Cancer Sites Associated with Occupational Exposures

Is exposure to a specific carcinogen associated with a certain type of cancer?

In many cases, certain types of cancer are associated with specific carcinogens. The table below lists some of these associations.

Please note: This list was complied from information available from reputable sources, but it is not complete. It represents associations that have been reported in literature between certain types of cancer and specific carcinogen exposures.

Exposure to a carcinogen does not necessarily mean that you will develop cancer. The OSH Answers on Occupational Cancer has more information.

Some Cancer Sites Associated with Occupational or Environmental Carcinogen Exposures

Cancer Site	Examples of High-risk Substances	Examples of High-risk Processes, Industries and Occupations with Increased Risks

Bladder (urinary)	**Aromatic amines (e.g. 4,4′-Methylene bis(2-chloroaniline) (MOCA), para-Chloroaniline, 2,6-Dimethylaniline (2,6-Xylidine)); Arsenic and inorganic arsenic compounds; Benzidine and benzidine-based dyes; Benzo[a]pyrene; Coal tars & pitches; Diesel engine exhaust; Tetrachloroethylene; ortho-Toluidine**	**Barbers; Cable makers; Calendar operatives; Chemical/petroleum workers; Coke production; Dry cleaners; Firefighters; Gas-retort house workers; Hairdressers; Machinists; Manufacturing of: aluminum, magenta, auramine, p-chloro-o-toluidine, pigment chromate, textiles, and dyes; Miners; Painters; Pipefitters; Plumbers; Rubber production; Sheet metal workers; Synthetic latex production; Tire curing**
Bone	**Ionizing radiation**	**—**
Brain and Central Nervous System (CNS)	**Ionizing radiation**	**—**
Breast	**Ethylene oxide; Ionizing radiation; Polychorinated biphenyls**	**Shiftwork that involves circadian disruption**
Colon and rectum	**Asbestos; Ionizing radiation**	**—**
Esophagus	**Ionizing radiation**	**Dry cleaning; Rubber production industry**
Eye	**—**	**Welding, Solar radiation**

Kidney	**Arsenic and inorganic arsenic compounds; Cadmium and cadmium compounds; Perfluorooctanoic acid; Trichloroethylene**	**Printing processes**
Larynx	**Acid mists, strong inorganic; Asbestos**	**Insulation material production (pipes, sheeting, textiles, clothes, masks, asbestos cement products); Insulators and pipe coverers; Isopropanol manufacture (strong-acid process); Rubber production industry; Shipyard and dockyard workers**
Leukemia and/or lymphoma	**Benzene; 1,3-Butadiene; Diazinon; Formaldehyde; Ethylene oxide; Lindane; Ionizing radiation; Malathion; Methylene chloride; Styrene; Trichloroethylene**	**Boot and shoe manufacturing and repair; Firefighters; Painting; Petroleum refining; Rubber industry**
Liver and bile duct	**Arsenic and inorganic arsenic compounds; 1,2-Dichloropropane, Methylene chloride; Ionizing radiation; Occupational infections with hepatitis B and C; Polychlorinated biphenyls (PCBs); Trichloroethylene**	**Health care workers; Smelting of ores containing arsenic; Vinyl chloride production; Wood preservation**
Lung	**Arsenic and arsenic compounds; Asbestos; Benzo[a]pyrene; Beryllium; 1,3-Butadiene; Cadmium & cadmium compounds; Chromium (hexavalent) compounds; Coal tars & pitches; Diesel engine exhaust; Epichlorohydrin; Fibrous silicon carbide; Ionizing radiation; Mineral oils (untreated and mildly treated); Nickel and nickel compounds; Radon; Silica (crystalline); Soots; Strong inorganic acid mists containing sulfuric acid; Talc containing asbestiform fibers; 2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD); Tobacco smoke – Involuntary (passive) smoking**	**Aluminum production; Asphalt workers; Coal gasification; Copper smelting; Hematite mining (underground) with radon exposure; Iron and steel founding; Isopropanol manufacture (strong acid process); Painters; Printing processes; Roofers; Rubber production; Uranium mining; Vineyard workers; Welding fumes**

Mesothelioma	**Asbestos; Talc containing asbestiform fibres**	**Blasters; Boilermakers; Bricklayers; Construction workers; Drillers; Electricians; Machinists; Mechanics; Miners; Pipefitters; Plumbers; Sheet metal workers; Shipbuilding workers; Welders**
Nasal cavities and paranasal sinuses	**Chromium (hexavalent) compounds; Formaldehyde; Selected nickel compounds including combinations of nickel oxides and sulfides in the nickel refining industry; Wood dust**	**Boot and shoe manufacturing and repair; Carpenters; Furniture and cabinet making; Isopropanol manufacture (strong acid process); Miners; Plumbers; Pulp and paper mill workers; Textile workers; Welders**
Nasopharynx	**Formaldehyde; Wood dust**	**Embalmers; Formaldehyde production; Laboratory workers; Medical personnel; Plywood production / particle-board production**
Ovary	**Asbestos; Ionizing radiation**	**—**
Prostate	**Arsenic and inorganic arsenic compounds; Cadmium and cadmium compounds; Ionizing radiation; Malathion**	**Rubber production industry**
Skin	**Arsenic and inorganic arsenic compounds; Coal tar distillation; Creosotes; Mineral oils (untreated and mildly treated); Polycyclic aromatic hydrocarbons (PAHs) like benzo[a]pyrene, benz[a]anthracene, and dibenz[a,h]anthracene; Shale oils or shale-derived lubricants; Solar radiation; Soots**	**Coal gasification; Coke production; Outdoor workers; Petroleum refining; Vineyard workers**

Stomach	**Asbestos; Lead compounds, inorganic; Ionizing radiation**	**Asbestos mining; Insulation material production (pipes, sheeting, textiles, clothes, masks, asbestos cement products); Insulators and pipe coverers; Rubber production industry; Shipyard and dockyard workers**