

HAZARDOUS AND TOXIC SUBSTANCES

The most successful toxic tort cases are generally found to involve asbestos (mesothelioma), benzene (acute myelogenous leukemia ("AML"), multiple myeloma, and non-Hodgkin's lymphoma ("NHL")), beryllium (chronic beryllium disease or "CBD"), and vinyl chloride (angiosarcoma of the liver). Claims involving most other hazardous and toxic substance, or other diseases, will lead to more difficult litigation, greater expense and greater risk of loss.

The federal government has identified a number of known human carcinogens and their target organs based upon epidemiological evidence (not just animal testing) and other human experience. While this may simplify the general causation issue (that this particular kind of exposure can cause this kind of disease) it does not resolve the issue of specific causation (that this person's disease was caused by these exposures). Where there is no marker disease (such as mesothelioma, angiosarcoma, or CBD), the cases are much more difficult, expensive and risky.

Below I have listed various occupational carcinogens identified from a number of sources, including the NTP, ATSDR and IARC.

U.S. Department of Health and Human Services Public Health Service National Toxicology Program 11th Report on Carcinogens

Known Human Carcinogens ("There is sufficient evidence of carcinogenicity from studies in humans which indicates a causal relationship between exposure to the agent, substance or mixture and human cancer.")

Arsenic

pesticides, wood preservatives

skin, lung, digestive tract, liver, bladder, kidneys, lymphatic, hematopoietic systems

Asbestos

insulation

mesothelioma, respiratory tract (lung)

Benzene

solvent, gasoline, raw material

acute myelogenous leukemia, non-Hodgkin's Lymphoma, possible multiple myeloma

Benzidine

production of dyes

bladder

Beryllium

metal and alloy
chronic beryllium disease, lung

1,3 Butadiene

polymer production
lymphatic/hematopoietic systems

Cadmium

paint, pigments, batteries
lung

Chromium hexavalent

corrosion inhibitor, pigments
lung

Coal Tar/Pitches

creosote, fuel, naphthalene
skin, scrotum, lung, bladder, skin, kidney, digestive tract

Coke Oven Emissions

blast furnaces
skin, bladder, respiratory tract (lung)

Ethylene Oxide

chemical production, fumigant, insecticide
lymphatic/hematopoietic

Ionizing radiation

nuclear power, medical, analysis (oil/gas formations, examine welds) leukemia,
thyroid, breast, lung

Mineral Oils

lubricant base oil
scrotum, skin, gastrointestinal, sinonasal, bladder, lung, rectum, buccal cavity,
pharynx

2-Naphthylamine

dyes, rubber antioxidant
bladder

Nickel Compounds

stainless steel, alloys, batteries, pigments, ceramics
lung, nasal

Silica

sandblasting, grinding, polishing, glass, ceramics
lung

Soots

byproduct, fertilizer
scrotum, skin, lung, prostate, bladder, lymphatic/hematopoietic

Sulfuric Acid Mists

generated in use sulfuric acid/trioxide/oleum
laryngeal, lung

2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD), dioxin

pesticide contaminant
lung, non-Hodgkin's lymphoma

Vinyl chloride

plastic production
angiosarcoma of liver

Wood dust

woodworking
nasal

**International Agency for Research on Cancer (IARC)
List of known carcinogens not included on NTP list**

Benzo[a]pyrene

Coal tar, asphalt, exhaust fumes
Lung, bladder, skin

Formaldehyde

Building materials
Lung, nasopharyngeal

Methylenebis(chloroaniline)(MOCA)

Polyurethane production
Liver, lung

**Agency for Toxic Substances and Disease Registry (ATSDR)
LIST OF KNOWN CARCINOGENIC AGENTS BY ORGAN**

Bladder

Arsenic
Benzidine

Cadmium
Tobacco

Blood (leukemia/lymphoma)

Benzene
Ionizing radiation
Vinyl chloride

Brain

Vinyl chloride

Colon

Arsenic

Kidney

Arsenic
Coke oven emissions

Liver

Alcohol
Vinyl chloride

Lung

Arsenic
Asbestos
Beryllium
Cadmium
Chromium hexavalent
Coke oven emissions
Tobacco
Uranium – radon
Vinyl chloride

Mouth, pharynx, larynx, esophagus

Alcohol
Tobacco

Skin

Arsenic

ADDITIONAL OCCUPATIONAL DISEASE RISKS

JOSPEH F. FRAUMENI, JR. PERSONS AT HIGH RISK OF CANCER OCCUPATIONAL CARCINOGENS

A. Organic Agents

1. Aromatic Hydrocarbons

Coal Soot lung, larynx, skin

Coal Tar scrotum, urinary bladder

Other products of coal combustion scrotum, urinary bladder

Petroleum nasal cavity, larynx, skin, scrotum

Petroleum coke lung, skin, scrotum

Wax lung, skin, scrotum

Creosote lung, skin, scrotum

Anthracene lung, skin, scrotum

Paraffin lung, skin, scrotum

Shale lung, skin, scrotum

Mineral Oils lung, skin, scrotum

Benzene bone marrow (leukemia)

