

## **Appendix I**

### **OEHHA/ARB Approved Health Values for Use in Hot Spot Facility Risk Assessments**

## **Purpose of the Appendix I Tables:**

The purpose of the following reference tables is to provide a quick list of all health values that have been approved by the Office of Environmental Health Hazard Assessment (OEHHA) and the Air Resources Board (ARB) for use in facility health risk assessments conducted for the AB 2588 Air Toxics Hot Spots Program. The OEHHA has developed and adopted new risk assessment guidelines that update and replace the California Air Pollution Control Officers Association's (CAPCOA) *Air Toxics "Hot Spots" Program Revised 1992 Risk Assessment Guidelines, October 1993*. The OEHHA has adopted five technical support documents for these guidelines, which can be found on their website ([http://www.oehha.ca.gov/air/hot\\_spots/index.html](http://www.oehha.ca.gov/air/hot_spots/index.html)).

The following tables list the OEHHA adopted inhalation and oral cancer slope factors, noncancer acute Reference Exposure Levels (RELs), and inhalation and oral noncancer chronic RELs. OEHHA is still in the process of adopting new noncancer chronic RELs. Therefore, new health values will periodically be added to, or deleted from, these tables. Users of these tables are advised to monitor the OEHHA website ([www.oehha.ca.gov](http://www.oehha.ca.gov)) for any updates to the health values.

May 2008 update: The Air Resources Board adopted amendments to the AB 2588 Air Toxics "Hot Spots" Emission Inventory Criteria and Guidelines Regulation (Title 17, California Code of Regulations, Section 93300.5) on November 16, 2006. The amendments became effective on September 26, 2007, after approval from the Office of Administrative Law. Under the new amendments, the substances previously listed in Appendix A-I (*Substances For Which Emissions Must Be Quantified*) and Appendix F (*Criteria For Inputs For Risk Assessment Using Screening Air Dispersion Modeling*) of the ARB's *Air Toxics "Hot Spots" Emission Inventory Criteria and Guidelines (EICG) (July 1997)* have been removed from these tables. For more information on the amendments to the "Hot Spots" Emission Inventory Criteria and Guidelines Regulation, please visit the following website <http://www.arb.ca.gov/ab2588/2588guid.htm>.

Substances written in *italics* do not have explicit OEHHA approved health values, but are included in this table to clarify applicability of OEHHA adopted health effects values to individual or grouped substances listed in the *Hot Spots Emission Inventory Criteria and Guidelines*, Appendix A-I list of "*Substances For Which Emissions Must Be Quantified*."

The "Date Value Reviewed" column lists the date that the health value was last reviewed by OEHHA and the Scientific Review Panel, and/or approved for use in the AB 2588 Air Toxics Hot Spots Program. This information is useful to tell where the number came from. If the health value is unchanged since it was first approved for use in the Hot Spots Program, then the date that the value was first approved for use by CAPCOA is listed within the brackets [ ].

- April 1999 is listed for the cancer potency values and noncancer acute RELs, which have been adopted by the OEHHA as part of the AB 2588 "Hot Spots" Risk Assessment Guidelines.
- February 2000, April 2000, January 2001, and December 2001 are listed for the first set of 22, the second set of 16, the third set of 22, and the fourth set of 12 noncancer chronic RELs, respectively.

- The chronic REL for carbon disulfide was adopted in May 2002. Chronic RELs for phosphine and triethylamine were adopted in September 2002. Chronic RELs for fluorides including hydrogen fluoride were adopted August 2003.
- October 2000 is listed for the oral chronic RELs and oral cancer slope factors.
- For the substances identified as Toxic Air Contaminants, the Air Resources Board hearing date is listed. The dates for acetaldehyde, benzo[a]pyrene, and methyl tertiary-butyl ether represent the dates the values were approved by the Scientific Review Panel.

**Table 1**  
**CONSOLIDATED TABLE OF OEHA/ARB APPROVED RISK ASSESSMENT HEALTH VALUES\***

Chemical	Chemical Abstract Number	Noncancer Effects						Cancer Risk					
		Acute Inhalation (µg/m <sup>3</sup> )	Date Value Reviewed [Added]	Chronic Inhalation (µg/m <sup>3</sup> )	Date Value Reviewed [Added]	Chronic Oral (mg/kg/d)	Date Value Reviewed [Added]	Inhalation Unit Risk (µg/m <sup>3</sup> ) <sup>-1</sup>	Inhalation Cancer Potency Factor (mg/kg-d) <sup>-1</sup>	Date Value Reviewed [Added]	Oral Slope Factor (mg/kg-d) <sup>-1</sup>	Date Value Reviewed [Added]	M* W A F
ACETALDEHYDE	75-07-0			9.0E+00	5/93			2.7E-06	1.0E-02	4/99 [5/93]			1
ACETAMIDE	60-35-5							2.0E-05	7.0E-02	4/99			1
ACROLEIN	107-02-8	1.9E-01	4/99	6.0E-02	1/01								1
ACRYLAMIDE	79-06-1							1.3E-03	4.5E+00	4/99 [7/90]			1
ACRYLIC ACID	79-10-7	6.0E+03	4/99										1
ACRYLONITRILE	107-13-1			5.0E+00	12/01			2.9E-04	1.0E+00	4/99 [1/91]			1
ALLYL CHLORIDE	107-05-1							6.0E-06	2.1E-02	4/99			1
2-AMINOANTHRAQUINONE	117-79-3							9.4E-06	3.3E-02	4/99			1
AMMONIA	7664-41-7	3.2E+03	4/99	2.0E+02	2/00								1
ANILINE	62-53-3							1.6E-06	5.7E-03	4/99			1
ARSENIC AND COMPOUNDS (INORGANIC) <sup>TAC</sup>	7440-38-2 1016 [1015]	1.9E-01 AveP	4/99	3.0E-02	1/01	3.0E-04	10/00	3.3E-03 TAC	1.2E+01	7/90	1.5E+00	10/00	1
ARSINE	7784-42-1	1.6E+02	4/99										1
ASBESTOS <sup>TAC</sup> ♀	1332-21-4							1.9E-04 TAC ♀	2.2E+02	3/86			333.33
BENZENE <sup>TAC</sup>	71-43-2	1.3E+03 AveP	4/99	6.0E+01	2/00			2.9E-05 <sup>TAC</sup>	1.0E-01	1/85			1
BENZIDINE (AND ITS SALTS) <i>values also apply to:</i>	92-87-5							1.4E-01	5.0E+02	4/99 [1/91]			1
<i>Benzidine based dyes</i>	1020							1.4E-01	5.0E+02	4/99 [1/91]			1
<i>Direct Black 38</i>	1937-37-7							1.4E-01	5.0E+02	4/99 [1/91]			1
<i>Direct Blue 6</i>	2602-46-2							1.4E-01	5.0E+02	4/99 [1/91]			1
<i>Direct Brown 95 (technical grade)</i>	16071-86-6							1.4E-01	5.0E+02	4/99 [1/91]			1
BENZYL CHLORIDE	100-44-7	2.4E+02	4/99					4.9E-05	1.7E-01	4/99			1
BERYLLIUM AND COMPOUNDS	7440-41-7 [1021]			7.0E-03	12/01	2.0E-03	12/01	2.4E-03	8.4E+00	4/99 [7/90]			1
BIS(2-CHLOROETHYL)ETHER (Dichloroethyl ether)	111-44-4							7.1E-04	2.5E+00	4/99			1
BIS(CHLOROMETHYL)ETHER	542-88-1							1.3E-02	4.6E+01	4/99 [1/91]			1
BROMINE AND COMPOUNDS	7726-95-6 [1040]												1
POTASSIUM BROMATE	7758-01-2							1.4E-04	4.9E-01	4/99 [10/93]			1
1,3-BUTADIENE <sup>TAC</sup>	106-99-0			2.0E+01	1/01			1.7E-04 TAC	6.0E-01	7/92			1

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Chemical	Chemical Abstract Number	Noncancer Effects						Cancer Risk					
		Acute Inhalation (µg/m <sup>3</sup> )	Date Value Reviewed [Added]	Chronic Inhalation (µg/m <sup>3</sup> )	Date Value Reviewed [Added]	Chronic Oral (mg/kg/d)	Date Value Reviewed [Added]	Inhalation Unit Risk (µg/m <sup>3</sup> ) <sup>-1</sup>	Inhalation Cancer Potency Factor (mg/kg-d) <sup>-1</sup>	Date Value Reviewed [Added]	Oral Slope Factor (mg/kg-d) <sup>-1</sup>	Date Value Reviewed [Added]	M <sup>W</sup> A <sup>F</sup>
CADMIUM AND COMPOUNDS <sup>TAC</sup>	7440-43-9 [1045]			2.0E-02	1/01	5.0E-04	10/00	4.2E-03 <sup>TAC</sup>	1.5E+01	1/87			1
CARBON DISULFIDE	75-15-0	6.2E+03 AveP	4/99	8.0E+02	5/02								1
CARBON MONOXIDE	630-08-0	2.3E+04	4/99										1
CARBON TETRACHLORIDE <sup>TAC</sup> (Tetrachloromethane)	56-23-5	1.9E+03 AveP	4/99	4.0E+01	1/01			4.2E-05 <sup>TAC</sup>	1.5E-01	9/87			1
CHLORINATED PARAFFINS	108171-26-2							2.5E-05	8.9E-02	4/99			1
CHLORINE	7782-50-5	2.1E+02	4/99	2.0E-01	2/00								1
CHLORINE DIOXIDE	10049-04-4			6.0E-01	1/01								1
4-CHLORO-O-PHENYLENEDIAMINE	95-83-0							4.6E-06	1.6E-02	4/99			1
CHLOROBENZENE	108-90-7			1.0E+03	1/01								1
CHLORODIFLUOROMETHANE ... (see Fluorocarbons)													
CHLOROFORM <sup>TAC</sup>	67-66-3	1.5E+02 AveP	4/99	3.0E+02	4/00			5.3E-06 <sup>TAC</sup>	1.9E-02	12/90			1
<i>Chlorophenols</i>	<i>1060</i>												<i>1</i>
PENTACHLOROPHENOL	87-86-5							5.1E-06	1.8E-02	4/99			1
2,4,6-TRICHLOROPHENOL	88-06-2							2.0E-05	7.0E-02	4/99 [1/91]			1
CHLOROPICRIN	76-06-2	2.9E+01	4/99	4.0E-01	12/01								1
p-CHLORO-o-TOLUIDINE	95-69-2							7.7E-05	2.7E-01	4/99			1
CHROMIUM 6+ <sup>TAC</sup> values also apply to:	18540-29-9			2.0E-01	1/01	2.0E-02	10/00	1.5E-01 <sup>TAC</sup>	5.1E+02	1/86	∅		1
<i>Barium chromate</i>	<i>10294-40-3</i>			<i>2.0E-01</i>	<i>1/01</i>	<i>2.0E-02</i>	<i>10/00</i>	<i>1.5E-01<sup>TAC</sup></i>	<i>5.1E+02</i>	<i>1/86</i>	<i>∅</i>		<i>0.2053</i>
<i>Calcium chromate</i>	<i>13765-19-0</i>			<i>2.0E-01</i>	<i>1/01</i>	<i>2.0E-02</i>	<i>10/00</i>	<i>1.5E-01<sup>TAC</sup></i>	<i>5.1E+02</i>	<i>1/86</i>	<i>∅</i>		<i>0.3332</i>
<i>Lead chromate</i>	<i>7758-97-6</i>			<i>2.0E-01</i>	<i>1/01</i>	<i>2.0E-02</i>	<i>10/00</i>	<i>1.5E-01<sup>TAC</sup></i>	<i>5.1E+02</i>	<i>1/86</i>	<i>∅</i>		<i>0.1609</i>
<i>Sodium dichromate</i>	<i>10588-01-9</i>			<i>2.0E-01</i>	<i>1/01</i>	<i>2.0E-02</i>	<i>10/00</i>	<i>1.5E-01<sup>TAC</sup></i>	<i>5.1E+02</i>	<i>1/86</i>	<i>∅</i>		<i>0.397</i>
<i>Strontium chromate</i>	<i>7789-06-2</i>			<i>2.0E-01</i>	<i>1/01</i>	<i>2.0E-02</i>	<i>10/00</i>	<i>1.5E-01<sup>TAC</sup></i>	<i>5.1E+02</i>	<i>1/86</i>	<i>∅</i>		<i>0.2554</i>
CHROMIUM TRIOXIDE (as chromic acid mist)	1333-82-0			2.0E-03	1/01	2.0E-02	10/00	1.5E-01 <sup>TAC</sup>	5.1E+02	1/86	∅		0.52
COPPER AND COMPOUNDS	7440-50-8 [1067]	1.0E+02	4/99										1
p-CRESIDINE	120-71-8							4.3E-05	1.5E-01	4/99			1
CRESOLS (mixtures of)	1319-77-3			6.0E+02	1/01								1
m-CRESOL	108-39-4			6.0E+02	1/01								1
o-CRESOL	95-48-7			6.0E+02	1/01								1

