

## Supplement 1. Safe Handling of Hazardous Substances

### Appendix 1-4 Carcinogens

The Japan Society for Occupational Health recognized the classification of cancer-causing substances announced by the International Agency for Research on Cancer (IARC) and established the Cancer-causing Substance Table (see Table 1) of industrial chemical substances and related substances after reviewing a variety of information. [Group 1] shows the carcinogenic substances in humans. [Group 2] shows the substances that are more than likely regarded as carcinogenic substances in humans. Depending on the proof of carcinogenic degree, [Group 2] is divided into two groups; 'Group 2 A' (substances with sufficient proof) and 'Group 2 B' (substances with insufficient proof).

The Japan Society for Occupational Health judges that classification of carcinogens presented by the International Agency for Research on Cancer (IARC) is fundamentally reasonable, considers it after adding more information and decides the carcinogen table against industrial chemical substances and their related materials. Materials carcinogenic to humans are classified in Group 1 and those probably carcinogenic to humans are classified in Group 2, in which the case with enough evidence is Group 2A, and the case with relatively insufficient evidence is Group 2B.

TABLE 1 Carcinogens

Group 1	
Erionite	2-Naphthylamine
Ethylene oxide	Nickel compound (excluding metallic nickel)*
Vinyl chloride	Bis(chloromethyl) ether
Cadmium & cadmium compounds*	Arsenic & arsenic compounds*
Chromium compound (VI)	4-Biphenylamine (4-aminobiphenyl, 4-aminodiphenyl)
Shale-oils	Benzidine
Mineral oils, untreated and mildly treated	Benzene
Coal-tars	Benzotrichloride
Coal-tar pitches	Wood dust**
Soots	Dichlorodiethyl sulfide (mustard gas, yperite)
Asbestos	
Talc containing asbestiform fibers	
Group 2 A	
Acrylamide	Silicon dioxide (crystalline)

<p>Acrylonitrile  Epichlorohydrin  Dimethylcarbamoyl chloride  p-Chloro-o-toluidine and salts with strong acids  Chloromethyl methyl ether (industrial version)  Creosotes  4,4'-Diamino-3,3'-dichlorodiphenylmethane, (MBOCA)  Vinyl bromide  Styrene oxide</p>	<p>1, 3-Butadiene  Vinyl fluoride**  Beryllium &amp; beryllium compounds*  Benzo[a]pyrene  Formaldehyde  Polychlorinated biphenyls (PCB)  Diethyl sulfate  Dimethyl sulfate  Tris(2,3-dibromopropyl) phosphate</p>
<b>Group 2 B</b>	
<p>Ethyl acrylate  Acetamide  Acetaldehyde  o-Anisidine  Amitrole  o-Aminoazotoluene  p-Aminoazobenzene  Isoprene  Urethane  HC Blue No.1  Ethylenethiourea  Benzal chloride  Chlorophenols (industrial version)  Chloroform  Cobalt &amp; cobalt compounds**  Vinyl acetate**  Antimony trioxide  CI Acid red 114  CI Acid blue 15  CI Basic red 9  Carbon tetrachloride  N,N'-diacetylbenzidine  2,4-Diaminoanisole  4,4'-Diaminodiphenyl ether</p>	<p>Benzyl chloride  Chlorinated paraffin  Oil orange SS  Auramine (industrial version)  Carbon black extract  Glycidaldehyde  p-Cresidine  Chlorendic acid  p-Chloroaniline  p-Chloro-o-toluidine  p-Chloro-o-phenylenediamine  Chlorophenoxy herbicides*  Tetranitromethane**  Trichloroethylene  Trypan blue  o-Toluidine  Toluenediisocyanate  Nitrogen mustard N-oxide  Lead &amp; lead compounds (inorganic)*  Nickel (metal)  Nitrilotriacetic acid and its salts  5-Nitroacenaphthene  2-Nitroanisole**  N-Nitrosomorpholine</p>

2,4-Diamino toluene	2-Nitropropane
1,2-Diethylhydrazine	Nitrobenzene**
1,2-Epoxybutane	Bitumens (bituminous substance )
1,4-Dioxane	Hydrazine
1,2-Dichloroethane	4-Vinylcyclohexene
3,3'-Dichloro-4,4'-diaminodiphenyl ether	4-Vinylcyclohexene diepoxide
1,3-Dichloropropene (industrial version)	Phenyl glycidyl ether
3,3'-Dichlorobenzidine	Bis(2-ethylhexyl) phthalate
p-Dichlorobenzene	$\beta$ -Butyrolactone
Dichloromethane	Bromodichloromethane
Diglycidyl resorcinol ether	1,3-Propanesultone
Disperse blue 1	$\beta$ -Propiolactone
Citrus red No.2	Propylene oxide
2,4- (or 2,6-)Dinitrotoluene**	Hexachlorocyclohexanes
1,2-Dibromo-3-chloropropane	Benzyl violet 4B
N,N-Dimethylaniline	2-(2-Formylhydrazino)-4-(5-nitro-2-furyl)- thiazole
2,6-Dimethylaniline (2,6-xylydine)	Polybrominated biphenyls
p-Dimethylaminoazobenzene	Ponceau
1,1-Dimethylhydrazine	Ponceau MX
1,2-Diethylhydrazine	Magenta (CI basic red 9-containing product)
3,3'-Dimethylbenzidine (o-tolidine)	Ethyl methanesulfonate
N,N-Dimethylformamide	Methyl methanesulfonate
3,3'-Dimethoxybenzidine(o-dianisidine)	2-Methylaziridine
Man-made mineral fibers (Rock (stone) wool)	Methylmercury compounds
Styrene	2-Methyl-1-nitroanthraquinone
4,4'-Thiodianiline	N-methyl-N-nitrosourethane
Thiourea	4,4'-Methylenedianiline
DDT	4,4'-Methylene bis(2-methylaniline)
Tetrachloroethylene	Diisopropyl sulfate
2,3,7,8-Tetrachlorodibenzo-p-dioxin	

\* Not all materials considered to cause cancer are always identified.

\*\* Materials tentatively assigned as carcinogens.