

Air Pollution Control Program
Table of Hazardous Air Pollutants, Screening Model Action Levels,
and Risk Assessment Levels

Chemical	CAS #	SMAL (tons/yr)	8-HR RAL (µg/m ³)	24-HR RAL (µg/m ³)	Annual RAL (µg/m ³)	10x Annual RAL (µg/m ³)	Group ID	VOC	PM	Synonyms
ACETALDEHYDE	75-07-0	9		2	0.5	5		Y	N	ACETIC ALDEHYDE, ALDEHYDE, ETHANAL, ETHYL ALDEHYDE
ACETAMIDE	60-35-5	1						Y	N	ACETIC ACID AMIDE, ETHANAMIDE
ACETONITRILE	75-05-8	4	933.33					Y	N	METHYL CYANIDE, ETHANENITRILE, CYANOMETHANE
ACETOPHENONE	98-86-2	1						Y	N	ACETYL BENZENE, METHYL PHENYL KETONE AND HYPNONE
ACETYLAMINOFLUORINE, [2-]	53-96-3	0.005					V	Y	Y	N-2-FLUORENYL ACETAMIDE, N-FLUOREN-2-YL ACETAMIDE, 2-ACETAMIDOFUORENE
ACROLEIN	107-02-8	0.04		6.9	0.02			Y	N	ACRYLALDEHYDE, ACRYLIC ALDEHYDE, ALLYL ALDEHYDE, PROPENAL
ACRYLAMIDE	79-06-1	0.02	0.0533					Y	N	PROPENAMIDE, ACRYLIC AMIDE, ACRYLAMIDE MONOMER, ETHYLENECARBOXAMIDE
ACRYLIC ACID	79-10-7	0.6	80					Y	N	PROPENOIC ACID, ETHYLENE CARBOXYLIC ACID, VINYLFORMIC ACID
ACRYLONITRILE	107-13-1	0.3		0.4	0.01	0.1		Y	N	VINYL CYANIDE, CYANOETHYLENE, PROPENE NITRILE, AN
ALLYL CHLORIDE	107-05-1	1	0.533					Y	N	1-CHLORO-2-PROPENE, 3-CHLOROPROPYLENE, CHLORALLYLENE, ALPHA-PROPYLENE
AMINOBIHENYL, [4-]	92-67-1	1					V	Y	N	BIPHENYLENE, P-PHENYLANILINE, XENYLAMINE, 4-AMINODIPHENYL, 4-BIPHENYLAMINE
ANILINE	62-53-3	1		0.2	0.1	1		Y	N	AMINO BENZENE, PHENYLAMINE, ANILINE OIL, AMINOPHEN, ARYLAMINE
ANISIDINE, [ORTHO-]	90-04-0	1						Y	N	O-METHOXYANILINE
ANTHRACENE	120-12-7	0.01					V	Y	N	ANTHRACIN, GREEN OIL, PARANAPHTHALENE, TETRAOLIVE N2G
ANTIMONY COMPOUNDS (Notes 2 , 4)		5	6.67	1	1		H	N	Y	ELEMENTAL ANTIMONY (CAS 7440-36-0), ANTIMONY (PENTACHLORIDE, TRIBROMIDE, TRICHLORIDE, TRIFLUORIDE),
ANTIMONY PENTAFLUORIDE	7783-70-2	0.1					H	N	Y	
ANTIMONY POTASSIUM TARTRATE	28300-74-5	1					H	N	Y	
ANTIMONY TRIOXIDE	1309-64-4	1					H	N	Y	
ANTIMONY TRISULFIDE	1345-04-6	0.1					H	N	Y	
ARSENIC COMPOUNDS (Notes 2 , 4 , 18)		0.005	0.015	0.015	0.0002	0.002	I	N	Y	ARSENIC (DIETHYL, DISULFIDE, PENTOXIDE, TRICHLORIDE, TRIOXIDE, TRISULFIDE), ELEMENTAL ARSENIC (CAS 7440-38-2)
ASBESTOS (Note 2 , 5 , 13)	1332-21-4	0		0.00004	0.000004	0.00004	A	N	Y	CHRYSTOLITE, AMOSITE, CROCIDOLITE, TREMOLITE, ANTHOPHYLLITE, ACTINOLITE
BENZ(A)ANTHRACENE	56-55-3	0.01		1.6	0.17	1.7	V	Y	N	BENZANTHRENE, BENZO(A)ANTHRACENE, BENZPHENANTHRENE, NAPHTHANTRACENE
BENZENE	71-43-2	2		1	0.12	1.2		Y	N	BENZOL, PHENYL HYDRIDE, COAL NAPHTHA, PHENE, BENXOLE, CYCLOHEXATRIENE
BENZIDINE	92-87-5	0.0003	0.0001				V	Y	N	4,4'-BIPHENYLDIAMINE,P-DIAMINODIPHENYL,4,4'-DIAMINOBIHENYL,BENZIDINE BASE
BENZO(A)PYRENE	50-32-8	0.01		0.16	0.016	0.16	V	Y	N	3,4-BENZPYRENE
BENZO(B)FLUORANTHENE	205-99-2	0.01		1.6	0.16	1.6	V	Y	N	
BENZO(K)FLUORANTHENE	207-08-9	0.01		1.6	0.16	1.6	V	Y	N	
BENZOTRICHLORIDE	98-07-7	0.006						Y	N	BENZOIC TRICHLORIDE, PHENYL CHLOROFORM, TRICHLOROMETHYLBENZENE
BENZYL CHLORIDE	100-44-7	0.1		14.08	0.94			Y	N	ALPHA-CHLOROTOLUENE, TOLYL CHLORIDE
BERYLLIUM COMPOUNDS (Notes 2 , 4)		0.008	0.000356	0.02	0.0004	0.004	J	N	Y	ELEMENTAL BERYLLIUM (CAS 7440-41-7), GLUCINIUM
BERYLLIUM SALTS		0.00002						J	N	Y
BIPHENYL, [1,1-]	92-52-4	10		0.34	0.09		V	Y	N	DIPHENYL, PHENYLBENZENE
BIS(CHLOROETHYL)ETHER (Note 15)	111-44-4	0.06		6.9	0.03			Y	N	DICHLOROETHYL ETHER,DICHLOROETHER, DICHLOROETHYL OXIDE, BCÉE
BIS(CHLOROMETHYL)ETHER	542-88-1	0.0003	0.000667					Y	N	BCME,SYM-DICHLOROMETHYL ETHER, DICHLOROMETHYL ETHER, OXYBIS-(CHLOROMETHANE)
BROMOFORM	75-25-2	10	0.889					Y	N	TRIBROMOMETHANE, METHYL TRIBROMIDE
BROMOMETHANE	74-83-9	10		5.28	2.64			Y	N	METHYL BROMIDE
BUTADIENE, [1,3-]	106-99-0	0.07		1.2	0.003	0.03		Y	N	BIETHYLENE, BIVINYL, BUTADIENE MONOMER, DIVINYL ERYTHRENE, VINYLETHYLENE
BUTOXYETHANOL ACETATE, [2-]	112-07-2	5		790	79		P	Y	N	2-BUTOXYETHYL ACETATE, BUTYL CELLOSOLVE ACETATE, BUTYL GLYCOL ACETATE
BUTYLENE OXIDE, [1,2-]	106-88-7	1						Y	N	1,2-EPOXYBUTANE, 1-BUTENE OXIDE, 1,2-BUTENE OXIDE
CADMIUM COMPOUNDS (Notes 2 , 4)		0.01	0.00889	0.006	0.001	0.01	K	N	Y	CADMIUM(DUST,FUME,ACETATE,CHLORATE, CHLORIDE,FLUORIDE,OXIDE,SULFATE,SULFIDE), ELEMENTAL CADMIUM (CAS 7440-43-9)
CALCIUM CYANAMIDE	156-62-7	10	0.0889					Y	Y	NITROLIME, CALCIUM CARBIMIDE, CYANAMIDE
CAPROLACTAM (Delisted)	105-60-2									HEXAHYDRO-2H-AZEPIN-2-ONE, AMINOCAPROIC LACTAM, EPSILON-CAPROLACTAM

