

# 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
1777	137	Fluorosulphonic acid	HF
1784	156	Hexyltrichlorosilane	HCl
1799	156	Nonyltrichlorosilane	HCl
1800	156	Octadecyltrichlorosilane	HCl
1801	156	Octyltrichlorosilane	HCl
1804	156	Phenyltrichlorosilane	HCl
1806	137	Phosphorus pentachloride	HCl
1809	137	Phosphorus trichloride	HCl
1810	137	Phosphorus oxychloride	HCl
1816	155	Propyltrichlorosilane	HCl
1818	157	Silicon tetrachloride	HCl
1828	137	Sulfur chlorides	HCl SO <sub>2</sub> H <sub>2</sub> S
1828	137	Sulphur chlorides	HCl SO <sub>2</sub> H <sub>2</sub> S
1834	137	Sulfuryl chloride	HCl SO <sub>3</sub>
1834	137	Sulphuryl chloride	HCl SO <sub>3</sub>
1836	137	Thionyl chloride	HCl SO <sub>2</sub>
1838	137	Titanium tetrachloride	HCl
1898	156	Acetyl iodide	HI
1923	135	Calcium dithionite	H <sub>2</sub> S SO <sub>2</sub>
1923	135	Calcium hydrosulfite	H <sub>2</sub> S SO <sub>2</sub>
1923	135	Calcium hydrosulphite	H <sub>2</sub> S SO <sub>2</sub>
1931	171	Zinc dithionite	H <sub>2</sub> S SO <sub>2</sub>
1931	171	Zinc hydrosulfite	H <sub>2</sub> S SO <sub>2</sub>
1931	171	Zinc hydrosulphite	H <sub>2</sub> S SO <sub>2</sub>

### 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

## 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)	
1754	Chlorosulphonic acid (when spilled on land)	30 m	(100 ft)	0.1 km	(0.1 mi)	0.1 km	(0.1 mi)	30 m	(100 ft)	0.3 km	(0.2 mi)	0.4 km	(0.3 mi)
1754	Chlorosulphonic acid (when spilled in water)	30 m	(100 ft)	0.1 km	(0.1 mi)	0.6 km	(0.4 mi)	90 m	(300 ft)	0.7 km	(0.5 mi)	2.8 km	(1.7 mi)
1754	Chlorosulphonic acid and Sulphur trioxide mixture (when spilled on land)	60 m	(200 ft)	0.4 km	(0.2 mi)	1.0 km	(0.6 mi)	330 m	(1000 ft)	2.5 km	(1.5 mi)	6.5 km	(4.0 mi)
1754	Chlorosulphonic acid and Sulphur trioxide mixture (when spilled in water)	30 m	(100 ft)	0.1 km	(0.1 mi)	0.6 km	(0.4 mi)	90 m	(300 ft)	0.7 km	(0.5 mi)	2.8 km	(1.7 mi)
1754	Sulfur trioxide and Chlorosulfonic acid mixture (when spilled on land)	60 m	(200 ft)	0.4 km	(0.2 mi)	1.0 km	(0.6 mi)	330 m	(1000 ft)	2.5 km	(1.5 mi)	6.5 km	(4.0 mi)
1754	Sulfur trioxide and Chlorosulfonic acid mixture (when spilled in water)	30 m	(100 ft)	0.1 km	(0.1 mi)	0.6 km	(0.4 mi)	90 m	(300 ft)	0.7 km	(0.5 mi)	2.8 km	(1.7 mi)
1754	Sulphur trioxide and Chlorosulphonic acid mixture (when spilled on land)	60 m	(200 ft)	0.4 km	(0.2 mi)	1.0 km	(0.6 mi)	330 m	(1000 ft)	2.5 km	(1.5 mi)	6.5 km	(4.0 mi)
1754	Sulphur trioxide and Chlorosulphonic acid mixture (when spilled in water)	30 m	(100 ft)	0.1 km	(0.1 mi)	0.6 km	(0.4 mi)	90 m	(300 ft)	0.7 km	(0.5 mi)	2.8 km	(1.7 mi)
1758	Chromium oxychloride (when spilled in water)	30 m	(100 ft)	0.1 km	(0.1 mi)	0.2 km	(0.1 mi)	30 m	(100 ft)	0.3 km	(0.2 mi)	1.3 km	(0.8 mi)
1763	Cyclohexyltrichlorosilane (when spilled in water)	30 m	(100 ft)	0.1 km	(0.1 mi)	0.3 km	(0.2 mi)	90 m	(300 ft)	0.8 km	(0.5 mi)	3.0 km	(1.9 mi)
1766	Dichlorophenyltrichlorosilane (when spilled in water)	30 m	(100 ft)	0.2 km	(0.1 mi)	0.9 km	(0.6 mi)	210 m	(700 ft)	2.1 km	(1.3 mi)	5.7 km	(3.6 mi)

