

A guidebook intended for use by first responders during the initial phase of a transportation incident involving dangerous goods/hazardous materials

# 2016

## EMERGENCY RESPONSE GUIDEBOOK



U.S. Department of Transportation  
and  
Canadian  
Department of  
Transportation  
Hazardous Materials  
Section

Transport Canada / Transports Canada

### SHIPPING DOCUMENTS (PAPERS)

Shipping Documents (Papers) are synonymous and can be found as follows:

- Road – kept in the cab of a motor vehicle
- Rail – kept in possession of a crew member
- Aviation – kept in possession of the aircraft pilot
- Marine – kept in a holder on the bridge of a vessel

Shipping Documents (Papers) provide vital information regarding the hazardous materials/dangerous goods to initiate protective actions\*

Information provided:

- 4-digit identification number, UN or NA (go to yellow pages)
- Proper shipping name (go to blue pages)
- Hazard class or division number of material
- Packing group
- Emergency response telephone number
- Information describing the hazards of the material (entered on or attached to shipping document) \*\*

EMERGENCY CONTACT 1-000-000-0000		EXAMPLE OF EMERGENCY CONTACT TELEPHONE NUMBER			
CONTRACT #: XX-XXXX-X ***		HAZARD CLASS OR DIVISION NO.			
				QUANTITY	NO. & TYPE OF PACKAGES
UN1219	ISOPROPANOL	3	II	12 000 LITERS	1 TANKTRUCK
ID NUMBER	SHIPPING NAME	PACKING GROUP			

#### EXAMPLE OF PLACARD AND PANEL WITH ID NUMBER

The 4-digit ID Number may be shown on the diamond-shaped placard or on an adjacent orange panel displayed on the ends and sides of a cargo tank, vehicle or rail car.



A Numbered Placard

OR

A Placard and an Orange Panel



1219

\* For the purposes of this guidebook, the terms hazardous materials/dangerous goods are synonymous.

\*\* In the United States, this requirement may be satisfied by attaching a guide from the ERG2016 to the shipping document, or by having the entire guidebook available for reference.

\*\*\* In the United States, a registration or contract number is required on a shipping document.

#### LOCAL EMERGENCY TELEPHONE NUMBERS

Please populate this page with emergency telephone numbers for local assistance:

##### HAZMAT CONTRACTORS

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##### RAIL COMPANIES

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##### FEDERAL/STATE/PROVINCIAL AGENCIES

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##### OTHERS

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**NOTIFICATION AND REQUEST FOR TECHNICAL INFORMATION**

Follow the steps outlined in your organization's standard operating procedures and/or local emergency response plan for obtaining qualified assistance. Generally, the notification sequence and requests for technical information beyond what is available in this guidebook should occur in the following order:

1. **NOTIFY YOUR ORGANIZATION/AGENCY**
  - Based on information provided, this will set in motion a series of events
  - Actions may range from dispatching additional trained personnel to the scene, to activating the local emergency response plan
  - Ensure that local fire and police departments have been notified
2. **CALL THE EMERGENCY RESPONSE TELEPHONE NUMBER ON THE SHIPPING DOCUMENT**
  - If shipping paper is not available, use guidance under next section "NATIONAL ASSISTANCE"
3. **NATIONAL ASSISTANCE**
  - Contact the appropriate emergency response agency listed on the inside back cover of this guidebook
  - Provide as much information about the hazardous material and the nature of the incident
  - The agency will provide immediate advice on handling the early stages of the incident
  - The agency will also contact the shipper or manufacturer of the material for more detailed information if necessary
  - The agency will request on-scene assistance when necessary
4. **PROVIDE AS MUCH OF THE FOLLOWING INFORMATION AS POSSIBLE:**
  - Your name, call-back telephone number, fax number
  - Location and nature of problem (spill, fire, etc.)
  - Name and identification number of material(s) involved
  - Shipper/consignee/point-of-origin
  - Carrier name, rail car or truck number
  - Container type and size
  - Quantity of material transported/released
  - Local conditions (weather, terrain)
  - Proximity to schools, hospitals, waterways, etc.
  - Injuries and exposures
  - Local emergency services that have been notified

**SAFETY PRECAUTIONS**

**RESIST RUSHING IN!**

**APPROACH CAUTIOUSLY FROM UPWIND, UPHILL OR UPSTREAM:**

- Stay clear of *Vapor, Fumes, Smoke and Spills*
- Keep vehicle at a safe distance from the scene

**SECURE THE SCENE:**

- Isolate the area and protect yourself and others

**IDENTIFY THE HAZARDS USING ANY OF THE FOLLOWING:**

- Placards
- Container labels
- Shipping documents
- Rail Car and Road Trailer Identification Chart
- Material Safety Data Sheets (MSDS)
- Knowledge of persons on scene
- Consult applicable guide page

**ASSESS THE SITUATION:**

- Is there a fire, a spill or a leak?
- What are the weather conditions?
- What is the terrain like?
- Who/what is at risk: people, property or the environment?
- What actions should be taken – evacuation, shelter in-place or dike?
- What resources (human and equipment) are required?
- What can be done immediately?

**OBTAIN HELP:**

- Advise your headquarters to notify responsible agencies and call for assistance from qualified personnel

**RESPOND:**

- Enter only when wearing appropriate protective gear
- Rescue attempts and protecting property must be weighed against you becoming part of the problem
- Establish a command post and lines of communication
- Continually reassess the situation and modify response accordingly
- Consider safety of people in the immediate area first, including your own safety

**ABOVE ALL:** Do not assume that gases or vapors are harmless because of lack of a smell – odorless gases or vapors may be harmful. Use **CAUTION** when handling empty containers because they may still present hazards until they are cleaned and purged of all residues.

**HAZARD CLASSIFICATION SYSTEM**

The hazard class of dangerous goods is indicated either by its class (or division) number or name. Placards are used to identify the class or division of a material. The hazard class or division number must be displayed in the lower corner of a placard and is required for both primary and subsidiary hazard classes and divisions, if applicable. For other than Class 7 placards, text indicating a hazard (for example, "CORROSIVE") is not required. Text is shown only in the U.S. The hazard class or division number and subsidiary hazard classes or division numbers placed in parentheses (when applicable), must appear on the shipping document after each proper shipping name.

- Class 1 - Explosives**
  - Division 1.1 Explosives which have a mass explosion hazard
  - Division 1.2 Explosives which have a projection hazard but not a mass explosion hazard
  - Division 1.3 Explosives which have a fire hazard and either a minor blast hazard or a minor projection hazard or both, but not a mass explosion hazard
  - Division 1.4 Explosives which present no significant blast hazard
  - Division 1.5 Very insensitive explosives with a mass explosion hazard
  - Division 1.6 Extremely insensitive articles which do not have a mass explosion hazard
- Class 2 - Gases**
  - Division 2.1 Flammable gases
  - Division 2.2 Non-flammable, non-toxic\* gases
  - Division 2.3 Toxic\* gases
- Class 3 - Flammable liquids (and Combustible liquids [U.S.])**
- Class 4 - Flammable solids; Substances liable to spontaneous combustion; Substances which, on contact with water, emit flammable gases**
  - Division 4.1 Flammable solids, self-reactive substances and solid desensitized explosives
  - Division 4.2 Substances liable to spontaneous combustion
  - Division 4.3 Substances which in contact with water emit flammable gases
- Class 5 - Oxidizing substances and Organic peroxides**
  - Division 5.1 Oxidizing substances
  - Division 5.2 Organic peroxides
- Class 6 - Toxic\* substances and Infectious substances**
  - Division 6.1 Toxic\* substances
  - Division 6.2 Infectious substances
- Class 7 - Radioactive materials**
- Class 8 - Corrosive substances**
- Class 9 - Miscellaneous dangerous goods/hazardous materials and articles**

\* The words "poison" or "poisonous" are synonymous with the word "toxic".

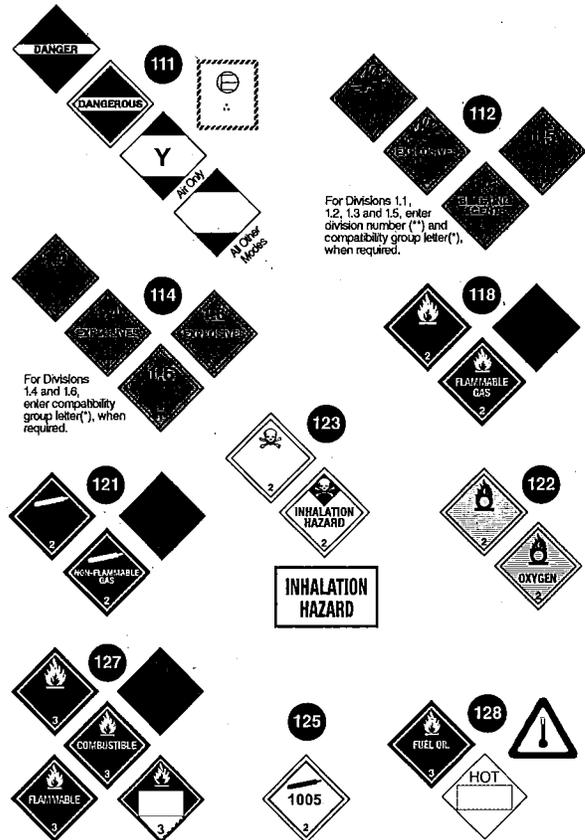
**TABLE OF MARKINGS, LABELS, AND PLACARDS**  
 USE THIS TABLE ONLY IF MATERIALS CANNOT BE SPECIFICALLY IDENTIFIED BY

**INTRODUCTION TO THE TABLE OF MARKINGS, LABELS AND PLACARDS**

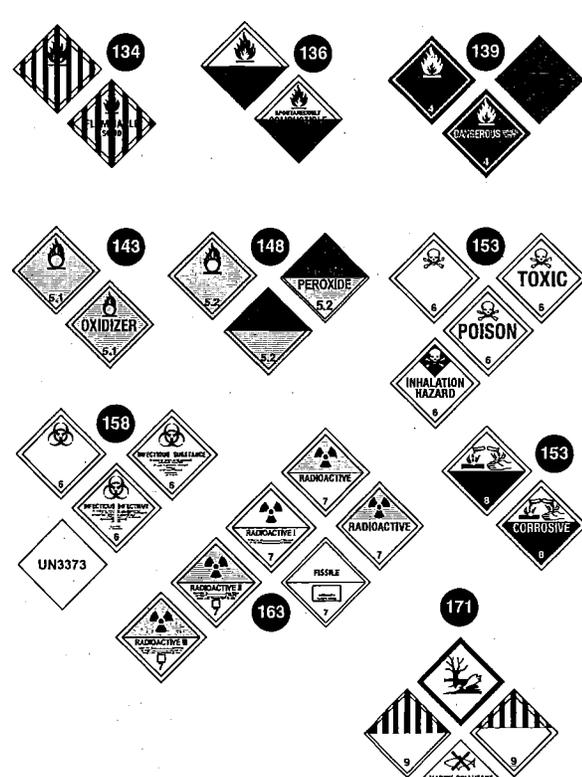
USE THIS TABLE ONLY WHEN THE ID NUMBER OR PROPER SHIPPING NAME IS NOT AVAILABLE.

The next two pages display the placards used on transport vehicles carrying dangerous goods with the applicable reference GUIDE circled. Follow these steps:

1. Approach scene from upwind, uphill or upstream at a safe distance to safely identify and/or read the placard or orange panel. Use binoculars if available.
2. Match the vehicle placard(s) with one of the placards displayed on the next two pages.
3. Consult the circled guide number associated with the placard. Use that guide information for now. For example:
  - Use GUIDE 127 for a FLAMMABLE (Class 3) placard
  - Use GUIDE 153 for a CORROSIVE (Class 8) placard
  - Use GUIDE 111 when the DANGER/DANGEROUS placard is displayed or the nature of the spilled, leaking or burning material is not known. Also use this GUIDE when the presence of dangerous goods is suspected but no placards can be seen.
4. If multiple placards point to more than one guide, initially use the most conservative guide (i.e., the guide requiring the greatest degree of protective actions).
5. Guides associated with the placards provide the most significant risk and/or hazard information.
6. When specific information, such as ID number or proper shipping name, becomes available, the more specific Guide recommended for that material must be consulted.
7. A single asterisk (\*) on orange placards represent an explosive's compatibility group letter. The asterisk must be replaced with the appropriate compatibility group letter. Refer to the Glossary (page 376).
8. Double asterisks (\*\*) on orange placards represent the division of the explosive. The double asterisks must be replaced with the appropriate division number.



**AND INITIAL RESPONSE GUIDE TO USE ON-SCENE**  
 USING THE SHIPPING DOCUMENT, NUMBERED PLACARD, OR ORANGE PANEL NUMBER



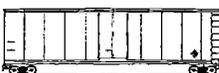
**RAIL CAR IDENTIFICATION CHART\***

- 117 Pressure tank car
  - For flammable, non-flammable, toxic and/or liquefied compressed gases
  - Protective housing
  - No bottom fittings
  - Pressures usually above 40 psi
- 131 General service tank car (low pressure)
  - For variety of hazardous and non-hazardous materials
  - Fittings and valves normally visible at the top of the tank
  - Some may have bottom outlet valve
  - Pressures usually below 25 psi
- 128 Low pressure tank car (TC117, DOT117)
  - For flammable liquids (e.g., Petroleum crude oil, ethanol)
  - Protective housing separate from manway
  - Bottom outlet valve
  - Pressures usually below 25 psi

(Image provided as a courtesy of The Greenbrier Companies, Inc.)

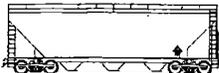
**RAIL CAR IDENTIFICATION CHART\***

**111** Box car



- For general freight that carry bulk or non-bulk packages
- May transport hazardous materials in small packages or "tote bins"
- Single or double sliding door

**140** Hopper car



- For bulk commodities and bulk cargo (e.g., coal, ore, cement and solid granular materials)
- Bulk lading discharged by gravity through the hopper bottom doors when doors opened



**CAUTION:** Emergency response personnel must be aware that rail tank cars vary widely in construction, fittings and purpose. Tank cars could transport products that may be solids, liquids or gases. The products may be under pressure. It is essential that products be identified by consulting shipping documents or train consist or contacting dispatch centers before emergency response is initiated.

The information stenciled on the sides or ends of tank cars, as illustrated above, may be used to identify the product utilizing:

- the commodity name shown; or
- the other information shown, especially reporting marks and car number which, when supplied to a dispatch center, will facilitate the identification of the product.

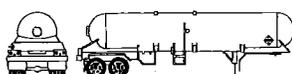
\* The recommended guides should be considered as last resort if the material cannot be identified by any other means.

**ROAD TRAILER IDENTIFICATION CHART\***

**WARNING:** Road trailers may be jacketed, the cross-section may look different than shown and external ring stiffeners would be invisible.

**NOTE:** An emergency shut-off valve is commonly found at the front of the tank, near the driver door.

**117** MC331, TC331, SCT331



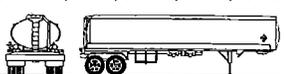
- For liquefied compressed gases (e.g., LPG, ammonia)
- Rounded heads
- Design pressure between 100-500 psi\*\*

**117** MC338, TC338, SCT338, TC341, CGA341



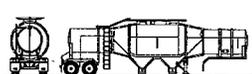
- For refrigerated liquefied gases (cryogenic liquids)
- Similar to a "giant thermo-bottle"
- Fitting compartments located in a cabinet at the rear of the tank
- MAWP between 25-500 psi\*\*

**131** DOT406, TC406, SCT306, MC306, TC306



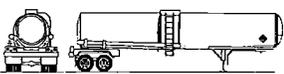
- For flammable liquids (e.g., gasoline, diesel)
- Elliptical cross-section
- Rollover protection at the top
- Bottom outlet valves
- MAWP between 3-15 psi\*\*

**112** TC423



- For emulsion and water-gel explosives
- Hopper-style configuration
- MAWP between 5-15 psi\*\*

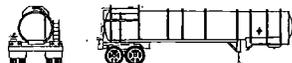
**137** DOT407, TC407, SCT307, MC307, TC307



- For toxic, corrosive, and flammable liquids
- Circular cross-section
- May have external ring stiffeners
- MAWP of at least 25 psi\*\*

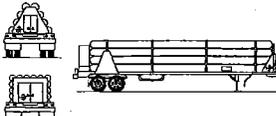
**ROAD TRAILER IDENTIFICATION CHART\***

**137** DOT412, TC412, SCT312, MC312, TC312

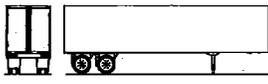


- Usually for corrosive liquids
- Circular cross-section
- External ring stiffeners
- Tank diameter is relatively small
- MAWP of at least 15 psi\*\*

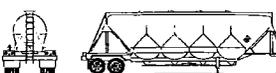
**117** Compressed Gas/Tube Trailer



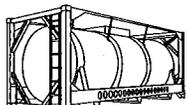
**111** Mixed Cargo



**134** Dry Bulk Cargo Trailer



**117** Intermodal Tank



**137** Vacuum Tanker



**CAUTION:** This chart depicts only the most general shapes of road trailers. Emergency response personnel must be aware that there are many variations of road trailers, not illustrated above, that are used for shipping chemical products. The suggested guides are for the most hazardous products that may be transported in these trailer types.

\* The recommended guides should be considered as last resort if the material cannot be identified by any other means.

\*\* MAWP: Maximum Allowable Working Pressure.

**GLOBALY HARMONIZED SYSTEM OF CLASSIFICATION AND LABELING OF CHEMICALS (GHS)**

(May be found on means of containment during transport)

The Globally Harmonized System of Classification and Labeling of Chemicals (GHS) is an international guideline published by the United Nations. The GHS aims to harmonize the classification and labeling systems for all sectors involved in the life cycle of a chemical (production, storage, transport, workplace use, consumer use and presence in the environment).

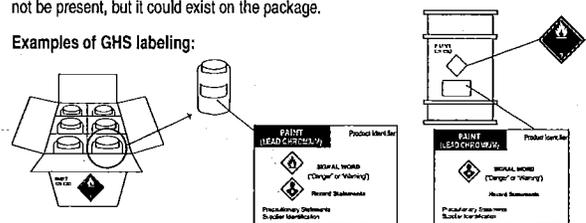
The GHS has nine symbols used to convey specific physical, health and environmental hazard information. These symbols are part of a pictogram that is diamond shaped and includes the GHS symbol in black on a white background with a red frame. The pictogram is part of the GHS label, which also includes the following information:

- Signal word
- Hazard statement
- Precautionary statements
- Product identifier
- Supplier identification

GHS pictograms are similar in shape to transport labels; however, transport labels have backgrounds of different colors.

The elements of the GHS that address signal words and hazard statements are not expected to be adopted in the transport sector. For substances and mixtures covered by the UN Recommendations on the Transport of Dangerous Goods, Model Regulations, the transport labels for physical hazards will have precedence. In transport, a GHS pictogram for the same (or lesser) hazard as the one reflected by the transport label or placard should not be present, but it could exist on the package.

Examples of GHS labeling:



Outer Packaging: Box with flammable liquid transport label

Inner Packaging: Plastic bottle with GHS hazard warning label

Single Packaging: 200 L (55 US gallons) drum with a flammable liquid transport label combined with GHS hazard warning label

**HAZARD IDENTIFICATION NUMBERS  
DISPLAYED ON SOME INTERMODAL CONTAINERS**

In some cases, such as on drums or international bulk containers (IBCs), which must address information for all sectors, the GHS label may be found in addition to the required transport labels and placards. Both types of labels (GHS and transport) will differ in a way that will make them easy to identify during an emergency.

GHS Pictograms	Physical hazards	GHS Pictograms	Health and Environmental hazards
	Explosive; Self-reactive; Organic peroxide		Skin corrosion; Serious eye damage
	Flammable; Pyrophoric; Self-reactive; Organic peroxide; Self-heating; Emits flammable gases when in contact with water		Acute toxicity (harmful); Skin sensitizer; Irritant (skin and eye); Narcotic effect; Respiratory tract irritant; Hazardous to ozone layer (environment)
	Oxidizer		Respiratory sensitizer; Mutagen; Carcinogen; Reproductive toxicity; Target organ toxicity; Aspiration hazard
	Gas under pressure		Hazardous to aquatic environment
	Corrosive to metals		Acute toxicity (fatal or toxic)

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**HAZARD IDENTIFICATION NUMBERS  
DISPLAYED ON SOME INTERMODAL CONTAINERS**

The hazard identification numbers listed below have the following meanings:

20	Asphyxiant gas or gas with no subsidiary risk
22	Refrigerated liquefied gas, asphyxiant
223	Refrigerated liquefied gas, flammable
225	Refrigerated liquefied gas, oxidizing (fire-intensifying)
23	Flammable gas
238	Gas, flammable corrosive
239	Flammable gas which can spontaneously lead to violent reaction
25	Oxidizing (fire-intensifying) gas
26	Toxic gas
263	Toxic gas, flammable
265	Toxic gas, oxidizing (fire-intensifying)
268	Toxic gas, corrosive
28	Gas, corrosive
30	Flammable liquid (flash-point between 23°C and 60°C, inclusive), or flammable liquid or solid in the molten state with a flash point above 60°C, heated to a temperature equal to or above its flash point, or self-heating liquid
323	Flammable liquid which reacts with water, emitting flammable gases
X323	Flammable liquid which reacts dangerously with water, emitting flammable gases
33	Highly flammable liquid (flash-point below 23°C)
333	Pyrophoric liquid
X333	Pyrophoric liquid which reacts dangerously with water
336	Highly flammable liquid, toxic
338	Highly flammable liquid, corrosive
X338	Highly flammable liquid, corrosive, which reacts dangerously with water
339	Highly flammable liquid which can spontaneously lead to violent reaction
36	Flammable liquid (flash-point between 23°C and 60°C, inclusive), slightly toxic, or self-heating liquid, toxic
362	Flammable liquid, toxic, which reacts with water, emitting flammable gas
X362	Flammable liquid, toxic, which reacts dangerously with water, emitting flammable gases
368	Flammable liquid, toxic, corrosive
38	Flammable liquid (flash-point between 23°C and 60°C, inclusive), slightly corrosive or self-heating liquid, corrosive
382	Flammable liquid, corrosive, which reacts with water, emitting flammable gases
X382	Flammable liquid, corrosive, which reacts dangerously with water, emitting flammable gases
39	Flammable liquid, which can spontaneously lead to violent reaction
40	Flammable solid, or self-reactive substance, or self-heating substance

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Hazard identification numbers, utilized under European and some South American regulations, may be found in the top half of an orange panel on some intermodal bulk containers. The United Nations 4-digit identification number is in the bottom half of the orange panel.



The hazard identification number in the top half of the orange panel consists of two or three digits. In general, the digits indicate the following hazards:

- 2 - Emission of gas due to pressure or chemical reaction
- 3 - Flammability of liquids (vapors) and gases or self-heating liquid
- 4 - Flammability of solids or self-heating solid
- 5 - Oxidizing (fire-intensifying) effect
- 6 - Toxicity or risk of infection
- 7 - Radioactivity
- 8 - Corrosivity
- 9 - Risk of spontaneous violent reaction

**NOTE:** The risk of spontaneous violent reaction within the meaning of digit 9 includes the possibility, due to the nature of a substance, of a risk of explosion, disintegration and polymerization reaction followed by the release of considerable heat or flammable and/or toxic gases.

- Doubling of a digit indicates an intensification of that particular hazard (i.e., 33, 66, 88).
- Where the hazard associated with a substance can be adequately indicated by a single digit, the digit is followed by a zero (i.e., 30, 40, 50).
- A hazard identification number prefixed by the letter "X" indicates that the substance will react dangerously with water (i.e., X88).

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**HAZARD IDENTIFICATION NUMBERS  
DISPLAYED ON SOME INTERMODAL CONTAINERS**

423	Solid which reacts with water, emitting flammable gases, or flammable solid which reacts with water, emitting flammable gases, or self-heating solid which reacts with water, emitting flammable gases
X423	Solid which reacts dangerously with water, emitting flammable gases, or flammable solid which reacts dangerously with water, emitting flammable gases, or self-heating solid which reacts dangerously with water, emitting flammable gases
43	Spontaneously flammable (pyrophoric) solid
X432	Spontaneously flammable (pyrophoric) solid which reacts dangerously with water, emitting flammable gases
44	Flammable solid, in the molten state at an elevated temperature
446	Flammable solid, toxic, in the molten state at an elevated temperature
46	Flammable or self-heating solid, toxic
462	Toxic solid which reacts with water, emitting flammable gases
X462	Solid which reacts dangerously with water, emitting toxic gases
48	Flammable or self-heating solid, corrosive
482	Corrosive solid which reacts with water, emitting flammable gases
X482	Solid which reacts dangerously with water, emitting corrosive gases
50	Oxidizing (fire-intensifying) substance
539	Flammable organic peroxide
55	Strongly oxidizing (fire-intensifying) substance
556	Strongly oxidizing (fire-intensifying) substance, toxic
558	Strongly oxidizing (fire-intensifying) substance, corrosive
559	Strongly oxidizing (fire-intensifying) substance which can spontaneously lead to violent reaction
56	Oxidizing substance (fire-intensifying), toxic
568	Oxidizing substance (fire-intensifying), toxic, corrosive
58	Oxidizing substance (fire-intensifying), corrosive
59	Oxidizing substance (fire-intensifying) which can spontaneously lead to violent reaction
60	Toxic or slightly toxic substance
606	Infectious substance
623	Toxic liquid, which reacts with water, emitting flammable gases
63	Toxic substance, flammable (flash-point between 23°C and 60°C, inclusive)
638	Toxic substance, flammable, (flash-point between 23°C and 60°C, inclusive), corrosive
639	Toxic substance, flammable, (flash-point not above 60°C) which can spontaneously lead to violent reaction
64	Toxic solid, flammable or self-heating
642	Toxic solid which reacts with water, emitting flammable gases
65	Toxic substance, oxidizing (fire-intensifying)

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**HAZARD IDENTIFICATION NUMBERS  
DISPLAYED ON SOME INTERMODAL CONTAINERS**

66	Highly toxic substance
663	Highly toxic substance, flammable (flash-point not above 60°C)
664	Highly toxic solid, flammable or self-heating
665	Highly toxic substance, oxidizing (fire-intensifying)
668	Highly toxic substance, corrosive
X668	Highly toxic substance, corrosive, which reacts dangerously with water
669	Highly toxic substance which can spontaneously lead to violent reaction
68	Toxic substance, corrosive
69	Toxic or slightly toxic substance which can spontaneously lead to violent reaction
<hr/>	
70	Radioactive material
78	Radioactive material, corrosive
<hr/>	
80	Corrosive or slightly corrosive substance
X80	Corrosive or slightly corrosive substance which reacts dangerously with water
823	Corrosive liquid which reacts with water, emitting flammable gases
83	Corrosive or slightly corrosive substance, flammable (flash-point between 23°C and 60°C, inclusive)
X83	Corrosive or slightly corrosive substance, flammable (flash-point between 23°C and 60°C, inclusive), which reacts dangerously with water
839	Corrosive or slightly corrosive substance, flammable (flash-point between 23°C and 60°C, inclusive), which can spontaneously lead to violent reaction
X839	Corrosive or slightly corrosive substance, flammable (flash-point between 23°C and 60°C, inclusive), which can spontaneously lead to violent reaction and which reacts dangerously with water
84	Corrosive solid, flammable or self-heating
842	Corrosive solid which reacts with water, emitting flammable gases
85	Corrosive or slightly corrosive substance, oxidizing (fire-intensifying)
856	Corrosive or slightly corrosive substance, oxidizing (fire-intensifying) and toxic
86	Corrosive or slightly corrosive substance, toxic
88	Highly corrosive substance
X88	Highly corrosive substance which reacts dangerously with water
883	Highly corrosive substance, flammable (flash-point between 23°C and 60°C, inclusive)
884	Highly corrosive solid, flammable or self-heating
885	Highly corrosive substance, oxidizing (fire-intensifying)
886	Highly corrosive substance, toxic
X886	Highly corrosive substance, toxic, which reacts dangerously with water
89	Corrosive or slightly corrosive substance which can spontaneously lead to violent reaction
<hr/>	
90	Environmentally hazardous substance; miscellaneous dangerous substances
99	Miscellaneous dangerous substance carried at an elevated temperature

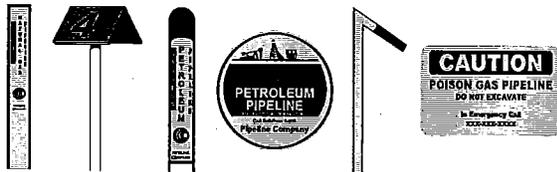
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**Other Hazardous Liquids Pipelines**

Some liquid pipelines transport highly volatile liquids that rapidly change from liquid to gaseous when released from a pressurized pipeline. Examples of these types of liquids include carbon dioxide, anhydrous ammonia, propane, and others.

**Pipeline Markers**

Since pipelines are usually buried underground, pipeline markers are used to indicate their presence in an area along the pipeline route. Of the three types of pipelines typically buried underground — distribution, gathering, and transmission — only transmission pipelines are marked with the following above-ground markers used to indicate their route.



Markers warn that a transmission pipeline is located in the area, identify the product transported in the line, and provide the name and telephone number of the pipeline operator to call. Markers and warning signs are located at frequent intervals along natural gas and liquid transmission pipeline rights-of-way, and are located at prominent points such as where pipelines intersect streets, highways, railways, or waterways.

Pipeline markers only indicate the presence of a pipeline—they do not indicate the exact location of the pipeline. Pipeline locations within a right-of-way may vary along its length and there may be multiple pipelines located in the same right-of-way.

**NOTE:**

- Markers for pipelines transporting materials containing dangerous levels of hydrogen sulfide (H<sub>2</sub>S) may have markers that say: "Sour" or "Poison."
- Natural gas distribution pipelines are not marked with above-ground signs.
- Gathering/production pipelines are often not marked with above-ground signs.

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**PIPELINE TRANSPORTATION**

In North America, hazardous materials are commonly transported through millions of miles of pipelines and related structures. Products transported include natural gas, natural gas liquids, crude oil, gasoline, diesel fuel, anhydrous ammonia, carbon dioxide, jet fuel, and other commodities. Although most pipelines are buried, often there are above-ground structures and markers indicating the presence of pipelines. First responders should be aware of the pipelines in their jurisdictions, the products they transport, and the operators responsible for those pipelines. Proactive relationships can be beneficial in the safe and effective management of pipeline emergencies.

**Types of Pipelines**

**Natural Gas Pipelines**

**Natural Gas Transmission Pipelines**

Large-diameter, steel pipelines transport flammable natural gas (toxic and non-toxic) at very high pressures ranging from 200 to 1,500 psi\*. Natural gas in transmission pipelines is odorless — generally *not odorized* with mercaptan (the "rotten egg" smell); however, natural gas containing hydrogen sulfide (H<sub>2</sub>S) *will* have a distinct "rotten egg" odor.

**Natural Gas Distribution Pipelines**

Natural gas is delivered directly to customers via distribution pipelines. These pipelines are typically smaller-diameter, lower-pressure pipelines constructed of steel, plastic, or cast iron. Natural gas in distribution pipelines is *odorized* with mercaptan (the "rotten egg" smell).

**Natural Gas-Gathering and Natural Gas Well Production Pipelines**

Natural gas-gathering/well production pipelines collect "raw" natural gas from wellheads and transport the product to gas-processing and/or gas-treating plants. These gathering pipelines carry natural gas mixed with some quantity of gas liquids, water, and, in some areas, contaminants such as toxic hydrogen sulfide (H<sub>2</sub>S). Natural gas in these pipelines is *not odorized* with mercaptan (the "rotten egg" smell); however, natural gas that contains hydrogen sulfide (H<sub>2</sub>S) will have a distinct "rotten egg" odor.

**Liquid Petroleum and Hazardous Liquids Pipelines**

**Liquid Petroleum Pipelines**

Crude oil, refined petroleum products, and hazardous liquids often are transported by pipelines and include gasoline, jet fuels, diesel fuel, home heating oils, carbon dioxide, anhydrous ammonia, and other hazardous liquids.

Many liquid petroleum pipelines transport different types of liquid petroleum in the same pipeline. To do so, the pipeline operator sends different products in "batches." For example, an operator could send gasoline for several hours, and then switch to jet fuels, before switching to diesel fuel.

\* Data from <http://naturalgas.org/naturalgas/transport/>

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**Pipeline Structures (Above Ground)**

<b>Natural Gas Transmission Pipelines:</b>	Compressor stations, valves, metering stations.
<b>Natural Gas Distribution Pipelines:</b>	Regulator stations, customer meters and regulators, valve box covers.
<b>Natural Gas Gathering/Well Production Pipelines:</b>	Compressor stations, valves, metering stations, wellheads, piping, manifolds.
<b>Petroleum and Hazardous Liquids Pipelines:</b>	Storage tanks, valves, pump stations, loading racks.

**Indications of Pipeline Leaks and Ruptures**

Pipeline releases can range from relatively minor leaks to catastrophic ruptures. It is important to remember that gases and liquids behave differently once they are released from a pipeline. Generally, the following could be indications of a pipeline leak or rupture:

- Hissing, roaring, or explosive sound
- Flames appearing from the ground or water (perhaps very large flames)
- Vapor cloud/fog/mist
- Dirt/debris/water blowing out of the ground
- Liquids bubbling up from the ground or bubbling in water
- Distinctive, unusually strong odor of rotten eggs, skunk, or petroleum
- Discolored/dead vegetation or discolored snow above a pipeline right-of-way
- Oil slick or sheen on flowing/standing water

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### General Considerations for Responding to a Pipeline Emergency

- **Safety First!** Your safety and the safety of the community you protect is top priority. Remember to approach a pipeline incident from upwind, uphill, and upstream while using air monitoring equipment to detect for the presence of explosive and/or toxic levels of hazardous materials.
  - **Always** wear proper personal protective equipment. Be prepared for a flash fire. Use shielding to protect first responders in the event of an explosion. Use respiratory protection.
  - **Never** operate pipeline valves (except in coordination with the pipeline operator); this could make the incident worse and put you and others in danger.
  - **Never** attempt to extinguish a pipeline fire before supply is shut off; this could result in the accumulation of a large flammable/explosive vapor cloud or liquid pool that could make the incident worse and put you and others in danger.
  - **Do not** enter a vapor cloud in an attempt to identify the product(s) involved.
- **Secure the site** and determine a plan to evacuate or shelter-in-place. Work with other responders to deny entry to an area.
- **Identify the product and the operator.** If safe to do so, you may be able to identify the product based on its characteristics or other external clues. Look for pipeline markers indicating the product, operator of the pipeline, and their emergency contact information. Pipelines transport many different types of products, including gases, liquids, and highly volatile liquids that are in a liquid state inside the pipeline but in a gaseous state if released from the pipeline. The vapor density of gases determines if they rise or sink in air. Viscosity and specific gravity also are important characteristics of hazardous liquids to consider. Identification of the product also will help you determine the appropriate distance for isolation of the affected area.
- **Notify the pipeline operator** using the emergency contact information on the pipeline marker or other contact information you may have received from the pipeline operator. The pipeline operator will be a resource to you in the response.
- **Establish a command post.** Implement the Incident Command Structure, as needed, and be prepared to implement a Unified Command as additional stakeholders and resources arrive.

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### U.S. Pipeline Resources

**U.S. Pipeline Locations:** The National Pipeline Mapping System (NPMS) <http://www.npms.phmsa.dot.gov> indicates the general locations of hazardous liquids and natural gas transmission pipelines found within the U.S. The pipelines depicted in the NPMS are within 500 feet of their actual locations. Emergency responders may apply for an NPMS web viewer account that will allow access to more detailed information than is available to the general public. The NPMS does not contain gathering/production or natural gas distribution pipelines.

**U.S. Pipeline Emergency Response Training:** Where appropriate, reference Pipeline Emergencies training materials, produced by PHMSA and the National Association of State Fire Marshals (NASFM). This training guide is available at <http://www.pipelineemergencies.com> and <http://nasfm-training.org/pipeline> and offers a thorough overview of U.S. pipeline operations and emergency response considerations. Your state or jurisdiction also may provide training on how to handle the response to a pipeline incident.

#### Other Resources:

Pipeline Association for Public Awareness <http://www.pipelineawareness.org/>

U.S. DOT, Pipeline and Hazardous Materials Safety Administration <http://phmsa.dot.gov/pipeline>

Pipeline 101 <http://pipeline101.com/>

### Canadian Pipeline Resources

**Canadian Pipeline Locations:** The Canadian Energy Pipeline Association (CEPA) provides the general locations of natural gas and liquid pipelines found within Canada.

<http://www.cepa.com/library/maps>

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### Other Important Considerations

- If no flames are present, do not introduce ignition sources such as open flames, running vehicles, or electrical equipment (cell phones, pagers, two-way radios, lights, garage door openers, fans, door bells, etc.).
- Abandon any equipment used in or near the area of the pipeline release.
- If there is no risk to your safety or the safety of others, move far enough away from any noise coming from the pipeline to allow for normal conversation.
- Pipelines often are close to other public utilities, railroads, and highways; these can be impacted by pipeline releases or may be potential ignition sources.
- Natural gas can migrate underground from the source of a release to other areas via the path of least resistance (including through sewers, water lines, and geologic formations).

### Considerations for Establishing Protective Action Distances

- Type of product
  - If you know the material involved, identify the three-digit guide number by looking up the name in the alphabetical list (blue-bordered pages), then using the three-digit guide number, consult the recommendations in the assigned guide.
- Pressure and diameter of pipe (the pipeline operator can tell you this if you don't already know it)
- Timing of valve closure by the pipeline operator (quickly for automated valves; longer for manually operated valves)
- Dissipation time of the product in the pipeline once valves are closed
- Ability to conduct atmospheric monitoring and/or air sampling
- Weather (wind direction, etc.)
- Local variables such as topography, population density, demographics, and fire suppression methods available
- Nearby building construction material/density
- Natural and man-made barriers (such as highways, railroads, rivers, etc.)

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### GREEN HIGHLIGHTED ENTRIES IN YELLOW PAGES

For entries **highlighted in green** follow these steps:

- **IF THERE IS NO FIRE:**
  - Go directly to **Table 1 (green-bordered pages)**
  - Look up the ID number and name of material
  - Identify initial isolation and protective action distances
- **IF A FIRE IS INVOLVED:**
  - Also consult the assigned orange guide
  - If applicable, apply the evacuation information shown under **PUBLIC SAFETY**

**Note 1:** If the name in Table 1 is shown with "*when spilled in water*", these materials produce large amounts of Toxic Inhalation Hazard (TIH) (PIH in the US) gases when spilled in water. Some Water Reactive materials are also TIH materials themselves (e.g., Bromine trifluoride (UN1746), Thionyl chloride (UN1836), etc.). In these instances, two entries are provided in Table 1 for land-based and water-based spills. If the Water Reactive material is **NOT** a TIH and this material is **NOT** spilled in water, Table 1 and Table 2 do **NOT** apply and safety distances will be found within the appropriate orange guide.

**Note 2:** Explosives are not individually listed by their ID number because in an emergency situation, the response will be based only on the division of the explosive, not on the individual explosive.

For divisions 1.1, 1.2, 1.3 and 1.5, refer to GUIDE 112.

For divisions 1.4 and 1.6, refer to GUIDE 114.

