

Carcinogens, Reproductive Toxins and Teratogens

The materials on this list pose a significant risk of exposure or damage to the human body and require special procedures be developed for their safe use. Refer to the Drake University Chemical Hygiene Plan and Hazardous Materials Safety Manual for more information. Materials involving industrial processes or manufacturing conditions which are not generally present at Drake University may have been omitted from this list. To ensure the current status of a chemical, check with the coordinating agency at the locations footnoted, a current safety data sheet (SDS) or call EH&S at (515) 271-3804.

OSHA – Occupational Safety and Health Administration¹

X – regulated carcinogen

IARC – International Agency for Research on Cancer²

1 - known human carcinogen

2A - probable human carcinogen

2B - possible human carcinogen

NTP – National Toxicology Program³

K - known carcinogen

A - reasonably anticipated to be a carcinogen

Repro Toxin – Reproductive Toxin

X - material considered by one or more footnoted references to be harmful to adult reproductive systems

Tera – Teratogen

X – material considered by one or more footnoted references to cause birth defects in off-spring

| SUBSTANCE | OSHA | IARC | NTP | Repro Toxin | Tera |
|--|------|------|-----|-------------|------|
| A-a-C (2-Amino-9 <i>H</i> -pyrido[2,3- <i>b</i>]indole) | | 2B | | | |
| Acetaldehyde | | 2B | A | X | |
| Acetamide | | 2B | | | |
| 2-Acetylaminofluorene | X | | A | | |
| Acrylamide | | 2A | A | X | |
| Acrylonitrile | X | 2B | A | | |

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|---|------|------|-----|-------------|------|
| Acute Hypoxia | | | | X | |
| Adriamycin (Doxorubicin Hydrochloride) | | 2A | A | | |
| AF-2 [2-(2-Furyl)-3-(5-nitro-2-furyl)acrylamide] | | 2B | | | |
| Aflatoxins (B2) | | 1 | K | | |
| Aflatoxins M1 | | 2B | | | |
| Alcoholic Beverage Consumption | | 1 | K | X | X |
| Alkylating Agents | | | | X | |
| Alloxan | | | | | X |
| 2-Aminoanthraquinone | | | A | | |
| <i>p</i> -Aminoazobenzene | | 2B | | | |
| <i>o</i> -Aminoazotoluene | | 2B | A | | |
| 4-Aminobiphenyl | X | 1 | K | | |
| 1-Amino-2,4-dibromoanthraquinone | | 2B | A | | |
| 2-Amino-3,4-dimethylimidazo[4,5- <i>f</i>]quinoline (MeIQ) | | | A | | |
| 2-Amino-3,8-dimethylimidazo[4,5- <i>f</i>]quinoxaline (MeIQx) | | | A | | |
| 1-Amino-2-methylantraquinone | | | A | | |
| 2-Amino-3-methylimidazo[4,5- <i>f</i>]quinoline (IQ) | | 2A | A | | |
| 2-Amino-1-methyl-6-phenylimidazo[4,5- <i>b</i>]pyridine (PhIP) | | | A | | |
| 2-Amino-5-(5-nitro-2-furyl)-1,3,4-thiadiazole | | 2B | | | |
| 3-Amino-1,2,4-triazole | | | | X | |

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|--|------|------|-----|-------------|------|
| Aminopterin and methylaminopterin | | | | X | X |
| Amitrole | | | A | X | |
| Amniocentesis, early | | | | | X |
| Amsacrine | | 2B | | | |
| Androgenic (anabolic) Steroids | | 2A | | | X |
| Anesthetic gases | | | | X | |
| Aniline & homologues | | | | X | |
| <i>o</i> -Anisidine | | 2B | | | |
| <i>o</i> -Anisidine Hydrochloride | | | A | | |
| Anthraquinone | | 2B | | | |
| Anticoagulants | | | | X | |
| Antidiabetics | | | | X | |
| Antihistamine antiemetics | | | | X | |
| Antimony Trioxide | | 2B | | | |
| Antithyroid drugs | | | | | X |
| Aramite | | 2B | | | |
| Areca Nut | | 1 | | | |
| Aristolochic Acids (naturally occurring mixtures of) | | 1 | K | | |
| Arsenic (Inorganic) & Arsenic compounds | X | 1 | K | X | |
| Asbestos | X | 1 | K | | |

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|---|------|------|-----|-------------|------|
| Auramine (technical grade) | | 2B | | | |
| Azacitidine | | 2A | A | | |
| Azaserine | | 2B | | | |
| Azathioprine | | 1 | K | | |
| Aziridine | | 2B | | | |
| Benz(<i>j</i>)aceanthrylene | | 2B | | | |
| Benz(<i>a</i>)anthracene | | 2B | A | | |
| Benzene | X | 1 | K | X | |
| Benzidine and Dyes Metabolized to Benzidine | X | 1 | K | X | |
| Benzidine based dyes | | 2A | | X | |
| Benzo[<i>a</i>]pyrene | | 1 | A | | |
| Benzo[<i>b</i>]fluoranthene | | 2B | A | | |
| Benzo[<i>j</i>]fluoranthene | | 2B | A | | |
| Benzo[<i>k</i>]fluoranthene | | 2B | A | | |
| Benzofuran | | 2B | | | |
| Benzo[<i>c</i>]phenanthrene | | 2B | | | |
| Benzophenone | | 2B | | | |
| Benzotrichloride | | 2A | A | X | |
| Benzyl Trichloride | | | | X | |
| Benzyl Violet 4B | | 2B | | | |

