

# TABLE OF WATER-REACTIVE MATERIALS WHICH PRODUCE TOXIC GASES

## Materials Which Produce Large Amounts of Toxic-by-Inhalation (TIH) Gas(es) When Spilled in Water

ID No.	Guide No.	Name of Material	TIH Gas(es) Produced
2004	135	Magnesium diamide	NH <sub>3</sub>
2011	139	Magnesium phosphide	PH <sub>3</sub>
2012	139	Potassium phosphide	PH <sub>3</sub>
2013	139	Strontium phosphide	PH <sub>3</sub>
2437	156	Methylphenyldichlorosilane	HCl
2495	144	Iodine pentafluoride	HF
2691	137	Phosphorus pentabromide	HBr
2692	157	Boron tribromide	HBr
2806	138	Lithium nitride	NH <sub>3</sub>
2977	166	Radioactive material, Uranium hexafluoride, fissile	HF
2977	166	Uranium hexafluoride, fissile containing more than 1% Uranium-235	HF
2978	166	Radioactive material, Uranium hexafluoride	HF
2978	166	Radioactive material, Uranium hexafluoride, non-fissile or fissile-excepted	HF
2978	166	Uranium hexafluoride	HF
2978	166	Uranium hexafluoride, fissile-excepted	HF
2978	166	Uranium hexafluoride, low specific activity	HF
2978	166	Uranium hexafluoride, non-fissile	HF
2985	155	Chlorosilanes, flammable, corrosive, n.o.s.	HCl
2985	155	Chlorosilanes, n.o.s.	HCl
2986	155	Chlorosilanes, corrosive, flammable, n.o.s.	HCl
2986	155	Chlorosilanes, n.o.s.	HCl
2987	156	Chlorosilanes, corrosive, n.o.s.	HCl
2987	156	Chlorosilanes, n.o.s.	HCl

### Chemical Symbols for TIH Gases:

Br <sub>2</sub>	Bromine	HF	Hydrogen fluoride	PH <sub>3</sub>	Phosphine
Cl <sub>2</sub>	Chlorine	HI	Hydrogen iodide	SO <sub>2</sub>	Sulfur dioxide
HBr	Hydrogen bromide	H <sub>2</sub> S	Hydrogen sulfide	SO <sub>2</sub>	Sulphur dioxide
HCl	Hydrogen chloride	H <sub>2</sub> S	Hydrogen sulphide	SO <sub>3</sub>	Sulfur trioxide
HCN	Hydrogen cyanide	NH <sub>3</sub>	Ammonia	SO <sub>3</sub>	Sulphur trioxide

Use this list only when material is spilled in water.

## TABLE OF INITIAL ISOLATION AND PROTECTIVE ACTION DISTANCES

ID No. NAME OF MATERIAL		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-			
		Meters	(Feet)	DAY Kilometers (Miles)		NIGHT Kilometers (Miles)		Meters	(Feet)	DAY Kilometers (Miles)		NIGHT Kilometers (Miles)	
1955	Liquefied gas, toxic, n.o.s. (Inhalation Hazard Zone C)	30 m	(100 ft)	0.3 km	(0.2 mi)	1.2 km	(0.8 mi)	240 m	(800 ft)	2.4 km	(1.5 mi)	6.4 km	(4.0 mi)
1955	Liquefied gas, toxic, n.o.s. (Inhalation Hazard Zone D)	30 m	(100 ft)	0.2 km	(0.1 mi)	0.7 km	(0.4 mi)	120 m	(400 ft)	1.2 km	(0.8 mi)	3.8 km	(2.4 mi)
1955	Organic phosphate compound mixed with compressed gas	120 m	(400 ft)	1.0 km	(0.7 mi)	3.4 km	(2.1 mi)	450 m	(1500 ft)	4.4 km	(2.7 mi)	9.6 km	(6.0 mi)
1955	Organic phosphate mixed with compressed gas												
1955	Organic phosphorus compound mixed with compressed gas												
1967	Insecticide gas, poisonous, n.o.s.	120 m	(400 ft)	1.0 km	(0.7 mi)	3.4 km	(2.1 mi)	450 m	(1500 ft)	4.4 km	(2.7 mi)	9.6 km	(6.0 mi)
1967	Insecticide gas, toxic, n.o.s.												
1967	Parathion and compressed gas mixture												
1975	Dinitrogen tetroxide and Nitric oxide mixture	30 m	(100 ft)	0.2 km	(0.1 mi)	0.8 km	(0.5 mi)	60 m	(200 ft)	0.6 km	(0.4 mi)	2.7 km	(1.7 mi)
1975	Nitric oxide and Dinitrogen tetroxide mixture												
1975	Nitric oxide and Nitrogen dioxide mixture												
1975	Nitric oxide and Nitrogen tetroxide mixture												
1975	Nitrogen dioxide and Nitric oxide mixture												
1975	Nitrogen tetroxide and Nitric oxide mixture												
1994	Iron pentacarbonyl	30 m	(100 ft)	0.3 km	(0.2 mi)	0.6 km	(0.4 mi)	150 m	(500 ft)	1.6 km	(1.0 mi)	3.0 km	(1.9 mi)
2004	Magnesium diamide (when spilled in water)	30 m	(100 ft)	0.1 km	(0.1 mi)	0.4 km	(0.3 mi)	90 m	(300 ft)	0.7 km	(0.4 mi)	2.9 km	(1.8 mi)