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ID Guide No. No.	Name of Material	ID Guide No. No.	Name of Material
1184 131	Ethylene dichloride	1204 127	Nitroglycerin, solution in alcohol, with not more than 1% Nitroglycerin
1188 127	Ethylene glycol monomethyl ether	1206 128	Heptanes
1189 129	Ethylene glycol monomethyl ether acetate	1207 130	Hexaldehyde
1190 129	Ethyl formate	1208 128	Hexanes
1191 129	Ethylhexaldehydes	1208 128	Neohexane
1191 129	Octyl aldehydes	1210 129	Ink, printer's, flammable
1192 129	Ethyl lactate	1210 129	Printing ink, flammable
1193 127	Ethyl methyl ketone	1210 129	Printing ink related material
1193 127	Methyl ethyl ketone	1212 129	Isobutanol
1194 131	Ethyl nitrite, solution	1212 129	Isobutyl alcohol
1195 129	Ethyl propionate	1213 129	Isobutyl acetate
1197 127	Extracts, flavoring, liquid	1214 132	Isobutylamine
1197 127	Extracts, flavouring, liquid	1216 128	Isocetenes
1198 132	Formaldehyde, solution, flammable	1218 130P	Isoprene, stabilized
1198 132	Formalin (flammable)	1219 129	Isopropanol
1199 132P	Furaldehydes	1219 129	Isopropyl alcohol
1199 132P	Furfural	1220 129	Isopropyl acetate
1199 132P	Furfuraldehydes	1221 132	Isopropylamine
1201 127	Fusel oil	1222 130	Isopropyl nitrate
1202 128	Diesel fuel	1223 128	Kerosene
1202 128	Fuel oil	1224 127	Ketones, liquid, n.o.s.
1202 128	Gas oil	1228 131	Mercaptan mixture, liquid, flammable, poisonous, n.o.s.
1202 128	Heating oil, light	1228 131	Mercaptan mixture, liquid, flammable, toxic, n.o.s.
1203 128	Gasohol	1228 131	Mercaptans, liquid, flammable, poisonous, n.o.s.
1203 128	Gasoline	1228 131	Mercaptans, liquid, flammable, toxic, n.o.s.
1203 128	Motor spirit	1229 129	Mesityl oxide
1203 128	Petrol	1230 131	Methanol
		1230 131	Methyl alcohol

ID Guide No. No.	Name of Material	ID Guide No. No.	Name of Material
1302 127P	Vinyl ethyl ether, stabilized	1327 133	Straw, wet, damp or contaminated with oil
1303 130P	Vinylidene chloride, stabilized	1328 133	Hexamethylenetetramine
1304 127P	Vinyl isobutyl ether, stabilized	1330 133	Manganese resinate
1306 129	Wood preservatives, liquid	1331 133	Matches, "strike anywhere"
1307 130	Xylenes	1332 133	Metaldehyde
1308 170	Zirconium suspended in a flammable liquid	1333 170	Cerium, slabs, ingots or rods
1308 170	Zirconium suspended in a liquid (flammable)	1334 133	Naphthalene, crude
1309 170	Aluminum powder, coated	1334 133	Naphthalene, refined
1310 113	Ammonium picrate, wetted with not less than 10% water	1336 113	Nitroguanidine, wetted with not less than 20% water
1312 133	Borneol	1336 113	Picrite, wetted with not less than 20% water
1313 133	Calcium resinate	1337 113	Nitrostarch, wetted with not less than 20% water
1314 133	Calcium resinate, fused	1338 133	Phosphorus, amorphous
1318 133	Cobalt resinate, precipitated	1338 133	Red phosphorus
1320 113	Dinitrophenol, wetted with not less than 15% water	1339 139	Phosphorus heptasulfide, free from yellow and white Phosphorus
1321 113	Dinitrophenolates, wetted with not less than 15% water	1339 139	Phosphorus heptasulphide, free from yellow and white Phosphorus
1322 113	Dinitroresorcinol, wetted with not less than 15% water		
1323 170	Ferrocerium		
1324 133	Films, nitrocellulose base		
1325 133	Flammable solid, organic, n.o.s.	1341 139	Phosphorus sesquisulfide, free from yellow and white Phosphorus
1325 133	Fusee (rail or highway)	1341 139	Phosphorus sesquisulphide, free from yellow and white Phosphorus
1326 170	Hafnium powder, wetted with not less than 25% water	1343 139	Phosphorus trisulfide, free from yellow and white Phosphorus
1327 133	Bhusa, wet, damp or contaminated with oil		
1327 133	Hay, wet, damp or contaminated with oil		

ID Guide No. No.	Name of Material	ID Guide No. No.	Name of Material
1231 129	Methyl acetate	1268 128	Petroleum products, n.o.s.
1233 130	Methylamyl acetate	1270 128	Oil, petroleum
1234 127	Methylal	1270 128	Petroleum oil
1235 132	Methylamine, aqueous solution	1272 129	Pine oil
1237 129	Methyl butyrate	1274 129	n-Propanol
1243 129	Methyl formate	1274 129	Propyl alcohol, normal
1245 127	Methyl isobutyl ketone	1275 129	Propionaldehyde
1246 127P	Methyl isopropenyl ketone, stabilized	1276 129	n-Propyl acetate
1247 129P	Methyl methacrylate monomer, stabilized	1277 132	Propylamine
1248 129	Methyl propionate	1278 129	1-Chloropropane
1249 127	Methyl propyl ketone	1278 129	Propyl chloride
1261 129	Nitromethane	1279 130	1,2-Dichloropropane
1262 128	Isocetane	1280 127P	Propylene oxide
1262 128	Octanes	1281 129	Propyl formates
1263 128	Paint (flammable)	1282 129	Pyridine
1263 128	Paint related material (flammable)	1286 127	Rosin oil
1264 129	Paraldehyde	1287 127	Rubber solution
1265 128	Isopentane	1288 128	Shale oil
1265 128	Pentanes	1289 132	Sodium methylate, solution in alcohol
1266 127	Perfumery products, with flammable solvents	1292 129	Ethyl silicate
1267 128	Petroleum crude oil	1292 129	Tetraethyl silicate
1268 128	Petroleum distillates, n.o.s.	1293 127	Tinctures, medicinal
		1294 130	Toluene
		1296 132	Triethylamine
		1297 132	Trimethylamine, aqueous solution
		1299 128	Turpentine
		1300 128	Turpentine substitute
		1301 129P	Vinyl acetate, stabilized

ID Guide No. No.	Name of Material	ID Guide No. No.	Name of Material
1343 139	Phosphorus trisulphide, free from yellow and white Phosphorus	1357 113	Urea nitrate, wetted with not less than 20% water
1344 113	Picric acid, wetted with not less than 30% water	1358 170	Zirconium powder, wetted with not less than 25% water
1344 113	Trinitrophenol, wetted with not less than 30% water		
1345 133	Rubber scrap, powdered or granulated	1361 133	Carbon, animal or vegetable origin
1345 133	Rubber shoddy, powdered or granulated	1361 133	Charcoal
1346 170	Silicon powder, amorphous	1362 133	Carbon, activated
1347 113	Silver picrate, wetted with not less than 30% water	1363 135	Copra
1348 113	Sodium dinitro-o-cresolate, wetted with not less than 15% water	1364 133	Cotton waste, oily
1349 113	Sodium picramate, wetted with not less than 20% water	1365 133	Cotton
1350 133	Sulfur	1365 133	Cotton, wet
1350 133	Sulphur	1366 135	Diethylzinc
1352 170	Titanium powder, wetted with not less than 25% water	1369 135	p-Nitrosodimethylaniline
1353 133	Fabrics impregnated with weakly nitrated Nitrocellulose, n.o.s.	1370 135	Dimethylzinc
1353 133	Fibers impregnated with weakly nitrated Nitrocellulose, n.o.s.	1372 133	Fibers, animal or vegetable, burnt, wet or damp
1354 113	Trinitrobenzene, wetted with not less than 30% water	1372 133	Fibres, animal or vegetable, burnt, wet or damp
1355 113	Trinitrobenzoic acid, wetted with not less than 30% water	1373 133	Fabrics, animal or vegetable or synthetic, n.o.s. with oil
1356 113	TNT, wetted with not less than 30% water	1373 133	Fibers, animal or vegetable or synthetic, n.o.s. with oil
1356 113	Trinitrotoluene, wetted with not less than 30% water	1373 133	Fibres, animal or vegetable or synthetic, n.o.s. with oil
		1374 133	Fish meal, unstabilized
		1374 133	Fish scrap, unstabilized
		1376 135	Iron oxide, spent
		1376 135	Iron sponge, spent
		1378 170	Metal catalyst, wetted
		1379 133	Paper, unsaturated oil treated
		1381 136	Phosphorus, white, dry or under water or in solution

ID No.	Guide No.	Name of Material	ID No.	Guide No.	Name of Material
1381	136	Phosphorus, yellow, dry or under water or in solution	1391	138	Alkali metal dispersion
1381	136	White phosphorus, dry	1391	138	Alkaline earth metal dispersion
1381	136	White phosphorus, in solution	1392	138	Alkaline earth metal amalgam
1381	136	White phosphorus, under water	1392	138	Alkaline earth metal amalgam, liquid
1381	136	Yellow phosphorus, dry	1393	138	Alkaline earth metal alloy, n.o.s.
1381	136	Yellow phosphorus, in solution	1394	138	Aluminum carbide
1381	136	Yellow phosphorus, under water	1395	138	Aluminum ferrosilicon powder
1382	135	Potassium sulfide, anhydrous	1396	138	Aluminum powder, uncoated
1382	135	Potassium sulfide, with less than 30% water of crystallization	1397	138	Aluminum phosphide
1382	135	Potassium sulphide, anhydrous	1398	138	Aluminum silicon powder, uncoated
1382	135	Potassium sulphide, with less than 30% water of crystallization	1400	138	Barium
1383	135	Aluminum powder, pyrophoric	1401	138	Calcium
1383	135	Pyrophoric alloy, n.o.s.	1402	138	Calcium carbide
1383	135	Pyrophoric metal, n.o.s.	1403	138	Calcium cyanamide, with more than 0.1% Calcium carbide
1384	135	Sodium borohydride	1404	138	Calcium hydride
1384	135	Sodium hydrosulfide	1405	138	Calcium silicide
1384	135	Sodium hydroxide	1407	138	Caesium
1385	135	Sodium sulfide, anhydrous	1407	138	Cesium
1385	135	Sodium sulfide, with less than 30% water of crystallization	1408	139	Ferrosilicon
1385	135	Sodium sulphide, anhydrous	1409	138	Metal hydrides, water-reactive, n.o.s.
1385	135	Sodium sulphide, with less than 30% water of crystallization	1410	138	Lithium aluminum hydride
1386	135	Seed cake, with more than 1.5% oil and not more than 11% moisture	1411	138	Lithium aluminum hydride, ethereal
1387	133	Wool waste, wet	1413	138	Lithium borohydride
1389	138	Alkali metal amalgam	1414	138	Lithium hydride
1389	138	Alkali metal amalgam, liquid	1415	138	Lithium
1390	139	Alkali metal amides	1417	138	Lithium silicon
			1418	138	Magnesium alloys powder
			1418	138	Magnesium powder

ID No.	Guide No.	Name of Material	ID No.	Guide No.	Name of Material
1470	141	Lead perchlorate, solid	1498	140	Sodium nitrate
1471	140	Lithium hypochlorite, dry	1499	140	Potassium nitrate and Sodium nitrate mixture
1471	140	Lithium hypochlorite mixture	1499	140	Sodium nitrate and Potassium nitrate mixture
1471	140	Lithium hypochlorite mixtures, dry	1500	140	Sodium nitrite
1472	143	Lithium peroxide	1502	140	Sodium perchlorate
1473	140	Magnesium bromate	1503	140	Sodium permanganate
1474	140	Magnesium nitrate	1504	144	Sodium peroxide
1475	140	Magnesium perchlorate	1505	140	Sodium persulfate
1476	140	Magnesium peroxide	1505	140	Sodium persulphate
1477	140	Nitrates, inorganic, n.o.s.	1506	143	Strontium chlorate
1479	140	Oxidizing solid, n.o.s.	1507	140	Strontium nitrate
1481	140	Perchlorates, inorganic, n.o.s.	1508	140	Strontium perchlorate
1482	140	Permanganates, inorganic, n.o.s.	1509	143	Strontium peroxide
1483	140	Peroxides, inorganic, n.o.s.	1511	140	Urea hydrogen peroxide
1484	140	Potassium bromate	1512	140	Zinc ammonium nitrite
1485	140	Potassium chlorate	1513	140	Zinc chlorate
1486	140	Potassium nitrate	1514	140	Zinc nitrate
1487	140	Potassium nitrate and Sodium nitrite mixture	1515	140	Zinc permanganate
1487	140	Sodium nitrite and Potassium nitrate mixture	1516	143	Zinc peroxide
1488	140	Potassium nitrite	1517	113	Zirconium picramate, wetted with not less than 20% water
1489	140	Potassium perchlorate	1544	151	Alkaloids, solid, n.o.s. (poisonous)
1490	140	Potassium permanganate	1544	151	Alkaloid salts, solid, n.o.s. (poisonous)
1491	144	Potassium peroxide	1545	155	Allyl isothiocyanate, stabilized
1492	140	Potassium persulfate	1546	151	Ammonium arsenate
1492	140	Potassium persulphate	1547	153	Aniline
1493	140	Silver nitrate	1548	153	Aniline hydrochloride
1494	141	Sodium bromate			
1495	140	Sodium chlorate			
1496	143	Sodium chlorite			

ID No.	Guide No.	Name of Material	ID No.	Guide No.	Name of Material
1420	138	Potassium, metal alloys	1445	141	Barium chlorate, solid
1420	138	Potassium, metal alloys, liquid	1446	141	Barium nitrate
1421	138	Alkali metal alloy, liquid, n.o.s.	1447	141	Barium perchlorate
1422	138	Potassium sodium alloys	1447	141	Barium perchlorate, solid
1422	138	Potassium sodium alloys, liquid	1448	141	Barium permanganate
1422	138	Sodium potassium alloys	1449	141	Barium peroxide
1422	138	Sodium potassium alloys, liquid	1450	141	Bromates, inorganic, n.o.s.
1422	138	Sodium potassium alloys, liquid	1451	140	Caesium nitrate
1423	138	Rubidium	1451	140	Cesium nitrate
1423	138	Rubidium metal	1452	140	Calcium chlorate
1426	138	Sodium borohydride	1453	140	Calcium chlorite
1427	138	Sodium hydride	1454	140	Calcium nitrate
1428	138	Sodium	1455	140	Calcium perchlorate
1431	138	Sodium methylate	1456	140	Calcium permanganate
1431	138	Sodium methylate, dry	1457	140	Calcium peroxide
1433	139	Stannic phosphides	1458	140	Borate and Chlorate mixture
1435	138	Zinc ashes	1458	140	Chlorate and Borate mixture
1435	138	Zinc dross	1458	140	Chlorate and Magnesium chloride mixture
1435	138	Zinc residue	1459	140	Chlorate and Magnesium chloride mixture, solid
1435	138	Zinc skimmings	1459	140	Magnesium chloride and Chlorate mixture
1436	138	Zinc dust	1459	140	Magnesium chloride and Chlorate mixture, solid
1436	138	Zinc powder	1461	140	Chlorates, inorganic, n.o.s.
1437	138	Zirconium hydride	1462	143	Chlorites, inorganic, n.o.s.
1438	140	Aluminum nitrate	1463	141	Chromium trioxide, anhydrous
1439	141	Ammonium dichromate	1465	140	Didymium nitrate
1442	143	Ammonium perchlorate	1466	140	Ferric nitrate
1444	140	Ammonium persulfate	1467	143	Guanidine nitrate
1444	140	Ammonium persulphate	1469	141	Lead nitrate
1445	141	Barium chlorate	1470	141	Lead perchlorate

ID No.	Guide No.	Name of Material	ID No.	Guide No.	Name of Material
1549	157	Antimony compound, inorganic, solid, n.o.s.	1574	151	Calcium arsenate and Calcium arsenite mixture, solid
1550	151	Antimony lactate	1574	151	Calcium arsenite and Calcium arsenate mixture, solid
1551	151	Antimony potassium tartrate	1575	157	Calcium cyanide
1553	154	Arsenic acid, liquid	1577	153	Chlorodinitrobenzenes, liquid
1554	154	Arsenic acid, solid	1577	153	Chlorodinitrobenzenes, solid
1555	151	Arsenic bromide	1577	153	Dinitrochlorobenzenes
1556	152	Arsenic compound, liquid, n.o.s.	1578	152	Chloronitrobenzenes
1556	152	Arsenic compound, liquid, n.o.s., inorganic	1578	152	Chloronitrobenzenes, solid
1557	152	Arsenic compound, solid, n.o.s.	1579	153	4-Chloro-o-toluidine hydrochloride
1557	152	Arsenic compound, solid, n.o.s., inorganic	1579	153	4-Chloro-o-toluidine hydrochloride, solid
1558	152	Arsenic	1585	151	Copper acetoarsenite
1559	151	Arsenic pentoxide	1586	151	Copper arsenite
1561	151	Arsenic trioxide	1587	151	Copper cyanide
1562	152	Arsenical dust	1588	157	Cyanides, inorganic, solid, n.o.s.
1564	154	Barium compound, n.o.s.	1590	153	Dichloroanilines, liquid
1565	157	Barium cyanide	1590	153	Dichloroanilines, solid
1566	154	Beryllium compound, n.o.s.	1591	152	o-Dichlorobenzene
1567	134	Beryllium powder	1593	160	Dichloromethane
1570	152	Brucine			
1571	113	Barium azide, wetted with not less than 50% water			
1572	151	Cacodylic acid			
1573	151	Calcium arsenate			



ID No.	Guide No.	Name of Material	ID No.	Guide No.	Name of Material
1768	154	Difluorophosphoric acid, anhydrous	1789	157	Muriatic acid
1770	153	Diphenylmethyl bromide	1790	157	Hydrofluoric acid
1773	157	Ferric chloride, anhydrous	1791	154	Hypochlorite solution
1774	154	Fire extinguisher charges, corrosive liquid	1791	154	Sodium hypochlorite
1775	154	Fluoroboric acid	1792	157	Iodine monochloride, solid
1776	154	Fluorophosphoric acid, anhydrous	1793	153	Isopropyl acid phosphate
1777	157	Fluorosilicic acid	1794	154	Lead sulfate, with more than 3% free acid
1778	154	Hydrofluorosilicic acid	1794	154	Lead sulphate, with more than 3% free acid
1779	153	Formic acid	1796	157	Nitrating acid mixture with more than 50% nitric acid
1779	153	Formic acid, with more than 85% acid	1796	157	Nitrating acid mixture with not more than 50% nitric acid
1780	156	Fumaryl chloride	1798	157	Aqua regia
1782	154	Hexafluorophosphoric acid	1798	157	Nitrohydrochloric acid
1783	153	Hexamethylenediamine, solution	1802	140	Perchloric acid, with not more than 50% acid
1786	157	Hydrofluoric acid and Sulfuric acid mixture	1803	153	Phenolsulfonic acid, liquid
1786	157	Hydrofluoric acid and Sulphuric acid mixture	1803	153	Phenolsulphonic acid, liquid
1786	157	Sulfuric acid and Hydrofluoric acid mixture	1805	154	Phosphoric acid, liquid
1786	157	Sulphuric acid and Hydrofluoric acid mixture	1805	154	Phosphoric acid, solid
1787	154	Hydriodic acid	1805	154	Phosphoric acid, solution
1788	154	Hydrobromic acid	1807	137	Phosphorus pentoxide
1789	157	Hydrochloric acid	1811	154	Potassium hydrogendifluoride

ID No.	Guide No.	Name of Material	ID No.	Guide No.	Name of Material
1811	154	Potassium hydrogen difluoride, solid	1830	137	Sulphuric acid, with more than 51% acid
1812	154	Potassium fluoride	1831	137	Sulfuric acid, fuming, with less than 30% free Sulfur trioxide
1812	154	Potassium fluoride, solid	1832	137	Sulfuric acid, spent
1813	154	Caustic potash, solid	1832	137	Sulphuric acid, spent
1813	154	Potassium hydroxide, solid	1833	154	Sulfurous acid
1814	154	Caustic potash, solution	1833	154	Sulphurous acid
1814	154	Potassium hydroxide, solution	1835	153	Tetramethylammonium hydroxide
1817	137	Pyrosulphuryl chloride	1835	153	Tetramethylammonium hydroxide, solution
1817	137	Pyrosulphuryl chloride	1837	157	Thiophosphoryl chloride
1819	154	Sodium aluminate, solution	1839	153	Trichloroacetic acid
1823	154	Caustic soda, solid	1840	154	Zinc chloride, solution
1823	154	Sodium hydroxide, solid	1841	171	Acetaldehyde ammonia
1824	154	Caustic soda, solution	1843	141	Ammonium dinitro-o-cresolate
1824	154	Sodium hydroxide, solution	1843	141	Ammonium dinitro-o-cresolate, solid
1825	157	Sodium monoxide	1845	120	Carbon dioxide, solid
1826	157	Nitrating acid mixture, spent, with more than 50% nitric acid	1845	120	Dry ice
1826	157	Nitrating acid mixture, spent, with not more than 50% nitric acid			
1827	137	Stannic chloride, anhydrous			
1827	137	Tin tetrachloride			
1830	137	Sulfuric acid			
1830	137	Sulfuric acid, with more than 51% acid			
1830	137	Sulphuric acid			

ID No.	Guide No.	Name of Material	ID No.	Guide No.	Name of Material
1846	151	Carbon tetrachloride	1869	138	Magnesium
1847	153	Potassium sulfide, hydrated, with not less than 30% water of crystallization	1869	138	Magnesium, in pellets, turnings or ribbons
1847	153	Potassium sulphide, hydrated, with not less than 30% water of crystallization	1869	138	Magnesium alloys, with more than 50% Magnesium, in pellets, turnings or ribbons
1848	132	Propionic acid	1870	138	Potassium borohydride
1848	132	Propionic acid, with not less than 10% and less than 90% acid	1871	170	Titanium hydride
1849	153	Sodium sulfide, hydrated, with not less than 30% water	1872	141	Lead dioxide
1849	153	Sodium sulphide, hydrated, with not less than 30% water	1873	143	Perchloric acid, with more than 50% but not more than 72% acid
1851	151	Medicine, liquid, poisonous, n.o.s.	1884	157	Barium oxide
1851	151	Medicine, liquid, toxic, n.o.s.	1885	153	Benzidine
1854	135	Barium alloys, pyrophoric	1886	156	Benzylidene chloride
1855	135	Calcium, pyrophoric	1887	160	Bromochloromethane
1855	135	Calcium alloys, pyrophoric	1888	151	Chloroform
1856	133	Rags, oily	1889	157	Cyanogen bromide
1857	133	Textile waste, wet	1891	131	Ethyl bromide
1858	126	Hexafluoropropylene	1894	151	Phenylmercuric hydroxide
1858	126	Hexafluoropropylene, compressed	1895	151	Phenylmercuric nitrate
1858	126	Refrigerant gas R-1216	1897	160	Perchloroethylene
1860	116P	Vinyl fluoride, stabilized	1897	160	Tetrachloroethylene
1862	130	Ethyl crotonate	1902	153	Diisooctyl acid phosphate
1863	128	Fuel, aviation, turbine engine	1903	153	Disinfectant, liquid, corrosive, n.o.s.
1865	131	n-Propyl nitrate	1905	154	Selenic acid
1866	127	Resin solution	1906	153	Acid, sludge
1868	134	Decaborane	1906	153	Sludge acid
			1907	154	Soda lime, with more than 4% Sodium hydroxide

ID No.	Guide No.	Name of Material	ID No.	Guide No.	Name of Material
1908	154	Chlorite solution	1932	135	Zirconium scrap
1910	157	Calcium oxide	1935	157	Cyanide solution, n.o.s.
1912	115	Methyl chloride and Methylene chloride mixture	1938	156	Bromoacetic acid
1912	115	Methylene chloride and Methyl chloride mixture	1938	156	Bromoacetic acid, solution
1913	120	Neon, refrigerated liquid (cryogenic liquid)	1939	137	Phosphorus oxybromide
1914	130	Butyl propionates	1939	137	Phosphorus oxybromide, solid
1915	127	Cyclohexanone	1940	153	Thioglycolic acid
1916	152	2,2-Dichlorodiethyl ether	1941	171	Dibromodifluoromethane
1916	152	Dichloroethyl ether	1941	171	Refrigerant gas R-12B2
1917	129P	Ethyl acrylate, stabilized	1942	140	Ammonium nitrate, with not more than 0.2% combustible substances
1918	130	Cumene	1944	133	Matches, safety
1918	130	Isopropylbenzene	1945	133	Matches, wax "vesta"
1919	129P	Methyl acrylate, stabilized	1950	126	Aerosols
1920	128	Nonanes	1951	120	Argon, refrigerated liquid (cryogenic liquid)
1921	131P	Propyleneimine, stabilized	1952	126	Carbon dioxide and Ethylene oxide mixtures, with not more than 9% Ethylene oxide
1922	132	Pyrollidine	1952	126	Ethylene oxide and Carbon dioxide mixtures, with not more than 9% Ethylene oxide
1928	135	Methyl magnesium bromide in Ethyl ether			



ID No.	Guide No.	Name of Material	ID No.	Guide No.	Name of Material
2078	156	Toluene diisocyanate			
2079	154	Diethylenetriamine			
2187	120	Carbon dioxide, refrigerated liquid	2205	153	Adiponitrile
			2206	155	Isocyanate solution, poisonous, n.o.s.
			2206	155	Isocyanate solution, toxic, n.o.s.
			2206	155	Isocyanates, poisonous, n.o.s.
			2206	155	Isocyanates, toxic, n.o.s.
			2208	140	Bleaching powder
			2208	140	Calcium hypochlorite mixture, dry, with more than 10% but not more than 39% available Chlorine
			2209	132	Formaldehyde, solution (corrosive)
2193	126	Hexafluoroethane	2209	132	Formalin (corrosive)
2193	126	Hexafluoroethane, compressed	2210	135	Maneb
2193	126	Refrigerant gas R-116	2210	135	Maneb preparation, with not less than 60% Maneb
2193	126	Refrigerant gas R-116, compressed	2211	133	Polymeric beads, expandable
			2211	133	Polystyrene beads, expandable
			2212	171	Asbestos
			2212	171	Asbestos, amphibole
			2212	171	Asbestos, blue
			2212	171	Asbestos, brown
			2212	171	Blue asbestos
			2212	171	Brown asbestos
2200	116P	Propadiene, stabilized	2213	133	Paraformaldehyde
2201	122	Nitrous oxide, refrigerated liquid	2214	156	Phthalic anhydride
			2215	156	Maleic anhydride
			2215	156	Maleic anhydride, molten
2203	116	Silane	2216	171	Fish meal, stabilized
2203	116	Silane, compressed	2216	171	Fish scrap, stabilized

ID No.	Guide No.	Name of Material	ID No.	Guide No.	Name of Material
2217	135	Seed cake, with not more than 1.5% oil and not more than 11% moisture	2247	128	n-Decane
2218	132P	Acrylic acid, stabilized	2248	132	Di-n-butylamine
2219	129	Allyl glycidyl ether	2249	131	Dichlorodimethyl ether, symmetrical
2222	128	Anisole	2250	156	Dichlorophenyl isocyanates
2224	152	Benzonitrile	2251	128P	Bicyclo[2.2.1]hepta-2,5-diene, stabilized
2225	156	Benzenesulfonyl chloride	2251	128P	2,5-Norbornadiene, stabilized
2225	156	Benzenesulphonyl chloride	2252	127	1,2-Dimethoxyethane
2226	156	Benzotrifluoride	2253	153	N,N-Dimethylaniline
2227	130P	n-Butyl methacrylate, stabilized	2254	133	Matches, fusee
			2256	130	Cyclohexene
			2257	138	Potassium
2233	152	Chloroanisidines	2257	138	Potassium, metal
2234	130	Chlorobenzotrifluorides	2258	132	1,2-Propylenediamine
2235	153	Chlorobenzyl chlorides	2259	153	Triethylenetetramine
2235	153	Chlorobenzyl chlorides, liquid	2260	132	Tripropylamine
2236	156	3-Chloro-4-methylphenyl isocyanate	2261	153	Xylenols
2236	156	3-Chloro-4-methylphenyl isocyanate, liquid	2261	153	Xylenols, solid
2237	153	Chloronitroanilines	2262	156	Dimethylcarbonyl chloride
2238	129	Chlorotoluenes	2263	128	Dimethylcyclohexanes
2239	153	Chlorotoluidines	2264	132	N,N-Dimethylcyclohexylamine
2239	153	Chlorotoluidines, solid	2264	132	Dimethylcyclohexylamine
2240	154	Chromosulphuric acid	2265	129	N,N-Dimethylformamide
2240	154	Chromosulphuric acid	2266	132	Dimethyl-N-propylamine
2241	128	Cycloheptane	2267	156	Dimethyl thiophosphoryl chloride
2242	128	Cycloheptane	2269	153	3,3'-Iminodipropylamine
2243	130	Cyclohexyl acetate	2270	132	Ethylamine, aqueous solution, with not less than 50% but not more than 70% Ethylamine
2244	129	Cyclopentanol	2271	128	Ethyl amyl ketone
2245	128	Cyclopentanone	2272	153	N-Ethylaniline
2246	128	Cyclopentene			

ID No.	Guide No.	Name of Material	ID No.	Guide No.	Name of Material
2273	153	2-Ethylaniline	2302	127	5-Methylhexan-2-one
2274	153	N-Ethyl-N-benzylaniline	2303	128	Isopropenylbenzene
2275	129	2-Ethylbutanol	2304	133	Naphthalene, molten
2276	132	2-Ethylhexylamine	2305	153	Nitrobenzenesulfonic acid
2277	130P	Ethyl methacrylate	2305	153	Nitrobenzenesulphonic acid
2277	130P	Ethyl methacrylate, stabilized	2306	152	Nitrobenzotrifluorides
2278	128	n-Heptene	2306	152	Nitrobenzotrifluorides, liquid
2279	151	Hexachlorobutadiene	2307	152	3-Nitro-4-chlorobenzotrifluoride
2280	153	Hexamethylenediamine, solid			
2281	156	Hexamethylene diisocyanate			
2282	129	Hexanols			
2283	130P	Isobutyl methacrylate, stabilized	2309	128P	Octadiene
2284	131	Isobutyronitrile	2310	131	Pentane-2,4-dione
			2311	153	Phenetidines
2286	128	Pentamethylheptane	2312	153	Phenol, molten
2287	128	Isoheptenes	2313	129	Picolines
2288	128	Isohexenes	2315	171	Articles containing Polychlorinated biphenyls (PCB)
2289	153	Isophoronediamine	2315	171	PCB
2290	156	IPDI	2315	171	Polychlorinated biphenyls
2290	156	Isophorone diisocyanate	2315	171	Polychlorinated biphenyls, liquid
2291	151	Lead compound, soluble, n.o.s.	2316	157	Sodium cuprocyanide, solid
2293	128	4-Methoxy-4-methylpentan-2-one	2317	157	Sodium cuprocyanide, solution
2294	153	N-Methylaniline	2318	135	Sodium hydrosulfide, with less than 25% water of crystallization
2295	155	Methyl chloroacetate	2318	135	Sodium hydrosulfide, with less than 25% water of crystallization
2296	128	Methylcyclohexane	2319	128	Terpene hydrocarbons, n.o.s.
2297	128	Methylcyclohexanone	2320	153	Tetraethylenepentamine
2298	128	Methylcyclopentane			
2299	155	Methyl dichloroacetate			
2300	153	2-Methyl-5-ethylpyridine			
2301	128	2-Methylfuran			

ID No.	Guide No.	Name of Material	ID No.	Guide No.	Name of Material
2321	153	Trichlorobenzenes, liquid	2351	129	Butyl nitrites
2322	152	Trichlorobutene	2352	127P	Butyl vinyl ether, stabilized
2323	130	Triethyl phosphite			
2324	128	Triisobutylene	2354	131	Chloromethyl ethyl ether
2325	129	1,3,5-Trimethylbenzene	2356	129	2-Chloropropane
2326	153	Trimethylcyclohexylamine	2357	132	Cyclohexylamine
2327	153	Trimethylhexamethylenediamines	2358	128P	Cyclooctatetraene
2328	156	Trimethylhexamethylene diisocyanate	2359	132	Diallylamine
2329	130	Trimethyl phosphite	2360	131P	Diallyl ether
2330	128	Undecane	2361	132	Diisobutylamine
2331	154	Zinc chloride, anhydrous	2362	130	1,1-Dichloroethane
2332	129	Acetaldehyde oxime	2363	129	Ethyl mercaptan
2333	131	Allyl acetate	2364	128	n-Propyl benzene
			2366	128	Diethyl carbonate
2335	131	Allyl ethyl ether	2367	130	alpha-Methylvaleraldehyde
2336	131	Allyl formate	2367	130	Methyl valeraldehyde (alpha)
			2368	128	alpha-Pinene
2338	127	Benzotrifluoride	2368	128	Pinene (alpha)
2339	130	2-Bromobutane	2370	128	1-Hexane
2340	130	2-Bromoethyl ethyl ether	2371	128	Isopentenes
2341	130	1-Bromo-3-methylbutane	2372	129	1,2-Di-(dimethylamino)ethane
2342	130	Bromomethylpropanes	2373	127	Diethoxymethane
2343	130	2-Bromopentane	2374	127	3,3-Diethoxypropene
2344	129	Bromopropanes	2375	129	Diethyl sulfide
2345	130	3-Bromopropyne	2375	129	Diethyl sulphide
2346	127	Butanedione	2376	127	2,3-Dihydropyran
2346	127	Diacetyl	2377	127	1,1-Dimethoxyethane
2347	130	Butyl mercaptan	2378	131	2-Dimethylaminoacetone
2348	129P	Butyl acrylates, stabilized	2379	132	1,3-Dimethylbutylamine
2350	127	Butyl methyl ether	2380	127	Dimethyldiethoxysilane
			2381	130	Dimethyl disulfide

ID No.	Guide No.	Name of Material	ID No.	Guide No.	Name of Material
2381	130	Dimethyl disulphide	2413	128	Tetrapropyl orthotitanate
2383	132	Dipropylamine	2414	130	Thiophene
2384	127	Di-n-propyl ether	2416	129	Trimethyl borate
2385	129	Ethyl isobutyrate			
2386	132	1-Ethylpiperidine			
2387	130	Fluorobenzene			
2388	130	Fluorotoluenes	2419	116	Bromotrifluoroethylene
2389	128	Furan			
2390	129	2-Iodobutane			
2391	129	Iodomethylpropanes	2422	126	Octafluorobut-2-ene
2392	129	Iodopropanes	2422	126	Refrigerant gas R-1318
2393	129	Isobutyl formate	2424	126	Octafluoropropane
2394	129	Isobutyl propionate	2424	126	Refrigerant gas R-218
2396	131P	Methacrylaldehyde, stabilized	2426	140	Ammonium nitrate, liquid (hot concentrated solution)
2397	127	3-Methylbutan-2-one	2427	140	Potassium chlorate, aqueous solution
2398	127	Methyl tert-butyl ether	2428	140	Sodium chlorate, aqueous solution
2399	132	1-Methylpiperidine	2429	140	Calcium chlorate, aqueous solution
2400	130	Methyl isovalerate	2430	153	Alkylphenols, solid, n.o.s. (including C2-C12 homologues)
2401	132	Piperidine	2431	153	Anisidines
2402	130	Propanethiols	2431	153	Anisidines, liquid
2403	129P	Isopropenyl acetate	2431	153	Anisidines, solid
2404	131	Propionitrile	2432	153	N,N-Diethylaniline
2405	129	Isopropyl butyrate	2433	152	Chloronitrotoluenes, liquid
2406	127	Isopropyl isobutyrate	2433	152	Chloronitrotoluenes, solid
2409	129	Isopropyl propionate			
2410	129	1,2,3,6-Tetrahydropyridine			
2411	131	Butyronitrile			
2412	130	Tetrahydrothiophene	2436	129	Thioacetic acid

ID No.	Guide No.	Name of Material	ID No.	Guide No.	Name of Material
2437	154	Sodium hydrogendifluoride	2459	128	2-Methyl-1-butene
2439	154	Sodium hydrogendifluoride	2460	128	2-Methyl-2-butene
2440	154	Stannic chloride, pentahydrate	2461	128	Methylpentadiene
2441	135	Titanium trichloride, pyrophoric	2463	138	Aluminum hydride
2441	135	Titanium trichloride mixture, pyrophoric	2464	141	Beryllium nitrate
2443	137	Vanadium oxytrichloride	2465	140	Dichloroisocyanuric acid, dry
2444	137	Vanadium tetrachloride	2465	140	Dichloroisocyanuric acid salts
2445	135	Lithium alkyls	2465	140	Sodium dichloroisocyanurate
2445	135	Lithium alkyls, liquid	2465	140	Sodium dichloro-s-triazinetriene
2446	153	Nitrocresols	2466	143	Potassium superoxide
2446	153	Nitrocresols, solid	2468	140	Trichloroisocyanuric acid, dry
2447	136	Phosphorus, white, molten	2469	140	Zinc bromate
2447	136	White phosphorus, molten	2470	152	Phenylacetoneitrile, liquid
2448	133	Molten sulfur	2471	154	Osmium tetroxide
2448	133	Molten sulphur	2473	154	Sodium arsenite
2448	133	Sulfur, molten			
2448	133	Sulphur, molten			
2451	122	Nitrogen trifluoride			
2451	122	Nitrogen trifluoride, compressed			
2452	116P	Ethylacetylene, stabilized			
2453	115	Ethyl fluoride			
2453	115	Refrigerant gas R-161			
2454	115	Methyl fluoride			
2454	115	Refrigerant gas R-41			
2455	116	Methyl nitrite			
2456	130P	2-Chloropropene			
2457	128	2,3-Dimethylbutane			
2458	130	Hexadiene			

ID No.	Guide No.	Name of Material	ID No.	Guide No.	Name of Material
2490	153	Dichloroisopropyl ether	2516	151	Carbon tetrabromide
2491	153	Ethanolamine	2517	115	1-Chloro-1,1-difluoroethane
2491	153	Ethanolamine, solution	2517	115	Difluorochloroethanes
2491	153	Monoethanolamine	2517	115	Refrigerant gas R-142b
2493	132	Hexamethylenimine	2518	153	1,5,9-Cyclododecatriene
2496	156	Propionic anhydride	2520	130P	Cyclooctadienes
2498	129	1,2,3,6-Tetrahydrobenzaldehyde	2522	153P	2-Dimethylaminoethyl methacrylate
2501	152	Tris-(1-aziridinyl)phosphine oxide, solution	2524	129	Ethyl orthoformate
2502	132	Valeryl chloride	2525	156	Ethyl oxalate
2503	137	Zirconium tetrachloride	2526	132	Furfurylamine
2504	159	Acetylene tetrabromide	2527	129P	Isobutyl acrylate, stabilized
2504	159	Tetrabromoethane	2528	130	Isobutyl isobutyrate
2505	154	Ammonium fluoride	2529	132	Isobutyric acid
2506	154	Ammonium hydrogen sulfate	2531	153P	Methacrylic acid, stabilized
2506	154	Ammonium hydrogen sulphate	2533	156	Methyl trichloroacetate
2507	154	Chloroplatinic acid, solid	2535	132	4-Methylmorpholine
2508	156	Molybdenum pentachloride	2535	132	N-Methylmorpholine
2509	154	Potassium hydrogen sulfate	2536	127	Methyltetrahydrofuran
2509	154	Potassium hydrogen sulphate	2538	133	Nitronaphthalene
2511	153	2-Chloropropionic acid	2541	128	Terpinolene
2511	153	2-Chloropropionic acid, solid	2542	153	Tributylamine
2511	153	2-Chloropropionic acid, solution	2545	135	Hafnium powder, dry
2512	152	Aminophenols	2546	135	Titanium powder, dry
2513	156	Bromoacetyl bromide	2547	143	Sodium superoxide
2514	130	Bromobenzene	2552	151	Hexafluoroacetone hydrate
2515	159	Bromoforn	2552	151	Hexafluoroacetone hydrate, liquid
			2554	130P	Methylallyl chloride

ID No.	Guide No.	Name of Material	ID No.	Guide No.	Name of Material
2555	113	Nitrocellulose with water, not less than 25% water	2583	153	Alkyl sulfonic acids, solid, with more than 5% free Sulfuric acid
2556	113	Nitrocellulose with alcohol	2583	153	Alkyl sulphonic acids, solid, with more than 5% free Sulphuric acid
2556	113	Nitrocellulose with not less than 25% alcohol	2583	153	Aryl sulfonic acids, solid, with more than 5% free Sulfuric acid
2557	133	Nitrocellulose mixture, without pigment	2583	153	Aryl sulphonic acids, solid, with more than 5% free Sulphuric acid
2557	133	Nitrocellulose mixture, without plasticizer	2584	153	Alkyl sulfonic acids, liquid, with more than 5% free Sulfuric acid
2557	133	Nitrocellulose mixture, with pigment	2584	153	Alkyl sulphonic acids, liquid, with more than 5% free Sulphuric acid
2557	133	Nitrocellulose mixture, with plasticizer	2584	153	Alkyl sulfonic acids, liquid, with more than 5% free Sulfuric acid
2558	131	Epibromohydrin	2584	153	Alkyl sulphonic acids, liquid, with more than 5% free Sulphuric acid
2560	129	2-Methylpentan-2-ol	2584	153	Aryl sulfonic acids, liquid, with more than 5% free Sulfuric acid
2561	128	3-Methyl-1-butene	2584	153	Aryl sulphonic acids, liquid, with more than 5% free Sulphuric acid
2564	153	Trichloroacetic acid, solution	2585	153	Alkyl sulfonic acids, solid, with not more than 5% free Sulfuric acid
2565	153	Dicyclohexylamine	2585	153	Alkyl sulphonic acids, solid, with not more than 5% free Sulphuric acid
2567	154	Sodium pentachlorophenate	2585	153	Aryl sulfonic acids, solid, with not more than 5% free Sulfuric acid
2570	154	Cadmium compound	2585	153	Aryl sulphonic acids, solid, with not more than 5% free Sulphuric acid
2571	156	Alkylsulfuric acids	2585	153	Aryl sulfonic acids, solid, with not more than 5% free Sulfuric acid
2571	156	Alkylsulphuric acids	2586	153	Alkyl sulfonic acids, liquid, with not more than 5% free Sulfuric acid
2572	153	Phenylhydrazine	2586	153	Alkyl sulphonic acids, liquid, with not more than 5% free Sulphuric acid
2573	141	Thallium chloride	2586	153	Alkyl sulfonic acids, liquid, with not more than 5% free Sulfuric acid
2574	151	Tricresyl phosphate			
2576	137	Phosphorus oxybromide, molten			
2577	156	Phenylacetyl chloride			
2578	157	Phosphorus trioxide			
2579	153	Piperazine			
2580	154	Aluminum bromide, solution			
2581	154	Aluminum chloride, solution			
2582	154	Ferric chloride, solution			

ID No.	Guide No.	Name of Material	ID No.	Guide No.	Name of Material
2586	153	Aryl sulfonic acids, liquid, with not more than 5% free Sulfuric acid	2602	126	Refrigerant gas R-500
2586	153	Aryl sulphonic acids, liquid, with not more than 5% free Sulphuric acid	2603	131	Cycloheptatriene
2587	153	Benzoquinone	2604	132	Boron trifluoride diethyl etherate
2588	151	Pesticide, solid, poisonous, n.o.s.	2607	129P	Acrolein dimer, stabilized
2588	151	Pesticide, solid, toxic, n.o.s.	2608	129	Nitropropanes
2589	155	Vinyl chloroacetate	2609	156	Triallyl borate
2590	171	Asbestos, chrysotile	2610	132	Triallylamine
2590	171	Asbestos, white	2611	131	Propylene chlorohydrin
2590	171	White asbestos	2612	127	Methyl propyl ether
2591	120	Xenon, refrigerated liquid (cryogenic liquid)	2614	129	Methallyl alcohol
2599	126	Chlorotrifluoromethane and Trifluoromethane azeotropic mixture with approximately 60% Chlorotrifluoromethane	2615	127	Ethyl propyl ether
2599	126	Refrigerant gas R-503	2616	129	Trisopropyl borate
2599	126	Trifluoromethane and Chlorotrifluoromethane azeotropic mixture with approximately 60% Chlorotrifluoromethane	2617	129	Methylcyclohexanols
2601	115	Cyclobutane	2618	130P	Vinyltoluenes, stabilized
2602	126	Dichlorodifluoromethane and Difluoroethane azeotropic mixture with approximately 74% Dichlorodifluoromethane	2619	132	Benzyl dimethylamine
2602	126	Difluoroethane and Dichlorodifluoromethane azeotropic mixture with approximately 74% Dichlorodifluoromethane	2620	130	Amyl butyrates
			2621	127	Acetyl methyl carbinol
			2622	131P	Glycidaldehyde
			2623	133	Firelighters, solid, with flammable liquid
			2624	138	Magnesium silicide
			2626	140	Chloric acid, aqueous solution, with not more than 10% Chloric acid
			2627	140	Nitriles, inorganic, n.o.s.
			2628	151	Potassium fluoroacetate
			2629	151	Sodium fluoroacetate
			2630	151	Selenates
			2630	151	Selenites
			2642	154	Fluoroacetic acid

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ID No.	Guide No.	Name of Material	ID No.	Guide No.	Name of Material
2643	155	Methyl bromoacetate	2672	154	Ammonium hydroxide, with more than 10% but not more than 35% Ammonia
2645	153	Phenacyl bromide	2673	151	2-Amino-4-chlorophenol
2647	153	Malononitrile	2674	154	Sodium fluorosilicate
2648	154	1,2-Dibromobutan-3-one	2674	154	Sodium silicofluoride
2649	153	1,3-Dichloroacetone	2677	154	Rubidium hydroxide, solution
2650	153	1,1-Dichloro-1-nitroethane	2678	154	Rubidium hydroxide
2651	153	4,4'-Diaminodiphenylmethane	2678	154	Rubidium hydroxide, solid
2653	156	Benzyl iodide	2679	154	Lithium hydroxide, solution
2655	151	Potassium fluorosilicate	2680	154	Lithium hydroxide
2655	151	Potassium silicofluoride	2680	154	Lithium hydroxide, monohydrate
2656	154	Quinoline	2681	154	Caesium hydroxide, solution
2657	153	Selenium disulfide	2681	154	Cesium hydroxide, solution
2657	153	Selenium disulphide	2682	152	Caesium hydroxide
2659	151	Sodium chloroacetate	2682	157	Caesium hydroxide
2660	153	Mononitrotoluidines	2683	132	Ammonium sulfide, solution
2660	153	Nitrotoluidines (mono)	2683	132	Ammonium sulphide, solution
2661	153	Hexachloroacetone	2684	132	3-Diethylaminopropylamine
2662	153	Hydroquinone	2684	132	Diethylaminopropylamine
2664	160	Dibromomethane	2685	132	N,N-Diethylethylenediamine
2667	152	Butyltoluenes	2686	132	2-Diethylaminoethanol
2669	152	Chlorocresols	2687	133	Dicyclohexylammonium nitrite
2669	152	Chlorocresols, solution	2688	159	1-Bromo-3-chloropropane
2670	157	Cyanuric chloride	2689	153	Glycerol alpha-monochlorohydrin
2671	153	Aminopyridines	2690	152	N,n-Butylimidazole
2672	154	Ammonia, solution, with more than 10% but not more than 35% Ammonia	2692	157	Borohydride
2672	154	Ammonium hydroxide	2693	154	Bisulfites, aqueous solution, n.o.s.

