Cancer

Occupations, Occupational Groups, or Industries Associated with Carcinogen Exposures

On this page

What are examples of occupational exposures that have been associated with exposure to carcinogens?

Examples of occupations and occupational groups that are more likely to be exposed to cancer risk are listed in the table below.

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 occupations and examples of substances often linked to cancer that may have been used in the workplace.

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

Some Occupations or Occupational Groups Associated with Carcinogen Exposure	
Occupations, Occupational Groups, or Industry	**Examples of suspect cancer causing agent(s) or substance(s)**
Accommodation and food services, healthcare and social assistance, manufacturing, trade, and other	Work at night (including rotating and night shift work)
Acheson process	Silica, silicon carbide
Aircraft and aerospace industries	Asbestos, beryllium and beryllium compounds; ceramic fibres (refractory; respirable), chromates, ionizing radiation, mixed solvents, shift work
Aluminum production	Aromatic amines; pitch volatiles
Asbestos cement industry	Asbestos
Auramine manufacture	Auramine; 2-naphthylamine; pigments
Automotive repair and maintenance	Asbestos, beryllium and beryllium compounds, ceramic fibres (refractory; respirable); diesel engine exhaust, polycyclic aromatic hydrocarbons (PAH), welding fumes
Battery production workers	Cadmium and cadmium compounds, lead compounds
Beryllium extraction, processing, and production of beryllium compounds	Beryllium and beryllium compounds
Boot and shoe manufacture/repair	Leather dust, benzene and other solvents
Bus and truck drivers; Dock workers; Filling station attendants; Mechanics; Operators of excavating machines; Professional drivers; Railroad workers; Transport industry	Diesel engine exhaust
Butchers and meat workers	Viruses, polycyclic aromatic hydrocarbons (PAH)
Cadmium-copper alloy workers; Cadmium-smelter workers	Cadmium and cadmium compounds
Carbon electrode manufacturing	Polycyclic aromatic hydrocarbons (PAH)
Carpentry and joinery; Furniture and cabinet making	Wood dust
Ceramic production and pottery workers, glazers	Cobalt and cobalt compounds; silica
Chemical and rubber industries	Aromatic amines; 1,3-butadiene; isoprene

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Chemical industry	Acetamide; acrylamide; benzene
Chromate production plants; Chromium ferro-alloy production	Chromium (VI) compounds
Coal gasification, coke production	Coal tar, coal-tar fumes; polycyclic aromatic hydrocarbons (PAH)
Construction; Insulation and maintenance workers	Asbestos; beryllium and beryllium compounds, bitumens, diesel engine exhaust; glass wool; lead and lead compounds (inorganic); silica (crystalline); toluene diisocyanates, solar radiation, wood dust
Dry cleaning	Solvents such as carbon tetrachloride; tetrachloroethylene; trichloroethylene
Dye and pigment production	Aromatic amines (e.g., 2-naphthylamine, 4-aminobiphenyl, ortho-toluidine); benzidine; cadmium and cadmium compounds; chromium (VI) compounds
Electrical capacitor manufacturing	Polychlorinated biphenyls (PCBs)
Electronic production/industries	Beryllium and beryllium compounds; dichloromethane (methylene chloride); chromic acid, silica (crystalline), ethylene oxide, formaldehyde, sulfuric acid
Electroplating processes	Cadmium and cadmium compounds, chromium VI
Firefighters	Polycyclic aromatic hydrocarbons (PAH)
Furnace insulators	Ceramic fibres (refractory; respirable)
Furniture and cabinet makers	Wood dust
Furniture restorers	Dichloromethane (methylene chloride)
Glass production workers	Arsenic and antimony oxides, asbestos, cobalt and cobalt compounds, formaldehyde, polycyclic aromatic hydrocarbons (PAH), silica
Hairdressers & barbers	Aerosols, dyes (aromatic amines, amino-phenols with hydrogen peroxide); propellants; solvents
Hematite mining; Uranium miners	Radon daughters; silica (crystalline)
Herbicide production	Polychlorophenols and their sodium salts

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Hospitals	Ethylene oxide
Iron, steel, and ferro-alloy manufacturing, followed by other fabricated metal product manufacturing and building finishing contractor	Ceramic fibres (refractory; respirable)
Iron and steel founding	Formaldehyde; silica (crystalline), polycyclic aromatic hydrocarbons (PAHs), chromium and nickel compounds, use of organic binder materials results in exposure to phenol, formaldehyde, isocyanates, and various amines
Isopropanol manufacture, strong-acid process	Isopropyl oils; propylene, diisopropyl sulfate, strong inorganic mist containing sulfuric acid
Jewellers	Beryllium and beryllium compounds
Leather goods manufacturing including tanning	Benzidinde-based dyes, benzene, formaldehyde, leather dust, polychlorophenols and their sodium salts, chromium (VI) compounds
Magenta manufacture	Magenta; 4,4-methylene bis(2-methylaniline); ortho-nitrotoluene; ortho-toluidine
Manufacture of pottery, paper, paint, rubber, roofing, fertilizers, animal feed, and cosmetics	Talc containing asbestiform fibres
Metal degreasing	Tetrachloroethylene; trichloroethylene
Metal processing, lead-acid battery manufacturing, potato harvesting, manufacturing of chemicals, drugs, and ryon; oil refining	Strong-inorganic mists containing sulfuric acid
Mineral processing	Acrylamide
Miners (including underground)	Cobalt and cobalt compounds; x-radiation, gamma-radiation
Mining and milling	Asbestos
Mining of ores containing arsenic	Arsenic and inorganic arsenic compounds
Nickel refining and smelting; Welding	Nickel and nickel compounds; welding fumes

