

Occupational Asthma - Agents by occupation

Adhesive

Methyl methacrylate & cyanoacrylates

Aerospace plant

Lipophilic resin

Agricultural

Plasmopara viticola

Agricultural producer

Metabisulfite

Agricultural worker

Cow dander

Melon

Agriculture

Agaricus bisporus (White mushroom)

Agronomist

Bruchus lentis

Aircraft filter

Triethylene tetramine

Anesthesiology staff

Sevoflurane + isoflurane

Angler

Green bottle fly larvae (Lucilla caesar)

Animal behaviourist

African penguin

Animal fodder

Marigold flour (Tagetes erecta)

Apple grower

Fruit tree red spider mite (Panonychus ulmi)

Aquarist, fish-food

Chironomids midge (Chironomus thummi)

Assembly line

Palladium tetraamine dichloride

Autobody shop

Ethoxylated-2-bisphenol-A-diacrylate

Automobile plant

(?) Metal working fluid

Bag manufacturer

Polypropylene

Baker

Alternaria

Baker's yeast (Saccharomyces cerevisiae)

Buckwheat flour

Fungal amylase

Fungal amyloglucosidase and hemicellulase

Gluten

Sesame seed

Soybean lecithin

Wheat, rye and soya flour

Bakery and dairy

Lactalbumin

Occupational Asthma - Agents by occupation

Beauty culture

Monoethanolamine

Beet sugar worker

Aspergillus (unspecified)

Bottling

Ground bug

Bow making

Fernambouc (*Caesalpinia echinata*)

Brewery chemist

Hops

Brusk-makers

Tampico fiber in agave leaves

Butcher

Aromatic herb

Cow bone dust

Pig

Butcher, veterinarian

Goat dander

Cabinet maker

Kotibe wood (*Nesogordonia papaverifera*)

Cabinet worker

African cherry (*Makore*)

Cake processor

Lima bean (*Phaseolus lunatus*)

Canning factory

Octopus

Carpenter

Angelim pedra (*Hymenolobium petraeum*)

Cedrorana (*Cedrelinga catenaeformis* Ducke)

Chengal (*Neobalanocarpus hemeii*)

Ebony wood (*Diospyros crassiflora*)

Iroko (*Chlorophora excelsa*)

Sapele wood dust

Carpenter (work close to a granary)

Liposcelis decolor

Carpentry

Western red cedar (*Thuja plicata*)

Carpet manufacturing

Guar

Cement floorer

Chromate

Cereal manufacture

Thiamine

Cheese producer

Various enzymes in rennet production (proteases, pepsine, chymosines)

Cheese production process

Goat cheese (goat whey)

Chemical factory

Aliphatic polyamine

Occupational Asthma - Agents by occupation

Chemical factory worker

3-(Bromomethyl)-2-chloro-4-(methylsulfonyl)- benzoic acid (BCMBA)

Chemical manufacturing

Captafol
Chloramine T
N-Methylmorpholine
TDI, MDI

Chemical packaging plant

Organic phosphate insecticides

Chemical plant

Isothiazolinone (unspecified)

Chemical worker

1,2-Benzisothiazolin-3-one
Hexahydrophthalic anhydride (HHPA)
Lasamide (precursor of furosemide)

Chemist

Linseed oilcake
Piperazine hydrochloride

Chemist' spouse

Voacanga Africana seed dust

Chicken breeder

Herring worm (*Anisakis simplex*)

Christmas candy maker

Pectin

Citrus farmer

Citrus red mite (*Panonychus citri*)

Cleaners and health care professionals

Ethylene diamine tetraacetic acid (EDTA) sodium salts

Cleaning product

Benzalkonium chloride

Coal miner

Rhizopus nigricans

Construction, carpentry

African Maple (*Triplochiton scleroxylon*)

Cook

Carrot (*Daucus carota* L.)
Green bean (*Phaseolus multiflorus*)
Raw beef

Cosmetic factory

Argan (*Argania spinosa*)
Dusts from seeds of Sacha Inchi (*Plukenetia volubis*)

Cosmetician

Chamomile (unspecified)

Culture of roses

Rose

Curing agent

Methyl tetrahydrophthalic anhydride (MTHPA)

Dairy industry

Lactoserum

Occupational Asthma - Agents by occupation

Decorator

Cacoon seed (Entage qigas)