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CAPTAN	133-06-2	10	0.889					Y	Y	N-TRICHLOROMETHYLMERCAPTO-4-CYCLOHEXENE-1,2-DICARBOXIMIDE
CARBARYL	63-25-2	10	0.889				V	Y	Y	1-NAPHTHYL-N-METHYLCARBAMATE
CARBON DISULFIDE	75-15-0	1		740	700			Y	N	CARBON BISULFIDE, DITHIOCARBONIC ANHYDRIDE
CARBON TETRACHLORIDE	56-23-5	1		3	0.07	0.7		Y	N	TETRACHLOROMETHANE, PERCHLOROMETHANE
CARBONYL SULFIDE	463-58-1	5		57	4			Y	N	CARBON OXIDE SULFIDE, CARBONOXYSULFIDE
CATECHOL	120-80-9	5	3.56					Y	N	PYROCATECHOL, O-DIHYDROXYBENZENE
CHLORAMBEN	133-90-4	1		46.8				Y	Y	3-AMINO-2,5-DICHLOROBENZOIC ACID, AMBEN, AMIBEN*, VEGIBEN* (TRADEMARK)
CHLORDANE	57-74-9	0.01		0.7	0.01	0.1		Y	Y	ENT9932, OCTACHLOR
CHLORINE	7782-50-5	0.1		3.95	3.95			N	N	BERTHOLITE
CHLOROACETIC ACID	79-11-8	0.1						Y	N	MONOCHLOROACETIC ACID, CHLOROETHANOIC ACID
CHLOROACETOPHENONE, [2-]	532-27-4	0.06	4					Y	N	PHENACYL CHLORIDE, CHLOROMETHYL PHENYL KETONE, TEAR GAS, MACE
CHLOROBENZENE	108-90-7	10		93.88	6.26			Y	N	BENZENE CHLORIDE, MONOCHLOROBENZENE, CHLOROBENZOL, PHENYL CHLORIDE, MCB
CHLOROBENZILATE	510-15-6	0.4					V	Y	Y	ETHYL-4,4'-DICHLOROBENZILATE, ETHYL-4,4'-DICHLOROPHENYL GLYCOLLATE
CHLOROFORM	67-66-3	0.9		2.4	0.04	0.4		Y	N	TRICHLOROMETHANE
CHLOROMETHYL METHYL ETHER	107-30-2	0.1						Y	N	CMME, METHYL CHLOROMETHYL ETHER, CHLOROMETHOXYMETHANE, MONOCHLOROMETHYL ETHER
CHLOROPRENE	126-99-8	1		20	0.002	0.02		Y	N	2-CHLORO-1,3-BUTADIENE, CHLOROBUTADIENE, NEOPRENE RUBBER COUMPOUND
CHROMIUM (VI) COMPOUNDS (Notes 4 , 11)		0.002		0.1	0.00001	0.0001	L	N	Y	CHROMATE(VI)(LEAD,BILITHIUM,TRIOXIDE,PHOSPHATE,POTASSIUM,ZINC), CHROMIC ACID (CAS 7738-94-5), CALCIUM CHROMATE (CAS 13765-19-0)
CHROMIUM COMPOUNDS (Notes 4 , 11)		5					L	N	Y	ELEMENTAL CHROMIUM (CAS 7440-47-3), CHROMIUM(II) COMPOUNDS, CHROMIUM (III) COMPOUNDS [ACETATE, BROMIDE, FLUORIDE, NITRATE, OXIDE, SULFATE], CHROMIC CHLORIDE (CAS 10025-73-7)
CHRYSENE	218-01-9	0.01		16	1.6	16	V	Y	N	
COBALT COMPOUNDS (Notes 2 , 4)		0.1	0.00889				M	N	Y	COBALT (BROMIDE, CARBOYL, CHLORIDE, DIACETATE, FORMATE, NITRATE, OXIDE, SULFAMATE) ELEMENTAL COBALT (CAS 7440-48-4)
COKE OVEN EMMISIONS	8007-45-2	0.03	0.0267				N	Y	N	COAL TAR, COAL TAR PITCH, COAL TAR DISTILLATE
CRESOL, [META-]	108-39-4	1	293.3				B	Y	N	3-CRESOL, M-CRESYLIC ACID, 1-HYDROXY-3-METHYLBENZENE, M-HYDROXYTOLUENE
CRESOL, [ORTHO-]	95-48-7	1	293.3				B	Y	N	2-CRESOL, O-CRESOLIC ACID, 1-HYDROXY-2-METHYLBENZENE, 2-METHYLPHENOL
CRESOL, [PARA-]	106-44-5	1		24.05	12.02		B	Y	N	4-CRESOL, P-CRESYLIC ACID, 1-HYDROXY-4-METHYLBENZENE, 4-HYDROXYTOLUENE
CRESOLS (MIXED ISOMERS)	1319-77-3	1	293.3				B	Y	N	CRESYLIC ACID
CUMENE	98-82-8	10		580				Y	N	ISOPROPYL BENZENE, 2-PHENYLPROPANE
CYANIDE COMPOUNDS (Notes 7 , 16, 20)		0.1		12	3		O	Y	N	HYDROGEN CYANIDE (CAS# 74-90-8), POTASSIUM CYANIDE (CAS# 151-50-8), SODIUM CYANIDE (CAS# 143-33-9), COPPER CYANIDE (CAS 544-92-3) CUPRICIN, CUPROUS CYANIDE, CHLORINE CYANIDE (CAS 506-77-4) CYANOGEN CHLORIDE, CHLOROXYANOGEN, CHLOROCYAN, BARIUM CYANIDE (CAS 542-62-1), CYANOGEN (CAS 460-19-5), CYANOGEN BROMIDE (CAS 506-68-3), POTASSIUM SILVER CYANIDE (CAS 506-61-6), SILVER CYANIDE (CAS 506-64-9), ZINC CYANIDE (CAS 557-21-1), AND OTHER CYANIDE SALTS
DDE	72-55-9	0.01					V	Y	Y	DICHLORODIPHENYLDICHLOROETHYLENE
DI(2-ETHYLHEXYL) PHTHALATE, (DEHP)	117-81-7	5		1.36	0.77	7.7		Y	N	DI(2-ETHYLHEXYL)PHTHALATE, DOP, DI-SEC-OCTYL PHTHALATE
DIAMINOTOLUENE, [2,4-]	95-80-7	0.02						Y	N	2,4-TOLUENE DIAMINE, 3-AMINO-PARA-TOLUIDINE, 5-AMINO-ORTHO-TOLUIDINE
DIAZOMETHANE	334-88-3	1	0.071					Y	N	AZIMETHYLENE, DIAZIRINE
DIBENZ(A,H)ANTHRACENE	53-70-3	0.01		0.16	0.016	0.16	V	Y	N	1,2,5,6-BENZANTHRACENE, DIBENZO(A,H)ANTHRACENE
DIOXINS/FURANS (Note 10)		6.E-07			0.03	0.3	D,V	Y	N	POLYCHLORINATED DIBENZODIOXINS (PCDD) , POLYCHLORINATED DIBENZOFURANS (PCDF)
DIBENZOFURAN	132-64-9	5					V	Y	N	DIPHENYLENE OXIDE
DIBROMO-3-CHLOROPROPANE, [1,2-]	96-12-8	0.01						Y	N	DBCP
DIBROMOETHANE, [1,2-]	106-93-4	0.1						Y	N	ETHYLENE DIBROMIDE, ETHYLENE BROMIDE, SYM-DIBROMOETHANE
DIBUTYL PHTHALATE	84-74-2	10	13.33					Y	Y	DBP, DIBUTYL 1,2-BENZENEDICARBOXYLATE, DI-N-BUTYL PHTHALATE
DICHLOROBENZENE, [1,4-]	106-46-7	3		800	0.09	0.9		Y	N	1,4-DICHLORO-P-DCB, 1,4-DCB, PDB, PCCB
DICHLOROBENZIDENE, [3,3-]	91-94-1	0.2					V	Y	Y	4,4'-DIAMINO-3,3'-DICHLOROBIPHENYL, 3,3'-DICHLOROBIPHENYL-4,4'-DIAMINE, DCB
DICHLOROETHANE, [1,1-]	75-34-3	1	2160					Y	N	ETHYLIDENE DICHLORIDE, 1,1-ETHYLIDENE DICHLORIDE, ASYMMETRICAL DICHLOROETHANE