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|---|------|------|-----|-------------|------|
| Beryllium and Beryllium compounds | | 1 | K | X | |
| Betel quid without tobacco | | 1 | | | |
| Betel quid with tobacco | | 1 | | | |
| Bischloroethyl Nitrosourea | | 2A | A | | |
| 2,2-Bis(Bromomethyl)-1,3-propanediol (technical grade) | | 2B | A | | |
| <i>N,N'</i> -Bis (2-Chloroethyl)-2-Naphylamine (Chlornaphazine) | | 1 | | | |
| Bis (Chloromethyl) Ether | X | 1 | K | | |
| Bitumens, extracts of steam-refined and air-refined | | 2B | | | |
| Bleomycins | | 2B | | | |
| Boron | | | | X | |
| Boron Anhydride | | | | X | |
| Bracken Fern | | 2B | | | |
| Bromochloroacetic acid | | 2B | | | |
| Bromodichloromethane | | 2B | A | | |
| Busulfan | | 1 | | | X |
| 1,3-Butadiene | X | 1 | K | X | |
| 1,4-Butanediol Dimethanesulfonate (Busulphan; Myleran) | | 1 | K | | |
| Butylated Hydroxyanisole | | 2B | A | | |
| b -Butyrolactone | | 2B | | | |
| Cadmium and Cadmium compounds | X | 1 | K | X | |

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|--|------|------|-----|-------------|------|
| Caffeic Acid | | 2B | | | |
| Captafol | | 2A | A | | |
| Captopril (renal failure) | | | | | X |
| Carbamates | | | | X | |
| Carbaryl | | | | X | |
| Carbazole | | 2B | | | |
| Carbon Black | | 2B | | | |
| Carbon Disulfide | | | | X | |
| Carbon Monoxide | | | | X | X |
| Carbon Tetrachloride | | 2B | A | X | |
| Catechol | | 2B | | | |
| Ceramic Fibers (Refractory, respirable size) | | 2B | A | | |
| Chemotherapeutic Agents (MOPP, etc) | | 1 | | X | |
| Chlorambucil | | 1 | K | | |
| Chloramphenicol | | 2A | A | X | |
| Chlordane | | 2B | | X | |
| Chlordecone (Kepone) | | 2B | A | X | |
| Clorendic Acid | | 2B | A | | |
| Chlorinated Camphene | | | | X | |
| Chlorinated Parafins | | 2B | A | | |

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|---|------|------|-----|-------------|------|
| <i>o</i> -Chlorinated Toluenes (Benzyl Chloride, Benzoyl Chloride, Benzal Chloride, Benzotrichloride) | | 2A | | | |
| <i>p</i> -Chloroaniline | | 2B | | | |
| Chlorobiphenyls | | | | | X |
| 3-Chloro-4-(dichloromethyl)-5-hydroxy-2(5 <i>H</i>)-furanone | | 2B | | | |
| Chlorodiphenyls (42% chlorine and 54% chlorine) | | | | X | |
| 1-Chloro-2,3-epoxypropane | | | | X | |
| 1-(2-Chloroethyl)-3-cyclohexyl-1-nitrosourea (CCNU) | | 2A | A | | |
| Chloroethylene | | | | X | |
| 1-(2-Chloroethyl)-3-(4-Methylcyclohexyl)-1-Nitrosourea (MeCCNU) | | 1 | K | | |
| Chloroform | | 2B | A | X | |
| Chloromethyl Methyl Ether (technical grade) | | 1 | K | X | |
| 1-Chloro-2-methylpropene | | 2B | | | |
| 3-Chloro-2-methylpropene | | | A | | |
| 4-Chloro- <i>o</i> -Phenylenediamine | | 2B | A | | |
| Chlorophenoxy Herbicides | | 2B | | | |
| Chloroprene | | 2B | A | X | |
| Chloroquine | | | | X | |
| Chlorothalonil | | 2B | | | |
| <i>p</i> -Chloro- <i>o</i> -toluidine and <i>p</i> -Chloro- <i>o</i> -toluidine Hydrochloride | | 2A | A | | |
| Chlorozotocin | | 2A | A | | |