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p-CRESOL	106-44-5			6.0E+02	1/01								1
CUPFERRON	135-20-6							6.3E-05	2.2E-01	4/99			1
Cyanide Compounds (inorganic)	57-12-5 1073	3.4E+02	4/99	9.0E+00	4/00								1
HYDROGEN CYANIDE (Hydrocyanic acid)	74-90-8	3.4E+02	4/99	9.0E+00	4/00								1
2,4-DIAMINOANISOLE	615-05-4							6.6E-06	2.3E-02	4/99			1
2,4-DIAMINOTOLUENE	95-80-7							1.1E-03	4.0E+00	4/99			1
1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	96-12-8							2.0E-03	7.0E+00	4/99 [1/92]			1
p-DICHLOROBENZENE	106-46-7			8.0E+02	1/01			1.1E-05	4.0E-02	4/99 [1/91]			1
3,3-DICHLOROBENZIDINE	91-94-1							3.4E-04	1.2E+00	4/99 [1/91]			1
1,1,-DICHLOROETHANE (Ethylidene dichloride)	75-34-3							1.6E-06	5.7E-03	4/99			1
1,1-DICHLOROETHYLENE ... (see Vinylidene Chloride)													
DI(2-ETHYLHEXYL)PHTHALATE (DEHP)	117-81-7							2.4E-06	8.4E-03	4/99 [1/92]	8.4E-03	10/00	1
DIESEL EXHAUST ... (see Particulate Emissions from Diesel-Fueled Engines)													
DIETHANOLAMINE	111-42-2			3.0E+00	12/01								
p-DIMETHYLAMINOAZOBENZENE	60-11-7							1.3E-03	4.6E+00	4/99			1
N,N-DIMETHYL FORMAMIDE	68-12-2			8.0E+01	1/01								1
2,4-DINITROTOLUENE	121-14-2							8.9E-05	3.1E-01	4/99			1
1,4-DIOXANE* (1,4-Diethylene dioxide)	123-91-1	3.0E+03	4/99	3.0E+03	4/00			7.7E-06	2.7E-02	4/99 [1/91]			1
EPICHLOROHYDRIN (1-Chloro-2,3-epoxypropane)	106-89-8	1.3E+03	4/99	3.0E+00	1/01			2.3E-05	8.0E-02	4/99 [1/92]			1
1,2-EPOXYBUTANE	106-88-7			2.0E+01	1/01								1
ETHYL BENZENE	100-41-4			2.0E+03	2/00			2.5E-06	8.7E-3	11/07			1
ETHYL CHLORIDE (Chloroethane)	75-00-3			3.0E+04	4/00								1
ETHYLENE DIBROMIDE <sup>TAC</sup> (1,2-Dibromoethane)	106-93-4			8.0E-01	12/01			7.1E-05 TAC	2.5E-01	7/85			1
ETHYLENE DICHLORIDE <sup>TAC</sup> (1,2-Dichloroethane)	107-06-2			4.0E+02	1/01			2.1E-05 TAC	7.2E-02	9/85			1
ETHYLENE GLYCOL	107-21-1			4.0E+02	4/00								1
ETHYLENE GLYCOL BUTYL ETHER ... (see Glycol ethers)													

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ETHYLENE OXIDE <sup>TAC</sup> (1,2-Epoxyethane)	75-21-8			3.0E+01	1/01			8.8E-05 TAC	3.1E-01	11/87			1
ETHYLENE THIOUREA	96-45-7							1.3E-05	4.5E-02	4/99			1
Fluorides	1101	2.4E+02	4/99	1.3E+01	8/03	4.0E-02	8/03						1
HYDROGEN FLUORIDE (Hydrofluoric acid)	7664-39-3	2.4E+02	4/99	1.4E+01	8/03	4.0E-02	8/03						1
FORMALDEHYDE <sup>TAC</sup>	50-00-0	9.4E+01	4/99	3.0E+00	2/00			6.0E-06 TAC	2.1E-02	3/92			1
GLUTARALDEHYDE	111-30-8			8.0E-02	1/01								1
GLYCOL ETHERS	1115												1
ETHYLENE GLYCOL BUTYL ETHER – EGBE	111-76-2	1.4E+04	4/99										1
ETHYLENE GLYCOL ETHYL ETHER – EGEE	110-80-5	3.7E+02 AveP	4/99[1/92]	7.0E+01	2/00								1
ETHYLENE GLYCOL ETHYL ETHER ACETATE – EGEEA	111-15-9	1.4E+02 AveP	4/99	3.0E+02	2/00								1
ETHYLENE GLYCOL METHYL ETHER – EGME	109-86-4	9.3E+01 AveP	4/99	6.0E+01	2/00								1
ETHYLENE GLYCOL METHYL ETHER ACETATE – EGMEA	110-49-6			9.0E+01	2/00								1
HEXACHLOROBENZENE	118-74-1							5.1E-04	1.8E+00	4/99 [1/91]			1
HEXACHLOROCYCLOHEXANES (mixed or technical grade)	608-73-1							1.1E-03	4.0E+00	4/99 [1/91]	4.0E+00	10/00 [1/92]	1
alpha-HEXACHLOROCYCLOHEXANE	319-84-6							1.1E-03	4.0E+00	4/99 [1/91]	4.0E+00	10/00 [1/92]	1
beta- HEXACHLOROCYCLOHEXANE	319-85-7							1.1E-03	4.0E+00	4/99 [1/91]	4.0E+00	10/00 [1/92]	1
gamma-HEXACHLOROCYCLOHEXANE (Lindane)	58-89-9							3.1E-04	1.1E+00	4/99	1.1E+00	10/00	1
n-HEXANE	110-54-3			7.0E+03	4/00								1
HYDRAZINE	302-01-2			2.0E-01	1/01			4.9E-03	1.7E+01	4/99 [7/90]			1
HYDROCHLORIC ACID (Hydrogen chloride)	7647-01-0	2.1E+03	4/99	9.0E+00	2/00								1
HYDROGEN BROMIDE ... (see Bromine & Compounds)													
HYDROGEN CYANIDE ... (see Cyanide & Compounds)													
HYDROGEN FLUORIDE ... (see Fluorides & Compounds)													
HYDROGEN SELENIDE ... (see Selenium & Compounds)													

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HYDROGEN SULFIDE	7783-06-4	4.2E+01	4/99[7/90]	1.0E+01	4/00								1
ISOPHORONE	78-59-1			2.0E+03	12/01								
ISOPROPYL ALCOHOL (Isopropanol)	67-63-0	3.2E+03	4/99	7.0E+03	2/00								1
LEAD AND COMPOUNDS <sup>TAC</sup> ¶* (inorganic) <i>values also apply to:</i>	7439-92-1 1128 [1130]							1.2E-05 TAC	4.2E-02	4/97	8.5E-03	10/00	1
<i>Lead acetate</i>	301-04-2							1.2E-05 TAC	4.2E-02	4/97	8.5E-03	10/00	0.637
<i>Lead phosphate</i>	7446-27-7							1.2E-05 TAC	4.2E-02	4/97	8.5E-03	10/00	0.7659
<i>Lead subacetate</i>	1335-32-6							1.2E-05 TAC	4.2E-02	4/97	8.5E-03	10/00	0.7696
LINDANE ... (see gamma-Hexachlorocyclohexane)													
MALEIC ANHYDRIDE	108-31-6			7.0E-01	12/01								1
MANGANESE AND COMPOUNDS	7439-96-5 [1132]			2.0E-01	4/00								1
MERCURY AND COMPOUNDS (INORGANIC)	7439-97-6 [1133]	1.8E+00	4/99	9.0E-02	2/00	3.0E-04	10/00 [1/92]						1
<i>Mercuric chloride</i>	7487-94-7	1.8E+00	4/99	9.0E-02	2/00	3.0E-04	10/00 [1/92]						1
METHANOL	67-56-1	2.8E+04	4/99	4.0E+03	4/00								1
METHYL BROMIDE (Bromomethane)	74-83-9	3.9E+03	4/99	5.0E+00	2/00								1
METHYL tertiary-BUTYL ETHER	1634-04-4			8.0E+03	2/00			2.6E-07	1.8E-03	11/99			1
METHYL CHLOROFORM (1,1,1-Trichloroethane)	71-55-6	6.8E+04	4/99	1.0E+03	2/00								1
METHYL ETHYL KETONE (2-Butanone)	78-93-3	1.3E+04	4/99										1
METHYL ISOCYANATE	624-83-9			1.0E+00	12/01								1
METHYL MERCURY ... (see Mercury & Compounds)													
4,4'-METHYLENE BIS (2-CHLOROANILINE) (MOCA)	101-14-4							4.3E-04	1.5E+00	4/99			1
METHYLENE CHLORIDE <sup>TAC</sup> (Dichloromethane)	75-09-2	1.4E+04	4/99	4.0E+02	2/00			1.0E-06 TAC	3.5E-03	7/89			1
4,4'-METHYLENE DIANILINE (AND ITS DICHLORIDE)	101-77-9			2.0E+01	12/01			4.6E-04	1.6E+00	4/99	1.6E+00	10/00	1
METHYLENE DIPHENYL ISOCYANATE	101-68-8			7.0E-01	1/01								1
MICHLER'S KETONE (4,4'-Bis(dimethylamino)benzophenone)	90-94-8							2.5E-04	8.6E-01	4/99			1
N-NITROSODI-n-BUTYLAMINE	924-16-3							3.1E-03	1.1E+01	4/99 [1/92]			1
N-NITROSODI-n-PROPYLAMINE	621-64-7							2.0E-03	7.0E+00	4/99 [1/91]			1

**Table 1**  
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Chemical	Chemical Abstract Number	Noncancer Effects						Cancer Risk					
		Acute Inhalation (µg/m <sup>3</sup> )	Date Value Reviewed [Added]	Chronic Inhalation (µg/m <sup>3</sup> )	Date Value Reviewed [Added]	Chronic Oral (mg/kg/d)	Date Value Reviewed [Added]	Inhalation Unit Risk (µg/m <sup>3</sup> ) <sup>-1</sup>	Inhalation Cancer Potency Factor (mg/kg-d) <sup>-1</sup>	Date Value Reviewed [Added]	Oral Slope Factor (mg/kg-d) <sup>-1</sup>	Date Value Reviewed [Added]	M* W A F
N-NITROSODIETHYLAMINE	55-18-5							1.0E-02	3.6E+01	4/99 [1/91]			1
N-NITROSODIMETHYLAMINE	62-75-9							4.6E-03	1.6E+01	4/99 [1/91]			1
N-NITROSODIPHENYLAMINE	86-30-6							2.6E-06	9.0E-03	4/99			1
N-NITROSO-N-METHYLETHYLAMINE	10595-95-6							6.3E-03	2.2E+01	4/99 [7/90]			1
N-NITROSOMORPHOLINE	59-89-2							1.9E-03	6.7E+00	4/99 [7/92]			1
N-NITROSOPIPERIDINE	100-75-4							2.7E-03	9.4E+00	4/99 [7/92]			1
N-NITROSOPYRROLIDINE	930-55-2							6.0E-04	2.1E+00	4/99 [7/90]			1
NAPHTHALENE ... (see Polycyclic aromatic hydrocarbons)													
NICKEL AND COMPOUNDS <sup>TAC</sup> <i>values also apply to:</i>	7440-02-0 [1145]	6.0E+00	4/99	5.0E-02	2/00	5.0E-02	10/00	2.6E-04 TAC	9.1E-01	8/91			1
<i>Nickel acetate</i>	373-02-4	6.0E+00	4/99	5.0E-02	2/00	5.0E-02	10/00	2.6E-04 TAC	9.1E-01	8/91			0.3321
<i>Nickel carbonate</i>	3333-67-3	6.0E+00	4/99	5.0E-02	2/00	5.0E-02	10/00	2.6E-04 TAC	9.1E-01	8/91			0.4945
<i>Nickel carbonyl</i>	13463-39-3	6.0E+00	4/99	5.0E-02	2/00	5.0E-02	10/00	2.6E-04 TAC	9.1E-01	8/91			0.3438
<i>Nickel hydroxide</i>	12054-48-7	6.0E+00	4/99	5.0E-02	2/00	5.0E-02	10/00	2.6E-04 TAC	9.1E-01	8/91			0.6332
<i>Nickelocene</i>	1271-28-9	6.0E+00	4/99	5.0E-02	2/00	5.0E-02	10/00	2.6E-04 TAC	9.1E-01	8/91			0.4937
NICKEL OXIDE	1313-99-1	6.0E+00	4/99	1.0E-01	2/00	5.0E-02	10/00	2.6E-04 TAC	9.1E-01	8/91			0.7859
<i>Nickel refinery dust from the pyrometallurgical process</i>	1146	6.0E+00	4/99	5.0E-02	2/00	5.0E-02	10/00	2.6E-04 TAC	9.1E-01	8/91			1
<i>Nickel subsulfide</i>	12035-72-2	6.0E+00	4/99	5.0E-02	2/00	5.0E-02	10/00	2.6E-04 TAC	9.1E-01	8/91			0.2443
NITRIC ACID	7697-37-2	8.6E+01	4/99										1
NITROGEN DIOXIDE	10102-44-0	4.7E+02	4/99[1/92]										1
p-NITROSODIPHENYLAMINE	156-10-5							6.3E-06	2.2E-02	4/99			1
OZONE	10028-15-6	1.8E+02	4/99[1/92]										1
PARTICULATE EMISSIONS FROM DIESEL-FUELED ENGINES <sup>TAC</sup> ■■	9901			5.0E+00 TAC	8/98			3.0E-04 TAC	1.1E+00	8/98			1
PENTACHLOROPHENOL ... (see Chlorophenols)													
PERCHLOROETHYLENE <sup>TAC</sup> (Tetrachloroethylene)	127-18-4	2.0E+04	4/99	3.5E+01 TAC	10/91			5.9E-06 TAC	2.1E-02	10/91			1
PHENOL	108-95-2	5.8E+03	4/99	2.0E+02	4/00								1

