Guide for Using Table C-3

Table C-3 provides information that may be beneficial for designers who choose to comply with the Indoor Air Quality Procedure of this Standard. The VOCs included in the table were reported in published, peer-reviewed surveys conducted in office buildings and in new and existing residences in North America during the period 1990–2000 [C-42,C-43,C-45]. Only those VOCs for which exposure guidelines for the general population have been developed by cognizant authorities are listed in Table C-3.

Reference Exposure Levels (RELs) are guidelines for acute, 8-hour and chronic inhalation exposures developed by California Office of Health Hazard Assessment (OEHHA). Minimal Risk Levels (MRLs) for hazardous substances are guidelines for acute, intermediate and chronic inhalation exposures developed by the Agency for Toxic Substances and Disease Registry (ATSDR). Factors for µg/m^3 to ppb concentration conversions are shown.

The table does not purport to represent (a) all possible chemicals found in nonindustrial indoor environments and (b) all concentration guidelines, standards, and regulatory limits. Published, peer-reviewed surveys conducted in office buildings and in new and existing residences in North America since 2000 may identify several more compounds, for some of which guidelines may be available from the cognizant authorities described above.

TABLE C-3 Concentrations of Interest for Selected Volatile Organic Compounds

				CA OEHHA REL [C-36]			ATSDR MRL [C-46]		
Compound	CAS Number	Chemical Class [a]	Conversion Factor: µg/m^3 to ppb [b]	Acute [c] (µg/m^3)	8-h [d] (µg/m^3)	Chronic [e] (µg/m^3)	Acute [f] (ppb)	Intermediate [g] (ppb)	Chronic [h] (ppb)
Acetaldehyde	75-07-0	Ald	0.554	470	300	140			
Acrolein	107-02-8	Ald	0.436	2.5	0.7	0.35	3	0.4	
Acrylonitrile	107-13-1	Misc	0.460			5	100		
Benzene	71-43-2	Arom	0.313	1300		60	9	6	3
Bromomethane (Methyl bromide)	74-83-9	Halo	0.258				50	50	5
1,3-Butadiene	106-99-0	Alke	0.452			20			
2-Butanone	78-93-3	Ket	0.339	13,000					
2-Butoxyethanol	111-76-2	Gly	0.207				6000	3000	200
t-Butyl methyl ether (Methyl-t-butyl ether)	1634-04-4	Ethr	0.277			8000	2000	700	700
Carbon disulfide	75-15-0	Misc	0.321	6200		800			300
Carbon tetrachloride	56-23-5	Halo	0.159	1900		40		30	30
Chlorobenzene	108-90-7	ClAro	0.217			1000			
Chloroform	67-66-3	Halo	0.205	150		300	100	50	20
1,4-Dichlorobenzene	106-46-7	ClAro	0.166			800	2000	200	10

a. Alc = alcohol; Ethr = ether; Gly = glycol ether; Ket = ketone; Ald = aldehyde; Estr = acetates and other esters; Acid = carboxylic acid; Alka = alkane HC; Alke = alkene HC; Cycl = cyclic HC; Terp = terpene HC; Arom = aromatic HC; ClAro = chlorinated aromatic HC; Halo = halogenated aliphatic HC; Misc = miscellaneous category
b. Conversion factors from µg/m^3 to ppb
c. Exposure averaging time is 1 hour
d. Exposure averaging time is 8 hours and which may be repeated
e. Designed to address continuous exposures for up to a lifetime: the exposure metric used is the annual average exposure
f. Exposure to a chemical for a duration of 14 days or less, as specified in the toxicological profiles
g. Exposure to a chemical for a duration of 15–364 days, as specified in the toxicological profiles
h. Exposure to a chemical for 365 days or more, as specified in the toxicological profiles
i. See also Tables C-1 and C-2 for additional guidance on formaldehyde.