CARB Identified Toxic Air Contaminants

CATEGORIES

Topics Airborne Toxics

Programs Air Toxics Program

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Background

According to section 39655 of the California Health and Safety Code, a toxic air contaminant (TAC) is "an air pollutant which may cause or contribute to an increase in mortality or an increase in serious illness, or which may pose a present or potential hazard to human health." In addition, substances which have been listed as federal hazardous air pollutants (HAPs) pursuant to section 7412 of Title 42 of the United States Code are TACs under the air toxics program pursuant to section 39657 (b) of the California Health and Safety Code.

On April 8, 1993, CARB identified through a streamlined regulation, 189 federal HAPs as TACs as required by Assembly Bill 2728 and approved the amended TACs list which includes the 189 HAPs. The 189 substances are known to have or may have adverse effects on human health or the environment. For more information, see CARB's report which identifies the 189 HAPs as TACs.

CARB has formally identified over 200 substances and groups of substances as TACs. See CARB's TAC identification reports for descriptions and summaries of each listed substance.

Title 17, CCR, section, 93000. Substances Identified As Toxic Air Contaminants.

Each substance identified in this section has been determined by the State Board to be a toxic air contaminant as defined in Health and Safety Code section 39655. If the State Board has found there to be a threshold exposure level below which no significant adverse health effects are anticipated from exposure to the identified substance, that level is specified as the threshold determination. If the Board has found there to be no threshold

exposure level below which no significant adverse health effects are anticipated from exposure to the identified substance, a determination of "no threshold" is specified. If the Board has found that there is not sufficient available scientific evidence to support the identification of a threshold exposure level, the "Threshold" column specifies "None identified."

Substance	Threshold Deter
Benzene (C_6H_6)	None identified
Ethylene Dibromide ($BrCH_2CH_2Br$; 1,2-dibromoethane)	None identified
Ethylene Dichloride ($ClCH_2CH_2Cl$; 1,2-dichloroethane)	None identified
Hexavalent chromium (Cr (VI))	None identified
Asbestos [asbestiform varieties of serpentine (chrysotile), riebeckite (crocidolite),cummingtonite-grunerite (amosite), tremolite, actinolite, and anthophyllite]	None identified
Dibenzo-p-dioxins and Dibenzofurans chlorinated in the 2,3,7 and 8 positions and containing 4,5,6 or 7 chlorine atoms	None identified
Cadmium (metallic cadmium and cadmium compounds)	None identified
Carbon Tetrachloride(CCl_4; tetrachloromethane)	None identified
Ethylene Oxide (1,2-epoxyethane)	None identified
Methylene Chloride (CH_2Cl_2; Dichloromethane)	None identified
Trichloroethylene (CCl_2CHCl; Trichloroethene)	None identified
Chloroform ($CHCl_3$)	None identified
Vinyl chloride (C_2H_3Cl; Chloroethylene)	None identified
Inorganic Arsenic	None identified

Substance	Threshold Deter
Nickel (metallic nickel and inorganic nickel compounds)	None identified
Perchloroethylene (C_2Cl_4; Tetrachloroethylene)	None identified
Formaldehyde (HCHO)	None identified
1,3-Butadiene (C_4H_6)	None identified
Inorganic Lead	None identified
Particulate Emissions from Diesel-Fueled Engines	None identified
Environmental Tobacco Smoke	None identified

Note: Authority cited: Sections 39600, 39601 and 39662, Health and Safety Code.
Reference: Sections 39650, 39660, 39661 and 39662, Health and Safety Code.

History

1. New section filed 9-23-85; effective thirtieth day thereafter (Register 85, No. 39). For history of former subchapter 7, see Registers 84, No. 10; 83, No. 2; 81, No. 48; 77, No. 12; and 74, No. 47.
2. Amendment filed 1-14-86; effective thirtieth day thereafter (Register 86, No. 3).
3. Amendment filed 2-10-86; effective thirtieth day thereafter (Register 86, No. 7).
4. Amendment filed 10-9-86; effective thirtieth day thereafter (Register 86, No. 43).
5. Amendment filed 11-25-86; effective thirtieth day thereafter (Register 86, No. 48).
6. Amendment filed 2-23-87; effective thirtieth day thereafter (Register 87, No. 9).
7. Amendment filed 10-8-87; operative 11-7-87 (Register 87, No. 43).