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ID No.	Guide No.	Name of Material	ID No.	Guide No.	Name of Material
2693	154	Bisulphites, aqueous solution, n.o.s.	2733	132	Polyamines, flammable, corrosive, n.o.s.
2698	156	Tetrahydrophthalic anhydrides	2734	132	Amines, liquid, corrosive, flammable, n.o.s.
2699	154	Trifluoroacetic acid	2734	132	Polyalkylamines, n.o.s.
2705	153P	1-Pentol	2734	132	Polyamines, liquid, corrosive, flammable, n.o.s.
2707	127	Dimethyldioxanes	2735	153	Amines, liquid, corrosive, n.o.s.
2709	128	Butylbenzenes	2735	153	Polyalkylamines, n.o.s.
2710	128	Dipropyl ketone	2735	153	Polyamines, liquid, corrosive, n.o.s.
2713	153	Acridine	2738	153	N-Butylaniline
2714	133	Zinc resinates	2739	156	Butyric anhydride
2715	133	Aluminum resinates	2741	141	Barium hypochlorite, with more than 22% available Chlorine
2716	153	1,4-Butynediol	2744	155	Cyclobutyl chloroformate
2717	133	Camphor	2745	157	Chloromethyl chloroformate
2717	133	Camphor, synthetic	2746	156	Phenyl chloroformate
2719	141	Barium bromate	2747	156	tert-Butylcyclohexyl chloroformate
2720	141	Chromium nitrate	2748	156	2-Ethylhexyl chloroformate
2721	141	Copper chlorate	2749	130	Tetramethylsilane
2722	140	Lithium nitrate	2750	153	1,3-Dichloropropanol-2
2723	140	Magnesium chlorate	2751	155	Diethylthiophosphoryl chloride
2724	140	Manganese nitrate	2752	127	1,2-Epoxy-3-ethoxypropane
2725	140	Nickel nitrate	2753	153	N-Ethylbenzyltoluidines, liquid
2726	140	Nickel nitrite			
2727	141	Thallium nitrate			
2728	140	Zirconium nitrate			
2729	152	Hexachlorobenzene			
2730	152	Nitroanisoles, liquid			
2730	152	Nitroanisoles, solid			
2732	152	Nitrobromobenzenes, liquid			
2732	152	Nitrobromobenzenes, solid			
2733	132	Amines, flammable, corrosive, n.o.s.			
2733	132	Polyalkylamines, n.o.s.			

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ID No.	Guide No.	Name of Material	ID No.	Guide No.	Name of Material
2753	153	N-Ethylbenzyltoluidines, solid	2772	131	Thiocarbamate pesticide, liquid, flammable, toxic
2754	153	N-Ethyltoluidines	2775	151	Copper based pesticide, solid, poisonous
2757	151	Carbamate pesticide, solid, poisonous	2775	151	Copper based pesticide, solid, toxic
2757	151	Carbamate pesticide, solid, toxic	2776	131	Copper based pesticide, liquid, flammable, poisonous
2758	131	Carbamate pesticide, liquid, flammable, poisonous	2776	131	Copper based pesticide, liquid, flammable, toxic
2758	131	Carbamate pesticide, liquid, flammable, toxic	2777	151	Mercury based pesticide, solid, poisonous
2759	151	Arsenical pesticide, solid, poisonous	2777	151	Mercury based pesticide, solid, toxic
2759	151	Arsenical pesticide, solid, toxic	2778	131	Mercury based pesticide, liquid, flammable, poisonous
2760	131	Arsenical pesticide, liquid, flammable, poisonous	2778	131	Mercury based pesticide, liquid, flammable, toxic
2760	131	Arsenical pesticide, liquid, flammable, toxic	2779	153	Substituted nitrophenol pesticide, solid, poisonous
2761	151	Organochlorine pesticide, solid, poisonous	2779	153	Substituted nitrophenol pesticide, solid, toxic
2761	151	Organochlorine pesticide, solid, toxic	2780	131	Substituted nitrophenol pesticide, liquid, flammable, poisonous
2762	131	Organochlorine pesticide, liquid, flammable, poisonous	2780	131	Substituted nitrophenol pesticide, liquid, flammable, toxic
2762	131	Organochlorine pesticide, liquid, flammable, toxic	2781	151	Bipyridilium pesticide, solid, poisonous
2763	151	Triazine pesticide, solid, poisonous	2781	151	Bipyridilium pesticide, solid, toxic
2763	151	Triazine pesticide, solid, toxic	2782	131	Bipyridilium pesticide, liquid, flammable, poisonous
2764	131	Triazine pesticide, liquid, flammable, poisonous	2782	131	Bipyridilium pesticide, liquid, flammable, toxic
2764	131	Triazine pesticide, liquid, flammable, toxic	2783	152	Organophosphorus pesticide, solid, poisonous
2771	151	Thiocarbamate pesticide, solid, poisonous	2783	152	Organophosphorus pesticide, solid, toxic
2771	151	Thiocarbamate pesticide, solid, toxic			
2772	131	Thiocarbamate pesticide, liquid, flammable, poisonous			

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ID No.	Guide No.	Name of Material	ID No.	Guide No.	Name of Material
2784	131	Organophosphorus pesticide, liquid, flammable, poisonous	2801	154	Dye, liquid, corrosive, n.o.s.
2784	131	Organophosphorus pesticide, liquid, flammable, toxic	2801	154	Dye intermediate, liquid, corrosive, n.o.s.
2785	152	4-Thiapentanal	2802	154	Copper chloride
2786	153	Organotin pesticide, solid, poisonous	2803	172	Gallium
2786	153	Organotin pesticide, solid, toxic	2805	138	Lithium hydride, fused solid
2787	131	Organotin pesticide, liquid, flammable, poisonous	2807	171	Magnetized material
2787	131	Organotin pesticide, liquid, flammable, toxic	2809	172	Mercury
2788	153	Organotin compound, liquid, n.o.s.	2809	172	Mercury metal
2789	132	Acetic acid, glacial	2810	153	Compounds, tree or weed killing, liquid (toxic)
2789	132	Acetic acid, solution, more than 80% acid			
2790	153	Acetic acid, solution, more than 10% but not more than 80% acid			
2793	170	Ferrous metal borings, shavings, turnings or cuttings			
2794	154	Batteries, wet, filled with acid			
2795	154	Batteries, wet, filled with alkali			
2796	157	Battery fluid, acid			
2796	157	Sulfuric acid, with not more than 51% acid			
2796	157	Sulphuric acid, with not more than 51% acid			
2797	154	Battery fluid, alkali			
2798	137	Benzene phosphorus dichloride			
2798	137	Phenylphosphorus dichloride			
2799	137	Benzene phosphorus thiodichloride			
2799	137	Phenylphosphorus thiodichloride			
2800	154	Batteries, wet, non-spillable	2810	153	Poisonous liquid, organic, n.o.s.

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ID No.	Guide No.	Name of Material	ID No.	Guide No.	Name of Material
2857	126	Refrigerating machines, containing Ammonia solutions (UN2672)	2880	140	Calcium hypochlorite, hydrated mixture, with not less than 5.5% but not more than 16% water
2857	126	Refrigerating machines, containing non-flammable, non-poisonous gases	2881	135	Metal catalyst, dry
2857	126	Refrigerating machines, containing non-flammable, non-toxic gases	2881	135	Nickel catalyst, dry
2858	170	Zirconium, dry, coiled wire, finished metal sheets or strip	2900	158	Infectious substance, affecting animals only
2859	154	Ammonium metavanadate	2902	151	Pesticide, liquid, poisonous, n.o.s.
2861	151	Ammonium polyvanadate	2902	151	Pesticide, liquid, toxic, n.o.s.
2862	151	Vanadium pentoxide	2903	131	Pesticide, liquid, poisonous, flammable, n.o.s.
2863	154	Sodium ammonium vanadate	2903	131	Pesticide, liquid, toxic, flammable, n.o.s.
2864	151	Potassium metavanadate	2904	154	Chlorophenolates, liquid
2865	154	Hydroxylamine sulfate	2904	154	Phenolates, liquid
2865	154	Hydroxylamine sulphate	2905	154	Chlorophenolates, solid
2869	157	Titanium trichloride mixture	2905	154	Phenolates, solid
2870	135	Aluminum borohydride	2907	133	Isosorbide dinitrate mixture
2870	135	Aluminum borohydride in devices	2908	161	Radioactive material, excepted package, empty packaging
2871	170	Antimony powder	2909	161	Radioactive material, excepted package, articles manufactured from depleted Uranium
2872	159	Dibromochloropropanes	2909	161	Radioactive material, excepted package, articles manufactured from natural Thorium
2873	153	Dibutylaminoethanol	2909	161	Radioactive material, excepted package, articles manufactured from natural Uranium
2874	153	Furfuryl alcohol	2910	161	Radioactive material, excepted package, limited quantity of material
2875	151	Hexachlorophene			
2876	153	Resorcinol			
2878	170	Titanium sponge granules			
2878	170	Titanium sponge powders			
2879	157	Selenium oxychloride			
2880	140	Calcium hypochlorite, hydrated, with not less than 5.5% but not more than 16% water			

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ID No.	Guide No.	Name of Material	ID No.	Guide No.	Name of Material
2811	154	Poisonous solid, organic, n.o.s.	2834	154	Phosphorous acid
2811	154	Toxic solid, organic, n.o.s.	2835	138	Sodium aluminum hydride
2812	154	Sodium aluminate, solid	2837	154	Bisulfates, aqueous solution
2813	138	Water-reactive solid, n.o.s.	2837	154	Bisulfates, aqueous solution
2814	158	Infectious substance, affecting humans	2837	154	Sodium bisulfate, solution
2815	153	N-Aminoethylpiperazine	2837	154	Sodium bisulphate, solution
2817	154	Ammonium bifluoride, solution	2838	129P	Vinyl butyrate, stabilized
2817	154	Ammonium hydrogendifluoride, solution	2839	153	Aldol
2818	154	Ammonium polysulfide, solution	2840	129	Butyraldoxime
2818	154	Ammonium polysulphide, solution	2841	131	Di-n-amyamine
2819	153	Amyl acid phosphate	2842	129	Nitroethane
2820	153	Butyric acid	2844	138	Calcium manganese silicon
2821	153	Phenol solution			
2822	153	2-Chloropyridine			
2823	153	Crotonic acid			
2823	153	Crotonic acid, liquid			
2823	153	Crotonic acid, solid			
2829	153	Caproic acid			
2829	153	Hexanoic acid			
2830	139	Lithium ferrosilicon			
2831	160	1,1,1-Trichloroethane			

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ID No.	Guide No.	Name of Material	ID No.	Guide No.	Name of Material
2911	161	Radioactive material, excepted package, instruments or articles	2926	134	Flammable solid, poisonous, organic, n.o.s.
2912	162	Radioactive material, low specific activity (LSA-I), non fissile or fissile-excepted	2926	134	Flammable solid, toxic, organic, n.o.s.
2913	162	Radioactive material, surface contaminated objects (SCO-I), non fissile or fissile-excepted			
2913	162	Radioactive material, surface contaminated objects (SCO-II), non fissile or fissile-excepted	2927	154	Poisonous liquid, corrosive, organic, n.o.s.
2915	163	Radioactive material, Type A package, non-special form, non fissile or fissile-excepted	2927	154	Toxic liquid, corrosive, organic, n.o.s.
2916	163	Radioactive material, Type B(U) package, non fissile or fissile-excepted	2928	154	Poisonous solid, corrosive, organic, n.o.s.
2917	163	Radioactive material, Type B(M) package, non fissile or fissile-excepted	2928	154	Toxic solid, corrosive, organic, n.o.s.
2919	163	Radioactive material, transported under special arrangement, non fissile or fissile-excepted	2929	131	Poisonous liquid, flammable, organic, n.o.s.
2920	132	Corrosive liquid, flammable, n.o.s.	2929	131	Toxic liquid, flammable, organic, n.o.s.
2921	134	Corrosive solid, flammable, n.o.s.	2930	134	Poisonous solid, flammable, organic, n.o.s.
2922	154	Corrosive liquid, poisonous, n.o.s.	2930	134	Toxic solid, flammable, organic, n.o.s.
2922	154	Corrosive liquid, toxic, n.o.s.	2931	151	Vanadyl sulfate
2923	154	Corrosive solid, poisonous, n.o.s.	2931	151	Vanadyl sulphate
2923	154	Corrosive solid, toxic, n.o.s.	2933	129	Methyl 2-chloropropionate
2924	132	Flammable liquid, corrosive, n.o.s.	2934	129	Isopropyl 2-chloropropionate
2925	134	Flammable solid, corrosive, organic, n.o.s.	2935	129	Ethyl 2-chloropropionate
			2936	153	Thiofactic acid
			2937	153	alpha-Methylbenzyl alcohol
			2937	153	alpha-Methylbenzyl alcohol, liquid
			2937	153	Methylbenzyl alcohol (alpha)
			2940	135	Cyclooctadiene phosphines
			2940	135	9-Phosphabicyclononanes
			2941	153	Fluoroanilines

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ID No.	Guide No.	Name of Material	ID No.	Guide No.	Name of Material
2942	153	2-Trifluoromethylaniline			
2943	129	Tetrahydrofurfurylamine			
2945	132	N-Methylbutylamine			
2946	153	2-Amino-5-diethylaminopentane			
2947	155	Isopropyl chloroacetate	2983	129P	Ethylene oxide and Propylene oxide mixture, with not more than 30% Ethylene oxide
2948	153	3-Trifluoromethylaniline	2983	129P	Propylene oxide and Ethylene oxide mixture, with not more than 30% Ethylene oxide
2949	154	Sodium hydrosulfide, hydrated, with not less than 25% water of crystallization	2984	140	Hydrogen peroxide, aqueous solution, with not less than 8% but less than 20% Hydrogen peroxide
2949	154	Sodium hydrosulfide, with not less than 25% water of crystallization			
2949	154	Sodium hydrosulphide, hydrated, with not less than 25% water of crystallization			
2949	154	Sodium hydrosulphide, with not less than 25% water of crystallization			
2950	138	Magnesium granules, coated			
2956	149	5-tert-Butyl-2,4,6-trinitro-m-xylene	2989	133	Lead phosphite, dibasic
2956	149	Musk xylene	2990	171	Life-saving appliances, self-inflating
2965	139	Boron trifluoride dimethyl etherate	2991	131	Carbamate pesticide, liquid, poisonous, flammable
2966	153	Thioglycol	2991	131	Carbamate pesticide, liquid, toxic, flammable
2967	154	Sulfamic acid	2992	151	Carbamate pesticide, liquid, poisonous
2967	154	Sulphamic acid	2992	151	Carbamate pesticide, liquid, toxic
2968	135	Maneb, stabilized	2992	151	Carbamate pesticide, liquid, toxic
2968	135	Maneb preparation, stabilized	2993	131	Arsenical pesticide, liquid, poisonous, flammable
2969	171	Castor beans, meal, pomace or flake	2993	131	Arsenical pesticide, liquid, toxic, flammable
			2994	151	Arsenical pesticide, liquid, poisonous

ID No.	Guide No.	Name of Material	ID No.	Guide No.	Name of Material
2994	151	Arsenical pesticide, liquid, toxic	3011	131	Mercury based pesticide, liquid, toxic, flammable
2995	131	Organochlorine pesticide, liquid, poisonous, flammable	3012	151	Mercury based pesticide, liquid, poisonous
2995	131	Organochlorine pesticide, liquid, toxic, flammable	3012	151	Mercury based pesticide, liquid, toxic
2996	151	Organochlorine pesticide, liquid, poisonous	3013	131	Substituted nitrophenol pesticide, liquid, poisonous, flammable
2996	151	Organochlorine pesticide, liquid, toxic	3013	131	Substituted nitrophenol pesticide, liquid, toxic, flammable
2997	131	Triazine pesticide, liquid, poisonous, flammable	3014	153	Substituted nitrophenol pesticide, liquid, poisonous
2997	131	Triazine pesticide, liquid, toxic, flammable	3014	153	Substituted nitrophenol pesticide, liquid, toxic
2998	151	Triazine pesticide, liquid, poisonous	3015	131	Bipyridilium pesticide, liquid, poisonous, flammable
2998	151	Triazine pesticide, liquid, toxic	3015	131	Bipyridilium pesticide, liquid, toxic, flammable
3002	151	Phenyl urea pesticide, liquid, poisonous	3016	151	Bipyridilium pesticide, liquid, poisonous
3002	151	Phenyl urea pesticide, liquid, toxic	3016	151	Bipyridilium pesticide, liquid, toxic
3005	131	Thiocarbamate pesticide, liquid, poisonous, flammable	3017	131	Organophosphorus pesticide, liquid, poisonous, flammable
3005	131	Thiocarbamate pesticide, liquid, toxic, flammable	3017	131	Organophosphorus pesticide, liquid, toxic, flammable
3006	151	Thiocarbamate pesticide, liquid, poisonous	3018	152	Organophosphorus pesticide, liquid, poisonous
3006	151	Thiocarbamate pesticide, liquid, toxic	3018	152	Organophosphorus pesticide, liquid, toxic
3009	131	Copper based pesticide, liquid, poisonous, flammable	3019	131	Organotin pesticide, liquid, poisonous, flammable
3009	131	Copper based pesticide, liquid, toxic, flammable	3019	131	Organotin pesticide, liquid, toxic, flammable
3010	151	Copper based pesticide, liquid, poisonous	3020	153	Organotin pesticide, liquid, poisonous
3010	151	Copper based pesticide, liquid, toxic	3020	153	Organotin pesticide, liquid, toxic
3011	131	Mercury based pesticide, liquid, poisonous, flammable			

ID No.	Guide No.	Name of Material	ID No.	Guide No.	Name of Material
3021	131	Pesticide, liquid, flammable, poisonous, n.o.s.	3054	129	Cyclohexanethiol
3021	131	Pesticide, liquid, flammable, toxic, n.o.s.	3054	129	Cyclohexyl mercaptan
3022	127P	1,2-Butylene oxide, stabilized	3055	154	2-(2-Aminoethoxy)ethanol
			3056	129	n-Heptaldehyde
3024	131	Coumarin derivative pesticide, liquid, flammable, poisonous	3064	127	Nitroglycerin, solution in alcohol, with more than 1% but not more than 5% Nitroglycerin
3024	131	Coumarin derivative pesticide, liquid, flammable, toxic	3065	127	Alcoholic beverages
3025	131	Coumarin derivative pesticide, liquid, poisonous, flammable	3066	153	Paint (corrosive)
3025	131	Coumarin derivative pesticide, liquid, toxic, flammable	3066	153	Paint related material (corrosive)
3026	151	Coumarin derivative pesticide, liquid, poisonous	3070	126	Dichlorodifluoromethane and Ethylene oxide mixture, with not more than 12.5% Ethylene oxide
3026	151	Coumarin derivative pesticide, liquid, toxic	3070	126	Ethylene oxide and Dichlorodifluoromethane mixture, with not more than 12.5% Ethylene oxide
3027	151	Coumarin derivative pesticide, solid, poisonous	3071	131	Mercaptan mixture, liquid, poisonous, flammable, n.o.s.
3027	151	Coumarin derivative pesticide, solid, toxic	3071	131	Mercaptan mixture, liquid, toxic, flammable, n.o.s.
3028	154	Batteries, dry, containing Potassium hydroxide solid	3071	131	Mercaptans, liquid, poisonous, flammable, n.o.s.
			3071	131	Mercaptans, liquid, toxic, flammable, n.o.s.
3050	138	Metal alkyl hydrides, water-reactive, n.o.s.	3072	171	Life-saving appliances, not self-inflating
3050	138	Metal aryl hydrides, water-reactive, n.o.s.	3073	131P	Vinylpyridines, stabilized
3051	135	Aluminum alkyls	3076	138	Aluminum alkyl hydrides
			3077	171	Environmentally hazardous substance, solid, n.o.s.
			3077	171	Hazardous waste, solid, n.o.s.
3053	135	Magnesium alkyls	3077	171	Other regulated substances, solid, n.o.s.

ID No.	Guide No.	Name of Material	ID No.	Guide No.	Name of Material
3078	138	Cerium, turnings or gritty powder	3091	138	Lithium metal batteries contained in equipment (including lithium alloy batteries)
			3091	138	Lithium metal batteries packed with equipment (including lithium alloy batteries)
3080	155	Isocyanate solution, poisonous, flammable, n.o.s.	3092	129	1-Methoxy-2-propanol
3080	155	Isocyanate solution, toxic, flammable, n.o.s.	3093	140	Corrosive liquid, oxidizing, n.o.s.
3080	155	Isocyanates, poisonous, flammable, n.o.s.	3094	138	Corrosive liquid, water-reactive, n.o.s.
3082	171	Environmentally hazardous substance, liquid, n.o.s.	3095	136	Corrosive solid, self-heating, n.o.s.
3082	171	Hazardous waste, liquid, n.o.s.	3096	138	Corrosive solid, water-reactive, n.o.s.
3082	171	Other regulated substances, liquid, n.o.s.	3097	140	Flammable solid, oxidizing, n.o.s.
			3098	140	Oxidizing liquid, corrosive, n.o.s.
3084	140	Corrosive solid, oxidizing, n.o.s.	3099	142	Oxidizing liquid, poisonous, n.o.s.
3085	140	Oxidizing solid, corrosive, n.o.s.	3099	142	Oxidizing liquid, toxic, n.o.s.
3086	141	Poisonous solid, oxidizing, n.o.s.	3100	135	Oxidizing solid, self-heating, n.o.s.
3086	141	Toxic solid, oxidizing, n.o.s.	3101	146	Organic peroxide type B, liquid
3087	141	Oxidizing solid, poisonous, n.o.s.	3102	146	Organic peroxide type B, solid
3087	141	Oxidizing solid, toxic, n.o.s.	3103	146	Organic peroxide type C, liquid
3088	135	Self-heating solid, organic, n.o.s.	3104	146	Organic peroxide type C, solid
3089	170	Metal powder, flammable, n.o.s.	3105	145	Organic peroxide type D, liquid
3090	138	Lithium batteries	3106	145	Organic peroxide type D, solid
3090	138	Lithium metal batteries (including lithium alloy batteries)	3107	145	Organic peroxide type E, liquid
3091	138	Lithium batteries contained in equipment	3108	145	Organic peroxide type E, solid
3091	138	Lithium batteries packed with equipment	3109	145	Organic peroxide type F, liquid
			3110	145	Organic peroxide type F, solid
			3111	148	Organic peroxide type B, liquid, temperature controlled

ID Guide No.	Name of Material	ID Guide No.	Name of Material
3112 148	Organic peroxide type B, solid, temperature controlled	3128 136	Self-heating solid, poisonous, organic, n.o.s.
3113 148	Organic peroxide type C, liquid, temperature controlled	3128 136	Self-heating solid, toxic, organic, n.o.s.
3114 148	Organic peroxide type C, solid, temperature controlled	3129 138	Water-reactive liquid, corrosive, n.o.s.
3115 148	Organic peroxide type D, liquid, temperature controlled	3130 139	Water-reactive liquid, poisonous, n.o.s.
3116 148	Organic peroxide type D, solid, temperature controlled	3130 139	Water-reactive liquid, toxic, n.o.s.
3117 148	Organic peroxide type E, liquid, temperature controlled	3131 138	Water-reactive solid, corrosive, n.o.s.
3118 148	Organic peroxide type E, solid, temperature controlled	3132 138	Water-reactive solid, flammable, n.o.s.
3119 148	Organic peroxide type F, liquid, temperature controlled	3133 138	Water-reactive solid, oxidizing, n.o.s.
3120 148	Organic peroxide type F, solid, temperature controlled	3134 139	Water-reactive solid, poisonous, n.o.s.
3121 144	Oxidizing solid, water-reactive, n.o.s.	3134 139	Water-reactive solid, toxic, n.o.s.
3122 142	Poisonous liquid, oxidizing, n.o.s.	3135 138	Water-reactive solid, self-heating, n.o.s.
3122 142	Toxic liquid, oxidizing, n.o.s.	3136 120	Trifluoromethane, refrigerated liquid
3123 139	Poisonous liquid, water-reactive, n.o.s.	3137 140	Oxidizing solid, flammable, n.o.s.
3123 139	Toxic liquid, water-reactive, n.o.s.	3138 115	Acetylene, Ethylene and Propylene in mixture, refrigerated liquid containing at least 71.5% Ethylene with not more than 22.5% Acetylene and not more than 6% Propylene
3124 136	Poisonous solid, self-heating, n.o.s.	3138 115	Ethylene, Acetylene and Propylene in mixture, refrigerated liquid containing at least 71.5% Ethylene with not more than 22.5% Acetylene and not more than 6% Propylene
3124 136	Toxic solid, self-heating, n.o.s.		
3125 139	Poisonous solid, water-reactive, n.o.s.		
3125 139	Toxic solid, water-reactive, n.o.s.		
3126 136	Self-heating solid, corrosive, organic, n.o.s.		
3127 135	Self-heating solid, oxidizing, n.o.s.		

ID Guide No.	Name of Material	ID Guide No.	Name of Material
3138 115	Propylene, Ethylene and Acetylene in mixture, refrigerated liquid containing at least 71.5% Ethylene with not more than 22.5% Acetylene and not more than 6% Propylene	3149 140	Hydrogen peroxide and Peroxyacetic acid mixture, with acid(s), water and not more than 5% Peroxyacetic acid, stabilized
3139 140	Oxidizing liquid, n.o.s.	3149 140	Peroxyacetic acid and hydrogen peroxide mixture, with acid(s), water and not more than 5% Peroxyacetic acid, stabilized
3140 151	Alkaloids, liquid, n.o.s. (poisonous)	3150 115	Devices, small, hydrocarbon gas powered, with release device
3140 151	Alkaloid salts, liquid, n.o.s. (poisonous)	3150 115	Hydrocarbon gas refills for small devices, with release device
3141 157	Antimony compound, inorganic, liquid, n.o.s.	3151 171	Halogenated monomethyldiphenylmethanes, liquid
3142 151	Disinfectant, liquid, poisonous, n.o.s.	3151 171	Polyhalogenated biphenyls, liquid
3142 151	Disinfectant, liquid, toxic, n.o.s.	3151 171	Polyhalogenated terphenyls, liquid
3143 151	Dye, solid, poisonous, n.o.s.	3152 171	Halogenated monomethyldiphenylmethanes, solid
3143 151	Dye, solid, toxic, n.o.s.	3152 171	Polyhalogenated biphenyls, solid
3143 151	Dye intermediate, solid, poisonous, n.o.s.	3152 171	Polyhalogenated terphenyls, solid
3143 151	Dye intermediate, solid, toxic, n.o.s.	3153 115	Perfluoro(methyl vinyl ether)
3144 151	Nicotine compound, liquid, n.o.s.	3154 115	Perfluoro(ethyl vinyl ether)
3144 151	Nicotine preparation, liquid, n.o.s.	3155 154	Pentachlorophenol
3145 153	Alkylphenols, liquid, n.o.s. (including C2-C12 homologues)	3156 122	Compressed gas, oxidizing, n.o.s.
3146 153	Organotin compound, solid, n.o.s.	3157 122	Liquefied gas, oxidizing, n.o.s.
3147 154	Dye, solid, corrosive, n.o.s.	3158 120	Gas, refrigerated liquid, n.o.s.
3147 154	Dye intermediate, solid, corrosive, n.o.s.	3159 126	Refrigerant gas R-134a
3148 138	Water-reactive liquid, n.o.s.	3159 126	1,1,1,2-Tetrafluoroethane

ID Guide No.	Name of Material	ID Guide No.	Name of Material
3163 126	Liquefied gas, n.o.s.	3164 126	Articles, pressurized, hydraulic (containing non-flammable gas)
3164 126	Articles, pressurized, pneumatic (containing non-flammable gas)	3165 131	Aircraft hydraulic power unit fuel tank
3166 115	Engine, fuel cell, flammable gas powered	3166 115	Engine, fuel cell, flammable liquid powered
3166 128	Engine, internal combustion	3166 128	Engine, internal combustion, flammable gas powered
3166 115	Engines, internal combustion, flammable gas powered	3166 128	Engines, internal combustion, flammable liquid powered
3166 128	Engines, internal combustion, flammable liquid powered	3166 115	Vehicle, flammable gas powered
3166 115	Vehicle, flammable liquid powered	3166 128	Vehicle, fuel cell, flammable gas powered
3166 128	Vehicle, fuel cell, flammable liquid powered	3167 115	Gas sample, non-pressurized, flammable, n.o.s., not refrigerated liquid
3167 115	Gas sample, non-pressurized, flammable, n.o.s., not refrigerated liquid	3168 119	Gas sample, non-pressurized, poisonous, flammable, n.o.s., not refrigerated liquid

ID Guide No.	Name of Material	ID Guide No.	Name of Material
3168 119	Gas sample, non-pressurized, toxic, flammable, n.o.s., not refrigerated liquid	3178 133	Flammable solid, inorganic, n.o.s.
3169 123	Gas sample, non-pressurized, poisonous, n.o.s., not refrigerated liquid	3178 133	Smokeless powder for small arms
3169 123	Gas sample, non-pressurized, toxic, n.o.s., not refrigerated liquid	3179 134	Flammable solid, poisonous, inorganic, n.o.s.
3170 138	Aluminum dross	3179 134	Flammable solid, toxic, inorganic, n.o.s.
3170 138	Aluminum remelting by-products	3180 134	Flammable solid, corrosive, inorganic, n.o.s.
3170 138	Aluminum smelting by-products	3181 133	Metal salts of organic compounds, flammable, n.o.s.
3171 154	Battery-powered equipment (wet battery)	3182 170	Metal hydrides, flammable, n.o.s.
3171 147	Battery-powered equipment (with lithium ion batteries)	3183 135	Self-heating liquid, organic, n.o.s.
3171 138	Battery-powered equipment (with lithium metal batteries)	3184 136	Self-heating liquid, poisonous, organic, n.o.s.
3171 138	Battery-powered equipment (with sodium batteries)	3184 136	Self-heating liquid, toxic, organic, n.o.s.
3171 154	Battery-powered vehicle (wet battery)	3185 136	Self-heating liquid, corrosive, organic, n.o.s.
3171 147	Battery-powered vehicle (with lithium ion batteries)	3186 135	Self-heating liquid, inorganic, n.o.s.
3171 138	Battery-powered vehicle (with sodium batteries)	3187 136	Self-heating liquid, poisonous, inorganic, n.o.s.
3171 154	Wheelchair, electric, with batteries	3187 136	Self-heating liquid, toxic, inorganic, n.o.s.
3172 153	Toxins, extracted from living sources, liquid, n.o.s.	3188 136	Self-heating liquid, corrosive, inorganic, n.o.s.
3172 153	Toxins, extracted from living sources, solid, n.o.s.	3189 135	Metal powder, self-heating, n.o.s.
3174 135	Titanium disulfide	3190 135	Self-heating solid, inorganic, n.o.s.
3174 135	Titanium disulphide	3191 136	Self-heating solid, poisonous, inorganic, n.o.s.
3175 133	Solids containing flammable liquid, n.o.s.	3191 136	Self-heating solid, toxic, inorganic, n.o.s.
3176 133	Flammable solid, organic, molten, n.o.s.		

