

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 or dilution water may cause environmental contamination.

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 911. Then call emergency response telephone number on shipping paper.** If shipping paper not available or no answer, refer to appropriate telephone number listed on the inside back cover.
- Keep unauthorized personnel away.
- Stay upwind, uphill and/or upstream.
- Many gases are heavier than air and will spread along the ground and collect in low or confined areas (sewers, basements, tanks, etc.).
- Ventilate closed spaces before entering, but only if properly trained and equipped.

PROTECTIVE CLOTHING

- Wear positive pressure self-contained breathing apparatus (SCBA).
- Wear chemical protective clothing that is specifically recommended by the manufacturer **when there is NO RISK OF FIRE.**
- Structural firefighters' protective clothing provides thermal protection **but only limited chemical protection.**

EVACUATION

Immediate precautionary measure

- Isolate spill or leak area for at least 100 meters (330 feet) in all directions.

Spill

- See **Table 1 - 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 paper and/or the ERAP Program Section (page 390).

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, CO₂ or Halon®.**
- Do not get water inside containers.
- If it can be done safely, move undamaged containers away from the area around the fire.
- Damaged cylinders should be handled only by specialists.

Fire Involving Tanks

- Fight fire from maximum distance or use unmanned master stream devices 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 master stream devices or monitor nozzles; if this is impossible, withdraw from area and let fire burn.

SPILL OR LEAK

- 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

- Call 911 or emergency medical service.
- Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.
- Move victim to fresh air if it can be done safely.
- Give artificial respiration if victim is not breathing.
- **Do not perform mouth-to-mouth resuscitation if victim ingested or inhaled the substance; wash face and mouth before giving artificial respiration. Use 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.