Deep-sea fisherman

Cuttle-fish

Delicatessen plant

Monascus ruber

Dental hygienist

Gutta-percha

Dentist

Tooth enamel dust

Detergent industry

Bacillus subtilis

Esperase

Detonator manufacturer

Tetrazene

Dietetic product

Shark cartilage

Door manufacturer

Antiaris

Dye manufacture

Carmine

Dyer

Lanasol Yellow 4G

Egg producer

Egg protein

Electrical plant

MTHPA + HHPA

Electronic assembler

95% Alkylaryl polyether alcohol +5% polypro-pylene glycol

Electronic worker

Colophony

Electroplating

Rhodium

Endoscopy unit

Ortho-Phthalaldehyde

Peracetic acid-hydrogen peroxide mixture

Engineer at electric power plant

Caddis flies (Phryganeidae)

Entomologist

Lesser mealworm (Alphitobius diaperinus Panzer)

Moth, butterfly

Epoxy adhesive

Pyromellitic dianhydride

Epoxy floor coater

Isophorone diamine (IPDA)

Epoxy resin

Bisphenol A diglycidyl ether (BADGE)

Occupational Asthma - Agents by occupation

Epoxy resins, plastics

Tetrachlorophthalic anhydride
Trimellitic anhydride

Extermination

Tetramethrin

Factory

Plexiglass

Factory worker

Peach

Farmer

Barn mite
Deer dander
Grain mite
Grain pests (Eurygaster and Pyrale)
Mink urine
Tetrachloroisophthalonitrile
Triticale (Tricoscale Wittmack) (hybrid cereal of rye and wheat)
Two spotted spider mite (Tetranychus urticae)
Vetch (Vicia sativa)

Fish bait breeder

Insect larvae (Galleria mellonella)

Fish bait handler

Mealworm larvae (Tenibrio molitor)

Fish farm

Turbot

Fish food-store

Daphnia

Fisherman

Red soft coral

Fishfood factory

Gammarus shrimp

Fish-food handler

Fish-feed Echinodorus larva (Echinodorus plasmosus)

Fishing industry

Sodium bisulfite

Fishmonger shop

Lobster and shrimp

Fish-processor

Various fishes

Flight crew

Screw worm fly (Cochliomyia homnivorax)

Floor covering material, salesman

Mixture of trimethyl-hexanediamine and isophorondiamine

Floor varnisher

Prepolymers of TDI

Floral worker

Decorative flower
Safflower (Carthamus tinctorius) and yarrow (Achilea millefolium)
Spathe flower
Statice (Limonium tartaricum)

Occupational Asthma - Agents by occupation

Florist

Baby's breath (*Gypsophila paniculata*)
Cyclamen
Ivy (*Hedera helix*)

Flour handler

Konjac flour
Mites and parasites
White pea flour (*Lathyrus sativus*)

Flower industry

Flower (various)

Food industry

Aniseed
FD&C blue dye #2
Fenugreek

Food packaging

Garlic dust

Food processing

White Lupin flour (*Lupinus albus*)

Food processor

Asparagus
Clam and shrimp
Coffee bean
Sodium metabisulfite

Foundry

Diphenylmethane diisocyanate

Foundry mold making

Furfuryl alcohol (furan based resin)

Foundry worker

Aluminium chloride

Frog catcher

Frog

Fruit grower

Peach leaf

Fruit processor

Pectinase and glucanase

Fruit warehouse

Courgette

Fur dyeing

Paraphenylene diamine

Furniture

Blackwood (*Acacia Melanoxylon*)
Brazilian walnut (*Imbuia*)
Common ash (*Fraxinus excelsior*)

Furniture factory

Abiruana (*Pouteria*)
Mukali (*Angineria robusta*)

Gardener

Canari island date palm (*Phoenix canariensis*)
Copperleaf (*Acalypha wikesiana*)
Grass juice

Occupational Asthma - Agents by occupation

Glove manufacturer

Latex

Grain elevator

Grain dust

Greenhouse worker

Amaryllis (*Hippeastrum* sp)
Bell pepper
Chrysanthemum
Eggplant (*Solanum melongena*)
Madagascar jasmine sap (*Stephanotis floribunda*)
Sweetpea (*Lathyrus odoratus*)

Greenhouse workers

Various insects used in biological pest control

Grower

Bell of Ireland (*Molucella laevis*)

Gum importer

Tragacanth

Hairdresser

Henna (unspecified)
Karaya
Sericin

Hairdressers

Hydrolyzed wheat protein

Hairdressing

Eugenol
Persulfate salts (ammonium, potassium, sodium)

Hard metal grinder

Cobalt

Hard metal plant

Cobalt & Nickel

Hardener in paints

Polyfunctional aziridine

Herbal manufacture

Wonji (*Polygala tenuifolia*)

Herbal merchant

Sanyak (*Dioscorea batatas*) and Korean ginseng (*Panax ginseng*)

