

Common Causes of Occupational Asthma and Hypersensitivity Pneumonitis

Material

Occupational Risks

Chemical

Isocyanates

Toluene diisocyanate	Polyurethane workers, insulators, laminators
Diphenylmethane diisocyanate	Laminators, polyurethane foam workers
Hexamethylene diisocyanate	Painters, plastics workers
Naphthalene diisocyanate	Chemist, rubber workers

Anhydrides

Trimellitic anhydride	Chemical workers
Phthalic anhydride	Painters/plastics workers
Hexahydrophthalic anhydride	Epoxy resins workers
Tetrachlorophthalic anhydride	Epoxy resins workers
Polyvinyl chloride vapor	Meat wrappers

Formaldehyde

Dimethylethanolamine	Laboratory workers, embalmers, insulators, textile workers, dialysis technicians.
Ethylenediamine	Paint sprayers
Persulfate salts	Rubber workers, photographic processors
Ethylene oxide	Chemical workers, beauticians
Pyrethrin	Medical sterilizers
Ammonium thioglycolate	Fumigators
Monoethanolamine	Beauticians
Hexamethylenamine	Beauticians

Wood dusts

Western red cedar	Millworkers, woodworkers
Cedar of Lebanon	Millworkers, woodworkers
Mahogany	Millworkers, woodworkers
California redwood	Millworkers, woodworkers
Oak	Millworkers, woodworkers
Iroko	Millworkers, woodworkers
Boxwood	Millworkers, woodworkers
Cocabolla	Millworkers, woodworkers
Zebrawood	Millworkers, woodworkers
Mansonina	Millworkers, woodworkers
Mulberry	Millworkers, woodworkers

Metals

Chromic acid	Chrome platers, welders
Potassium chromate and dichromate	Chrome workers, cement workers

Platinum salts
Chloroplatinic acid
Chloroplatinic acid
Nickel sulfate
Nickel carboxyl
Vanadium

Platinum refiners
Platinum refiners
Platinum refiners, chemists
Nickel platers, welders
Chemical workers, nickel platers, welders
Boiler cleaners, turbine cleaners.

Dyes

Anthraquinone
Carmine
Paraphenyl diamine
Hexafix brilliant yellow
Drimarene brilliant blue
Cibachrome brilliant scarlet
Henna extract

Fabric dyes
Cosmetics and dye workers
Fur dyers
Dye manufacturers
Dye manufacturers
Dye manufacturers
Beauticians

Fluxes

Colophony (soft-core solder)
Aminoethylethanolamine

Solderers, electronics workers
Aluminum solderers

Drugs

Benzyl penicillin
Ampicillin
Sulfathiazole
Tetracycline
Psyllium
Methyldopa
Albuterol
Piperazine dihydrochloride
Chloramine T
Organophosphates

Pharmaceutical workers
Pharmaceutical workers
Pharmaceutical workers
Pharmaceutical workers
Pharmaceutical workers
Pharmaceutical workers
Pharmaceutical workers
Pharmaceutical workers
Pharmaceutical workers and laboratory workers
Farm workers, pesticide formulators, fumigators

Enzymes

Pancreatic extracts
Bacillus subtilis
Papain
Trypsin
Flaviastase
Bromelain
Pectinase

Pharmaceutical workers
Detergent manufacturers
Food processors
Plastics and rubber workers
Pharmaceutical workers
Food processors
Food processors

Animals

Domestic animals (hair, dander)
Birds

Farmers, veterinarians, meat processors.
Poultry breeders, bird fanciers

Mice, guinea pigs(dander, urine)	Laboratory workers
Fish (glue)	bookbinders, postal workers
Silkworms	Silk culturers
Insects, mites	Grain mill and storage workers, bakers
Plants	
Wheat	Farmers, grain handlers
Buckwheat	Bakers
Grain dust	Farmers, grain handlers, bakers
Rye flour	Bakers
Hops	Brewers, supplement makers
Tamarind seeds	Millers, spice processors
Castor beans	Farmers, castor bean workers
Coffee beans	Farmers, coffee bean workers
Wool	Textile workers
Tobacco dust	Cigarette manufacturers
Tea	Food processors
Cotton, flax, hemp	Textile workers
Vegetable gums	
Acacia	Printers
Tragacanth	Printers, food processors
Karaya	Food processors
Arabic	Printers
Latex	Pharmaceutical, laboratory, and healthcare workers

Hypersensitivity Pneumonitis associated with different occupations and exposures

Thermophilic Bacteria

Hay, straw	Farmer's lung
Micropolyspora faeni, M. polyspora	
Thermoactinomyces candidus,	
T. Vulgaris	
Grain	Grain handler's lung
Micropolyspora faeni	
Pressed sugar cane	Bagassosis
Thermoactinomyces sacchari	
Heat water reservoirs	Humidifier lung
Thermoactinomyces vulgaris	
Thermoactinomyces candidus	
Micropolyspora faeni	

Other Bacteria

Water reservoirs	Humidifier lung
Bacillus subtilis	

Mushrooms	Mushroom worker's lung
Actinobifida dichotomica	
Detergent Manufacture	Detergent worker's lung
Bacillus subtilis	
True Fungi	
Various Wood pulps	Wood worker's lung
Alternaria sp.	
Wine Grapes	Spaetlese lung
Botrytis cinerea	
Maple Bark	Maple bark stripper's lung
Cryptostroma corticales	
Paprika pods	paprika splitter's lung
Mucor stolonifer	
Aged Cheese	cheese washer's lung
Penicillium casei	
House Dust	Summer type hypersensitivity (primarily identified in Japan)
Trichosporon cutaneum	
Animal Proteins	
Bird serum, excreta	Bird Breeders
Parakeets, pigeons, canaries, ducks	
Feathers	Poultry worker's lung
Galliformes (poultry)	
Fur	Furrier's lung
Fox	
Grain	Miller's lung
Sitophilus granarius (wheat weevil)	
Vegetable matter	
Cork-cork dust	Suberosis
Cotton (Bract of cotton flower)	Byssinosis
Red cedar dust (Thuja plicata)	Cedar worker's lung
Chemicals	
Copper sulfate (vineyard antifungal)	Vineyard sprayer's lung
Polyurethane foam	Chemical worker's lung
Rubber manufacture	
Methylene diisocyanate	
Toluene diisocyanate	
Plastics	Chemical worker's lung
Trimellitic anhydride	

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- 1)- Table 6.7 from Asthma. Chapter 6. Musani, Al, RM Pascual, SP Peters In. Manual of Allergy and Immunology 4th edition. DC Adelman, TB Casale, J Corren p.130-131
- 2)-Table 7.1 from Immunologic diseases of the lung. Michelle Zeidler, Eric C. Kleerup, Michael D Roth in Manual of allergy and Immunology 4th edition. DC Adelman, TB Casale, J Corren p.139