| | | | TABLE 1 - INITIAL ISOLATION AND PROTECTIVE ACTION DISTANCES | | | | | | | | | | | |
|--------|-------|--|---|-----------|---|----------|-----------------------------|----------|--|-----------|---|-----------|-----------------------------|-----------|
| | | | SMALL SPILLS | | | | | | LARGE SPILLS | | | | | |
| | | | (From a small package or small leak from a large package) | | | | | | (From a large package or from many small packages) | | | | | |
| | | | First ISOLATE in all Directions | | Then PROTECT persons Downwind during | | | | First ISOLATE in all Directions | | Then PROTECT persons Downwind during | | | |
| ID No. | Guide | NAME OF MATERIAL | Meters | (Feet) | DAY Kilometers (Miles) | | NIGHT Kilometers (Miles) | | Meters | (Feet) | DAY Kilometers (Miles) | | NIGHT Kilometers (Miles) | |
| 1017 | 124 | Chlorine | 60 m | (200 ft) | 0.3 km | (0.2 mi) | 1.4 km | (0.9 mi) | | | Refer to table 3 | | | |
| 1045 | 124 | Fluorine | 30 m | (100 ft) | 0.1 km | (0.1 mi) | 0.2 km | (0.1 mi) | 100 m | (300 ft) | 0.5 km | (0.3 mi) | 2.3 km | (1.4 mi) |
| 1045 | 124 | Fluorine, compressed | 30 m | (100 ft) | 0.1 km | (0.1 mi) | 0.2 km | (0.1 mi) | 100 m | (300 ft) | 0.5 km | (0.3 mi) | 2.3 km | (1.4 mi) |
| 1067 | 124 | Dinitrogen tetroxide | 30 m | (100 ft) | 0.1 km | (0.1 mi) | 0.4 km | (0.3 mi) | 400 m | (1250 ft) | 1.4 km | (0.9 mi) | 3.3 km | (2.1 mi) |
| 1067 | 124 | Nitrogen dioxide | 30 m | (100 ft) | 0.1 km | (0.1 mi) | 0.4 km | (0.3 mi) | 400 m | (1250 ft) | 1.4 km | (0.9 mi) | 3.3 km | (2.1 mi) |
| 1660 | 124 | Nitric oxide | 30 m | (100 ft) | 0.1 km | (0.1 mi) | 0.6 km | (0.4 mi) | 100 m | (300 ft) | 0.6 km | (0.4 mi) | 2.2 km | (1.4 mi) |
| 1660 | 124 | Nitric oxide, compressed | 30 m | (100 ft) | 0.1 km | (0.1 mi) | 0.6 km | (0.4 mi) | 100 m | (300 ft) | 0.6 km | (0.4 mi) | 2.2 km | (1.4 mi) |
| 1749 | 124 | Chlorine trifluoride | 60 m | (200 ft) | 0.3 km | (0.2 mi) | 1.1 km | (0.7 mi) | 200 m | (600 ft) | 1.4 km | (0.9 mi) | 3.6 km | (2.3 mi) |
| 1975 | 124 | Dinitrogen tetroxide and Nitric oxide mixture | 30 m | (100 ft) | 0.1 km | (0.1 mi) | 0.6 km | (0.4 mi) | 100 m | (300 ft) | 0.6 km | (0.4 mi) | 2.2 km | (1.4 mi) |
| 1975 | 124 | Nitric oxide and Dinitrogen tetroxide mixture | 30 m | (100 ft) | 0.1 km | (0.1 mi) | 0.6 km | (0.4 mi) | 100 m | (300 ft) | 0.6 km | (0.4 mi) | 2.2 km | (1.4 mi) |
| 1975 | 124 | Nitric oxide and Nitrogen dioxide mixture | 30 m | (100 ft) | 0.1 km | (0.1 mi) | 0.6 km | (0.4 mi) | 100 m | (300 ft) | 0.6 km | (0.4 mi) | 2.2 km | (1.4 mi) |
| 1975 | 124 | Nitrogen dioxide and Nitric oxide mixture | 30 m | (100 ft) | 0.1 km | (0.1 mi) | 0.6 km | (0.4 mi) | 100 m | (300 ft) | 0.6 km | (0.4 mi) | 2.2 km | (1.4 mi) |
| 2190 | 124 | Oxygen difluoride | 300 m | (1000 ft) | 1.8 km | (1.1 mi) | 7.1 km | (4.4 mi) | 1000 m | (3000 ft) | 11.0+ km | (7.0+ mi) | 11.0+ km | (7.0+ mi) |
| 2190 | 124 | Oxygen difluoride, compressed | 300 m | (1000 ft) | 1.8 km | (1.1 mi) | 7.1 km | (4.4 mi) | 1000 m | (3000 ft) | 11.0+ km | (7.0+ mi) | 11.0+ km | (7.0+ mi) |