8. Amendment filed 3-15-88; operative 4-14-88 (Register 88, No. 13).

9. Amendment filed 7-22-88; operative 8-21-88 (Register 88, No. 31).

10. Amendment adding Methylene Chloride filed 6-7-90; operative 7-7-90 (Register 90, No. 30).

11. Amendment adding Trichloroethylene filed 2-27-91; operative 3-29-91 (Register 91, No. 13).

12. Amendment adding Vinyl chloride filed 5-10-91; operative 6-9-91 (Register 91, No. 25).

13. Editorial correction, including removal of Inorganic arsenic (Register 91, No. 25).

14. Amendment adding Chloroform filed 5-10-91; operative 6-9-91 (Register 91, No. 25).

15. Amendment adding Inorganic Arsenic filed 6-6-91; operative 7-6-91 (Register 91, No. 26).

16. Change without regulatory effect amending Trichloroethylene and adding Nickel filed 7-14-92 pursuant to section 100, title 1, California Code of Regulations (Register 92, No. 29).

17. Amendment adding Perchloroethylene filed 10-2-92; operative 11-1-92 (Register 92, No. 40).

18. Amendment adding Formaldehyde filed 3-2-93; operative 4-1-93 (Register 93, No. 10).

19. Amendment adding 1,3-Butadiene filed 4-14-93; operative 5-14-93 (Register 93, No. 16).

20. Editorial correction (Register 98, No. 16).

21. Amendment adding inorganic lead filed 4-14-98; operative 5-14-98 (Register 98, No. 16).

22. Amendment adding "Particulate Emissions from Diesel-Fueled Engines" filed 7-21-99; operative 8-20-99 (Register 99, No. 30).

23. Amendment adding "Environmental Tobacco Smoke" filed 1-9-2007; operative 2-8-2007 (Register 2007, No. 2).

Title 17, CCR, section, 93001. Hazardous Air Pollutants Identified as Toxic Air Contaminants

Each substance listed in this section has been identified as a hazardous air pollutant pursuant to subsection (b) of Section 112 of the federal Clean Air Act (42 U.S.C. Section 7412(b)) and has been designated by the State Board to be a toxic air contaminant pursuant to Health and Safety Code Section 39657.

Substance
Acetaldehyde
Acetamide
Acetonitrile
Acetophenone
2-Acetylaminofluorene
Acrolein
Acrylamide
Acrylic acid
Acrylonitrile
Allyl chloride
4-Aminobiphenyl
Aniline
o-Anisidine
Asbestos
Benzene (including benzene from gasoline)
Benzidine
Benzotrichloride
Benzyl chloride
Biphenyl
Bis (2-ethylhexyl) phthalate (DEHP)
Bis (chloromethyl) ether
Bromoform
1,3-Butadiene
Calcium cyanamide

Caprolactam
Captan
Carbaryl
Carbon disulfide
Carbon tetrachloride
Carbonyl sulfide
Catechol
Chloramben
Chlordane
Chlorine
Chloroacetic acid
2-Chloroacetophenone
Chlorobenzene
Chlorobenzilate
Chloroform
Chloromethyl methyl ether
Chloroprene
Cresols/Cresylic acid (isomers and mixture)
o-Cresol
m-Cresol
p-Cresol
Cumene
2,4-D, salts and esters
DDE
Diazomethane
Dibenzofurans
1,2-Dibromo-3-chloropropane
Dibutylphthalate
1,4-Dichlorobenzene (p)
3,3-Dichlorobenzidene
Dichloroethyl ether (Bis (2-chloroethyl) ether)
1,3-Dichloropropene
Dichlorvos
Diethanolamine
N.N-Diethyl aniline (N.N-Dimethylaniline)
Diethyl sulfate
3,3-Dimethoxybenzidine

Dimethyl aminoazobenzene
3,3-Dimethyl benzidine
Dimethyl carbamoyl chloride
Dimethyl formamide
1,1-Dimethyl hydrazine
Dimethyl phthalate
Dimethyl sulfate
4,6-Dinitro-o-cresol, and salts
2,4-Dinitrophenol
2,4-Dinitrotoluene
1,4-Dioxane (1,4-Diethyleneoxide)
1,2-Diphenylhydrazine
Epichlorohydrin (1-Chloro-2,3-epoxypropane)
1,2-Epoxybutane
Ethyl acrylate
Ethyl benzene
Ethyl carbamate (Urethane)
Ethyl chloride (Chloroethane)
Ethylene dibromide (Dibromoethane)
Ethylene dichloride (1,2-Dichloroethane)
Ethylene glycol
Ethylene imine (Aziridine)
Ethylene oxide
Ethylene thiourea
Ethylidene dichloride (1,1-Dichloroethane)
Formaldehyde
Heptachlor
Hexachlorobenzene
Hexachlorobutadiene
Hexachlorocyclopentadiene
Hexachloroethane
Hexamethylene-1,6-diisocyanate
Hexamethylphosphoramide
Hexane
Hydrazine
Hydrochloric acid
Hydrogen fluoride (Hydrofluoric acid)