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Chemical	Chemical Abstract Number	Noncancer Effects						Cancer Risk					
		Acute Inhalation ( $\mu\text{g}/\text{m}^3$ )	Date Value Reviewed [Added]	Chronic Inhalation ( $\mu\text{g}/\text{m}^3$ )	Date Value Reviewed [Added]	Chronic Oral (mg/kg/d)	Date Value Reviewed [Added]	Inhalation Unit Risk ( $\mu\text{g}/\text{m}^3$ ) <sup>-1</sup>	Inhalation Cancer Potency Factor (mg/kg-d) <sup>-1</sup>	Date Value Reviewed [Added]	Oral Slope Factor (mg/kg-d) <sup>-1</sup>	Date Value Reviewed [Added]	M* W A F
PHOSGENE	75-44-5	4.0E+00	4/99										1
PHOSPHINE	7803-51-2			8.0E-01	9/02								1
PHOSPHORIC ACID	7664-38-2			7.0E+00	2/00								1
PHTHALIC ANHYDRIDE	85-44-9			2.0E+01	1/01								1
PCB (POLYCHLORINATED BIPHENYLS) (unspeciated mixture) [lowest risk] *☼	1336-36-3							2.0E-05	7.0E-02	4/99	7.0E-02	10/00	1
PCB (POLYCHLORINATED BIPHENYLS) (unspeciated mixture) [low risk] *☼	1336-36-3							1.1E-04	4.0E-01*		4.0E-01*		1
PCB (POLYCHLORINATED BIPHENYLS) (unspeciated mixture) [high risk] *☼	1336-36-3							5.7E-04	2.0E+00	4/99	2.0E+00	10/00	1
PCB (POLYCHLORINATED BIPHENYLS) (speciated) <sup>Ⓜ</sup>													
3,3',4,4'-TETRACHLOROBIPHENYL (PCB 77)	32598-13-3			4.0E-01	8/03	1.0E-04	8/03	3.8E-03	1.3E+01	8/03	1.3E+01	8/03	1
3,4,4',5-TETRACHLOROBIPHENYL (PCB 81)	70362-50-4			4.0E-01	8/03	1.0E-04	8/03	3.8E-03	1.3E+01	8/03	1.3E+01	8/03	1
2,3,3',4,4'-PENTACHLOROBIPHENYL (PCB 105)	32598-14-4			4.0E-01	8/03	1.0E-04	8/03	3.8E-03	1.3E+01	8/03	1.3E+01	8/03	1
2,3,4,4',5-PENTACHLOROBIPHENYL (PCB 114)	74472-37-0			8.0E-02	8/03	2.0E-05	8/03	1.9E-02	6.5E+01	8/03	6.5E+01	8/03	1
2,3',4,4',5-PENTACHLOROBIPHENYL (PCB 118)	31508-00-6			4.0E-01	8/03	1.0E-04	8/03	3.8E-03	1.3E+01	8/03	1.3E+01	8/03	1
2,3',4,4',5'-PENTACHLOROBIPHENYL (PCB 123)	65510-44-3			4.0E-01	8/03	1.0E-04	8/03	3.8E-03	1.3E+01	8/03	1.3E+01	8/03	1
3,3',4,4',5-PENTACHLOROBIPHENYL (PCB 126)	57465-28-8			4.0E-04	8/03	1.0E-07	8/03	3.8E+00	1.3E+04	8/03	1.3E+04	8/03	1
2,3,3',4,4',5-HEXACHLOROBIPHENYL (PCB 156)	38380-08-4			8.0E-02	8/03	2.0E-05	8/03	1.9E-02	6.5E+01	8/03	6.5E+01	8/03	1
2,3,3',4,4',5'-HEXACHLOROBIPHENYL (PCB 157)	69782-90-7			8.0E-02	8/03	2.0E-05	8/03	1.9E-02	6.5E+01	8/03	6.5E+01	8/03	1
2,3',4,4',5,5'-HEXACHLOROBIPHENYL (PCB 167)	52663-72-6			4.0E+00	8/03	1.0E-03	8/03	3.8E-04	1.3E+00	8/03	1.3E+00	8/03	1
3,3',4,4',5,5'-HEXACHLOROBIPHENYL (PCB 169)	32774-16-6			4.0E-03	8/03	1.0E-06	8/03	3.8E-01	1.3E+03	8/03	1.3E+03	8/03	1
2,3,3',4,4',5,5'-HEPTACHLOROBIPHENYL (PCB 189)	39635-31-9			4.0E-01	8/03	1.0E-04	8/03	3.8E-03	1.3E+01	8/03	1.3E+01	8/03	1

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Chemical	Chemical Abstract Number	Noncancer Effects						Cancer Risk					
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POLYCHLORINATED DIBENZO- <i>P</i> -DIOXINS (PCDD) (Treated as 2,3,7,8-TCDD for HRA) <sup>TAC</sup> •	1085 1086			4.0E-05	2/00	1.0E-08	10/00	3.8E+01 TAC	1.3E+05	8/86	1.3E+05 TAC	8/86	1
2,3,7,8-TETRACHLORODIBENZO- <i>P</i> -DIOXIN <sup>TAC</sup>	1746-01-6			4.0E-05	2/00	1.0E-08	10/00	3.8E+01 TAC	1.3E+05	8/86	1.3E+05 TAC	8/86	1
1,2,3,7,8-PENTACHLORODIBENZO- <i>P</i> -DIOXIN	40321-76-4			4.0E-05	8/03	1.0E-08	8/03	3.8E+01	1.3E+05	8/03	1.3E+05	8/03	1
1,2,3,4,7,8-HEXACHLORODIBENZO- <i>P</i> -DIOXIN	39227-28-6			4.0E-04	2/00	1.0E-07	10/00	3.8E+00	1.3E+04	4/99	1.3E+04	10/00	1
1,2,3,6,7,8-HEXACHLORODIBENZO- <i>P</i> -DIOXIN	57653-85-7			4.0E-04	2/00	1.0E-07	10/00	3.8E+00	1.3E+04	4/99	1.3E+04	10/00	1
1,2,3,7,8,9-HEXACHLORODIBENZO- <i>P</i> -DIOXIN	19408-74-3			4.0E-04	2/00	1.0E-07	10/00	3.8E+00	1.3E+04	4/99	1.3E+04	10/00	1
1,2,3,4,6,7,8-HEPTACHLORODIBENZO- <i>P</i> -DIOXIN	35822-46-9			4.0E-03	2/00	1.0E-06	10/00	3.8E-01	1.3E+03	4/99	1.3E+03	10/00	1
1,2,3,4,6,7,8,9-OCTACHLORODIBENZO- <i>P</i> -DIOXIN	3268-87-9			4.0E-01	8/03	1.0E-04	8/03	3.8E-03	1.3E+01	8/03	1.3E+01	8/03	1
POLYCHLORINATED DIBENZOFURANS (PCDF) <sup>TAC</sup> • (Treated as 2,3,7,8-TCDD for HRA)	1080			4.0E-05	2/00	1.0E-08	10/00	3.8E+01 TAC	1.3E+05	8/86	1.3E+05 TAC	8/86	1
2,3,7,8-TETRACHLORODIBENZOFURAN	5120-73-19			4.0E-04	2/00	1.0E-07	10/00	3.8E+00	1.3E+04	4/99	1.3E+04	10/00	1
1,2,3,7,8-PENTACHLORODIBENZOFURAN	57117-41-6			8.0E-04	2/00	2.0E-07	10/00	1.9E+00	6.5E+03	4/99	6.5E+03	10/00	1
2,3,4,7,8-PENTACHLORODIBENZOFURAN	57117-31-4			8.0E-05	2/00	2.0E-08	10/00	1.9E+01	6.5E+04	4/99	6.5E+04	10/00	1
1,2,3,4,7,8-HEXACHLORODIBENZOFURAN	70648-26-9			4.0E-04	2/00	1.0E-07	10/00	3.8E+00	1.3E+04	4/99	1.3E+04	10/00	1
1,2,3,6,7,8-HEXACHLORODIBENZOFURAN	57117-44-9			4.0E-04	2/00	1.0E-07	10/00	3.8E+00	1.3E+04	4/99	1.3E+04	10/00	1
1,2,3,7,8,9-HEXACHLORODIBENZOFURAN	72918-21-9			4.0E-04	2/00	1.0E-07	10/00	3.8E+00	1.3E+04	4/99	1.3E+04	10/00	1
2,3,4,6,7,8-HEXACHLORODIBENZOFURAN	60851-34-5			4.0E-04	2/00	1.0E-07	10/00	3.8E+00	1.3E+04	4/99	1.3E+04	10/00	1
1,2,3,4,6,7,8-HEPTACHLORODIBENZOFURAN	67562-39-4			4.0E-03	2/00	1.0E-06	10/00	3.8E-01	1.3E+03	4/99	1.3E+03	10/00	1
1,2,3,4,7,8,9-HEPTACHLORODIBENZOFURAN	55673-89-7			4.0E-03	2/00	1.0E-06	10/00	3.8E-01	1.3E+03	4/99	1.3E+03	10/00	1
1,2,3,4,6,7,8,9-OCTACHLORODIBENZOFURAN	39001-02-0			4.0E-01	8/03	1.0E-04	8/03	3.8E-03	1.3E+01	8/03	1.3E+01	8/03	1