| 2421 | 124 | Nitrogen trioxide | 60 m | (200 ft) | 0.3 km | (0.2 mi) | 1.2 km | (0.7 mi) | 200 m | (600 ft) | 1.2 km | (0.8 mi) | 4.2 km | (2.6 mi) |
| 2548 | 124 | Chlorine pentafluoride | 100 m | (300 ft) | 0.5 km | (0.3 mi) | 2.5 km | (1.6 mi) | 800 m | (2500 ft) | 5.0 km | (3.1 mi) | 11.0+ km | (7.0+ mi) |
| 2901 | 124 | Bromine chloride | 100 m | (300 ft) | 0.5 km | (0.3 mi) | 1.8 km | (1.1 mi) | 1000 m | (3000 ft) | 5.4 km | (3.4 mi) | 11.0+ km | (7.0+ mi) |
| 3083 | 124 | Perchloryl fluoride | 30 m | (100 ft) | 0.2 km | (0.2 mi) | 1.1 km | (0.7 mi) | 1000 m | (3000 ft) | 5.5 km | (3.4 mi) | 11.0+ km | (7.0+ mi) |
| 3303 | 124 | Compressed gas, poisonous, oxidizing, n.o.s. | 100 m | (300 ft) | 0.5 km | (0.3 mi) | 2.5 km | (1.6 mi) | 800 m | (2500 ft) | 5.0 km | (3.1 mi) | 11.0+ km | (7.0+ mi) |
| 3303 | 124 | Compressed gas, poisonous, oxidizing, n.o.s. (Inhalation Hazard Zone A) | 100 m | (300 ft) | 0.5 km | (0.3 mi) | 2.5 km | (1.6 mi) | 800 m | (2500 ft) | 5.0 km | (3.1 mi) | 11.0+ km | (7.0+ mi) |
| 3303 | 124 | Compressed gas, poisonous, oxidizing, n.o.s. (Inhalation Hazard Zone B) | 60 m | (200 ft) | 0.3 km | (0.2 mi) | 1.1 km | (0.7 mi) | 400 m | (1250 ft) | 2.5 km | (1.5 mi) | 6.7 km | (4.2 mi) |
| 3303 | 124 | Compressed gas, poisonous, oxidizing, n.o.s. (Inhalation Hazard Zone C) | 30 m | (100 ft) | 0.1 km | (0.1 mi) | 0.3 km | (0.2 mi) | 150 m | (500 ft) | 1.0 km | (0.6 mi) | 2.9 km | (1.8 mi) |
| 3303 | 124 | Compressed gas, poisonous, oxidizing, n.o.s. (Inhalation Hazard Zone D) | 30 m | (100 ft) | 0.1 km | (0.1 mi) | 0.2 km | (0.1 mi) | 150 m | (500 ft) | 0.8 km | (0.5 mi) | 2.0 km | (1.3 mi) |
| 3303 | 124 | Compressed gas, toxic, oxidizing, n.o.s. | 100 m | (300 ft) | 0.5 km | (0.3 mi) | 2.5 km | (1.6 mi) | 800 m | (2500 ft) | 5.0 km | (3.1 mi) | 11.0+ km | (7.0+ mi) |
| 3303 | 124 | Compressed gas, toxic, oxidizing, n.o.s. (Inhalation Hazard Zone A) | 100 m | (300 ft) | 0.5 km | (0.3 mi) | 2.5 km | (1.6 mi) | 800 m | (2500 ft) | 5.0 km | (3.1 mi) | 11.0+ km | (7.0+ mi) |
| 3303 | 124 | Compressed gas, toxic, oxidizing, n.o.s. (Inhalation Hazard Zone B) | 60 m | (200 ft) | 0.3 km | (0.2 mi) | 1.1 km | (0.7 mi) | 400 m | (1250 ft) | 2.5 km | (1.5 mi) | 6.7 km | (4.2 mi) |
| 3303 | 124 | Compressed gas, toxic, oxidizing, n.o.s. (Inhalation Hazard Zone C) | 30 m | (100 ft) | 0.1 km | (0.1 mi) | 0.3 km | (0.2 mi) | 150 m | (500 ft) | 1.0 km | (0.6 mi) | 2.9 km | (1.8 mi) |
| 3303 | 124 | Compressed gas, toxic, oxidizing, n.o.s. (Inhalation Hazard Zone D) | 30 m | (100 ft) | 0.1 km | (0.1 mi) | 0.2 km | (0.1 mi) | 150 m | (500 ft) | 0.8 km | (0.5 mi) | 2.0 km | (1.3 mi) |
| 3306 | 124 | Compressed gas, poisonous, oxidizing, corrosive, n.o.s. | 100 m | (300 ft) | 0.5 km | (0.3 mi) | 2.5 km | (1.6 mi) | 500 m | (1500 ft) | 2.9 km | (1.8 mi) | 9.2 km | (5.7 mi) |