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|--|------|------|-----|-------------|------|
| Chromium Hexavalent Compounds | | 1 | K | X | |
| Chronic Villus Sampling (before day 60) | | | | | X |
| Chrysene | | 2B | | | |
| CI Acid Red 114 | | 2B | | | |
| CI Basic Red 9 | | 2B | A | | |
| CI Direct Blue 15 | | 2B | | | |
| Cigarette Smoke | | 1 | K | X | X |
| Cisplatin | | 2A | A | | |
| Citrus Red 2 | | 2B | | | |
| <i>Clonorchis sinensis</i> (infection with) | | 1 | | | |
| Coal Tars and Coal Tar Pitches | | 1 | K | | |
| Cobalt and Cobalt Compounds | | 2B | | | |
| Cobalt Sulfate and other soluble cobalt (II) salts | | 2B | A | | |
| Cobalt-Tungsten Carbide: Powders & Hard Metals | | | A | | |
| Cocaine | | | | | X |
| Coconut oil diethanolamine condensate | | 2B | | | |
| Coke Oven Emissions | X | 1 | K | | |
| Copper | | | | X | |
| Coumarin Anticoagulants | | | | | X |
| <i>p</i> -Cresidine | | 2B | A | | |

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|---|------|------|-----|-------------|------|
| Creosotes (from coal-tars) | | 2A | | | |
| Crefinism, endemic | | | | | X |
| Cumene | | 2B | | | |
| Cupferron | | | A | | |
| Cycasin | | 2B | | | |
| Cyclopenta[<i>cd</i>]pyrene | | 2A | | | |
| Cyclophosphamide | | 1 | K | | X |
| Cyclosporin A (Ciclosporin) | | 1 | K | | |
| Cytomegalovirus (CMV) | | | | | X |
| Dacarbazine | | 2B | A | | |
| Dantron (Danthron; Chrysazin; 1,8-Dihydroxyanthraquinone) | | 2B | A | | |
| Daunomycin | | 2B | | | |
| DDT (Dichlorodiphenyltrichloroethane) | | 2B | A | X | |
| Di(2-Ethylhexyl)phthalate | | | A | | |
| Diabetes | | | | | X |
| <i>N,N'</i> -Diacetylbenzidine | | 2B | | | |
| 2,4-Diaminoanisole and its Sulfate | | 2B | A | | |
| 4,4'-Diaminodiphenyl Ether | | 2B | | | |
| 2,4-Diaminotoluene | | 2B | A | X | |
| Diazoaminobenzene | | | A | | |

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|---|------|------|-----|-------------|------|
| Dibenz[<i>a,h</i>]acridine | | 2B | A | | |
| Dibenz[<i>a,j</i>]acridine | | 2A | A | | |
| Dibenz[<i>a,h</i>]anthracene | | 2A | A | | |
| Dibenz[<i>c,h</i>]acridine | | 2B | | | |
| 7 <i>H</i> -Dibenzo[<i>c,g</i>]carbazole | | 2B | A | | |
| Dibenzo[<i>a,e</i>]pyrene | | | A | | |
| Dibenzo[<i>a,h</i>]pyrene | | 2B | A | | |
| Dibenzo[<i>a,i</i>]pyrene | | 2B | A | | |
| Dibenzo[<i>a,l</i>]pyrene | | 2A | A | | |
| Dibromoacetic acid | | 2B | | | |
| Dibromoacetonitrile | | 2B | | | |
| 1,2-Dibromo-3-Chloropropane | X | 2B | A | X | |
| 1,2-Dibromoethane (Ethylene Dibromide, EDB) | | 2A | A | X | |
| 2,3-Dibromo-1-propanol | | 2B | A | | |
| Di-N-butylphthalate | | | | X | |
| Dichloroacetic Acid | | 2B | | | |
| 1,4-Dichlorobenzene | | | A | | |
| <i>p</i> -Dichlorobenzene | | 2B | | | |
| 3,3'-Dichlorobenzidine (and its salts) | X | 2B | A | | |
| 3,3'-Dichlorobenzidine Dihydrochloride | | | A | | |

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|---|------|------|-----|-------------|------|
| 3,3'-Dichloro-4,4'-diaminodiphenyl ether | | 2B | | | |
| 1,2-Dichloroethane (Ethylene Dichloride) | | 2B | A | X | |
| Dichloromethane (Methylene Chloride) | X | 2B | A | X | |
| 1,3-Dichloropropane | | | | X | |
| 1,3-Dichloro-2-propanol | | 2B | | | |
| 1,3-Dichloropropene (Technical Grade) | | 2B | A | | |
| Dichlorvos | | 2B | | | |
| Diepoxybutane | | | A | | |
| Diesel Engine Exhaust | | 2A | A | | |
| Diesel Fuel, marine | | 2B | | | |
| Diethylene dioxide (1,4-dioxane) | | 2B | A | X | |
| Diethanolamine | | 2B | | | |
| Di(2-Ethylhexyl) Phthalate | | 2B | | X | |
| 1,2-Diethylhydrazine | | 2B | | | |
| Diethylstilbestrol | | 1 | K | | X |
| Diethyl Sulfate | | 2A | A | | |
| Diglycidyl Resorcinol Ether | | 2B | A | | |
| Dihydrosafrole | | 2B | | | |
| Diisopropyl Sulfate | | 2B | | | |
| 3,3'-Dimethoxybenzidine (<i>o</i> -Dianisidine) and Metabolized Dyes | | 2B | A | | |