ID No.	Guide No.	Name of Material	ID No.	Guide No.	Name of Material
3192	136	Self-heating solid, corrosive, inorganic, n.o.s.	3216	140	Persulphates, inorganic, aqueous solution, n.o.s.
3194	135	Pyrophoric liquid, inorganic, n.o.s.	3218	140	Nitrates, inorganic, aqueous solution, n.o.s.
3200	135	Pyrophoric solid, inorganic, n.o.s.	3219	140	Nitrites, inorganic, aqueous solution, n.o.s.
3203	135	Pyrophoric organometallic compound, water-reactive, n.o.s.	3220	126	Pentfluoroethane
3205	135	Alkaline earth metal alcoholates, n.o.s.	3220	126	Refrigerant gas R-125
3206	136	Alkali metal alcoholates, self-heating, corrosive, n.o.s.	3221	149	Self-reactive liquid type B
3207	138	Organometallic compound, water-reactive, flammable, n.o.s.	3222	149	Self-reactive solid type B
3207	138	Organometallic compound dispersion, water-reactive, flammable, n.o.s.	3223	149	Self-reactive liquid type C
3207	138	Organometallic compound solution, water-reactive, flammable, n.o.s.	3224	149	Self-reactive solid type C
3208	138	Metallic substance, water-reactive, n.o.s.	3225	149	Self-reactive liquid type D
3209	138	Metallic substance, water-reactive, self-heating, n.o.s.	3226	149	Self-reactive solid type D
3210	140	Chlorates, inorganic, aqueous solution, n.o.s.	3227	149	Self-reactive liquid type E
3211	140	Perchlorates, inorganic, aqueous solution, n.o.s.	3228	149	Self-reactive solid type E
3212	140	Hypochlorites, inorganic, n.o.s.	3229	149	Self-reactive liquid type F
3213	140	Bromates, inorganic, aqueous solution, n.o.s.	3230	149	Self-reactive solid type F
3214	140	Permanganates, inorganic, aqueous solution, n.o.s.	3231	150	Self-reactive liquid type B, temperature controlled
3215	140	Persulfates, inorganic, n.o.s.	3232	150	Self-reactive solid type B, temperature controlled
3215	140	Persulphates, inorganic, n.o.s.	3233	150	Self-reactive liquid type C, temperature controlled
3216	140	Persulfates, inorganic, aqueous solution, n.o.s.	3234	150	Self-reactive solid type C, temperature controlled
			3235	150	Self-reactive liquid type D, temperature controlled
			3236	150	Self-reactive solid type D, temperature controlled
			3237	150	Self-reactive liquid type E, temperature controlled
			3238	150	Self-reactive solid type E, temperature controlled
			3239	150	Self-reactive liquid type F, temperature controlled

ID No.	Guide No.	Name of Material	ID No.	Guide No.	Name of Material
3240	150	Self-reactive solid type F, temperature controlled	3256	128	Elevated temperature liquid, flammable, n.o.s., with flash point above 60°C (140°F), at or above its flash point
3241	133	2-Bromo-2-nitropropane-1,3-diol	3257	128	Elevated temperature liquid, n.o.s., at or above 100°C (212°F), and below its flash point
3242	149	Azodicarbonamide	3258	171	Elevated temperature solid, n.o.s., at or above 240°C (464°F)
3243	151	Solids containing poisonous liquid, n.o.s.	3259	154	Amines, solid, corrosive, n.o.s.
3243	151	Solids containing toxic liquid, n.o.s.	3259	154	Polyamines, solid, corrosive, n.o.s.
3244	154	Solids containing corrosive liquid, n.o.s.	3260	154	Corrosive solid, acidic, inorganic, n.o.s.
3245	171	Genetically modified micro-organisms	3261	154	Corrosive solid, acidic, organic, n.o.s.
3245	171	Genetically modified organisms	3262	154	Corrosive solid, basic, inorganic, n.o.s.
3246	150	Self-reactive solid type B, temperature controlled	3263	154	Corrosive solid, basic, organic, n.o.s.
3246	150	Self-reactive solid type B, temperature controlled	3264	154	Corrosive liquid, acidic, inorganic, n.o.s.
3247	140	Sodium peroxoborate, anhydrous	3265	153	Corrosive liquid, acidic, organic, n.o.s.
3248	131	Medicine, liquid, flammable, poisonous, n.o.s.	3266	154	Corrosive liquid, basic, inorganic, n.o.s.
3248	131	Medicine, liquid, flammable, toxic, n.o.s.	3267	153	Corrosive liquid, basic, organic, n.o.s.
3249	151	Medicine, solid, poisonous, n.o.s.	3268	171	Air bag inflators
3249	151	Medicine, solid, toxic, n.o.s.	3268	171	Air bag modules
3250	153	Chloroacetic acid, molten	3268	171	Safety devices
3251	133	Isosorbide-5-mononitrate	3268	171	Seal-belt pre-tensioners
3252	115	Difluoromethane	3268	171	Polyester resin kit
3252	115	Refrigerant gas R-32	3269	128	Polyester resin kit, liquid base material
3253	154	Disodium trioxosilicate	3270	133	Nitrocellulose membrane filters
3254	135	Tributylphosphane			
3255	135	tert-Butyl hypochlorite			
3256	128	Elevated temperature liquid, flammable, n.o.s., with flash point above 37.8°C (100°F), at or above its flash point			

ID No.	Guide No.	Name of Material	ID No.	Guide No.	Name of Material
3271	127	Ethers, n.o.s.	3282	151	Organometallic compound, liquid, poisonous, n.o.s.
3272	127	Esters, n.o.s.	3282	151	Organometallic compound, liquid, toxic, n.o.s.
3273	131	Nitriles, flammable, poisonous, n.o.s.	3282	151	Organometallic compound, poisonous, liquid, n.o.s.
3273	131	Nitriles, flammable, toxic, n.o.s.	3282	151	Organometallic compound, toxic, liquid, n.o.s.
3274	132	Alcoholates solution, n.o.s., in alcohol	3282	151	Organometallic compound, toxic, n.o.s.
3275	131	Nitriles, poisonous, flammable, n.o.s.	3283	151	Selenium compound, n.o.s.
3275	131	Nitriles, poisonous, flammable, toxic, n.o.s.	3283	151	Selenium compound, solid, n.o.s.
3275	131	Nitriles, poisonous, flammable, toxic, n.o.s.	3284	151	Tellurium compound, n.o.s.
3275	131	Nitriles, poisonous, flammable, toxic, n.o.s.	3285	151	Vanadium compound, n.o.s.
3275	131	Nitriles, poisonous, flammable, toxic, n.o.s.	3286	131	Flammable liquid, poisonous, corrosive, n.o.s.
3275	131	Nitriles, poisonous, flammable, toxic, n.o.s.	3286	131	Flammable liquid, toxic, corrosive, n.o.s.
3275	131	Nitriles, poisonous, flammable, toxic, n.o.s.	3287	151	Poisonous liquid, inorganic, n.o.s.
3275	131	Nitriles, poisonous, flammable, toxic, n.o.s.	3287	151	Toxic liquid, inorganic, n.o.s.
3275	131	Nitriles, poisonous, flammable, toxic, n.o.s.	3288	151	Poisonous solid, inorganic, n.o.s.
3275	131	Nitriles, poisonous, flammable, toxic, n.o.s.	3288	151	Toxic solid, inorganic, n.o.s.
3275	131	Nitriles, poisonous, flammable, toxic, n.o.s.	3289	154	Poisonous liquid, corrosive, inorganic, n.o.s.
3275	131	Nitriles, poisonous, flammable, toxic, n.o.s.	3289	154	Toxic liquid, corrosive, inorganic, n.o.s.

ID No.	Guide No.	Name of Material	ID No.	Guide No.	Name of Material
3290	154	Poisonous solid, corrosive, inorganic, n.o.s.	3299	126	Ethylene oxide and Tetrafluoroethane mixture, with not more than 5.6% Ethylene oxide
3290	154	Toxic solid, corrosive, inorganic, n.o.s.	3299	126	Tetrafluoroethane and Ethylene oxide mixture, with not more than 5.6% Ethylene oxide
3291	158	(Bio)Medical waste, n.o.s.			
3291	158	Clinical waste, unspecified, n.o.s.			
3291	158	Medical waste, n.o.s.			
3291	158	Regulated medical waste, n.o.s.			
3292	138	Batteries, containing Sodium			
3292	138	Cells, containing Sodium			
3292	138	Sodium, batteries containing			
3293	152	Hydrazine, aqueous solution, with not more than 37% Hydrazine			
3295	128	Hydrocarbons, liquid, n.o.s.			
3296	126	Heptafluoropropane			
3296	126	Refrigerant gas R-227			
3297	126	Chlorotetrafluoroethane and Ethylene oxide mixture, with not more than 6.8% Ethylene oxide			
3297	126	Ethylene oxide and Chlorotetrafluoroethane mixture, with not more than 8.8% Ethylene oxide			
3298	126	Ethylene oxide and Pentafluoroethane mixture, with not more than 7.9% Ethylene oxide			
3298	126	Pentafluoroethane and Ethylene oxide mixture, with not more than 7.9% Ethylene oxide			



ID No.	Guide No.	Name of Material	ID No.	Guide No.	Name of Material
3354	115	Insecticide gas, flammable, n.o.s.	3358	115	Refrigerating machines, containing flammable, non-toxic, liquefied gas
3355	115	Insecticide gas, flammable, n.o.s.	3359	171	Fumigated cargo transport unit
3356	115	Insecticide gas, flammable, n.o.s.	3359	171	Fumigated unit
3357	113	Nitroglycerin mixture, desensitized, liquid, n.o.s., with not more than 30% Nitroglycerin	3360	133	Fibers, vegetable, dry
3358	115	Refrigerating machines, containing flammable, non-poisonous, liquefied gas	3360	133	Fibres, vegetable, dry
3359	115	Insecticide gas, flammable, n.o.s.	3363	171	Dangerous goods in apparatus
3360	115	Insecticide gas, flammable, n.o.s.	3363	171	Dangerous goods in machinery
3361	115	Insecticide gas, flammable, n.o.s.	3364	113	Picric acid, wetted with not less than 10% water
3362	115	Insecticide gas, flammable, n.o.s.	3364	113	Trinitrophenol, wetted with not less than 10% water
3363	115	Insecticide gas, flammable, n.o.s.	3365	113	Picryl chloride, wetted with not less than 10% water
3364	115	Insecticide gas, flammable, n.o.s.	3365	113	Trinitrochlorobenzene, wetted with not less than 10% water
3365	115	Insecticide gas, flammable, n.o.s.	3366	113	TNT, wetted with not less than 10% water
3366	115	Insecticide gas, flammable, n.o.s.	3366	113	Trinitrotoluene, wetted with not less than 10% water
3367	115	Insecticide gas, flammable, n.o.s.	3367	113	Trinitrobenzene, wetted with not less than 10% water
3368	115	Insecticide gas, flammable, n.o.s.	3368	113	Trinitrobenzoic acid, wetted with not less than 10% water
3369	115	Insecticide gas, flammable, n.o.s.	3369	113	Sodium dinitro-o-cresolate, wetted with not less than 10% water
3370	115	Insecticide gas, flammable, n.o.s.	3370	113	Urea nitrate, wetted with not less than 10% water
3356	140	Oxygen generator, chemical			
3356	140	Oxygen generator, chemical, spent			

ID No.	Guide No.	Name of Material	ID No.	Guide No.	Name of Material
3371	129	2-Methylbutanal	3371	129	2-Methylbutanal
3373	158	Biological substance, category B	3373	158	Biological substance, category B
3374	116	Acetylene, solvent free	3374	116	Acetylene, solvent free
3375	140	Ammonium nitrate emulsion	3375	140	Ammonium nitrate emulsion
3375	140	Ammonium nitrate gel	3375	140	Ammonium nitrate gel
3375	140	Ammonium nitrate suspension	3375	140	Ammonium nitrate suspension
3376	113	4-Nitrophenylhydrazine, with not less than 30% water	3376	113	4-Nitrophenylhydrazine, with not less than 30% water
3377	140	Sodium perborate monohydrate	3377	140	Sodium perborate monohydrate
3378	140	Sodium carbonate peroxyhydrate	3378	140	Sodium carbonate peroxyhydrate
3379	128	Desensitized explosive, liquid, n.o.s.	3379	128	Desensitized explosive, liquid, n.o.s.
3380	133	Desensitized explosive, solid, n.o.s.	3380	133	Desensitized explosive, solid, n.o.s.
3381	133	Desensitized explosive, solid, n.o.s.	3381	133	Desensitized explosive, solid, n.o.s.
3382	133	Desensitized explosive, solid, n.o.s.	3382	133	Desensitized explosive, solid, n.o.s.
3383	133	Desensitized explosive, solid, n.o.s.	3383	133	Desensitized explosive, solid, n.o.s.
3384	133	Desensitized explosive, solid, n.o.s.	3384	133	Desensitized explosive, solid, n.o.s.
3385	133	Desensitized explosive, solid, n.o.s.	3385	133	Desensitized explosive, solid, n.o.s.
3386	133	Desensitized explosive, solid, n.o.s.	3386	133	Desensitized explosive, solid, n.o.s.
3387	133	Desensitized explosive, solid, n.o.s.	3387	133	Desensitized explosive, solid, n.o.s.
3388	133	Desensitized explosive, solid, n.o.s.	3388	133	Desensitized explosive, solid, n.o.s.
3389	133	Desensitized explosive, solid, n.o.s.	3389	133	Desensitized explosive, solid, n.o.s.
3390	133	Desensitized explosive, solid, n.o.s.	3390	133	Desensitized explosive, solid, n.o.s.
3391	135	Organometallic substance, solid, pyrophoric	3391	135	Organometallic substance, solid, pyrophoric
3392	135	Organometallic substance, liquid, pyrophoric	3392	135	Organometallic substance, liquid, pyrophoric
3393	135	Organometallic substance, solid, pyrophoric, water-reactive	3393	135	Organometallic substance, solid, pyrophoric, water-reactive

ID No.	Guide No.	Name of Material	ID No.	Guide No.	Name of Material
3394	135	Organometallic substance, liquid, pyrophoric, water-reactive	3412	153	Formic acid, with not less than 10% but not more than 85% acid
3395	135	Organometallic substance, solid, water-reactive	3413	157	Potassium cyanide, solution
3396	138	Organometallic substance, solid, water-reactive, flammable	3414	157	Sodium cyanide, solution
3397	138	Organometallic substance, solid, water-reactive, self-heating	3415	154	Sodium fluoride, solution
3398	135	Organometallic substance, liquid, water-reactive	3416	153	Chloroacetophenone, liquid
3399	138	Organometallic substance, liquid, water-reactive, flammable	3417	152	Xylyl bromide, solid
3400	138	Organometallic substance, solid, self-heating	3418	151	2,4-Toluenediamine, solution
3401	138	Alkali metal amalgam, solid	3418	151	2,4-Toluenediamine, solution
3402	138	Alkaline earth metal amalgam, solid	3419	157	Boron trifluoride acetic acid complex, solid
3403	138	Potassium, metal alloys, solid	3420	157	Boron trifluoride propionic acid complex, solid
3404	138	Potassium sodium alloys, solid	3421	154	Potassium hydrogen difluoride, solution
3404	138	Sodium potassium alloys, solid	3422	154	Potassium fluoride, solution
3405	141	Barium chlorate, solution	3423	153	Tetramethylammonium hydroxide, solid
3406	141	Barium perchlorate, solution	3424	141	Ammonium dinitro-o-cresolate, solution
3407	140	Chlorate and Magnesium chloride mixture, solution	3425	156	Bromoacetic acid, solid
3407	140	Magnesium chloride and Chlorate mixture, solution	3426	153P	Acrylamide, solution
3408	141	Lead perchlorate, solution	3427	153	Chlorobenzyl chlorides, solid
3409	152	Chloronitrobenzenes, liquid	3428	156	3-Chloro-4-methylphenyl isocyanate, solid
3410	153	4-Chloro-o-toluidine hydrochloride, solution	3429	153	Chlorotoluidines, liquid
3411	153	beta-Naphthylamine, solution	3430	153	Xylenols, liquid
3411	153	Naphthylamine (beta), solution	3431	152	Nitrobenzotrifluorides, solid
3412	153	Formic acid, with not less than 5% but less than 10% acid	3432	171	Polychlorinated biphenyls, solid
			3433	135	Lithium alkyls, solid
			3434	153	Nitrocresols, liquid
			3435	153	Hydroquinone, solution

ID No.	Guide No.	Name of Material	ID No.	Guide No.	Name of Material
3436	151	Hexafluoroacetone hydrate, solid	3460	153	N-Ethylbenzyltoluidines, solid
3437	152	Chlorocresols, solid	3462	153	Toxins, extracted from living sources, solid, n.o.s.
3438	153	alpha-Methylbenzyl alcohol, solid	3463	132	Propionic acid, with not less than 90% acid
3439	151	Nitriles, poisonous, solid, n.o.s.	3464	151	Organophosphorus compound, poisonous, solid, n.o.s.
3439	151	Nitriles, solid, poisonous, n.o.s.	3464	151	Organophosphorus compound, solid, poisonous, n.o.s.
3439	151	Nitriles, toxic, solid, n.o.s.	3464	151	Organophosphorus compound, solid, toxic, n.o.s.
3440	151	Selenium compound, liquid, n.o.s.	3464	151	Organophosphorus compound, toxic, solid, n.o.s.
3441	153	Chlorodinitrobenzenes, solid	3465	151	Organoarsenic compound, solid, n.o.s.
3442	153	Dichloroanilines, solid	3466	151	Metal carbonyls, solid, n.o.s.
3443	152	Dinitrobenzenes, solid	3467	151	Organometallic compound, poisonous, solid, n.o.s.
3444	151	Nicotine hydrochloride, solid	3467	151	Organometallic compound, solid, poisonous, n.o.s.
3445	151	Nicotine sulfate, solid	3467	151	Organometallic compound, solid, toxic, n.o.s.
3445	151	Nicotine sulphate, solid	3468	115	Hydrogen in a metal hydride storage system
3446	152	Nitrotoluenes, solid	3468	115	Hydrogen in a metal hydride storage system contained in equipment
3447	152	Nitroxylenes, solid	3468	115	Hydrogen in a metal hydride storage system packed with equipment
3448	159	Tear gas substance, solid, n.o.s.	3469	132	Paint, flammable, corrosive
3449	159	Bromobenzyl cyanides, solid	3469	132	Paint related material, flammable, corrosive
3450	151	Diphenylchloroarsine, solid	3470	132	Paint, corrosive, flammable
3451	153	Toluidines, solid			
3452	153	Xylidines, solid			
3453	154	Phosphoric acid, solid			
3454	152	Dinitrotoluenes, solid			
3455	153	Cresols, solid			
3456	153	Nitroanisoles, solid			
3457	152	Chloronitrotoluenes, solid			
3458	152	Nitroanisoles, solid			
3459	152	Nitrobenzenes, solid			







Name of Material	Guide No.	Guide No.	Name of Material	Guide No.	Guide No.
Antimony pentachloride, liquid	157	1730	Arsenic compound, liquid, n.o.s.	152	1556
Antimony pentachloride, solution	157	1731	Arsenic compound, liquid, n.o.s., inorganic	152	1556
Antimony potassium tartrate	151	1551	Arsenic compound, solid, n.o.s.	152	1557
Antimony powder	170	2871	Arsenic compound, solid, n.o.s., inorganic	152	1557
Antimony trichloride	157	1733	Arsenic pentoxide	151	1559
Antimony trichloride, liquid	157	1733	Arsenic trioxide	151	1561
Antimony trichloride, solid	157	1733	Articles containing Polychlorinated biphenyls (PCB)	171	2315
Aqua regia	157	1798	Articles, pressurized, hydraulic (containing non-flammable gas)	126	3164
Argon	121	1006	Articles, pressurized, pneumatic (containing non-flammable gas)	126	3164
Argon, compressed	121	1006	Aryl sulfonic acids, liquid, with more than 5% free Sulfuric acid	153	2584
Argon, refrigerated liquid (cryogenic liquid)	120	1951	Aryl sulfonic acids, liquid, with not more than 5% free Sulfuric acid	153	2586
Arsenic	152	1558	Aryl sulfonic acids, solid, with more than 5% free Sulfuric acid	153	2583
Arsenic acid, liquid	154	1553	Aryl sulfonic acids, solid, with not more than 5% free Sulfuric acid	153	2585
Arsenic acid, solid	154	1554	Aryl sulfonic acids, liquid, with more than 5% free Sulfuric acid	153	2584
Arsenical dust	152	1562	Aryl sulfonic acids, solid, with not more than 5% free Sulfuric acid	153	2584
Arsenical pesticide, liquid, flammable, poisonous	131	2760	Aryl sulphonic acids, liquid, with more than 5% free Sulfuric acid	153	2586
Arsenical pesticide, liquid, flammable, toxic	131	2760	Asbestos	171	2212
Arsenical pesticide, liquid, poisonous	151	2994	Asbestos, amphibole	171	2212
Arsenical pesticide, liquid, poisonous, flammable	131	2993	Asbestos, blue	171	2212
Arsenical pesticide, liquid, toxic	151	2994	Asbestos, brown	171	2212
Arsenical pesticide, liquid, toxic, flammable	131	2993	Asbestos, chrysotile	171	2590
Arsenical pesticide, solid, poisonous	151	2759	Asbestos, white	171	2590
Arsenical pesticide, solid, toxic	151	2759	Asphalt	130	1999
Arsenic bromide	151	1555	Asphalt, cut back	130	1999

Name of Material	Guide No.	Guide No.	Name of Material	Guide No.	Guide No.
Aryl sulphonic acids, liquid, with not more than 5% free Sulphuric acid	153	2586	Barium perchlorate	141	1447
Aryl sulphonic acids, solid, with more than 5% free Sulphuric acid	153	2583	Barium perchlorate, solid	141	1447
Aryl sulphonic acids, solid, with not more than 5% free Sulphuric acid	153	2585	Barium perchlorate, solution	141	3406
Asbestos	171	2212	Barium permanganate	141	1448
Asbestos, amphibole	171	2212	Barium peroxide	141	1449
Asbestos, blue	171	2212	Batteries, containing Sodium	138	3292
Asbestos, brown	171	2212	Batteries, dry, containing Potassium hydroxide solid	154	3028
Asbestos, chrysotile	171	2590	Batteries, nickel-metal hydride	171	3496
Asbestos, white	171	2590	Batteries, wet, filled with acid	154	2794
Asphalt	130	1999	Batteries, wet, filled with alkali	154	2795
Asphalt, cut back	130	1999	Batteries, wet, non-spillable	154	2800
Aviation regulated liquid, n.o.s.	171	3334	Battery fluid, acid	157	2796
Aviation regulated solid, n.o.s.	171	3335	Battery fluid, alkali	154	2797
Azodicarbonamide	149	3242	Battery-powered equipment (wet battery)	154	3171
Barium	138	1400	Battery-powered equipment (with lithium ion batteries)	147	3171
Barium alloys, pyrophoric	135	1854	Battery-powered equipment (with lithium metal batteries)	138	3171
Barium azide, wetted with not less than 50% water	113	1571	Battery-powered equipment (with sodium batteries)	138	3171
Barium bromate	141	2719	Battery-powered vehicle (wet battery)	154	3171
Barium chlorate	141	1445	Battery-powered vehicle (with lithium ion batteries)	147	3171
Barium chlorate, solid	141	1445	Battery-powered vehicle (with sodium batteries)	138	3171
Barium chlorate, solution	141	3405	Benzaldehyde	129	1990
Barium compound, n.o.s.	154	1564	Benzene	130	1114
Barium cyanide	157	1565	Benzene phosphorus dichloride	137	2798
Barium hypochlorite, with more than 22% available Chlorine	141	2741	Benzene phosphorus thiodichloride	137	2799
Barium nitrate	141	1446	Benzenesulfonyl chloride	156	2225
Barium oxide	157	1884			

Name of Material	Guide No.	Guide No.	Name of Material	Guide No.	Guide No.
Benzenesulphonyl chloride	156	2225	Bipyridilium pesticide, liquid, toxic, flammable	131	3015
Benzidine	153	1885	Bipyridilium pesticide, solid, poisonous	151	2781
Benzonitrile	152	2224	Bipyridilium pesticide, solid, toxic	151	2781
Benzoquinone	153	2587	Bisulfates, aqueous solution	154	2837
Benzotrichloride	156	2226	Bisulfites, aqueous solution, n.o.s.	154	2693
Benzotrifluoride	127	2338	Bisulphates, aqueous solution	154	2837
Benzoyl chloride	137	1736	Bisulphites, aqueous solution, n.o.s.	154	2693
Benzyl bromide	156	1737	Blasting agent, n.o.s.	112	—
Benzyl chloride	156	1738	Bleaching powder	140	2208
Benzyl chloroformate	137	1739	Blue asbestos	171	2212
Benzyl dimethylamine	132	2619	Bombs, smoke, non-explosive, with corrosive liquid, without initiating device	153	2028
Benzylidene chloride	156	1886	Borate and Chlorate mixture	140	1458
Benzyl iodide	156	2653	Borneol	133	1312
Beryllium compound, n.o.s.	154	1566	Bromine	157	1743
Beryllium nitrate	141	2464	Bromine, solution	157	1743
Beryllium powder	134	1567	Bromine, solution (Indicator)	157	1743
Bhusa, wet, damp or contaminated with oil	133	1327	Bromine, solution (Indicator)	157	1743
Bicyclo[2.2.1]hepta-2,5-diene, stabilized	128P	2251	Bromine, solution (Indicator)	157	1743
Biological agents	158	—	Bromine, solution (Indicator)	157	1743
Biological substance, category B	158	3373	Bromine, solution (Indicator)	157	1743
(Bio)Medical waste, n.o.s.	158	3291	Bromine, solution (Indicator)	157	1743
Bipyridilium pesticide, liquid, flammable, poisonous	131	2782	Bromine, solution (Indicator)	157	1743
Bipyridilium pesticide, liquid, flammable, toxic	131	2782	Bromine, solution (Indicator)	157	1743
Bipyridilium pesticide, liquid, poisonous	151	3016	Bromine, solution (Indicator)	157	1743
Bipyridilium pesticide, liquid, poisonous, flammable	131	3015	Bromine, solution (Indicator)	157	1743
Bipyridilium pesticide, liquid, toxic	151	3016	Bromine, solution (Indicator)	157	1743

Name of Material	Guide No.	Guide No.	Name of Material	Guide No.	Guide No.
Boron trifluoride propionic acid complex	157	1743	Bromomethylpropanes	130	2342
Boron trifluoride propionic acid complex, liquid	157	1743	2-Bromo-2-nitropropane-1,3-diol	133	3241
Boron trifluoride propionic acid complex, solid	157	3420	2-Bromopentane	130	2343
Bromates, inorganic, aqueous solution, n.o.s.	140	3213	Bromopropanes	129	2344
Bromates, inorganic, n.o.s.	141	1450	3-Bromopropyne	130	2345
Bromine	157	1743	Bromotrifluoroethylene	116	2419
Bromine, solution	157	1743	Bromotrifluoromethane	126	1009
Bromine, solution (Indicator)	157	1743	Brown asbestos	171	2212
Bromine, solution (Indicator)	157	1743	Brucine	152	1570
Bromine, solution (Indicator)	157	1743	Butadienes, stabilized	116P	1010
Bromine, solution (Indicator)	157	1743	Butadienes and hydrocarbon mixture, stabilized	116P	1010
Bromine, solution (Indicator)	157	1743	Butane	115	1011
Bromine, solution (Indicator)	157	1743	Butane	115	1075
Bromine, solution (Indicator)	157	1743	Butanediol	127	2346
Bromine, solution (Indicator)	157	1743	Butanols	129	1120
Bromoacetic acid	156	1938	Butyl acetates	129	1123
Bromoacetic acid, solid	156	3425	Butyl acid phosphate	153	1718
Bromoacetic acid, solution	156	1938	Butyl acrylates, stabilized	129P	2348
Bromobenzene	130	2514	n-Butylamine	132	1125
Bromobenzyl cyanides, liquid	159	1694	N-Butylaniline	153	2738
Bromobenzyl cyanides, solid	159	1694	Butylbenzenes	128	2709
Bromobenzyl cyanides, solid	159	3449	n-Butyl bromide	130	1126
1-Bromobutane	130	1126	n-Butyl chloride	130	1127
2-Bromobutane	130	2339	tert-Butylcyclohexyl chloroformate	156	2747
Bromochloromethane	160	1887	Butylene	115	1012
1-Bromo-3-chloropropane	159	2688	Butylene	115	1075
2-Bromoethyl ether	130	2340	1,2-Butylene oxide, stabilized	127P	3022
Bromoform	159	2515	Butyl ethers	128	1149
1-Bromo-3-methylbutane	130	2341	n-Butyl formate	129	1128





Name of Material	Guide ID No.	Name of Material	Guide ID No.
Corrosive solid, basic, organic, n.o.s.	154 3263	Cresylic acid	153 2022
Corrosive solid, flammable, n.o.s.	134 2921	Crotonic acid	153 2823
Corrosive solid, n.o.s.	154 1759	Crotonic acid, liquid	153 2823
Corrosive solid, oxidizing, n.o.s.	140 3084	Crotonic acid, liquid	153 3472
Corrosive solid, poisonous, n.o.s.	154 2923	Crotonic acid, solid	153 2823
Corrosive solid, self-heating, n.o.s.	136 3095	Crotonylene	128 1144
Corrosive solid, toxic, n.o.s.	154 2923	Cumene	130 1918
Corrosive solid, water-reactive, n.o.s.	138 3096	Cupriethylenediamine, solution	154 1761
Cotton	133 1365	Cyanide solution, n.o.s.	157 1935
Cotton, wet	133 1365	Cyanides, inorganic, solid, n.o.s.	157 1588
Cotton waste, oily	133 1364	Cyanogen bromide	157 1889
Coumarin derivative pesticide, liquid, flammable, poisonous	131 3024	Cyanuric chloride	157 2670
Coumarin derivative pesticide, liquid, flammable, toxic	131 3024	Cyclobutane	115 2601
Coumarin derivative pesticide, liquid, poisonous	151 3026	Cyclobutyl chloroformate	155 2744
Coumarin derivative pesticide, liquid, poisonous, flammable	131 3025	1,5,9-Cyclododecatriene	153 2518
Coumarin derivative pesticide, liquid, toxic	151 3026	Cycloheptane	128 2241
Coumarin derivative pesticide, liquid, toxic, flammable	131 3025	Cycloheptatriene	131 2603
Coumarin derivative pesticide, solid, poisonous	151 3027	Cycloheptene	128 2242
Coumarin derivative pesticide, solid, toxic	151 3027	Cyclohexane	128 1145
Cresols, liquid	153 2076	Cyclohexanethiol	129 3054
Cresols, solid	153 2076	Cyclohexanone	127 1915
Cresols, solid	153 3455	Cyclohexene	130 2256
		Cyclohexyl acetate	130 2243
		Cyclohexylamine	132 2357

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Name of Material	Guide ID No.	Name of Material	Guide ID No.
Dichlorofluoromethane	126 1029	Diethylenetriamine	154 2079
Dichloroisocyanuric acid, dry	140 2465	Diethyl ether	127 1155
Dichloroisocyanuric acid salts	140 2465	N,N-Diethylethylenediamine	132 2685
Dichloroisopropyl ether	153 2490	Diethyl ketone	127 1156
Dichloromethane	160 1593	Diethyl sulfate	152 1594
1,1-Dichloro-1-nitroethane	153 2650	Diethyl sulfide	129 2375
Dichloropentanes	130 1152	Diethyl sulphate	152 1594
Dichlorophenyl isocyanates	156 2250	Diethyl sulphide	129 2375
1,2-Dichloropropane	130 1279	Diethylthiophosphoryl chloride	155 2751
1,3-Dichloropropanol-2	153 2750	Diethylzinc	135 1368
Dichloropropenes	129 2047	Diffuorochloroethanes	115 2517
1,2-Dichloro-1,1,2,2-tetrafluoroethane	126 1958	1,1-Difluoroethane	115 1030
Dicyclohexylamine	153 2565	Difluoroethane and Dichlorodifluoromethane azeotropic mixture with approximately 74% Dichlorodifluoromethane	126 2602
Dicyclohexylammonium nitrite	133 2687	1,1-Difluoroethylene	116P 1959
Dicyclopentadiene	130 2048	Diffuoromethane	115 3252
1,2-Di-(dimethylamino)ethane	129 2372	Difluorophosphoric acid, anhydrous	154 1768
Didymium nitrate	140 1465	2,3-Dihydropyran	127 2376
Diesel fuel	128 1202	Diisobutylamine	132 2361
Diesel fuel	128 1993	Diisobutylene, isomeric compounds	128 2050
Diethoxymethane	127 2373	Diisobutyl ketone	128 1157
3,3-Diethoxypropene	127 2374	Diisooctyl acid phosphate	153 1902
Diethylamine	132 1154	Diisopropylamine	132 1158
2-Diethylaminoethanol	132 2686	Diisopropyl ether	127 1159
3-Diethylaminopropylamine	132 2684	1,1-Dimethoxyethane	127 2377
Diethylaminopropylamine	132 2684	1,2-Dimethoxyethane	127 2252
N,N-Diethylaniline	153 2432	Dimethylamine, anhydrous	118 1032
Diethylbenzene	130 2049		
Diethyl carbonate	128 2386		

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Name of Material	Guide ID No.	Name of Material	Guide ID No.
Cyclohexyl mercaptan	129 3054	Di-n-amyamine	131 2841
Cyclooctadiene phosphines	135 2940	Dibromochloropropanes	159 2872
Cyclooctadienes	130P 2520	Dibromodifluoromethane	171 1941
Cyclooctatetraene	128P 2358	Dibromomethane	160 2664
Cyclopentane	128 1146	Di-n-butylamine	132 2248
Cyclopentanone	128 2245	Dibutylaminoethanol	153 2873
Cyclopentene	128 2246	Dibutyl ethers	128 1149
Cyclopropane	115 1027	Dichloroacetic acid	153 1764
Cymenes	130 2046	1,3-Dichloroacetone	153 2649
Dangerous goods in apparatus	171 3363	Dichloroanilines, liquid	153 1590
Dangerous goods in machinery	171 3363	Dichloroanilines, solid	153 1590
Decaborane	134 1868	Dichloroanilines, solid	153 3442
Decahydronaphthalene	130 1147	o-Dichlorobenzene	152 1591
n-Decane	128 2247	2,2'-Dichlorodiethyl ether	152 1916
Denatured alcohol	127 1987	Dichlorodifluoromethane	126 1028
Desensitized explosive, liquid, n.o.s.	128 3379	Dichlorodifluoromethane and Difluoroethane azeotropic mixture with approximately 74% Dichlorodifluoromethane	126 2602
Desensitized explosive, solid, n.o.s.	133 3380	Dichlorodifluoromethane and Ethylene oxide mixture, with not more than 12.5% Ethylene oxide	126 3070
Deuterium	115 1957	Dichlorodimethyl ether, symmetrical	131 2249
Deuterium, compressed	115 1957	1,1-Dichloroethane	130 2362
Devices, small, hydrocarbon gas powered, with release device	115 3150	1,2-Dichloroethylene	130P 1150
Diacetone alcohol	129 1148	Dichloroethyl ether	152 1916
Diacetyl	127 2346		
Diallylamine	132 2359		
Diallyl ether	131P 2360		
4,4'-Diaminodiphenylmethane	153 2651		

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Name of Material	Guide ID No.	Name of Material	Guide ID No.
Dimethylamine, aqueous solution	132 1160	Dimethyl thiophosphoryl chloride	156 2267
Dimethylamine, solution	132 1160	Dimethylzinc	135 1370
2-Dimethylaminoacetonitrile	131 2378	Dinitroanilines	153 1596
2-Dimethylaminoethanol	132 2051	Dinitrobenzenes, liquid	152 1597
2-Dimethylaminoethyl acrylate	152 3302	Dinitrobenzenes, solid	152 1597
2-Dimethylaminoethyl methacrylate	153P 2522	Dinitrobenzenes, solid	152 3443
N,N-Dimethylaniline	153 2253	Dinitrochlorobenzenes	153 1577
2,3-Dimethylbutane	128 2457	Dinitro-o-cresol	153 1598
1,3-Dimethylbutylamine	132 2379	Dinitrophenol, solution	153 1599
Dimethylcarbamoyl chloride	156 2262	Dinitrophenol, wetted with not less than 15% water	113 1320
Dimethyl carbonate	129 1161	Dinitrophenolates, wetted with not less than 15% water	113 1321
Dimethylcyclohexanes	128 2263	Dinitroresorcinol, wetted with not less than 15% water	113 1322
N,N-Dimethylcyclohexylamine	132 2264	Dinitrotoluenes	152 2038
Dimethylcyclohexylamine	132 2264	Dinitrotoluenes, liquid	152 2038
Dimethyldiethoxysilane	127 2380	Dinitrotoluenes, molten	152 1600
Dimethyldioxanes	127 2707	Dinitrotoluenes, solid	152 2038
Dimethyl disulfide	130 2381	Dinitrotoluenes, solid	152 3454
Dimethyl disulphide	130 2381	Dioxane	127 1165
Dimethyl ether	115 1033	Dioxolane	127 1168
N,N-Dimethylformamide	129 2265	Dipentene	128 2052
Dimethylformamide	129 2265	Diphenylamine chloroarsine	154 1698
Dimethylglyoxime	127 2382	Diphenylchloroarsine, liquid	151 1699
Dimethylhydrazine	127 2382	Diphenylchloroarsine, solid	151 1699
2,2-Dimethylpropane	115 2044	Diphenylchloroarsine, solid	151 3450
Dimethyl-N-propylamine	132 2266	Diphenylmethyl bromide	153 1770
Dimethyl sulfide	130 1164		
Dimethyl sulphide	130 1164		

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Name of Material	Guide No.	Guide ID No.	Name of Material	Guide No.	Guide ID No.
Dipicryl sulfide, wetted with not less than 10% water	113	2852	Dye intermediate, liquid, toxic, n.o.s.	151	1602
Dipicryl sulphide, wetted with not less than 10% water	113	2852	Dye intermediate, solid, corrosive, n.o.s.	154	3147
Dipropylamine	132	2383	Dye intermediate, solid, poisonous, n.o.s.	151	3143
Di-n-propyl ether	127	2384	Dye intermediate, solid, toxic, n.o.s.	151	3143
Dipropyl ketone	128	2710			
Disinfectant, liquid, corrosive, n.o.s.	153	1903	Elevated temperature liquid, flammable, n.o.s., with flash point above 37.8°C (100°F), at or above its flash point	128	3256
Disinfectant, liquid, poisonous, n.o.s.	151	3142	Elevated temperature liquid, flammable, n.o.s., with flash point above 60°C (140°F), at or above its flash point	128	3256
Disinfectant, liquid, toxic, n.o.s.	151	3142	Elevated temperature liquid, n.o.s., at or above 100°C (212°F), and below its flash point	128	3257
Disinfectant, solid, poisonous, n.o.s.	151	1601	Elevated temperature solid, n.o.s., at or above 240°C (464°F)	171	3258
Disinfectant, solid, toxic, n.o.s.	151	1601	Engine, fuel cell, flammable gas powered	115	3166
Disodium trioxosilicate	154	3253	Engine, fuel cell, flammable gas powered	115	3529
Dispersant gas, n.o.s.	126	1078	Engine, fuel cell, flammable liquid powered	128	3166
Dispersant gases, n.o.s. (flammable)	115	1954	Engine, fuel cell, flammable liquid powered	128	3528
Divinyl ether, stabilized	128P	1167	Engine, internal combustion	128	3166
			Engine, internal combustion	171	3530
			Engine, internal combustion flammable gas powered	115	3529
			Engine, internal combustion flammable liquid powered	128	3528
			Engines, internal combustion, flammable gas powered	115	3166

Name of Material	Guide No.	Guide ID No.	Name of Material	Guide No.	Guide ID No.
Engines, internal combustion, flammable liquid powered	128	3166	Ethylamine, aqueous solution, with not less than 50% but not more than 70% Ethylamine	132	2270
Environmentally hazardous substance, liquid, n.o.s.	171	3082	Ethyl amyl ketone	128	2271
Environmentally hazardous substance, solid, n.o.s.	171	3077	2-Ethylaniline	153	2273
Epibromohydrin	131	2558	N-Ethylaniline	153	2272
Epichlorohydrin	131P	2023	Ethylbenzene	130	1175
1,2-Epoxy-3-ethoxypropane	127	2752	N-Ethyl-N-benzylaniline	153	2274
Esters, n.o.s.	127	3272	N-Ethylbenzyltoluidines, liquid	153	2753
Ethane	115	1035	N-Ethylbenzyltoluidines, solid	153	2753
Ethane, compressed	115	1035	N-Ethylbenzyltoluidines, solid	153	3460
Ethane, refrigerated liquid	115	1961	Ethyl borate	129	1176
Ethane-Propane mixture, refrigerated liquid	115	1961	Ethyl bromide	131	1891
Ethanol	127	1170	Ethyl bromoacetate	155	1603
Ethanol and gasoline mixture, with more than 10% ethanol	127	3475	2-Ethylbutanol	129	2275
Ethanol and motor spirit mixture, with more than 10% ethanol	127	3475	2-Ethylbutyl acetate	130	1177
Ethanol and petrol mixture, with more than 10% ethanol	127	3475	Ethylbutyl acetate	130	1177
Ethanol, solution	127	1170	Ethyl butyl ether	127	1179
Ethanolamine	153	2491	2-Ethylbutylaldehyde	130	1178
Ethanolamine, solution	153	2491	Ethyl butyrate	130	1180
Ethers, n.o.s.	127	3271	Ethyl chloride	115	1037
Ethyl acetate	129	1173	Ethyl chloroacetate	155	1181
Ethylacetylene, stabilized	116P	2452			
Ethyl acrylate, stabilized	129P	1917	Ethyl 2-chloropropionate	129	2935
Ethyl alcohol	127	1170			
Ethyl alcohol, solution	127	1170	Ethyl crotonate	130	1862
Ethylamine	118	1036			

Name of Material	Guide No.	Guide ID No.	Name of Material	Guide No.	Guide ID No.
Ethylene, Acetylene and Propylene in mixture, refrigerated liquid containing at least 71.5% Ethylene with not more than 22.5% Acetylene and not more than 6% Propylene	115	3138	Ethylene oxide and Chlorotetrafluoroethane mixture, with not more than 8.8% Ethylene oxide	126	3297
Ethylene, compressed	116P	1962	Ethylene oxide and Dichlorodifluoromethane mixture, with not more than 12.5% Ethylene oxide	126	3070
Ethylene, refrigerated liquid (cryogenic liquid)	115	1038	Ethylene oxide and Pentafluoroethane mixture, with not more than 7.9% Ethylene oxide	126	3298
			Ethylene oxide and Propylene oxide mixture, with not more than 30% Ethylene oxide	129P	2983
			Ethylene oxide and Tetrafluoroethane mixture, with not more than 5.6% Ethylene oxide	126	3299
Ethylenediamine	132	1604			
			Ethyl ether	127	1155
			Ethyl fluoride	115	2453
Ethylene dichloride	131	1184	Ethyl formate	129	1190
Ethylene glycol diethyl ether	127	1153	Ethylhexaldehydes	129	1191
Ethylene glycol monoethyl ether	127	1171	2-Ethylhexylamine	132	2276
Ethylene glycol monoethyl ether acetate	129	1172	2-Ethylhexyl chloroformate	156	2748
Ethylene glycol monomethyl ether	127	1188	Ethyl isobutyrate	129	2385
Ethylene glycol monomethyl ether acetate	129	1189			
			Ethyl lactate	129	1192
			Ethyl mercaptan	129	2363
Ethylene oxide and Carbon dioxide mixture, with more than 9% but not more than 87% Ethylene oxide	115	1041	Ethyl methacrylate	130P	2277
			Ethyl methacrylate, stabilized	130P	2277
			Ethyl methyl ether	115	1039
			Ethyl methyl ketone	127	1193
Ethylene oxide and Carbon dioxide mixtures, with not more than 9% Ethylene oxide	126	1952	Ethyl nitrite, solution	131	1194
			Ethyl orthoformate	129	2524
			Ethyl oxalate	156	2525

