9300
IMMEDIATELY REPORT POLLUTION OR CONTAMINATION TO PROPER AUTHORITIES.

Interested persons are invited to comment on the proposals made in this advance notice of proposed rule making. Communications should identify the docket number and be submitted in duplicate to the Secretary, Hazardous Materials Regulations Board, Department of Transportation, 400 Sixth Street SW., Washington, DC 20590. Communications received on or before October 9, 1972, will be considered before publication of a notice of proposed rulemaking or before final action is taken following its publication. All comments received will be available for examination by interested persons at the Office of the Secretary, Hazardous Materials Regulations Board, both before and after the closing date for comments.

Issued in Washington, D.C., on June 16, 1972.

W. J. BURNS,
Director,
Office of Hazardous Materials.

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