Herbal shop sales

Black henna (*Indigofera argentea*)

Herbal tea processor

Herbal tea

Herbal tea worker

Sarsaparilla root

Herbal worker

Herb material

Herbalist

Liquorice roots (*Glycyrrhiza* spp)

Herbicide production

3-amino-5-mercapto-1,2,4-triazole

Homemakers

Onion

Occupational Asthma - Agents by occupation

Honey processors

Honeybee

Horticulture

Freesia (*Freesia hybride*) and paprika (*Capricum anuum*)

Horticulturist

Amblyseius cucumeris

Hospital endoscopy unit

Glutaraldehyde

Hospital personnel

Empynase (pronase B)

Hospital pharmacy

Isonicotinic acid hydrazide

Hospital staff

Enflurane

Formaldehyde

Methyl blue

Radiographic fixative

Sulfathiazole

Terpene

Hospital staff (sterilizing agent)

Hexachlorophene

Housewife

Potato

Swiss chard (*Beta vulgaris L. cycla*)

Ivory worker

Ivory dust

Jam factory

Carob bean

Jewellery polisher

Cuttle fish bone

Jointer

Cedar of Lebanon (*Cedra libani*)

Laboratory grinder

Marine sponge

Laboratory nurse

ECG ink

Laboratory technician

Bovine serum albumin

Peptide coupling reagent (TBTU and HBTU)

Sodium isononanoyl oxybenzene sulfonate

Laboratory worker

Cricket

Fruit fly

Grasshopper

Grasshopper (*Locusta migratoria*)

Laboratory animal

Locust

Monkey dander

Ninhydrin

Sunflower (*Helianthus spp*)

Xylanase

Occupational Asthma - Agents by occupation

Laborer

Sooty molds (Ascomycetes, deuteromycetes)

Labourer

Citrus food handling (d,l-limonene, citronellol and dichloroprene)

Lacquer handler

Hexamethylene tetramine

Landscape gardener

Umbrella tree (Schefflera)

Laxative manufacturer

Psyllium

Lifeguard, Swimming teacher

Chloramine (unspecified)

Logging worker

Chrysonilia sitophila

Lumber Millworkwer

Oak (Quercus robur)

Machine tool setter operator

4,4-methylene-bis(morpholine)

Machinist

Stellite (alloy containing ~60 % of cobalt, ~30 % of chromium, tungsten and carbon)

Manufacture bottle caps

Polyvinyl chloride (powder)

Manufacture of flame retardant

Himic anhydride

Manufacture of photocopy paper

Diazonium salt

Manufacture rubber

1,5-Naphthylene diisocyanate

Meat wrapper

Polyvinyl chloride (fumes and powder)

Polyvinyl chloride (fumes)

Mechanic

Chlorendic anhydride

Mechanic in a rye plant

Confused flour beetle (Tribolium confusum)

Medicinal plant processor

Brazil ginseng (Pfaffia paniculata)

Metal grinder

Tungsten carbide

Metal jointing

Zinc chloride & ammonium chloride flux

Metal plating

Nickel sulfate

Metal worker

Triethanolamine

Mineral analysis laboratory

(?)

Occupational Asthma - Agents by occupation

Mould maker

EPO 60

Museum curator

Beetles (Coleoptera)

Mushroom producer

Pleurotus cornucopiae

Mushroom soup processor

Mushroom unspecified

Nacre buttons

Nacre dust

Nurse

Chlorhexidine
Ethylene oxide
Mitoxantrone

Nursery nurse

Triclosan

Office worker, cook, hotel manager

Boletus edulis

Oil industry

Castor bean
Olive oilcake

Olive farmers

White mustard (*Sinapis alba*)

Operator in a dishwashing tablet factory

Protease

Owner of greenhouse

Sea lavender (*Limonium sinuatum*)

Oyster farm

Hoya (Oyster Farm Prawn or Sea-Squirt)

Packager of dried mushrooms

Shiitake (*Lentinus edodes*)

Painter

Polyester

Paper packer

Polyethylene

Paper recycling

Hydroxylamine

Parquet floor layer

Cabreuva (*Myrocarpus fastigiatus* Fr. All.)