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Chemical	Chemical Abstract Number	Noncancer Effects						Cancer Risk					
		Acute Inhalation (µg/m <sup>3</sup> )	Date Value Reviewed [Added]	Chronic Inhalation (µg/m <sup>3</sup> )	Date Value Reviewed [Added]	Chronic Oral (mg/kg/d)	Date Value Reviewed [Added]	Inhalation Unit Risk (µg/m <sup>3</sup> ) <sup>-1</sup>	Inhalation Cancer Potency Factor (mg/kg-d) <sup>-1</sup>	Date Value Reviewed [Added]	Oral Slope Factor (mg/kg-d) <sup>-1</sup>	Date Value Reviewed [Added]	M <sup>+</sup> W A F
POLYCYCLIC AROMATIC HYDROCARBON (PAH) [Treated as B(a)P for HRA] *	1150 1151							1.1E-03	3.9E+00	4/99 [4/94]	1.2E+01	10/00 [4/94]	1
BENZ(A)ANTHRACENE *	56-55-3							1.1E-04	3.9E-01	4/99 [4/94]	1.2E+00	10/00 [4/94]	1
BENZO(A)PYRENE *	50-32-8							1.1E-03	3.9E+00	4/99 [4/94]	1.2E+01	10/00 [4/94]	1
BENZO(B)FLUORANTHENE *	205-99-2							1.1E-04	3.9E-01	4/99 [4/94]	1.2E+00	10/00 [4/94]	1
BENZO(J)FLUORANTHENE *	205-82-3							1.1E-04	3.9E-01	4/99 [4/94]	1.2E+00	10/00 [4/94]	1
BENZO(K)FLUORANTHENE *	207-08-9							1.1E-04	3.9E-01	4/99 [4/94]	1.2E+00	10/00 [4/94]	1
CHRYSENE *	218-01-9							1.1E-05	3.9E-02	4/99 [4/94]	1.2E-01	10/00 [4/94]	1
DIBENZ(A,H)ACRIDINE *	226-36-8							1.1E-04	3.9E-01	4/99 [4/94]	1.2E+00	10/00 [4/94]	1
DIBENZ(A,H)ANTHRACENE *	53-70-3							1.2E-03	4.1E+00	4/99 [4/94]	4.1E+00	10/00 [4/94]	1
DIBENZ(A,J)ACRIDINE *	224-42-0							1.1E-04	3.9E-01	4/99 [4/94]	1.2E+00	10/00 [4/94]	1
DIBENZO(A,E)PYRENE *	192-65-4							1.1E-03	3.9E+00	4/99 [4/94]	1.2E+01	10/00 [4/94]	1
DIBENZO(A,H)PYRENE *	189-64-0							1.1E-02	3.9E+01	4/99 [4/94]	1.2E+02	10/00 [4/94]	1
DIBENZO(A,I)PYRENE *	189-55-9							1.1E-02	3.9E+01	4/99 [4/94]	1.2E+02	10/00 [4/94]	1
DIBENZO(A,L)PYRENE *	191-30-0							1.1E-02	3.9E+01	4/99 [4/94]	1.2E+02	10/00 [4/94]	1
7H-DIBENZO(C,G)CARBAZOLE *	194-59-2							1.1E-03	3.9E+00	4/99 [4/94]	1.2E+01	10/00 [4/94]	1
7,12-DIMETHYLBENZ(A)ANTHRACENE *	57-97-6							7.1E-02	2.5E+02	4/99 [4/94]	2.5E+02	10/00 [4/94]	1
1,6-DINITROPYRENE *	42397-64-8							1.1E-02	3.9E+01	4/99 [4/94]	1.2E+02	10/00 [4/94]	1
1,8-DINITROPYRENE *	42397-65-9							1.1E-03	3.9E+00	4/99 [4/94]	1.2E+01	10/00 [4/94]	1
INDENO(1,2,3-C,D)PYRENE *	193-39-5							1.1E-04	3.9E-01	4/99 [4/94]	1.2E+00	10/00 [4/94]	1
3-METHYLCHOLANTHRENE *	56-49-5							6.3E-03	2.2E+01	4/99 [4/94]	2.2E+01	10/00 [4/94]	1
5-METHYLCHRYSENE *	3697-24-3							1.1E-03	3.9E+00	4/99 [4/94]	1.2E+01	10/00 [4/94]	1
NAPHTHALENE	91-20-3			9.0E+00	4/00			3.4E-05	1.2E-01	8/04			1

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5-NITROACENAPHTHENE <sup>♦</sup>	602-87-9							3.7E-05	1.3E-01	4/99 [4/94]	1.3E-01	10/00 [4/94]	1
6-NITROCHRYSENE <sup>♦</sup>	7496-02-8							1.1E-02	3.9E+01	4/99 [4/94]	1.2E+02	10/00 [4/94]	1
2-NITROFLUORENE <sup>♦</sup>	607-57-8							1.1E-05	3.9E-02	4/99 [4/94]	1.2E-01	10/00 [4/94]	1
1-NITROPYRENE <sup>♦</sup>	5522-43-0							1.1E-04	3.9E-01	4/99 [4/94]	1.2E+00	10/00 [4/94]	1
4-NITROPYRENE <sup>♦</sup>	57835-92-4							1.1E-04	3.9E-01	4/99 [4/94]	1.2E+00	10/00 [4/94]	1
POTASSIUM BROMATE... ... (see Bromine & Compounds)													
1,3-PROPANE SULTONE	1120-71-4							6.9E-04	2.4E+00	4/99			1
PROPYLENE (PROPENE)	115-07-1			3.0E+03	4/00								1
PROPYLENE GLYCOL MONOMETHYL ETHER	107-98-2			7.0E+03	2/00								1
PROPYLENE OXIDE	75-56-9	3.1E+03	4/99	3.0E+01	2/00			3.7E-06	1.3E-02	4/99 [7/90]			1
SELENIUM AND COMPOUNDS	7782-49-2 [1170]			2.0E+01	12/01								1
HYDROGEN SELENIDE	7783-07-5	5.0E+00	4/99										1
<i>Selenium sulfide</i>	7446-34-6			2.0E+01	12/01								1
SILICA [CRYSTALLINE, RESPIRABLE]	1175			3.0E+00	2/05								1
SODIUM HYDROXIDE	1310-73-2	8.0E+00	4/99										1
STYRENE	100-42-5	2.1E+04	4/99	9.0E+02	4/00								1
SULFATES	9960	1.2E+02	4/99										1
SULFUR DIOXIDE	7446-09-5	6.6E+02	4/99[1/92]										1
SULFURIC ACID AND OLEUM	9961	1.2E+02	4/99	1.0E+00	12/01								1
<i>SULFURIC ACID</i>	7664-93-9	1.2E+02	4/99	1.0E+00	12/01								1
<i>SULFUR TRIOXIDE</i>	7446-71-9	1.2E+02	4/99	1.0E+00	12/01								1
<i>OLEUM</i>	8014-95-7	1.2E+02	4/99	1.0E+00	12/01								1
1,1,2,2-TETRACHLOROETHANE	79-34-5							5.8E-05	2.0E-01	4/99			1
TETRACHLOROPHENOLS ... (see Chlorophenols)													
2,4,5-TRICHLOROPHENOL ... (see Chlorophenols)													
2,4,6-TRICHLOROPHENOL ... (see Chlorophenols)													
THIOACETAMIDE	62-55-5							1.7E-03	6.1E+00	4/99			1
TOLUENE	108-88-3	3.7E+04	4/99	3.0E+02	4/00								1

**Table 1**  
**CONSOLIDATED TABLE OF OEHHA/ARB APPROVED RISK ASSESSMENT HEALTH VALUES\***

Chemical	Chemical Abstract Number	Noncancer Effects						Cancer Risk					
		Acute Inhalation ( $\mu\text{g}/\text{m}^3$ )	Date Value Reviewed [Added]	Chronic Inhalation ( $\mu\text{g}/\text{m}^3$ )	Date Value Reviewed [Added]	Chronic Oral (mg/kg/d)	Date Value Reviewed [Added]	Inhalation Unit Risk ( $\mu\text{g}/\text{m}^3$ ) <sup>-1</sup>	Inhalation Cancer Potency Factor (mg/kg-d) <sup>-1</sup>	Date Value Reviewed [Added]	Oral Slope Factor (mg/kg-d) <sup>-1</sup>	Date Value Reviewed [Added]	M* W A F
<i>Toluene diisocyanates</i>	26471-62-5			7.0E-02	1/01			1.1E-05	3.9E-02	4/99			1
TOLUENE-2,4-DIISOCYANATE	584-84-9			7.0E-02	1/01			1.1E-05	3.9E-02	4/99			1
TOLUENE-2,6-DIISOCYANATE	91-08-7			7.0E-02	1/01			1.1E-05	3.9E-02	4/99			1
1,1,2-TRICHLOROETHANE (Vinyl trichloride)	79-00-5							1.6E-05	5.7E-02	4/99			1
TRICHLOROETHYLENE <sup>TAC</sup>	79-01-6			6.0E+02	4/00			2.0E-06 <sup>TAC</sup>	7.0E-03	10/90			1
TRIETHYLAMINE	121-44-8	2.8E+03	4/99	2.0E+02	9/02								1
URETHANE (Ethyl carbamate)	51-79-6							2.9E-04	1.0E+00	4/99 [7/90]			1
<i>Vanadium Compounds</i>	<i>N/A</i>												1
<i>Vanadium (fume or dust)</i>	7440-62-2	3.0E+01	4/99										1
VANADIUM PENTOXIDE	1314-62-1	3.0E+01	4/99										1
VINYL ACETATE	108-05-4			2.0E+02	12/01								1
VINYL CHLORIDE <sup>TAC</sup> (Chloroethylene)	75-01-4	1.8E+05	4/99					7.8E-05 <sup>TAC</sup>	2.7E-01	12/90			1
VINYLDENE CHLORIDE (1,1-Dichloroethylene)	75-35-4			7.0E+01	1/01								1
XYLENES (mixed isomers)	1330-20-7	2.2E+04	4/99	7.0E+02	4/00								1
m-XYLENE	108-38-3	2.2E+04	4/99	7.0E+02	4/00								1
o-XYLENE	95-47-6	2.2E+04	4/99	7.0E+02	4/00								1
p-XYLENE	106-42-3	2.2E+04	4/99	7.0E+02	4/00								1

**Table 1**  
**CONSOLIDATED TABLE OF OEHHHA/ARB APPROVED RISK ASSESSMENT HEALTH VALUES\***

<p>Purpose: The purpose of this reference table is to provide a quick list of all health values that have been approved by the Office of Environmental Health Hazard Assessment (OEHHHA) and the Air Resources Board (ARB) for use in facility health risk assessments conducted for the AB 2588 Air Toxics Hot Spots Program. The OEHHHA has developed and adopted new risk assessment guidelines that update and replace the California Air Pollution Control Officers Association's (CAPCOA) <i>Air Toxics "Hot Spots" Program Revised 1992 Risk Assessment Guidelines, October 1993</i>. The OEHHHA has adopted five technical support documents for these guidelines, which can be found on their website (<a href="http://www.oehha.ca.gov/air/hot_spots/index.html">http://www.oehha.ca.gov/air/hot_spots/index.html</a>). This table lists the OEHHHA adopted inhalation and oral cancer slope factors, noncancer acute Reference Exposure Levels (RELs), and inhalation and oral noncancer chronic RELs. OEHHHA is still in the process of adopting new health values. Therefore, new health values will periodically be added to, or deleted from, this table. Users of this table are advised to monitor the OEHHHA website (<a href="http://www.oehha.ca.gov">www.oehha.ca.gov</a>) for any updates to the health values.</p> <p>May 2008 update: The Air Resources Board adopted amendments to the AB 2588 Air Toxics "Hot Spots" Emission Inventory Criteria and Guidelines Regulation (Title 17, California Code of Regulations, Section 93300.5) on November 16, 2006. The amendments became effective on September 26, 2007, after approval from the Office of Administrative Law. Under the new amendments, the substances previously listed in Appendix A-I (<i>Substances For Which Emissions Must Be Quantified</i>) and Appendix F (<i>Criteria For Inputs For Risk Assessment Using Screening Air Dispersion Modeling</i>) of the ARB's <i>Air Toxics "Hot Spots" Emission Inventory Criteria and Guidelines (EICG) (July 1997)</i> have been removed from this table.</p>
<p>* Substances written in <i>italics</i> do not have explicit OEHHHA approved health values, but are included in this table to clarify applicability of OEHHHA adopted health effects values to individual or grouped substances listed in the <i>Air Toxics "Hot Spots" Emission Inventory Criteria and Guidelines, Appendix A-I</i> list of "<i>Substances For Which Emissions Must Be Quantified</i>".</p>
<p>▼ Chemical Abstract Service Number (CAS): For chemical groupings and mixtures where a CAS number is not applicable, the 4-digit code used in the <i>Air Toxics "Hot Spots" Emission Inventory Criteria and Guidelines (EICG) Report</i> is listed. The 4-digit codes enclosed in brackets [ ] are codes that have been phased out, but may still appear on previously reported Hot Spots emissions. For information on the origin and use of the 4-digit code, see the EICG report.</p>
<p>◆ Date Value Reviewed [Added]: These columns list the date that the health value was last reviewed by OEHHHA and the Scientific Review Panel, and/or approved for use in the AB 2588 Air Toxics Hot Spots Program. If the health value is unchanged since it was first approved for use in the Hot Spots Program, then the date that the value was first approved for use by CAPCOA is listed within the brackets [ ].</p> <ul style="list-style-type: none"> <li>• April 1999 is listed for the cancer potency values and noncancer acute RELs, which have been adopted by the OEHHHA as part of the AB 2588 Hot Spot Risk Assessment Guidelines.</li> <li>• February 2000, April 2000, January 2001, and December 2001 are listed for the first set of 22, the second set of 16, the third set of 22, and the fourth set of 12 noncancer chronic RELs, respectively. The chronic REL for carbon disulfide was adopted in May 2002. Chronic RELs for phosphine and triethylamine were adopted in September 2002. Chronic RELs for fluorides including hydrogen fluoride were adopted August 2003. Chronic REL for silica [crystalline respirable] was adopted February 2005.</li> <li>• October 2000 is listed for the oral chronic RELs and oral cancer slope factors.</li> <li>• Cancer potency value adopted for naphthalene in August 2004. The inhalation and oral cancer potency values for ethyl benzene were adopted in November 2007.</li> <li>• For the substances identified as Toxic Air Contaminants, the Air Resources Board hearing date is listed. The dates for acetaldehyde, benzo[a]pyrene, and methyl tertiary-butyl ether represent the dates the values were approved by the Scientific Review Panel.</li> </ul>
<p>⚡ Inhalation cancer potency factor: The "unit risk factor" has been replaced in the new risk assessment algorithms by a factor called the "inhalation cancer potency factor". Inhalation cancer potency factors are expressed as units of inverse dose [i.e., (mg/kg-day)<sup>-1</sup>]. They were derived from unit risk factors [units = (ug/m<sup>3</sup>)<sup>-1</sup>] by assuming that a receptor weighs 70 kilograms and breathes 20 cubic meters of air per day. The inhalation potency factor is used to calculate a potential inhalation cancer risk using the new risk assessment algorithms defined in the OEHHHA, <i>Air Toxics Hot Spots Program; Part IV; Technical Support Document for Exposure Assessment and Stochastic Analysis (September 2000)</i>.</p>
<p>♣ Molecular Weight Adjustment Factor: Molecular weight adjustment factors (MWAF) are only to be used when a toxic metal has a cancer potency factor. For most of the Hot Spots toxic metals, the OEHHHA cancer potency factor applies to the weight of the toxic metal atom contained in the overall compound. Some of the Hot Spots compounds contain various elements along with the toxic metal atom (e.g., "Nickel hydroxide", CAS number 12054-48-7, has a formula of H<sub>2</sub>NiO<sub>2</sub>). Therefore, an adjustment to the reported pounds of the overall compound is needed before applying the OEHHHA cancer potency factor for "Nickel and compounds" to such a compound. This ensures that the cancer potency factor is applied only to the fraction of the overall weight of the emissions that are associated with health effects of the metal. In other cases, the Hot Spots metals are already reported as the metal atom equivalent (e.g., CAS 7440-02-0, "Nickel"), and these cases do not use any further molecular weight adjustment. (Refer to Note [7] in Appendix A, List of Substances in the EICG Report for further information on how the emissions of various Hot Spots metal compounds are reported.) The appropriate molecular weight adjustment factors (MWAF) to be used along with the OEHHHA cancer potency factors for Hot Spots metals can be found in the MWAF column of this table.</p> <p>So, for example, assume 100 pounds of "Nickel hydroxide" emissions are reported under CAS number 12054-48-7. To get the Nickel atom equivalent of these emissions, multiply by the listed MWAF (0.6332) for Nickel hydroxide:</p> <ul style="list-style-type: none"> <li>• 100 pounds x 0.6332 = 63.32 pounds of Nickel atom equivalent</li> </ul> <p><i>This step should be completed prior to applying the OEHHHA cancer potency factor for "Nickel and compounds" in a calculation for a prioritization score or risk assessment calculation.</i> (For more information see Chapter 8 of OEHHHA's document, <i>The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments</i>.)</p> <p>Note: The value listed in the MWAF column for Asbestos is not a molecular weight adjustment. This is a conversion factor for adjusting mass to fibers or structures. See Appendix C of OEHHHA's document <i>The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments</i> for more information on Asbestos, or see the EICG report for reporting guidance. Also see the Asbestos footnote (designated by the symbol ☒)</p>