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Nonferrous metal smelting	Arsenic and inorganic arsenic compounds
Nuclear industry; clean-up workers following nuclear accidents	Beryllium and beryllium compounds; x-radiation, gamma-radiation
Outdoor workers	Solar radiation
Paint stripping; Cleaning and degreasing	Dichloromethane (methylene chloride); 1,2,3-trichloropropane
Perfume preparation; Epoxy resin formulations; Styrene glycol production; Manufacture of cosmetics, surface coatings, agricultural and biological chemicals	Styrene-7,8-oxide
Petroleum refining and distribution	Acetaldehyde, asbestos, benzene, ethylbenzene, formaldehyde (gas), fuels that contain carcinogens (e.g., leaded gasoline), fuel oils residual (heavy), hydrazine, metal welding fumes, lead and lead compounds, nickel oxides, polycyclic aromatic hydrocarbons (PAH), silica, vanadium oxides
Pharmaceutical production	Aniline, antineoplastic drugs, 2,4-diaminoanisole, ortho-anisidine and salt para-anisidine, dichloromethane (methylene chloride), *N*-nitrosodimethylamine
Pickling operations	Inorganic acid mists containing sulphuric acid
Plastics industries	Acetaldehyde; formaldehyde, acrylamide, acetamide; acrylonitrile; ethyl acrylate; isoprene; special purpose glass fibres (respirable); styrene; vinyl acetate, vinyl chloride, o-toluidine, aniline, and nitrobenzene
Plating and engraving; Lithography; Photography	Chromium (VI) compounds
Plutonium workers	X-radiation, gamma-radiation
Polyester resin manufacture; Production of packaging materials and fibreglass-reinforced polyester	Styrene

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Printing processes	Pigments such as carbon black, titanium dioxide, lead chromate, lead compounds, cadmium and compounds, anthraquinone based dyes
Processing of copper and nickel ore	Cobalt and cobalt compounds
Production and use of resins, glycerin and propylene-based rubbers	Epichlorohydrin
Production of art glass, glass containers, and pressed ware	Arsenic; antimony oxides; asbestos; lead; polycyclic aromatic hydrocarbons (PAH); silica (crystalline)
Production of polyvinyl chloride and co-polymers	Vinyl chloride
Production, packaging, and use of arsenic-containing pesticides	Arsenic and inorganic arsenic compounds
Radiologists and technologists; radium-dial painters	X-radiation, gamma-radiation
Railroad workers, filling station attendants, bus and truck drivers, operators of excavating machines	Diesel engine exhaust
Roofers, asphalt workers	Polycyclic aromatic hydrocarbons (PAH)
Rubber manufacturing	Aromatic amines; solvents
Sheep dip manufacture	Arsenic and inorganic arsenic compounds
Sheet-metal workers	Asbestos
Shiftwork that involves circadian disruption	--
Ship builders	Ceramic fibres (refractory; respirable); toluene diisocyanates
Shipyard workers	Asbestos
Stainless-steel welding	Chromium (VI) compounds
Steel and lumber industries	Acrylamide
Synthetic latex production, tire curing, calendering* operatives, reclaim, cable makers	Aromatic amines

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*calendering is a finishing process used on cloth	
Sugar production	Acrylamide
Textile manufacturing/industries	Acrylonitrile; textile dust in manufacturing process; dyes and solvents in dyeing and printing operations; formaldehyde
Vineyard workers using arsenic insecticides	Arsenic compounds, ultraviolet (UV) radiation
Water and wastewater treatment	Acrylamide; chromium (VI) compounds
Wood manufacturing	Pentachlorophenol; polychlorophenols and their sodium salts
Wood preservation	Chromium (VI) compounds; pentachlorophenol
Wool fibre production	Arsenic and inorganic arsenic compounds
Workers in bars and restaurants	Tobacco smoke

Adapted from:

Boffetta, P, et al. Current perspectives on occupational cancer risks. International journal of occupational and environmental health, Vol. 1, no. 4 (1995). p. 315-325

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International Agency for Research on Cancer, 2023. List of Classifications: Agents classified by the IARC Monographs. As viewed on February 27, 2023

Occupational Cancer Research Centre. Burden of occupational cancer in Canada: Major workplace carcinogens and prevention of exposure. Toronto, ON: 2019

Fact sheet last revised: 2023-04-13

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