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DICHLOROETHANE, [1,2-]	107-06-2	0.8		11.01	0.04	0.4		Y	N	ETHYLENE DICHLORIDE, 1,2-DICHLOROETHANE, GLYCOL DICHLORIDE, ETHYLENE CHLORIDE
DICHLOROETHYLENE, [1,1-]	75-35-4	0.4		1.08	0.02	0.2		Y	N	VINYLDIENE CHLORIDE, DCE, VDC
DICHLOROMETHANE	75-09-2	10		20	0.24	2.4		N	N	METHYLENE CHLORIDE, METHANE DICHLORIDE
DICHLOROPHENOXY ACETIC ACID, [2,4-] (Note 6)	94-75-7	10	1.78				C	Y	Y	2,4-D ACID
DICHLOROPROPANE, [1,2-]	78-87-5	1		0.9	0.05			Y	N	PROPYLENE DICHLORIDE
DICHLOROPROPENE, [1,3-]	542-75-6	1	66.67					Y	N	1,3-DICHLOROPROPYLENE, ALPHA-CHLORALLYL CHLORIDE
DICHLORVOS	62-73-7	0.2	0.178					Y	N	DDVP, 2,2-DICHLOROVINYLDIMETHYLPHOSPHATE
DIETHANOLAMINE	111-42-2	5		31				Y	N	BIS(2-HYDROXYETHYL)AMINE, 2,2'-DIHYDROXYDIETHYLAMINE, DI(2-HYDROXYETHYL)AMINE
DIETHYL SULFATE	64-67-5	1						Y	N	DIETHYL ESTER SULFURIC ACID, ETHYL SULFATE
DIETHYLENE GLYCOL MONOBUTYL ETHER	112-34-5	5		450			P	Y	N	2-(2-BUTOXYETHOXY)ETHANOL, BUTYL CARBITOL, BUTYL DIGOL
DIMETHOXYBENZIDINE, [3,3-]	119-90-4	0.1					V	Y	Y	FAST BLUE B BASE, DIANISIDINE, O-DIANISIDINE
DIMETHYL BENZIDINE, [3,3-]	119-93-7	0.008					V	Y	Y	O-TOLIDINE, BIANISIDINE, 4,4'-DIAMINO-3,3'-DIMETHYLBIPHENYL, DIAMINODIOL
DIMETHYL CARBAMOYL CHLORIDE	79-44-7	0.02						Y	N	DMCC, CHLOROFORMIC ACID DIMETHYL AMIDE, DIMETHYL CARBAMYL CHLORIDE
DIMETHYL FORMAMIDE	68-12-2	1		6	3			Y	N	DMF, FORMYLDIMETHYLAMINE
DIMETHYL HYDRAZINE, [1,1-]	57-14-7	0.008	0.1778					Y	N	UNSYMMETRICAL DIMETHYLHYDRAZINE, UDMH, Dimazine
DIMETHYL PHTHALATE	131-11-3	10		40				Y	N	PHTHALIC ACID, DIMETHYL ESTER, DIMETHYL 1,2-BENZENEDICARBOXYLATE, DMP
DIMETHYL SULFATE	77-78-1	0.1	0.0889					Y	N	SULFURIC ACID DIMETHYL ESTER, METHYL SULFATE, DMS
DIMETHYLAMINOAZOBENZENE, [4-]	60-11-7	1						Y	N	N,N-DIMETHYL-P-PHENYL-AZO-ANILINE, BENZENE-AZO-DIMETHYLANILINE
DIMETHYLANILINE, [N-N-]	121-69-7	1	333.33					Y	N	N,N-DIETHYL ANILINE, N,N-DIMETHYLPHENYLAMINE, DMA
DINITRO-O-CRESOL, [4,6-] (Note 6)	534-52-1	0.1	2.67				E	Y	Y	DNOC, 3,5-DINITRO-O-CRESOL, 2-METHYL-4,6-DINITROPHENOL
DINITROPHENOL, [2,4-]	51-28-5	1	2.67					Y	N	DNP
DINITROTOLUENE, [2,4-]	121-14-2	0.02	0.267					Y	N	DINITROTOLUOL, DNT, 1-METHYL-2,4-DINITROBENZENE
DIOXANE, [1,4-]	123-91-1	6		24.49	0.24	2.4		Y	N	1,4-DIETHYLENEOXIDE, DIETHYLENE ETHER, P-DIOXANE
DIPHENYLHYDRAZINE, [1,2-]	122-66-7	0.09	0.045				V	Y	Y	HYDRAZOBENZENE, N,N'-DIPHENYLHYDRAZINE, N,N'-BIANILINE, 1,1'-HYDROBENZENE
DIPHENYLMETHANE DIISOCYANATE, [4,4-]	101-68-8	0.1	2.667				V	Y	N	METHYLENE BIS(PHENYLISOCYANATE), METHYLENE DIPHENYL DIISOCYANATE, (MDI)
EPICHLOROHYDRIN	106-89-8	2		8	0.08	0.8		Y	N	1-CHLORO-2,3-EPOXYPROPANE, EPI, CHLOROPROPYLENE OXIDE, CHLOROMETHYLOXIRANE
ETHOXYETHANOL, [2-]	110-80-5	10	253.33				P	Y	N	CELLOSOLVE SOLVENT, ETHYLENE GLYCOL MONOETHYL ETHER
ETHOXYETHYL ACETATE, [2-]	111-15-9	5		300	300		P	Y	N	CELLOSOLVE ACETATE, EGEEA, ETHYLENE GLYCOL MONOETHYL ACETATE
ETHYL ACRYLATE	140-88-5	1		0.56	0.28			Y	N	ETHYL PROPENOATE, ACRYLIC ACID ETHYL ESTER
ETHYL BENZENE	100-41-4	10		360	300			Y	N	ETHYLBENZOL, PHENYLETHANE, EB
ETHYL CHLORIDE	75-00-3	10		717.55	358.78			Y	N	CHLOROETHANE, MONOCHLOROETHANE, HYDROCHLORIC ETHER
ETHYLENE GLYCOL	107-21-1	10		34.5	34.5			Y	N	1,2-ETHANEDIOL, GLYCOL ALCOHOL, GLYCOL, EG
ETHYLENE GLYCOL MONOBUTYL ETHER (Delisted)	111-76-2									BUTYL CELLOSOLVE, 2-BUTOXYETHANOL
ETHYLENE GLYCOL MONOHEXYL ETHER	112-25-4	5		96	10		P	Y	N	GLYCOL MONOHEXYL ETHER, N-HEXYL GLYCOL, EGHE, HEXYL CELLOSOLVE
ETHYLENE IMINE [AZIRIDINE]	151-56-4	0.003	0.178					Y	N	AZACYCLOPROPANE, DIMETHYLENIMINE, ETHYLENIMINE, VINYLAMINE, AZIRANE
ETHYLENE OXIDE	75-21-8	0.1		30	0.01	0.1		Y	N	1,2-EPOXYETHANE, OXIRANE, DIMETHYLENE OXIDE, ANPROLENE
ETHYLENE THIOUREA	96-45-7	0.6						Y	Y	2-IMIDAZOLIDINETHIONE, ETU
FORMALDEHYDE	50-00-0	2		9.8	0.08	0.8		Y	N	OXYMETHYLENE, FORMIC ALDEHYDE, METHANAL, METHYLENE OXIDE, OXOMETHANE
GLYCOL ETHER (ETHYLENE GLYCOL ETHERS) (Notes 3, 5, 21)		5		3	2		P	Y	N	
GLYCOL ETHER (DIETHYLENE GLYCOL ETHERS) (Notes 3, 5, 21)		5		450			P	Y	N	
HEPTACHLOR	76-44-8	0.02		0.14	0.001	0.01		Y	N	1,4,5,6,7,8,8A-HEPTACHLORO-3A,4,7,7A-TETRAHYDRO-4,7-METHANOINDIENE
HEXACHLOROBENZENE	118-74-1	0.01						Y	N	PERCHLOROBENZENE, HCB, PENTACHLOROPHENYL BENZENE, PHENYL PERCHLORYL
HEXACHLOROBUTADIENE	87-68-3	0.9	0.45					Y	N	PERCHLOROBUTADIENE, 1,3-HEXACHLOROBUTADIENE, HCB
HEXACHLOROCYCLOHEXANE, [ALPHA-]	319-84-6	0.01	0.0056				F	Y	N	BENZENE HEXACHLORIDE-alpha isomer, ENT-9232, ALPHA-LINDANE, ALPHA-BHC

