

Toxic Air Contaminant List
Quick Reference Format
December 1999

I. Substances identified as Toxic Air Contaminants by the Air Resources Board, pursuant to the provisions of AB 1807 and AB 2728** (includes all Hazardous Air Pollutants listed in the Federal Clean Air Act Amendments of 1990).**

Information within the square brackets refers to the corresponding subcategory on the *Substances By Category* version of the list.

Acetaldehyde [IIa]	* 1,3-Butadiene [IIa]
Acetamide [IIa]	* Cadmium and cadmium compounds (Note 4) [IIa] (metallic cadmium and cadmium compounds)
Acetonitrile [IVa]	Calcium cyanamide [V]
Acetophenone [IVa]	Caprolactam [V]
2-Acetylaminofluorene [V]	☼ Captan [VI]
☼ Acrolein [IIa]	☼ Carbaryl [VI]
Acrylamide [IIa]	Carbon disulfide [IIa]
Acrylic acid [IIa]	* Carbon tetrachloride (Tetrachloromethane) [IIa]
Acrylonitrile [IIa]	Carbonyl sulfide [IVa]
Allyl chloride [IIa]	Catechol [IVa]
4-Aminobiphenyl [V]	Chloramben [V]
Aniline [IIa]	Chlordane [V]
o-Anisidine [IVa]	* Chlorinated dibenzo- <i>p</i> -dioxins and dibenzofurans (Note 5) [IIa]
Antimony compounds (Note 4) [IIa]	2,3,7,8-Tetrachlorodibenzo- <i>p</i> -dioxin (TCDD) [IIa]
*☼ Inorganic Arsenic and Arsenic compounds (Note 4) [IIa]	☼ Chlorine [IIa]
(inorganic including arsine)	Chloroacetic acid [IVa]
* Asbestos [IIa]	2-Chloroacetophenone [V]
[asbestiform varieties of serpentine (chrysotile), riebeckite (crocidolite), cummingtonite-grunerite (amosite), tremolite, actinolite, and anthophyllite]	Chlorobenzene [IIa]
* Benzene (including benzene from gasoline) [IIa]	Chlorobenzilate [IVa]
Benzidine [V]	* Chloroform [IIa]
Benzotrichloride [V]	Chloromethyl methyl ether [V]
Benzyl chloride [IIa]	Chloroprene [IVa]
Beryllium Compounds (Note 4) [IIa]	☼ Chromium and Compounds (Note 4) [IIa]
Biphenyl [IVa]	* Chromium VI (Hexavalent chromium) [IIa]
Bis(chloromethyl)ether [IIa]	Cobalt Compounds (Note 4) [IIa]
Bis(2-ethylhexyl)phthalate (DEHP) [IIa]	Coke Oven Emissions [V]
Bromoform [V]	Cresols/Cresylic acid (isomers and mixture) [IIa]
	☼ m-Cresol [VI]