1767	Diethyldichlorosilane (when spilled in water)	30 m (100 ft)	0.1 km (0.1 mi)	0.1 km (0.1 mi)	0.1 km (0.1 mi)	60 m (200 ft)	0.4 km (0.3 mi)	1.3 km (0.8 mi)
1769	Diphenyldichlorosilane (when spilled in water)	30 m (100 ft)	0.1 km (0.1 mi)	0.1 km (0.1 mi)	0.1 km (0.1 mi)	30 m (100 ft)	0.3 km (0.2 mi)	1.2 km (0.8 mi)
1771	Dodecyltrichlorosilane (when spilled in water)	30 m (100 ft)	0.1 km (0.1 mi)	0.2 km (0.1 mi)	0.2 km (0.1 mi)	60 m (200 ft)	0.5 km (0.3 mi)	1.8 km (1.2 mi)
1777	Fluorosulfonic acid (when spilled in water)	30 m (100 ft)	0.1 km (0.1 mi)	0.5 km (0.3 mi)	0.5 km (0.3 mi)	120 m (400 ft)	1.0 km (0.6 mi)	3.4 km (2.1 mi)
1777	Fluorosulphonic acid (when spilled in water)							
1784	Hexyltrichlorosilane (when spilled in water)	30 m (100 ft)	0.1 km (0.1 mi)	0.4 km (0.3 mi)	0.4 km (0.3 mi)	120 m (400 ft)	1.0 km (0.7 mi)	3.8 km (2.4 mi)
1799	Nonyltrichlorosilane (when spilled in water)	30 m (100 ft)	0.1 km (0.1 mi)	0.3 km (0.2 mi)	0.3 km (0.2 mi)	60 m (200 ft)	0.6 km (0.4 mi)	2.5 km (1.6 mi)
1800	Octadecyltrichlorosilane (when spilled in water)	30 m (100 ft)	0.1 km (0.1 mi)	0.3 km (0.2 mi)	0.3 km (0.2 mi)	90 m (300 ft)	0.8 km (0.5 mi)	2.9 km (1.8 mi)
1801	Octyltrichlorosilane (when spilled in water)	30 m (100 ft)	0.1 km (0.1 mi)	0.3 km (0.2 mi)	0.3 km (0.2 mi)	60 m (200 ft)	0.6 km (0.4 mi)	2.5 km (1.6 mi)
1804	Phenyltrichlorosilane (when spilled in water)	30 m (100 ft)	0.2 km (0.1 mi)	0.9 km (0.6 mi)	0.9 km (0.6 mi)	240 m (800 ft)	2.2 km (1.4 mi)	6.4 km (4.0 mi)
1806	Phosphorus pentachloride (when spilled in water)	30 m (100 ft)	0.1 km (0.1 mi)	0.5 km (0.3 mi)	0.5 km (0.3 mi)	90 m (300 ft)	0.8 km (0.5 mi)	3.1 km (1.9 mi)
1809	Phosphorus trichloride (when spilled on land)	30 m (100 ft)	0.2 km (0.1 mi)	0.4 km (0.3 mi)	0.4 km (0.3 mi)	150 m (500 ft)	1.5 km (1.0 mi)	3.5 km (2.2 mi)
1809	Phosphorus trichloride (when spilled in water)	30 m (100 ft)	0.2 km (0.1 mi)	0.7 km (0.4 mi)	0.7 km (0.4 mi)	180 m (600 ft)	1.6 km (1.0 mi)	4.8 km (3.0 mi)
1810	Phosphorus oxychloride (when spilled on land)	30 m (100 ft)	0.2 km (0.2 mi)	0.4 km (0.3 mi)	0.4 km (0.3 mi)	120 m (400 ft)	1.0 km (0.7 mi)	2.2 km (1.4 mi)
1810	Phosphorus oxychloride (when spilled in water)	30 m (100 ft)	0.2 km (0.1 mi)	1.0 km (0.6 mi)	1.0 km (0.6 mi)	240 m (800 ft)	2.3 km (1.5 mi)	6.3 km (3.9 mi)