BAY AREA AIR QUALITY MANAGEMENT DISTRICT

TOXICS SCREENING LEVELS

BAAQMD

Screening Levels of Carcinogenic Contaminants

Screening Trigger Levels

Compound	lb/year[a]	g/m^3	Unit Risk Factor	Source
Acetaldehyde	7.2E+01	3.7E-07	2.7E-06	1
Acrylamide	1.5E-01	7.7E-10	1.3E-03	1,3
Acrylonitrile	6.7E-01	3.4E-09	2.9E-04	3
Arsenic & arsenic compounds	2.4E-02*	1.3E-10*	3.3E-03	2
Asbestos	3.0E-03	1.6E-11	(1.9E-04/100 fiber/m^3)	2
Benzene	6.7E+00	3.5E-08	2.9E-05	3
Benzidine and salts	1.4E-03	7.1E-12	1.4E-01	3
Beryllium	1.5E-02*	7.6E-11*	2.4E-03	1
Bis(chloromethyl)ether	1.5E-02	7.7E-11	1.3E-02	3
1,3-Butadiene	1.1E+00	5.9E-09	1.7E-04	1
Cadmium and cadmium compounds	4.6E-02	2.4E-10	4.2E-03	3
Carbon tetrachloride	4.6E+00	2.4E-08	4.2E-05	2,3
Chlorinated dibenzodioxins and dibenzofurans (TCDD and TCDF)	1.2E-06*	6.2E-15*	3.8E+01	2,3

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Screening Levels of Carcinogenic Contaminants

Screening Trigger Levels

Compound	lb/year[a]	g/m^3	Unit Risk Factor	Source
Chloroform	3.6E+01	1.9E-07	5.3E-06	2
Chloroprene	1.5E+03	7.7E-06	1.3E-07	3
Chromium (hexavalent)	1.4E-03	7.1E-12	1.4E-01	3
Dibromo-3-chloropropane,1,2- (DBCP)	9.7E-02	5.0E-10	2.0E-03	3
Dichlorobenzene, 1,4-	6.8E+01	9.1E-08	1.1E-05	3
Dichlorobenzidine, 3,3'-	5.6E-01	2.9E-09	3.4E-04	3
Diethylhexylphthalate (DEHP)	8.1E+01	4.2E-07	2.4E-06	3
Dioxane, 1,4-	2.5E+01	1.3E-07	7.7E-06	3
Epichlorohydrin	8.3E+00	4.3E-08	2.3E-05	3
Ethylene dibromide (1,2-dibromoethane)	2.7E+00	1.4E-08	7.1E-05	2,3
Ethylene dichloride (1,2-dichloroethane)	9.7E+00	4.5E-08	2.0E-05	2,3
Ethylene oxide	2.1E+00	1.1E-08	8.8E-05	2

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Screening Levels of Carcinogenic Contaminants

Screening Trigger Levels

Compound	lb/year[a]	g/m^3	Unit Risk Factor	Source
Formaldehyde	3.3E+01	1.7E-07	6.0E-06	2
Hexachlorobenzene	3.9E-01	2.0E-09	5.1E-04	3
Hexachlorocyclohexanes	1.8E-01	9.1E-10	1.1E-03	3
Hydrazine	3.9E-02	2.0E-10	4.9E-03	1
Methylene chloride	1.9E+02	1.0E-06	1.0E-06	2
Nickel and nickel compounds	7.3E-01	3.8E-09	2.6E-04	2
N-Nitrosodiethylamine	1.9E-02	1.0E-10	1.0E-02	3
N-Nitrosodimethylamine	4.2E-02	2.2E-10	4.6E-03	3
p-Nitrosodiphehylamine	7.3E+01	3.8E-07	2.6E-06	3
N-Nitrosodi-n-butylamine	6.2E-02	3.2E-10	3.1E-03	3
N-Nitrosomethylethylamine	3.1E-02	1.6E-10	6.3E-03	1,3
N-Nitrosodi-n-propylamine	9.7E-02	5.0E-10	2.0E-03	3
N-Nitrosopyrrolidine	3.3E-01	1.7E-09	6.0E-04	1,3

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Screening Levels of Carcinogenic Contaminants

Screening Trigger Levels

Compound	lb/year[a]	g/m^3	Unit Risk Factor	Source
PAHs (including but not limited to:				
Benz[a]anthracene	4.3E-02*	2.2E-10*	1.7E-03	4
Benzo[b]fluoroanthene	4.3E-02*	2.2E-10*	1.7E-03	4
Benzo[k]fluoroanthene	4.3E-02*	2.2E-10*	1.7E-03	4
Benzo[a]pyrene	4.3E-02*	2.2E-10*	1.7E-03	4
Dibenz[a,h]anthracene	4.3E-02*	2.2E-10*	1.7E-03	4
Indeno[1,2,3-cd]pyrene	4.3E-02*	2.2E-10*	1.7E-03	4
PCBs	7.0E-03*	3.6E-11*	1.4E-03	3
Pentachlorophenol	4.2E+01	2.2E-07	4.6E-06	3
Perchloroethylene (tetrachloroethylene)	3.3E+01	1.7E-07	5.9E-06	2
Propylene oxide	5.2E+01	2.7E-07	3.7E-06	1
Trichloroethylene	9.7E+01	5.0E-07	2.0E-06	2
Trichlorophenol, 2,4,6-	9.7E+00	5.0E-08	2.0E-05	3

