APPENDIX B – REFERENCES

SELECT CARCINOGENS

The Occupational Safety and Health Administration (OSHA) defines a "select carcinogen" as a substance that meets one of the following criteria:

1. Is regulated by OSHA as a carcinogen;
2. Is listed under the category "known to be a carcinogen" or "reasonably anticipated to be a carcinogen" in the Annual Report on Carcinogens published by the National Toxicology Program (NTP); or
3. Is listed under Group 1 ("carcinogenic to humans") or under Group 2A ('probably carcinogenic to humans") or 2B ("possibly carcinogenic to humans") by the International Agency for Research on Cancer (IARC).

This list includes other potential carcinogens including processes with hazardous byproducts which are typically not present in laboratories at Indiana University but may be used or generated during experimental procedures.

SUBSTANCE	OSHA	IARC	NTP
A-α-C (2-amino-9*h*-pyrido [2,3-*b*] indole)			x
Acetaldehyde		x	x
Acetamide		x	
2-Acetylaminofluorene		x	
x			
Acrylamide		x	x
Acrylonitrile	x	x	x
Actinolite	x		
Adriamycin		x	x
AF-2 [2-(2-furyl)-3-(5-nitro-2-furyl) acrylamide]		x	
Aflatoxins (naturally ocurring)		x	x
Aflotoxins M1		x	
2-Aminoanthraquinone			x
p-Aminoazobenzene		x	
o-Aminoazotoluene		x	x
4-Aminobiphenyl		x	x
x			
1-Amino-2,4-dibromoanthraquinone			x
2-Amino-3,4-dimethylimidazo[4,5-*f*]quinoline (MEIQ)			x
2-Amino-3,8-dimethylimidazo[4,5-*f*]quinoxaline (MEIQx)			x
1-Amino-2-methylanthraquinone			x
2-Amino-3-methylimidazo [4,5-*f*]quinoline (IQ)			x
2-Amino-1-methyl-6-phenylimidazo[4,5-*b*]pyridine (PhIP)		x	x
2-Amino-5-(5-nitro-2-furyl)-1,3,4-thiadiazole		x	
Amitrole			
x			
Amsacrine		x	
Androgenic (anabolic) steroids		x	
o-Anisidine		x	
o-Anisidine hydrochloride			x
Anthraquinone			x
Antimony trioxide		x	
Aramite®		x	
Aristolochic acids (naturally occurring mixtures of)		x	x

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SUBSTANCE	OSHA	IARC	NTP
Arsenic and inorganic arsenic compounds	x	x	x
Arsenobetaine and other organic arsenic compounds			x
Asbestos (all forms)	x	x	x
Auramine		x	
Azacitidine		x	x
Azaserine		x	
Azathioprine		x	x
Aziridine (dimethyleneimine)		x	
Basic Red 9 monohydrochloride			x
Benzene	x	x	x
Benzidine, benzidine based dyes, and dyes metabolized to benzidine	x	x	x
Benzo[*a*]anthracene		x	x
Benzo[j]ancanthrylene		x	
Benzo[*b*]fluoranthene		x	x
Benzo[*j*]fluoranthene		x	x
Benzo[*k*]fluoranthene		x	x
Benzofuran		x	
Benzo[c]phenanthrene		x	
Benzophenone		x	
Benzo[*a*]pyrene		x	x
Benzotrichloride			x
Benzyl violet 4B		x	
Beryllium and beryllium compounds		x	x
Betel quid with and without tobacco		x	
N,N-Bis(2-cloroethyl)-2-naphthylamine (Chlornaphazine)		x	
Bischloroethyl nitrosourea		x	x
Bleomycins		x	
Bracken fern		x	
Bromochloroacetic acid		x	
Bromodichloromethane		x	x
2,2-bis-(Bromomethyl)-1,3-propanediol		x	x
Busulfan		x	
1,3-Butadiene		x	x
1,4-Butanediol dimethyl-sulfonate (Myleran)		x	x
Butylated hydroxyanisole (BHA)		x	x
β-Butyrolactone		x	
Cadmium and cadmium compounds	x	x	x
Caffeic acid		x	
Captafol		x	x
Carbazole		x	
Carbon black		x	
Carbon tetrachloride		x	x
Catechol			x
Ceramic fibers (respirable size)		x	x
Chloral		x	
Chloral hydrate		x	
Chlorambucil		x	x
Chloramphenicol		x	x
Chlordane		x	