- o-Cresol [V]
- p-Cresol [V]
- Cumene [IVa]
- ☼ Cyanide compounds (Note 4&11) [IIa]
- ☼ 2,4-D, salts and esters [VI]
- DDE (p,p-Dichlorodipenyldichloroethylene) [V]
- Diazomethane [V]
- Dibenzofuran [IVa]
- N,N-Diethyl aniline (N,N-Dimethylaniline) [V]
- Diethyl sulfate [V]
- 3,3'-Dimethoxybenzidine [V]
- 4-Dimethyl aminoazobenzene [V]
- 3,3-Dimethyl benzidine (o-Tolidine) [V]
- Dimethyl carbamoyl chloride [V]
- Dimethyl formamide [IIa]
- 1,1-Dimethyl hydrazine [IVa]
- Dimethyl phthalate [IVa]
- Dimethyl sulfate [IVa]
- 4,6-Dinitro-o-cresol, and salts [V]
- 2,4-Dinitrophenol [V]
- 2,4-Dinitrotoluene [V]
- 1,4-Dioxane (1,4-Diethyleneoxide) [IIa]
- 1,2-Diphenylhydrazine [V]
- Epichlorohydrin (1-Chloro-2,3-epoxypropane) [IIa]
- 1,2-Epoxybutane [IIa]
- Ethyl acrylate [IVa]
- Ethyl benzene [IIa]
- Ethyl carbamate (Urethane) [IIa]
- Ethyl chloride (Chloroethane) [IIa]
- * Ethylene dibromide (1,2-Dibromoethane) [IIa]
- * Ethylene dichloride (1,2-Dichloroethane) [IIa]
- Ethylene glycol [IIa]
- Ethylene imine (Aziridine) [V]
- *☼ Ethylene oxide (1,2-Epoxyethane) [IIa]
- Ethylene thiourea [IIa]
- Ethylidene dichloride (1,1-Dichloroethane) [IIa]
- Fine mineral fibers (Note 13) [IVa]
- *☼ Formaldehyde [IIa]
- Glycol ethers (Note 7) [IIa]
- Heptachlor [V]
- Hexachlorobenzene [IIa]
- Hexachlorobutadiene [V]
- Hexachlorocyclopentadiene [V]
- Hexachloroethane [IIa]
- Hexamethylene-1,6-diisocyanate [IIa]
- Hexamethylphosphoramide [V]
- 1,2-Dibromo-3-chloropropane (DBCP) [V]
- Dibutylphthalate [IVa]
- ☼ 1,4-Dichlorobenzene (p-Dichlorobenzene) [IIa]
- 3,3'-Dichlorobenzidine [IIa]
- Dichloroethyl ether (Bis(2-chloroethyl) ether) [V]
- ☼ 1,3-Dichloropropene (Telone)[IVa]
- ☼ Dichlorvos (DDVP) [VI]
- Diethanolamine (Note 6) [IIa]
- Hexane [IIa]
- Hydrazine [IIa]
- ☼ Hydrochloric acid [IIa]
- Hydrogen fluoride (Hydrofluoric acid) [IIa]
- Hydroquinone [IVa]
- Isophorone [IIa]
- * Inorganic Lead and Inorganic lead compounds
(includes elemental lead) (Note 4 & 8) [IIa]
- Lead and compounds (Note 4) [IIa]
(does not include elemental lead)
- ☼ Lindane [IIa]
- Maleic anhydride [IIa]
- ☼ Manganese and compounds (Note 4) [IIa]
- Mercury and compounds (Note 4) [IIa]
- ☼ Methanol [IIa]
- ☼ Methoxychlor [VI]
- ☼ Methyl bromide (Bromomethane) [IIa]
- Methyl chloride (Chloromethane) [IVa]
- Methyl chloroform (1,1,1-Trichloroethane) [IIa]
- Methyl ethyl ketone (2-Butanone) [IIa]
- Methyl hydrazine [IVa]
- Methyl iodide (Iodomethane) [V]
- Methyl isobutyl ketone (Hexone) [IVa]
- Methyl isocyanate [V]
- Methyl methacrylate [IIa]
- Methyl tertiary butyl ether (MTBE) [IIa][IIIa]
- 4,4'-Methylene bis(2-chloroaniline) [IIa]
- * Methylene chloride (Dichloromethane) [IIa]
- 4,4-Methylenedianiline [IIa]
- Methylene diphenyl diisocyanate (MDI) [IIa]
- Naphthalene [IIa]
- * Nickel and compounds (Note 4) [IIa]
(metallic nickel & inorganic nickel compounds)
- Nitrobenzene [IIa]
- 4-Nitrobiphenyl [V]
- 4-Nitrophenol [V]
- 2-Nitropropane [IIa]
- N-Nitroso-N-methylurea [V]

