

# 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 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)	
2676	Stibine	60 m	(200 ft)	0.4 km	(0.3 mi)	2.2 km	(1.4 mi)	270 m	(900 ft)	2.8 km	(1.7 mi)	7.5 km	(4.7 mi)
2691	Phosphorus pentabromide (when spilled in water)	30 m	(100 ft)	0.1 km	(0.1 mi)	0.7 km	(0.4 mi)	90 m	(300 ft)	0.7 km	(0.4 mi)	2.8 km	(1.7 mi)
2692	Boron tribromide (when spilled on land)	30 m	(100 ft)	0.2 km	(0.1 mi)	0.5 km	(0.3 mi)	60 m	(200 ft)	0.5 km	(0.4 mi)	1.3 km	(0.8 mi)
2692	Boron tribromide (when spilled in water)	30 m	(100 ft)	0.1 km	(0.1 mi)	0.5 km	(0.3 mi)	90 m	(300 ft)	0.7 km	(0.5 mi)	2.6 km	(1.6 mi)
2740	n-Propyl chloroformate	30 m	(100 ft)	0.1 km	(0.1 mi)	0.3 km	(0.2 mi)	90 m	(300 ft)	0.7 km	(0.5 mi)	1.5 km	(0.9 mi)
2742	sec-Butyl chloroformate	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)	0.6 km	(0.4 mi)
2742	Isobutyl chloroformate	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)	0.5 km	(0.3 mi)
2743	n-Butyl chloroformate	30 m	(100 ft)	0.1 km	(0.1 mi)	0.1 km	(0.1 mi)	30 m	(100 ft)	0.4 km	(0.2 mi)	0.5 km	(0.3 mi)
2806	Lithium nitride (when spilled in water)	30 m	(100 ft)	0.1 km	(0.1 mi)	0.4 km	(0.2 mi)	60 m	(200 ft)	0.6 km	(0.4 mi)	2.6 km	(1.6 mi)
2810	Buzz (when used as a weapon)	30 m	(100 ft)	0.2 km	(0.1 mi)	0.5 km	(0.3 mi)	60 m	(200 ft)	0.5 km	(0.3 mi)	2.0 km	(1.2 mi)
2810	BZ (when used as a weapon)												
2810	CS (when used as a weapon)	60 m	(200 ft)	0.4 km	(0.2 mi)	1.2 km	(0.7 mi)	240 m	(800 ft)	2.6 km	(1.6 mi)	5.7 km	(3.5 mi)
2810	DC (when used as a weapon)	30 m	(100 ft)	0.2 km	(0.1 mi)	0.9 km	(0.5 mi)	240 m	(800 ft)	2.3 km	(1.4 mi)	5.4 km	(3.3 mi)
2810	GA (when used as a weapon)	30 m	(100 ft)	0.4 km	(0.2 mi)	0.7 km	(0.4 mi)	150 m	(500 ft)	1.7 km	(1.0 mi)	3.1 km	(1.9 mi)
2810	GB (when used as a weapon)	150 m	(500 ft)	1.7 km	(1.0 mi)	3.4 km	(2.1 mi)	1000 m	(3000 ft)	11.0+ km	(7.0+ mi)	11.0+ km	(7.0+ mi)
2810	GD (when used as a weapon)	90 m	(300 ft)	0.9 km	(0.5 mi)	1.8 km	(1.1 mi)	800 m	(2500 ft)	6.8 km	(4.2 mi)	10.5 km	(6.5 mi)
2810	GF (when used as a weapon)	30 m	(100 ft)	0.4 km	(0.2 mi)	0.7 km	(0.4 mi)	240 m	(800 ft)	2.3 km	(1.4 mi)	5.2 km	(3.2 mi)

2810	H (when used as a weapon)	30 m	(100 ft)	0.2 km	(0.1 mi)	0.2 km	(0.1 mi)	60 m	(200 ft)	0.7 km	(0.4 mi)	1.2 km	(0.7 mi)
