

TABLE 2. Explosive and Toxic Properties of Various Gases

		Molecular Density Formula (air = 1)	Explosive limits in air (vol %)	TLV* (ppm)	
Hydrocarbons and their derivatives	Methane	CH ₄	5.0 ~ 15.0		0.6
	Ethane	C ₂ H ₆	3.0 ~ 12.4		1.0
	Propane	C ₃ H ₈	2.1 ~ 9.5	1,000	1.6
	Butane	C ₄ H ₁₀	1.8 ~ 8.4		2.0
	Pentane	C ₅ H ₁₂	1.4 ~ 7.8	1,000	2.5
	Hexane	C ₆ H ₁₄	1.2 ~ 7.4	500	3.0
	Heptane	C ₇ H ₁₆	1.0 ~ 6.7	500	3.5
	Octane	C ₈ H ₁₈	0.9 ~ 6.5	500	3.9
	Decane	C ₁₀ H ₂₂	0.7 ~ 5.6		4.9
	Petroleum Ether		1.1 ~ 5.9		2.5
	Petroleum Benzine		1.4 ~ 5.9		2.5
	Gasoline		1.3 ~ 7.6	500	3.4
	Kerosene		0.6 ~ 6.0		4.5
	Petroleum Naphtha		0.9 ~ 6.0	500	3.8
	Acetylene	C ₂ H ₂	2.5 ~ 81.0		0.9
	Ethylene	C ₂ H ₄	2.7 ~ 36.0		0.99
	Propylene	C ₃ H ₆	2.4 ~ 10.3		1.5
	Butadiene	C ₄ H ₆	2.0 ~ 11.5	1,000	1.9
	Butylene	C ₄ H ₈	1.6 ~ 9.3		1.9
	Benzene	C ₆ H ₆	1.2 ~ 8.0	25	2.8
	Toluene	C ₇ H ₈	1.2 ~ 7.1	200	3.1
	o-Xylene	C ₈ H ₁₀	1.0 ~ 7.6	100	3.7
	m-Xylene	C ₈ H ₁₀	1.0 ~ 7.0	100	3.7
Ethylene Oxide	C ₂ H ₄ O	3.0 ~ 100.0	50	1.5	
Halogenized Hydrocarbons	Methyl Chloride	CH ₃ Cl	7.1 ~ 19.0	100	1.7
	Methylene Chloride	CH ₂ Cl ₂	13.0 ~ 22.0	500	2.9
	Ethyl Chloride	C ₂ H ₅ Cl	3.6 ~ 15.0	1,000	2.2
	Ethylene Chloride	C ₂ H ₄ Cl ₂	6.2 ~ 16.0	50	3.4
	Ethylidene Chloride	C ₂ H ₄ Cl ₂	5.6 ~ 16.0	100	3.4
	Trichloroethane	C ₂ H ₃ Cl ₃		350	3.4
	Vinylidene Chloride	C ₂ H ₂ Cl ₂	5.6 ~ 16.0		
	Trichloroethylene	C ₂ HCl ₃	7.9 ~ 40.0	100	4.5
	Methyl Bromide	CH ₃ Br	8.6 ~ 20.0		
	Vinyl Chloride	C ₂ H ₃ Cl	4.0 ~ 22.0		2.2

TABLE 2. (continued)

		Molecular Density Formula (air = 1)	Explosive limits in air (vol %)	TLV* (ppm)	
Alcohols	Methanol	CH ₄ O	5.5 ~ 37.0	200	1.1
	Ethanol	C ₂ H ₆ O	3.3 ~ 19.0	1,000	1.6
	n-Propanol	C ₃ H ₈ O	2.0 ~ 14.0	200	2.1
	iso-Propanol	C ₃ H ₈ O	2.0 ~ 12.0	400	2.1
	n-Butanol	C ₄ H ₁₀ O	1.4 ~ 12.0	100	2.6
	iso-Butanol	C ₄ H ₁₀ O	1.7 ~ 11.0	100	2.6
Ethers	Methyl Ether	C ₂ H ₆ O	2.4 ~ 18.0		1.6
	Ethyl Ether	C ₄ H ₁₀ O	1.7 ~ 48.0		2.6
Ketones	Acetone	C ₃ H ₆ O	2.1 ~ 13.0	1,000	2.0
	Methyl Ethyl Ketone	C ₄ H ₈ O	1.8 ~ 11.5	200	2.4
Esters	Methyl Acetate	C ₃ H ₆ O ₂	3.1 ~ 16.0	200	2.6
	Ethyl Acetate	C ₄ H ₈ O ₂	2.1 ~ 11.5	400	3.0
	n-Propyl Acetate	C ₅ H ₁₀ O ₂	1.7 ~ 8.02	00	3.5
	iso-Butyl Acetate	C ₆ H ₁₂ O ₂	1.2 ~ 15.0	250	3.5
	n-Butyl Acetate	C ₆ H ₁₂ O ₂	1.2 ~ 15.0	150	4.0
	iso-Butyl Acetate	C ₆ H ₁₂ O ₂	2.4 ~ 10.5	150	4.0
Nitrogen Compounds	Nitro Methane	CH ₃ NO ₂	7.3 ~		2.1
	Monomethyl Amine	CH ₅ N	4.2 ~ 20.7	10	1.1
	Dimethyl Amine	C ₂ H ₇ N	2.8 ~ 14.4	10	1.6
	Trimethyl Amine	C ₃ H ₉ N	2.0 ~ 12.0		2.0
	Monoethyl Amine	C ₂ H ₇ N	3.5 ~ 14.0	10	1.6
	Diethyl Amine	C ₄ H ₁₁ N	1.7 ~ 10.1	25	2.5
Inorganic Gases	Ammonia	NH ₃	16.0 ~ 25.0	50	0.6
	Carbon Monoxide	CO	12.5 ~ 74.0	50	1.0
	Hydrogen	H ₂	4.0 ~ 75.0		0.07
	Hydrogen Cyanide	HCN	6.0 ~ 41.0	10	1.0

*TLV = Threshold Limit Value. TLV values shown are as published by ACGIH (American Conference of Governmental Industrial Hygienists) 1966.