Auramine urinary bladder

Benzidine urinary bladder

a-naphthylamine urinary bladder

b-naphthylamine urinary bladder

magenta urinary bladder

4-aminodiphenyl urinary bladder

4-nitrodiphenyl urinary bladder

2. Alkylating Agents

Mustard Gas larynx, lung, trachea, bronchi

3. Others

Vinyl Chloride liver angiosarcoma, brain

Bis(chloromethyl) ether lung (oat cell carcinoma)

Chloromethyle methyl ether lung (oat cell carcinoma)

B. Inorganic Agents

1. Metals

Arsenic skin, lung, liver

Chromium nasal cavity and sinuses, lung, larynx

Iron oxide lung, larynx

Nickel nasal sinuses, lung

2. Fibers

Asbestos lung, pleural and peritoneal mesothelioma

3. Dusts

Wood nasal cavity and sinuses

Leather nasal cavity and sinuses, urinary bladder

C. Physical Agents

1. nonionizing radiation

Ultraviolet rays skin

2. Ionizing radiation

Uranium skin, lung, bone, bone marrow (leukemia)

Radon skin, lung, bone, bone marrow (leukemia)

Radium skin, lung, bone, bone marrow (leukemia)

Mesothorium skin, lung, bone, bone marrow (leukemia)

3. Other

Hypoxia bone

FRAUMENI OCCUPATIONAL CARCINOGENS BY SITE

Liver arsenic, vinyl chloride

Nasal cavity and sinuses chromium, isopropyl oil, nickel, wood and leather dust

Lung arsenic, asbestos, chromium, coal products, dusts, iron oxide, mustard gas, nickel, petroleum, ionizing radiation, bis(chloromethyl) ether

Bladder coal products, aromatic amines

Bone ionizing radiation

Bone marrow benzene, ionizing radiation

Various state workers compensation statutes and/or regulations identify compensable occupational diseases.

Illinois NRS 617.453 indicates that the following substances shall be deemed ... to be known carcinogens that are reasonably associated with the following disabling cancers:

(a) diesel exhaust, formaldehyde and polycyclic aromatic hydrocarbon: bladder cancer; (b) acrylonitrile, formaldehyde and vinyl chloride: brain cancer; (c) diesel exhaust and formaldehyde: colon cancer; formaldehyde: hodgkin's lymphoma; (e) formaldehyde and polycyclic aromatic hydrocarbon: kidney cancer; (f) chloroform, soot and vinyl chloride: liver cancer; (g) acrylonitrile, benzene, formaldehyde, polycyclic aromatic hydrocarbon, soot and vinyl chloride: lymphatic or haematopoietic cancer; (h) diesel exhaust, soot, aldehydes and polycyclic aromatic hydrocarbon: basal cell carcinoma, squamous cell carcinoma and malignant melanoma; (i) acrylonitrile, benzene and formaldehyde: prostate cancer; (j) diesel exhaust, soot and polychlorinated biphenyls: testicular cancer; (k) diesel exhaust, benzene, x-ray radiation: thyroid cancer.

Illinois NRS 617.450 identifies specific occupational diseases:

Arsenic poisoning, brass or zinc poisoning, carbon monoxide poisoning, chrome ulceration of skin or nasal passages, epithelioma cancer or ulceration of skin or corneal surface due to carbon, pitch, tar or tarry compounds, lead poisoning, manganese dioxide poisoning, mercury poisoning, phosphorus poisoning, carbon disulfide poisoning, chlorine poisoning, poisoning by flour, burned grease, bakery and kitchen fumes, poisoning by gasoline, benzene, naphtha or other volatile petroleum products, wood alcohol poisoning, potassium cyanide poisoning, radium poisoning, and sulfur dioxide poisoning.

North Carolina Section 97-53 enumerates the occupational diseases recognized for workers compensation. These include poisoning from arsenic, brass, zinc, manganese, lead, mercury, phosphorous, carbon bisulfide, methanol, naphtha, volatile halogenated hydrocarbons, benzol or nitro and amido derivatives of benzol,

radium, carbon monoxide, sulphuric, hydrochloric or hydrofluoric acid and chrome ulceration, skin cancer or ulceration of skin or corneal surface due to tar pitch, bitumen, mineral oil, paraffin, and asbestosis, silicosis and psittacosis (from bird droppings).