

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 or dilution water may cause environmental contamination.

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.
- 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 in all directions for at least 50 meters (150 feet) for liquids and at least 25 meters (75 feet) for solids.

Spill

- For **highlighted materials**: see Table 1 - Initial Isolation and Protective Action Distances.
- For non-highlighted materials: increase the immediate precautionary measure distance, in the downwind direction, as necessary.

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

- **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.
- If it can be done safely, move undamaged containers away from the area around the fire.

Fire Involving Tanks or Car/Trailer Loads

- 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 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

- **ELIMINATE** all ignition sources (no smoking, flares, sparks or flames) from 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

- 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.
- 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.

TABLE 1 - INITIAL ISOLATION AND PROTECTIVE ACTION DISTANCES

			SMALL SPILLS (From a small package or small leak from a large package)						LARGE SPILLS (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)	
1183	139	Ethyldichlorosilane (when spilled in water)	30 m	(100 ft)	0.1 km	(0.1 mi)	0.1 km	(0.1 mi)	60 m	(200 ft)	0.6 km	(0.4 mi)	2.0 km	(1.3 mi)
1242	139	Methyldichlorosilane (when spilled in water)	30 m	(100 ft)	0.1 km	(0.1 mi)	0.1 km	(0.1 mi)	60 m	(200 ft)	0.8 km	(0.5 mi)	2.3 km	(1.5 mi)
1295	139	Trichlorosilane (when spilled in water)	30 m	(100 ft)	0.1 km	(0.1 mi)	0.1 km	(0.1 mi)	60 m	(200 ft)	0.6 km	(0.4 mi)	2.1 km	(1.3 mi)
1340	139	Phosphorus pentasulfide, free from yellow and white Phosphorus (when spilled in water)	30 m	(100 ft)	0.1 km	(0.1 mi)	0.1 km	(0.1 mi)	60 m	(200 ft)	0.3 km	(0.2 mi)	1.4 km	(0.9 mi)
1340	139	Phosphorus pentasulphide, free from yellow and white Phosphorus (when spilled in water)	30 m	(100 ft)	0.1 km	(0.1 mi)	0.1 km	(0.1 mi)	60 m	(200 ft)	0.3 km	(0.2 mi)	1.4 km	(0.9 mi)
1360	139	Calcium phosphide (when spilled in water)	30 m	(100 ft)	0.1 km	(0.1 mi)	0.4 km	(0.3 mi)	300 m	(1000 ft)	1.0 km	(0.6 mi)	3.5 km	(2.2 mi)
1390	139	Alkali metal amides (when spilled in water)	30 m	(100 ft)	0.1 km	(0.1 mi)	0.3 km	(0.2 mi)	60 m	(200 ft)	0.6 km	(0.4 mi)	2.2 km	(1.4 mi)
1397	139	Aluminum phosphide (when spilled in water)	30 m	(100 ft)	0.1 km	(0.1 mi)	0.7 km	(0.5 mi)	500 m	(1500 ft)	2.0 km	(1.2 mi)	6.5 km	(4.0 mi)
1419	139	Magnesium aluminum phosphide (when spilled in water)	30 m	(100 ft)	0.1 km	(0.1 mi)	0.6 km	(0.4 mi)	500 m	(1500 ft)	1.8 km	(1.1 mi)	5.8 km	(3.6 mi)
1432	139	Sodium phosphide (when spilled in water)	30 m	(100 ft)	0.1 km	(0.1 mi)	0.4 km	(0.2 mi)	300 m	(1000 ft)	1.3 km	(0.8 mi)	3.8 km	(2.4 mi)
2011	139	Magnesium phosphide (when spilled in water)	30 m	(100 ft)	0.1 km	(0.1 mi)	0.6 km	(0.4 mi)	500 m	(1500 ft)	1.7 km	(1.1 mi)	5.4 km	(3.4 mi)
2012	139	Potassium phosphide (when spilled in water)	30 m	(100 ft)	0.1 km	(0.1 mi)	0.3 km	(0.2 mi)	300 m	(1000 ft)	1.1 km	(0.7 mi)	3.6 km	(2.2 mi)
2013	139	Strontium phosphide (when spilled in water)	30 m	(100 ft)	0.1 km	(0.1 mi)	0.3 km	(0.2 mi)	300 m	(1000 ft)	1.1 km	(0.7 mi)	3.4 km	(2.2 mi)
2806	139	Lithium nitride (when spilled in water)	30 m	(100 ft)	0.1 km	(0.1 mi)	0.2 km	(0.2 mi)	60 m	(200 ft)	0.5 km	(0.3 mi)	1.9 km	(1.2 mi)
2965	139	Boron trifluoride dimethyl etherate (when spilled in water)	30 m	(100 ft)	0.1 km	(0.1 mi)	0.3 km	(0.2 mi)	100 m	(300 ft)	1.2 km	(0.8 mi)	3.6 km	(2.2 mi)
2988	139	Chlorosilanes, water-reactive, flammable, corrosive, n.o.s. (when spilled in water)	30 m	(100 ft)	0.1 km	(0.1 mi)	0.2 km	(0.1 mi)	60 m	(200 ft)	0.5 km	(0.3 mi)	1.6 km	(1.0 mi)
3385	139	Poisonous by inhalation liquid, water-reactive, n.o.s. (Inhalation Hazard Zone A)	60 m	(200 ft)	0.6 km	(0.4 mi)	1.2 km	(0.8 mi)	200 m	(600 ft)	2.2 km	(1.4 mi)	4.2 km	(2.6 mi)
3385	139	Toxic by inhalation liquid, water-reactive, n.o.s. (Inhalation Hazard Zone A)	60 m	(200 ft)	0.6 km	(0.4 mi)	1.2 km	(0.8 mi)	200 m	(600 ft)	2.2 km	(1.4 mi)	4.2 km	(2.6 mi)
3386	139	Poisonous by inhalation liquid, water-reactive, n.o.s. (Inhalation Hazard Zone B)	30 m	(100 ft)	0.2 km	(0.1 mi)	0.2 km	(0.2 mi)	60 m	(200 ft)	0.5 km	(0.3 mi)	0.7 km	(0.5 mi)
3386	139	Toxic by inhalation liquid, water-reactive, n.o.s. (Inhalation Hazard Zone B)	30 m	(100 ft)	0.2 km	(0.1 mi)	0.2 km	(0.2 mi)	60 m	(200 ft)	0.5 km	(0.3 mi)	0.7 km	(0.5 mi)