2011	Magnesium phosphide (when spilled in water)	60 m (200 ft)	0.5 km (0.4 mi)	2.4 km (1.5 mi)	800 m (2500 ft)	7.5 km (4.7 mi)	11.0+ km (7.0+ mi)
2012	Potassium phosphide (when spilled in water)	60 m (200 ft)	0.4 km (0.3 mi)	1.7 km (1.1 mi)	500 m (1600 ft)	4.7 km (2.9 mi)	11.0+ km (7.0+ mi)
2013	Strontium phosphide (when spilled in water)	60 m (200 ft)	0.4 km (0.2 mi)	1.7 km (1.1 mi)	500 m (1600 ft)	4.6 km (2.9 mi)	11.0+ km (7.0+ mi)
2032 2032	Nitric acid, fuming Nitric acid, red fuming	30 m (100 ft)	0.1 km (0.1 mi)	0.2 km (0.2 mi)	60 m (200 ft)	0.6 km (0.4 mi)	1.2 km (0.8 mi)
2186	Hydrogen chloride, refrigerated liquid	30 m (100 ft)	0.1 km (0.1 mi)	0.4 km (0.3 mi)	360 m (1200 ft)	3.6 km (2.2 mi)	10.4 km (6.5 mi)
2188	Arsine	60 m (200 ft)	0.6 km (0.4 mi)	3.0 km (1.9 mi)	420 m (1400 ft)	4.1 km (2.6 mi)	9.5 km (5.9 mi)
2188	SA (when used as a weapon)	60 m (200 ft)	0.9 km (0.5 mi)	2.5 km (1.5 mi)	420 m (1300 ft)	4.1 km (2.5 mi)	8.1 km (5.0 mi)
2189	Dichlorosilane	30 m (100 ft)	0.2 km (0.1 mi)	1.0 km (0.6 mi)	420 m (1400 ft)	4.0 km (2.5 mi)	10.8 km (6.7 mi)
2190 2190	Oxygen difluoride Oxygen difluoride, compressed	600 m (2000ft)	5.9 km (3.7 mi)	11.0+ km (7.0+ mi)	1000 m (3000 ft)	11.0+ km (7.0+ mi)	11.0+ km (7.0+ mi)
2191 2191	Sulfuryl fluoride Sulphuryl fluoride	30 m (100 ft)	0.1 km (0.1 mi)	0.3 km (0.2 mi)	120 m (400 ft)	1.2 km (0.8 mi)	3.8 km (2.4 mi)
2192	Germane	30 m (100 ft)	0.2 km (0.1 mi)	1.0 km (0.6 mi)	90 m (300 ft)	0.8 km (0.5 mi)	3.0 km (1.9 mi)
2194	Selenium hexafluoride	90 m (300 ft)	0.7 km (0.5 mi)	3.2 km (2.0 mi)	450 m (1500 ft)	4.4 km (2.7 mi)	9.0 km (5.6 mi)
2195	Tellurium hexafluoride	90 m (300 ft)	1.0 km (0.6 mi)	4.0 km (2.5 mi)	600 m (2000 ft)	6.0 km (3.7 mi)	11.0+ km (7.0+ mi)
2196	Tungsten hexafluoride	30 m (100 ft)	0.2 km (0.1 mi)	1.1 km (0.7 mi)	120 m (400 ft)	1.0 km (0.6 mi)	3.7 km (2.3 mi)
2197	Hydrogen iodide, anhydrous	30 m (100 ft)	0.1 km (0.1 mi)	0.4 km (0.2 mi)	120 m (400 ft)	1.3 km (0.8 mi)	3.7 km (2.3 mi)
2198 2198	Phosphorus pentafluoride Phosphorus pentafluoride, compressed	30 m (100 ft)	0.3 km (0.2 mi)	1.6 km (1.0 mi)	180 m (600 ft)	1.6 km (1.0 mi)	4.6 km (2.9 mi)
2199	Phosphine	60 m (200 ft)	0.7 km (0.4 mi)	3.1 km (1.9 mi)	450 m (1400 ft)	4.3 km (2.7 mi)	9.6 km (6.0 mi)
2202	Hydrogen selenide, anhydrous	120 m (400 ft)	1.2 km (0.8 mi)	5.1 km (3.2 mi)	1000 m (3000 ft)	8.7 km (5.4 mi)	11.0+ km (7.0+ mi)