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|---|------|------|-----|-------------|------|
| 4-Dimethylaminoazobenzene | X | | A | | |
| <i>p</i> -Dimethylaminoazobenzene | | 2B | | | |
| 4-Dimethylaminobenzene | | | | X | |
| <i>trans</i> -2-[(Dimethylamino)methylimino]-5-[2-(5-nitro-2-furyl)-vinyl]-1,3,4-oxadiazole | | 2B | | | |
| 2,6-Dimethylaniline (2,6-Xylidine) | | 2B | | | |
| 3,3'-Dimethylbenzidine (<i>o</i> -Tolidine) and Metabolized Dyes | | 2B | A | | |
| Dimethylcarbamoyl Chloride | | 2A | A | | |
| 1,1-Dimethylhydrazine | | 2B | A | X | |
| 1,2-Dimethylhydrazine | | 2A | | | |
| N,N-Dimethylnitrosamine | | | | X | |
| Dimethyl Sulfate | | 2A | A | X | |
| Dimethylvinyl Chloride | | | A | | |
| 3,7-Dinitrofluoranthene | | 2B | | | |
| 3,9-Dinitrofluoranthene | | 2B | | | |
| 1,6-Dinitropyrene | | 2B | A | | |
| 1,8-Dinitropyrene | | 2B | A | | |
| 2,4-Dinitrotoluene | | 2B | | X | |
| 2,6-Dinitrotoluene | | 2B | | X | |
| Di-sec-octyl-phthalate | | | | X | |
| 1,4-Dioxane (Diethylene dioxide) | | 2B | A | X | |

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|---|------|------|-----|-------------|------|
| Diphenylhydantoin | | | | | X |
| Disperse Blue 1 | | 2B | A | | |
| Enalapril (renal failure) | | | | | X |
| Engine Exhaust, Gasoline | | 2B | | | |
| Epichlorohydrin | | 2A | A | X | |
| 1,2-Epoxybutane | | 2B | | | |
| 1,2-Epoxypropane | | | | X | |
| Epstein-Barr virus | | 1 | | | |
| Erionite | | 1 | K | | |
| Erythromycin | | | | X | |
| Estrogens (Conjugated) | | 1 | K | X | |
| Ethyl Acrylate | | 2B | | | |
| Ethylbenzene | | 2B | | | |
| Ethylene Dibromide (1,2-Dibromoethane, EDB) | | 2A | A | X | |
| Ethylene Dichloride (1,2-Dichloroethane) | | 2B | A | X | |
| Ethylene Glycol Ethers | | | | X | |
| Ethylene Glycol Monoethyl Ether | | | | | X |
| Ethyl Methanesulfonate | | 2B | A | | |
| <i>N</i> -Ethyl- <i>N</i> -nitrosourea | | 2A | | | |
| Ethylene Oxide | X | 1 | K | X | |

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|--|------|------|-----|-------------|------|
| Ethylene Thiourea | | | A | X | |
| Ethyleneimine | X | | | | |
| Etoposide | | 1 | | | |
| Etoposide in combination with Cisplatin and Bleomycin | | 1 | | | |
| Etretinate | | | | | X |
| Fluconazole, high dose | | | | | X |
| Folic Acid deficiency | | | | | X |
| Formaldehyde | X | 1 | K | X | |
| Formaldehyde (gas) | | | A | X | |
| 2-(2-Formylhydrazino)-4-(5-nitro-2-furyl)thiazole | | 2B | | | |
| Fuel Oils, residual (heavy) | | 2B | | | |
| Fumonisin B ₁ , B ₂ , and Fusarin C | | 2B | | | |
| Furan | | 2B | A | | |
| Gallium Arsenide | | 1 | | | |
| Gamma Radiation | | 1 | K | | |
| Gasoline | | 2B | | | |
| Glasswool (respirable size) | | | A | | |
| Glu-P-1 (2-Aminodipyrido[1,2- <i>a</i> :3',2'- <i>d</i>]imidazole) | | 2B | | | |
| Glu-P-1 (2-Amino-6-methyldipyrido[1,2- <i>a</i> :3',2'- <i>d</i>]imidazole) | | 2B | | | |
| Glycidaldehyde | | 2B | | | |