Name of Material	Guide No.	Guide ID No.	Name of Material	Guide No.	Guide ID No.
			Fertilizer, ammoniating solution, with free Ammonia	125	1043
			Fibers, animal or vegetable, burnt, wet or damp	133	1372
			Fibers, animal or vegetable or synthetic, n.o.s. with oil	133	1373
1-Ethylpiperidine	132	2386	Fibers, vegetable, dry	133	3360
Ethyl propionate	129	1195	Fibers impregnated with weakly nitrated Nitrocellulose, n.o.s.	133	1353
Ethyl propyl ether	127	2615	Fibres, animal or vegetable, burnt, wet or damp	133	1372
Ethyl silicate	129	1292	Fibres, animal or vegetable or synthetic, n.o.s. with oil	133	1373
N-Ethyltoluidines	153	2754	Fibres, vegetable, dry	133	3360
			Fibres impregnated with weakly nitrated Nitrocellulose, n.o.s.	133	1353
Explosives, division 1.1, 1.2, 1.3 or 1.5	112	---	Films, nitrocellulose base	133	1324
Explosives, division 1.4 or 1.6	114	---	Fire extinguisher charges, corrosive liquid	154	1774
Extracts, aromatic, liquid	127	1169	Fire extinguishers with compressed gas	126	1044
Extracts, flavoring, liquid	127	1197	Fire extinguishers with liquefied gas	126	1044
Extracts, flavouring, liquid	127	1197	Firefighters, solid, with flammable liquid	133	2623
Fabrics, animal or vegetable or synthetic, n.o.s. with oil	133	1373	First aid kit	171	3316
Fabrics impregnated with weakly nitrated Nitrocellulose, n.o.s.	133	1353	Fish meal, stabilized	171	2216
Ferric arsenate	151	1606	Fish meal, unstabilized	133	1374
Ferric arsenite	151	1607	Fish scrap, stabilized	171	2216
Ferric chloride, anhydrous	157	1773	Fish scrap, unstabilized	133	1374
Ferric chloride, solution	154	2582	Flammable liquid, corrosive, n.o.s.	132	2924
Ferric nitrate	140	1466	Flammable liquid, n.o.s.	128	1993
Ferrocenium	170	1323	Flammable liquid, poisonous, corrosive, n.o.s.	131	3286
Ferrosilicon	139	1408			
Ferrous arsenate	151	1608			
Ferrous chloride, solid	154	1759			
Ferrous chloride, solution	154	1760			
Ferrous metal borings, shavings, turnings or cuttings	170	2793			









Name of Material	Guide No.	ID No.	Name of Material	Guide No.	ID No.
Nitroglycerin, solution in alcohol, with more than 1% but not more than 5% Nitroglycerin	127	3064	Nitrotoluenes, solid	152	1664
Nitroglycerin, solution in alcohol, with not more than 1% Nitroglycerin	127	1204	Nitrotoluenes, solid (mono)	153	2660
Nitroglycerin mixture, desensitized, liquid, flammable, n.o.s., with not more than 30% Nitroglycerin	113	3343	Nitrous oxide	122	1070
Nitroglycerin mixture, desensitized, liquid, n.o.s., with not more than 30% Nitroglycerin	113	3357	Nitrous oxide, compressed	122	1070
Nitroglycerin mixture, desensitized, solid, n.o.s., with more than 2% but not more than 10% Nitroglycerin	113	3319	Nitrous oxide, refrigerated liquid	122	2201
Nitroguanidine, wetted with not less than 20% water	113	1336	Nitrous oxide and Carbon dioxide mixture	126	1015
Nitrohydrochloric acid	157	1798	Nitroxylenes, liquid	152	1665
Nitromethane	129	1261	Nitroxylenes, solid	152	1665
Nitronaphthalene	133	2538	Nitroxylenes, solid	152	3447
Nitrophenols	153	1663	Nonanes	128	1920
4-Nitrophenylhydrazine, with not less than 30% water	113	3376	2,5-Norbornadiene, stabilized	128P	2251
Nitropropanes	129	2608	Octadiene	128P	2309
p-Nitrosodimethylaniline	135	1369	Octafluorobut-2-ene	126	2422
Nitrostarch, wetted with not less than 20% water	113	1337	Octafluorocyclobutane	126	1976
Nitrotoluenes, liquid	152	1664	Octafluoropropane	126	2424
			Octanes	128	1262
			Octyl aldehydes	129	1191
			Oil, petroleum	128	1270
			Oil gas	119	1071
			Oil gas, compressed	119	1071
			Organic peroxide type B, liquid	146	3101
			Organic peroxide type B, liquid, temperature controlled	148	3111
			Organic peroxide type B, solid	146	3102
			Organic peroxide type B, solid, temperature controlled	148	3112

Name of Material	Guide No.	ID No.	Name of Material	Guide No.	ID No.
Organometallic compound, toxic, liquid, n.o.s.	151	3282	Organophosphorus compound, 151 3464	151	3464
Organometallic compound, toxic, n.o.s.	151	3282	Organophosphorus compound, 151 3464	151	3464
Organometallic compound, toxic, solid, n.o.s.	151	3467	Organophosphorus compound, 151 3464	151	3464
Organometallic compound, water-reactive, flammable, n.o.s.	138	3207	Organophosphorus compound, 151 3464	151	3464
Organometallic compound dispersion, water-reactive, flammable, n.o.s.	138	3207	Organophosphorus compound, 151 3464	151	3464
Organometallic compound solution, water-reactive, flammable, n.o.s.	138	3207	Organophosphorus compound, 151 3464	151	3464
Organometallic substance, liquid, pyrophoric	135	3392	Organophosphorus compound, 151 3464	151	3464
Organometallic substance, liquid, pyrophoric, water-reactive	135	3394	Organophosphorus compound, 151 3464	151	3464
Organometallic substance, liquid, water-reactive	135	3398	Organophosphorus compound, 151 3464	151	3464
Organometallic substance, liquid, water-reactive, flammable	138	3399	Organophosphorus compound, 151 3464	151	3464
Organometallic substance, solid, pyrophoric	135	3391	Organophosphorus pesticide, liquid, flammable, poisonous	131	2784
Organometallic substance, solid, pyrophoric, water-reactive	135	3393	Organophosphorus pesticide, liquid, flammable, toxic	131	2784
Organometallic substance, solid, self-heating	138	3400	Organophosphorus pesticide, liquid, poisonous	152	3018
Organometallic substance, solid, water-reactive	135	3395	Organophosphorus pesticide, liquid, poisonous, flammable	152	3018
Organometallic substance, solid, water-reactive, flammable	138	3396	Organophosphorus pesticide, liquid, toxic	152	3018
Organometallic substance, solid, water-reactive, self-heating	138	3397	Organophosphorus pesticide, liquid, toxic, flammable	131	3017
			Organophosphorus pesticide, solid, poisonous	152	2783
			Organophosphorus pesticide, solid, toxic	152	2783

Name of Material	Guide No.	ID No.	Name of Material	Guide No.	ID No.
Organic peroxide type C, liquid	146	3103	Organic pigments, self-heating	135	3313
Organic peroxide type C, liquid, temperature controlled	148	3113	Organoselenic compound, solid, n.o.s.	151	3465
Organic peroxide type C, solid	146	3104	Organochlorine pesticide, liquid, flammable, poisonous	131	2762
Organic peroxide type C, solid, temperature controlled	148	3114	Organochlorine pesticide, liquid, flammable, toxic	131	2762
Organic peroxide type D, liquid	145	3105	Organochlorine pesticide, liquid, poisonous	151	2996
Organic peroxide type D, liquid, temperature controlled	148	3115	Organochlorine pesticide, liquid, poisonous, flammable	131	2995
Organic peroxide type D, solid	145	3106	Organochlorine pesticide, liquid, toxic	151	2996
Organic peroxide type D, solid, temperature controlled	148	3116	Organochlorine pesticide, liquid, toxic, flammable	131	2995
Organic peroxide type E, liquid	145	3107	Organochlorine pesticide, solid, poisonous	151	2761
Organic peroxide type E, liquid, temperature controlled	148	3117	Organochlorine pesticide, solid, toxic	151	2761
Organic peroxide type E, solid	145	3108	Organometallic compound, liquid, poisonous, n.o.s.	151	3282
Organic peroxide type E, solid, temperature controlled	148	3118	Organometallic compound, liquid, toxic, n.o.s.	151	3282
Organic peroxide type F, liquid	145	3109	Organometallic compound, poisonous, liquid, n.o.s.	151	3282
Organic peroxide type F, liquid, temperature controlled	148	3119	Organometallic compound, poisonous, solid, n.o.s.	151	3467
Organic peroxide type F, solid	145	3110	Organometallic compound, solid, poisonous, n.o.s.	151	3467
Organic peroxide type F, solid, temperature controlled	148	3120	Organometallic compound, solid, toxic, n.o.s.	151	3467

Name of Material	Guide No.	ID No.	Name of Material	Guide No.	ID No.
Organotin compound, liquid, n.o.s.	153	2788	Oxidizing solid, self-heating, n.o.s.	135	3100
Organotin compound, solid, n.o.s.	153	3146	Oxidizing solid, toxic, n.o.s.	141	3087
Organotin pesticide, liquid, flammable, poisonous	131	2787	Oxidizing solid, water-reactive, n.o.s.	144	3121
Organotin pesticide, liquid, flammable, toxic	131	2787	Oxygen	122	1072
Organotin pesticide, liquid, poisonous	153	3020	Oxygen, compressed	122	1072
Organotin pesticide, liquid, poisonous, flammable	131	3019	Oxygen, refrigerated liquid (cryogenic liquid)	122	1073
Organotin pesticide, liquid, toxic	153	3020	Oxygen and Carbon dioxide mixture, compressed	122	1014
Organotin pesticide, solid, poisonous	153	2786	Oxygen and Rare gases mixture, compressed	121	1980
Organotin pesticide, solid, toxic, flammable	131	3019			
Organotin pesticide, solid, toxic	153	2786			
Osmium tetroxide	154	2471			
Other regulated substances, liquid, n.o.s.	171	3082			
Other regulated substances, solid, n.o.s.	171	3077			
Oxidizing liquid, corrosive, n.o.s.	140	3098			
Oxidizing liquid, n.o.s.	140	3139			
Oxidizing liquid, poisonous, n.o.s.	142	3099			
Oxidizing liquid, toxic, n.o.s.	142	3099			
Oxidizing solid, corrosive, n.o.s.	140	3085			
Oxidizing solid, flammable, n.o.s.	140	3137			
Oxidizing solid, n.o.s.	140	1479			
Oxidizing solid, poisonous, n.o.s.	141	3087			



Name of Material	Guide No.	ID No.	Name of Material	Guide No.	ID No.
Polychlorinated biphenyls, solid	171	3432	Potassium chlorate, aqueous solution	140	2427
Polyester resin kit	128	3269	Potassium cuprocyanide	157	1679
Polyester resin kit, liquid base material	128	3269	Potassium cyanide, solution	157	3413
Polyester resin kit, solid base material	128P	3527	Potassium fluoride	154	1812
Polyhalogenated biphenyls, liquid	171	3151	Potassium fluoride, solid	154	1812
Polyhalogenated biphenyls, solid	171	3152	Potassium fluoride, solution	154	3422
Polyhalogenated terphenyls, liquid	171	3151	Potassium fluoroacetate	151	2628
Polyhalogenated terphenyls, solid	171	3152	Potassium fluorosilicate	151	2655
Polymeric beads, expandable	133	2211	Potassium hydrogendifluoride	154	1811
Polymerizing substance, liquid, stabilized, n.o.s.	149P	3532	Potassium hydrogen difluoride, solid	154	1811
Polymerizing substance, liquid, temperature controlled, n.o.s.	150P	3534	Potassium hydrogen difluoride, solution	154	3421
Polymerizing substance, solid, stabilized, n.o.s.	149P	3531	Potassium hydrogen sulfate	154	2509
Polymerizing substance, solid, temperature controlled, n.o.s.	150P	3533	Potassium hydrogen sulphate	154	2509
Polystyrene beads, expandable	133	2211	Potassium hydroxide, solid	154	1813
Potassium	138	2257	Potassium hydroxide, solution	154	1814
Potassium, metal	138	2257	Potassium metavanadate	151	2864
Potassium, metal alloys	138	1420	Potassium monoxide	154	2033
Potassium, metal alloys, liquid	138	1420	Potassium nitrate	140	1486
Potassium, metal alloys, solid	138	3403	Potassium nitrate and Sodium nitrate mixture	140	1499
Potassium arsenate	151	1677	Potassium nitrate and Sodium nitrite mixture	140	1487
Potassium arsenite	154	1678	Potassium nitrite	140	1488
Potassium borohydride	138	1870	Potassium perchlorate	140	1489
Potassium bromate	140	1484	Potassium permanganate	140	1490
Potassium chlorate	140	1485	Potassium peroxide	144	1491

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Name of Material	Guide No.	ID No.	Name of Material	Guide No.	ID No.
Potassium persulfate	140	1492	Propionic acid	132	1848
Potassium persulphate	140	1492	Propionic acid, with not less than 10% and less than 90% acid	132	1848
Potassium silicofluoride	151	2655	Propionic acid, with not less than 90% acid	132	3463
Potassium sodium alloys	138	1422	Propionic anhydride	156	2496
Potassium sodium alloys, liquid	138	1422	Propionitrile	131	2404
Potassium sodium alloys, solid	138	3404	n-Propyl acetate	129	1276
Potassium sulfide, anhydrous	135	1382	Propyl alcohol, normal	129	1274
Potassium sulfide, hydrated, with not less than 30% water of crystallization	135	1847	Propylamine	132	1277
Potassium sulfide, with less than 30% water of crystallization	135	1382	n-Propyl benzene	128	2364
Potassium sulphide, anhydrous	135	1382	Propyl chloride	129	1278
Potassium sulphide, hydrated, with not less than 30% water of crystallization	135	1847	Propylene	115	1075
Potassium sulphide, with less than 30% water of crystallization	135	1382	Propylene	115	1077
Potassium superoxide	143	2466	Propylene, Ethylene and Acetylene in mixture, refrigerated liquid containing at least 71.5% Ethylene with not more than 22.5% Acetylene and not more than 6% Propylene	115	3138
Printing ink, flammable	129	1210	Propylene chlorohydrin	131	2611
Printing ink related material	129	1210	1,2-Propylenediamine	132	2258
Propadiene, stabilized	116P	2200	Propyleneimine, stabilized	131P	1921
Propadiene and Methylacetylene mixture, stabilized	116P	1060	Propylene oxide	127P	1280
Propane	115	1075	Propylene oxide and Ethylene oxide mixture, with not more than 30% Ethylene oxide	129P	2983
Propane	115	1978	Propylene tetramer	128	2850
Propane-Ethane mixture, refrigerated liquid	115	1961	Propyl formates	129	1281
Propanethiols	130	2402	n-Propyl nitrate	131	1865
n-Propanol	129	1274	Propionaldehyde	129	1275

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Pyrethroid pesticide, liquid, flammable, poisonous	131	3350	Radioactive material, excepted package, articles manufactured from natural Thorium	161	2909
Pyrethroid pesticide, liquid, flammable, toxic	131	3350	Radioactive material, excepted package, articles manufactured from natural Uranium	161	2909
Pyrethroid pesticide, liquid, poisonous	151	3352	Radioactive material, excepted package, empty packaging	161	2908
Pyrethroid pesticide, liquid, poisonous, flammable	131	3351	Radioactive material, excepted package, instruments or articles	161	2911
Pyrethroid pesticide, liquid, toxic	151	3352	Radioactive material, excepted package, limited quantity of material	161	2910
Pyrethroid pesticide, liquid, toxic, flammable	131	3351	Radioactive material, low specific activity (LSA-I), non fissile or fissile-excepted	162	2912
Pyrethroid pesticide, solid, poisonous	151	3349	Radioactive material, low specific activity (LSA-II), fissile	165	3324
Pyrethroid pesticide, solid, toxic	151	3349	Radioactive material, low specific activity (LSA-II), non fissile or fissile-excepted	162	3321
Pyridine	129	1282	Radioactive material, low specific activity (LSA-III), fissile	165	3325
Pyrophoric alloy, n.o.s.	135	1383	Radioactive material, low specific activity (LSA-III), non fissile or fissile-excepted	162	3322
Pyrophoric liquid, inorganic, n.o.s.	135	3194	Radioactive material, surface contaminated objects (SCO-I), fissile	165	3326
Pyrophoric liquid, organic, n.o.s.	135	2845	Radioactive material, surface contaminated objects (SCO-I), non fissile or fissile-excepted	162	2913
Pyrophoric metal, n.o.s.	135	1383	Radioactive material, surface contaminated objects (SCO-I), non fissile or fissile-excepted	165	3326
Pyrophoric organometallic compound, water-reactive, n.o.s.	135	3203	Radioactive material, surface contaminated objects (SCO-II), fissile	165	3326
Pyrophoric solid, inorganic, n.o.s.	135	3200			
Pyrophoric solid, organic, n.o.s.	135	2846			
Pyrosulphuryl chloride	137	1817			
Pyrosulphuryl chloride	137	1817			
Pyrrolidine	132	1922			
Quinoline	154	2656			
Radioactive material, excepted package, articles manufactured from depleted Uranium	161	2909			

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Name of Material	Guide No.	ID No.	Name of Material	Guide No.	ID No.
Radioactive material, surface contaminated objects (SCO-II), non fissile or fissile-excepted	162	2913	Rags, oily	133	1856
Radioactive material, transported under special arrangement, fissile	165	3331	Rare gases and Nitrogen mixture, compressed	121	1981
Radioactive material, transported under special arrangement, non fissile or fissile-excepted	163	2919	Rare gases and Oxygen mixture, compressed	121	1980
Radioactive material, Type A package, fissile, non-special form	165	3327	Rare gases mixture, compressed	121	1979
Radioactive material, Type A package, non-special form, non fissile or fissile-excepted	163	2915	Receptacles, small, containing gas	115	2037
Radioactive material, Type A package, special form, fissile	165	3333	Red phosphorus	133	1338
Radioactive material, Type A package, special form, non fissile or fissile-excepted	164	3332	Refrigerant gas, n.o.s.	126	1078
Radioactive material, Type B(M) package, fissile	165	3329	Refrigerant gases, n.o.s. (flammable)	115	1954
Radioactive material, Type B(M) package, non fissile or fissile-excepted	163	2917	Refrigerant gas R-12	126	1028
Radioactive material, Type B(U) package, fissile	165	3328	Refrigerant gas R-12B1	126	1974
Radioactive material, Type B(U) package, non fissile or fissile-excepted	163	2916	Refrigerant gas R-12B2	171	1941
Radioactive material, Type C package, fissile	165	3330	Refrigerant gas R-13	126	1022
Radioactive material, Type C package, non fissile or fissile-excepted	163	3323	Refrigerant gas R-13B1	126	1009
			Refrigerant gas R-14	126	1982
			Refrigerant gas R-14, compressed	126	1982
			Refrigerant gas R-21	126	1029
			Refrigerant gas R-22	126	1018
			Refrigerant gas R-23	126	1984
			Refrigerant gas R-32	115	3252
			Refrigerant gas R-40	115	1063
			Refrigerant gas R-41	115	2454
			Refrigerant gas R-114	126	1958
			Refrigerant gas R-115	126	1020
			Refrigerant gas R-116	126	2193
			Refrigerant gas R-116, compressed	126	2193
			Refrigerant gas R-124	126	1021
			Refrigerant gas R-125	126	3220
			Refrigerant gas R-133a	126	1983

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Name of Material	Guide No.	Guide No.	Name of Material	Guide No.	Guide No.
Refrigerant gas R-134a	126	3159	Resin solution	127	1866
Refrigerant gas R-142b	115	2517	Resorcinol	153	2876
Refrigerant gas R-143a	115	2035	Rosin oil	127	1286
Refrigerant gas R-152a	115	1030	Rubber scrap, powdered or granulated	133	1345
Refrigerant gas R-161	115	2453	Rubber shoddy, powdered or granulated	133	1345
Refrigerant gas R-218	126	2424	Rubber solution	127	1287
Refrigerant gas R-227	126	3296	Rubidium	138	1423
Refrigerant gas R-404A	126	3337	Rubidium hydroxide	154	2678
Refrigerant gas R-407A	126	3338	Rubidium hydroxide, solid	154	2678
Refrigerant gas R-407B	126	3339	Rubidium hydroxide, solution	154	2677
Refrigerant gas R-407C	126	3340	Rubidium metal	138	1423
Refrigerant gas R-500	126	2602			
Refrigerant gas R-502	126	1973			
Refrigerant gas R-503	126	2599	Safety devices	171	3288
Refrigerant gas R-113	116P	1022			
Refrigerant gas R-1132a	116P	1959	Seat-belt pre-tensioners	171	3288
Refrigerant gas R-1216	126	1858	Seed cake, with more than 1.5% oil and not more than 11% moisture	135	1386
Refrigerant gas R-1318	126	2422	Seed cake, with not more than 1.5% oil and not more than 11% moisture	135	2217
Refrigerant gas RC-318	126	1976	Selenates	151	2630
Refrigerating machines, containing Ammonia solutions (UN2672)	126	2857	Selenic acid	154	1905
Refrigerating machines, containing flammable, non-poisonous, liquefied gas	115	3358	Selenites	151	2630
Refrigerating machines, containing flammable, non-toxic, liquefied gas	115	3358	Selenium compound, liquid, n.o.s.	151	3440
Refrigerating machines, containing non-flammable, non-poisonous gases	126	2857	Selenium compound, n.o.s.	151	3283
Refrigerating machines, containing non-flammable, non-toxic gases	126	2857	Selenium compound, solid, n.o.s.	151	3283
Regulated medical waste, n.o.s.	158	3291	Selenium disulfide	153	2657
			Selenium disulphide	153	2657
			Selenium dichloride	154	2194
			Selenium oxychloride	157	2879

Name of Material	Guide No.	Guide No.	Name of Material	Guide No.	Guide No.
Self-defense spray, non-pressurized	171	3334	Self-reactive liquid type C, temperature controlled	150	3233
Self-heating liquid, corrosive, inorganic, n.o.s.	136	3188	Self-reactive liquid type D, temperature controlled	149	3225
Self-heating liquid, corrosive, organic, n.o.s.	136	3185	Self-reactive liquid type D, temperature controlled	150	3235
Self-heating liquid, inorganic, n.o.s.	135	3186	Self-reactive liquid type E, temperature controlled	149	3227
Self-heating liquid, organic, n.o.s.	135	3183	Self-reactive liquid type E, temperature controlled	150	3237
Self-heating liquid, poisonous, inorganic, n.o.s.	136	3187	Self-reactive liquid type F, temperature controlled	149	3229
Self-heating liquid, poisonous, organic, n.o.s.	136	3184	Self-reactive liquid type F, temperature controlled	150	3239
Self-heating liquid, toxic, inorganic, n.o.s.	136	3187	Self-reactive solid type B, temperature controlled	149	3222
Self-heating liquid, toxic, organic, n.o.s.	136	3184	Self-reactive solid type B, temperature controlled	150	3232
Self-heating solid, corrosive, inorganic, n.o.s.	136	3192	Self-reactive solid type C, temperature controlled	149	3224
Self-heating solid, corrosive, organic, n.o.s.	136	3126	Self-reactive solid type C, temperature controlled	150	3234
Self-heating solid, inorganic, n.o.s.	135	3190	Self-reactive solid type D, temperature controlled	149	3226
Self-heating solid, organic, n.o.s.	135	3088	Self-reactive solid type D, temperature controlled	150	3236
Self-heating solid, oxidizing, n.o.s.	135	3127	Self-reactive solid type E, temperature controlled	149	3228
Self-heating solid, poisonous, inorganic, n.o.s.	136	3191	Self-reactive solid type E, temperature controlled	150	3238
Self-heating solid, poisonous, organic, n.o.s.	136	3128	Self-reactive solid type F, temperature controlled	149	3230
Self-heating solid, toxic, inorganic, n.o.s.	136	3191	Self-reactive solid type F, temperature controlled	150	3240
Self-heating solid, toxic, organic, n.o.s.	136	3128	Shale oil	128	1288
Self-reactive liquid type B, temperature controlled	149	3221	Silane	116	2203
Self-reactive liquid type B, temperature controlled	150	3231	Silane, compressed	116	2203
Self-reactive liquid type C, temperature controlled	149	3223	Silicofluorides, n.o.s.	151	2856
			Silicon powder, amorphous	170	1346
			Silicon tetrafluoride	170	1346
			Silicon tetrafluoride	170	1346
			Silicon tetrafluoride, compressed	170	1346
			Silicon tetrafluoride, compressed	170	1346

Name of Material	Guide No.	Guide No.	Name of Material	Guide No.	Guide No.
Silver arsenite	151	1683	Sodium chlorate, aqueous solution	140	2428
Silver cyanide	151	1884	Sodium chlorite	143	1496
Silver nitrate	140	1493	Sodium chloroacetate	151	2659
Silver picrate, wetted with not less than 30% water	113	1347	Sodium cuprocyanide, solid	157	2316
Sludge acid	153	1906	Sodium cuprocyanide, solution	157	2317
Smokeless powder for small arms	133	3178	Sodium cyanide	157	3414
Soda lime, with more than 4% Sodium hydroxide	154	1907	Sodium cyanide, solid	157	3414
Sodium	138	1428	Sodium cyanide, solution	157	3414
Sodium aluminate, solid	154	2812	Sodium dichloroisocyanurate	140	2465
Sodium aluminate, solution	154	1819	Sodium dichloro-s-triazinetriene	140	2465
Sodium aluminum hydride	138	2835	Sodium dinitro-o-cresolate, wetted with not less than 10% water	113	3369
Sodium ammonium vanadate	154	2863	Sodium dinitro-o-cresolate, wetted with not less than 15% water	113	1348
Sodium arsenanilate	154	2473	Sodium dinitro-o-cresolate, wetted with not less than 15% water	113	1348
Sodium arsenate	151	1685	Sodium dinitro-o-cresolate, wetted with not less than 15% water	113	1348
Sodium arsenite, aqueous solution	154	1686	Sodium fluoride	154	1690
Sodium arsenite, solid	151	2027	Sodium fluoride, solid	154	1690
Sodium azide	153	1687	Sodium fluoride, solution	154	3415
Sodium, batteries containing	138	3292	Sodium fluoroacetate	151	2629
Sodium bisulfate, solution	154	2837	Sodium fluorosilicate	154	2674
Sodium bisulphate, solution	154	2837	Sodium hydride	138	1427
Sodium borohydride	138	1426	Sodium hydrogendifluoride	154	2439
Sodium borohydride and Sodium hydroxide solution, with not more than 12% Sodium borohydride and not more than 40% Sodium hydroxide	157	3320	Sodium hydrosulfide, hydrated, with not less than 25% water of crystallization	154	2949
Sodium bromate	141	1494	Sodium hydrosulfide, with less than 25% water of crystallization	135	2318
Sodium cacodylate	152	1688	Sodium hydrosulfide, with not less than 25% water of crystallization	154	2949
Sodium carbonate peroxyhydrate	140	3378	Sodium hydrosulfide, with not less than 25% water of crystallization	154	2949
Sodium chlorate	140	1495	Sodium hydrosulfide	135	2318

Name of Material	Guide No.	Guide No.	Name of Material	Guide No.	Guide No.
Sodium hydrosulphide, hydrated, with not less than 25% water of crystallization	154	2949	Sodium potassium alloys	138	1422
Sodium hydrosulphide, with less than 25% water of crystallization	135	2318	Sodium potassium alloys, liquid	138	1422
Sodium hydrosulphide, with not less than 25% water of crystallization	154	2949	Sodium potassium alloys, solid	138	3404
Sodium hydrosulphide	135	2318	Sodium silicofluoride	154	2674
Sodium hydroxide, solid	154	1823	Sodium sulfide, anhydrous	135	1385
Sodium hydroxide, solution	154	1824	Sodium sulfide, hydrated, with not less than 30% water	153	1849
Sodium hypochlorite	154	1791	Sodium sulfide, with less than 30% water of crystallization	135	1385
Sodium methylate	138	1431	Sodium sulphide, anhydrous	135	1385
Sodium methylate, dry	138	1431	Sodium sulphide, hydrated, with not less than 30% water	153	1849
Sodium methylate, solution in alcohol	132	1289	Sodium sulphide, with less than 30% water of crystallization	135	1385
Sodium monoxide	157	1825	Sodium superoxide	143	2547
Sodium nitrate	140	1498	Solids containing corrosive liquid, n.o.s.	154	3244
Sodium nitrate and Potassium nitrate mixture	140	1499	Solids containing flammable liquid, n.o.s.	133	3175
Sodium nitrite	140	1500	Solids containing poisonous liquid, n.o.s.	151	3243
Sodium nitrite and Potassium nitrate mixture	140	1487	Solids containing toxic liquid, n.o.s.	151	3243
Sodium pentachlorophenate	154	2567	Stannic chloride, anhydrous	137	1827
Sodium perborate monohydrate	140	3377	Stannic chloride, pentahydrate	154	2440
Sodium perchlorate	140	1502	Stannic phosphides	139	1433
Sodium permanganate	140	1503	Straw, wet, damp or contaminated with oil	133	1327
Sodium peroxide	144	1504	Strontium arsenite	151	1691
Sodium peroxoborate, anhydrous	140	3247	Strontium chlorate	143	1506
Sodium persulfate	140	1505	Strontium nitrate	140	1507
Sodium persulphate	140	1505	Strontium perchlorate	140	1508
Sodium picramate, wetted with not less than 20% water	113	1349			

Name of Material	Guide ID No.	Name of Material	Guide ID No.
Strontium peroxide	143 1509	Sulfuric acid, fuming, with not less than 30% free Sulphur trioxide	137 1834
Strychnine	151 1692	Sulfuric acid, spent	137 1832
Strychnine salts	151 1692	Sulfuric acid, with more than 51% acid	137 1830
Styrene monomer, stabilized	128P 2055	Sulfuric acid, with not more than 51% acid	157 2796
Substituted nitrophenol pesticide, liquid, flammable, poisonous	131 2780	Sulfuric acid and Hydrofluoric acid mixture	157 1786
Substituted nitrophenol pesticide, liquid, flammable, toxic	131 2780	Sulfurous acid	154 1833
Substituted nitrophenol pesticide, liquid, poisonous	153 3014	Sulphamic acid	154 2967
Substituted nitrophenol pesticide, liquid, poisonous, flammable	131 3013	Sulphur	133 1350
Substituted nitrophenol pesticide, liquid, toxic	153 3014	Sulphur, molten	133 2448
Substituted nitrophenol pesticide, liquid, toxic, flammable	131 3013	Sulphur dioxide	126 1079
Substituted nitrophenol pesticide, solid, poisonous	153 2779	Sulphur hexafluoride	126 1080
Substituted nitrophenol pesticide, solid, toxic	153 2779	Sulphuric acid	137 1830
Sulfamic acid	154 2967	Sulfuric acid, fuming, with less than 30% free Sulphur trioxide	137 1834
Sulfur	133 1350	Sulfuric acid, spent	137 1832
Sulfur, molten	133 2448	Sulfuric acid, with more than 51% acid	137 1830
Sulfur dioxide	126 1079	Sulfuric acid, with not more than 51% acid	157 2796
Sulfur hexafluoride	126 1080	Sulfuric acid and Hydrofluoric acid mixture	157 1786
Sulfuric acid	137 1830	Sulphurous acid	154 1833
Sulfuric acid, fuming	137 1834		
Sulfuric acid, fuming, with less than 30% free Sulphur trioxide	137 1834		

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Name of Material	Guide ID No.	Name of Material	Guide ID No.
Thiocarbamate pesticide, liquid, toxic, flammable	131 3005	2,4-Toluenediamine, solid	151 1709
Thiocarbamate pesticide, solid, poisonous	151 2771	2,4-Toluenediamine, solution	151 3418
Thiocarbamate pesticide, solid, toxic	151 2771	Toluene diisocyanate	156 2078
Thioglycol	153 2966	Toluidines, liquid	153 1708
Thioglycolic acid	153 1940	Toluidines, solid	153 1708
Thiolactic acid	153 2936	Toluidines, solid	153 3451
Thionyl chloride	157 1836	2,4-Toluylenediamine	151 1709
Thiophene	130 2414	2,4-Toluylenediamine, solid	151 1709
Thiophosgene	157 2797	2,4-Toluylenediamine, solution	151 3418
Thiophosphoryl chloride	157 1837	Thionyl chloride	157 1836
Thiourea dioxide	135 3341	Thionyl fluoride	157 1837
Tinctures, medicinal	127 1293	Tin tetrachloride	137 1827
Tin tetrachloride	137 1827	Titanium disulfide	135 3174
Titanium disulfide	135 3174	Titanium disulphide	135 3174
Titanium disulphide	135 3174	Titanium hydride	170 1871
Titanium hydride	170 1871	Titanium powder, dry	135 2546
Titanium powder, dry	135 2546	Titanium powder, wetted with not less than 25% water	170 1352
Titanium powder, wetted with not less than 25% water	170 1352	Titanium sponge granules	170 2878
Titanium sponge granules	170 2878	Titanium sponge powders	170 2878
Titanium sponge powders	170 2878	Titanium tetrachloride	135 2441
Titanium tetrachloride	135 2441	Titanium trichloride, pyrophoric	157 2869
Titanium trichloride, pyrophoric	157 2869	Titanium trichloride mixture	135 2441
Titanium trichloride mixture	135 2441	Titanium trichloride mixture, pyrophoric	135 2441
Titanium trichloride mixture, pyrophoric	135 2441	TNT, wetted with not less than 10% water	113 3366
TNT, wetted with not less than 10% water	113 3366	TNT, wetted with not less than 30% water	113 1356
TNT, wetted with not less than 30% water	113 1356	Toluene	130 1294
Toluene	130 1294		

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Name of Material	Guide ID No.	Name of Material	Guide ID No.
Tetrafluoromethane, compressed	126 1982	Tetrahydrofuran	127 2056
1,2,3,6-Tetrahydrobenzaldehyde	129 2498	Tetrahydrofurfurylamine	129 2943
Tetrahydrofuran	127 2056	Tetrahydrophthalic anhydrides	156 2698
Tetrahydrofurfurylamine	129 2943	1,2,3,6-Tetrahydropyridine	129 2410
Tetrahydrophthalic anhydrides	156 2698	Tetrahydrothiophene	130 2412
1,2,3,6-Tetrahydropyridine	129 2410	Tetramethylammonium hydroxide	153 1835
Tetrahydrothiophene	130 2412	Tetramethylammonium hydroxide, solid	153 3423
Tetramethylammonium hydroxide	153 1835	Tetramethylammonium hydroxide, solution	153 1835
Tetramethylammonium hydroxide, solid	153 3423	Tetramethylsilane	130 2749
Tetramethylammonium hydroxide, solution	153 1835	Tetramethyltin chloride	153 2699
Tetramethylsilane	130 2749	Tetrapropyl orthotitanate	128 2413
Tetramethyltin chloride	153 2699	Textile waste, wet	133 1857
Tetrapropyl orthotitanate	128 2413	Thallium chlorate	141 2573
Textile waste, wet	133 1857	Thallium compound, n.o.s.	151 1707
Thallium chlorate	141 2573	Thallium nitrate	141 2727
Thallium compound, n.o.s.	151 1707	4-Thiapentanal	152 2785
Thallium nitrate	141 2727	Thiobenzamide	153 2781
4-Thiapentanal	152 2785	Thioacetic acid	129 2436
Thiobenzamide	153 2781	Thiocarbamate pesticide, liquid, flammable, poisonous	131 2772
Thioacetic acid	129 2436	Thiocarbamate pesticide, liquid, flammable, toxic	131 2772
Thiocarbamate pesticide, liquid, flammable, poisonous	131 2772	Thiocarbamate pesticide, liquid, poisonous	151 3006
Thiocarbamate pesticide, liquid, flammable, toxic	131 2772	Thiocarbamate pesticide, liquid, poisonous, flammable	131 3005
Thiocarbamate pesticide, liquid, poisonous	151 3006	Thiocarbamate pesticide, liquid, toxic	151 3006
Thiocarbamate pesticide, liquid, poisonous, flammable	131 3005		
Thiocarbamate pesticide, liquid, toxic	151 3006		

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Name of Material	Guide ID No.	Name of Material	Guide ID No.
Toxic solid, self-heating, n.o.s.	136 3124	Toxic liquid, corrosive, inorganic, n.o.s.	154 3289
Toxic solid, water-reactive, n.o.s.	139 3125	Toxic liquid, corrosive, organic, n.o.s.	154 2927
Toxins	153 —	Toxic liquid, flammable, organic, n.o.s.	131 2929
Toxins, extracted from living sources, liquid, n.o.s.	153 3172	Toxic liquid, inorganic, n.o.s.	151 3287
Toxins, extracted from living sources, solid, n.o.s.	153 3172	Toxic liquid, organic, n.o.s.	153 2810
Toxins, extracted from living sources, solid, n.o.s.	153 3482	Toxic liquid, oxidizing, n.o.s.	142 3122
Triallylamine	132 2610	Toxic liquid, water-reactive, n.o.s.	139 3123
Triallyl borate	156 2609	Toxic solid, corrosive, inorganic, n.o.s.	154 3290
Triazine pesticide, liquid, flammable, poisonous	131 2764	Toxic solid, corrosive, organic, n.o.s.	154 2928
Triazine pesticide, liquid, flammable, toxic	131 2764	Toxic solid, flammable, organic, n.o.s.	134 2930
Triazine pesticide, liquid, poisonous	151 2998	Toxic solid, inorganic, n.o.s.	151 3288
Triazine pesticide, liquid, poisonous, flammable	131 2997	Toxic solid, organic, n.o.s.	154 2811
Triazine pesticide, liquid, toxic	151 2998	Toxic solid, oxidizing, n.o.s.	141 3086
Triazine pesticide, liquid, toxic, flammable	131 2997		
Triazine pesticide, solid, poisonous	151 2763		
Triazine pesticide, solid, toxic	151 2763		
Tributylamine	153 2542		
Tributylphosphane	135 3254		
Trichloroacetic acid	153 1839		
Trichloroacetic acid, solution	153 2564		
Trichlorobenzene, liquid	153 2321		
Trichlorobutene	152 2322		
1,1,1-Trichloroethane	160 2831		
Trichloroethylene	160 1710		

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Name of Material	Guide ID No.	Guide ID No.	Name of Material	Guide ID No.	Guide ID No.
Trichloroisocyanuric acid, dry	140	2468	Trimethyl phosphite	130	2329
Tricresyl phosphate	151	2574	Trinitrobenzene, wetted with not less than 10% water	113	3367
Triethylamine	132	1296	Trinitrobenzene, wetted with not less than 30% water	113	1354
Triethylenetetramine	153	2259	Trinitrobenzoic acid, wetted with not less than 10% water	113	3368
Triethyl phosphite	130	2323	Trinitrobenzoic acid, wetted with not less than 30% water	113	1355
Trifluoroacetic acid	154	2699	Trinitrochlorobenzene, wetted with not less than 10% water	113	3365
1,1,1-Trifluoroethane	115	2035	Trinitrophenol, wetted with not less than 10% water	113	3364
Trifluoromethane	126	1984	Trinitrophenol, wetted with not less than 30% water	113	1344
Trifluoromethane, refrigerated liquid	120	3136	Trinitrotoluene, wetted with not less than 10% water	113	3366
Trifluoromethane and Chlorotrifluoromethane azeotropic mixture with approximately 60% Chlorotrifluoromethane	126	2599	Trinitrotoluene, wetted with not less than 30% water	113	1356
2-Trifluoromethylaniline	153	2942	Tripopylamine	132	2260
3-Trifluoromethylaniline	153	2948	Tripopylene	128	2057
Triisobutylene	128	2324	Tris-(1-aziridinyl)phosphine oxide, solution	152	2501
Triisopropyl borate	129	2616	Turpentine	128	1299
Trimethylamine, anhydrous	118	1083	Turpentine substitute	128	1300
Trimethylamine, aqueous solution	132	1297	Undecane	128	2330
1,3,5-Trimethylbenzene	129	2325	Urea hydrogen peroxide	140	1511
Trimethyl borate	129	2416	Urea nitrate, wetted with not less than 10% water	113	3370
Trimethylcyclohexylamine	153	2326			
Trimethylhexamethylenediamines	153	2327			
Trimethylhexamethylene diisocyanate	156	2328			

Name of Material	Guide ID No.	Guide ID No.	Name of Material	Guide ID No.	Guide ID No.
Urea nitrate, wetted with not less than 20% water	113	1357	Water-reactive liquid, corrosive, n.o.s.	138	3129
Valeraldehyde	129	2058	Water-reactive liquid, n.o.s.	138	3148
Valeryl chloride	132	2502	Water-reactive liquid, poisonous, n.o.s.	139	3130
Vanadium compound, n.o.s.	151	3285	Water-reactive liquid, toxic, n.o.s.	139	3130
Vanadium oxytrichloride	137	2443	Water-reactive solid, corrosive, n.o.s.	138	3131
Vanadium pentoxide	151	2862	Water-reactive solid, flammable, n.o.s.	138	3132
Vanadium tetrachloride	137	2444	Water-reactive solid, n.o.s.	138	2813
Vanadium trichloride	157	2475	Water-reactive solid, oxidizing, n.o.s.	138	3133
Vanadyl sulfate	151	2931	Water-reactive solid, poisonous, n.o.s.	139	3134
Vanadyl sulphate	151	2931	Water-reactive solid, self-heating, n.o.s.	138	3135
Vehicle, flammable gas powered	115	3166	Water-reactive solid, toxic, n.o.s.	139	3134
Vehicle, flammable liquid powered	128	3166	Wheelchair, electric, with batteries	154	3171
Vehicle, fuel cell, flammable gas powered	115	3166	White asbestos	171	2590
Vehicle, fuel cell, flammable liquid powered	128	3166	White phosphorus, dry	136	1381
Vinyl acetate, stabilized	129P	1301	White phosphorus, in solution	136	1381
Vinyl bromide, stabilized	116P	1085	White phosphorus, molten	136	2447
Vinyl butyrate, stabilized	129P	2838	White phosphorus, under water	136	1381
Vinyl chloride, stabilized	116P	1086	Wood preservatives, liquid	129	1306
Vinyl chloroacetate	155	2589	Wool waste, wet	133	1387
Vinyl ethyl ether, stabilized	127P	1302	Xanthates	135	3342
Vinyl fluoride, stabilized	116P	1860	Xenon	121	2036
Vinylidene chloride, stabilized	130P	1303	Xenon, compressed	121	2036
Vinyl isobutyl ether, stabilized	127P	1304	Xenon, refrigerated liquid (cryogenic liquid)	120	2591
Vinyl methyl ether, stabilized	116P	1087	Xylenes	130	1307
Vinylpyridines, stabilized	131P	3073	Xylenols	153	2261
Vinyltoluenes, stabilized	130P	2618			

Name of Material	Guide ID No.	Guide ID No.	Name of Material	Guide ID No.	Guide ID No.
Xylenols, liquid	153	3430	Zinc peroxide	143	1516
Xylenols, solid	153	2261	Zinc phosphide	139	1714
Xylidines, liquid	153	1711	Zinc powder	138	1436
Xylidines, solid	153	1711	Zinc residue	138	1435
Xylidines, solid	153	3452	Zinc resinate	133	2714
Xylyl bromide	152	1701	Zinc silicofluoride	151	2855
Xylyl bromide, liquid	152	1701	Zinc skimmings	138	1435
Xylyl bromide, solid	152	3417	Zirconium, dry, coiled wire, finished metal sheets or strip	170	2858
Yellow phosphorus, dry	136	1381	Zirconium, dry, finished sheets, strips or coiled wire	135	2009
Yellow phosphorus, in solution	136	1381	Zirconium hydride	138	1437
Yellow phosphorus, under water	136	1381	Zirconium nitrate	140	2728
Zinc ammonium nitrite	140	1512	Zirconium picramate, wetted with not less than 20% water	113	1517
Zinc arsenate	151	1712	Zirconium powder, dry	135	2008
Zinc arsenate and Zinc arsenite mixture	151	1712	Zirconium powder, wetted with not less than 25% water	170	1358
Zinc arsenite	151	1712	Zirconium scrap	135	1932
Zinc arsenite and Zinc arsenate mixture	151	1712	Zirconium suspended in a flammable liquid	170	1308
Zinc ashes	138	1435	Zirconium suspended in a liquid (flammable)	170	1308
Zinc bromate	140	2469	Zirconium tetrachloride	137	2503
Zinc chlorate	140	1513			
Zinc chloride, anhydrous	154	2331			
Zinc chloride, solution	154	1840			
Zinc cyanide	151	1713			
Zinc dross	138	1435			
Zinc dust	138	1436			
Zinc fluorosilicate	151	2855			
Zinc nitrate	140	1514			
Zinc permanganate	140	1515			

# GUIDES

## GUIDE MIXED LOAD/UNIDENTIFIED CARGO

111

### POTENTIAL HAZARDS

#### FIRE OR EXPLOSION

- May explode from heat, shock, friction or contamination.
- May react violently or explosively on contact with air, water or foam.
- May be ignited by heat, sparks or flames.
- Vapors may travel to source of ignition and flash back.
- Containers may explode when heated.
- Ruptured cylinders may rocket.