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Screening Levels of Carcinogenic Contaminants

Screening Trigger Levels

Compound	lb/year[a]	g/m^3	Unit Risk Factor	Source
Urethane	6.6E-01	3.4E-09	2.9E-04	3
Vinyl chloride	2.5E+00	1.3E-08	7.8E-05	2

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* *screening levels have been adjusted to include the impact from noninhalation pathways*

[a] the screening level concentration (g/m^3) is the annual concentration which will result in a risk of one in one million. This concentration is converted to lb/year, for convenience, by use of the EPA downwash equation:

Q = emission rate = concentration x 1.5 x A x u

A = cross-section = 92.7m^2 (25'h x 40'w x 40'l)

u = wind speed = 2 m/sec

concentration = 1-hour concentration = annual concentration x 10

lb/year = annual concentration x 10 x 1.932E+07

Sources for carcinogen screening levels:

1. California-EPA Office of Environmental Health Hazard Assessment, *CAPCOA Air Toxics "Hot Spots" Program Risk Assessment Guidelines, October 1993*, IRIS database.

2. California-EPA Office of Environmental Health Hazard Assessment, *CAPCOA Air Toxics "Hot Spots" Program Risk Assessment Guidelines, October 1993*, OEHHA and ARB Toxic Air Contaminant identification document.

3. California-EPA Office of Environmental Health Hazard Assessment, *CAPCOA Air Toxics "Hot Spots" Program Risk Assessment Guidelines, October 1993*, OEHHA and RCHAS report for implementation of Proposition 65.

4. USEPA, *Health Effects Document for Benzo[a]pyrene*. EPA/540/1-86/022, September 1984. NTIS PB86-134335.

Bay Area Air Quality Management District

Toxics Evaluation Section

Table 2-5-2

Screening Levels for Noncarcinogens

list revised
5/6/94

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Screening Levels of Noncarcinogenic Contaminants

Compound	Screening Trigger Levels lb/year[a]	g/m^3	Source
Acrolein	3.90E+00	2.0E-08	2
Allyl chloride	1.93E+02	1.0E-06	2
Ammonia	1.93E+04	1.0E-04	2
Benzyl chloride	2.32E+03	1.2E-05	3
Bromine and compounds	3.28E+02	1.7E-06	3
Butyl alcohol, tert-	1.37E+05	7.1E-04	5
Carbon disulfide	1.43E+04	7.4E-05	5
Chlorine	1.37E+03	7.1E-06	3
Chlorobenzene	1.35E+04	7.0E-05	2
Chlorofluorocarbons	1.35E+05	7.0E-04	2
Chlorophenol, 2-	3.47E+03	1.8E-05	2
Chloropicrin	3.28E+02	1.7E-06	3
Chlorotoluene	2.32E+03	1.2E-05	5
Copper-	4.63E+02	2.4E-06	3
Cresol	3.47E+04	1.8E-04	2
Dichloroethylene, 1,1-	see Vinylidine chloride		
Diethylaminoethanol	2.12E+04	1.1E-04	5
Dimethylamine	3.86E+02	2.0E-06	2
Dimethyl phthalate	2.32E+03	1.2E-05	5
Dioctyl phthalate	2.32E+03	1.2E-05	5
Ethyl alcohol (ethanol)	8.69E+05	4.5E-03	5
Ethyl acetate	6.56E+05	3.4E-03	5

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Screening Levels of Noncarcinogenic Contaminants

Compound	Screening Trigger Level lb/year[a]	g/m^3	Source
Ethyl acrylate	9.26E+03	4.8E-05	3
Ethylbenzene	1.93E+05	1.0E-03	2
Ethyl chloride	1.93E+06	1.0E-02	2
Freons	see Chlorofluorocarbons		
Gasoline vapors	4.05E+05	2.1E-03	3
Glutaraldehyde	3.28E+02	1.7E-06	3
Glycol ethers:			
2-ethoxyethanol (Cellosolve)	3.86E+04	2.0E-04	2
2-ethoxyethanol acetate (Cellosolve Acetate)	1.24E+04	6.4E-05	3
2-methoxymethanol (Methylcellosolve)	3.86E+03	2.0E-05	2
2-methoxymethanol acetate (Methylcellosolve Acetate)	1.10E+04	5.7E-05	3
2-butoxyethanol (Butylcellosolve)	3.86E+03	2.0E-05	4
Hexachlorocyclopentadiene	4.63E+01	2.4E-07	2,3
Hexane, n-	8.3E+04	4.3E-04	5
Hydrogen bromide	4.63E+03	2.4E-05	3
Hydrogen chloride	1.35E+03	7.0E-06	2
Hydrogen cyanide	1.35E+04	7.0E-05	2
Hydrogen fluoride	1.14E+03	5.9E-06	3
Hydrogen sulfide	8.11E+03	4.2E-05	6

