TABLE 3. MAXIMUM ALLOWABLE CONCENTRATION OF GASES AND VAPORS

SUBSTANCE	ASA STANDARDS M.A.C. ppm by volume	THRESHOLD LIMIT VALUES *A.C.G.I.H.*[a] 1951		
		ppm	Gm/cu m or Oz/1000 cu ft	Oz/1000 cu ft[b]
Acetaldehyde		200	0.36	0.43
Acetic acids		10	0.02554	0.02
Acetic anhydride		5	0.02085	0.02
Acetone		500	1.2065	1.21
Acrolein		0.5	0.1145	0.013
Acrylonitrile		20	0.04336	0.05
Ammonia		100		
Amyl acetate		200	1.064	1.16
iso-Amyl alcohol		100	0.36	0.41
Aniline		5	0.019	0.02
Arsine		0.05		
Benzene (benzol)	100	35	0.11393	0.12
Bromine		1	0.00653	0.03
1,3-Butadiene		1000	2.210	3.3
n-Butanol		50	0.1515	0.18
2-Butanone		250	0.735	0.88
n-Butyl acetate		200	0.948	1.04
Butyl "cellosolve"		200	0.966	1.02
Carbon dioxide		5000		
Carbon disulfide	20	20	0.0622	0.05
Carbon monoxide	100	100		
Carbon tetrachloride		50	0.313	0.19
"Cellosolve"		200	0.736	0.76
"Cellosolve" acetate		100	0.54	0.53
Chlorine		1		
2-Chlorobutadiene		25	0.0905	0.09
Chloroform		100	0.488	0.31
1-Chloro-1-nitropropane		20	0.101	0.08
Cyclohexane		400	1.375	1.69
Cyclohexanol		100	0.409	0.42
Cyclohexanone		100	0.401	0.41
Cyclohexene		400	1.34	1.58
Cyclopropane (propene)		400	0.6875	0.91
o-Dichlorobenzene		50	0.3005	0.24
Dichlorodifluoromethane		1000	4.94	3.18
1,1-Dichloroethane		100	0.405	0.33
1,2-Dichloroethane (ethylene dichloride)		75	0.3038	0.23
1,2-Dichloroethylene		200	0.794	0.59
Dichloroethyl ether		15	0.0878	0.08
Dichloromethane		500	1.74	1.25
Dichloromonofluormethane		1000	4.20	2.83
1,1-Dichloro-1-nitroethane		10	0.0589	0.4
1,2-Dichloropropane (propylene dichloride)		75	0.3265	0.29
Dichlorotetrafluoroethane		1000	6.98	4.36
Dimethylaniline		5	0.02475	0.02
Dimethylsulfate		1	0.00515	0.003
Dioxane		100	0.36	0.33
Ethyl acetate		400	1.44	1.52
Ethyl alcohol		1000	1.881	2.2
Ethyl benzene		200	0.868	0.96
Ethyl bromide		200	0.892	0.59
Ethyl chloride		1000	2.64	2.75
Ethylene chlorhydrin		5	0.01645	0.015
Ethylene oxide		100	0.18	0.09
Ethyl ether		400	1.212	1.67
Ethyl formate		100	0.303	0.315
Ethyl silicate		100	0.851	0.87
Formaldehyde	10	5	0.006135	
Gasoline		500	2.045	2.89
Heptane		500	2.05	2.87
Hexane		500	1.76	2.54
Hydrogen chloride		5	0.00746	0.004
Hydrogen cyanide		10	0.01104	0.015
Hydrogen fluoride		3	0.00245	0.003

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

SUBSTANCE	ASA STANDARDS M.A.C. ppm by volume	THRESHOLD LIMIT VALUES *A.C.G.I.H.*[a] 1951		
		ppm	Gm/cu m or Oz/1000 cu ft	Oz/1000 cu ft[b]
Hydrogen selenide		0.05		
Hydrogen sulfide	20	20		
Iodine		1	0.01039	0.0002
Isophorone		25	0.141	0.15
Mesityl oxide		50	0.2005	0.22
Methanol	200	200	0.2618	0.32
Methyl acetate		200	0.606	0.62
Methyl bromide		20	0.0778	0.04
Methyl butanone		100	0.352	0.41
Methyl "cellosolve"		25	0.7775	0.078
Methyl "cellosolve" acetate		25	0.1208	0.11
Methyl chloride	100	100	0.2086	0.22
Methyl cyclohexane		500	2.005	2.44
Methyl cyclohexanol		100	0.466	0.49
Methyl cyclohexanone		100	0.458	0.48
Methyl formate		100	0.2554	0.25
Methyl iso-butyl ketone		100	0.409	0.49
Monochlorobenzene		75	0.3465	0.3
Monofluorotrichloromethane		1000	5.61	3.59
Mononitrotoluene		5	0.028	0.23
Naphtha (coal tar)		200	0.638	0.71
Naphtha (petroleum)		500	1.945	2.6
Nickel carbonyl		1	0.00697	0.006
Nitrobenzene		1	0.00503	0.004
Nitroethane		100	0.307	0.275
Nitrogen oxides (other than nitrous oxide)	25	25		
Nitroglycerine		0.5	0.00464	0.003
Nitromethane		100	0.2495	0.21
2-Nitropropane		50	0.182	0.17
Octane		500	2.33	3.17
Ozone		1		
Pentane		1000	2.94	4.5
Pentanone (methyl propanone)		200	0.704	0.82
Phosgene		1		
Phosphine		0.05		
Phosphorus trichloride		0.5	0.00281	0.0018
iso-Propanol		400	1.022	1.22
Propyl acetate		200	0.834	0.885
iso-Propyl ether		500	2.085	2.75
Stibine		0.1		
Stoddard solvent		500	2.845	3.4
Styrene monomer	400	200	0.85	0.89
Sulfur chloride		1	0.00552	0.003
Sulfur dioxide		10		
1,1,2,2-Tetrachloroethane		5	0.343	0.02
Tetrachloroethylene		100	0.679	0.405
Toluene	200	200	0.752	0.83
Toluidine		5	0.0219	0.02
Trichloroethylene	200	100	0.536	0.35
Turpentine		100	0.556	0.58
Vinyl chloride (chloroethane)		500	1.28	1.33
Xylene	200	200	0.868	0.96

[a] A.C.G.I.H. = American Conference of Governmental Industrial Hygienists.
[b] Liquid ounces (at 20 C) of chemical in 1000 cu ft.

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 $\frac{1}{5}$ of the lower explosive limit, and this fact should be given full weight in determining the capacity and design of ventilating equipment. Rarely should