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|---|------|------|-----|-------------|------|
| Glycidol | | 2A | A | | |
| Griseofulvin | | 2B | | | |
| Hallucinogens | | | | X | |
| HC Blue 1 | | 2B | | | |
| <i>Helicobacter pylori</i> (infection with) | | 1 | | | |
| Hepatitis B and C virus (chronic infection with) | | 1 | K | | X |
| Heptachlor | | 2B | | | |
| Herpes Virus Hominis I and II | | | | | X |
| Hexachlorobenzene | | 2B | A | X | |
| Hexachlorocyclohexanes | | 2B | A | X | |
| Hexachloroethane | | 2B | A | | |
| 2,4-Hexadienal | | 2B | | | |
| Hexamethylphosphoramide | | 2B | A | X | |
| High Temperatures | | 2A | | X | |
| Hot Mate | | 2A | | | |
| Human Immunodeficiency Virus type 1 (infection with) | | 1 | | | |
| Human Immunodeficiency Virus type 2 (infection with) | | 2B | | | |
| Human Papillomavirus types 16,18,31,33,35,39,45,51,52,56,58,59,66 | | 1 | K | | |
| Human T-cell Lymphotropic Virus type I | | 1 | | | |
| Hydrazine | | 2B | A | | |

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|---|------|------|-----|-------------|------|
| Hydrazine Sulfate | | | A | | |
| Hydrazobenzene | | | A | | |
| 1-Hydroxyanthraquinone | | 2B | | | |
| Hyperthermia | | | | | X |
| Ideno(1,2,3- <i>cd</i>)pyrene | | 2B | A | | |
| Indium Phosphide | | 2A | | | |
| IQ (2-Amino-3-methylimidazo[4,5- <i>f</i>]quinoline) | | 2A | A | | |
| Iodides and goiter | | | | | X |
| Ionizing Radiation | | 1 | | | X |
| Iron Dextran Complex | | 2B | A | | |
| Irradiation | | | | X | |
| Isoprene | | 2B | A | | |
| Kaposi's Sarcoma Herpesvirus/Human Herpesvirus 8 | | 1 | | | |
| Kepone (Chlordecone) | | 2B | A | X | |
| Lasiocarpine | | 2B | | | |
| Lead and Lead Compounds, inorganic | | 2A | A | X | |
| Lead Chromate | | | | X | |
| Lindane and other Hexachlorocyclohexane Isomers | | | A | X | |
| Lithium | | | | | X |
| Magenta (containing CI Basic Red 9) | | 2B | | | |

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|--|------|------|-----|-------------|------|
| Magnetic Fields (extremely low-frequency) | | 2B | | | |
| Manganese | | | | X | |
| Marijuana Smoking | | | | X | |
| MeA- <i>a</i> -C (2-Amino-3-methyl-9 <i>H</i> -pyrido[2,3- <i>b</i>]indole) | | 2B | | | |
| Medroxyprogesterone Acetate | | 2B | | | |
| MeIQ (2-Amino-3,4-dimethylimidazol[4,5- <i>f</i>]quinoline) | | 2B | | | |
| MeIQx (2-Amino-3,8-dimethylimidazol[4,5- <i>f</i>]quinoxaline) | | 2B | | | |
| Melphalan | | 1 | K | | |
| Mercury, inorganic | | | | X | |
| Mercury, organic | | | | | X |
| Merphalan | | 2B | | | |
| Methimazole, scalp defects and choanal atresia | | | | | X |
| Methoxsalen with Ultraviolet A Therapy (PUVA) | | 1 | K | | |
| 5-Methoxypsoralen | | 2A | | | |
| 2-Methylaziridine (Propyleneimine) | | 2B | A | | |
| Methylazoxymethanol Acetate | | 2B | | | |
| Methyl Chloromethyl Ether | X | | | | |
| 5-Methylchrysene | | 2B | A | | |
| 4,4'-Methylene bis(2-chloroaniline) (MOCA) | | 1 | A | | |
| 4,4'-Methylene bis(<i>N,N</i> -dimethyl)benzenamine | | | A | | |

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|---|------|------|-----|-------------|------|
| 4,4'-Methylene bis(2-methylaniline) | | 2B | | | |
| Methylene Blue via intra-amniotic injection | | | | | X |
| Methylene Chloride | X | 2B | A | X | |
| Methylenedianiline | X | | | | |
| 4,4'-Methylenedianiline | | 2B | A | | |
| 4,4'-Methylenedianiline Dihydrochloride | | | A | | |
| Methylmercury Compounds | | 2B | | X | |
| Methyleugenol | | 2B | A | | |
| 2-Methylimidazole | | 2B | | | |
| 4-Methylimidazole | | 2B | | | |
| Methyl Methanesulfonate | | 2A | A | | |
| Methylisobutyl ketone | | 2B | | | |
| 2-Methyl-1-nitroanthraquinone | | 2B | | | |
| <i>N</i> -Methyl- <i>N'</i> -nitro- <i>N</i> -nitrosoguanidine (MNNG) | | 2A | A | | |
| <i>N</i> -Methyl- <i>N</i> -nitrosourea | | 2A | | | |
| <i>N</i> -Methyl- <i>N</i> -nitrosourethane | | 2B | | | |
| Methyl Parathion | | | | | X |
| 1-Methyl-4-phenyl-1,2,3,6-tetrahydropyridine (MPTP) | | | | X | X |
| Methylstyrene | | 2B | | | |
| Methylthiouracil | | 2B | | | |