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HEXACHLOROCYCLOHEXANE, [BETA-]	319-85-7	0.01	0.019				F	Y	N	trans-alphaBENZENEHEXACHLORIDE,BETA-BHC,BETA-LINDANE,BETA-HEXACHLOROBENZENE	
HEXACHLOROCYCLOHEXANE, [DELTA-]	319-86-8	0.01	0.02				F	Y	N	delta-BENZENE HEXACHLORIDE, DELTA-BHC, DELTA-LINDANE, ENT 9236	
HEXACHLOROCYCLOHEXANE, [TECHNICAL]	608-73-1	0.01	0.0889				F	Y	N	BENZENE HEXACHLORIDE, HCH, BHC, ENT 8601, GAMMEXANE, COMPOUND-666	
HEXACHLOROCYCLOPENTADIENE	77-47-4	0.1		0.006	0.006			Y	N	HCCPD, HEX	
HEXACHLOROETHANE	67-72-1	5		30	0.09	0.9		Y	N	PERCHLOROETHANE, CARBON HEXACHLORIDE, HCE, 1,1,1,2,2,2-HEXACHLOROETHANE	
HEXAMETHYLENE,-1,6-DIISOCYANATE	822-06-0	0.02		0.03	0.01			Y	N	1,6-DIISOCYANATOHEXANE, 1,6-HEXANEDIOL DISOCYANATE	
HEXAMETHYLPHOSPHORAMIDE	680-31-9	0.01						Y	N	HEXAMETHYLPHOSPHORIC TRIAMIDE, HEMPA, HEXAMETAPOL,HEXAMETHYLPHOSPHORAMIDE	
HEXANE, [N-]	110-54-3	10		4200	420			Y	N	HEXANE, NCI-c60571	
HYDRAZINE	302-01-2	0.004		0.2	0.0002	0.002		N	N	METHYLHYDRAZINE, DIAMIDE, DIAMINE, HYDRAZINE BASE	
HYDROGEN CHLORIDE (Note 19)	7647-01-0	10		180	20			N	N	HYDROCHLORIC ACID, MURIATIC ACID, ANHYDROUS HYDROCHLORIC ACID	
HYDROGEN FLUORIDE (Note 17)	7664-39-3	0.1		14	14			N	N	HYDROFLUORIC ACID GAS, FLUOROHYDRIC ACID GAS, ANHYDROUS HYDROFLUORIC ACID	
HYDROQUINONE	123-31-9	1	26.67					Y	N	QUINOL, HYDROQUINOL, P-DIPHENOL, 1,4-BENZENEDIOL, HYDROCHINONE, ARCTUVIN	
INDENO(1,2,3CD)PYRENE	193-39-5	0.01		1.6	0.16	1.6	V	Y	N		
ISOPHORONE	78-59-1	10	333.33					Y	N	3,3,5-TRIMETHYL-2-CYCLOHEXENE-1-ONE,TRIMETHYLCYCLOHEXONE, ISOACETOPHORONE	
LEAD COMPOUNDS (Notes 2 , 4 , 8)		0.01	2	0.357	0.07	0.7	Q	N	Y	LEAD (ARSENATE, CHLORIDE, FLUORIDE, IODIDE, NITRATE, SULFATE, SULFIDE), LEAD ACETATE (CAS 301-04-2), LEAD SUBACETATE (CAS 13335-32-6), TETRAETHYL LEAD (CAS 78-00-2)	
LINDANE [GAMMA-HEXACHLOROCYCLOHEXANE] (Notes 3 , 5)	58-89-9	0.01		0.14	0.003			F	Y	N	BENZENE HEXACHLORIDE-GAMMA ISOMER
MALEIC ANHYDRIDE	108-31-6	1		0.27	0.14			Y	N	2,5-FURANEDIENE, CIS-BUTENEDIOLIC ANHYDRIDE, TOXILIC ANHYDRIDE	
MANGANESE COMPOUNDS (Notes 2 , 4)		0.8	0.89				R	N	Y	MANGANESE (ACETATE, CHLORIDE, DIOXIDE, (II)-OXIDE,(III)-OXIDE,(II)-SULFATE), MANEB (CAS 12427-38-2), ELEMENTAL MANGANESE (CAS 7439-96-5)	
MERCURY COMPOUNDS (Notes 2 , 4)		0.01		0.14	0.07		S	N	N	MERCURY (CHLORIDE, CYANIDE, (I,II)-[BROMIDE,IODIDE,NITRATE,SULFATE], OXIDE), ELEMENTAL MERCURY (CAS 7439-97-6), COLLOIDAL MERCURY, QUICK SILVER, NCI-c60399, (ALKYL & ARYL), METHYL MERCURY (CAS 22967-92-6), PHENYL MERCURIC ACETATE (CAS 62-38-4)	
METHANOL	67-56-1	10		600	7.13			Y	N	METHYL ALCOHOL, CARBINOL, WOOD ALCOHOL, WOOD SPIRIT	
METHOXYCHLOR	72-43-5	10	133.3				V	Y	Y	2,2-BIS(P-METHOXYPHENYL)-1,1,1-TRICHLOROETHANE, DIMETHOXY-DDT	
METHOXYETHANOL, [2-]	109-86-4	10		3	2		P	Y	N	ETHYLENE GLYCOL MONOMETHYL ETHER, METHYL CELLOSOLVE,	
METHYL CHLORIDE	74-87-3	10		90	90			Y	N	CHLOROMETHANE, MONOCHLOROMETHANE	
METHYL ETHYL KETONE (Delisted)	78-93-3									2-BUTANONE, MEK, BUTANONE, ETHYL METHYL KETONE	
METHYL HYDRAZINE	60-34-4	0.06	0.0622					Y	N	MONOMETHYLHYDRAZINE, HYDROZOMETHANE, 1-METHYLHYDRAZINE	
METHYL IODIDE	74-88-4	1	1.778					Y	N	IDOMETHANE	
METHYL ISOBUTYL KETONE	108-10-1	10		84	55.7			Y	N	HEXONE, 4-METHYL-2-PENTANONE, ISOBUTYL METHYL KETONE, MIBK	
METHYL ISOCYANATE	624-83-9	0.1	0.667					Y	N	ISOCYANATOMETHANE, ISOCYANIC ACID, METHYL ESTER	
METHYL METHACRYLATE	80-62-6	10		980	700			Y	N	METHYL 2-METHYL-2-PROPENOATE, METHACRYLIC ACID METHYL ESTER, MME	
METHYL TERT-BUTYL ETHER	1634-04-4	10						Y	N	MTBE	
METHYLCYCLOPENTADIENYL MANGANESE	12108-13-3	0.1	0.89				R	N	Y		
METHYLENE BIS(2-CHLOROANILINE), [4,4-]	101-14-4	0.2	0.0391				V	Y	Y	CURENE, MOCA, 4,4'-DIAMINO-3,3'-DICHLORODIPHENYLMETHANE	
METHYLENEDIANILINE, [4,4-]	101-77-9	1	10.67				V	Y	N	4,4'-DIAMINODIPHENYLMETHANE, DDM, MDA, BIS(4-AMINOPHENYL)METHANE, DAPM	
METHYLNAPHTHALENE, [2-]	91-57-6	0.01		23	2.3		V	Y	N	BETA-METHYLNAPHTHALENE, NAPHTHALENE, 2-METHYL-, NAPHTHALENE, BETA-METHYL-	
MINERAL FIBERS (Notes 1 , 2 , 5)		0					T	N	Y		
NAPHTHALENE	91-20-3	10		3	0.03	0.3	V	Y	N	NAPHTHALIN, MOTH FLAKE, TAR CAMPHOR, WHITE TAR, MOTH BALLS	
NAPHTHYLAMINE, [ALPHA-]	134-32-7	0.01					V	Y	N	1-NAPHTHYLAMINE, 1-AMINONAPHTHALENE, NAPHTHALIDINE	
NAPHTHYLAMINE, [BETA-]	91-59-8	0.01					V	Y	N	2-AMINONAPHTHALENE, 6-NAPHTHYLAMINE, 2-NAPHTHYLAMINE MUSTARD	
NICKEL CARBONYL	13463-39-3	0.1	0.062				U	N	Y	NICKEL TETRACARBONYL	
NICKEL COMPOUNDS (Notes 2 , 4)		1		0.09	0.004	0.04	U	N	Y	NICKEL(ACETATE,AMMONIUM SULFATE,CHLORIDE,HYDROXIDE,NITRATE,SULFATE), NICKEL OXIDE (CAS 1313-99-1),	