| 3306 | 124 | Compressed gas, poisonous, oxidizing, corrosive, n.o.s. (Inhalation Hazard Zone A) | 100 m | (300 ft) | 0.5 km | (0.3 mi) | 2.5 km | (1.6 mi) | 500 m | (1500 ft) | 2.9 km | (1.8 mi) | 9.2 km | (5.7 mi) |
| 3306 | 124 | Compressed gas, poisonous, oxidizing, corrosive, n.o.s. (Inhalation Hazard Zone B) | 30 m | (100 ft) | 0.2 km | (0.2 mi) | 1.0 km | (0.7 mi) | 400 m | (1250 ft) | 2.3 km | (1.4 mi) | 5.1 km | (3.2 mi) |
| 3306 | 124 | Compressed gas, poisonous, oxidizing, corrosive, n.o.s. (Inhalation Hazard Zone C) | 30 m | (100 ft) | 0.1 km | (0.1 mi) | 0.5 km | (0.3 mi) | 300 m | (1000 ft) | 1.6 km | (1.0 mi) | 3.2 km | (2.0 mi) |
| 3306 | 124 | Compressed gas, poisonous, oxidizing, corrosive, n.o.s. (Inhalation Hazard Zone D) | 30 m | (100 ft) | 0.1 km | (0.1 mi) | 0.2 km | (0.1 mi) | 150 m | (500 ft) | 0.8 km | (0.5 mi) | 2.0 km | (1.3 mi) |
| 3306 | 124 | Compressed gas, toxic, oxidizing, corrosive, n.o.s. | 100 m | (300 ft) | 0.5 km | (0.3 mi) | 2.5 km | (1.6 mi) | 500 m | (1500 ft) | 2.9 km | (1.8 mi) | 9.2 km | (5.7 mi) |
| 3306 | 124 | Compressed gas, toxic, oxidizing, corrosive, n.o.s. (Inhalation Hazard Zone A) | 100 m | (300 ft) | 0.5 km | (0.3 mi) | 2.5 km | (1.6 mi) | 500 m | (1500 ft) | 2.9 km | (1.8 mi) | 9.2 km | (5.7 mi) |
| 3306 | 124 | Compressed gas, toxic, oxidizing, corrosive, n.o.s. (Inhalation Hazard Zone B) | 30 m | (100 ft) | 0.2 km | (0.2 mi) | 1.0 km | (0.7 mi) | 400 m | (1250 ft) | 2.3 km | (1.4 mi) | 5.1 km | (3.2 mi) |
| 3306 | 124 | Compressed gas, toxic, oxidizing, corrosive, n.o.s. (Inhalation Hazard Zone C) | 30 m | (100 ft) | 0.1 km | (0.1 mi) | 0.5 km | (0.3 mi) | 300 m | (1000 ft) | 1.6 km | (1.0 mi) | 3.2 km | (2.0 mi) |
| 3306 | 124 | Compressed gas, toxic, oxidizing, corrosive, n.o.s. (Inhalation Hazard Zone D) | 30 m | (100 ft) | 0.1 km | (0.1 mi) | 0.2 km | (0.1 mi) | 150 m | (500 ft) | 0.8 km | (0.5 mi) | 2.0 km | (1.3 mi) |
| 3307 | 124 | Liquefied gas, poisonous, oxidizing, n.o.s. | 100 m | (300 ft) | 0.5 km | (0.3 mi) | 2.5 km | (1.6 mi) | 800 m | (2500 ft) | 5.0 km | (3.1 mi) | 11.0+ km | (7.0+ mi) |
| 3307 | 124 | Liquefied gas, poisonous, oxidizing, n.o.s. (Inhalation Hazard Zone A) | 100 m | (300 ft) | 0.5 km | (0.3 mi) | 2.5 km | (1.6 mi) | 800 m | (2500 ft) | 5.0 km | (3.1 mi) | 11.0+ km | (7.0+ mi) |
| 3307 | 124 | Liquefied gas, poisonous, oxidizing, n.o.s. (Inhalation Hazard Zone B) | 60 m | (200 ft) | 0.3 km | (0.2 mi) | 1.1 km | (0.7 mi) | 400 m | (1250 ft) | 2.5 km | (1.5 mi) | 6.7 km | (4.2 mi) |
| 3307 | 124 | Liquefied gas, poisonous, oxidizing, n.o.s. (Inhalation Hazard Zone C) | 30 m | (100 ft) | 0.1 km | (0.1 mi) | 0.3 km | (0.2 mi) | 150 m | (500 ft) | 1.0 km | (0.6 mi) | 2.9 km | (1.8 mi) |
| 3307 | 124 | Liquefied gas, poisonous, oxidizing, n.o.s. (Inhalation Hazard Zone D) | 30 m | (100 ft) | 0.1 km | (0.1 mi) | 0.2 km | (0.1 mi) | 150 m | (500 ft) | 0.8 km | (0.5 mi) | 2.0 km | (1.3 mi) |
| 3307 | 124 | Liquefied gas, toxic, oxidizing, n.o.s. | 100 m | (300 ft) | 0.5 km | (0.3 mi) | 2.5 km | (1.6 mi) | 800 m | (2500 ft) | 5.0 km | (3.1 mi) | 11.0+ km | (7.0+ mi) |