N-Nitrosodimethylamine [IIa]	Benzo[a]pyrene (Note 10) [IIa]
N-Nitrosomorpholine [IIa]	1,3-Propane sultone [IIa]
Parathion [V]	beta-Propiolactone [V]
* Particulate emissions from diesel-fueled engines [IIa]	Propionaldehyde [IVa]
☼ Pentachloronitrobenzene (Quintozene) [IVa]	☼ Propoxur (Baygon) [VI]
☼ Pentachlorophenol [IIa]	Propylene dichloride (1,2-Dichloropropane) [IVa]
* Perchloroethylene (Tetrachloroethylene) [I]	☼ Propylene oxide [IIa]
Phenol [IIa]	1,2-Propylenimine (2-Methyl aziridine) [IVa]
p-Phenylenediamine [IVa]	Quinoline [V]
Phosgene [IIa]	Quinone [V]
Phosphine [IIa]	Radionuclides (including radon) (Note 12) [IVa]
☼ Phosphorus [IIa]	Selenium and compounds (Note 4) [IIa]
Phthalic anhydride [IIa]	Styrene [IIa] [IIIa]
Polychlorinated biphenyls (PCBs) [IIa]	Styrene oxide [IIa]
Polycyclic organic matter (POM) (Note 9)	1,1,2,2-Tetrachloroethane [IIa]
[IIa][IIIa][IVa]	
Titanium tetrachloride [IVa]	2,4,5-Trichlorophenol [V]
Toluene [IIa]	2,4,6-Trichlorophenol [IIa]
2,4-Toluene diamine (2,4-Diaminotoluene) [V]	Triethylamine [IIa]
Toluene-2,4- diisocyanate [IIa]	☼ Trifluralin [VI]
o-Toluidine [V]	2,2,4-Trimethylpentane [IVa]
Toxaphene (Chlorinated camphene) [V]	Vinyl acetate [IIa]
1,2,4-Trichlorobenzene [IVa]	Vinyl bromide [V]
1,1,2-Trichloroethane [IIa]	* Vinyl chloride [IIa]
* Trichloroethylene [IIa]	Vinylidene chloride (1,1-Dichloroethylene) [IIa]
	☼ Xylenes (isomers and mixture) [IIa]
	m-Xylene [IIa]
	o-Xylene [IIa]
	p-Xylene [IIa]

II. Substances NOT identified as Toxic Air Contaminants, known to be emitted from stationary source facilities, which are being evaluated for entry into Category I. Factors considered in this evaluation include carcinogenic and noncarcinogenic health effects, emissions and exposure in California. ♦

☼ Aluminum and Compounds (Note 4) [IVb]	Bromine and compounds (inorganic) (Note 4) [IVb]
Ammonia [IIb]	Butyl acrylate [IVb]
Ammonium nitrate [IVb]	☼ n-Butyl alcohol [IVb]
Ammonium sulfate [IVb]	sec-Butyl alcohol [IVb]
Barium and Compounds (Note 4) [IVb]	tert-Butyl alcohol [IVb]
Benzoyl chloride [IVb]	Butyl benzyl phthalate [IVb]
Bis(2-ethylhexyl)adipate [IVb]	Carbon black and Carbon black extracts [IVb]

Chlorinated fluorocarbons [IVb]	Diaminotoluene (mixed isomers) [IVb]
☼ Chlorine dioxide [IIb]	Dicofol [IVb]
Chlorophenols [IVb]	Environmental Tobacco Smoke (Note 14) [IVb]
☼ Chloropicrin [IIb]	☼ Ethylene [IIb]
☼ Copper and Compounds (Note 4) [IIb]	Gasoline vapors [IVb]
☼ Creosotes [IIb]	☼ Glutaraldehyde [IVb]
Crystalline silica [IIIb]	Hexachlorocyclohexanes [IIb]
Cumene hydroperoxide [IVb]	Hydrogen sulfide [IIb]
Cyclohexane [IVb]	☼ Isopropyl alcohol [IIb]
Decabromodiphenyl oxide [IVb]	4,4'-Isopropylidenediphenol [IVb]
Dialkylnitrosamines [IVb]	Michler's ketone [IIb]
	Molybdenum trioxide [IVb]
	Nitric acid [IIb]
	Nitrilotriacetic acid [IVb]
	Peracetic acid [IVb]
	☼ 2-Phenylphenol [IVb]
	☼ Phosphoric acid [IIb]
	Propene [IVb]
	☼ Silver and Compounds (Note 4) [IIb]
	☼ Sodium hydroxide [IIb]
	☼ Sulfuric acid [IIb]
	Terephthalic acid [IVb]
	Thiourea [IVb]
	1,2,4-Trimethylbenzene [IVb]
	☼ Zinc and Compounds (Note 4) [IIb]

Footnotes

* Substances which have already been identified by the Air Resources Board as Toxic Air Contaminants through a comprehensive AB 1807 risk assessment and which have health values developed by the Office of Environmental Health Hazard Assessment and approved by the Scientific Review Panel. A full risk assessment report is available.