Hydroquinone
Isophorone
Lindane (all isomers)
Maleic anhydride
Methanol
Methoxychlor
Methyl bromide (Bromomethane)
Methyl chloride (Chloromethane)
Methyl chloroform (1,1,1-Trichloroethane)
Methyl ethyl ketone (2-Butanone)
Methyl hydrazine
Methyl iodide (Iodomethane)
Methyl isobutyl ketone (Hexone)
Methyl isocyanate
Methyl methacrylate
Methyl tert butyl ether
4,4-Methylene bis(2-chloroaniline)
Methylene chloride (Dichloromethane)
Methylene diphenyl diisocyanate (MDI)
4,4-Methylenedianiline
Naphthalene
Nitrobenzene
4-Nitrobiphenyl
4-Nitrophenol
2-Nitropropane
N-Nitroso-N-methylurea
N-Nitrosodimethylamine
N-Nitrosomorpholine
Parathion
Pentachloronitrobenzene (Quintobenzene)
Pentachlorophenol
Phenol
p-Phenylenediamine
Phosgene
Phosphine
Phosphorus
Phthalic anhydride

Polychlorinated biphenyls (Aroclors)
1,3-Propane sultone
beta-Propiolactone
Propionaldehyde
Propoxur (Baygon)
Prophylene dichloride (1,2-Dichloropropane)
Propylene oxide
1,2-Propylenimine (2-Methylaziridine)
Quinoline
Quinone
Styrene
Styrene oxide
2,3,7,8-Tetrachlorodibenzo-p-dioxin
1,1,2,2-Tetrachloroethane
Tetrachloroethylene (Perchloroethylene)
Titanium tetrachloride
Toluene
2,4-Toluene diamine
2,4-Toluene diisocyanate
o-Toluidine
Toxaphene (chlorinated camphene)
1,2,4-Trichlorobenzene
1,1,2-Trichloroethane
Trichloroethylene
2,4,5-Trichlorophenol
2,4,6-Trichlorophenol
Triethylamine
Trifluralin
2,2,4-Trimethylpentane
Vinyl acetate
Vinyl bromide
Vinyl chloride
Vinylidene chloride (1,1-Dichloroethylene)
Xylenes (isomers and mixture)
o-Xylenes
m-Xylenes
p-Xylenes

Antimony Compounds
Arsenic Compounds (inorganic including arsine)
Beryllium Compounds
Cadmium Compounds
Chromium Compounds
Cobalt Compounds
Coke Oven Emissions
Cyanide Compounds [FN1]
Glycol ethers [FN2]
Lead Compounds
Manganese Compounds
Mercury Compounds
Fine mineral fibers [FN3]
Nickel Compounds
Polycyclic Organic Matter [FN4]
Radionuclides (including radon) [FN5]
Selenium Compounds

Note: For all listing 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.

[FN1] X'CN where X = H' or any other group where a formal dissociation may occur. For example KCN or $Ca(CN)_2$

[FN2] includes mono- and di-ethers of ethylene glycol, diethylene glycol, and triethylene glycol ($R(OCH_2CH_2)_n$-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 (OCH2CH)n -OH. Polymers are excluded from the glycol category.

[FN3] 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.

[FN4] includes organic compounds with more than one benzene ring, and which have a boiling point greater than or equal to 100 degrees °C

[FN5] a type of atom which spontaneously undergoes radioactive decay.

Note: Authority cited: Sections 39657, 39600, 39601 and 39662, Health and Safety Code. Reference: Sections 39650, 39655, 39656, 39657, 39658, 39659, 39660, 39661 and 39662, Health and Safety Code.

History

1. New section filed 3-9-94; operative 4-8-94. Submitted to OAL for printing only (Register 94, No. 10).

17 CCR § 93001, 17
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End of Document

RELATED RESOURCES

Benzene - Retail Service Stations

Diesel Programs and Activities

Airborne Toxic Control Measures

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