Chemical	CAS #	SMAL (tons/yr)	8-HR RAL (µg/m ³)	24-HR RAL (µg/m ³)	Annual RAL (µg/m ³)	10x Annual RAL (µg/m ³)	Group ID	VOC	PM	Synonyms
NICKEL REFINERY DUST		0.08		0.042			U	N	Y	NICKEL DUST, CAS #7440-02-0, NICKEL PARTICLES
NICKEL SUBSULFIDE	12035-72-2	0.04	0.021				U	N	Y	NICKEL SULPHIDE, HEAZLEWOODITE, NICKEL TRITADISULPHIDE
NITROBENZENE	98-95-3	1		9	0.025	0.25		Y	N	NITROBENZOL, OIL OF MIRBANE, OIL OF BITTER ALMONDS
NITROBIPHENYL, [4-]	92-93-3	1					V	Y	N	4-NITRODIPHENYL, P-NITROBIPHENYL, P-NITROPHENYL, PNB
NITROPHENOL, [4-]	100-02-7	5						Y	N	4-HYDROXYNITROBENZENE, PARA-NITROPHENOL
NITROPROPANE, [2-]	79-46-9	1	6.22					Y	N	DIMETHYLNITROMETHANE, SEC-NITROPROPANE, ISONITROPROPANE, NITROISOPROPANE
NITROSODIMETHYLAMINE, [N-]	62-75-9	0.001	0.0007					Y	N	DIMETHYLNITROSAMINE, DMN, DMNA
NITROSOMORPHOLINE, [N-]	59-89-2	1						Y	N	4-NITROSOMORPHOLINE
NITROSO-N-METHYLUREA, [N-] (Note 14)	684-93-5	0.0002			0.03			Y	N	N-METHYL-N-NITROSOUREA, N-NITROSO-N-METHYL CARBAMIDE
OCTACHLORONAPHTHALENE	2234-13-1	0.01	1.33				V	Y	N	HALOWAX 1051
PARATHION	56-38-2	0.1	0.0178					Y	Y	DNTP, MONOTHIOPHOSPHATE, DIETHYL-p-NITROPHENYL
PCB [POLYCHLORINATED BIPHENYLS] (Note 10)	1336-36-3	0.009			0.03	0.3	X	Y	Y	AROCLORS.
PENTACHLORONITROBENZENE	82-68-8	0.3		1.2				Y	N	QUINTOBENZENE, PCNB, QUINIOZENE
PENTACHLOROPHENOL	87-86-5	0.7		0.5	0.01			Y	N	PCP, PENCHOROL, PENTACHLOROPHENATE, 2,3,4,5,6-PENTACHLOROPHENOL
PHENOL	108-95-2	0.1		45	9.5			Y	N	CARBOLIC ACID, PHENIC ACID, PHENYLIC ACID, PHENYL HYDRATE, HYDROXYBENZENE
PHENYLENEDIAMINE, [PARA-]	106-50-3	10	0.0178					Y	N	P-AMINOANILINE, 1,4-DIAMINO BENZENE, BENZENE DIAMINE, PARA
PHOSGENE	75-44-5	0.1	5.33					Y	N	CARBONYL CHLORIDE, CARBON OXYCHLORIDE, CARBONIC ACID DICHLORIDE
PHOSPHINE	7803-51-2	5	5.33					N	N	HYDROGEN PHOSPHIDE, PHOSPHORETTED HYDROGEN, PHOSPHORUS TRIHYDRIDE
PHOSPHOROUS (YELLOW OR WHITE)	7723-14-0	0.1	1.33					N	N	COMMON SENSE COCKROACH AND RAT PREPARATIONS
PHTHALIC ANHYDRIDE	85-44-9	5		1.65	0.82			Y	N	PHTHALIC ACID ANHYDRIDE, BENZENE-O-DICARBOXYLIC ACID ANHYDRIDE, PHTHALANDIONE
POLYCYCLIC ORGANIC MATTER (Notes 3 , 5, 23)		0.01		0.16	0.016	0.16	V	Y	N	PAH, POLYCYCLIC AROMATIC HYDROCARBONS, POM
PROPANE SULTONE, [1,3-]	1120-71-4	0.03						Y	Y	1,2-OXATHIOLANE-2,2-DIOXIDE, 3-HYDROXY-1-PROPANESULPHONIC ACID SULTONE
PROPIOLACTONE, [BETA-]	57-57-8	0.1	0.2667					Y	N	2-OXETANONE, PROPIOLACTONE, BPL, 3-HYDROXY-B-LACTONE-PROPANOIC ACID
PROPIONALDEHYDE	123-38-6	5						Y	N	PROPANAL, PROPYL ALDEHYDE, PROPIONIC ALDEHYDE
PROPOXUR [BAYGON]	114-26-1	10	6.67					Y	Y	O-ISOPROPOXYPHENOL METHYL CARBAMATE, 2-(1-METHYLOXY)PHENOL METHYL CARBAMATE
PROPYLENE OXIDE	75-56-9	5		6	0.3	3		Y	N	1,2-EPOXYPROPANE, METHYLETHYLENE OXIDE, METHYL OXIRANE, PROPENE OXIDE
PROPYLENEIMINE, [1,2-]	75-55-8	0.003	0.889					Y	N	2-METHYL AZIRIDINE, 2-METHYL AZACYCLOPROPANE, METHYLETHYLENEIMINE
QUINOLINE	91-22-5	0.006						Y	N	1-AZANAPHTHALENE, 1-BENZAZINE, BENZO(B)PYRIDINE, CHINOLEINE, LEUCOLINE
QUINONE	106-51-4	5	0.071					Y	N	BENZOQUINONE, CHINONE, P-BENZOQUINONE, 1,4-BENZOQUINONE
RADIONUCLIDES (Note 24)		(Note 9)					Y	N	Y	RADON 222 (CAS 14859-67-7), RADIUM 226, 228 (CAS 7440-14-4), URANIUM (NATURAL) (CAS 7440-61-1)
SELENIUM COMPOUNDS (Notes 2 , 4)		0.1		0.54	0.54		W	N	Y	SELENIUM (DIOXIDE, DISULFIDE, HEXAFLUORIDE), ELEMENTAL SELENIUM (CAS 7782-49-2), SELENIOS ACID (CAS 7783-00-8), SELENIUM SULFIDE (CAS 7446-34-6), SELENOUREA (CAS 630-10-4), THALLIUM SELENITE (CAS 12039-52-0)
STYRENE	100-42-5	1		2240	333			Y	N	CINNAMENE, CINNAMOL, PHENETHYLENE, PHENYLETHYLENE, VINYL BENZENE
STYRENE OXIDE	96-09-3	1						Y	N	EPOXYETHYL BENZENE, PHENYLETHYLENE OXIDE, PHENYL OXIRANE, EPOXYSTYRENE
TETRACHLORODIBENZO-P-DIOXIN,[2,3,7,8] (Note 10)	1746-01-6	6E-07			0.03	0.3	D,V	Y	Y	TCDD
TETRACHLOROETHANE, [1,1,2,2-]	79-34-5	0.3		18.67	0.02	0.2		Y	N	SYM-TETRACHLOROETHANE, ACETYLENE TETRACHLORIDE, ETHANE TETRACHLORIDE
TETRACHLOROETHYLENE	127-18-4	10		40	0.4	40		N	N	PERCHLOROETHYLENE, CARBON DICHLORIDE, ETHYLENE TETRACHLORIDE, PCE, PERCLENE
TITANIUM TETRACHLORIDE	7550-45-0	0.1						N	N	TITANIUM CHLORIDE
TOLUENE	108-88-3	10		7600	5000			Y	N	TOLUOL, METHYLBENZENE, PHENYLMETHANE, METHYLBENZOL
TOLUENE DIISOCYANATE, [2,4-]	584-84-9	0.1		0.1	0.1			Y	N	TDI, TOLYLENE DIISOCYANATE, DIISOCYANATOLUENE
TOLUIDINE, [ORTHO-]	95-53-4	4		2.38	0.17			Y	N	ORTHO-AMINOTOLUENE, ORTHO-METHYLANILINE, 1-METHYL-1,2-AMINO BENZENE
TOXAPHENE	8001-35-2	0.01	0.0889					Y	N	CHLORINATED CAMPHENE, CAMPHECHLOR, POLYCHLOROCAMPHENE
TRICHLORO BENZENE, [1,2,4-]	120-82-1	10	533.33					Y	N	UNSYM-TRICHLORO BENZENE
TRICHLOROETHANE, [1,1,1-]	71-55-6	10		4500	1038.37			N	N	METHYL CHLOROFORM
TRICHLOROETHANE, [1,1,2-]	79-00-5	1		14.84	0.06	0.6		Y	N	VINYL TRICHLORIDE, BETA-TRICHLOROETHANE