| SUBSTANCE | OSHA | IARC | NTP | Repro Toxin | Tera |
|--|------|------|-----|-------------|------|
| Metronidazole | | 2B | A | | |
| Michler's Ketone [4,4'-(Dimethylamino)benzophenone] | | 2B | A | | |
| Microcystin-LR | | 2B | | | |
| Microwaves | | | | X | |
| Mineral Deficiency | | | | X | |
| Mineral Oils (Untreated and Mildly Treated) | | 1 | K | | |
| Mirex | | 2B | A | | |
| Misoprostol | | | | | X |
| Mitomycin C | | 2B | | | |
| Mitoxantrone | | 2B | | | |
| 3-Monochloro-1,2-propanediol | | 2B | | | |
| Monocrotaline | | 2B | | | |
| 5-(Morpholinomethyl)-3-[(5-nitrofurfurylidene)amino]-2-oxazolidinone | | 2B | | | |
| Mustard Gas (bis(2-Chloroethyl)Sulfide) | | 1 | K | | |
| Myasthenia Gravis | | | | | X |
| Nafenopin | | 2B | | | |
| Naphthalene | | 2B | A | | |
| Naphthylamine (Alpha) | X | | | | |
| Naphthylamine (Beta) and 2-Naphthylamine | X | 1 | K | | |
| Narcotic | | | | X | |

| SUBSTANCE | OSHA | IARC | NTP | Repro Toxin | Tera |
|---|------|------|-----|-------------|------|
| Neutrons | | 1 | K | | |
| Nickel Compounds | | 1 | K | | |
| Nickel, metallic and alloys | | 2B | A | | |
| Niridazole | | 2B | | | |
| Nitrilotriacetic Acid and its salts | | 2B | A | | |
| 5-Nitroacenaphthene | | 2B | | | |
| 2-Nitroanisole | | 2B | | | |
| <i>o</i> -Nitroanisole | | | A | | |
| Nitrobenzene | | 2B | A | | |
| 4-Nitrobiphenyl | X | | | X | |
| 6-Nitrochrysene | | 2A | A | | |
| Nitrofen (2,4-Dichlorophenyl- <i>p</i> -nitrophenyl ether; technical grade) | | 2B | A | | |
| 2-Nitrofluorene | | 2B | | | |
| 1-[(5-Nitrofurfurylidene)amino]-2-imidazolidinone | | 2B | | | |
| <i>N</i> -[4-(5-Nitro-2-furyl)-2-thiazolyl]acetamide | | 2B | | | |
| Nitrogen Mustard | | 2A | | | |
| Nitrogen Mustard Hydrochloride | | | A | | |
| Nitrogen Mustard <i>N</i> -oxide | | 2B | | | |
| Nitromethane | | 2B | A | | |
| 2-Nitropropane | | 2B | A | X | |

| SUBSTANCE | OSHA | IARC | NTP | Repro Toxin | Tera |
|--|------|------|-----|-------------|------|
| 1-Nitropyrene | | 2A | A | | |
| 4-Nitropyrene | | 2B | A | | |
| <i>N</i> -Nitrosodiethanolamine | | 2B | A | | |
| <i>N</i> -Nitrosodiethylamine | | 2A | A | | |
| <i>N</i> -Nitrosodimethylamine | X | 2A | A | X | |
| <i>N</i> -Nitrosodi- <i>n</i> -butylamine | | 2B | A | | |
| <i>N</i> -Nitrosodi- <i>n</i> -propylamine | | 2B | A | | |
| 3-(<i>N</i> -Nitrosomethylamino)propionitrile | | 2B | | | |
| 4-(<i>N</i> -Nitrosomethylamino)-1-(3-pyridyl)-1-butanone (NNK) | | 1 | A | | |
| <i>N</i> -Nitrosomethylethylamine | | 2B | | | |
| <i>N</i> -Nitrosomethylvinylamine | | 2B | A | | |
| <i>N</i> -Nitrosomorpholine | | 2B | A | | |
| <i>N</i> -Nitrosonornicotine (NNN) | | 1 | A | | |
| <i>N</i> -Nitrosopiperidine | | 2B | A | | |
| <i>N</i> -Nitrosopyrrolidine | | 2B | A | | |
| <i>N</i> -Nitrososarcosine | | 2B | A | | |
| <i>N</i> -Nitroso- <i>n</i> -ethylurea | | | A | | |
| <i>N</i> -Nitroso- <i>n</i> -methylurea | | | A | | |
| o-Nitrotoluene | | 2A | A | | |
| Non-Arsenical Insecticides | | 2A | | | |