**Table 1**  
**CONSOLIDATED TABLE OF OEHHA/ARB APPROVED RISK ASSESSMENT HEALTH VALUES\***

N/A	Not Applicable
TAC	Toxic Air Contaminant: The Air Resources Board has identified this substance as a Toxic Air Contaminant.
AveP	The averaging period of noncancer acute RELs is generally a one-hour exposure. However, some are based on several hour exposure for reproductive/developmental endpoints (see section 1.6 of OEHHA's technical support document for <i>The Determination of Acute Reference Exposure Levels for Airborne Toxicants, March 1999</i> ). Typically the RELs for the following substances are compared to modeled emission concentrations of the same duration rather than maximum one-hour concentrations (e.g., a 4-hour REL should be compared to the maximum 4-hour average concentration from the air dispersion model).  4-Hour: Arsenic and Inorganic Arsenic Compounds  6-Hour: Benzene, Carbon disulfide, Ethylene glycol monoethyl ether, Ethylene glycol monoethyl ether acetate, Ethylene glycol monomethyl ether  7-Hour: Carbon tetrachloride, Chloroform
☒	Asbestos: The units for the Inhalation Cancer Potency factor for asbestos are (100 PCM fibers/m <sup>3</sup> ) <sup>-1</sup> . A conversion factor of 100 fibers/0.003 μg can be multiplied by a receptor concentration of asbestos expressed in μg/m <sup>3</sup> . Unless other information necessary to estimate the concentration (fibers/m <sup>3</sup> ) of asbestos at receptors of interest is available. A unit risk factor of 1.9 E 10 <sup>-4</sup> (μg/m <sup>3</sup> ) <sup>-1</sup> and an inhalation cancer potency factor of 2.2 E 10 <sup>-2</sup> (mg/kg BW * day) <sup>-1</sup> are available. For more information on asbestos quantity conversion factors, see Appendix C of OEHHA's <i>The Air Toxics Hot Spots Program Risk Assessment Guidelines; Part II; Technical Support Document for Describing Available Cancer Potency Factors</i> , and Appendix C of OEHHA's document <i>The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments</i> .
⊘	Hexavalent Chromium: The oral cancer slope factor for chromium 6+ and compounds has been withdrawn by the Office of Environmental Health Hazard Assessment.
🎵	Inorganic Lead: Inorganic Lead was identified by the Air Resources Board as a Toxic Air Contaminant in April 1997. Since information on noncancer health effects show no identified threshold, no Reference Exposure Level has been developed. The document, <i>Risk Management Guidelines for New, Modified, and Existing Sources of Lead, March 2001</i> , has been developed by ARB and OEHHA staff for assessing noncancer health impacts from sources of lead. See Appendix F of OEHHA's document <i>The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments</i> for an overview of how to evaluate noncancer impacts from exposure to lead using these risk management guidelines.
❖	Polycyclic Aromatic Hydrocarbons (PAHs): These substances are PAH or PAH-derivatives that have OEHHA-developed Potency Equivalency Factors (PEFs) which were approved by the Scientific Review Panel in April 1994 (see ARB document entitled <i>Benzo[a]pyrene as a Toxic Air Contaminant</i> ). PAH inhalation slope factors listed here have been adjusted by the PEFs. See Appendix G of OEHHA's document <i>The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments</i> for more information.  See section 8.2.3 of OEHHA's <i>The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments</i> for conducting health risks when total (unspeciated) PAHs are reported.
☀	Polychlorinated Biphenyls: (unspeciated mixtures) Lowest Risk: For use in cases where congeners with more than four chlorines comprise less than one-half percent of total polychlorinated biphenyls. High Risk: For use in cases where congeners with more than four chlorines do not comprise less than one-half percent of total polychlorinated biphenyls. Low Risk: This number would not ordinarily be used in the Hot Spots program. Chronic Oral: The chronic oral value is U.S. EPA's 1996 oral Reference Dose for Aroclor-1254.
⊞	Polychlorinated Biphenyls (speciated): Values calculated using WHO <sub>97</sub> TEF procedure. See OEHHA memo dated August 29, 2003.
•	Polychlorinated Dibenzo- <i>p</i> -dioxins and Polychlorinated Dibenzofurans (also referred to as chlorinated dioxins and dibenzofurans): The OEHHA has adopted the World Health Organization 1997 (WHO- <sub>97</sub> ) Toxicity Equivalency Factor scheme for evaluating the cancer risk due to exposure to samples containing mixtures of polychlorinated dibenzo- <i>p</i> -dioxins (PCDD) and polychlorinated dibenzofurans (PCDF) and determining cancer risks for a number of specific PCB congeners. See Appendix A of OEHHA's <i>Technical Support Document For Describing Available Cancer Potency Factors</i> for more information about the scheme. See Appendix E of OEHHA's <i>The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments</i> for the methodology for calculating 2,3,7,8-equivalents for PCDD, PCDFs and a number of specific PCB congeners. See section 8.2.3 of OEHHA's <i>The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments</i> for conducting health risks when total (unspeciated) chlorinated dioxins and furans are reported.
☼	Particulate Emissions from Diesel-Fueled Engines: The inhalation cancer potency factor and chronic REL were derived from whole diesel exhaust and should be used only for impacts from the inhalation pathway. The inhalation impacts from speciated emissions from diesel-fueled engines are already accounted for in the inhalation cancer potency factor and REL. However, at the discretion of the risk assessor, speciated emissions from diesel-fueled engines may be used to estimate acute noncancer health impacts or the contribution to cancer risk or chronic noncancer health impacts for the non-inhalation exposure pathway. See Appendix D of OEHHA's document <i>The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments</i> for more information.

Table last updated: June 25, 2008

**Table 2  
OEHHA/ARB APPROVED ACUTE REFERENCE EXPOSURE LEVELS AND TARGET ORGANS\***

Substance *	Chemical <sup>▼</sup> Abstract Service Number (CAS)	Acute REL ( $\mu\text{g}/\text{m}^3$ )	Date <sup>♦</sup> Value Reviewed	Target Organs										
				Alimentary Tract	Cardiovascular	Developmental	Eye	Hematologic	Immune	Nervous	Reproductive	Respiratory	Skin	
ACROLEIN	107-02-8	1.9E-01	4/99				X						X	
ACRYLIC ACID	79-10-7	6.0E+03	4/99				X						X	
AMMONIA	7664-41-7	3.2E+03	4/99				X						X	
ARSENIC AND COMPOUNDS (INORGANIC) <sup>TAC</sup>	7440-38-2 1016 [1015]	1.9E-01 <sup>AveP</sup>	4/99			X						X		
ARSINE	7784-42-1	1.6E+02	4/99					X						
BENZENE <sup>TAC</sup>	71-43-2	1.3E+03 <sup>AveP</sup>	4/99			X		X	X			X		
BENZYL CHLORIDE	100-44-7	2.4E+02	4/99				X						X	
CARBON DISULFIDE	75-15-0	6.2E+03 <sup>AveP</sup>	4/99			X				X	X			
CARBON MONOXIDE	630-08-0	2.3E+04	4/99		X									
CARBON TETRACHLORIDE <sup>TAC</sup> (Tetrachloromethane)	56-23-5	1.9E+03 <sup>AveP</sup>	4/99	X		X				X	X			
CHLORINE	7782-50-5	2.1E+02	4/99				X						X	
CHLOROFORM <sup>TAC</sup>	67-66-3	1.5E+02 <sup>AveP</sup>	4/99			X				X	X			
CHLOROPICRIN	76-06-2	2.9E+01	4/99				X						X	
COPPER AND COMPOUNDS	7440-50-8 [1067]	1.0E+02	4/99										X	
<i>Cyanide Compounds (inorganic)</i>	57-12-5 1073	3.4E+02	4/99								✓			
HYDROGEN CYANIDE (Hydrocyanic acid)	74-90-8	3.4E+02	4/99							X				
1,4-DIOXANE <sup>♦</sup> (1,4-Diethylene dioxide)	123-91-1	3.0E+03	4/99				X						X	
EPICHLOROHYDRIN (1-Chloro-2,3-epoxypropane)	106-89-8	1.3E+03	4/99				X						X	
<i>Fluorides and Compounds</i>	1101	2.4E+02	4/99				✓						✓	
HYDROGEN FLUORIDE (Hydrofluoric acid)	7664-39-3	2.4E+02	4/99				X						X	
FORMALDEHYDE <sup>TAC</sup>	50-00-0	9.4E+01	4/99				X		X				X	
GLYCOL ETHERS	1115													
ETHYLENE GLYCOL BUTYL ETHER – EGBE	111-76-2	1.4E+04	4/99				X						X	
ETHYLENE GLYCOL ETHYL ETHER – EGEE	110-80-5	3.7E+02 <sup>AveP</sup>	4/99 [1/92]			X						X		
ETHYLENE GLYCOL ETHYL ETHER ACETATE - EGEEA	111-15-9	1.4E+02 <sup>AveP</sup>	4/99			X				X	X			
ETHYLENE GLYCOL METHYL ETHER – EGME	109-86-4	9.3E+01 <sup>AveP</sup>	4/99			X						X		

