

LLNL-controlled Carcinogen List for Nonlaboratories

Substance	Skin hazard ^a	CAS No.	OSHA Reg? ^b	Other declaring organization ^c
2-Acetoamino-fluorene		[53-96-3]	X	
Acrylonitrile	X	[107-13-1]	X	OSHA
Aflatoxins (naturally occurring mixtures of)		[1402-68-2]		IARC, NTP
4-Aminobiphenyl	X	[92-67-1]	X	IARC, NTP, ACGIH
Arsenic and inorganic compounds		[7440-38-2] and others	X	IARC, NTP
Asbestos ^d Chrysotile Amosite Crocidolite		[1332-21-4] 12001-29-5 12172-73-5 12001-28-4	X	IARC, NTP, ACGIH
Azathioprine		[446-86-6]		IARC, NTP
Benzene	X	[71-43-2]	X	IARC, NTP, ACGIH
Benz[<i>a</i>]anthracene		[56-55-3]		ACGIH
Benzidine		[92-87-5]	X	IARC, NTP (NTP includes materials metabolized to benzidine), ACGIH
Benzo[<i>b</i>]fluoranthene		[205-99-2]		ACGIH
Benzo[<i>a</i>]pyrene		[50-32-8]		ACGIH
Benzotrichloride	X	[98-07-7]		ACGIH
Beryllium and beryllium compounds ^e		[7440-41-7]		IARC, NTP, ACGIH, DOE
1,3-Butadiene		106-99-0	X	NTP, ACGIH
Cadmium and cadmium compounds		[7440-43-9]	X	IARC, NTP
Carbon tetrachloride	X	[56-23-5]		ACGIH
Bis (Chloro-methyl) ether		[542-88-1]	X	IARC, NTP

Chromium[VI] compounds		Various		IARC, NTP, ACGIH
Coal-tar pitches ^f		[65996-93-2]	X (volatiles)	IARC, NTP, ACGIH (volatiles)
Coal-tars ^f		[8007-45-2]		IARC, NTP
Coke oven emissions ^f			X	NTP
Diazomethane		[334-88-3]		ACGIH
3,3'-Dichlorobenzidine and salts	X	[91-94-1] and others	X	
1,2-Dibromo-3-chloropropane (DBCP) ^g		[96-12-8]	X	
1,4-Dichloro-2-butene	X	[764-41-0]		ACGIH
Diethylstilboestrol		[56-53-1]		IARC, NTP
4-Dimethylamino-azo-benzene		[60-11-7]	X	
Epstein-Barr virus				IARC
Ethylene oxide		[75-21-8]	X	IARC, NTP, ACGIH
Ethyleneimine		[151-56-4]	X	
Formaldehyde		[50-00-0]	X	ACGIH
Lead and inorganic compounds ^h		[7439-92-1]	X	
Methylchloromethyl ether		[107-30-2]	X	NTP
Methylene chloride		[75-09-2]	X	
4,4'-Methylene bis(chloroaniline) (MBOCA, MOCA [®])	X	101-14-4		ACGIH
4,4'-Methylenedianiline	X	[101-77-9]	X	
Mineral oils, untreated and mildly treated				IARC, NTP
Mustard gas (Sulfur mustard)		[505-60-2]		IARC, NTP

1-Naphthylamine		[134-32-7]	X	
2-Naphthylamine		[91-59-8]	X	IARC, NTP, ACGIH
Nickel compounds				IARC, NTP
4-Nitrodiphenyl	X	[92-93-3]	X	ACGIH
N-Nitrosodimethylamine	X	[62-75-9]	X	
2-Propiolactone		[57-57-8]	X	
Shale-oils ^f		[68308-34-9]		IARC
Silica, crystalline (inhaled in the form of quartz or cristobalite from occupational sources)		[14808-60-7]		IARC, NTP, ACGIH
Silicon carbide fibrous & whiskers		[409-21-2]		ACGIH
Soots ^f				IARC, NTP
Sulfuric acid (irritatingly strong concentrations)		[7664-93-9]		NTP, ACGIH
Talc containing asbestiform fibers				IARC, ACGIH
2,3,7,8-Tetrachlorodibenzo- <i>para</i> -dioxin		[1746-01-6]		IARC
Vinyl bromide		[593-60-2]		ACGIH
Vinyl chloride		[75-01-4]	X	IARC, NTP
Vinyl fluoride		[75-38-7]		ACGIH
Vitreous fibers				ACGIH
Wood dust				IARC, NTP, ACGIH (oak, beech, birch, mahogany, teak, and walnut ⁱ)

- ^a This is an incomplete list of materials that can penetrate through the skin and exert harmful effects at other locations. Only materials acknowledged as being hazardous in this manner by the American Conference of Governmental Industrial Hygienists (ACGIH) are listed. Many other compounds may also be hazardous in this manner. Others are directly hazardous to the skin (e.g., mineral oil and sulfuric acid) or irritants (e.g., vitreous fibers).
- ^b Covered by one of the OSHA substance-specific regulations. Two of those listed are *not* carcinogens, 1,2-Dibromo-3-chloropropane (DBCP) (a reproductive hazard) and lead (toxic to many organs and systems of the body).

- c "IARC" means rated as a "Carcinogenic to Humans" by the International Agency for Research on Cancer in February 2004. "NTP" means it is one of the chemicals "known to be human carcinogens" according to the *10th Report on Carcinogens* prepared by the (US) National Toxicology Program. "ACGIH" means it is rated as a "Confirmed Human Carcinogen" or a "Suspected Human Carcinogen" according to the "2003 Threshold Limit Values for Chemical Substances in the Work Environment". "DOE" means 10 CFR 850, *Chronic Beryllium Disease Prevention Program*.
- d Asbestos is addressed in *ES&H Manual* Document 14.9, "Safe Handling of Asbestos-Containing Material During Construction Work".
- e Beryllium is addressed in *ES&H Manual* Document 14.4, "Implementation of the Chronic Beryllium Disease Prevention Program Requirements".
- f The toxicity of these materials are essentially similar. Activities that generate soots, incomplete combustion, or pyrolysis products should be evaluated by an ES&H Team industrial hygienist.
- g 1,2-Dibromo-3-chloropropane (DBCP) is listed here because it is addressed by an OSHA substance-specific standard. It is a proven reproductive hazard and may be a carcinogen.
- h Lead is listed here because it is addressed by an OSHA substance-specific standard. It is hazardous to many organs and organ systems. See *ES&H Manual* Document 14.10, "Safe Handling of Lead and Lead Compounds in General Industry and Construction Operations".
- i ACGIH is steadily updating guidance; the woods listed here are those deemed hazardous by ACGIH while all other wood dusts not classifiable as cancer risks to humans according to guidance proposed by ACGIH in 2003.