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SUBSTANCE	OSHA	IARC	NTP
Chlordecone (Kepone)		x	
Chlorendic acid		x	x
Chlorinated paraffins (C_{12}, 60% Chlorine)			x
α-Chlorinated toluenes (benzyl chloride, benzalchloride, benzotrichloride)		x	x
Chlornaphazine		x	
p-Chloroaniline		x	
3-Chloro-4-(dichloromethyl)-5-hydroxy-2(5H)-furanone		x	
1-(2-Chloroethyl)-3-cyclohexyl-1-nitrosourea (CCNU)		x	x
1,(2-Chloroethyl) -3- (4 methylcyclohexyl)-1-nitrosourea (MECCNU)		x	x
bis-Chloroethyl nitrosourea			x
Chloroform		x	x
bis-Chloromethyl ether (Dimethyl-1,1'-dichloro ether)	x	x	x
Chloromethyl methyl ether (Methyl chloromethyl ether)	x		x
1-Chloro-2-methylpropene			x
3-Chloro-2-methylpropene			x
Chlorophenoxy herbicides			x
4-Chloro-*o*-phenylenediamine		x	x
Cloroprene		x	x
p-Chloro-o-toluidine and p-chloro-o-toluidine hydrochloride			x
Chlorothalonil		x	
Chlorozotocin		x	x
Chromium, metallic and chromium [VI] compounds		x	x
Chrysene		x	
CI Acid Red 114 (see 3,3 dimethylbenzidine)		x	x
CI Direct Black 38 (see benzidine)			x
CI Basic Red 9 monohydrochloride		x	
CI Direct Blue 6 (see benzidine)			x
CI Direct Blue 15 (see 3,3 dimethoxybenzidine)		x	x
CI Direct brown 95 (see benzidine)			x
Ciclosporin		x	
Cisplatin		x	x
Citrus red no. 2		x	
Coal tars and coal tar pitches		x	x
Cobalt and cobalt compounds		x	
Cobalt metal with tungsten carbide		x	x
Cobalt metal without tungsten carbide		x	
Cobalt sulfate			x
Cobalt-tungsten carbide (powders and hard metals)			x
p-Cresidine		x	x
Cumene		x	
Cupferron			x
Cycasin		x	
Cyclopenta[cd]pyrene		x	
Cyclophosphamide		x	x
Cyclosporin A (ciclosporin)			x
Dacarbazine		x	x
Danthron (chrysazin 1,8-dihydroxyanthraquinone)		x	x
Daunomycin		x	

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SUBSTANCE	OSHA	IARC	NTP
N,N'-Diacetylbenzidine		x	
2,4-Diaminoanisole		x	
2,4-Diaminoanisole sulfate			x
4,4'-Diaminodiphenyl ether		x	
2,4-Diaminotoluene		x	x
Dibenz[*a,h*]acridine		x	x
Dibenz[*a,j*]acridine		x	x
Dibenz[*c,h*]acridine		x	
Dibenz[*a,h*]anthracene		x	x
7*h*-Dibenzo[*c,g*]carbazole		x	x
Dibenzo[*a,e*]pryrene		x	x
Dibenzo[*a,h*]pyrene		x	x
Dibenzo[*a,i*]pyrene		x	x
Dibenzo[*a,l*]pyrene		x	x
Dibromoacetic acid		x	
Dibromoacetonitrile		x	
Diazoaminobenzene (DAAB)		x	
1,2-Dibromo-3-chloropropane	x	x	x
1,2-Dibromoethane (Ethylene dibromide)			x
2,3-Dibromo-1-propanol		x	x
tris (2,3-Dibromopropyl) phosphate			x
Dichloroacetic acid		x	
1,4-Dichlorobenzene			x
p-Dichlorobenzene	x	x	
3,3'-Dichlorobenzidine	x	x	x
3,3'-Dichlorobenzidine dihydrochloride			x
3,3'-Dichloro-4,4[1]-diaminodiphenyl ether		x	
Dichlorodiphenyltrichloroethane (DDT)		x	x
1,2-Dichloroethane (Ethylene dichloride)		x	x
Dichloromethane (Methylene chloride)	x	x	x
1,3-Dichloro-2-propanol		x	
1,2 Dichloropropane		x	
1,3-Dichloropropene		x	x
Dichlorvos		x	
Diepoxybutane			x
Diesel fuel, marine		x	
Diethanolamine		x	
Di(2-Ethylhexyl)phthalate		x	x
1,2 Diethylhydrazine		x	
Diethylstilbestrol		x	x
Diethyl sulfate		x	x
Diisopropyl sulfate		x	
Diglycidyl resorcinol ether		x	x
Digoxin		x	
Dihydrosafrole		x	
3,3'-Dimethoxybenzidine (*o*-dianisidine) & dyes metabolized to 3,3 dimethoxybenzidine		x	x
4-Dimethylaminoazobenzene	x		x