**Table 2**  
**OEHHA/ARB APPROVED ACUTE REFERENCE EXPOSURE LEVELS AND TARGET ORGANS\***

Substance *	Chemical Abstract Service Number (CAS)	Acute REL ( $\mu\text{g}/\text{m}^3$ )	Date ♦ Value Reviewed	Target Organs										
				Alimentary Tract	Cardiovascular	Developmental	Eye	Hematologic	Immune	Nervous	Reproductive	Respiratory	Skin	
HYDROCHLORIC ACID (Hydrogen chloride)	7647-01-0	2.1E+03	4/99				X						X	
HYDROGEN CYANIDE (Hydrocyanic acid) ... (see Cyanide Compounds)														
HYDROGEN FLUORIDE (Hydrofluoric acid) ... (see Fluorides & Compounds)														
HYDROGEN SELENIDE ... (see Selenium & Compounds)														
HYDROGEN SULFIDE	7783-06-4	4.2E+01	4/99 [7/90]								X			
ISOPROPYL ALCOHOL (Isopropanol)	67-63-0	3.2E+03	4/99				X						X	
MERCURY AND COMPOUNDS (INORGANIC)	7439-97-6 [1133]	1.8E+00	4/99			X						X		
<i>Mercuric chloride</i>	7487-94-7	1.8E+00	4/99			✓						✓		
METHANOL	67-56-1	2.8E+04	4/99								X			
METHYL BROMIDE (Bromomethane)	74-83-9	3.9E+03	4/99			X					X	X	X	
METHYL CHLOROFORM (1,1,1-Trichloroethane)	71-55-6	6.8E+04	4/99								X			
METHYL ETHYL KETONE (2-Butanone)	78-93-3	1.3E+04	4/99				X						X	
METHYLENE CHLORIDE <sup>TAC</sup> (Dichloromethane)	75-09-2	1.4E+04	4/99								X			
NICKEL AND COMPOUNDS <sup>TAC</sup>	7440-02-0 [1145]	6.0E+00	4/99							X			X	
<i>Nickel acetate,</i>	373-02-4	6.0E+00	4/99							✓			✓	
<i>Nickel carbonate</i>	3333-67-3	6.0E+00	4/99							✓			✓	
<i>Nickel carbonyl</i>	13463-39-3	6.0E+00	4/99							✓			✓	
<i>Nickel hydroxide</i>	12054-48-7	6.0E+00	4/99							✓			✓	
<i>Nickelocene</i>	1271-28-9	6.0E+00	4/99							✓			✓	
NICKEL OXIDE	1313-99-1	6.0E+00	4/99							X			X	
<i>Nickel refinery dust from the pyrometallurgical process</i>	1146	6.0E+00	4/99							✓			✓	
<i>Nickel subsulfide</i>	12035-72-2	6.0E+00	4/99							✓			✓	
NITRIC ACID	7697-37-2	8.6E+01	4/99										X	
NITROGEN DIOXIDE	10102-44-0	4.7E+02	4/99 [1/92]										X	
OZONE	10028-15-6	1.8E+02	4/99 [1/92]				X						X	
PERCHLOROETHYLENE <sup>TAC</sup> (Tetrachloroethylene)	127-18-4	2.0E+04	4/99				X				X		X	

**Table 2**  
**OEHHA/ARB APPROVED ACUTE REFERENCE EXPOSURE LEVELS AND TARGET ORGANS\***

Substance *	Chemical Abstract Service Number (CAS)	Acute REL ( $\mu\text{g}/\text{m}^3$ )	Date ♦ Value Reviewed	Target Organs										
				Alimentary Tract	Cardiovascular	Developmental	Eye	Hematologic	Immune	Nervous	Reproductive	Respiratory	Skin	
PHENOL	108-95-2	5.8E+03	4/99				X						X	
PHOSGENE	75-44-5	4.0E+00	4/99										X	
PROPYLENE OXIDE	75-56-9	3.1E+03	4/99			X	X					X	X	
<i>Selenium and Compounds</i>	7782-49-2 [1170]													
HYDROGEN SELENIDE	7783-07-5	5.0E+00	4/99				X						X	
SODIUM HYDROXIDE	1310-73-2	8.0E+00	4/99				X						X	X
STYRENE	100-42-5	2.1E+04	4/99				X						X	
SULFATES	9960	1.2E+02	4/99										X	
SULFUR DIOXIDE	7446-09-5	6.6E+02	4/99 [1/92]										X	
SULFURIC ACID AND OLEUM	9961	1.2E+02	4/99										X	
<i>SULFURIC ACID</i>	7664-93-9	1.2E+02	4/99											✓
<i>SULFUR TRIOXIDE</i>	7446-71-9	1.2E+02	4/99											✓
<i>OLEUM</i>	8014-95-7	1.2E+02	4/99											✓
TOLUENE	108-88-3	3.7E+04	4/99			X	X				X	X	X	
TRIETHYLAMINE	121-44-8	2.8E+03	4/99				X				X			
<i>Vanadium Compounds</i>	N/A													
<i>Vanadium (fume or dust)</i>	7440-62-2	3.0E+01	4/99				✓							✓
VANADIUM PENTOXIDE	1314-62-1	3.0E+01	4/99				X						X	
VINYL CHLORIDE <sup>TAC</sup> (Chloroethylene)	75-01-4	1.8E+05	4/99				X				X		X	
XYLENES (mixed isomers)	1330-20-7	2.2E+04	4/99				X						X	
m-Xylene	108-38-3	2.2E+04	4/99				X						X	
o-Xylene	95-47-6	2.2E+04	4/99				X						X	
p-Xylene	106-42-3	2.2E+04	4/99				X						X	

**Table 2**  
**OEHHA/ARB APPROVED ACUTE REFERENCE EXPOSURE LEVELS AND TARGET ORGANS\***

Purpose:	<p>The purpose of this reference table is to provide a quick list of all health values that have been approved by the Office of Environmental Health Hazard Assessment (OEHHA) and the Air Resources Board (ARB) for use in facility health risk assessments conducted for the AB 2588 Air Toxics "Hot Spots" Program. The OEHHA has developed and adopted new risk assessment guidelines that update and replace the California Air Pollution Control Officers Association's (CAPCOA) <i>Air Toxics "Hot Spots" Program Revised 1992 Risk Assessment Guidelines, October 1993</i>. The OEHHA has adopted five technical support documents for these guidelines, which can be found on their website (<a href="http://www.oehha.ca.gov/air/hot_spots/index.html">http://www.oehha.ca.gov/air/hot_spots/index.html</a>). This table lists the OEHHA adopted noncancer acute Reference Exposure Levels (RELs). OEHHA is still in the process of adopting new health values. Therefore, new health values will periodically be added to, or deleted from, this table. Users of this table are advised to monitor the OEHHA website (<a href="http://www.oehha.ca.gov">www.oehha.ca.gov</a>) for any updates to the health values.</p> <p>May 2008 update: The Air Resources Board adopted amendments to the AB 2588 Air Toxics "Hot Spots" Emission Inventory Criteria and Guidelines Regulation (Title 17, California Code of Regulations, Section 93300.5) on November 16, 2006. The amendments became effective on September 26, 2007, after approval from the Office of Administrative Law. Under the new amendments, the substances previously listed in Appendix A-I (<i>Substances For Which Emissions Must Be Quantified</i>) and Appendix F (<i>Criteria For Inputs For Risk Assessment Using Screening Air Dispersion Modeling</i>) of the ARB's <i>Air Toxics "Hot Spots" Emission Inventory Criteria and Guidelines (EICG) (July 1997)</i> have been removed from this table.</p>
✱	<p>Substances written in <i>italics</i> and with a ✓ do not have explicit OEHHA approved health values, but are included in this table to clarify applicability of OEHHA adopted health effects values to individual or grouped substances listed in the <i>Air Toxics "Hot Spots" Emission Inventory Criteria and Guidelines</i>, Appendix A-I list of "<i>Substances For Which Emissions Must Be Quantified</i>".</p>
▼	<p>Chemical Abstract Service Number (CAS): For chemical groupings and mixtures where a CAS number is not applicable, the 4-digit code used in the <i>Air Toxics "Hot Spots" Emission Inventory Criteria and Guidelines (EICG) Report</i> is listed. The 4-digit codes enclosed in brackets [ ] are codes that have been phased out, but may still appear on previously reported Hot Spots emissions. For information on the origin and use of the 4-digit code, see the EICG report.</p>
◆	<p>Date Value Reviewed [Added]: This column lists the date that the health value was last reviewed by OEHHA and the Scientific Review Panel, and/or approved for use in the AB 2588 Air Toxics Hot Spots Program. If the health value is unchanged since it was first approved for use in the "Hot Spots" Program, then the date that the value was first approved for use by CAPCOA is listed within the brackets [ ].</p> <ul style="list-style-type: none"> <li>• April 1999 is listed for the noncancer acute RELs which have been adopted by the OEHHA as part of the AB 2588 Hot Spot Risk Assessment Guidelines.</li> </ul>
TAC	<p>Toxic Air Contaminant: The Air Resources Board has identified this substance as a Toxic Air Contaminant.</p>
AveP	<p>The averaging period of noncancer acute RELs is generally a one-hour exposure. However, some are based on several hour exposure for reproductive/developmental endpoints (see section 1.6 of OEHHA's technical support document for <i>The Determination of Acute Reference Exposure Levels for Airborne Toxicants, March 1999</i>). Typically the RELs for the following substances are compared to modeled emission concentrations of the same duration rather than maximum one-hour concentrations (e.g., a 4-hour REL should be compared to the maximum 4-hour average concentration from the air dispersion model).</p> <p>4-Hour: Arsenic and Inorganic Arsenic Compounds</p> <p>6-Hour: Benzene, Carbon disulfide, Ethylene glycol ethyl ether, Ethylene glycol ethyl ether acetate, Ethylene glycol methyl ether</p> <p>7-Hour: Carbon tetrachloride, Chloroform</p>

Table last updated: May 22, 2008

**Table 3  
OEHA/ARB APPROVED CHRONIC REFERENCE EXPOSURE LEVELS AND TARGET ORGANS\***

Chemical	Chemical Abstract Number	Chronic Inhalation REL (µg/m <sup>3</sup> )	Chronic Oral REL	Date Value Reviewed [Added]	Target Organs													
					Alimentary	Bone	Cardiovascular	Developmental	Endocrine	Eye	Hematologic	Immune	Kidney	Nervous	Reproductive	Respiratory	Skin	
ACETALDEHYDE	75-07-0	9.0E+00		5/93													X	
ACROLEIN	107-02-8	6.0E-02		1/01						X							X	
ACRYLONITRILE	107-13-1	5.0E+00		12/01													X	
AMMONIA	7664-41-7	2.0E+02		2/00													X	
ARSENIC AND COMPOUNDS (INORGANIC) <sup>TAC</sup>	7440-38-2 1016 [1015]	3.0E-02		1/01			X	X							X			
			3.0E-04	10/00			X											X
BENZENE <sup>TAC</sup>	71-43-2	6.0E+01		2/00				X			X			X				
BERYLLIUM AND COMPOUNDS	7440-41-7 [1021]	7.0E-03		12/01								X					X	
			2.0E-03	12/01	X													
1,3-BUTADIENE <sup>TAC</sup>	106-99-0	2.0E+01		1/01												X		
CADMIUM AND COMPOUNDS <sup>TAC</sup>	7440-43-9 [1045]	2.0E-02		1/01									X				X	
			5.0E-04	10/00									X					
CARBON DISULFIDE	75-15-0	8.0E+02		5/02										X	X			
CARBON TETRACHLORIDE <sup>TAC</sup> (Tetrachloromethane)	56-23-5	4.0E+01		1/01	X			X							X			
CHLORINE	7782-50-5	2.0E-01		2/00													X	
CHLORINE DIOXIDE	10049-04-4	6.0E-01		1/01													X	
CHLOROBENZENE	108-90-7	1.0E+03		1/01	X								X		X			
CHLOROFORM <sup>TAC</sup>	67-66-3	3.0E+02		4/00	X			X					X					
CHLOROPICRIN	76-06-2	4.0E-01		12/01													X	
CHROMIUM 6+ <sup>TAC</sup>	18540-29-9	2.0E-01		1/01													X	
			2.0E-02	10/00								X						
<i>Barium chromate</i>	10294-40-3	2.0E-01		1/01														✓
			2.0E-02	10/00								✓						
<i>Calcium chromate</i>	13765-19-0	2.0E-01		1/01														✓
			2.0E-02	10/00								✓						
<i>Lead chromate</i>	7758-97-6	2.0E-01		1/01														✓
			2.0E-02	10/00								✓						