#### HEALTH

- Inhalation, ingestion or contact with substance may cause severe injury, infection, disease or death.
- High concentration of gas may cause asphyxiation without warning.
- Contact may cause burns to skin and eyes.
- Fire or contact with water may produce irritating, toxic and/or corrosive gases.
- Runoff from fire control may cause pollution.

### PUBLIC SAFETY

- **CALL EMERGENCY RESPONSE Telephone Number on Shipping Paper first. If Shipping Paper not available or no answer, refer to appropriate telephone number listed on the inside back cover.**
- As an immediate precautionary measure, isolate spill or leak area for at least 100 meters (330 feet) in all directions.
- Keep unauthorized personnel away.
- Stay upwind, uphill and/or upstream.

#### PROTECTIVE CLOTHING

- Wear positive pressure self-contained breathing apparatus (SCBA).
- Structural firefighters' protective clothing provides limited protection in fire situations ONLY; it may not be effective in spill situations.

#### EVACUATION

- If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also, consider initial evacuation for 800 meters (1/2 mile) in all directions.

## MIXED LOAD/UNIDENTIFIED CARGO GUIDE

111

### EMERGENCY RESPONSE

#### FIRE

**CAUTION:** Material may react with extinguishing agent.

##### Small Fire

- Dry chemical, CO<sub>2</sub>, water spray or regular foam.

##### Large Fire

- Water spray, fog or regular foam.
- Move containers from fire area if you can do it without risk.

##### Fire involving Tanks

- Cool containers with flooding quantities of water until well after fire is out.
- Do not get water inside containers.
- Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
- ALWAYS stay away from tanks engulfed in fire.

#### SPILL OR LEAK

- Do not touch or walk through spilled material.
- ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area).
- All equipment used when handling the product must be grounded.
- Keep combustibles (wood, paper, oil, etc.) away from spilled material.
- Use water spray to reduce vapors or divert vapor cloud drift. Avoid allowing water runoff to contact spilled material.
- Prevent entry into waterways, sewers, basements or confined areas.

##### Small Spill

- Pick up with sand or other non-combustible absorbent material and place into containers for later disposal.

##### Large Spill

- Dike far ahead of liquid spill for later disposal.

#### FIRST AID

- Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.
- Move victim to fresh air.
- Call 911 or emergency medical service.
- Give artificial respiration if victim is not breathing.
- Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.
- Administer oxygen if breathing is difficult.
- Remove and isolate contaminated clothing and shoes.
- In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes.
- Shower and wash with soap and water.
- Keep victim calm and warm.
- Effects of exposure (inhalation, ingestion or skin contact) to substance may be delayed.

## GUIDE EXPLOSIVES\* - DIVISION 1.1, 1.2, 1.3 OR 1.5

112

### POTENTIAL HAZARDS

#### FIRE OR EXPLOSION

- MAY EXPLODE AND THROW FRAGMENTS 1600 METERS (1 MILE) OR MORE IF FIRE REACHES CARGO.
- For information on "Compatibility Group" letters, refer to Glossary section.

#### HEALTH

- Fire may produce irritating, corrosive and/or toxic gases.

### PUBLIC SAFETY

- **CALL EMERGENCY RESPONSE Telephone Number on Shipping Paper first. If Shipping Paper not available or no answer, refer to appropriate telephone number listed on the inside back cover.**
- Isolate spill or leak area immediately for at least 500 meters (1/3 mile) in all directions.
- Move people out of line of sight of the scene and away from windows.
- Keep unauthorized personnel away.
- Stay upwind, uphill and/or upstream.
- Ventilate closed spaces before entering.

#### PROTECTIVE CLOTHING

- Wear positive pressure self-contained breathing apparatus (SCBA).
- Structural firefighters' protective clothing will only provide limited protection.

#### EVACUATION

##### Large Spill

- Consider initial EVACUATION for 800 meters (1/2 mile) in all directions.

##### Fire

- If rail car or trailer is involved in a fire, ISOLATE for 1600 meters (1 mile) in all directions; also, initiate evacuation including emergency responders for 1600 meters (1 mile) in all directions.



In Canada, an Emergency Response Assistance Plan (ERAP) may be required for this product. Please consult the shipping document and/or the ERAP Program Section (page 391).

\* FOR INFORMATION ON "COMPATIBILITY GROUP" LETTERS, REFER TO THE GLOSSARY SECTION.

EXPLOSIVES\* - DIVISION 1.1, 1.2, 1.3 OR 1.5 **GUIDE**  
**112**

**EMERGENCY RESPONSE**

**FIRE**

**CARGO Fire**

- DO NOT fight fire when fire reaches cargo. Cargo may EXPLODE!
- Stop all traffic and clear the area for at least 1600 meters (1 mile) in all directions and let burn.
- Do not move cargo or vehicle if cargo has been exposed to heat.

**TIRE or VEHICLE Fire**

- Use plenty of water - FLOOD IT! If water is not available, use CO<sub>2</sub>, dry chemical or dirt.
- If possible, and WITHOUT RISK, use unmanned hose holders or monitor nozzles from maximum distance to prevent fire from spreading to cargo area.
- Pay special attention to tire fires as re-ignition may occur. Stand by, at a safe distance, with extinguisher ready for possible re-ignition.

**SPILL OR LEAK**

- ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area).
- All equipment used when handling the product must be grounded.
- Do not touch or walk through spilled material.
- DO NOT OPERATE RADIO TRANSMITTERS WITHIN 100 METERS (330 FEET) OF ELECTRIC DETONATORS.
- DO NOT CLEAN-UP OR DISPOSE OF, EXCEPT UNDER SUPERVISION OF A SPECIALIST.

**FIRST AID**

- Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.
- Move victim to fresh air.
- Call 911 or emergency medical service.
- Give artificial respiration if victim is not breathing.
- Administer oxygen if breathing is difficult.
- Remove and isolate contaminated clothing and shoes.
- In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes.

\* FOR INFORMATION ON "COMPATIBILITY GROUP" LETTERS, REFER TO THE GLOSSARY SECTION.

**GUIDE** FLAMMABLE SOLIDS - TOXIC  
**113** (WET/DESENSITIZED EXPLOSIVE)

**POTENTIAL HAZARDS**

**FIRE OR EXPLOSION**

- Flammable/combustible material.
- May be ignited by heat, sparks or flames.
- DRIED OUT material may explode if exposed to heat, flame, friction or shock; treat as an explosive (GUIDE 112).
- Keep material wet with water or treat as an explosive (GUIDE 112).
- Runoff to sewer may create fire or explosion hazard.

**HEALTH**

- Some are toxic and may be fatal if inhaled, swallowed or absorbed through skin.
- Contact may cause burns to skin and eyes.
- Fire may produce irritating, corrosive and/or toxic gases.
- Runoff from fire control or dilution water may cause pollution.

**PUBLIC SAFETY**

- CALL EMERGENCY RESPONSE Telephone Number on Shipping Paper first. If Shipping Paper not available or no answer, refer to appropriate telephone number listed on the inside back cover.
- Isolate spill or leak area immediately for at least 100 meters (330 feet) in all directions.
- Keep unauthorized personnel away.
- Stay upwind, uphill and/or upstream.
- Ventilate closed spaces before entering.

**PROTECTIVE CLOTHING**

- Wear positive pressure self-contained breathing apparatus (SCBA).
- Structural firefighters' protective clothing will only provide limited protection.

**EVACUATION**

**Large Spill**

- Consider initial EVACUATION for 500 meters (1/3 mile) in all directions.

**Fire**

- If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also, consider initial evacuation for 800 meters (1/2 mile) in all directions.



In Canada, an Emergency Response Assistance Plan (ERAP) may be required for this product. Please consult the shipping document and/or the ERAP Program Section (page 391).

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EMERG 113

FLAMMABLE SOLIDS - TOXIC **GUIDE**  
(WET/DESENSITIZED EXPLOSIVE) **113**

**EMERGENCY RESPONSE**

**FIRE**

**CARGO Fire**

- DO NOT fight fire when fire reaches cargo. Cargo may EXPLODE!
- Stop all traffic and clear the area for at least 1600 meters (1 mile) in all directions and let burn.
- Do not move cargo or vehicle if cargo has been exposed to heat.

**TIRE or VEHICLE Fire**

- Use plenty of water - FLOOD IT! If water is not available, use CO<sub>2</sub>, dry chemical or dirt.
- If possible, and WITHOUT RISK, use unmanned hose holders or monitor nozzles from maximum distance to prevent fire from spreading to cargo area.
- Pay special attention to tire fires as re-ignition may occur. Stand by, at a safe distance, with extinguisher ready for possible re-ignition.

**SPILL OR LEAK**

- ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area).
- All equipment used when handling the product must be grounded.
- Do not touch or walk through spilled material.

**Small Spill**

- Flush area with flooding quantities of water.

**Large Spill**

- Wet down with water and dike for later disposal.
- KEEP "WETTED" PRODUCT WET BY SLOWLY ADDING FLOODING QUANTITIES OF WATER.

**FIRST AID**

- Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.
- Move victim to fresh air.
- Call 911 or emergency medical service.
- Give artificial respiration if victim is not breathing.
- Administer oxygen if breathing is difficult.
- Remove and isolate contaminated clothing and shoes.
- In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes.

**GUIDE** EXPLOSIVES\* - DIVISION 1.4 OR 1.6  
**114**

**POTENTIAL HAZARDS**

**FIRE OR EXPLOSION**

- MAY EXPLODE AND THROW FRAGMENTS 500 METERS (1/3 MILE) OR MORE IF FIRE REACHES CARGO.
- For information on "Compatibility Group" letters, refer to Glossary section.

**HEALTH**

- Fire may produce irritating, corrosive and/or toxic gases.

**PUBLIC SAFETY**

- CALL EMERGENCY RESPONSE Telephone Number on Shipping Paper first. If Shipping Paper not available or no answer, refer to appropriate telephone number listed on the inside back cover.
- Isolate spill or leak area immediately for at least 100 meters (330 feet) in all directions.
- Move people out of line of sight of the scene and away from windows.
- Keep unauthorized personnel away.
- Stay upwind, uphill and/or upstream.
- Ventilate closed spaces before entering.

**PROTECTIVE CLOTHING**

- Wear positive pressure self-contained breathing apparatus (SCBA).
- Structural firefighters' protective clothing will only provide limited protection.

**EVACUATION**

**Large Spill**

- Consider initial EVACUATION for 250 meters (800 feet) in all directions.

**Fire**

- If rail car or trailer is involved in a fire, ISOLATE for 500 meters (1/3 mile) in all directions; also initiate evacuation including emergency responders for 500 meters (1/3 mile) in all directions.



In Canada, an Emergency Response Assistance Plan (ERAP) may be required for this product. Please consult the shipping document and/or the ERAP Program Section (page 391).

\* FOR INFORMATION ON "COMPATIBILITY GROUP" LETTERS, REFER TO THE GLOSSARY SECTION.

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EXPLOSIVES\* - DIVISION 1.4 OR 1.6 **GUIDE 114**

**EMERGENCY RESPONSE**

**FIRE**

**CARGO Fire**

- DO NOT fight fire when fire reaches cargo! Cargo may EXPLODE!
- Stop all traffic and clear the area for at least 500 meters (1/3 mile) in all directions and let burn.
- Do not move cargo or vehicle if cargo has been exposed to heat.

**TIRE or VEHICLE Fire**

- Use plenty of water - FLOOD IT! If water is not available, use CO<sub>2</sub>, dry chemical or dirt.
- If possible, and WITHOUT RISK, use unmanned hose holders or monitor nozzles from maximum distance to prevent fire from spreading to cargo area.
- Pay special attention to tire fires as re-ignition may occur. Stand by, at a safe distance, with extinguisher ready for possible re-ignition.

**SPILOVERLEAK**

- ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area).
- All equipment used when handling the product must be grounded.
- Do not touch or walk through spilled material.
- DO NOT OPERATE RADIO TRANSMITTERS WITHIN 100 METERS (330 FEET) OF ELECTRIC DETONATORS.
- DO NOT CLEAN-UP OR DISPOSE OF, EXCEPT UNDER SUPERVISION OF A SPECIALIST.

**FIRST AID**

- Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.
- Move victim to fresh air.
- Call 911 or emergency medical service.
- Give artificial respiration if victim is not breathing.
- Administer oxygen if breathing is difficult.
- Remove and isolate contaminated clothing and shoes.
- In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes.

**SUPPLEMENTAL INFORMATION**

- Packages bearing the 1.4S label or packages containing material classified as 1.4S are designed or packaged in such a manner that when involved in a fire, they may burn vigorously with localized detonations and projection of fragments.
- Effects are usually confined to immediate vicinity of packages.
- If fire threatens cargo area containing packages bearing the 1.4S label or packages containing material classified as 1.4S, consider isolating at least 15 meters (50 feet) in all directions. Fight fire with normal precautions from a reasonable distance.

\* FOR INFORMATION ON "COMPATIBILITY GROUP" LETTERS, REFER TO THE GLOSSARY SECTION.

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**GASES - FLAMMABLE (INCLUDING REFRIGERATED LIQUIDS) GUIDE 115**

**EMERGENCY RESPONSE**

**FIRE**

- DO NOT EXTINGUISH A LEAKING GAS FIRE UNLESS LEAK CAN BE STOPPED.
- CAUTION: Hydrogen (UN1049), Deuterium (UN1957) and Hydrogen, refrigerated liquid (UN1966) burn with an invisible flame. Hydrogen and Methane mixture, compressed (UN2034) may burn with an invisible flame.

**Small Fire**

- Dry chemical or CO<sub>2</sub>.

**Large Fire**

- Water spray or fog.
- Move containers from fire area if you can do it without risk.

**Fire Involving Tanks**

- Fight fire from maximum distance or use unmanned hose holders or monitor nozzles.
- Cool containers with flooding quantities of water until well after fire is out.
- Do not direct water at source of leak or safety devices; icing may occur.
- Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
- ALWAYS stay away from tanks engulfed in fire.
- For massive fire, use unmanned hose holders or monitor nozzles; if this is impossible, withdraw from area and let fire burn.

**SPILOVERLEAK**

- ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area).
- All equipment used when handling the product must be grounded.
- Do not touch or walk through spilled material.
- Stop leak if you can do it without risk.
- If possible, turn leaking containers so that gas escapes rather than liquid.
- Use water spray to reduce vapors or divert vapor cloud drift. Avoid allowing water runoff to contact spilled material.
- Do not direct water at spill or source of leak.
- Prevent spreading of vapors through sewers, ventilation systems and confined areas.
- Isolate area until gas has dispersed.

CAUTION: When in contact with refrigerated/cryogenic liquids, many materials become brittle and are likely to break without warning.

**FIRST AID**

- Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.
- Move victim to fresh air.
- Call 911 or emergency medical service.
- Give artificial respiration if victim is not breathing.
- Administer oxygen if breathing is difficult.
- Remove and isolate contaminated clothing and shoes.
- Clothing frozen to the skin should be thawed before being removed.
- In case of contact with liquefied gas, thaw frosted parts with lukewarm water.
- In case of burns, immediately cool affected skin for as long as possible with cold water. Do not remove clothing if adhering to skin.
- Keep victim calm and warm.

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**GUIDE 115 GASES - FLAMMABLE (INCLUDING REFRIGERATED LIQUIDS)**

**POTENTIAL HAZARDS**

**FIRE OR EXPLOSION**

- EXTREMELY FLAMMABLE.
- Will be easily ignited by heat, sparks or flames.
- Will form explosive mixtures with air.
- Vapors from liquefied gas are initially heavier than air and spread along ground.
- CAUTION: Hydrogen (UN1049), Deuterium (UN1957), Hydrogen, refrigerated liquid (UN1966) and Methane (UN1971) are lighter than air and will rise. Hydrogen and Deuterium fires are difficult to detect since they burn with an invisible flame. Use an alternate method of detection (thermal camera, broom handle, etc.)
- Vapors may travel to source of ignition and flash back.
- Cylinders exposed to fire may vent and release flammable gas through pressure relief devices.
- Containers may explode when heated.
- Ruptured cylinders may rocket.

**HEALTH**

- Vapors may cause dizziness or asphyxiation without warning.
- Some may be irritating if inhaled at high concentrations.
- Contact with gas or liquefied gas may cause burns, severe injury and/or frostbite.
- Fire may produce irritating and/or toxic gases.

**PUBLIC SAFETY**

- CALL EMERGENCY RESPONSE Telephone Number on Shipping Paper first. If Shipping Paper not available or no answer, refer to appropriate telephone number listed on the inside back cover.
- As an immediate precautionary measure, isolate spill or leak area for at least 100 meters (330 feet) in all directions.
- Keep unauthorized personnel away.
- Stay upwind, uphill and/or upsteam.
- Many gases are heavier than air and will spread along ground and collect in low or confined areas (sewers, basements, tanks).

**PROTECTIVE CLOTHING**

- Wear positive pressure self-contained breathing apparatus (SCBA).
- Structural firefighters' protective clothing will only provide limited protection.
- Always wear thermal protective clothing when handling refrigerated/cryogenic liquids.

**EVACUATION**

**Large Spill**

- Consider initial downwind evacuation for at least 800 meters (1/2 mile).

**Fire**

- If tank, rail car or tank truck is involved in a fire, ISOLATE for 1600 meters (1 mile) in all directions; also, consider initial evacuation for 1600 meters (1 mile) in all directions.
- In fires involving Liquefied Petroleum Gases (LPG) (UN1075); Butane, (UN1011); Butylene, (UN1012); Isobutylene, (UN1055); Propylene, (UN1077); Isobutane, (UN1969); and Propane, (UN1978), also refer to BLEVE - SAFETY PRECAUTIONS (Page 368)



In Canada, an Emergency Response Assistance Plan (ERAP) may be required for this product. Please consult the shipping document and/or the ERAP Program Section (page 391).

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**GUIDE 116 GASES - FLAMMABLE (UNSTABLE)**

**POTENTIAL HAZARDS**

**FIRE OR EXPLOSION**

- EXTREMELY FLAMMABLE.
- Will be easily ignited by heat, sparks or flames.
- Will form explosive mixtures with air.
- Silane (UN2203) will ignite spontaneously in air.
- Those substances designated with a (P) may polymerize explosively when heated or involved in a fire.
- Vapors from liquefied gas are initially heavier than air and spread along ground.
- Vapors may travel to source of ignition and flash back.
- Cylinders exposed to fire may vent and release flammable gas through pressure relief devices.
- Containers may explode when heated.
- Ruptured cylinders may rocket.

**HEALTH**

- Vapors may cause dizziness or asphyxiation without warning.
- Some may be toxic if inhaled at high concentrations.
- Contact with gas or liquefied gas may cause burns, severe injury and/or frostbite.
- Fire may produce irritating and/or toxic gases.

**PUBLIC SAFETY**

- CALL EMERGENCY RESPONSE Telephone Number on Shipping Paper first. If Shipping Paper not available or no answer, refer to appropriate telephone number listed on the inside back cover.
- As an immediate precautionary measure, isolate spill or leak area for at least 100 meters (330 feet) in all directions.
- Keep unauthorized personnel away.
- Stay upwind, uphill and/or upsteam.
- Many gases are heavier than air and will spread along ground and collect in low or confined areas (sewers, basements, tanks).

**PROTECTIVE CLOTHING**

- Wear positive pressure self-contained breathing apparatus (SCBA).
- Structural firefighters' protective clothing will only provide limited protection.

**EVACUATION**

**Large Spill**

- Consider initial downwind evacuation for at least 800 meters (1/2 mile).

**Fire**

- If tank, rail car or tank truck is involved in a fire, ISOLATE for 1600 meters (1 mile) in all directions; also, consider initial evacuation for 1600 meters (1 mile) in all directions.



In Canada, an Emergency Response Assistance Plan (ERAP) may be required for this product. Please consult the shipping document and/or the ERAP Program Section (page 391).

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**GASES - FLAMMABLE (UNSTABLE) GUIDE 116**

**EMERGENCY RESPONSE**

**FIRE**

DO NOT EXTINGUISH A LEAKING GAS FIRE UNLESS LEAK CAN BE STOPPED.

**Small Fire**

- Dry chemical or CO<sub>2</sub>.

**Large Fire**

- Water spray or fog.
- Move containers from fire area if you can do it without risk.

**Fire Involving Tanks**

- Fight fire from maximum distance or use unmanned hose holders or monitor nozzles.
- Cool containers with flooding quantities of water until well after fire is out.
- Do not direct water at source of leak or safety devices; icing may occur.
- Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
- ALWAYS stay away from tanks engulfed in fire.
- For massive fire, use unmanned hose holders or monitor nozzles; if this is impossible, withdraw from area and let fire burn.

**SPILL OR LEAK**

- ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area).
- All equipment used when handling the product must be grounded.
- Stop leak if you can do it without risk.
- Do not touch or walk through spilled material.
- Do not direct water at spill or source of leak.
- Use water spray to reduce vapors or divert vapor cloud drift. Avoid allowing water runoff to contact spilled material.
- If possible, turn leaking containers so that gas escapes rather than liquid.
- Prevent entry into waterways, sewers, basements or confined areas.
- Isolate area until gas has dispersed.

**FIRST AID**

- Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.
- Move victim to fresh air.
- Call 911 or emergency medical service.
- Give artificial respiration if victim is not breathing.
- Administer oxygen if breathing is difficult.
- Remove and isolate contaminated clothing and shoes.
- In case of contact with liquefied gas, thaw frosted parts with lukewarm water.
- In case of burns, immediately cool affected skin for as long as possible with cold water. Do not remove clothing if adhering to skin.
- Keep victim calm and warm.

**GUIDE 117 GASES - TOXIC - FLAMMABLE (EXTREME HAZARD)**

**POTENTIAL HAZARDS**

**HEALTH**

- TOXIC; Extremely Hazardous.
- May be fatal if inhaled or absorbed through skin.
- Initial odor may be irritating or foul and may deaden your sense of smell.
- Contact with gas or liquefied gas may cause burns, severe injury and/or frostbite.
- Fire will produce irritating, corrosive and/or toxic gases.
- Runoff from fire control may cause pollution.

**FIRE OR EXPLOSION**

- These materials are extremely flammable.
- May form explosive mixtures with air.
- May be ignited by heat, sparks or flames.
- Vapors from liquefied gas are initially heavier than air and spread along ground.
- Vapors may travel to source of ignition and flash back.
- Runoff may create fire or explosion hazard.
- Cylinders exposed to fire may vent and release toxic and flammable gas through pressure relief devices.
- Containers may explode when heated.
- Ruptured cylinders may rocket.

**PUBLIC SAFETY**

- CALL EMERGENCY RESPONSE Telephone Number on Shipping Paper first. If Shipping Paper not available or no answer, refer to appropriate telephone number listed on the inside back cover.
- As an immediate precautionary measure, isolate spill or leak area for at least 100 meters (330 feet) in all directions.
- Keep unauthorized personnel away.
- Stay upwind, uphill and/or upstream.
- Many gases are heavier than air and will spread along ground and collect in low or confined areas (sewers, basements, tanks).
- Ventilate closed spaces before entering.

**PROTECTIVE CLOTHING**

- Wear positive pressure self-contained breathing apparatus (SCBA).
- Wear chemical protective clothing that is specifically recommended by the manufacturer. It may provide little or no thermal protection.
- Structural firefighters' protective clothing provides limited protection in fire situations ONLY; it is not effective in spill situations where direct contact with the substance is possible.

**EVACUATION**

**Spill**

- See Table 1 in the ERAP section of the shipping document.

**Fire**

- If tank, rail car or tank truck is involved in a fire, ISOLATE for 1600 meters (1 mile) in all directions; also, consider initial evacuation for 1600 meters (1 mile) in all directions.



In Canada, an Emergency Response Assistance Plan (ERAP) may be required for this product. Please consult the shipping document and/or the ERAP Program Section (page 391).

**GASES - TOXIC - FLAMMABLE (EXTREME HAZARD) GUIDE 117**

**EMERGENCY RESPONSE**

**FIRE**

DO NOT EXTINGUISH A LEAKING GAS FIRE UNLESS LEAK CAN BE STOPPED.

**Small Fire**

- Dry chemical, CO<sub>2</sub>, water spray or regular foam.

**Large Fire**

- Water spray, fog or regular foam.
- Move containers from fire area if you can do it without risk.
- Damaged cylinders should be handled only by specialists.

**Fire Involving Tanks**

- Fight fire from maximum distance or use unmanned hose holders or monitor nozzles.
- Cool containers with flooding quantities of water until well after fire is out.
- Do not direct water at source of leak or safety devices; icing may occur.
- Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
- ALWAYS stay away from tanks engulfed in fire.

**SPILL OR LEAK**

- ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area).
- All equipment used when handling the product must be grounded.
- Fully encapsulating, vapor-protective clothing should be worn for spills and leaks with no fire.
- Do not touch or walk through spilled material.
- Stop leak if you can do it without risk.
- Use water spray to reduce vapors or divert vapor cloud drift. Avoid allowing water runoff to contact spilled material.
- Do not direct water at spill or source of leak.
- If possible, turn leaking containers so that gas escapes rather than liquid.
- Prevent entry into waterways, sewers, basements or confined areas.
- Isolate area until gas has dispersed.
- Consider igniting spill or leak to eliminate toxic gas concerns.

**FIRST AID**

- Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.
- Move victim to fresh air.
- Call 911 or emergency medical service.
- Give artificial respiration if victim is not breathing.
- Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.
- Administer oxygen if breathing is difficult.
- Remove and isolate contaminated clothing and shoes.
- In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes.
- In case of contact with liquefied gas, thaw frosted parts with lukewarm water.
- In case of burns, immediately cool affected skin for as long as possible with cold water. Do not remove clothing if adhering to skin.
- Keep victim calm and warm.
- Keep victim under observation.
- Effects of contact or inhalation may be delayed.

**GUIDE 118 GASES - FLAMMABLE - CORROSIVE**

**POTENTIAL HAZARDS**

**FIRE OR EXPLOSION**

- EXTREMELY FLAMMABLE.
- May be ignited by heat, sparks or flames.
- May form explosive mixtures with air.
- Vapors from liquefied gas are initially heavier than air and spread along ground.
- Vapors may travel to source of ignition and flash back.
- Some of these materials may react violently with water.
- Cylinders exposed to fire may vent and release flammable gas through pressure relief devices.
- Containers may explode when heated.
- Ruptured cylinders may rocket.

**HEALTH**

- May cause toxic effects if inhaled.
- Vapors are extremely irritating.
- Contact with gas or liquefied gas may cause burns, severe injury and/or frostbite.
- Fire will produce irritating, corrosive and/or toxic gases.
- Runoff from fire control may cause pollution.

**PUBLIC SAFETY**

- CALL EMERGENCY RESPONSE Telephone Number on Shipping Paper first. If Shipping Paper not available or no answer, refer to appropriate telephone number listed on the inside back cover.
- As an immediate precautionary measure, isolate spill or leak area for at least 100 meters (330 feet) in all directions.
- Keep unauthorized personnel away.
- Stay upwind, uphill and/or upstream.
- Many gases are heavier than air and will spread along ground and collect in low or confined areas (sewers, basements, tanks).
- Ventilate closed spaces before entering.

**PROTECTIVE CLOTHING**

- Wear positive pressure self-contained breathing apparatus (SCBA).
- Wear chemical protective clothing that is specifically recommended by the manufacturer. It may provide little or no thermal protection.
- Structural firefighters' protective clothing provides limited protection in fire situations ONLY; it is not effective in spill situations where direct contact with the substance is possible.

**EVACUATION**

**Large Spill**

- Consider initial downwind evacuation for at least 800 meters (1/2 mile).

**Fire**

- If tank, rail car or tank truck is involved in a fire, ISOLATE for 1600 meters (1 mile) in all directions; also, consider initial evacuation for 1600 meters (1 mile) in all directions.



In Canada, an Emergency Response Assistance Plan (ERAP) may be required for this product. Please consult the shipping document and/or the ERAP Program Section (page 391).

**EMERGENCY RESPONSE**

**FIRE**

• DO NOT EXTINGUISH A LEAKING GAS FIRE UNLESS LEAK CAN BE STOPPED.

Small Fire

• Dry chemical or CO<sub>2</sub>

Large Fire

- Water spray, fog or regular foam.
- Move containers from fire area if you can do it without risk.
- Damaged cylinders should be handled only by specialists.

Fire involving Tanks

- Fight fire from maximum distance or use unmanned hose holders or monitor nozzles.
- Cool containers with flooding quantities of water until well after fire is out.
- Do not direct water at source of leak or safety devices; icing may occur.
- Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
- ALWAYS stay away from tanks engulfed in fire.

**SPILL OR LEAK**

- ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area).
- All equipment used when handling the product must be grounded.
- Fully encapsulating, vapor-protective clothing should be worn for spills and leaks with no fire.
- Do not touch or walk through spilled material.
- Stop leak if you can do it without risk.
- If possible, turn leaking containers so that gas escapes rather than liquid.
- Use water spray to reduce vapors or divert vapor cloud drift. Avoid allowing water runoff to contact spilled material.
- Do not direct water at spill or source of leak.
- Isolate area until gas has dispersed.

**FIRST AID**

- Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.
- Move victim to fresh air.
- Call 911 or emergency medical service.
- Give artificial respiration if victim is not breathing.
- Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.
- Administer oxygen if breathing is difficult.
- Remove and isolate contaminated clothing and shoes.
- In case of contact with liquefied gas, thaw frosted parts with lukewarm water.
- In case of burns, immediately cool affected skin for as long as possible with cold water. Do not remove clothing if adhering to skin.
- Keep victim calm and warm.
- Keep victim under observation.
- Effects of contact or inhalation may be delayed.

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**EMERGENCY RESPONSE**

**FIRE**

• DO NOT EXTINGUISH A LEAKING GAS FIRE UNLESS LEAK CAN BE STOPPED.

Small Fire

• Dry chemical, CO<sub>2</sub>, water spray or alcohol-resistant foam.

Large Fire

- Water spray, fog or alcohol-resistant foam.
- FOR CHLOROSILANES, DO NOT USE WATER; use AFFF alcohol-resistant medium-expansion foam.
- Move containers from fire area if you can do it without risk.
- Damaged cylinders should be handled only by specialists.

Fire involving Tanks

- Fight fire from maximum distance or use unmanned hose holders or monitor nozzles.
- Cool containers with flooding quantities of water until well after fire is out.
- Do not direct water at source of leak or safety devices; icing may occur.
- Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
- ALWAYS stay away from tanks engulfed in fire.

**SPILL OR LEAK**

- ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area).
- All equipment used when handling the product must be grounded.
- Fully encapsulating, vapor-protective clothing should be worn for spills and leaks with no fire.
- Do not touch or walk through spilled material.
- Stop leak if you can do it without risk.
- Do not direct water at spill or source of leak.
- Use water spray to reduce vapors or divert vapor cloud drift. Avoid allowing water runoff to contact spilled material.
- FOR CHLOROSILANES, use AFFF alcohol-resistant medium-expansion foam to reduce vapors.
- If possible, turn leaking containers so that gas escapes rather than liquid.
- Prevent entry into waterways, sewers, basements or confined areas.
- Isolate area until gas has dispersed.

**FIRST AID**

- Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.
- Move victim to fresh air. • Call 911 or emergency medical service.
- Give artificial respiration if victim is not breathing.
- Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.
- Administer oxygen if breathing is difficult.
- Remove and isolate contaminated clothing and shoes.
- In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes.
- In case of contact with liquefied gas, thaw frosted parts with lukewarm water.
- In case of burns, immediately cool affected skin for as long as possible with cold water. Do not remove clothing if adhering to skin.
- Keep victim calm and warm.
- Keep victim under observation.
- Effects of contact or inhalation may be delayed.

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**POTENTIAL HAZARDS**

**HEALTH**

- TOXIC; may be fatal if inhaled or absorbed through skin.
- Contact with gas or liquefied gas may cause burns, severe injury and/or frostbite.
- Fire will produce irritating, corrosive and/or toxic gases.
- Runoff from fire control may cause pollution.

**FIRE OR EXPLOSION**

- Flammable; may be ignited by heat, sparks or flames.
- May form explosive mixtures with air.
- Those substances designated with a (P) may polymerize explosively when heated or involved in a fire.
- Vapors from liquefied gas are initially heavier than air and spread along ground.
- Vapors may travel to source of ignition and flash back.
- Some of these materials may react violently with water.
- Cylinders exposed to fire may vent and release toxic and flammable gas through pressure relief devices.
- Containers may explode when heated.
- Ruptured cylinders may rocket.
- Runoff may create fire or explosion hazard.

**PUBLIC SAFETY**

- CALL EMERGENCY RESPONSE Telephone Number on Shipping Paper first. If Shipping Paper not available or no answer, refer to appropriate telephone number listed on the inside back cover.
- As an immediate precautionary measure, isolate spill or leak area for at least 100 meters (330 feet) in all directions.
- Keep unauthorized personnel away.
- Stay upwind, uphill and/or upstream.
- Many gases are heavier than air and will spread along ground and collect in low or confined areas (sewers, basements, tanks).
- Ventilate closed spaces before entering.

**PROTECTIVE CLOTHING**

- Wear positive pressure self-contained breathing apparatus (SCBA).
- Wear chemical protective clothing that is specifically recommended by the manufacturer. It may provide little or no thermal protection.
- Structural firefighters' protective clothing provides limited protection in fire situations ONLY; it is not effective in spill situations where direct contact with the substance is possible.

**EVACUATION**

Spill

- See **Table 1.1 - Initial Downwind Evacuation Distances** for highlighted materials. For non-highlighted materials, increase, in the downwind direction, as necessary, the isolation distance shown under "PUBLIC SAFETY".

Fire

- If tank, rail car or tank truck is involved in a fire, ISOLATE for 1600 meters (1 mile) in all directions; also, consider initial evacuation for 1600 meters (1 mile) in all directions.



In Canada, an Emergency Response Assistance Plan (ERAP) may be required for this product. Please consult the shipping document and/or the ERAP Program Section (page 391).

**POTENTIAL HAZARDS**

**HEALTH**

- Vapors may cause dizziness or asphyxiation without warning.
- Vapors from liquefied gas are initially heavier than air and spread along ground.
- Contact with gas or liquefied gas may cause burns, severe injury and/or frostbite.

**FIRE OR EXPLOSION**

- Non-flammable gases.
- Containers may explode when heated.
- Ruptured cylinders may rocket.

**PUBLIC SAFETY**

- CALL EMERGENCY RESPONSE Telephone Number on Shipping Paper first. If Shipping Paper not available or no answer, refer to appropriate telephone number listed on the inside back cover.
- As an immediate precautionary measure, isolate spill or leak area for at least 100 meters (330 feet) in all directions.
- Keep unauthorized personnel away.
- Stay upwind, uphill and/or upstream.
- Many gases are heavier than air and will spread along ground and collect in low or confined areas (sewers, basements, tanks).
- Ventilate closed spaces before entering.

**PROTECTIVE CLOTHING**

- Wear positive pressure self-contained breathing apparatus (SCBA).
- Structural firefighters' protective clothing will only provide limited protection.
- Always wear thermal protective clothing when handling refrigerated/cryogenic liquids or solids.

**EVACUATION**

Large Spill

- Consider initial downwind evacuation for at least 100 meters (330 feet).

Fire

- If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also, consider initial evacuation for 800 meters (1/2 mile) in all directions.

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**EMERGENCY RESPONSE**

**FIRE**

- Use extinguishing agent suitable for type of surrounding fire.
  - Move containers from fire area if you can do it without risk.
  - Damaged cylinders should be handled only by specialists.
- Fire Involving Tanks**
- Fight fire from maximum distance or use unmanned hose holders or monitor nozzles.
  - Cool containers with flooding quantities of water until well after fire is out.
  - Do not direct water at source of leak or safety devices; icing may occur.
  - Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
  - ALWAYS stay away from tanks engulfed in fire.

**SPILL OR LEAK**

- Do not touch or walk through spilled material.
- Stop leak if you can do it without risk.
- Use water spray to reduce vapors or divert vapor cloud drift. Avoid allowing water runoff to contact spilled material.
- Do not direct water at spill or source of leak.
- If possible, turn leaking containers so that gas escapes rather than liquid.
- Prevent entry into waterways, sewers, basements or confined areas.
- Allow substance to evaporate.
- Ventilate the area.