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SUBSTANCE	OSHA	IARC	NTP
p-Dimethylaminoazobenzene		x	
trans-2-[(Dimethylamino)methylamino] -5-2-(5-nitro-2-furyl)-vinyl]-1,3,4-oxidiazole		x	
2,6-Dimethylaniline (2,6-Xylidine)		x	
Dimethylarsenic acid		x	
3,3'-Dimethylbenzidine (*o*-tolidine) & dyes metabilized to 3,3'-dimethylbenzidine		x	x
Dimethylcarbamoyl chloride		x	x
1,1-Dimethylhydrazine		x	x
1,2-Dimethylhydrazine		x	
Dimethylstilbestrol			x
Dimethyl sulfate		x	x
Dimethylvinyl chloride			x
3,7-Dinitrofluoranthene		x	
3,9-Dinitrofluoranthene		x	
1,3-Dinitropyrene		x	
1,6-Dinitropyrene		x	x
1,8-Dinitropyrene		x	x
2,4-Dintrotoluene		x	
2,6-Dintrotoluene		x	
1,4-Dioxane		x	x
Disperse Blue 1		x	x
Dyes metabolized to 3,3'-Dimethoxybenzidine		x	x
Dyes metabolized to 3,3'-Dimethylbenzidine		x	x
Dyes metabolized to benzidine		x	x
Epichlorohydrin		x	x
1,2 Epoxybutane		x	
Erionite		x	x
Estrogens, nonsteroidal		x	
Estrogens, steroidal		x	x
Ethyl acrylate		x	
Ethylbenzene		x	
Ethylene dibromide		x	
Ethyleneimine		x	
N-ethyl-N-nitrosourea		x	
Ethylene oxide	x	x	x
Ethylene thiourea			x
di(2-Ethylhexyl) phthalate			x
Ethyl methanesulfonate		x	x
Etoposide		x	
Formaldehyde (gas)	x	x	x
2-(2-Formylhydrazino)-4-(5-nitro-2-furly) thiazole		x	
Fumonisin B1		x	
Furan		x	x
Fusarium moniliforme, toxins derived from (fumonisin B1, fumonisin B2, and fusarin C)		x	
Galium arsenide		x	
Gasoline		x	
Glass wool (respirable size)			x