**Table 3**  
**OEHHA/ARB APPROVED CHRONIC REFERENCE EXPOSURE LEVELS AND TARGET ORGANS\***

Chemical	Chemical Abstract Number	Chronic Inhalation REL (µg/m <sup>3</sup> )	Chronic Oral REL	Date ♦ Value Reviewed [Added]	Target Organs													
					Alimentary	Bone	Cardiovascular	Developmental	Endocrine	Eye	Hematologic	Immune	Kidney	Nervous	Reproductive	Respiratory	Skin	
<i>Sodium dichromate</i>	10588-01-9	2.0E-01		1/01													✓	
			2.0E-02	10/00								✓						
<i>Strontium chromate</i>	7789-06-2	2.0E-01		1/01													✓	
			2.0E-02	10/00								✓						
CHROMIUM TRIOXIDE (as chromic acid mist)	1333-82-0	2.0E-03		1/01													X	
			2.0E-02	10/00								✓						
CRESOLS (mixtures of)	1319-77-3	6.0E+02		1/01													X	
m-CRESOL	108-39-4	6.0E+02		1/01													X	
o-CRESOL	95-48-7	6.0E+02		1/01													X	
p-CRESOL	106-44-5	6.0E+02		1/01													X	
<i>Cyanide Compounds (inorganic)</i>	57-12-5 1073	9.0E+00		4/00			✓		✓								✓	
HYDROGEN CYANIDE (Hydrocyanic acid)	74-90-8	9.0E+00		4/00			X		X								X	
p-DICHLOROBENZENE	106-46-7	8.0E+02		1/01	X									X	X		X	
1,1,-DICHLOROETHYLENE ... (see Vinylidene Chloride)																		
DIESEL EXHAUST ... (see Particulate Emissions from Diesel-Fueled Engines)																		
DIETHANOLAMINE	111-42-2	3.0E+00		12/01			X									X		
N,N-DIMETHYL FORMAMIDE	68-12-2	8.0E+01		1/01	X												X	
1,4-DIOXANE <sup>+</sup> (1,4-Diethylene dioxide)	123-91-1	3.0E+03		4/00	X		X							X				
EPICHLOROHYDRIN (1-Chloro-2,3-epoxypropane)	106-89-8	3.0E+00		1/01						X							X	
1,2-EPOXYBUTANE	106-88-7	2.0E+01		1/01			X										X	
ETHYL BENZENE	100-41-4	2.0E+03		2/00	X			X	X					X				
ETHYL CHLORIDE (Chlorethane)	75-00-3	3.0E+04		4/00	X			X										
ETHYLENE DIBROMIDE <sup>TAC</sup> (1,2-Dibromoethane)	106-93-4	8.0E-01		12/01												X		
ETHYLENE DICHLORIDE <sup>TAC</sup> (1,2-Dichloroethane)	107-06-2	4.0E+02		1/01	X													
ETHYLENE GLYCOL	107-21-1	4.0E+02		4/00				X						X			X	
ETHYLENE OXIDE <sup>TAC</sup> (1,2-Epoxyethane)	75-21-8	3.0E+01		1/01											X			

**Table 3  
OEHA/ARB APPROVED CHRONIC REFERENCE EXPOSURE LEVELS AND TARGET ORGANS\***

Chemical	Chemical Abstract Number	Chronic Inhalation REL (µg/m <sup>3</sup> )	Chronic Oral REL	Date ♦ Value Reviewed [Added]	Target Organs													
					Alimentary	Bone	Cardiovascular	Developmental	Endocrine	Eye	Hematologic	Immune	Kidney	Nervous	Reproductive	Respiratory	Skin	
Fluorides	1101	1.3E+01				X											X	
			4.0E-02	8/03		X												
HYDROGEN FLUORIDE (Hydrofluoric acid)	7664-39-3	1.4E+01				X											X	
			4.0E-02	8/03		X												
FORMALDEHYDE <sup>TAC</sup>	50-00-0	3.0E+00		2/00							X							X
GLUTARALDEHYDE	111-30-8	8.0E-02		1/01														X
GLYCOL ETHERS	1115																	
ETHYLENE GLYCOL ETHYL ETHER – EGEE	110-80-5	7.0E+01		2/00								X					X	
ETHYLENE GLYCOL ETHYL ETHER ACETATE - EGEEA	111-15-9	3.0E+02		2/00				X										
ETHYLENE GLYCOL METHYL ETHER – EGME	109-86-4	6.0E+01		2/00													X	
ETHYLENE GLYCOL METHYL ETHER ACETATE - EGMEA	110-49-6	9.0E+01		2/00													X	
n-HEXANE	110-54-3	7.0E+03		4/00												X		
HYDRAZINE	302-01-2	2.0E-01		1/01	X					X								
HYDROCHLORIC ACID (Hydrogen chloride)	7647-01-0	9.0E+00		2/00														X
HYDROGEN CYANIDE (Hydrocyanic acid) (see Cyanide Compounds)																		
HYDROGEN BROMIDE ... (see Bromine & Compounds)																		
HYDROGEN FLUORIDE (Hydrofluoric acid) (see Fluorides & Compounds)																		
HYDROGEN SULFIDE	7783-06-4	1.0E+01		4/00														X
ISOPHORONE	78-59-1	2.0E+03		12/01	X				X									
ISOPROPYL ALCOHOL (Isopropanol)	67-63-0	7.0E+03		2/00					X						X			
LINDANE ... (see gamma-Hexachlorocyclohexane)																		
MALEIC ANHYDRIDE	108-31-6	7.0E-01		12/01														X
MANGANESE AND COMPOUNDS	7439-96-5 [1132]	2.0E-01		4/00												X		

**Table 3  
OEHHA/ARB APPROVED CHRONIC REFERENCE EXPOSURE LEVELS AND TARGET ORGANS\***

Chemical	Chemical Abstract Number	Chronic Inhalation REL (µg/m <sup>3</sup> )	Chronic Oral REL	Date Value Reviewed [Added]	Target Organs													
					Alimentary	Bone	Cardiovascular	Developmental	Endocrine	Eye	Hematologic	Immune	Kidney	Nervous	Reproductive	Respiratory	Skin	
MERCURY AND COMPOUNDS (INORGANIC)	7439-97-6 [1133]	9.0E-02		2/00														X
			3.0E-04	10/00 [1/92]									X	X				
<i>Mercuric chloride</i>	7487-94-7	9.0E-02		2/00														✓
			3.0E-04	10/00 [1/92]									✓	✓				
METHANOL	67-56-1	4.0E+03		4/00				X										
METHYL BROMIDE (Bromomethane)	74-83-9	5.0E+00		2/00				X									X	X
METHYL tertiary-BUTYL ETHER	1634-04-4	8.0E+03		2/00	X					X				X				
METHYL CHLOROFORM (1,1,1-Trichloroethane)	71-55-6	1.0E+03		2/00													X	
METHYL ISOCYANATE	624-83-9	1.0E+00		12/01													X	X
METHYL MERCURY ... (see Mercury & Compounds)																		
METHYLENE CHLORIDE <sup>TAC</sup> (Dichloromethane)	75-09-2	4.0E+02		2/00			X										X	
4,4'-METHYLENE DIANILINE (AND ITS DICHLORIDE)	101-77-9	2.0E+01		12/01	X					X								
METHYLENE DIPHENYL ISOCYANATE	101-68-8	7.0E-01		1/01														X
NAPHTHALENE	91-20-3	9.0E+00		4/00														X
NICKEL AND COMPOUNDS <sup>TAC</sup>	7440-02-0 [1145]	5.0E-02		2/00								X						X
			5.0E-02	10/00	X													
<i>Nickel acetate</i>	373-02-4	5.0E-02		2/00								✓						✓
			5.0E-02	10/00	✓													
<i>Nickel carbonate</i>	3333-67-3	5.0E-02		2/00								✓						✓
			5.0E-02	10/00	✓													
<i>Nickel carbonyl</i>	13463-39-3	5.0E-02		2/00								✓						✓
			5.0E-02	10/00	✓													
<i>Nickel hydroxide</i>	12054-48-7	5.0E-02		2/00								✓						✓
			5.0E-02	10/00	✓													
<i>Nickelocene</i>	1271-28-9	5.0E-02		2/00								✓						✓
			5.0E-02	10/00	✓													

**Table 3  
OEHA/ARB APPROVED CHRONIC REFERENCE EXPOSURE LEVELS AND TARGET ORGANS\***

Chemical	Chemical Abstract Number	Chronic Inhalation REL (µg/m <sup>3</sup> )	Chronic Oral REL	Date Value Reviewed [Added]	Target Organs													
					Alimentary	Bone	Cardiovascular	Developmental	Endocrine	Eye	Hematologic	Immune	Kidney	Nervous	Reproductive	Respiratory	Skin	
NICKEL OXIDE	1313-99-1	1.0E-01		2/00								X					X	
			5.0E-02	10/00	X													
<i>Nickel refinery dust from pyrometallurgical process</i>	1146	5.0E-02		2/00								✓					✓	
			5.0E-02	10/00	✓													
<i>Nickel subsulfide</i>	12035-72-2	5.0E-02		2/00								✓					✓	
			5.0E-02	10/00	✓													
PARTICULATE EMISSIONS FROM DIESEL-FUELED ENGINES <sup>TAC</sup> ■	9901	5.0E+00 <sup>TAC</sup>		8/98														X
PENTACHLOROPHENOL ... (see Chlorophenols)																		
PERCHLOROETHYLENE <sup>TAC</sup> (Tetrachloroethylene)	127-18-4	3.5E+01 <sup>TAC</sup>		10/91	X												X	
PHENOL	108-95-2	2.0E+02		4/00	X		X									X	X	
PHOSPHINE	7803-51-2	8.0E-01		9/02	X							X		X	X			X
PHOSPHORIC ACID	7664-38-2	7.0E+00		2/00														X
PHTHALIC ANHYDRIDE	85-44-9	2.0E+01		1/01														X
DIOXIN-LIKE POLYCHLORINATED BIPHENYLS (PCBS) <sup>Ⓜ</sup>					X			X	X			X					X	X
3,3',4,4'-TETRACHLOROBIPHENYL (PCB 77)	32598-13-3	4.0E-01		8/03	X			X	X			X					X	X
			1.0E-04	8/03	X			X	X			X					X	X
3,4,4',5-TETRACHLOROBIPHENYL (PCB 81)	70362-50-4	4.0E-01		8/03	X			X	X			X					X	X
			1.0E-04	8/03	X			X	X			X					X	X
2,3,3',4,4'-PENTACHLOROBIPHENYL (PCB 105)	32598-14-4	4.0E-01		8/03	X			X	X			X					X	X
			1.0E-04	8/03	X			X	X			X					X	X
2,3,4,4',5-PENTACHLOROBIPHENYL (PCB 114)	74472-37-0	8.0E-02		8/03	X			X	X			X					X	X
			2.0E-05	8/03	X			X	X			X					X	X
2,3',4,4',5-PENTACHLOROBIPHENYL (PCB 118)	31508-00-6	4.0E-01		8/03	X			X	X			X					X	X
			1.0E-04	8/03	X			X	X			X					X	X
2,3',4,4',5'-PENTACHLOROBIPHENYL (PCB 123)	65510-44-3	4.0E-01		8/03	X			X	X			X					X	X
			1.0E-04	8/03	X			X	X			X					X	X
3,3',4,4',5-PENTACHLOROBIPHENYL (PCB 126)	57465-28-8	4.0E-04		8/03	X			X	X			X					X	X
			1.0E-07	8/03	X			X	X			X					X	X

**Table 3**  
**OEHHA/ARB APPROVED CHRONIC REFERENCE EXPOSURE LEVELS AND TARGET ORGANS\***

Chemical	Chemical Abstract Number	Chronic Inhalation REL (µg/m <sup>3</sup> )	Chronic Oral REL	Date ♦ Value Reviewed [Added]	Target Organs											
					Alimentary	Bone	Cardiovascular	Developmental	Endocrine	Eye	Hematologic	Immune	Kidney	Nervous	Reproductive	Respiratory
2,3,3',4,4',5-HEXACHLOROBIPHENYL (PCB 156)	38380-08-4	8.0E-02		8/03	X			X	X		X			X	X	
			2.0E-05	8/03	X			X	X		X			X	X	
2,3,3',4,4',5'-HEXACHLOROBIPHENYL (PCB 157)	69782-90-7	8.0E-02		8/03	X			X	X		X			X	X	
			2.0E-05	8/03	X			X	X		X			X	X	
2,3',4,4',5,5'-HEXACHLOROBIPHENYL (PCB 167)	52663-72-6	4.0E+00		8/03	X			X	X		X			X	X	
			1.0E-03	8/03	X			X	X		X			X	X	
3,3',4,4',5,5'-HEXACHLOROBIPHENYL (PCB 169)	32774-16-6	4.0E-03		8/03	X			X	X		X			X	X	
			1.0E-06	8/03	X			X	X		X			X	X	
2,3,3',4,4',5,5'-HEPTACHLOROBIPHENYL (PCB 189)	39635-31-9	4.0E-01		8/03	X			X	X		X			X	X	
			1.0E-04	8/03	X			X	X		X			X	X	
POLYCHLORINATED DIBENZO-P-DIOXINS (PCDD) (Treated as 2,3,7,8-TCDD for HRA) <sup>TAC ♦</sup>	1085 1086	4.0E-05		2/00	X			X	X		X			X	X	
			1.0E-08	10/00	X			X	X		X			X	X	
2,3,7,8-TETRACHLORODIBENZO-P-DIOXIN <sup>TAC</sup>	1746-01-6	4.0E-05		2/00	X			X	X		X			X	X	
			1.0E-08	10/00	X			X	X		X			X	X	
1,2,3,7,8-PENTACHLORODIBENZO-P-DIOXIN	40321-76-4	4.0E-05		8/03	X			X	X		X			X	X	
			1.0E-08	8/03	X			X	X		X			X	X	
1,2,3,4,7,8-HEXACHLORODIBENZO-P-DIOXIN	39227-28-6	4.0E-04		2/00	X			X	X		X			X	X	
			1.0E-07	10/00	X			X	X		X			X	X	
1,2,3,6,7,8-HEXACHLORODIBENZO-P-DIOXIN	57653-85-7	4.0E-04		2/00	X			X	X		X			X	X	
			1.0E-07	10/00	X			X	X		X			X	X	
1,2,3,7,8,9-HEXACHLORODIBENZO-P-DIOXIN	19408-74-3	4.0E-04		2/00	X			X	X		X			X	X	
			1.0E-07	10/00	X			X	X		X			X	X	
1,2,3,4,6,7,8-HEPTACHLORODIBENZO-P-DIOXIN	35822-46-9	4.0E-03		2/00	X			X	X		X			X	X	
			1.0E-06	10/00	X			X	X		X			X	X	
1,2,3,4,6,7,8,9-OCTACHLORODIBENZO-P-DIOXIN	3268-87-9	4.0E-01		8/03	X			X	X		X			X	X	
			1.0E-04	8/03	X			X	X		X			X	X	