Chemical	CAS #	SMAL (tons/yr)	8-HR RAL (µg/m ³)	24-HR RAL (µg/m ³)	Annual RAL (µg/m ³)	10x Annual RAL (µg/m ³)	Group ID	VOC	PM	Synonyms
TRICHLOROETHYLENE	79-01-6	10		2	0.2	2		Y	N	ETHYLENE TRICHLORIDE, ETHINYL TRICHLORIDE, TRICHLOROETHENE, TRI, TCE
TRICHLOROPHENOL, [2,4,5-]	95-95-4	1						Y	N	2,4,5-TCP
TRICHLOROPHENOL, [2,4,6-]	88-06-2	6			0.16	1.6		Y	N	2,4,6-TCP
TRIETHYLAMINE	121-44-8	10		1	0.7			Y	N	N,N-DIETHYLETHANAMINE, TEA, (DIETHYLAMINO)ETHANE
TRIFLURALIN	1582-09-8	9		73.8				Y	Y	2,6-DINITRO-N-N-DIPROPYL-4-(TRIFLUOROMETHYL)BENZENEAMINE
TRIMETHYLPENTANE, [2,2,4-]	540-84-1	5		3336				Y	N	ISOBUTYLTRIMETHYLETHANE, ISOCTANE
URETHANE [ETHYL CARBAMATE]	51-79-6	0.8						Y	N	ETHYL URETHANE, O-ETHYLURETHANE, LEUCOTHANE, NSC 746, URETHAN
VINYL ACETATE	108-05-4	1		30	8			Y	N	ACETIC ACID VINYL ESTER, VINYL ACETATE MONMER, ETHENYL ETHANOATE
VINYL BROMIDE	593-60-2	0.6	3.56					Y	N	BROMOETHYLENE, BROMOETHENE
VINYL CHLORIDE	75-01-4	0.2		100	0.11	1.1		Y	N	CHLOROETHYLENE, CHLOROETHENE, MONOCHLOROETHYLENE
XYLENE, [META-] (Note 5 , 12)	108-38-3	10		250	11.8		G	Y	N	M-DIMETHYLBENZENE, 1,3-XYLENE, 1,3-DIMETHYLBENZENE, M-XYLLOL
XYLENE, [ORTHO-] (Note 5 , 12)	95-47-6	10		250	11.8		G	Y	N	O-XYLOL, O-DIMETHYLBENZENE, O-METHYLTOLUENE, 1,2-XYLENE, 1,2-DIMETHYLBENZENE
XYLENE, [PARA-] (Note 5 , 12)	106-42-3	10		250	11.8		G	Y	N	P-DIMETHYLBENZENE, P-METHYLTOLUENE, 1,4-XYLENE, 1,4-DIMETHYLBENZENE, P-XYLOL
XYLENES (MIXED ISOMERS) (Note 5 , 12)	1330-20-7	10		250	11.8		G	Y	N	AROMATIC HYDROCARBONS MIXED, DIMETHYLBENZENE,

Legend

Group ID	Aggregate Group Name	Notes	Group ID	Aggregate Group Name	Notes
A	Asbestos	2 , 5	N	Coke Oven Emissions	2 , 5
B	Cresols/Cresylic Acid (isomers and mixtures)	2 , 5	O	Cyanide Compounds	7 , 16
C	2,4 - D, Salts and Esters	6	P	Glycol Ethers	3 , 5
D	Dibenzofurans, Dibenzodioxins	10	Q	Lead Compounds (except elemental Lead)	2 , 4 , 8
E	4, 6 Dinitro-o-cresol, and Salts	6	R	Manganese Compounds	2 , 4
F	Lindane (all isomers)	3 , 5	S	Mercury Compounds	2 , 4
G	Xylenes (all isomers and mixtures)	5 , 12	T	Fine Mineral Fibers	1 , 2 , 5 , 22
H	Antimony Compounds	2 , 4	U	Nickel Compounds	2 , 4
I	Arsenic Compounds	2 , 4 , 18	V	Polycyclic Organic Matter	3 , 5
J	Beryllium Compounds	2 , 4	W	Selenium Compounds	2 , 4
K	Cadmium Compounds	2 , 4	X	Polychlorinated Biphenyls (Aroclors)	10
L	Chromium Compounds	4 , 11	Y	Radionuclides	2 , 9 , 24
M	Cobalt Compounds	2 , 4			

Notes

Note 1	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 2	Emissions of compounds in this aggregate group are combined for comparison to the Major Source Thresholds. Except for those compounds specifically listed, emissions of compounds in this aggregate group are also combined for comparison to the SMALs and RALs.
Note 3	Emissions of compounds in this aggregate group are combined for comparison to the Major Source Thresholds but are not combined for comparison to the SMALs and RALs.
Note 4	The total mass of the compound is used to determine emissions for comparison to the Major Source Thresholds. The mass of the metal portion of the compound is used to determine emissions for comparison to the SMALs and RALs.
Note 5	The total mass of the compound is used to determine emissions for comparison to the SMALs, RALs, and Major Source Thresholds.
Note 6	The total mass of the compound is used to determine emissions for comparison to the Major Source Thresholds. For these compounds, emissions within the same aggregate group are combined for comparison to the SMALs and RALs, and the 2,4-D portion of 2,4-D Salts and Esters and the the Dinitro-ortho-cresol (DNOC) portion of 4,6 Dinitro-o-cresol Salts are used to determine emissions for comparison to the SMALs and RALs.
Note 7	The total mass of the compound is used to determine emissions for comparison to the Major Source Thresholds. Except for those compounds specifically listed, emissions of cyanide compounds are combined and the mass of the cyanide portion (-C≡N) of the compound is used to determine emissions for comparison to the SMALs and RALs. For those compounds specifically listed in the table, emissions are not combined and the total mass of the compound is used for comparison to the SMALs and RALs.

Note 8 Elemental lead is not considered a hazardous air pollutant. However, the lead portion of lead compounds (in addition to elemental lead) is considered a criteria pollutant and should be included in the lead criteria pollutant potential emissions calculations.

Note 9 The SMAL for radionuclides is defined as the effective dose equivalent to 0.3 millirems per year for 7 years exposure associated with a cancer risk of 1 in 1 million.

The RAL units for Dibenzodioxins/Dibenzofurans (Dioxins/Furans) and Polychlorinated biphenyls (PCBs) are picograms per cubic meter (pg/m³)

For comparison to the Major Source Threshold combine emissions within each aggregate group and use the total mass of each compound.

For comparison to the SMAL and RAL, emissions of polychlorinated dibenzodioxins & polychlorinated dibenzofurans (PCDD/PCDF) and polychlorinated biphenyls (PCB) are scaled according to the toxic equivalency factor method and then combined for comparison to the SMAL and RAL:

For comparison to the SMAL:

- 1) scale the annual emissions of each PCDD/PCDF and PCB by its respective toxic equivalency factor (TEF)
- 2) after the emissions are scaled, combine them into a single potential annual emissions (tons/year) for comparison to the SMAL

For comparison to the RAL:

- 1) scale the annual emissions of each PCDD/PCDF and PCB by its respective toxic equivalency factor (TEF)
- 2) after the emissions are scaled, combine them into a single emission rate (lb/hr) or (grams/second) for modeling
- 3) the resulting ambient concentration is compared to the RALs for Dioxins/Furans

Note 10

Toxic Equivalency Factors for PCDD, PCDF, and PCB compounds					
PCDDs	TEF	PCDFs	TEF	PCBs	TEF
2,3,7,8-TCDD	1.0	2,3,7,8-TCDF	0.1	3,3',4,4'-TCB (77)	0.0001
1,2,3,7,8-PeCDD	1.0	1,2,3,7,8-PeCDF	0.03	3,4,4',5-TCB (81)	0.0003
1,2,3,4,7,8-HxCDD	0.1	2,3,4,7,8-PeCDF	0.3	3,3',4,4',5-PeCB (126)	0.1
1,2,3,7,8,9-HxCDD	0.1	1,2,3,4,7,8-HxCDF	0.1	3,3',4,4',5,5'-HxCB (169)	0.03
1,2,3,6,7,8-HxCDD	0.1	1,2,3,7,8,9-HxCDF	0.1	2,3,3',4,4' PeCB (105)	0.00003
1,2,3,4,6,7,8-HpCDD	0.01	1,2,3,6,7,8-HxCDF	0.1	2,3,4,4',5 PeCB (114)	0.00003
1,2,3,4,6,7,8,9-OCDD	0.0003	2,3,4,6,7,8-HxCDF	0.1	2,3',4,4',5 PeCB (118)	0.00003
		1,2,3,4,6,7,8-HpCDF	0.01	2',3,4,4',5 PeCB (123)	0.00003
		1,2,3,4,7,8,9-HpCDF	0.01	2,3,3',4,4',5-HxCB (156)	0.00003
		1,2,3,4,6,7,8,9-OCDF	0.0003	2,3,3',4,4',5-HxCB (157)	0.00003
				2,3',4,4',5,5'-HxCB (167)	0.00003
				2,3,3',4,4',5,5'-HpCB (189)	0.00003

Note 11 Emissions of compounds in this aggregate group are combined for comparison to the Major Source Thresholds. Chromium (VI) compounds, also known as hexavalent chromium compounds, are combined for comparison to the SMAL and RALs for Chromium (VI) compounds. Chromium Compounds of all other oxidation states [i.e. excluding Chromium (VI) Compounds] are combined for comparison to the SMALs and RALs for Chromium Compounds.

Note 12 Emissions of all isomers of Xylenes are combined for comparison to the Major Source Thresholds. Although each isomer is specifically listed, they are not evaluated separately. Emissions of all isomers are combined and compared to the SMAL and RALs for any of the listed isomers as they are all the same.