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SUBSTANCE	OSHA	IARC	NTP
Glu-P-2 (2-aminodipyrido[1,2-a:3',2'-*d*]imidazole		x	
Glu-P-1 (2-amino-6-methyldipyrido-1,2-a:3',2'-*d*]imidazole)		x	
Glycidaldehyde		x	
Glycidol		x	x
Griseofulvin		x	
HC Blue No. 1		x	
Heptachlor		x	
Hexachlorobenzene		x	x
Hexachlorocyclohexanes		x	
Hexachloroethane		x	x
2,4-Hexadienal		x	
Hexamethyl-phosphoramide		x	x
Hydrazine and hydrazine sulfate		x	x
Hydrazobenzene		x	
Hydrochlorothiazide		x	
1-Hydroxyanthraquinone		x	
Indeno [1,2,3-*cd*] pyrene		x	x
Indium phosphide		x	
Iron dextran complex		x	x
IQ (2-amino-3-methylimidazo[4,5-*f*]quinoline		x	
Isoprene		x	x
Kepone (Chlordecone)			x
Lasiocarpine		x	
Lead and lead compounds, inorganic		x	x
Lindane and other hexachlorocyclohexane isomers			x
Magenta (containing CI Basic red 9)		x	
MeA-aplha-c (2-amino-3-methyl-9*h*-pyrido-[2,3-*b*] indole		x	
Medroxyprogesterone acetate		x	
MeIQ (2-amino-3,4-dimethylimidazo [4,5-*f*] Quinoline)		x	
MeIQx (2-amino-3,8-dimethylimidazo[4,5-*f*] quinoxaline)		x	
Melphalan		x	x
Merphalan		x	
Methoxsalen with ultraviolet A therapy (PUVA)		x	x
5-Methoxypsoralen (methoxsalen)		x	
8-Methoxypsoralen (methoxsalen)		x	
Methylarsenic acid		x	
2- Methylaziridine (propyleneimine)		x	x
Methylazoxymethanol acetate		x	
5-Methylchrysene		x	x
Methyl chloromethyl ether		x	x
4,4'-Methylenebis (2-chloroaniline) (MOCA)		x	x
4,4'-Methylenebis (*N,N*-dimethylbenzenamine)		x	x
4,4'-Methylenebis (2-methylaniline)		x	
Methylene chloride (dicholoromethane)	x	x	x
Methylenedianiline	x		
4,4'-Methylenedianiline and its dihydrochloride salt		x	x
Methyleugenol			x
Methyl chloromethyl ether (Chloromethyl methyl ether)	x	x	x
2-Methylimidazole		x	

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SUBSTANCE	OSHA	IARC	NTP
4-Methylimidazole		x	
Methylisobutyl keytone		x	
Methylmercury compounds		x	
Methyl methanesulfonate		x	x
2-Methyl-1-nitroanthraquinone		x	
N-Methyl-*N'*-nitro-*N*-nitrosoguanidine (MNNG)		x	x
N-Methyl-*N*-nitrosourea		x	
N-methyl-*N'*-nitrosourethane		x	
a-Methylstyrene		x	
Methylthiouracil		x	
Metronidazole		x	x
Michler's base (4,4'-methylenebis(N,N-dimethyl)-benzenamine)		x	x
Michler's ketone (4,4'-(Dimethylamino)benzophenone)			x
Microcystin-LR		x	
Mirex		x	x
Mitomycin C		x	
Mitoxantrone		x	
3-Monochloro-1,2-propanediol		x	
Monocrotaline		x	
MOPP and other combined chemotherapy including alkylating agents		x	
5-Morpholinomethyl)-3-[(5-nitrofurfurylidene)amino-] 2-oxazolidinone		x	
Mustard gas		x	x
Nafenopin		x	
Napthalene		x	x
α-Naphthylamine	x		
β-Naphthylamine	x		
2-Naphthylamine		x	x
Nickel and nickel compounds		x	x
Niridazole		x	
Nitrilotriacetic acid		x	x
5-Nitroacenaphthene		x	
2-Nitroanisole		x	
o-Nitroanisole			x
Nitroarenes (selected)		x	x
Nitrobenzene		x	x
3-Nitrobenzanthrone		x	
4-Nitrobiphenyl	x		
6- Nitrochrysene		x	x
Nitrofen (2,4-Dichlorophenyl-*p*-nitrophenyl ether)		x	x
2-Nitrofluorene		x	
1-[(5-Nitrofurfurylidene)amino]-2-imidazolidinone		x	
N-[4-(5-Nitro-2-furyl)-2-thiazolyl] acetamide		x	
Nitrogen mustard		x	
Nitrogen mustard hydrochloride			x
Nitrogen mustard N-oxide		x	
Nitromethane		x	x
2-Nitropropane		x	x