**CAUTION:** When in contact with refrigerated/cryogenic liquids, many materials become brittle and are likely to break without warning.

**FIRST AID**

- Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.
- Move victim to fresh air.
- Call 911 or emergency medical service.
- Give artificial respiration if victim is not breathing.
- Administer oxygen if breathing is difficult.
- Clothing frozen to the skin should be thawed before being removed.
- In case of contact with liquefied gas, thaw frosted parts with lukewarm water.
- Keep victim calm and warm.

**POTENTIAL HAZARDS**

**HEALTH**

- Vapors may cause dizziness or asphyxiation without warning.
- Vapors from liquefied gas are initially heavier than air and spread along ground.

**FIRE OR EXPLOSION**

- Non-flammable gases.
- Containers may explode when heated.
- Ruptured cylinders may rocket.

**PUBLIC SAFETY**

- **CALL EMERGENCY RESPONSE Telephone Number on Shipping Paper first.** If Shipping Paper not available or no answer, refer to appropriate telephone number listed on the inside back cover.
- As an immediate precautionary measure, isolate spill or leak area for at least 100 meters (330 feet) in all directions.
- Keep unauthorized personnel away.
- Stay upwind, uphill and/or upstream.
- Many gases are heavier than air and will spread along ground and collect in low or confined areas (sewers, basements, tanks).
- Ventilate closed spaces before entering.

**PROTECTIVE CLOTHING**

- Wear positive pressure self-contained breathing apparatus (SCBA).
- Structural firefighters' protective clothing will only provide limited protection.

**EVACUATION**

- Large Spill**
- Consider initial downwind evacuation for at least 100 meters (330 feet).
- Fire**
- If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also, consider initial evacuation for 800 meters (1/2 mile) in all directions.

**EMERGENCY RESPONSE**

**FIRE**

- Use extinguishing agent suitable for type of surrounding fire.
  - Move containers from fire area if you can do it without risk.
  - Damaged cylinders should be handled only by specialists.
- Fire Involving Tanks**
- Fight fire from maximum distance or use unmanned hose holders or monitor nozzles.
  - Cool containers with flooding quantities of water until well after fire is out.
  - Do not direct water at source of leak or safety devices; icing may occur.
  - Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
  - ALWAYS stay away from tanks engulfed in fire.

**SPILL OR LEAK**

- Do not touch or walk through spilled material.
- Stop leak if you can do it without risk.
- Use water spray to reduce vapors or divert vapor cloud drift. Avoid allowing water runoff to contact spilled material.
- Do not direct water at spill or source of leak.
- If possible, turn leaking containers so that gas escapes rather than liquid.
- Prevent entry into waterways, sewers, basements or confined areas.
- Allow substance to evaporate.
- Ventilate the area.

**FIRST AID**

- Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.
- Move victim to fresh air.
- Call 911 or emergency medical service.
- Give artificial respiration if victim is not breathing.
- Administer oxygen if breathing is difficult.
- Keep victim calm and warm.

**POTENTIAL HAZARDS**

**FIRE OR EXPLOSION**

- Substance does not burn but will support combustion.
- Some may react explosively with fuels.
- May ignite combustibles (wood, paper, oil, clothing, etc.).
- Vapors from liquefied gas are initially heavier than air and spread along ground.
- Runoff may create fire or explosion hazard.
- Containers may explode when heated.
- Ruptured cylinders may rocket.

**HEALTH**

- Vapors may cause dizziness or asphyxiation without warning.
- Contact with gas or liquefied gas may cause burns, severe injury and/or frostbite.
- Fire may produce irritating and/or toxic gases.

**PUBLIC SAFETY**

- **CALL EMERGENCY RESPONSE Telephone Number on Shipping Paper first.** If Shipping Paper not available or no answer, refer to appropriate telephone number listed on the inside back cover.
- As an immediate precautionary measure, isolate spill or leak area for at least 100 meters (330 feet) in all directions.
- Keep unauthorized personnel away.
- Stay upwind, uphill and/or upstream.
- Many gases are heavier than air and will spread along ground and collect in low or confined areas (sewers, basements, tanks).
- Ventilate closed spaces before entering.

**PROTECTIVE CLOTHING**

- Wear positive pressure self-contained breathing apparatus (SCBA).
- Wear chemical protective clothing that is specifically recommended by the manufacturer. It may provide little or no thermal protection.
- Structural firefighters' protective clothing provides limited protection in fire situations ONLY; it is not effective in spill situations where direct contact with the substance is possible.
- Always wear thermal protective clothing when handling refrigerated/cryogenic liquids.

**EVACUATION**

- Large Spill**
- Consider initial downwind evacuation for at least 500 meters (1/3 mile).
- Fire**
- If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also, consider initial evacuation for 800 meters (1/2 mile) in all directions.



In Canada, an Emergency Response Assistance Plan (ERAP) may be required for this product. Please consult the shipping document and/or the ERAP Program Section (page 391).

GASES - OXIDIZING GUIDE 122  
(INCLUDING REFRIGERATED LIQUIDS)

EMERGENCY RESPONSE

**FIRE**

- Use extinguishing agent suitable for type of surrounding fire.

**Small Fire**

- Dry chemical or CO<sub>2</sub>.

**Large Fire**

- Water spray, fog or regular foam.
- Move containers from fire area if you can do it without risk.
- Damaged cylinders should be handled only by specialists.

**Fire involving Tanks**

- Fight fire from maximum distance or use unmanned hose holders or monitor nozzles.
- Cool containers with flooding quantities of water until well after fire is out.
- Do not direct water at source of leak or safety devices; icing may occur.
- Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
- ALWAYS stay away from tanks engulfed in fire.
- For massive fire, use unmanned hose holders or monitor nozzles; if this is impossible, withdraw from area and let fire burn.

**SPILL OR LEAK**

- Keep combustibles (wood, paper, oil, etc.) away from spilled material.
- Do not touch or walk through spilled material.
- Stop leak if you can do it without risk.
- If possible, turn leaking containers so that gas escapes rather than liquid.
- Do not direct water at spill or source of leak.
- Use water spray to reduce vapors or divert vapor cloud drift. Avoid allowing water runoff to contact spilled material.
- Prevent entry into waterways, sewers, basements or confined areas.
- Allow substance to evaporate.
- Isolate area until gas has dispersed.

**CAUTION:** When in contact with refrigerated/cryogenic liquids, many materials become brittle and are likely to break without warning.

**FIRST AID**

- Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.
- Move victim to fresh air.
- Call 911 or emergency medical service.
- Give artificial respiration if victim is not breathing.
- Administer oxygen if breathing is difficult.
- Remove and isolate contaminated clothing and shoes.
- Clothing frozen to the skin should be thawed before being removed.
- In case of contact with liquefied gas, thaw frosted parts with lukewarm water.
- Keep victim calm and warm.

GUIDE GASES - TOXIC AND/OR CORROSIVE 123

POTENTIAL HAZARDS

**HEALTH**

- TOXIC; may be fatal if inhaled or absorbed through skin.
- Vapors may be irritating.
- Contact with gas or liquefied gas may cause burns, severe injury and/or frostbite.
- Fire will produce irritating, corrosive and/or toxic gases.
- Runoff from fire control may cause pollution.

**FIRE OR EXPLOSION**

- Some may burn but none ignite readily.
- Vapors from liquefied gas are initially heavier than air and spread along ground.
- Cylinders exposed to fire may vent and release toxic and/or corrosive gas through pressure relief devices.
- Containers may explode when heated.
- Ruptured cylinders may rocket.

**PUBLIC SAFETY**

- CALL EMERGENCY RESPONSE Telephone Number on Shipping Paper first. If Shipping Paper not available or no answer, refer to appropriate telephone number listed on the inside back cover.
- As an immediate precautionary measure, isolate spill or leak area for at least 100 meters (330 feet) in all directions.
- Keep unauthorized personnel away.
- Stay upwind, uphill and/or upstream.
- Many gases are heavier than air and will spread along ground and collect in low or confined areas (sewers, basements, tanks).
- Ventilate closed spaces before entering.

**PROTECTIVE CLOTHING**

- Wear positive pressure self-contained breathing apparatus (SCBA).
- Wear chemical protective clothing that is specifically recommended by the manufacturer. It may provide little or no thermal protection.
- Structural firefighters' protective clothing provides limited protection in fire situations ONLY; it is not effective in spill situations where direct contact with the substance is possible.

**EVACUATION**

**Spill**

- See **Table 1.10 - Initial Isolation and Protective Action Distances** for highlighted materials. For non-highlighted materials, increase, in the downwind direction, as necessary, the isolation distance shown under "PUBLIC SAFETY".

**Fire**

- If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also, consider initial evacuation for 800 meters (1/2 mile) in all directions.



In Canada, an Emergency Response Assistance Plan (ERAP) may be required for this product. Please consult the shipping document and/or the ERAP Program Section (page 391).

GASES - TOXIC AND/OR CORROSIVE GUIDE 123

EMERGENCY RESPONSE

**FIRE**

**Small Fire**

- Dry chemical or CO<sub>2</sub>.

**Large Fire**

- Water spray, fog or regular foam.
- Do not get water inside containers.
- Move containers from fire area if you can do it without risk.
- Damaged cylinders should be handled only by specialists.

**Fire involving Tanks**

- Fight fire from maximum distance or use unmanned hose holders or monitor nozzles.
- Cool containers with flooding quantities of water until well after fire is out.
- Do not direct water at source of leak or safety devices; icing may occur.
- Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
- ALWAYS stay away from tanks engulfed in fire.

**SPILL OR LEAK**

- Fully encapsulating, vapor-protective clothing should be worn for spills and leaks with no fire.
- Do not touch or walk through spilled material.
- Stop leak if you can do it without risk.
- If possible, turn leaking containers so that gas escapes rather than liquid.
- Prevent entry into waterways, sewers, basements or confined areas.
- Use water spray to reduce vapors or divert vapor cloud drift. Avoid allowing water runoff to contact spilled material.
- Do not direct water at spill or source of leak.
- Isolate area until gas has dispersed.

**FIRST AID**

- Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.
- Move victim to fresh air.
- Call 911 or emergency medical service.
- Give artificial respiration if victim is not breathing.
- Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.
- Administer oxygen if breathing is difficult.
- Remove and isolate contaminated clothing and shoes.
- In case of contact with liquefied gas, thaw frosted parts with lukewarm water.
- In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes.
- Keep victim calm and warm.
- Keep victim under observation.
- Effects of contact or inhalation may be delayed.

GUIDE GASES - TOXIC AND/OR CORROSIVE - OXIDIZING 124

POTENTIAL HAZARDS

**HEALTH**

- TOXIC; may be fatal if inhaled or absorbed through skin.
- Fire will produce irritating, corrosive and/or toxic gases.
- Contact with gas or liquefied gas may cause burns, severe injury and/or frostbite.
- Runoff from fire control may cause pollution.

**FIRE OR EXPLOSION**

- Substance does not burn but will support combustion.
- Vapors from liquefied gas are initially heavier than air and spread along ground.
- These are strong oxidizers and will react vigorously or explosively with many materials including fuels.
- May ignite combustibles (wood, paper, oil, clothing, etc.).
- Some will react violently with air, moist air and/or water.
- Cylinders exposed to fire may vent and release toxic and/or corrosive gas through pressure relief devices.
- Containers may explode when heated.
- Ruptured cylinders may rocket.

**PUBLIC SAFETY**

- CALL EMERGENCY RESPONSE Telephone Number on Shipping Paper first. If Shipping Paper not available or no answer, refer to appropriate telephone number listed on the inside back cover.
- As an immediate precautionary measure, isolate spill or leak area for at least 100 meters (330 feet) in all directions.
- Keep unauthorized personnel away.
- Stay upwind, uphill and/or upstream.
- Many gases are heavier than air and will spread along ground and collect in low or confined areas (sewers, basements, tanks).
- Ventilate closed spaces before entering.

**PROTECTIVE CLOTHING**

- Wear positive pressure self-contained breathing apparatus (SCBA).
- Wear chemical protective clothing that is specifically recommended by the manufacturer. It may provide little or no thermal protection.
- Structural firefighters' protective clothing provides limited protection in fire situations ONLY; it is not effective in spill situations where direct contact with the substance is possible.

**EVACUATION**

**Spill**

- See **Table 1.10 - Initial Isolation and Protective Action Distances**.

**Fire**

- If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also, consider initial evacuation for 800 meters (1/2 mile) in all directions.



In Canada, an Emergency Response Assistance Plan (ERAP) may be required for this product. Please consult the shipping document and/or the ERAP Program Section (page 391).

**EMERGENCY RESPONSE**

**FIRE**

- Small Fire**  
**CAUTION:** These materials do not burn but will support combustion. Some will react violently with water.  
 • Contain fire and let burn. If fire must be fought, water spray or fog is recommended.  
 • **Water only; no dry chemical, CO<sub>2</sub> or Halon®.**  
 • Do not get water inside containers.  
 • Move containers from fire area if you can do it without risk.  
 • Damaged cylinders should be handled only by specialists.

**Fire Involving Tanks**

- Fight fire from maximum distance or use unmanned hose holders or monitor nozzles.
- Cool containers with flooding quantities of water until well after fire is out.
- Do not direct water at source of leak or safety devices; icing may occur.
- Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
- **ALWAYS** stay away from tanks engulfed in fire.
- For massive fire, use unmanned hose holders or monitor nozzles; if this is impossible, withdraw from area and let fire burn.

**SPILL OR LEAK**

- Fully encapsulating, vapor-protective clothing should be worn for spills and leaks with no fire.
- Do not touch or walk through spilled material.
- Keep combustibles (wood, paper, oil, etc.) away from spilled material.
- Stop leak if you can do it without risk.
- Use water spray to reduce vapors or divert vapor cloud drift. Avoid allowing water runoff to contact spilled material.
- Do not direct water at spill or source of leak.
- If possible, turn leaking containers so that gas escapes rather than liquid.
- Prevent entry into waterways, sewers, basements or confined areas.
- Isolate area until gas has dispersed.
- Ventilate the area.

**FIRST AID**

- Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.
- Move victim to fresh air.
- Call 911 or emergency medical service.
- Give artificial respiration if victim is not breathing.
- **Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.**
- Administer oxygen if breathing is difficult.
- Clothing frozen to the skin should be thawed before being removed.
- Remove and isolate contaminated clothing and shoes.
- In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes.
- Keep victim calm and warm.
- Keep victim under observation.
- Effects of contact or inhalation may be delayed.

**POTENTIAL HAZARDS**

**HEALTH**

- **TOXIC;** may be fatal if inhaled, ingested or absorbed through skin.
- Vapors are extremely irritating and corrosive.
- Contact with gas or liquefied gas may cause burns, severe injury and/or frostbite.
- Fire will produce irritating, corrosive and/or toxic gases.
- Runoff from fire control may cause pollution.

**FIRE OR EXPLOSION**

- Some may burn but none ignite readily.
- Vapors from liquefied gas are initially heavier than air and spread along ground.
- Some of these materials may react violently with water.
- Cylinders exposed to fire may vent and release toxic and/or corrosive gas through pressure relief devices.
- Containers may explode when heated.
- Ruptured cylinders may rocket.
- For UN1005: Anhydrous ammonia, at high concentrations in confined spaces, presents a flammability risk if a source of ignition is introduced.

**PUBLIC SAFETY**

- **CALL EMERGENCY RESPONSE Telephone Number on Shipping Paper first. If Shipping Paper not available or no answer, refer to appropriate telephone number listed on the inside back cover.**
- As an immediate precautionary measure, isolate spill or leak area for at least 100 meters (330 feet) in all directions.
- Keep unauthorized personnel away.
- Stay upwind, uphill and/or upstream.
- Many gases are heavier than air and will spread along ground and collect in low or confined areas (sewers, basements, tanks).
- Ventilate closed spaces before entering.

**PROTECTIVE CLOTHING**

- Wear positive pressure self-contained breathing apparatus (SCBA).
- Wear chemical protective clothing that is specifically recommended by the manufacturer. It may provide little or no thermal protection.
- Structural firefighters' protective clothing provides limited protection in fire situations ONLY; it is not effective in spill situations where direct contact with the substance is possible.

**EVACUATION**

- Spill**
- See **ERG 2016, Section on Protective Actions** for highlighted materials. For non-highlighted materials, increase, in the downwind direction, as necessary, the isolation distance shown under "PUBLIC SAFETY".
- Fire**
- If tank, rail car or tank truck is involved in a fire, ISOLATE for 1600 meters (1 mile) in all directions; also, consider initial evacuation for 1600 meters (1 mile) in all directions.



In Canada, an Emergency Response Assistance Plan (ERAP) may be required for this product. Please consult the shipping document and/or the ERAP Program Section (page 391).

**EMERGENCY RESPONSE**

**FIRE**

- Small Fire**  
 • Dry chemical or CO<sub>2</sub>.
- Large Fire**  
 • Water spray, fog or regular foam.  
 • Move containers from fire area if you can do it without risk.  
 • Do not get water inside containers.  
 • Damaged cylinders should be handled only by specialists.
- Fire Involving Tanks**  
 • Fight fire from maximum distance or use unmanned hose holders or monitor nozzles.  
 • Cool containers with flooding quantities of water until well after fire is out.  
 • Do not direct water at source of leak or safety devices; icing may occur.  
 • Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.  
 • **ALWAYS** stay away from tanks engulfed in fire.

**SPILL OR LEAK**

- Fully encapsulating, vapor-protective clothing should be worn for spills and leaks with no fire.
- Do not touch or walk through spilled material.
- Stop leak if you can do it without risk.
- If possible, turn leaking containers so that gas escapes rather than liquid.
- Prevent entry into waterways, sewers, basements or confined areas.
- Do not direct water at spill or source of leak.
- Use water spray to reduce vapors or divert vapor cloud drift. Avoid allowing water runoff to contact spilled material.
- Isolate area until gas has dispersed.

**FIRST AID**

- Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.
- Move victim to fresh air.
- Call 911 or emergency medical service.
- Give artificial respiration if victim is not breathing.
- **Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.**
- Administer oxygen if breathing is difficult.
- Remove and isolate contaminated clothing and shoes.
- In case of contact with liquefied gas, thaw frosted parts with lukewarm water.
- In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes.
- In case of contact with Hydrogen fluoride, anhydrous (UN1052), flush with large amounts of water. For skin contact, if calcium gluconate gel is available, rinse 5 minutes, then apply gel. Otherwise, continue rinsing until medical treatment is available. For eyes, flush with water or a saline solution for 15 minutes.
- Keep victim calm and warm.
- Keep victim under observation.
- Effects of contact or inhalation may be delayed.

**POTENTIAL HAZARDS**

**FIRE OR EXPLOSION**

- Some may burn but none ignite readily.
- Containers may explode when heated.
- Ruptured cylinders may rocket.

**HEALTH**

- Vapors may cause dizziness or asphyxiation without warning.
- Vapors from liquefied gas are initially heavier than air and spread along ground.
- Contact with gas or liquefied gas may cause burns, severe injury and/or frostbite.
- Fire may produce irritating, corrosive and/or toxic gases.

**PUBLIC SAFETY**

- **CALL EMERGENCY RESPONSE Telephone Number on Shipping Paper first. If Shipping Paper not available or no answer, refer to appropriate telephone number listed on the inside back cover.**
- As an immediate precautionary measure, isolate spill or leak area for at least 100 meters (330 feet) in all directions.
- Keep unauthorized personnel away.
- Stay upwind, uphill and/or upstream.
- Many gases are heavier than air and will spread along ground and collect in low or confined areas (sewers, basements, tanks).
- Ventilate closed spaces before entering.

**PROTECTIVE CLOTHING**

- Wear positive pressure self-contained breathing apparatus (SCBA).
- Wear chemical protective clothing that is specifically recommended by the manufacturer. It may provide little or no thermal protection.
- Structural firefighters' protective clothing will only provide limited protection.

**EVACUATION**

- Large Spill**
- Consider initial downwind evacuation for at least 500 meters (1/3 mile).
- Fire**
- If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also, consider initial evacuation for 800 meters (1/2 mile) in all directions.

**GASES - COMPRESSED OR LIQUEFIED (INCLUDING REFRIGERANT GASES) GUIDE 126**

**EMERGENCY RESPONSE**

**FIRE**

- Use extinguishing agent suitable for type of surrounding fire.

**Small Fire**

- Dry chemical or CO<sub>2</sub>.

**Large Fire**

- Water spray, fog or regular foam.
- Move containers from fire area if you can do it without risk.
- Damaged cylinders should be handled only by specialists.

**Fire involving Tanks**

- Fight fire from maximum distance or use unmanned hose holders or monitor nozzles.
- Cool containers with flooding quantities of water until well after fire is out.
- Do not direct water at source of leak or safety devices; icing may occur.
- Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
- ALWAYS stay away from tanks engulfed in fire.
- Some of these materials, if spilled, may evaporate leaving a flammable residue.

**SPILL OR LEAK**

- Do not touch or walk through spilled material.
- Stop leak if you can do it without risk.
- Do not direct water at spill or source of leak.
- Use water spray to reduce vapors or divert vapor cloud drift. Avoid allowing water runoff to contact spilled material.
- If possible, turn leaking containers so that gas escapes rather than liquid.
- Prevent entry into waterways, sewers, basements or confined areas.
- Allow substance to evaporate.
- Ventilate the area.

**FIRST AID**

- Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.
- Move victim to fresh air.
- Call 911 or emergency medical service.
- Give artificial respiration if victim is not breathing.
- Administer oxygen if breathing is difficult.
- Remove and isolate contaminated clothing and shoes.
- In case of contact with liquefied gas, thaw frosted parts with lukewarm water.
- Keep victim calm and warm.

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**GUIDE 127 FLAMMABLE LIQUIDS (WATER-MISCIBLE)**

**POTENTIAL HAZARDS**

**FIRE OR EXPLOSION**

- **HIGHLY FLAMMABLE:** Will be easily ignited by heat, sparks or flames.
- Vapors may form explosive mixtures with air.
- Vapors may travel to source of ignition and flash back.
- Most vapors are heavier than air. They will spread along ground and collect in low or confined areas (sewers, basements, tanks).
- Vapor explosion hazard indoors, outdoors or in sewers.
- Those substances designated with a (P) may polymerize explosively when heated or involved in a fire.
- Runoff to sewer may create fire or explosion hazard.
- Containers may explode when heated.
- Many liquids are lighter than water.

**HEALTH**

- Inhalation or contact with material may irritate or burn skin and eyes.
- Fire may produce irritating, corrosive and/or toxic gases.
- Vapors may cause dizziness or suffocation.
- Runoff from fire control may cause pollution.

**PUBLIC SAFETY**

- **CALL EMERGENCY RESPONSE Telephone Number on Shipping Paper first. If Shipping Paper not available or no answer, refer to appropriate telephone number listed on the inside back cover.**
- As an immediate precautionary measure, isolate spill or leak area for at least 50 meters (150 feet) in all directions.
- Keep unauthorized personnel away.
- Stay upwind, uphill and/or upstream.
- Ventilate closed spaces before entering.

**PROTECTIVE CLOTHING**

- Wear positive pressure self-contained breathing apparatus (SCBA).
- Structural firefighters' protective clothing will only provide limited protection.

**EVACUATION**

**Large Spill**

- Consider initial downwind evacuation for at least 300 meters (1000 feet).

**Fire**

- If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also, consider initial evacuation for 800 meters (1/2 mile) in all directions.



In Canada, an Emergency Response Assistance Plan (ERAP) may be required for this product. Please consult the shipping document and/or the ERAP Program Section (page 391).

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**FLAMMABLE LIQUIDS (WATER-MISCIBLE) GUIDE 127**

**EMERGENCY RESPONSE**

**FIRE**

**CAUTION:** All these products have a very low flash point: Use of water spray when fighting fire may be inefficient.

**CAUTION:** For fire involving UN1170, UN1987 or UN3475, alcohol-resistant foam should be used.

**Small Fire**

- Dry chemical, CO<sub>2</sub>, water spray or alcohol-resistant foam.

**Large Fire**

- Water spray, fog or alcohol-resistant foam.
- Do not use straight streams.
- Move containers from fire area if you can do it without risk.

**Fire involving Tanks or Car/Trailer Loads**

- Fight fire from maximum distance or use unmanned hose holders or monitor nozzles.
- Cool containers with flooding quantities of water until well after fire is out.
- Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
- ALWAYS stay away from tanks engulfed in fire.
- For massive fire, use unmanned hose holders or monitor nozzles; if this is impossible, withdraw from area and let fire burn.

**SPILL OR LEAK**

- **ELIMINATE** all ignition sources (no smoking, flares, sparks or flames in immediate area).
- All equipment used when handling the product must be grounded.
- Do not touch or walk through spilled material.
- Stop leak if you can do it without risk.
- Prevent entry into waterways, sewers, basements or confined areas.
- A vapor-suppressing foam may be used to reduce vapors.
- Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers.
- Use clean, non-sparking tools to collect absorbed material.

**Large Spill**

- Dike far ahead of liquid spill for later disposal.
- Water spray may reduce vapor, but may not prevent ignition in closed spaces.

**FIRST AID**

- Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.
- Move victim to fresh air.
- Call 911 or emergency medical service.
- Give artificial respiration if victim is not breathing.
- Administer oxygen if breathing is difficult.
- Remove and isolate contaminated clothing and shoes.
- In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes.
- Wash skin with soap and water.
- In case of burns, immediately cool affected skin for as long as possible with cold water. Do not remove clothing if adhering to skin.
- Keep victim calm and warm.

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**GUIDE 128 FLAMMABLE LIQUIDS (WATER-IMMISCIBLE)**

**POTENTIAL HAZARDS**

**FIRE OR EXPLOSION**

- **HIGHLY FLAMMABLE:** Will be easily ignited by heat, sparks or flames.
- Vapors may form explosive mixtures with air.
- Vapors may travel to source of ignition and flash back.
- Most vapors are heavier than air. They will spread along ground and collect in low or confined areas (sewers, basements, tanks).
- Vapor explosion hazard indoors, outdoors or in sewers.
- Those substances designated with a (P) may polymerize explosively when heated or involved in a fire.
- Runoff to sewer may create fire or explosion hazard.
- Containers may explode when heated.
- Many liquids are lighter than water.
- Substance may be transported hot.
- For hybrid vehicles, GUIDE 147 (lithium ion batteries) or GUIDE 138 (sodium batteries) should also be consulted.
- If molten aluminum is involved, refer to GUIDE 169.

**HEALTH**

- Inhalation or contact with material may irritate or burn skin and eyes.
- Fire may produce irritating, corrosive and/or toxic gases.
- Vapors may cause dizziness or suffocation.
- Runoff from fire control or dilution water may cause pollution.

**PUBLIC SAFETY**

- **CALL EMERGENCY RESPONSE Telephone Number on Shipping Paper first. If Shipping Paper not available or no answer, refer to appropriate telephone number listed on the inside back cover.**
- As an immediate precautionary measure, isolate spill or leak area for at least 50 meters (150 feet) in all directions.
- Keep unauthorized personnel away.
- Stay upwind, uphill and/or upstream.
- Ventilate closed spaces before entering.

**PROTECTIVE CLOTHING**

- Wear positive pressure self-contained breathing apparatus (SCBA).
- Structural firefighters' protective clothing will only provide limited protection.

**EVACUATION**

**Large Spill**

- Consider initial downwind evacuation for at least 300 meters (1000 feet).

**Fire**

- If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also, consider initial evacuation for 800 meters (1/2 mile) in all directions.



In Canada, an Emergency Response Assistance Plan (ERAP) may be required for this product. Please consult the shipping document and/or the ERAP Program Section (page 391).

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**EMERGENCY RESPONSE**

**FIRE**

**CAUTION:** All these products have a very low flash point: Use of water spray when fighting fire may be inefficient.

**CAUTION:** For mixtures containing alcohol or polar solvent, alcohol-resistant foam may be more effective.

**Small Fire**

- Dry chemical, CO<sub>2</sub>, water spray or regular foam.

**Large Fire**

- Water spray, fog or regular foam.
- Do not use straight streams.
- Move containers from fire area if you can do it without risk.

**Fire Involving Tanks or Car/Trailer Loads**

- Fight fire from maximum distance or use unmanned hose holders or monitor nozzles.
- Cool containers with flooding quantities of water until well after fire is out.
- Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
- ALWAYS stay away from tanks engulfed in fire.
- For massive fire, use unmanned hose holders or monitor nozzles; if this is impossible, withdraw from area and let fire burn.

**SPILL OR LEAK**

- ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area).
- All equipment used when handling the product must be grounded.
- Do not touch or walk through spilled material.
- Stop leak if you can do it without risk.
- Prevent entry into waterways, sewers, basements or confined areas.
- A vapor-suppressing foam may be used to reduce vapors.
- Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers.
- Use clean, non-sparking tools to collect absorbed material.

**Large Spill**

- Dike far ahead of liquid spill for later disposal.
- Water spray may reduce vapor, but may not prevent ignition in closed spaces.

**FIRST AID**

- Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.
- Move victim to fresh air.
- Call 911 or emergency medical service.
- Give artificial respiration if victim is not breathing.
- Administer oxygen if breathing is difficult.
- Remove and isolate contaminated clothing and shoes.
- In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes.
- Wash skin with soap and water.
- In case of burns, immediately cool affected skin for as long as possible with cold water. Do not remove clothing if adhering to skin.
- Keep victim calm and warm.

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**EMERGENCY RESPONSE**

**FIRE**

**CAUTION:** All these products have a very low flash point: Use of water spray when fighting fire may be inefficient.

**Small Fire**

- Dry chemical, CO<sub>2</sub>, water spray or alcohol-resistant foam.
- Do not use dry chemical extinguishers to control fires involving nitromethane (UN1261) or nitroethane (UN2842).

**Large Fire**

- Water spray, fog or alcohol-resistant foam.
- Do not use straight streams.
- Move containers from fire area if you can do it without risk.

**Fire Involving Tanks or Car/Trailer Loads**

- Fight fire from maximum distance or use unmanned hose holders or monitor nozzles.
- Cool containers with flooding quantities of water until well after fire is out.
- Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
- ALWAYS stay away from tanks engulfed in fire.
- For massive fire, use unmanned hose holders or monitor nozzles; if this is impossible, withdraw from area and let fire burn.

**SPILL OR LEAK**

- ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area).
- All equipment used when handling the product must be grounded.
- Do not touch or walk through spilled material.
- Stop leak if you can do it without risk.
- Prevent entry into waterways, sewers, basements or confined areas.
- A vapor-suppressing foam may be used to reduce vapors.
- Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers.
- Use clean, non-sparking tools to collect absorbed material.

**Large Spill**

- Dike far ahead of liquid spill for later disposal.
- Water spray may reduce vapor, but may not prevent ignition in closed spaces.

**FIRST AID**

- Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.
- Move victim to fresh air.
- Call 911 or emergency medical service.
- Give artificial respiration if victim is not breathing.
- Administer oxygen if breathing is difficult.
- Remove and isolate contaminated clothing and shoes.
- In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes.
- Wash skin with soap and water.
- In case of burns, immediately cool affected skin for as long as possible with cold water. Do not remove clothing if adhering to skin.
- Keep victim calm and warm.
- Effects of exposure (inhalation, ingestion or skin contact) to substance may be delayed.

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**POTENTIAL HAZARDS**

**FIRE OR EXPLOSION**

- **HIGHLY FLAMMABLE:** Will be easily ignited by heat, sparks or flames.
- Vapors may form explosive mixtures with air.
- Vapors may travel to source of ignition and flash back.
- Most vapors are heavier than air. They will spread along ground and collect in low or confined areas (sewers, basements, tanks).
- Vapor explosion hazard indoors, outdoors or in sewers.
- Those substances designated with a (P) may polymerize explosively when heated or involved in a fire.
- Runoff to sewer may create fire or explosion hazard.
- Containers may explode when heated.
- Many liquids are lighter than water.

**HEALTH**

- May cause toxic effects if inhaled or absorbed through skin.
- Inhalation or contact with material may irritate or burn skin and eyes.
- Fire will produce irritating, corrosive and/or toxic gases.
- Vapors may cause dizziness or suffocation.
- Runoff from fire control or dilution water may cause pollution.

**PUBLIC SAFETY**

- **CALL EMERGENCY RESPONSE Telephone Number on Shipping Paper first.** If Shipping Paper not available or no answer, refer to appropriate telephone number listed on the inside back cover.
- As an immediate precautionary measure, isolate spill or leak area for at least 50 meters (150 feet) in all directions.
- Keep unauthorized personnel away.
- Stay upwind, uphill and/or upstream.
- Ventilate closed spaces before entering.

**PROTECTIVE CLOTHING**

- Wear positive pressure self-contained breathing apparatus (SCBA).
- Structural firefighters' protective clothing will only provide limited protection.

**EVACUATION**

**Large Spill**

- Consider initial downwind evacuation for at least 300 meters (1000 feet).

**Fire**

- If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also, consider initial evacuation for 800 meters (1/2 mile) in all directions.



In Canada, an Emergency Response Assistance Plan (ERAP) may be required for this product. Please consult the shipping document and/or the ERAP Program Section (page 391).

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**POTENTIAL HAZARDS**

**FIRE OR EXPLOSION**

- **HIGHLY FLAMMABLE:** Will be easily ignited by heat, sparks or flames.
- Vapors may form explosive mixtures with air.
- Vapors may travel to source of ignition and flash back.
- Most vapors are heavier than air. They will spread along ground and collect in low or confined areas (sewers, basements, tanks).
- Vapor explosion hazard indoors, outdoors or in sewers.
- Those substances designated with a (P) may polymerize explosively when heated or involved in a fire.
- Runoff to sewer may create fire or explosion hazard.
- Containers may explode when heated.
- Many liquids are lighter than water.

**HEALTH**

- May cause toxic effects if inhaled or absorbed through skin.
- Inhalation or contact with material may irritate or burn skin and eyes.
- Fire will produce irritating, corrosive and/or toxic gases.
- Vapors may cause dizziness or suffocation.
- Runoff from fire control or dilution water may cause pollution.

**PUBLIC SAFETY**

- **CALL EMERGENCY RESPONSE Telephone Number on Shipping Paper first.** If Shipping Paper not available or no answer, refer to appropriate telephone number listed on the inside back cover.
- As an immediate precautionary measure, isolate spill or leak area for at least 50 meters (150 feet) in all directions.
- Keep unauthorized personnel away.
- Stay upwind, uphill and/or upstream.
- Ventilate closed spaces before entering.

**PROTECTIVE CLOTHING**

- Wear positive pressure self-contained breathing apparatus (SCBA).
- Structural firefighters' protective clothing will only provide limited protection.

**EVACUATION**

**Large Spill**

- Consider initial downwind evacuation for at least 300 meters (1000 feet).

**Fire**

- If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also, consider initial evacuation for 800 meters (1/2 mile) in all directions.



In Canada, an Emergency Response Assistance Plan (ERAP) may be required for this product. Please consult the shipping document and/or the ERAP Program Section (page 391).

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FLAMMABLE LIQUIDS (WATER-IMMISCIBLE/NOXIOUS) **GUIDE 130**

**EMERGENCY RESPONSE**

**FIRE**

**CAUTION:** All these products have a very low flash point: Use of water spray when fighting fire may be inefficient.

**Small Fire**

- Dry chemical, CO<sub>2</sub>, water spray or regular foam.

**Large Fire**

- Water spray, fog or regular foam.
- Do not use straight streams.
- Move containers from fire area if you can do it without risk.

**Fire Involving Tanks or Car/Trailer Loads**

- Fight fire from maximum distance or use unmanned hose holders or monitor nozzles.
- Cool containers with flooding quantities of water until well after fire is out.
- Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
- ALWAYS stay away from tanks engulfed in fire.
- For massive fire, use unmanned hose holders or monitor nozzles; if this is impossible, withdraw from area and let fire burn.

**SPILL OR LEAK**

- ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area).
- All equipment used when handling the product must be grounded.
- Do not touch or walk through spilled material.
- Stop leak if you can do it without risk.
- Prevent entry into waterways, sewers, basements or confined areas.
- A vapor-suppressing foam may be used to reduce vapors.
- Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers.
- Use clean, non-sparking tools to collect absorbed material.

**Large Spill**

- Dike far ahead of liquid spill for later disposal.
- Water spray may reduce vapor, but may not prevent ignition in closed spaces.

**FIRST AID**

- Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.
- Move victim to fresh air.
- Call 911 or emergency medical service.
- Give artificial respiration if victim is not breathing.
- Administer oxygen if breathing is difficult.
- Remove and isolate contaminated clothing and shoes.
- In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes.
- Wash skin with soap and water.
- In case of burns, immediately cool affected skin for as long as possible with cold water. Do not remove clothing if adhering to skin.
- Keep victim calm and warm.
- Effects of exposure (inhalation, ingestion or skin contact) to substance may be delayed.

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FLAMMABLE LIQUIDS - TOXIC **GUIDE 131**

**EMERGENCY RESPONSE**

**FIRE**

**CAUTION:** All these products have a very low flash point: Use of water spray when fighting fire may be inefficient.

**Small Fire**

- Dry chemical, CO<sub>2</sub>, water spray or alcohol-resistant foam.

**Large Fire**

- Water spray, fog or alcohol-resistant foam.
- Move containers from fire area if you can do it without risk.
- Dike fire-control water for later disposal; do not scatter the material.
- Use water spray or fog; do not use straight streams.

**Fire Involving Tanks or Car/Trailer Loads**

- Fight fire from maximum distance or use unmanned hose holders or monitor nozzles.
- Cool containers with flooding quantities of water until well after fire is out.
- Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
- ALWAYS stay away from tanks engulfed in fire.
- For massive fire, use unmanned hose holders or monitor nozzles; if this is impossible, withdraw from area and let fire burn.

**SPILL OR LEAK**

- Fully encapsulating, vapor-protective clothing should be worn for spills and leaks with no fire.
- ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area).
- All equipment used when handling the product must be grounded.
- Do not touch or walk through spilled material.
- Stop leak if you can do it without risk.
- Prevent entry into waterways, sewers, basements or confined areas.
- A vapor-suppressing foam may be used to reduce vapors.

**Small Spill**

- Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal.
- Use clean, non-sparking tools to collect absorbed material.

**Large Spill**

- Dike far ahead of liquid spill for later disposal.
- Water spray may reduce vapor, but may not prevent ignition in closed spaces.

**FIRST AID**

- Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.
- Move victim to fresh air. • Call 911 or emergency medical service.
- Give artificial respiration if victim is not breathing.
- Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.
- Administer oxygen if breathing is difficult.
- Remove and isolate contaminated clothing and shoes.
- In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes.
- Wash skin with soap and water.
- In case of burns, immediately cool affected skin for as long as possible with cold water. Do not remove clothing if adhering to skin. • Keep victim calm and warm.
- Effects of exposure (inhalation, ingestion or skin contact) to substance may be delayed.

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**GUIDE 131** FLAMMABLE LIQUIDS - TOXIC

**POTENTIAL HAZARDS**

**HEALTH**

- TOXIC; may be fatal if inhaled, ingested or absorbed through skin.
- Inhalation or contact with some of these materials will irritate or burn skin and eyes.
- Fire will produce irritating, corrosive and/or toxic gases.
- Vapors may cause dizziness or suffocation.
- Runoff from fire control or dilution water may cause pollution.

**FIRE OR EXPLOSION**

- HIGHLY FLAMMABLE: Will be easily ignited by heat, sparks or flames.
- Vapors may form explosive mixtures with air.
- Vapors may travel to source of ignition and flash back.
- Most vapors are heavier than air. They will spread along ground and collect in low or confined areas (sewers, basements, tanks).
- Vapor explosion and poison hazard indoors, outdoors or in sewers.
- Those substances designated with a (P) may polymerize explosively when heated or involved in a fire.
- Runoff to sewer may create fire or explosion hazard.
- Containers may explode when heated.
- Many liquids are lighter than water.

**PUBLIC SAFETY**

- CALL EMERGENCY RESPONSE Telephone Number on Shipping Paper first. If Shipping Paper not available or no answer, refer to appropriate telephone number listed on the inside back cover.
- As an immediate precautionary measure, isolate spill or leak area for at least 50 meters (150 feet) in all directions.
- Keep unauthorized personnel away.
- Stay upwind, uphill and/or upstream.
- Ventilate closed spaces before entering.

**PROTECTIVE CLOTHING**

- Wear positive pressure self-contained breathing apparatus (SCBA).
- Wear chemical protective clothing that is specifically recommended by the manufacturer. It may provide little or no thermal protection.
- Structural firefighters' protective clothing provides limited protection in fire situations ONLY; it is not effective in spill situations where direct contact with the substance is possible.