| 3307 | 124 | Liquefied gas, toxic, oxidizing, n.o.s. (Inhalation Hazard Zone A) | 100 m | (300 ft) | 0.5 km | (0.3 mi) | 2.5 km | (1.6 mi) | 800 m | (2500 ft) | 5.0 km | (3.1 mi) | 11.0+ km | (7.0+ mi) |
| 3307 | 124 | Liquefied gas, toxic, oxidizing, n.o.s. (Inhalation Hazard Zone B) | 60 m | (200 ft) | 0.3 km | (0.2 mi) | 1.1 km | (0.7 mi) | 400 m | (1250 ft) | 2.5 km | (1.5 mi) | 6.7 km | (4.2 mi) |
| 3307 | 124 | Liquefied gas, toxic, oxidizing, n.o.s. (Inhalation Hazard Zone C) | 30 m | (100 ft) | 0.1 km | (0.1 mi) | 0.3 km | (0.2 mi) | 150 m | (500 ft) | 1.0 km | (0.6 mi) | 2.9 km | (1.8 mi) |
| 3307 | 124 | Liquefied gas, toxic, oxidizing, n.o.s. (Inhalation Hazard Zone D) | 30 m | (100 ft) | 0.1 km | (0.1 mi) | 0.2 km | (0.1 mi) | 150 m | (500 ft) | 0.8 km | (0.5 mi) | 2.0 km | (1.3 mi) |
| 3310 | 124 | Liquefied gas, poisonous, oxidizing, corrosive, n.o.s. | 100 m | (300 ft) | 0.5 km | (0.3 mi) | 2.5 km | (1.6 mi) | 500 m | (1500 ft) | 2.9 km | (1.8 mi) | 9.2 km | (5.7 mi) |
| 3310 | 124 | Liquefied gas, poisonous, oxidizing, corrosive, n.o.s. (Inhalation Hazard Zone A) | 100 m | (300 ft) | 0.5 km | (0.3 mi) | 2.5 km | (1.6 mi) | 500 m | (1500 ft) | 2.9 km | (1.8 mi) | 9.2 km | (5.7 mi) |
| 3310 | 124 | Liquefied gas, poisonous, oxidizing, corrosive, n.o.s. (Inhalation Hazard Zone B) | 30 m | (100 ft) | 0.2 km | (0.2 mi) | 1.0 km | (0.7 mi) | 400 m | (1250 ft) | 2.3 km | (1.4 mi) | 5.1 km | (3.2 mi) |
| 3310 | 124 | Liquefied gas, poisonous, oxidizing, corrosive, n.o.s. (Inhalation Hazard Zone C) | 30 m | (100 ft) | 0.1 km | (0.1 mi) | 0.5 km | (0.3 mi) | 300 m | (1000 ft) | 1.6 km | (1.0 mi) | 3.2 km | (2.0 mi) |
| 3310 | 124 | Liquefied gas, poisonous, oxidizing, corrosive, n.o.s. (Inhalation Hazard Zone D) | 30 m | (100 ft) | 0.1 km | (0.1 mi) | 0.2 km | (0.1 mi) | 150 m | (500 ft) | 0.8 km | (0.5 mi) | 2.0 km | (1.3 mi) |
| 3310 | 124 | Liquefied gas, toxic, oxidizing, corrosive, n.o.s. | 100 m | (300 ft) | 0.5 km | (0.3 mi) | 2.5 km | (1.6 mi) | 500 m | (1500 ft) | 2.9 km | (1.8 mi) | 9.2 km | (5.7 mi) |
| 3310 | 124 | Liquefied gas, toxic, oxidizing, corrosive, n.o.s. (Inhalation Hazard Zone A) | 100 m | (300 ft) | 0.5 km | (0.3 mi) | 2.5 km | (1.6 mi) | 500 m | (1500 ft) | 2.9 km | (1.8 mi) | 9.2 km | (5.7 mi) |
| 3310 | 124 | Liquefied gas, toxic, oxidizing, corrosive, n.o.s. (Inhalation Hazard Zone B) | 30 m | (100 ft) | 0.2 km | (0.2 mi) | 1.0 km | (0.7 mi) | 400 m | (1250 ft) | 2.3 km | (1.4 mi) | 5.1 km | (3.2 mi) |
| 3310 | 124 | Liquefied gas, toxic, oxidizing, corrosive, n.o.s. (Inhalation Hazard Zone C) | 30 m | (100 ft) | 0.1 km | (0.1 mi) | 0.5 km | (0.3 mi) | 300 m | (1000 ft) | 1.6 km | (1.0 mi) | 3.2 km | (2.0 mi) |
| 3310 | 124 | Liquefied gas, toxic, oxidizing, corrosive, n.o.s. (Inhalation Hazard Zone D) | 30 m | (100 ft) | 0.1 km | (0.1 mi) | 0.2 km | (0.1 mi) | 150 m | (500 ft) | 0.8 km | (0.5 mi) | 2.0 km | (1.3 mi) |