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SUBSTANCE	OSHA	IARC	NTP
1-Nitropyrene		x	x
4-Nitropyrene		x	x
N-Nitrosodi-*n*-butylamine		x	x
N-Nitrosodiethanolamine		x	x
N-Nitrosodiethylamine		x	x
N-Nitrosodimethylamine	x	x	x
N-Nitrosodi-*n*-propylamine		x	x
N-Nitroso-*N*-ethylurea			x
3-(*N*-Nitrosomethylamino) propionitrile		x	
4-(*N*-Nitrosomethyl-amino)-1(3-pyridyl)-1-butanone (NNK)		x	x
N-Nitrosomethylethylamine		x	
N-Nitroso-*N*-methylurea			x
N-Nitrosomethylvinylamine		x	x
N-Nitrosomorpholine		x	x
N-Nitrosonornicotine (NNN)		x	x
N-Nitrosopiperdine		x	x
N-Nitrosopyrrolidine		x	x
N-Nitrososarcosine		x	x
O-Nitrotoluene (2-nitrotoluene)		x	x
Norethisterone			x
Ochratoxin A		x	x
Oestrogens, nonsteriodal		x	
Oestrogens, steroidal		x	
Oil orange SS		x	
Oral contraceptives, combined		x	
Oral contraceptives, sequential		x	
Oxazepam		x	
4,4'-Oxydianiline			x
Oxymetholone			x
Palygorskite (attapulgite)		x	
Panfuran S (containing dihydroxmethyl-Furatrizine)		x	
2,3,4,7,8-Pentachlorodibenzofuran		x	
3,4,5,3',4'-Pentachlorobiphenyl (PCB-126)		x	
Pentosan polysulfate sodium		x	
Perfluorooctanoic acid		x	
Phenacetin and analgesic mixtures containing phenacetin		x	x
Phenazopyridine hydrochloride		x	x
Phenobarbital		x	
Phenolphthalein		x	x
Phenoxybenzamine hydrochloride		x	x
Phenyl glycidyl ether		x	
Phenytoin		x	x
Phosphorus–32		x	
Pioglitazone		x	
Plutonium-239		x	
Polybrominated biphenyls (PBBs)		x	x
Polychlorinated biphenyls (PCBs)		x	x
Polychlorophenols and their sodium salts		x	
Ponceau MX		x	

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SUBSTANCE	OSHA	IARC	NTP
Ponceau 3R		x	
Potassium bromate		x	
Primidone		x	
Procarbazine and procarbazine hydrochloride		x	x
Proflavine salts		x	
Progesterone			x
Progestins		x	
1,3-Propane sultone		x	x
β-Propiolactone	x	x	x
Propylene oxide		x	x
Propylthiouracil		x	x
Pulegone		x	
Radioiodines		x	
Radionuclides (alpha & beta emitting)		x	
Radium-224, 226, 228		x	
Radon-222		x	
Reserpine			x
Riddelliine		x	x
Safrole		x	x
Selenium sulfid			x
Semustine [1-(2-Chloroethyl)-3-(4-methylcyclohexyl)-1-nitrosourea, Methyl-CCNU]		x	
Silca, crystalline (respirable size)		x	x
Sodium-*o*-phenylphenate		x	
Sterigmatocystin		x	
Streptozotocin		x	x
Styrene		x	x
Styrene-7,8-oxide		x	x
Sulfallate		x	x
Sulfasalazine		x	
Sulfur mustard		x	
Talc (containing asbestiform fibers)		x	
Tamoxifen		x	x
Teniposide		x	
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)		x	x
1,1,1,2-Tetrachloroethane		x	
1,1,2,2-Tetrachloroethane		x	
Tetrachloroethylene (Perchloroethylene)		x	x
Tetrafluoroethylene		x	x
Tetranitromethane		x	x
Thioacetamide		x	x
4,4'-Thiodianiline		x	x
Thiotepa		x	x
Thiouracil		x	
Thiourea			x
Thorium-232 & decay products		x	
Thorium dioxide		x	
Titanium dioxide		x	
Toluene diisocyanate		x	x

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SUBSTANCE	OSHA	IARC	NTP
o-Toluidine and *o*-toluidine hydrochloride		x	x
Toxaphene			x
Tresulfan (treosulfan)		x	
Triamterene		x	
Trichloroacetic acid		x	
Trichloroethylene		x	x
Trichloromethine (trimustine hydrochloride)		x	
2,4,6-Trichlorophenol			x
1,2,3-Trichloropropane		x	x
tris (1-aziridinyl) phosphine sulfide (thiotepa)		x	x
tris (2,3-dibromopropyl) phosphate		x	x
TRP-P-1 (3-amino-1,4-dimethyl-5*h*-pyrido [4,3-*b*] indole)		x	
TRP-P-2 (3-amino-1-methyl-5*h*-pyrido [4,3-*b*] indole)		x	
Trypan blue		x	
Uracil mustard		x	
Urethane		x	x
Vanadium pentoxide		x	
Vinyl acetate		x	
Vinyl bromide		x	x
Vinyl chloride (Chloroethylene)	x	x	x
4-Vinylcyclohexene		x	
4-Vinylcyclohexene diepoxide		x	
4-Vinyl-1-cyclohexene diepoxide			x
Vinyl fluoride		x	x
Zalcitabine		x	
Zidovudine (AZT)		x	