**EVACUATION**

**Spill**

- See **EMERG 24117** for highlighted materials. For non-highlighted materials, increase, in the downwind direction, as necessary, the isolation distance shown under "PUBLIC SAFETY".

**Fire**

- If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also, consider initial evacuation for 800 meters (1/2 mile) in all directions.



In Canada, an Emergency Response Assistance Plan (ERAP) may be required for this product. Please consult the shipping document and/or the ERAP Program Section (page 391).

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**GUIDE 132** FLAMMABLE LIQUIDS - CORROSIVE

**POTENTIAL HAZARDS**

**FIRE OR EXPLOSION**

- Flammable/combustible material.
- May be ignited by heat, sparks or flames.
- Vapors may form explosive mixtures with air.
- Vapors may travel to source of ignition and flash back.
- Most vapors are heavier than air. They will spread along ground and collect in low or confined areas (sewers, basements, tanks).
- Vapor explosion hazard indoors, outdoors or in sewers.
- Those substances designated with a (P) may polymerize explosively when heated or involved in a fire.
- Runoff to sewer may create fire or explosion hazard.
- Containers may explode when heated.
- Many liquids are lighter than water.

**HEALTH**

- May cause toxic effects if inhaled or ingested/swallowed.
- Contact with substance may cause severe burns to skin and eyes.
- Fire will produce irritating, corrosive and/or toxic gases.
- Vapors may cause dizziness or suffocation.
- Runoff from fire control or dilution water may cause pollution.

**PUBLIC SAFETY**

- CALL EMERGENCY RESPONSE Telephone Number on Shipping Paper first. If Shipping Paper not available or no answer, refer to appropriate telephone number listed on the inside back cover.
- As an immediate precautionary measure, isolate spill or leak area for at least 50 meters (150 feet) in all directions.
- Keep unauthorized personnel away.
- Stay upwind, uphill and/or upstream.
- Ventilate closed spaces before entering.

**PROTECTIVE CLOTHING**

- Wear positive pressure self-contained breathing apparatus (SCBA).
- Wear chemical protective clothing that is specifically recommended by the manufacturer. It may provide little or no thermal protection.
- Structural firefighters' protective clothing provides limited protection in fire situations ONLY; it is not effective in spill situations where direct contact with the substance is possible.

**EVACUATION**

**Spill**

- See **EMERG 24117** for highlighted materials. For non-highlighted materials, increase, in the downwind direction, as necessary, the isolation distance shown under "PUBLIC SAFETY".

**Fire**

- If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also, consider initial evacuation for 800 meters (1/2 mile) in all directions.



In Canada, an Emergency Response Assistance Plan (ERAP) may be required for this product. Please consult the shipping document and/or the ERAP Program Section (page 391).

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FLAMMABLE LIQUIDS - CORROSIVE **GUIDE**  
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**EMERGENCY RESPONSE**

**FIRE**

- Some of these materials may react violently with water.
- Small Fire**
  - Dry chemical, CO<sub>2</sub>, water spray or alcohol-resistant foam.
- Large Fire**
  - Water spray, fog or alcohol-resistant foam.
  - Move containers from fire area if you can do it without risk.
  - Dike fire-control water for later disposal; do not scatter the material.
  - Do not get water inside containers.
- Fire Involving Tanks or Car/Trailer Loads**
  - Fight fire from maximum distance or use unmanned hose holders or monitor nozzles.
  - Cool containers with flooding quantities of water until well after fire is out.
  - Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
  - ALWAYS stay away from tanks engulfed in fire.
  - For massive fire, use unmanned hose holders or monitor nozzles; if this is impossible, withdraw from area and let fire burn.

**SPILL OR LEAK**

- Fully encapsulating, vapor-protective clothing should be worn for spills and leaks with no fire.
- ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area).
- All equipment used when handling the product must be grounded.
- Do not touch or walk through spilled material.
- Stop leak if you can do it without risk.
- Prevent entry into waterways, sewers, basements or confined areas.
- A vapor-suppressing foam may be used to reduce vapors.
- Absorb with earth, sand or other non-combustible material and transfer to containers (except for Hydrazine).
- Use clean, non-sparking tools to collect absorbed material.
- Large Spill**
  - Dike far ahead of liquid spill for later disposal.
  - Water spray may reduce vapor, but may not prevent ignition in closed spaces.

**FIRST AID**

- Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.
- Move victim to fresh air. • Call 911 or emergency medical service.
- Give artificial respiration if victim is not breathing.
- Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.
- Administer oxygen if breathing is difficult.
- Remove and isolate contaminated clothing and shoes.
- In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes.
- In case of burns, immediately cool affected skin for as long as possible with cold water. Do not remove clothing if adhering to skin.
- Keep victim calm and warm.
- Effects of exposure (inhalation, ingestion or skin contact) to substance may be delayed.

EMERG-20100

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**GUIDE** FLAMMABLE SOLIDS  
**133**

**POTENTIAL HAZARDS**

**FIRE OR EXPLOSION**

- Flammable/combustible material.
- May be ignited by friction, heat, sparks or flames.
- Some may burn rapidly with flare-burning effect.
- Powders, dusts, shavings, borings, turnings or cuttings may explode or burn with explosive violence.
- Substance may be transported in a molten form at a temperature that may be above its flash point.
- May re-ignite after fire is extinguished.

**HEALTH**

- Fire may produce irritating and/or toxic gases.
- Contact may cause burns to skin and eyes.
- Contact with molten substance may cause severe burns to skin and eyes.
- Runoff from fire control may cause pollution.

**PUBLIC SAFETY**

- CALL EMERGENCY RESPONSE Telephone Number on Shipping Paper first. If Shipping Paper not available or no answer, refer to appropriate telephone number listed on the inside back cover.
- As an immediate precautionary measure, isolate spill or leak area for at least 25 meters (75 feet) in all directions.
- Keep unauthorized personnel away.
- Stay upwind, uphill and/or upstream.

**PROTECTIVE CLOTHING**

- Wear positive pressure self-contained breathing apparatus (SCBA).
- Structural firefighters' protective clothing will only provide limited protection.

**EVACUATION**

- Large Spill**
  - Consider initial downwind evacuation for at least 100 meters (330 feet).
- Fire**
  - If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also, consider initial evacuation for 800 meters (1/2 mile) in all directions.



In Canada, an Emergency Response Assistance Plan (ERAP) may be required for this product. Please consult the shipping document and/or the ERAP Program Section (page 391).

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FLAMMABLE SOLIDS **GUIDE**  
**133**

**EMERGENCY RESPONSE**

**FIRE**

- Small Fire**
  - Dry chemical, CO<sub>2</sub>, sand, earth, water spray or regular foam.
- Large Fire**
  - Water spray, fog or regular foam.
  - Move containers from fire area if you can do it without risk.
- Fire Involving Metal Pigments or Pastes (e.g. "Aluminum Paste")**
  - Aluminum Paste fires should be treated as a combustible metal fire. Use DRY sand, graphite powder, dry sodium chloride-based extinguishers, G-1<sup>o</sup> or Me-L-X<sup>o</sup> powder. Also, see GUIDE 170.
- Fire Involving Tanks or Car/Trailer Loads**
  - Cool containers with flooding quantities of water until well after fire is out.
  - For massive fire, use unmanned hose holders or monitor nozzles; if this is impossible, withdraw from area and let fire burn.
  - Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
  - ALWAYS stay away from tanks engulfed in fire.

**SPILL OR LEAK**

- ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area).
- Do not touch or walk through spilled material.
- Small Dry Spill**
  - With clean shovel, place material into clean, dry container and cover loosely; move containers from spill area.
- Large Spill**
  - Wet down with water and dike for later disposal.
  - Prevent entry into waterways, sewers, basements or confined areas.

**FIRST AID**

- Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.
- Move victim to fresh air.
- Call 911 or emergency medical service.
- Give artificial respiration if victim is not breathing.
- Administer oxygen if breathing is difficult.
- Remove and isolate contaminated clothing and shoes.
- In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes.
- Removal of solidified molten material from skin requires medical assistance.
- Keep victim calm and warm.

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**GUIDE** FLAMMABLE SOLIDS - TOXIC AND/OR CORROSIVE  
**134**

**POTENTIAL HAZARDS**

**FIRE OR EXPLOSION**

- Flammable/combustible material.
- May be ignited by heat, sparks or flames.
- When heated, vapors may form explosive mixtures with air; indoors, outdoors and sewers explosion hazards.
- Contact with metals may evolve flammable hydrogen gas.
- Containers may explode when heated.

**HEALTH**

- TOXIC; inhalation, ingestion or skin contact with material may cause severe injury or death.
- Fire will produce irritating, corrosive and/or toxic gases.
- Runoff from fire control or dilution water may be corrosive and/or toxic and cause pollution.

**PUBLIC SAFETY**

- CALL EMERGENCY RESPONSE Telephone Number on Shipping Paper first. If Shipping Paper not available or no answer, refer to appropriate telephone number listed on the inside back cover.
- As an immediate precautionary measure, isolate spill or leak area for at least 25 meters (75 feet) in all directions.
- Stay upwind, uphill and/or upstream.
- Keep unauthorized personnel away.
- Ventilate enclosed areas.

**PROTECTIVE CLOTHING**

- Wear positive pressure self-contained breathing apparatus (SCBA).
- Wear chemical protective clothing that is specifically recommended by the manufacturer. It may provide little or no thermal protection.
- Structural firefighters' protective clothing provides limited protection in fire situations ONLY; it is not effective in spill situations where direct contact with the substance is possible.

**EVACUATION**

- Large Spill**
  - Consider initial downwind evacuation for at least 100 meters (330 feet).
- Fire**
  - If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also, consider initial evacuation for 800 meters (1/2 mile) in all directions.



In Canada, an Emergency Response Assistance Plan (ERAP) may be required for this product. Please consult the shipping document and/or the ERAP Program Section (page 391).

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FLAMMABLE SOLIDS - TOXIC AND/OR CORROSIVE **GUIDE 134**

**EMERGENCY RESPONSE**

**FIRE**

- Small Fire
  - Dry chemical, CO<sub>2</sub>, water spray or alcohol-resistant foam.
- Large Fire
  - Water spray, fog or alcohol-resistant foam.
  - Move containers from fire area if you can do it without risk.
  - Use water spray or fog; do not use straight streams.
  - Do not get water inside containers.
  - Dike fire-control water for later disposal; do not scatter the material.

**Fire Involving Tanks or Car/Trailer Loads**

- Fight fire from maximum distance or use unmanned hose holders or monitor nozzles.
- Cool containers with flooding quantities of water until well after fire is out.
- Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
- ALWAYS stay away from tanks engulfed in fire.**

**SPILL OR LEAK**

- Fully encapsulating, vapor-protective clothing should be worn for spills and leaks with no fire.
- ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area).
- Stop leak if you can do it without risk.
- Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.
- Prevent entry into waterways, sewers, basements or confined areas.
- Use clean, non-sparking tools to collect material and place it into loosely covered plastic containers for later disposal.

**FIRST AID**

- Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.
- Move victim to fresh air.
- Call 911 or emergency medical service.
- Give artificial respiration if victim is not breathing.
- Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.
- Administer oxygen if breathing is difficult.
- Remove and isolate contaminated clothing and shoes.
- In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes.
- For minor skin contact, avoid spreading material on unaffected skin.
- Keep victim calm and warm.
- Effects of exposure (inhalation, ingestion or skin contact) to substance may be delayed.

**GUIDE 135 SUBSTANCES - SPONTANEOUSLY COMBUSTIBLE**

**POTENTIAL HAZARDS**

**FIRE OR EXPLOSION**

- Flammable/combustible material.
- May ignite on contact with moist air or moisture.
- May burn rapidly with flare-burning effect.
- Some react vigorously or explosively on contact with water.
- Some may decompose explosively when heated or involved in a fire.
- May re-ignite after fire is extinguished.
- Runoff may create fire or explosion hazard.
- Containers may explode when heated.

**HEALTH**

- Fire will produce irritating, corrosive and/or toxic gases.
- Inhalation of decomposition products may cause severe injury or death.
- Contact with substance may cause severe burns to skin and eyes.
- Runoff from fire control may cause pollution.

**PUBLIC SAFETY**

- CALL EMERGENCY RESPONSE Telephone Number on Shipping Paper first. If Shipping Paper not available or no answer, refer to appropriate telephone number listed on the inside back cover.**
- As an immediate precautionary measure, isolate spill or leak area in all directions for at least 50 meters (150 feet) for liquids and at least 25 meters (75 feet) for solids.
- Stay upwind, uphill and/or upstream.
- Keep unauthorized personnel away.

**PROTECTIVE CLOTHING**

- Wear positive pressure self-contained breathing apparatus (SCBA).
- Wear chemical protective clothing that is specifically recommended by the manufacturer. It may provide little or no thermal protection.
- Structural firefighters' protective clothing will only provide limited protection.

**EVACUATION**

**Spill**

- See **Table 1.3.1.10 - Initial Isolation and Protective Action Distances** for highlighted materials. For non-highlighted materials, increase, in the downwind direction, as necessary, the isolation distance shown under "PUBLIC SAFETY".

**Fire**

- If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also, consider initial evacuation for 800 meters (1/2 mile) in all directions.



In Canada, an Emergency Response Assistance Plan (ERAP) may be required for this product. Please consult the shipping document and/or the ERAP Program Section (page 391).

**SUBSTANCES - SPONTANEOUSLY COMBUSTIBLE GUIDE 135**

**EMERGENCY RESPONSE**

**FIRE**

- DO NOT USE WATER, CO, OR FOAM ON MATERIAL ITSELF.**
- Some of these materials may react violently with water.
- EXCEPTION:** For Xanthates, UN3342 and for Dithionite (Hydrosulfite/Hydrosulphite) UN1384, UN1923 and UN1929, USE FLOODING AMOUNTS OF WATER for SMALL AND LARGE fires to stop the reaction. Smothering will not work for these materials, they do not need air to burn.

**Small Fire**

- Dry chemical, soda ash, lime or DRY sand, EXCEPT for UN1384, UN1923, UN1929 and UN3342.

**Large Fire**

- DRY sand, dry chemical, soda ash or lime EXCEPT for UN1384, UN1923, UN1929 and UN3342, or withdraw from area and let fire burn.
- CAUTION:** UN3342 when flooded with water will continue to evolve flammable Carbon disulfide/Carbon disulphide vapors.
- Move containers from fire area if you can do it without risk.

**Fire Involving Tanks or Car/Trailer Loads**

- Fight fire from maximum distance or use unmanned hose holders or monitor nozzles.
- Do not get water inside containers or in contact with substance.
- Cool containers with flooding quantities of water until well after fire is out.
- Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
- ALWAYS stay away from tanks engulfed in fire.**

**SPILL OR LEAK**

- Fully encapsulating, vapor-protective clothing should be worn for spills and leaks with no fire.
- ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area).
- Do not touch or walk through spilled material.
- Stop leak if you can do it without risk.
- Small Spill**
- EXCEPTION:** For spills of Xanthates, UN3342 and for Dithionite (Hydrosulfite/Hydrosulphite), UN1384, UN1923 and UN1929, dissolve in 5 parts water and collect for proper disposal.
- CAUTION:** UN3342 when flooded with water will continue to evolve flammable Carbon disulfide/Carbon disulphide vapors.
- Cover with DRY earth, DRY sand or other non-combustible material followed with plastic sheet to minimize spreading or contact with rain.
- Use clean, non-sparking tools to collect material and place it into loosely covered plastic containers for later disposal.
- Prevent entry into waterways, sewers, basements or confined areas.

**FIRST AID**

- Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.
- Move victim to fresh air.
- Call 911 or emergency medical service.
- Give artificial respiration if victim is not breathing.
- Administer oxygen if breathing is difficult.
- Remove and isolate contaminated clothing and shoes.
- In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes.
- Keep victim calm and warm.

**GUIDE 136 SUBSTANCES - SPONTANEOUSLY COMBUSTIBLE - TOXIC AND/OR CORROSIVE (AIR-REACTIVE)**

**POTENTIAL HAZARDS**

**FIRE OR EXPLOSION**

- Extremely flammable; will ignite itself if exposed to fire.
- Burns rapidly, releasing dense, white, irritating fumes.
- Substance may be transported in a molten form.
- May re-ignite after fire is extinguished.
- Corrosive substances in contact with metals may produce flammable hydrogen gas.
- Containers may explode when heated.

**HEALTH**

- Fire will produce irritating, corrosive and/or toxic gases.
- TOXIC;** ingestion of substance or inhalation of decomposition products will cause severe injury or death.
- Contact with substance may cause severe burns to skin and eyes.
- Some effects may be experienced due to skin absorption.
- Runoff from fire control may be corrosive and/or toxic and cause pollution.

**PUBLIC SAFETY**

- CALL EMERGENCY RESPONSE Telephone Number on Shipping Paper first. If Shipping Paper not available or no answer, refer to appropriate telephone number listed on the inside back cover.**
- As an immediate precautionary measure, isolate spill or leak area in all directions for at least 50 meters (150 feet) for liquids and at least 25 meters (75 feet) for solids.
- Stay upwind, uphill and/or upstream.
- Keep unauthorized personnel away.

**PROTECTIVE CLOTHING**

- Wear positive pressure self-contained breathing apparatus (SCBA).
- Wear chemical protective clothing that is specifically recommended by the manufacturer. It may provide little or no thermal protection.
- Structural firefighters' protective clothing provides limited protection in fire situations ONLY; it is not effective in spill situations where direct contact with the substance is possible.
- For Phosphorus (UN1381): Special aluminized protective clothing should be worn when direct contact with the substance is possible.

**EVACUATION**

**Spill**

- Consider initial downwind evacuation for at least 300 meters (1000 feet).

**Fire**

- If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also, consider initial evacuation for 800 meters (1/2 mile) in all directions.



In Canada, an Emergency Response Assistance Plan (ERAP) may be required for this product. Please consult the shipping document and/or the ERAP Program Section (page 391).

**SUBSTANCES - SPONTANEOUSLY COMBUSTIBLE - TOXIC AND/OR CORROSIVE (AIR-REACTIVE) GUIDE 136**

**EMERGENCY RESPONSE**

**FIRE**

- Small Fire
  - Water spray, wet sand or wet earth.
- Large Fire
  - Water spray or fog.
  - Do not scatter spilled material with high-pressure water streams.
  - Move containers from fire area if you can do it without risk.
- Fire involving Tanks or Car/Trailer Loads
  - Fight fire from maximum distance or use unmanned hose holders or monitor nozzles.
  - Cool containers with flooding quantities of water until well after fire is out.
  - Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
  - ALWAYS stay away from tanks engulfed in fire.

**SPILL OR LEAK**

- Fully encapsulating, vapor-protective clothing should be worn for spills and leaks with no fire.
- ELIMINATE all ignition sources (no smoking, flames, sparks or flames in immediate area).
- Do not touch or walk through spilled material.
- Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.
- Stop leak if you can do it without risk.

**Small Spill**

- Cover with water, sand or earth. Shovel into metal container and keep material under water.

**Large Spill**

- Dike for later disposal and cover with wet sand or earth.
- Prevent entry into waterways, sewers, basements or confined areas.

**FIRST AID**

- Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.
- Move victim to fresh air.
- Call 911 or emergency medical service.
- Give artificial respiration if victim is not breathing.
- Administer oxygen if breathing is difficult.
- In case of contact with substance, keep exposed skin areas immersed in water or covered with wet bandages until medical attention is received.
- Removal of solidified molten material from skin requires medical assistance.
- Remove and isolate contaminated clothing and shoes at the site and place in metal container filled with water. Fire hazard if allowed to dry.
- Effects of exposure (inhalation, ingestion or skin contact) to substance may be delayed.
- Keep victim calm and warm.

**GUIDE SUBSTANCES - WATER-REACTIVE - CORROSIVE 137**

**POTENTIAL HAZARDS**

**HEALTH**

- CORROSIVE and/or TOXIC; inhalation, ingestion or contact (skin, eyes) with vapors, dusts or substance may cause severe injury, burns or death.
- Fire will produce irritating, corrosive and/or toxic gases.
- Reaction with water may generate much heat that will increase the concentration of fumes in the air.
- Contact with molten substance may cause severe burns to skin and eyes.
- Runoff from fire control or dilution water may cause pollution.

**FIRE OR EXPLOSION**

- EXCEPT FOR ACETIC ANHYDRIDE (UN1715), THAT IS FLAMMABLE, some of these materials may burn, but none ignite readily.
- May ignite combustibles (wood, paper, oil, clothing, etc.).
- Substance will react with water (some violently), releasing corrosive and/or toxic gases and runoff.
- Flammable/toxic gases may accumulate in confined areas (basement, tanks, hopper/tank cars, etc.).
- Contact with metals may evolve flammable hydrogen gas.
- Containers may explode when heated or if contaminated with water.
- Substance may be transported in a molten form.

**PUBLIC SAFETY**

- CALL EMERGENCY RESPONSE Telephone Number on Shipping Paper first. If Shipping Paper not available or no answer, refer to appropriate telephone number listed on the inside back cover.
- As an immediate precautionary measure, isolate spill or leak area in all directions for at least 50 meters (150 feet) for liquids and at least 25 meters (75 feet) for solids.
- Keep unauthorized personnel away.
- Stay upwind, uphill and/or upstream.
- Ventilate enclosed areas.

**PROTECTIVE CLOTHING**

- Wear positive pressure self-contained breathing apparatus (SCBA).
- Wear chemical protective clothing that is specifically recommended by the manufacturer. It may provide little or no thermal protection.
- Structural firefighters' protective clothing provides limited protection in fire situations ONLY; it is not effective in spill situations where direct contact with the substance is possible.

**EVACUATION**

- Spill
  - See Table 1-10 for recommended protective action distances for highlighted materials. For non-highlighted materials, increase, in the downwind direction, as necessary, the isolation distance shown under "PUBLIC SAFETY".
- Fire
  - If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also, consider initial evacuation for 800 meters (1/2 mile) in all directions.

 In Canada, an Emergency Response Assistance Plan (ERAP) may be required for this product. Please consult the shipping document and/or the ERAP Program Section (page 391).

**SUBSTANCES - WATER-REACTIVE - CORROSIVE GUIDE 137**

**EMERGENCY RESPONSE**

**FIRE**

- When material is not involved in fire, do not use water on material itself.
- Small Fire
  - Dry chemical or CO<sub>2</sub>.
  - Move containers from fire area if you can do it without risk.
- Large Fire
  - Flood fire area with large quantities of water, while knocking down vapors with water fog. If insufficient water supply: knock down vapors only.
- Fire involving Tanks or Car/Trailer Loads
  - Cool containers with flooding quantities of water until well after fire is out.
  - Do not get water inside containers.
  - Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
  - ALWAYS stay away from tanks engulfed in fire.

**SPILL OR LEAK**

- Fully encapsulating, vapor-protective clothing should be worn for spills and leaks with no fire.
- Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.
- Stop leak if you can do it without risk.
- Use water spray to reduce vapors; do not put water directly on leak, spill area or inside container.
- Keep combustibles (wood, paper, oil, etc.) away from spilled material.
- Small Spill
  - Cover with DRY earth, DRY sand or other non-combustible material followed with plastic sheet to minimize spreading or contact with rain.
  - Use clean, non-sparking tools to collect material and place it into loosely covered plastic containers for later disposal.
  - Prevent entry into waterways, sewers, basements or confined areas.

**FIRST AID**

- Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.
- Move victim to fresh air.
- Call 911 or emergency medical service.
- Give artificial respiration if victim is not breathing.
- Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.
- Administer oxygen if breathing is difficult.
- Remove and isolate contaminated clothing and shoes.
- In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes.
- For minor skin contact, avoid spreading material on unaffected skin.
- Removal of solidified molten material from skin requires medical assistance.
- Keep victim calm and warm.
- Effects of exposure (inhalation, ingestion or skin contact) to substance may be delayed.

**GUIDE SUBSTANCES - WATER-REACTIVE (EMITTING FLAMMABLE GASES) 138**

**POTENTIAL HAZARDS**

**FIRE OR EXPLOSION**

- Produce flammable gases on contact with water.
- May ignite on contact with water or moist air.
- Some react vigorously or explosively on contact with water.
- May be ignited by heat, sparks or flames.
- May re-ignite after fire is extinguished.
- Some are transported in highly flammable liquids.
- Runoff may create fire or explosion hazard.

**HEALTH**

- Inhalation or contact with vapors, substance or decomposition products may cause severe injury or death.
- May produce corrosive solutions on contact with water.
- Fire will produce irritating, corrosive and/or toxic gases.
- Runoff from fire control may cause pollution.

**PUBLIC SAFETY**

- CALL EMERGENCY RESPONSE Telephone Number on Shipping Paper first. If Shipping Paper not available or no answer, refer to appropriate telephone number listed on the inside back cover.
- As an immediate precautionary measure, isolate spill or leak area in all directions for at least 50 meters (150 feet) for liquids and at least 25 meters (75 feet) for solids.
- Keep unauthorized personnel away.
- Stay upwind, uphill and/or upstream.
- Ventilate the area before entry.

**PROTECTIVE CLOTHING**

- Wear positive pressure self-contained breathing apparatus (SCBA).
- Wear chemical protective clothing that is specifically recommended by the manufacturer. It may provide little or no thermal protection.
- Structural firefighters' protective clothing provides limited protection in fire situations ONLY; it is not effective in spill situations where direct contact with the substance is possible.

**EVACUATION**

- Spill
  - See Table 1-10 for recommended protective action distances for highlighted materials. For non-highlighted materials, increase, in the downwind direction, as necessary, the isolation distance shown under "PUBLIC SAFETY".
- Fire
  - If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also, consider initial evacuation for 800 meters (1/2 mile) in all directions.

 In Canada, an Emergency Response Assistance Plan (ERAP) may be required for this product. Please consult the shipping document and/or the ERAP Program Section (page 391).

SUBSTANCES - WATER-REACTIVE  
(EMITTING FLAMMABLE GASES) **GUIDE 138**

**EMERGENCY RESPONSE**

**FIRE**

• DO NOT USE WATER OR FOAM.

**Small Fire**

• Dry chemical, soda ash, lime or sand.

**Large Fire**

• DRY sand, dry chemical, soda ash or lime or withdraw from area and let fire burn.

• Move containers from fire area if you can do it without risk.

**Fire Involving Metals or Powders (Aluminum, Lithium, Magnesium, etc.)**

• Use dry chemical, DRY sand, sodium chloride powder, graphite powder or Met-L-X® powder; in addition, for Lithium you may use Lith-X® powder or copper powder.  
Also, see GUIDE 170.

**Fire Involving Tanks or Car/Trailer Loads**

- Fight fire from maximum distance or use unmanned hose holders or monitor nozzles.
- Do not get water inside containers.
- Cool containers with flooding quantities of water until well after fire is out.
- Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
- ALWAYS stay away from tanks engulfed in fire.

**SPILL OR LEAK**

- ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area).
- Do not touch or walk through spilled material.
- Stop leak if you can do it without risk.
- Use water spray to reduce vapors or divert vapor cloud drift. Avoid allowing water runoff to contact spilled material.
- DO NOT GET WATER on spilled substance or inside containers.

**Small Spill**

- Cover with DRY earth, DRY sand or other non-combustible material followed with plastic sheet to minimize spreading or contact with rain.
- Dike for later disposal; do not apply water unless directed to do so.

**Powder Spill**

- Cover powder spill with plastic sheet or tarp to minimize spreading and keep powder dry.
- DO NOT CLEAN-UP OR DISPOSE OF, EXCEPT UNDER SUPERVISION OF A SPECIALIST.

**FIRST AID**

- Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.
- Move victim to fresh air.
- Call 911 or emergency medical service.
- Give artificial respiration if victim is not breathing.
- Administer oxygen if breathing is difficult.
- Remove and isolate contaminated clothing and shoes.
- In case of contact with substance, wipe from skin immediately; flush skin or eyes with running water for at least 20 minutes.
- Keep victim calm and warm.

**GUIDE 139** SUBSTANCES - WATER-REACTIVE  
(EMITTING FLAMMABLE AND TOXIC GASES)

**POTENTIAL HAZARDS**

**FIRE OR EXPLOSION**

- Produce flammable and toxic gases on contact with water.
- May ignite on contact with water or moist air.
- Some react vigorously or explosively on contact with water.
- May be ignited by heat, sparks or flames.
- May re-ignite after fire is extinguished.
- Some are transported in highly flammable liquids.
- Containers may explode when heated.
- Runoff may create fire or explosion hazard.

**HEALTH**

- Highly toxic: contact with water produces toxic gas, may be fatal if inhaled.
- Inhalation or contact with vapors, substance or decomposition products may cause severe injury or death.
- May produce corrosive solutions on contact with water.
- Fire will produce irritating, corrosive and/or toxic gases.
- Runoff from fire control may cause pollution.

**PUBLIC SAFETY**

- CALL EMERGENCY RESPONSE Telephone Number on Shipping Paper first. If Shipping Paper not available or no answer, refer to appropriate telephone number listed on the inside back cover.
- As an immediate precautionary measure, isolate spill or leak area in all directions for at least 50 meters (150 feet) for liquids and at least 25 meters (75 feet) for solids.
- Keep unauthorized personnel away.
- Stay upwind, uphill and/or upstream.
- Ventilate the area before entry.

**PROTECTIVE CLOTHING**

- Wear positive pressure self-contained breathing apparatus (SCBA).
- Wear chemical protective clothing that is specifically recommended by the manufacturer. It may provide little or no thermal protection.
- Structural firefighters' protective clothing provides limited protection in fire situations ONLY; it is not effective in spill situations where direct contact with the substance is possible.

**EVACUATION**

**Spill**

- See Table 1 for initial downwind evacuation distances for highlighted materials. For non-highlighted materials, increase, in the downwind direction, as necessary, the isolation distance shown under "PUBLIC SAFETY".

**Fire**

- If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also, consider initial evacuation for 800 meters (1/2 mile) in all directions.



In Canada, an Emergency Response Assistance Plan (ERAP) may be required for this product. Please consult the shipping document and/or the ERAP Program Section (page 391).

SUBSTANCES - WATER-REACTIVE  
(EMITTING FLAMMABLE AND TOXIC GASES) **GUIDE 139**

**EMERGENCY RESPONSE**

**FIRE**

• DO NOT USE WATER OR FOAM. (FOAM MAY BE USED FOR CHLOROSILANES, SEE BELOW)

**Small Fire**

• Dry chemical, soda ash, lime or sand.

**Large Fire**

• DRY sand, dry chemical, soda ash or lime or withdraw from area and let fire burn.

• FOR CHLOROSILANES, DO NOT USE WATER; use AFFF alcohol-resistant medium-expansion foam; DO NOT USE dry chemicals, soda ash or lime on chlorosilane fires (large or small) as they may release large quantities of hydrogen gas that may explode.

• Move containers from fire area if you can do it without risk.

**Fire Involving Tanks or Car/Trailer Loads**

- Fight fire from maximum distance or use unmanned hose holders or monitor nozzles.
- Cool containers with flooding quantities of water until well after fire is out.
- Do not get water inside containers.
- Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
- ALWAYS stay away from tanks engulfed in fire.

**SPILL OR LEAK**

- Fully encapsulating, vapor-protective clothing should be worn for spills and leaks with no fire.
- ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area).
- Do not touch or walk through spilled material.
- Stop leak if you can do it without risk.
- DO NOT GET WATER on spilled substance or inside containers.
- Use water spray to reduce vapors or divert vapor cloud drift. Avoid allowing water runoff to contact spilled material.
- FOR CHLOROSILANES, use AFFF alcohol-resistant medium-expansion foam to reduce vapors.

**Small Spill**

- Cover with DRY earth, DRY sand or other non-combustible material followed with plastic sheet to minimize spreading or contact with rain.
- Dike for later disposal; do not apply water unless directed to do so.

**Powder Spill**

- Cover powder spill with plastic sheet or tarp to minimize spreading and keep powder dry.
- DO NOT CLEAN-UP OR DISPOSE OF, EXCEPT UNDER SUPERVISION OF A SPECIALIST.

**FIRST AID**

- Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.
- Move victim to fresh air.
- Call 911 or emergency medical service.
- Give artificial respiration if victim is not breathing.
- Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.
- Administer oxygen if breathing is difficult.
- Remove and isolate contaminated clothing and shoes.
- In case of contact with substance, wipe from skin immediately; flush skin or eyes with running water for at least 20 minutes.
- Keep victim calm and warm.

**GUIDE 140** OXIDIZERS

**POTENTIAL HAZARDS**

**FIRE OR EXPLOSION**

- These substances will accelerate burning when involved in a fire.
- Some may decompose explosively when heated or involved in a fire.
- May explode from heat or contamination.
- Some will react explosively with hydrocarbons (fuels).
- May ignite combustibles (wood, paper, oil, clothing, etc.).
- Containers may explode when heated.
- Runoff may create fire or explosion hazard.

**HEALTH**

- Inhalation, ingestion or contact (skin, eyes) with vapors or substance may cause severe injury, burns or death.
- Fire may produce irritating, corrosive and/or toxic gases.
- Runoff from fire control or dilution water may cause pollution.

**PUBLIC SAFETY**

- CALL EMERGENCY RESPONSE Telephone Number on Shipping Paper first. If Shipping Paper not available or no answer, refer to appropriate telephone number listed on the inside back cover.
- As an immediate precautionary measure, isolate spill or leak area in all directions for at least 50 meters (150 feet) for liquids and at least 25 meters (75 feet) for solids.
- Keep unauthorized personnel away.
- Stay upwind, uphill and/or upstream.
- Ventilate closed spaces before entering.

**PROTECTIVE CLOTHING**

- Wear positive pressure self-contained breathing apparatus (SCBA).
- Wear chemical protective clothing that is specifically recommended by the manufacturer. It may provide little or no thermal protection.
- Structural firefighters' protective clothing will only provide limited protection.

**EVACUATION**

**Large Spill**

- Consider initial downwind evacuation for at least 100 meters (330 feet).

**Fire**

- If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also, consider initial evacuation for 800 meters (1/2 mile) in all directions.



In Canada, an Emergency Response Assistance Plan (ERAP) may be required for this product. Please consult the shipping document and/or the ERAP Program Section (page 391).

EMERGENCY RESPONSE

**FIRE**

- Small Fire**
- Use water. Do not use dry chemicals or foams. CO<sub>2</sub> or Halon® may provide limited control.
- Large Fire**
- Flood fire area with water from a distance.
  - Do not move cargo or vehicle if cargo has been exposed to heat.
  - Move containers from fire area if you can do it without risk.

**Fire Involving Tanks or Car/Trailer Loads**

- Fight fire from maximum distance or use unmanned hose holders or monitor nozzles.
- Cool containers with flooding quantities of water until well after fire is out.
- ALWAYS stay away from tanks engulfed in fire.
- For massive fire, use unmanned hose holders or monitor nozzles; if this is impossible, withdraw from area and let fire burn.

**SPILL OR LEAK**

- Keep combustibles (wood, paper, oil, etc.) away from spilled material.
- Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.
- Stop leak if you can do it without risk.
- Do not get water inside containers.

**Small Dry Spill**

- With clean shovel, place material into clean, dry container and cover loosely; move containers from spill area.

**Small Liquid Spill**

- Use a non-combustible material like vermiculite or sand to soak up the product and place into a container for later disposal.

**Large Spill**

- Dike far ahead of liquid spill for later disposal.
- Following product recovery, flush area with water.

**FIRST AID**

- Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.
- Move victim to fresh air.
- Call 911 or emergency medical service.
- Give artificial respiration if victim is not breathing.
- Administer oxygen if breathing is difficult.
- Remove and isolate contaminated clothing and shoes.
- Contaminated clothing may be a fire risk when dry.
- In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes.
- Keep victim calm and warm.

POTENTIAL HAZARDS

**FIRE OR EXPLOSION**

- These substances will accelerate burning when involved in a fire.
- May explode from heat or contamination.
- Some may burn rapidly.
- Some will react explosively with hydrocarbons (fuels).
- May ignite combustibles (wood, paper, oil, clothing, etc.).
- Containers may explode when heated.
- Runoff may create fire or explosion hazard.

**HEALTH**

- Toxic by ingestion.
- Inhalation of dust is toxic.
- Fire may produce irritating, corrosive and/or toxic gases.
- Contact with substance may cause severe burns to skin and eyes.
- Runoff from fire control or dilution water may cause pollution.

**PUBLIC SAFETY**

- CALL EMERGENCY RESPONSE Telephone Number on Shipping Paper first. If Shipping Paper not available or no answer, refer to appropriate telephone number listed on the inside back cover.
- As an immediate precautionary measure, isolate spill or leak area in all directions for at least 50 meters (150 feet) for liquids and at least 25 meters (75 feet) for solids.
- Keep unauthorized personnel away.
- Stay upwind, uphill and/or upstream.
- Ventilate closed spaces before entering.

**PROTECTIVE CLOTHING**

- Wear positive pressure self-contained breathing apparatus (SCBA).
- Wear chemical protective clothing that is specifically recommended by the manufacturer. It may provide little or no thermal protection.
- Structural firefighters' protective clothing will only provide limited protection.

**EVACUATION**

**Large Spill**

- Consider initial downwind evacuation for at least 100 meters (330 feet).

**Fire**

- If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also, consider initial evacuation for 800 meters (1/2 mile) in all directions.



In Canada, an Emergency Response Assistance Plan (ERAP) may be required for this product. Please consult the shipping document and/or the ERAP Program Section (page 391).

EMERGENCY RESPONSE

**FIRE**

- Small Fire**
- Use water. Do not use dry chemicals or foams. CO<sub>2</sub> or Halon® may provide limited control.
- Large Fire**
- Flood fire area with water from a distance.
  - Do not move cargo or vehicle if cargo has been exposed to heat.
  - Move containers from fire area if you can do it without risk.

**Fire Involving Tanks or Car/Trailer Loads**

- Fight fire from maximum distance or use unmanned hose holders or monitor nozzles.
- Cool containers with flooding quantities of water until well after fire is out.
- ALWAYS stay away from tanks engulfed in fire.
- For massive fire, use unmanned hose holders or monitor nozzles; if this is impossible, withdraw from area and let fire burn.

**SPILL OR LEAK**

- Keep combustibles (wood, paper, oil, etc.) away from spilled material.
- Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.
- Stop leak if you can do it without risk.

**Small Dry Spill**

- With clean shovel, place material into clean, dry container and cover loosely; move containers from spill area.

**Large Spill**

- Dike far ahead of spill for later disposal.

**FIRST AID**

- Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.
- Move victim to fresh air.
- Call 911 or emergency medical service.
- Give artificial respiration if victim is not breathing.
- Administer oxygen if breathing is difficult.
- Remove and isolate contaminated clothing and shoes.
- Contaminated clothing may be a fire risk when dry.
- In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes.
- Keep victim calm and warm.

POTENTIAL HAZARDS

**FIRE OR EXPLOSION**

- These substances will accelerate burning when involved in a fire.
- May explode from heat or contamination.
- Some will react explosively with hydrocarbons (fuels).
- May ignite combustibles (wood, paper, oil, clothing, etc.).
- Containers may explode when heated.
- Runoff may create fire or explosion hazard.

**HEALTH**

- TOXIC; inhalation, ingestion or contact (skin, eyes) with vapors or substance may cause severe injury, burns or death.
- Fire may produce irritating, corrosive and/or toxic gases.
- Toxic/flammable fumes may accumulate in confined areas (basement, tanks, tank cars, etc.).
- Runoff from fire control or dilution water may cause pollution.

**PUBLIC SAFETY**

- CALL EMERGENCY RESPONSE Telephone Number on Shipping Paper first. If Shipping Paper not available or no answer, refer to appropriate telephone number listed on the inside back cover.
- As an immediate precautionary measure, isolate spill or leak area for at least 50 meters (150 feet) in all directions.
- Keep unauthorized personnel away.
- Stay upwind, uphill and/or upstream.
- Ventilate closed spaces before entering.

**PROTECTIVE CLOTHING**

- Wear positive pressure self-contained breathing apparatus (SCBA).
- Wear chemical protective clothing that is specifically recommended by the manufacturer. It may provide little or no thermal protection.
- Structural firefighters' protective clothing provides limited protection in fire situations ONLY; it is not effective in spill situations where direct contact with the substance is possible.

**EVACUATION**

**Spill**

- See **Public Safety** for highlighted materials. For non-highlighted materials, increase, in the downwind direction, as necessary, the isolation distance shown under "PUBLIC SAFETY".

**Fire**

- If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also, consider initial evacuation for 800 meters (1/2 mile) in all directions.



In Canada, an Emergency Response Assistance Plan (ERAP) may be required for this product. Please consult the shipping document and/or the ERAP Program Section (page 391).