2810	HD (when used as a weapon)												
2810	HL (when used as a weapon)	30 m	(100 ft)	0.2 km	(0.1 mi)	0.4 km	(0.2 mi)	90 m	(300 ft)	1.0 km	(0.6 mi)	1.8 km	(1.1 mi)
2810	HN-1 (when used as a weapon)	30 m	(100 ft)	0.2 km	(0.1 mi)	0.2 km	(0.1 mi)	60 m	(200 ft)	0.7 km	(0.4 mi)	1.3 km	(0.8 mi)
2810	HN-2 (when used as a weapon)	30 m	(100 ft)	0.2 km	(0.1 mi)	0.2 km	(0.1 mi)	60 m	(200 ft)	0.5 km	(0.3 mi)	1.2 km	(0.7 mi)
2810	HN-3 (when used as a weapon)	30 m	(100 ft)	0.2 km	(0.1 mi)	0.2 km	(0.1 mi)	30 m	(100 ft)	0.2 km	(0.1 mi)	0.4 km	(0.2 mi)
2810	L (Lewisite)	30 m	(100 ft)	0.2 km	(0.1 mi)	0.4 km	(0.2 mi)	90 m	(300 ft)	1.0 km	(0.6 mi)	1.8 km	(1.1 mi)
2810	Lewisite (when used as a weapon)												
2810	Mustard (when used as a weapon)	30 m	(100 ft)	0.2 km	(0.1 mi)	0.2 km	(0.1 mi)	30 m	(100 ft)	0.2 km	(0.1 mi)	0.4 km	(0.2 mi)
2810	Mustard Lewisite (when used as a weapon)	30 m	(100 ft)	0.2 km	(0.1 mi)	0.4 km	(0.2 mi)	90 m	(300 ft)	1.0 km	(0.6 mi)	1.8 km	(1.1 mi)
2810	Poisonous liquid, n.o.s.	150 m	(500 ft)	1.3 km	(0.8 mi)	3.5 km	(2.2 mi)	1000 m	(3000 ft)	11.0+ km	(7.0+ mi)	11.0+ km	(7.0+ mi)
2810	Poisonous liquid, n.o.s. (Inhalation Hazard Zone A)												
2810	Poisonous liquid, n.o.s. (Inhalation Hazard Zone B)	60 m	(200 ft)	0.5 km	(0.3 mi)	1.8 km	(1.1 mi)	330 m	(1100 ft)	3.3 km	(2.1 mi)	7.3 km	(4.6 mi)
2810	Poisonous liquid, organic, n.o.s.	150 m	(500 ft)	1.3 km	(0.8 mi)	3.3 km	(2.1 mi)	1000 m	(3000 ft)	11.0+ km	(7.0+ mi)	11.0+ km	(7.0+ mi)
2810	Poisonous liquid, organic, n.o.s. (Inhalation Hazard Zone A)												
2810	Poisonous liquid, organic, n.o.s. (Inhalation Hazard Zone B)	60 m	(200 ft)	0.4 km	(0.2 mi)	1.0 km	(0.6 mi)	270 m	(900 ft)	2.5 km	(1.6 mi)	5.6 km	(3.5 mi)
2810	Sarin (when used as a weapon)	150 m	(500 ft)	1.7 km	(1.0 mi)	3.4 km	(2.1 mi)	1000 m	(3000 ft)	11.0+ km	(7.0+ mi)	11.0+ km	(7.0+ mi)
2810	Soman (when used as a weapon)	90 m	(300 ft)	0.9 km	(0.5 mi)	1.8 km	(1.1 mi)	800 m	(2500 ft)	6.8 km	(4.2 mi)	10.5 km	(6.5 mi)
2810	Tabun (when used as a weapon)	30 m	(100 ft)	0.4 km	(0.2 mi)	0.7 km	(0.4 mi)	150 m	(500 ft)	1.7 km	(1.0 mi)	3.1 km	(1.9 mi)
2810	Thickened GD (when used as a weapon)	90 m	(300 ft)	0.9 km	(0.5 mi)	1.8 km	(1.1 mi)	800 m	(2500 ft)	6.8 km	(4.2 mi)	10.5 km	(6.5 mi)