

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 compiled 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
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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-ortho-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; Polychlorinated 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**