

TABLE 3. MAXIMUM ALLOWABLE CONCENTRATION OF GASES AND VAPORS (Concluded)

SUBSTANCE	ASA STANDARDS M.A.C. ppm ^b by volume	THRESHOLD LIMIT VALUES A.C.G.I.H.* 1957	
		ppm ^b	g/cu m or Oz/1000 cu ft
Nitroethane.....		100	0.310
Nitrogen dioxide.....		5	0.009
Nitroglycerine.....		0.5	0.005
Nitromethane.....		100	0.250
2-Nitropropane.....		50	0.180
Nitrotoluene.....		5	0.030
Octane.....		500	2.350
Ozone.....		0.1	0.0002
Pentane.....		1000	2.950
Pentanone (methyl propyl ketone).....		200	0.700
Perchloroethylene (tetrachloroethylene).....		200	1.350
Phenol.....		5	0.019
Phenylhydrazine.....		5	0.022
Phosgene (carbonyl chloride).....		1	0.004
Phosphine.....		0.05	0.00007
Phosphorus trichloride.....		0.5	0.003
Propyl acetate.....		200	0.840
Propyl alcohol (isopropyl alcohol).....		400	0.980
Propyl ether (isopropyl ether).....		500	2.100
Propylene dichloride (1,2-dichloropropane).....		75	0.350
Propylene imine.....		25	0.060
Pyridine.....		10	0.030
Quinone.....		0.1	0.0004
Stibine.....		0.1	0.0005
Stoddard solvent.....		500	2.90
Styrene monomer (phenylethylene).....	400	100	0.420
Sulfur dioxide.....		5	0.013
Sulfur hexafluoride.....		1000	6.000
Sulfur monochloride.....		1	0.006
Sulfur pentafluoride.....		0.025	0.00025
p-Tertiarybutyltoluene.....		10	0.060
1,1,2,2-Tetrachloroethane.....		5	0.035
(x) Tetrahydrofuran.....		200	0.590
Tetra-nitromethane.....		1	0.008
Toluene (toluol).....	200	200	0.750
o-Toluidine.....		5	0.022
Trichloroethylene.....	200	200	1.050
Trifluoromonomobromomethane.....		1000	6.100
Turpentine.....		100	0.560
Vinyl chloride (chloroethylene).....		500	1.30
Xylene (xylol).....		200	0.870

* A.C.G.I.H. = American Conference of Governmental Industrial Hygienists. Reprinted by permission from A.M.A. Archives of Industrial Health, September 1957, Vol. 16, pp. 261-265.

^b Parts of vapor or gas per million parts of air by volume.

(x) These values appeared in A.C.G.I.H. tentative list for 1956.

apply a reasonable safety factor to the ventilation estimate without consideration of the concentrations of gases or vapors that approach the danger point. Safety engineers prefer to limit the concentration to $\frac{1}{4}$ or $\frac{1}{2}$ of the lower explosive limit, and this fact should be given full weight in determining the capacity and design of ventilating equipment. Rarely should consideration be given to operation above the upper explosive limit in the open areas of buildings or rooms—even though unoccupied—because the danger of temporary drop of gas concentration to a point within the explosive range is too great.

Ability of a flammable liquid to form explosive mixtures is determined largely by its vapor pressure, volatility, or rate of evaporation. Flash point is a convenient method of expressing this property in terms of the

TABLE 4. LIMITS FOR TOXIC DUSTS, FUMES AND MISTS

SUBSTANCE	A.S.A. STANDARDS M.A.C. g/cu m ^a	THRESHOLD LIMIT VALUES, A.C.G.I.H. 1957 g/cu m ^a
Aldrin (1,2,3,4,10,10-hexachloro-1,4,4a,5,8,8a-hexahydro-1,4,5,8-dimethanonaphthalene).....		0.00025
Amate (ammonium sulfamate).....		0.015
Antimony.....		0.0005
(x) ANTU (alpha naphthyl thiourea).....		0.0003
Arsenic.....		0.0005
Barium (soluble compounds).....		0.0005
Cadmium oxide fume.....		0.0001
(x) Calcium arsenate.....		0.0001
Chlordane (1,2,4,5,6,7,8,8-octachloro-3a,4,7,7a-tetrahydro-4,7-methanoindane).....		0.002
(x) Chlorinated camphene (60%).....		0.0005
Chlorinated diphenyl oxide.....		0.0005
(x) Chlorodiphenyl (42% chlorine).....		0.001
(x) Chlorodiphenyl (64% chlorine).....		0.0005
Chromic acid and chromates (as CrO ₃).....	0.0001	0.0001
Crag herbicide (sodium 2-[2,4-dichlorophenoxy] ethanol hydrogen sulfate).....		0.015
Cyanide (as CN).....		0.005
2,4-D (2,4-dichlorophenoxyacetic acid).....		0.010
(x) DDT (2,2-bis[p-chlorophenyl]-1,1,1-trichloroethane).....		0.001
Dieldrin (1,2,3,4,10,10-hexachloro-6,7-epoxy-1;4,4a,5,6,7,8,8a-octahydro-1,4,5,8-dimethanonaphthalene).....		0.00025
(x) Dinitrobenzene.....		0.001
Dinitrotoluene.....		0.0015
Dinitro-o-cresol.....		0.0002
EPN (O-ethyl O-p-nitrophenyl thionobenzenephosphonate).....		0.0005
(x) Ferbam (ferric dimethyl dithiocarbamate).....		0.015
Ferrovandium dust.....		0.001
Fluoride.....		0.0025
(x) HETP (hexaethyl tetraphosphate).....		0.0001
Hydroquinone.....		0.002
Iron oxide fume.....		0.015
Lead.....	0.00015	0.0002
(x) Lead arsenate.....		0.00015
Lindane (hexachlorocyclohexane, gamma isomer).....		0.0005
Magnesium oxide fume.....		0.015
Malathion (O,O-dimethyl dithiophosphate of diethyl mercaptoacetic acid).....		0.015
Manganese.....	0.005	0.006
Mercury.....	0.0001	0.0001
Mercury (organic compounds).....		0.00001
Methoxychlor (2,2-di-p-methoxyphenyl-1,1,1-trichloroethane).....		0.015
Molybdenum (soluble compounds).....		0.005
(insoluble compounds).....		0.015
(x) Nicotine.....		0.0005
Parathion (O,O-diethyl O-p-nitrophenyl thiophosphate).....		0.0001
Pentachloronaphthalene.....		0.0005
Pentachlorophenol.....		0.0005
Phosphorus (yellow).....		0.0001
Phosphorus pentachloride.....		0.001
Phosphorus pentasulfide.....		0.001
Picric acid.....		0.0001
Pyrethrum.....		0.002
(x) Rotenone.....		0.005
Selenium compounds (as Se).....		0.0001
Sodium hydroxide.....		0.002
(x) Sodium fluoracetate (10%).....		0.0001
(x) Strychnine.....		0.00015
Sulfuric acid.....		0.001
TEDP (tetraethyl dithionopyrophosphate).....		0.0002
TEPP (tetraethyl pyrophosphate).....		0.00005
Tellurium.....		0.0001
Tetryl (2,4,6-trinitrophenylmethyl nitramine).....		0.0015
(x) Thiram (tetramethyl thiuram disulfide).....		0.005
(x) Thallium (soluble compounds).....		0.0001
Titanium dioxide.....		0.015
Trichloronaphthalene.....		0.005
Trinitrotoluene.....		0.0015