| SUBSTANCE | OSHA | IARC | NTP | Repro Toxin | Tera |
|--|------|------|-----|-------------|------|
| Norethisterone | | | A | | |
| Novobiocin | | | | X | |
| Ochratoxin A | | 2B | A | | |
| Oestrogen-progestogen therapy, postmenopausal | | 1 | | | |
| Oil Orange SS | | 2B | | | |
| <i>Opisthorchis viverrini</i> (infection with) | | 1 | | | |
| Organophosphates | | | | X | |
| Oxazepam | | 2B | | | |
| 4,4'-Oxydianiline | | | A | | |
| Oxymetholone | | | A | | |
| Palygorskite (Attapulgate) (long fibers > 5 micrometers) | | 2B | | | |
| Panfuran S (containing Dihydroxymethylfuratrizine) | | 2B | | | |
| Parovirus B-19 (Erythema infectiosum) | | | | | X |
| Pencillamine | | | | | X |
| Perchloroethylene | | | | X | |
| Phenacetin | | 1 | A | | |
| Phenacetin (Analgesic Mixtures) | | 1 | K | | |
| Phenazopyridine Hydrochloride | | 2B | A | | |
| Phenobarbital | | 2B | | | |
| Phenolphthalein | | 2B | A | | |

| SUBSTANCE | OSHA | IARC | NTP | Repro Toxin | Tera |
|---|------|------|-----|-------------|------|
| Phenoxybenzamine Hydrochloride | | 2B | A | | |
| Phenyl Glycidyl Ether | | 2B | | X | |
| Phenylketonuria & Sjogren's Syndrome | | | | | X |
| Phenytoin (and its sodium salts) | | 2B | A | | |
| PhIP (2-Amino-1-methyl-6-phenylimidazo[4,5- <i>b</i>]pyridine) | | 2B | | | |
| Phosphorus-32, as phosphate | | 1 | | | |
| Plutonium-239 and its decay products | | 1 | | | |
| Polybrominated Biphenyls (PBB) | | 2B | A | | |
| Polychlorinated Biphenyls (PCB) | | 2A | A | X | |
| Polychlorophenols and their sodium salts (mixed exposures) | | 2B | | | |
| Polycyclic Aromatic Hydrocarbons | | | A | | |
| Ponceau MX | | 2B | | | |
| Ponceau 3R | | 2B | | | |
| Potassium Bromate | | 2B | | | |
| Prednisolone | | | | X | |
| Procarbazine Hydrochloride | | 2A | A | | |
| Progesterone | | | A | | |
| Progestins | | 2B | | | |
| Progestogen-only contraceptives | | 2B | | | |
| 1,3-Propane Sultone | | 2B | A | | |

| SUBSTANCE | OSHA | IARC | NTP | Repro Toxin | Tera |
|---|------|------|-----|-------------|------|
| b-Propiolactone | X | 2B | A | | |
| Propylene Imine | | | | X | |
| Propylene Oxide | | 2B | A | X | |
| Propylthiouracil | | 2B | A | | |
| Quinoline | | | | X | |
| Radioiodines, short-lived isotopes, including iodine-131 | | 1 | | | X |
| Radionuclide, a and b-particle-emitting, internally deposited | | 1 | | | |
| Radium-224, -226, -228 and their decay products | | 1 | | | |
| Radon-222 (and decay products) | | 1 | K | | |
| Refractory Ceramic Fibers | | 2B | | | |
| Reserpine | | | A | | |
| Rheumatic Disease & congenital heart block | | | | | X |
| Riddelliine | | 2B | A | | |
| 1,3-cis-Retinoic Acid (Isotretinoin & Accutane) | | | | | X |
| Rubella Virus | | | | X | X |
| Safrole | | 2B | A | | |
| <i>Schistosoma haematobium</i> (infection with) | | 1 | | | |
| <i>Schistosoma japonicum</i> (infection with) | | 2B | | | |
| Selenium | | | | X | |
| Selenium Sulfide | | | A | | |

| SUBSTANCE | OSHA | IARC | NTP | Repro Toxin | Tera |
|--|------|------|-----|-------------|------|
| Shale-oils | | 1 | | | |
| Silica, Crystalline (Respirable Size) | | 1 | K | | |
| Sodium α -phenylphenate | | 2B | | | |
| Solar Radiation | | 1 | K | | |
| Soots | | 1 | K | | |
| Sterigmatocystin | | 2B | | | |
| Steroid Hormones | | | | X | |
| Streptomycin | | | | X | |
| Streptozotocin | | 2B | A | | |
| Strong Inorganic Acid Mists Containing Sulfuric Acid | | 1 | K | | |
| Styrene | | 2B | A | X | |
| Styrene-7,8-oxide | | 2A | A | | |
| Sulfallate | | 2B | A | | |
| Sulfonamides | | | | X | |
| Syphilis | | | | X | X |
| Talc containing asbestiform fibers | | 1 | | | |
| Tamoxifen | | 1 | K | | |
| Tellurium and compounds | | | | X | |
| Teniposide | | 2A | | | |
| 2,3,7,8-Tetrachlorodibenzo- <i>p</i> -dioxin (TCDD) | | 1 | K | | |