Note 13 The RAL units for asbestos are fibers/mL (or fibers per cm³)

Note 14 The RAL units for Nitroso-N-Methylurea, [N-] (CAS # 684-93-5) are nanograms per cubic meter (ng/m³)

Note 15 The 1-hour RAL for Dichloroethylene (CAS # 111-44-4) is 0.287 milligrams per cubic meter (mg/m³)

Note 16 The 1-hour RAL for Cyanide Compounds is 11 milligrams per cubic meter (mg/m³)

Note 17 The acute RAL for Hydrogen Fluoride (CAS # 7664-39-3) for an exposure period between one and 14 days is 16 micrograms per cubic meter (µg/m³)

Note 18 The 4-hour RAL for Arsenic Compounds is 0.19 micrograms per cubic meter (µg/m³)

Note 19 The 1-hour RAL for hydrogen chloride is 2,100 micrograms per cubic meter (µg/m³)

Note 20 X'CN where X = H' or any other group where a formal dissociation may occur.
For example KCN or Ca(CN)₂

Note 21 Glycol ethers include mono- and di-ethers of ethylene glycol, diethylene glycol, and triethylene glycol R-(OCH₂CH₂)_n-OR'.
Where:
n = 1, 2, or 3;
R = alkyl C7 or less; or
R = phenyl or alkyl substituted phenyl;
R' = H or alkyl C7 or less; or
OR' consisting of carboxylic acid ester, sulfate, phosphate, nitrate, or sulfonate.

Note 22 Fine mineral fibers include 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 23 POM includes organic compounds with more than one benzene ring, and which have a boiling point greater than or equal to 100°C

Note 24 Radionuclides are a type of atom which spontaneously undergoes radioactive decay.

Column Identifiers

Column Name	Description
Chemical	As identified in section 112(b)(1) of the Clean Air Act Amendments of 1990, the name used in the Air Pollution Control Program's (APCP) Chemical Database to identify a Hazardous Air Pollutant (HAP) or an aggregate group of HAPs. The table lists HAPs in alphabetical order.
CAS #	The Chemical Abstracts Service (CAS) registry number for the HAP. In most instances, an aggregate group of HAPs does not have a CAS number because the purpose of a CAS number is to identify a specific chemical or compound.
SMAL	Screening Model Action Level (SMAL) is the emission threshold level for modeling HAPs, as referenced in the Missouri Code of State Regulations (CSR) 10 CSR 10-6.060 (12) (J) <i>Air Quality Analysis for Hazardous Air Pollutants</i> . The SMAL is also the emission threshold level for construction permit exemptions as referenced in 10 CSR 10-6.061 (3) (A) 3. B. Units are in tons per year except where noted.
8-HR RAL	The risk assessment level, as referred to in 10 CSR 10-6.060 (12) (J) <i>Air Quality Analysis for Hazardous Air Pollutants</i> , for an 8-hour averaging time. Units are in micrograms per cubic meter unless otherwise noted. Except where noted, modeled impacts must be below this number for any 8-hour time period.
24-HR RAL	The risk assessment level, as referred to in 10 CSR 10-6.060 (12) (J) <i>Air Quality Analysis for Hazardous Air Pollutants</i> , for a 24-hour averaging time. Units are in micrograms per cubic meter unless otherwise noted. Modeled impacts must be below this number for any 24-hour time period.
Annual RAL	The risk assessment level, as referred to in 10 CSR 10-6.060 (12) (J) <i>Air Quality Analysis for Hazardous Air Pollutants</i> , for an annual average. Units are in micrograms per cubic meter unless otherwise noted. Modeled impacts must be below this number for the 1-year time period, unless the HAP has a 10 X Annual RAL value.
10 X Annual RAL	This value represents ten times the annual RAL. EPA guidance (EPA-453/R-99-001, March, 1999) recommends that the HAPs whose cancer risk is due to chronic exposure (70-year lifetime exposure) must meet a lifetime cancer risk level in the range of 1-in-10,000 to 1-in-1,000,000. The Air Pollution Control Program allows a lifetime cancer risk level of 1-in-100,000 which corresponds to a maximum exposure level of 10 times the annual RAL.
Group ID	A value in this column indicates that the compound is classified as an aggregate group HAP. Emissions of compounds that are in the same aggregate group must be counted together.
VOC	If the value is Y, the HAP is classified as a Volatile Organic Compound (VOC) as defined in 10 CSR 10-6.020 (2) (V) 9. <i>Volatile Organic Compounds (VOC)</i> . If the value is N, the HAP is not classified as a VOC. Emissions of HAPs that are also VOCs are counted in the emissions potential for both HAPs and VOCs. VOC classification was determined based on guidance in a memo from the chief of the Air Permits and Compliance Branch of EPA Region VII to the director of the Air Pollution Control Program dated, April 18, 1996 and received, April 22, 1996.
PM	If the value is Y, the HAP is classified as particulate matter less than or equal to 10 microns in diameter (PM ₁₀) as defined in 10 CSR 10-6.020 (2) (P) 4. B. <i>PM₁₀</i> . If the value is N, the HAP is not classified as a PM ₁₀ . Emissions of HAPs that are also PM ₁₀ are counted in the emissions potential for both HAPs and PM ₁₀ . PM ₁₀ classification was determined based on guidance in a memo from the chief of the Air Permits and Compliance Branch of EPA Region VII to the director of the Air Pollution Control Program dated, April 18, 1996 and received, April 22, 1996.
Synonyms	Synonyms are other names that may be used to identify the HAP. The following websites may also be helpful in identifying HAPs: More information on aggregate group HAPs can be found at this EPA website http://www.epa.gov/ttn/atw/agghapsmemo3.html A comprehensive list of glycol ethers can be found at this EPA website http://www.epa.gov/ttn/atw/glycol2000.pdf More information on HAPs can be found at this EPA website http://www.epa.gov/ttn/atw/