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Screening Levels of Noncarcinogenic Contaminants

Compound	Screening Trigger Level lb/year[a]	g/m^3	Source
Isocyanates: methylene-bis-phenylisocyanate	1.83E+01	9.5E-08	3
methyl isocyanate	6.95E+01	3.6E-07	3
toluene diisocyanate	1.83E+01	9.5E-08	3
Isophorone	6.56E+04	3.4E-04	5
Isopropyl alcohol	4.44E+05	2.3E-03	5
Lead, inorganic, and compounds	2.90E+01*	1.5E-07*	6
Maleic anhydride	4.63E+02	2.4E-06	3
Manganese and compounds	7.70E+01	4.0E-07	2
Mercury and compounds	5.79E+01	3.0E-07	4
Methyl alcohol	1.20E+05	6.2E-04	3
Methyl bromide	1.16E+03	6.0E-06	4
Methyl chloroform (TCA)	6.18E+04	3.2E-04	2
Methylene dianiline & chloride, 4,4'-	3.67E+02	1.9E-06	3
Methylethylketone (MEK)	1.49E+05	7.7E-04	1
Methyl mercury	1.93E+02	1.0E-06	2
Methyl methacrylate	1.89E+05	9.8E-04	3
N-Methylpyrrolidone	1.83E+05	9.5E-04	5
Naphthalene	2.70E+02	1.4E-05	4
Nitric Acid	2.34E+03	1.2E-05	5
Nitrobenzene	3.28E+02	1.7E-06	2

BAAQMD

Screening Levels of Noncarcinogenic Contaminants

Compound	Screening Trigger Levels lb/year[a]	g/m^3	Source
Nitropropane, 2-	3.86E+03	2.0E-05	2
Phenol	8.69E+03	4.5E-05	3
Phosgene	1.83E+02	9.5E-07	5
Phosphine	1.93E+03	1.0E-05	2
Phosphoric acid	4.63E+02	2.4E-06	5
Phosphorus (white)	1.39E+01	7.2E-08	2
Phthalic anhydride	1.35E+06	7.0E-03	2
Selenium and compounds	9.65E+01	5.0E-07	3
Silica, respirable, crystalline	2.32E+02	1.2E-06	3
Sodium hydroxide	9.26E+02	4.8E-06	3
Styrene monomer	1.35E+05	7.0E-04	2
Tetrachlorophenols	1.70E+04	8.8E-05	2
Tetrahydrofuran	2.70E+05	1.4E-03	5
Toluene	3.86E+04	2.0E-04	2
Trichlorobenzene, 1,2,4-	1.83E+04	9.5E-05	5
Trichloroethane, 1,1,1-	see Methyl chloroform		
Vapam (Na diethyldithiocarbamate)	2.2E+04	1.1E-04	1
Vinylidene chloride	6.18E+03	3.2E-05	2
Xylene	5.79E+04	3.0E-04	4
Zinc and compounds	6.76E+03	3.5E-05	1

a the screening level concentration (g/m^3) is the annual concentration which will result in a hazard index (expected concentration/acceptable concentration) of one. This concentration is converted to lb/year, for convenience, by use of the EPA downwash equation:

Q = emission rate = concentration x 1.5 x A x u

A = cross-section = $92.7 m^2$
(25'h x 40'w x 40'l)
u = wind speed = 2 m/sec

concentration = 1-hour concentration = annual concentration x 10
lb/year = annual concentration x 10 x 1.932E+07

Sources for noncarcinogen screening levels:

1. Acceptable Daily Intake; EPA Superfund Public Health Evaluation Manual, 1986.

2. California-EPA Office of Environmental Health Hazard Assessment, *CAPCOA Air Toxics "Hot Spots" Program Risk Assessment Guidelines, October 1993*, IRIS database.

3. California-EPA Office of Environmental Health Hazard Assessment, *CAPCOA Air Toxics "Hot Spots" Program Risk Assessment Guidelines, October 1993*, TLV/420.

4. California-EPA Office of Environmental Health Hazard Assessment, *CAPCA Air Toxics "Hot Spots" Program Risk Assessment Guidelines, October 1993*, EPA Health Effects Assessment Summary Tables, Fourth Quarter FY 1991.

5. Threshold Limit Value (TLV)/ Safety factor of 420.

6. California Ambient Air Quality Standard (CAAQS)