| SUBSTANCE | OSHA | IARC | NTP | Repro Toxin | Tera |
|---|------|------|-----|-------------|------|
| Tetrachloroethylene (Perchloroethylene) | | 2A | A | X | |
| Tetrachloromethane | | | | X | |
| Tetracyclines | | | | X | X |
| Tetrafluoroethylene | | 2B | A | | |
| Tetranitromethane | | 2B | A | | |
| Thalidomide | | | | X | X |
| Therapeutic Radiation | | | | | X |
| Thiazide Diuretics | | | | X | |
| Thioacetamide | | 2B | A | | |
| 4,4'-Thiodianiline | | 2B | A | | |
| Thiotepa | | 1 | K | | |
| Thiouracil | | 2B | | | |
| Thiourea | | | A | | |
| Thorium-232 and its decay products | | 1 | | | |
| Thorium Dioxide | | 1 | K | | |
| Titanium Dioxide | | 2B | | | |
| Tobacco Products and Related Exposures | | 1 | K | X | X |
| Toluene (and abuse) | | | | X | X |
| Toluene Diisocyanate | | 2B | A | | |
| Toluene-2,4-diisocyanate | | | | X | |

| SUBSTANCE | OSHA | IARC | NTP | Repro Toxin | Tera |
|--|------|------|-----|-------------|------|
| o-Toluidine | | 1 | A | X | |
| o-Toluidine Hydrochloride | | | A | | |
| Toxaphene (Polychlorinated camphenes) | | 2B | A | | |
| Toxoplasmosis | | | | X | X |
| Treosulfan | | 1 | | | |
| Trichlormethine (Trimustine Hydrochloride) | | 2B | | | |
| Trichloroethylene | | 2A | A | X | |
| Trichloromethane | | | | X | |
| 2,4,6-Trichlorophenol | | | A | | |
| Trichlorophenoxyacetic Acid (2,4,5-T) | | | | | X |
| 1,2,3-Trichloropropane | | 2A | A | X | |
| Trimethadione | | | | | X |
| tris(2,3-Dibromopropyl) Phosphate | | 2A | A | | |
| Trp-P-1 (3-Amino-1,4-dimethyl-5H-pyrido[4,3- <i>b</i>]indole) | | 2B | | | |
| Trp-P-2 (3-Amino-1-methyl-5H-pyrido[4,3- <i>b</i>]indole) | | 2B | | | |
| Trypan Blue | | 2B | | | |
| Ultraviolet radiation A | | 1 | A | | |
| Ultraviolet radiation B | | 1 | A | | |
| Ultraviolet Radiation, Broad Spectrum UV Radiation | | | K | | |
| Ultraviolet radiation C | | 1 | A | | |

| SUBSTANCE | OSHA | IARC | NTP | Repro Toxin | Tera |
|--------------------------------------|------|------|-----|-------------|------|
| Uracil Mustard | | 2B | | | |
| Urethane | | 2B | A | | |
| Vanadium Pentoxide | | 2B | | | |
| Valproic Acid | | | | | X |
| Varicella Virus (chicken pox) | | | | | X |
| Venezuelan Equine Encephalitis Virus | | | | | X |
| Vinyl Acetate | | 2B | | | |
| Vinyl Bromide | | 2A | A | | |
| Vinyl Chloride | X | 1 | K | X | |
| Vinyl Cyanide | | | | X | |
| 4-Vinylcyclohexene | | 2B | | | |
| 4-Vinylcyclohexene Diepoxide | | 2B | | | |
| 4-Vinyl-1-cyclohexene Diepoxide | | | A | | |
| Vinylcyclohexene Dioxide | | | | X | |
| Vinyl Fluoride | | 2A | A | | |
| Virilizing Tumors | | | | | X |
| Vitamin deficiencies | | | | X | |
| Vitamin K (excess) | | | | X | |
| Warfarin | | | | | X |
| Wood Dust | | 1 | K | | |

| SUBSTANCE | OSHA | IARC | NTP | Repro Toxin | Tera |
|------------------|------|------|-----|-------------|------|
| X-Radiation | | 1 | K | | |
| Xylenes | | | | X | X |
| Zalcitabine | | 2B | | | |
| Zidovudine (AZT) | | 2B | | | |
| Zinc Chromates | | | | X | |

¹ *Occupational Safety and Health Standards for General Industry* - 29 CFR 1910 - Subpart Z, U.S. Department of Labor, Occupational Safety and Health Administration. [Online]. Available: http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=INTERPRETATIONS&p_id=24730 (10/16/2003).

² *Monographs on the Evaluation of the Carcinogenic Risk to Humans*, International Agency for Research on Cancer (IARC), Volumes 1 to 108, (7/16/13), [Online] Available: <http://www-cie.iarc.fr/monoeval/crthall.html>.

³ *Twelfth Annual Report on Carcinogens* - Summary, National Toxicology Program (NTP), Technical Resources, Inc., Rockville, MD., (6/10/11), [Online]. Available: <http://ntp.niehs.nih.gov/?objectid=72016262-BDB7-CEBA-FA60E922B18C2540>.

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