**Table 3**  
**OEHHA/ARB APPROVED CHRONIC REFERENCE EXPOSURE LEVELS AND TARGET ORGANS\***

Chemical	Chemical Abstract Number	Chronic Inhalation REL (µg/m <sup>3</sup> )	Chronic Oral REL	Date Value Reviewed [Added]	Target Organs												
					Alimentary	Bone	Cardiovascular	Developmental	Endocrine	Eye	Hematologic	Immune	Kidney	Nervous	Reproductive	Respiratory	Skin
POLYCHLORINATED DIBENZOFURANS (PCDF) (Treated as 2,3,7,8-TCDD for HRA) <sup>TAC</sup>	1080	4.0E-05		2/00	X			X	X		X				X	X	
			1.0E-08	10/00	X			X	X		X					X	X
2,3,7,8-TETRACHLORODIBENZOFURAN	5120-73-19	4.0E-04		2/00	X			X	X		X				X	X	
			1.0E-07	10/00	X			X	X		X					X	X
1,2,3,7,8-PENTACHLORODIBENZOFURAN	57117-41-6	8.0E-04		2/00	X			X	X		X				X	X	
			2.0E-07	10/00	X			X	X		X					X	X
2,3,4,7,8-PENTACHLORODIBENZOFURN	57117-31-4	8.0E-05		2/00	X			X	X		X				X	X	
			2.0E-08	10/00	X			X	X		X					X	X
1,2,3,4,7,8-HEXACHLORODIBENZOFURAN	70648-26-9	4.0E-04		2/00	X			X	X		X				X	X	
			1.0E-07	10/00	X			X	X		X					X	X
1,2,3,6,7,8-HEXACHLORODIBENZOFURAN	57117-44-9	4.0E-04		2/00	X			X	X		X				X	X	
			1.0E-07	10/00	X			X	X		X					X	X
1,2,3,7,8,9-HEXACHLORODIBENZOFURAN	72918-21-9	4.0E-04		2/00	X			X	X		X				X	X	
			1.0E-07	10/00	X			X	X		X					X	X
2,3,4,6,7,8-HEXACHLORODIBENZOFURAN	60851-34-5	4.0E-04		2/00	X			X	X		X				X	X	
			1.0E-07	10/00	X			X	X		X					X	X
1,2,3,4,6,7,8-HEPTACHLORODIBENZOFURAN	67562-39-4	4.0E-03		2/00	X			X	X		X				X	X	
			1.0E-06	10/00	X			X	X		X					X	X
1,2,3,4,7,8,9-HEPTACHLORODIBENZOFURAN	55673-89-7	4.0E-03		2/00	X			X	X		X				X	X	
			1.0E-06	10/00	X			X	X		X					X	X
1,2,3,4,6,7,8,9-OCTACHLORODIBENZOFURAN	39001-02-0	4.0E-01		8/03	X			X	X		X				X	X	
			1.0E-04	8/03	X			X	X		X					X	X
POTASSIUM BROMATE ... (see Bromine & Compounds)																	
PROPYLENE (PROPENE)	115-07-1	3.0E+03		4/00													X
PROPYLENE GLYCOL MONOMETHYL ETHER	107-98-2	7.0E+03		2/00	X												
PROPYLENE OXIDE	75-56-9	3.0E+01		2/00													X

**Table 3**  
**OEHHA/ARB APPROVED CHRONIC REFERENCE EXPOSURE LEVELS AND TARGET ORGANS\***

Chemical	Chemical Abstract Number	Chronic Inhalation REL (µg/m <sup>3</sup> )	Chronic Oral REL	Date ♦ Value Reviewed [Added]	Target Organs												
					Alimentary	Bone	Cardiovascular	Developmental	Endocrine	Eye	Hematologic	Immune	Kidney	Nervous	Reproductive	Respiratory	Skin
SELENIUM AND COMPOUNDS (other than hydrogen selenide)	7782-49-2 [1170]	2.0E+01		12/01	X		X								X		
<i>Selenium sulfide</i>	7446-34-6	2.0E+01		12/01	✓		✓								✓		
SILICA [CRYSTALLINE, RESPIRABLE]	1175	3.0E+00		2/05													X
STYRENE	100-42-5	9.0E+02		4/00											X		
SULFURIC ACID AND OLEUM	9961	1.0E+00		12/01													X
<i>Sulfuric Acid</i>	7664-93-9	1.0E+00		12/01													✓
<i>Sulfuric Trioxide</i>	7446-71-9	1.0E+00		12/01													✓
<i>Oleum</i>	8014-95-7	1.0E+00		12/01													✓
TETRACHLOROPHENOLS ... (see Chlorophenols)																	
TOLUENE	108-88-3	3.0E+02		4/00				X							X		X
<i>Toluene diisocyanates</i>	26471-62-5	7.0E-02		1/01													✓
TOLUENE-2,4-DIISOCYANATE	584-84-9	7.0E-02		1/01													X
TOLUENE-2,6-DIISOCYANATE	91-08-7	7.0E-02		1/01													X
TRICHLOROETHYLENE <sup>TAC</sup>	79-01-6	6.0E+02		4/00						X					X		
TRIETHYLAMINE	121-44-8	2.0E+02		9/02						X							
VINYL ACETATE	108-05-4	2.0E+02		12/01													X
VINYLDENE CHLORIDE (1,1,-Dichloroethylene)	75-35-4	7.0E+01		1/01	X												
XYLENES (mixed isomers)	1330-20-7	7.0E+02		4/00											X		X
m-XYLENE	108-38-3	7.0E+02		4/00											X		X
o-XYLENE	95-47-6	7.0E+02		4/00											X		X
p-XYLENE	106-42-3	7.0E+02		4/00											X		X

**Table 3  
OEHHA/ARB APPROVED CHRONIC REFERENCE EXPOSURE LEVELS AND TARGET ORGANS\***

<p>Purpose: The purpose of this reference table is to provide a quick list of all health values that have been approved by the Office of Environmental Health Hazard Assessment (OEHHA) and the Air Resources Board (ARB) for use in facility health risk assessments conducted for the AB 2588 Air Toxics "Hot Spots" Program. The OEHHA has developed and adopted new risk assessment guidelines that update and replace the California Air Pollution Control Officers Association's (CAPCOA) <i>Air Toxics "Hot Spots" Program Revised 1992 Risk Assessment Guidelines, October 1993</i>. The OEHHA has adopted five technical support documents for these guidelines, which can be found on their website (<a href="http://www.oehha.ca.gov/air/hot_spots/index.html">http://www.oehha.ca.gov/air/hot_spots/index.html</a>). This table lists the OEHHA adopted inhalation and oral noncancer chronic RELs. OEHHA is still in the process of adopting new health values. Therefore, new health values will periodically be added to, or deleted from, this table. Users of this table are advised to monitor the OEHHA website (<a href="http://www.oehha.ca.gov">www.oehha.ca.gov</a>) for any updates to the health values.</p> <p>May 2008 update: The Air Resources Board adopted amendments to the AB 2588 Air Toxics "Hot Spots" Emission Inventory Criteria and Guidelines Regulation (Title 17, California Code of Regulations, Section 93300.5) on November 16, 2006. The amendments became effective on September 26, 2007, after approval from the Office of Administrative Law. Under the new amendments, the substances previously listed in Appendix A-I (<i>Substances For Which Emissions Must Be Quantified</i>) and Appendix F (<i>Criteria For Inputs For Risk Assessment Using Screening Air Dispersion Modeling</i>) of the ARB's <i>Air Toxics "Hot Spots" Emission Inventory Criteria and Guidelines (EICG) (July 1997)</i> have been removed from this table.</p>
<p>* Substances written in <i>italics</i> and with a ✓ do not have explicit OEHHA approved health values, but are included in this table to clarify applicability of OEHHA adopted health effects values to individual or grouped substances listed in the <i>Air Toxics "Hot Spots" Emission Inventory Criteria and Guidelines</i>, Appendix A-I list of "<i>Substances For Which Emissions Must Be Quantified</i>".</p>
<p>▼ Chemical Abstract Service Number (CAS): For chemical groupings and mixtures where a CAS number is not applicable, the 4-digit code used in the <i>Air Toxics "Hot Spots" Emission Inventory Criteria and Guidelines (EICG) Report</i> is listed. The 4-digit codes enclosed in brackets [ ] are codes that have been phased out, but may still appear on previously reported Hot Spots emissions. For information on the origin and use of the 4-digit code, see the EICG report.</p>
<p>X* These are chronic RELs which were approved by CAPCOA for use in the AB 2588 Air Toxics Hot Spots Program. These CAPCOA chronic RELs will eventually be removed or replaced by approved OEHHA chronic RELs. In the CAPCOA Guidelines (1993), these target organ systems were combined (reproductive/developmental; cardiovascular/blood).</p>
<p>◆ Date Value Reviewed [Added]: This column lists the date that the health value was last reviewed by OEHHA and the Scientific Review Panel, and/or approved for use in the AB 2588 Air Toxics Hot Spots Program. If the health value is unchanged since it was first approved for use in the "Hot Spots" Program, then the date that the value was first approved for use by CAPCOA is listed within the brackets [ ].</p> <ul style="list-style-type: none"> <li>• February 2000, April 2000, January 2001, and December 2001 are listed for the first set of 22, the second set of 16, the third set of 22, and the fourth set of 12 noncancer chronic RELs, respectively. The chronic REL for carbon disulfide was adopted in May 2002. Chronic RELs for phosphine and triethylamine were adopted in September 2002. Chronic RELs for fluorides including hydrogen fluoride were adopted August 2003. Chronic REL for silica [crystalline respirable] was adopted February 2005.</li> <li>• October 2000 is listed for the oral chronic RELs.</li> <li>• For the substances identified as Toxic Air Contaminants, the Air Resources Board hearing date is listed. The date for acetaldehyde represents the date the value was approved by the Scientific Review Panel.</li> </ul>
<p>TAC Toxic Air Contaminant: The Air Resources Board has identified this substance as a Toxic Air Contaminant.</p>
<p>⊗ Polychlorinated Biphenyls (speciated): Values calculated using WHO<sub>97</sub> TEF procedure. See OEHHA memo dated August 29, 2003.</p> <ul style="list-style-type: none"> <li>• Polychlorinated Dibenzo-<i>p</i>-dioxins and Polychlorinated Dibenzofurans (also referred to as chlorinated dioxins and dibenzofurans): The OEHHA has adopted the World Health Organization 1997 (WHO-<sub>97</sub>) Toxicity Equivalency Factor scheme for evaluating the cancer risk due to exposure to samples containing mixtures of polychlorinated dibenzo-<i>p</i>-dioxins (PCDD) and polychlorinated dibenzofurans (PCDF) and determining cancer risks for a number of specific PCB congeners. See Appendix A of OEHHA's <i>Technical Support Document For Describing Available Cancer Potency Factors</i> for more information about the scheme. See Appendix E of OEHHA's <i>The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments</i> for the methodology for calculating 2,3,7,8-equivalents for PCDD, PCDFs and a number of specific PCB congeners. See section 8.2.3 of OEHHA's <i>The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments</i> for conducting health risks when total (unspeciated) chlorinated dioxins and furans are reported.</li> </ul>
<p>■ Particulate Emissions from Diesel-Fueled Engines: The inhalation cancer potency factor and chronic REL were derived from whole diesel exhaust and should be used only for impacts from the inhalation pathway. The inhalation impacts from speciated emissions from diesel-fueled engines are already accounted for in the inhalation cancer potency factor and REL. However, at the discretion of the risk assessor, speciated emissions from diesel-fueled engines may be used to estimate acute noncancer health impacts or the contribution to cancer risk or chronic noncancer health impacts for the non-inhalation exposure pathway. See Appendix D of OEHHA's document <i>The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments</i> for more information.</p>

Table last updated: May 22, 2008