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SUBSTANCE	OSHA	IARC	NTP	
Mixtures, processes, biological agents and other materials:				
Acid mists, strong inorganic		x		
Alcoholic beverages		x		
Aluminum production		x		
Analgesic mixtures containing phenacetin		x		
Areca nut		x		
Betal quid (betal leaf mixture)		x		
Biomass fuel (primarily wood), indoor emissions from household combustion		x		
Bitumens		x		
BK Polyomavirus (BKV)		x		
Carrageenan, degraded		x		
Carbon electode manufacture		x		
Chlorinated paraffins of average carbon chain length C_{12} and approximately 60% chlorination		x		
Clonorchis sinensis (infection with)		x		
Coal gasification		x		
Coal tars and coal tar pitches		x	x	
Coal tar distillation		x		
Coke oven emissions	x		x	
Creosotes		x		
Diesel engine exhaust		x		
Diesel exhaust particulates			x	
Engine exhaust, gasoline		x		
Epstien-Barr virus		x		
Fission products, including strontium-90		x		
Frying, emissions from high temperatures		x		
Fuel oils, residual (heavy)		x		
Gamma radiation and X-radiation		x	x	
Glass manufacturing (art glass, containers, pressed ware)		x		
Helicobacter pylori (infection with)		x		
Hematite mining (underground)		x		
Hepatitis B virus		x	x	
Hepatitis C virus		x	x	
Human immunodeficiency virus type 1 (infection with)		x		
Human immunodeficiency virus type 2 (infection with)		x		
Human papillomavirus (types 16, 18, 31, 33, 35, 39, 45, 51, 52, 58, 59)		x	x	
Human papillomavirus (types 26, 53, 66, 67, 70, 73, 82)		x		
Human papillomavirus (types 30, 34, 68, 69, 85, 97)		x		
Human papillomavirus (types 5, 8 in patients with epidermodysplasia verruciformis)		x		
Human papillomaviruses: some genital-mucosal types		x	x	
Human T-cell lymphotropic virus (type 1)		x		
Ionizing radiation		x		x
Isopropyl alcohol manufacture using strong acids		x		
JC Polyomavirus (JCV)		x		
Kaposi sarcoma herpes virus		x		
Leather dust		x		
Magnetic Fields (extremely low frequency)		x		

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SUBSTANCE	OSHA	IARC	NTP
Mixtures, processes, biological agents and other materials:			
Maté, hot (Yerba)		x	
Merkel cell polyomavirus (MCV)		x	
Mineral oils, untreated and mildly treated		x	x
Neutrons		x	
Nitrate or nitrite (ingested) under conditions that result in endogenous nitrosation		x	
Non-arsenical insecticides (spraying and application)		x	
Opisthorchis viverini (infection with)		x	
Petroleum refining (occupational exposures in)		x	
Plasmodium falciparum (malaria)		x	
Polybrominated biphenyls (PBBs)		x	
Polychlorinated biphenyls (PCBs)		x	
Radiofrequency electromagnetic fields		x	
Radionuclides (alpha & beta emitting)		x	
Refractory ceramic fibres		x	
Schistosoma haematobium (infection with)		x	
Schistosoma japonicum (infection with)		x	
Shale-oils		x	
Solar radiation (and sunlamps)		x	
Soots			x
Special purpose fibres such as E-glass and ‘475’glass fibres		x	
Strong inorganic acid mists containing sulfuric acid			x
Tobacco smoke, environmental tobacco smoke, & smokeless tobacco		x	x
Toxaphene (chlorinated camphenes)		x	
Toxins derived from *fusarium moniliforme*		x	
Ultraviolet radiation (broad spectrum)	x	x	x
Ultraviolet radiation A, B, & C		x	x
Welding fumes		x	
Wood Dust		x	x