

# 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 Meters (Feet)		Then PROTECT persons Downwind during-				First ISOLATE in all Directions Meters (Feet)		Then PROTECT persons Downwind during-			
				DAY Kilometers (Miles)		NIGHT Kilometers (Miles)				DAY Kilometers (Miles)		NIGHT Kilometers (Miles)	
1816	Propyltrichlorosilane (when spilled in water)	30 m	(100 ft)	0.1 km	(0.1 mi)	0.5 km	(0.3 mi)	120 m	(400 ft)	1.3 km	(0.8 mi)	4.1 km	(2.6 mi)
1818	Silicon tetrachloride (when spilled in water)	30 m	(100 ft)	0.1 km	(0.1 mi)	0.6 km	(0.4 mi)	150 m	(500 ft)	1.5 km	(1.0 mi)	4.6 km	(2.9 mi)
1828	Sulfur chlorides (when spilled on land)	30 m	(100 ft)	0.1 km	(0.1 mi)	0.2 km	(0.1 mi)	90 m	(300 ft)	0.9 km	(0.6 mi)	1.7 km	(1.1 mi)
1828	Sulfur chlorides (when spilled in water)	30 m	(100 ft)	0.1 km	(0.1 mi)	0.6 km	(0.4 mi)	150 m	(500 ft)	1.4 km	(0.9 mi)	4.9 km	(3.0 mi)
1828	Sulphur chlorides (when spilled on land)	30 m	(100 ft)	0.1 km	(0.1 mi)	0.2 km	(0.1 mi)	90 m	(300 ft)	0.9 km	(0.6 mi)	1.7 km	(1.1 mi)
1828	Sulphur chlorides (when spilled in water)	30 m	(100 ft)	0.1 km	(0.1 mi)	0.6 km	(0.4 mi)	150 m	(500 ft)	1.4 km	(0.9 mi)	4.9 km	(3.0 mi)
1829	Sulfur trioxide	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)
1829	Sulfur trioxide, inhibited												
1829	Sulfur trioxide, stabilized												
1829	Sulfur trioxide, uninhibited												
1829	Sulphur trioxide												
1829	Sulphur trioxide, inhibited												
1829	Sulphur trioxide, stabilized												
1829	Sulphur trioxide, uninhibited												
1831	Sulfuric acid, fuming	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)
1831	Sulfuric acid, fuming, with not less than 30% free Sulfur trioxide												
1831	Sulphuric acid, fuming												
1831	Sulphuric acid, fuming, with not less than 30% free Sulphur trioxide												

1834	Sulfuryl chloride (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)	0.7 km (0.5 mi)
1834	Sulfuryl chloride (when spilled in water)	30 m (100 ft)	0.1 km (0.1 mi)	0.4 km (0.2 mi)	90 m (300 ft)	0.8 km (0.5 mi)	2.9 km (1.8 mi)
1834	Sulphuryl chloride (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)	0.7 km (0.5 mi)
1834	Sulphuryl chloride (when spilled in water)	30 m (100 ft)	0.1 km (0.1 mi)	0.4 km (0.2 mi)	90 m (300 ft)	0.8 km (0.5 mi)	2.9 km (1.8 mi)
1836	Thionyl chloride (when spilled on land)	30 m (100 ft)	0.3 km (0.2 mi)	0.8 km (0.5 mi)	90 m (300 ft)	1.0 km (0.6 mi)	2.2 km (1.4 mi)
1836	Thionyl chloride (when spilled in water)	60 m (200 ft)	0.4 km (0.2 mi)	1.7 km (1.1 mi)	450 m (1500 ft)	4.5 km (2.8 mi)	10.5 km (6.5 mi)
1838	Titanium tetrachloride (when spilled on land)	30 m (100 ft)	0.1 km (0.1 mi)	0.1 km (0.1 mi)	60 m (200 ft)	0.5 km (0.3 mi)	0.8 km (0.5 mi)
1838	Titanium tetrachloride (when spilled in water)	30 m (100 ft)	0.1 km (0.1 mi)	0.5 km (0.3 mi)	120 m (400 ft)	1.1 km (0.7 mi)	3.7 km (2.3 mi)
1859	Silicon tetrafluoride	30 m (100 ft)	0.1 km (0.1 mi)	0.1 km (0.1 mi)	60 m (200 ft)	0.5 km (0.3 mi)	0.8 km (0.5 mi)
1859	Silicon tetrafluoride, compressed						
1892	ED (when used as a weapon)	30 m (100 ft)	0.4 km (0.2 mi)	0.9 km (0.5 mi)	120 m (400 ft)	1.3 km (0.8 mi)	2.6 km (1.6 mi)
1892	Ethylchloroarsine	30 m (100 ft)	0.2 km (0.1 mi)	0.2 km (0.2 mi)	60 m (200 ft)	0.6 km (0.4 mi)	1.1 km (0.7 mi)
1898	Acetyl iodide (when spilled in water)	30 m (100 ft)	0.1 km (0.1 mi)	0.2 km (0.2 mi)	60 m (200 ft)	0.6 km (0.4 mi)	1.8 km (1.1 mi)
1911	Diborane	60 m (200 ft)	0.4 km (0.2 mi)	1.6 km (1.0 mi)	180 m (600 ft)	1.8 km (1.1 mi)	5.4 km (3.4 mi)
1911	Diborane, compressed						
1923	Calcium dithionite (when spilled in water)	30 m (100 ft)	0.1 km (0.1 mi)	0.1 km (0.1 mi)	60 m (200 ft)	0.4 km (0.3 mi)	1.3 km (0.8 mi)
1923	Calcium hydrosulfite (when spilled in water)						
1923	Calcium hydrosulphite (when spilled in water)						