** AB 1807, Statutes 1983, chapter 1047, Health & Safety Code sections 39650 et. seq.
AB 2728, Statutes 1992, chapter 1161, Health & Safety Code sections 39655 et. seq.

❖ To be listed as a Toxic Air Contaminant, these substances will go through a comprehensive AB 1807 risk assessment.

☼ These substances are active ingredients in pesticides in California. For further information regarding the pesticidal uses of these compounds, please contact the Department of Pesticide Regulation.

Note 4: For all listings above which contain the word “compounds” and for glycol ethers, the following applies: Unless

otherwise specified, these listings are defined as including any unique chemical substance that contains the named chemical (i.e, antimony, arsenic, etc.) as part of that chemical's infrastructure.

Note 5: Chlorinated dibenzo-*p*-dioxins and dibenzofurans: The cancer potency value for 2,3,7,8-tetrachlorodibenzo-*p*-dioxin was determined for the identification of chlorinated dioxins and dibenzofurans as toxic air contaminants in 1986. At that time, the Board identified dibenzo-*p*-dioxins and dibenzofurans chlorinated in the 2,3,7, and 8 positions and containing 4,5,6, or 7 chlorine atoms as toxic air contaminants. Since 1986, International Toxicity Equivalency Factors (ITEFs) have been developed which are used to evaluate the cancer risk due to exposure to samples containing mixtures of chlorinated dibenzo-*p*-dioxins and dibenzofurans. ITEFs are numerical factors that express the toxicity of an individual chlorinated dibenzo-*p*-dioxin or dibenzofuran relative to the toxicity of 2,3,7,8-tetrachlorodibenzo-*p*-dioxin. ITEFs are listed for 16 chlorinated dibenzo-*p*-dioxins and dibenzofurans.

Note 6: Diethanolamine: There is a 1997 draft report by the National Toxicology Program that shows evidence of carcinogenic activity in mice. (This may result in a change of the cancer classification.)

Note 7: Glycol ethers: Includes mono- and di-ethers of ethylene glycol, diethylene glycol, and triethylene glycol (R(OCH₂CH₂)_n-OR' where

n = 1,2 or 3

R = alkyl or aryl groups

R' = R,H, or groups which, when removed, yield glycol ethers with the structure;

R(OCH₂CH₂)_n-OH. Polymers are excluded from the glycol category.

Note 8: Inorganic Lead: Due to information on non-cancer health effects showing no identified threshold, no Reference Exposure Level has been developed. However, guidelines for assessing noncancer health impacts are currently being developed by ARB staff.

Note 9: Polycyclic organic matter: Includes organic compounds with more than one benzene ring, and which have a boiling point greater than or equal to 100 °C.

Note 10: Benzo[a]pyrene: Potency Equivalency Factors (PEF) have been developed for 24 polycyclic aromatic hydrocarbons (PAHs). Using benzo[a]pyrene as a reference compound, a weighting scheme for PAHs was developed in the 1994 Air Resources Board document entitled, *Benzo[a]pyrene as a Toxic Air Contaminant*. When a specific potency value is developed for a chemical, it should be used in place of the PEF.

Footnotes (continued)

Note 11: Cyanide compounds: X'CN where X=H' or any other group where a formal dissociation may occur. For example, KCN or Ca(CN)₂

Note 12: Radionuclides: A type of atom which spontaneously undergoes radioactive decay.

Note 13: Fine mineral fibers: Includes mineral fiber emissions from facilities manufacturing or processing glass, rock, or slag fibers (or other mineral derived fibers) of average diameter 1 micrometer or less.

Note 14: Environmental tobacco smoke: An AB 1807-type of health assessment for Environmental Tobacco Smoke was conducted by the Office of Environmental Health Hazard Assessment (OEHHA) and was approved by the Scientific Review Panel on June 19, 1997. The Air Resources Board accepted the report from OEHHA on October 23, 1997 and then forwarded to the Department of Health Services' Tobacco Control Program for appropriate action.

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