Revision Log

Revision	Date	Reason for Change																																							
0	12/23/2008	New Document																																							
1	5/6/2009	1. Developed RALs for 3 glycol ethers: Butyl Cellosolve Acetate (CAS# 112-07-2) Effective March 4, 2009 Ethylene Glycol Monoethyl Ether Acetate (CAS# 111-15-9) Effective March 4, 2009 Ethylene Glycol Monohexyl Ether (CAS# 112-25-4) Effective April 29, 2009 2. Revised RALs for Methyl Methacrylate (CAS# 80-62-6) Effective April 13, 2009 3. Clarified wording for the description of the 10 X Annual RAL column identifier 4. Corrected the isocyanates to be part of the aggregate group: Cyanide Compounds Diphenylmethane Diisocyanate, [4,4-] (CAS# 101-68-8) Hexamethylene,-1,6-Diisocyanate (CAS# 822-06-0) Methyl Isocyanate (CAS# 624-83-9) Toluene Diisocyanate, [2,4-] (CAS# 584-84-9)																																							
2	9/29/2009	1. Revised RALs for hydrogen fluoride (CAS# 7664-39-3) Effective August 11, 2009 2. Revised RALs for beryllium (CAS# 7440-41-7) Effective September 9, 2009																																							
3	12/4/2009	1. Revised RALs for carbonyl sulfide (CAS# 463-58-1) Effective November 23, 2009																																							
4	1/4/2010	1. Revised RALs for acrolein (CAS# 107-02-8) Effective December 22, 2009																																							
5	7/26/2010	1. Removed the following compounds to avoid duplication. They are all included in their respective aggregate group category. <table style="width: 100%; border: none;"> <tr> <td style="width: 33%;">Elemental Antimony (CAS# 7440-36-0)</td> <td style="width: 33%;">Cyanogen (CAS# 460-19-5)</td> <td style="width: 33%;">Potassium Cyanide (CAS# 151-50-8)</td> </tr> <tr> <td>Elemental Arsenic (CAS# 7440-38-2)</td> <td>Cyanogen Bromide (CAS# 506-68-3)</td> <td>Potassium Silver Cyanide (CAS# 506-61-6)</td> </tr> <tr> <td>Barium Cyanide (CAS# 542-62-1)</td> <td>Hydrogen Cyanide (CAS# 74-90-8)</td> <td>Elemental Radium (CAS# 7440-14-4)</td> </tr> <tr> <td>Elemental Beryllium (CAS# 7440-41-7)</td> <td>Lead Acetate (CAS# 301-04-2)</td> <td>Radon 222 (CAS# 14859-67-7)</td> </tr> <tr> <td>Elemental Cadmium (CAS# 7440-43-9)</td> <td>Lead Subacetate (CAS# 13335-32-6)</td> <td>Selenious Acid (CAS# 7783-00-8)</td> </tr> <tr> <td>Calcium Chromate (CAS# 13765-19-0)</td> <td>Maneb (CAS# 12427-38-2)</td> <td>Elemental Selenium (CAS# 7782-49-2)</td> </tr> <tr> <td>Chlorine Cyanide (CAS# 506-77-4)</td> <td>Elemental Manganese (CAS# 7439-96-5)</td> <td>Selenium Sulfide (CAS# 7446-34-6)</td> </tr> <tr> <td>Chromic Acid (CAS# 7738-94-5)</td> <td>Elemental Mercury (CAS# 7439-97-6)</td> <td>Selenourea (CAS# 630-10-4)</td> </tr> <tr> <td>Chromic Chloride (CAS# 10025-73-7)</td> <td>Methyl Mercury (CAS# 22967-92-6)</td> <td>Silver Cyanide (CAS# 506-64-9)</td> </tr> <tr> <td>Elemental Chromium (7440-47-3)</td> <td>Elemental Nickel (CAS# 7440-02-0)</td> <td>Sodium Cyanide (CAS# 143-33-9)</td> </tr> <tr> <td>Chromium (III) Compounds</td> <td>Nickel Oxide (CAS# 1313-99-1)</td> <td>Tetraethyl Lead (CAS# 78-00-2)</td> </tr> <tr> <td>Elemental Cobalt (CAS# 7440-48-4)</td> <td>Phenyl Mercuric Acetate (CAS# 62-38-4)</td> <td>Thallium Selenite (CAS# 12039-52-0)</td> </tr> <tr> <td>Copper Cyanide (CAS# 544-92-3)</td> <td></td> <td></td> </tr> </table>	Elemental Antimony (CAS# 7440-36-0)	Cyanogen (CAS# 460-19-5)	Potassium Cyanide (CAS# 151-50-8)	Elemental Arsenic (CAS# 7440-38-2)	Cyanogen Bromide (CAS# 506-68-3)	Potassium Silver Cyanide (CAS# 506-61-6)	Barium Cyanide (CAS# 542-62-1)	Hydrogen Cyanide (CAS# 74-90-8)	Elemental Radium (CAS# 7440-14-4)	Elemental Beryllium (CAS# 7440-41-7)	Lead Acetate (CAS# 301-04-2)	Radon 222 (CAS# 14859-67-7)	Elemental Cadmium (CAS# 7440-43-9)	Lead Subacetate (CAS# 13335-32-6)	Selenious Acid (CAS# 7783-00-8)	Calcium Chromate (CAS# 13765-19-0)	Maneb (CAS# 12427-38-2)	Elemental Selenium (CAS# 7782-49-2)	Chlorine Cyanide (CAS# 506-77-4)	Elemental Manganese (CAS# 7439-96-5)	Selenium Sulfide (CAS# 7446-34-6)	Chromic Acid (CAS# 7738-94-5)	Elemental Mercury (CAS# 7439-97-6)	Selenourea (CAS# 630-10-4)	Chromic Chloride (CAS# 10025-73-7)	Methyl Mercury (CAS# 22967-92-6)	Silver Cyanide (CAS# 506-64-9)	Elemental Chromium (7440-47-3)	Elemental Nickel (CAS# 7440-02-0)	Sodium Cyanide (CAS# 143-33-9)	Chromium (III) Compounds	Nickel Oxide (CAS# 1313-99-1)	Tetraethyl Lead (CAS# 78-00-2)	Elemental Cobalt (CAS# 7440-48-4)	Phenyl Mercuric Acetate (CAS# 62-38-4)	Thallium Selenite (CAS# 12039-52-0)	Copper Cyanide (CAS# 544-92-3)		
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2. Removed Elemental Lead (CAS# 7439-92-1) because it is a criteria pollutant and not a HAP
3. Removed the 10x Annual RAL value for the following pollutants because the Annual RAL was developed for a lifetime cancer risk level of 1-in-100,000:
 - Benzyl chloride (CAS# 100-44-7)
 - Bis(chloroethyl)ether (CAS# 111-44-4)
 - Cresol, [Para] (CAS# 106-44-5)
 - Hydrazine (CAS# 302-01-2)
 - Pentachlorophenol (CAS# 87-86-5)
4. Updated RALs for the following Aggregate Groups:
 - Chromium Compounds
 - Chromium (VI) Compounds
 - Cyanide Compounds
 - Polycyclic Organic Matter
 - Dibenzodioxins/Dibenzofurans (Dioxins/Furans)
5. Updated the SMAL for Cyanide Compounds
6. Created notes to summarize the guidance for calculating potential emissions of the aggregate group HAPs

6	8/16/2010	<ol style="list-style-type: none"> 1. Removed the Cyanide Compounds classification for the following compounds which do not contain the cyanide functional group (-C≡N) <ul style="list-style-type: none"> Diphenylmethane Diisocyanate, [4,4-] (CAS# 101-68-8) Hexamethylene,-1,6-Diisocyanate (CAS# 822-06-0) Methyl Isocyanate (CAS# 624-83-9) Toluene Diisocyanate, [2,4-] (CAS# 584-84-9) Calcium cyanamide (CAS# 156-62-7) 2. Updated RALs for Dioxins/Furans, PCBs, and 2,3,7,8-TCDD, including the 10 X Annual RAL value 3. Updated the procedure in Note 10 for calculating emissions for comparison to the SMAL and the RAL for Dioxins/Furans and PCBs
7	6/3/2011	<ol style="list-style-type: none"> 1. Developed RALs for 2-methylnaphthalene (CAS# 91-57-6), a compound that is part of the aggregate group, polycyclic organic matter.
8	11/10/2011	<ol style="list-style-type: none"> 1. Updated RALs for hydrogen chloride (CAS# 7647-01-0)
9	1/5/2012	<ol style="list-style-type: none"> 1. Updated RALs for trichloroethylene (CAS# 79-01-6) 2. Corrected the RALs for the following HAP compounds: <ul style="list-style-type: none"> methylcyclopentadienyl manganese (CAS # 12108-13-3) trichlorophenol, [2,4,5-] (CAS # 95-95-4) dichloroethylene [1,1-] (CAS # 75-35-4) tetrachloroethylene (CAS # 127-18-4)
10	5/3/2012	<ol style="list-style-type: none"> 1. Updated RALs for tetrachloroethylene (CAS # 127-18-4)
11	12/31/2014	<ol style="list-style-type: none"> 1. Updated the following RALs: <ul style="list-style-type: none"> • Chloroprene (CAS# 126-99-8); 20 micrograms per cubic meter (µg/m³) as the 24-hour RAL and 0.002 µg/m³ as the annual RAL. • 1,4-Dichlorobenzene (CAS# 106-46-7); 800 µg/m³ as the 24-hour RAL and 0.09 µg/m³ as the annual RAL. • Ethylene Oxide (CAS# 75-21-8); 30 µg/m³ as the 24-hour RAL and 0.01 µg/m³ as the annual RAL. • Hexachloroethane (CAS# 67-72-1); 30 µg/m³ as the 24-hour RAL and 0.09 µg/m³ as the annual RAL. • Hydrazine (CAS# 302-01-2); 0.2 µg/m³ as the 24-hour RAL and 0.0002 µg/m³ as the annual RAL. • Naphthalene (CAS# 91-20-3); 3 µg/m³ as the 24-hour RAL and 0.03 µg/m³ as the annual RAL • Nickel Compounds (CAS# 7440-02-0); 0.09 µg/m³ as the 24-hour RAL and 0.004 µg/m³ as the annual RAL. • Nitrobenzene (CAS# 98-95-3); 9 µg/m³ as the 24-hour RAL and 0.025 µg/m³ as the annual RAL. • Vinyl Chloride (CAS# 75-01-4); 100 µg/m³ as the 24-hour RAL and 0.11 µg/m³ as the annual RAL. • For chlordane (CAS# 57-74-9); 0.7 µg/m³ as the 24-hour RAL and 0.01 µg/m³ as the annual RAL. • For methyl chloride (CAS# 74-87-3); 90 µg/m³ as both the 24-hour and annual RALs. • For arsenic compounds (CAS# 7440-38-2); 0.015 µg/m³ as both the acute (8-hour averaging time) and 24-hour RALs, and 0.0002 µg/m³ as the annual RAL. • For hydrogen fluoride (CAS# 7664-39-3); 16 µg/m³ as the acute RAL [daily exposure (24-hour averaging time) between 1 and 14 days], and 14 µg/m³ as both the 24-hour and annual RALs. 2. The annual RAL for these HAPs, except for methyl chloride and hydrogen fluoride, is the concentration associated with a one-in-one million risk of additional cancers occurring in a population exposed to the concentration for a lifetime (70 years). The Air Pollution program allows a lifetime cancer risk level of 1-in-100,000. Therefore, the annual RAL is multiplied by 10. 3. Updated the acute RAL for hydrogen fluoride (see Note 17). 4. Reworded Note 3 in order to clarify how to treat individual compounds when comparing to the SMAL. 5. Added Notes 20 through 24.
12	11/30/2015	<ol style="list-style-type: none"> 1. Updated RALs for toluene (CAS # 108-88-3)