Pasta factory

Spinach powder

Pattern maker (wood)

Mahogany (unspecified)

Occupational Asthma - Agents by occupation

Pharmaceutical

5-aminosalicylic acid
7-aminocephalosporanic acid
Aescin
Amoxicillin
Bromelin
Ceftazidime
Cephalosporins
Cimetidine
Colistin
Flaviastase
Hydralazine
Ipecacuanha
Lactase
Methyl dopa
Opiate compounds
Pancreatin
Papain
Penicillamine
Penicillins & Ampicillin
Pepsin
Phenylglycine acid chloride hydrochloride
Piperacillin
Rose hip
Salbutamol intermediate
Serratial peptidase and lysozyme chloride
Spiramycin
Tetracycline
Thiamphenicol
Tylosin tartrate
Vancomycin

Pharmaceutical agent

Egg lysosyme

Pharmacist

Chlorella
Endocrine glands
Lauryl dimethyl benzyl ammonium chloride
Tafenoquine ((R)-N3-(2,6-Dimethoxy-4-methyl-5-(3-trifluoromethyl)phenoxy)quinolin-8-yl)pentane-1,4

Pharmacist packaging pharmaceutical company

Ranitidine (1,1-Ethenediamine, N-[2-[[[5-[(dimethylamino)methyl]-2-furanyl]methyl]thio]ethyl]-N'-meth

Pickling

Glacial acetic acid

Plant keeper

Weeping fig (Ficus benjamina)

Plastic, pharmaceutical

Trypsin

Plastics

Phthalic anhydride

Plastics factory

Styrene

Plastics, rubber

Azobisformamide

Platinum refinery

Platinum

Occupational Asthma - Agents by occupation

Plywood factory worker

Neurospora

Polyester resin production

Maleic anhydride

Polyurethane

Toluene diisocyanate

Popcorn makers

Popcorn flavoring chemical

Pork producer

Pig gut (vapour from soaking water)

Potroom

(?) Aluminum

(?) Fluorine

Poultry feed mixer

Amprolium hydrochloride

Poultry worker

Chicken

Fowl mite

Powder

Lycopodium powder

Power station attendant

(?) Pulverized fuel ash

Prawn processor

Prawn

Preparation of dye solution

Levafix brilliant yellow E36

Printer

Acacia

Chromium

Printing

Triacrylate (unspecified)

Processing plan

Shrimp shell powder

Processing plant

Salmon

Processing worker

Helianthus annuus

Producer of flies

Mediterranean fruit fly (*Ceratitis capitata*)

Production line (using a flux)

Aluminium tetrafluorides (Potassium aluminium tetrafluoride)

Production of cytotoxic drugs (Cisplatin)

Tetrachloroplatinate

Production of PVC

Diethyl-phthalate

Reactive dyes manufacture

Reactive dye

Refrigeration

Freon (unspecified)

Occupational Asthma - Agents by occupation

Research student

Thale cress (*Arabidopsis thaliana*)

Resin

Urea formaldehyde

Respiratory therapist

(?)

Restaurant

Cauliflower and cabbage

Restaurant seafood handler

Scallop and shrimp

Restaurant worker

Shrimpmeal (*Artemia salina*)

Rice mill worker

Rice

Rose extraction

Rose oil

Rubber tyre manufacturer

Tall oil

Saffron processor

Saffron (*Crocus sativus*)

Saponin factory

Quillaja bark (*Quillaja saponaria*)

Sausage processing

Feenel seed

Penicillium nalgiovensis

Sawmill

Eastern white cedar (*Thuja occidentalis*)

White ash (*Fraxinus americana*)

Sawmill worker

Spruce wood (unspecified)

Trichoderma koningii

Sawmills of eastern Canada and USA

Unidentified agent

Sawyer

Ipe (*Tabebuia* spp)

Scallop plant processor

King scallop and queen scallop

Seafood production worker

Squid (*Loligo vulgaris*)

Seed house

Mexican bean weevil (*Zabrotes subfaciatus* Boh.)

Seed packing

Onion seeds (*Allium cepa*, red onion)

Self employed (3D printing)

Acrylonitrile-Butadiene Styrene filaments-(ABS)

Seller

Pleurotus ostreatus (Spores of White spongy rot)

Sericulture

Larva of silkworm

Occupational Asthma - Agents by occupation

Sewage plant worker

Sewer fly (*Psychoda alternata*)

Sewer

Kapok

Shellac handler

Ethylene diamine

Sheller

Almond shell dust

Silk worker

Silkworm

Ski manufacture

3-(Dimethylamino)propylamine (3-DMAPA)

Snow-crab processor

Crab

Solderer

Adipic acid

Zinc fumes

Soldering

Aluminum

Aminoethylethanolamine

Soyabean processors

Soybean (*Glycine maxima*)

Spices processing

Spice

Spray paint

Dimethylethanolamine

Spray painter

Isophorone diisocyanate

Prepolymers of HDI

Triglycidyl isocyanurate

Spray painters

TDI, MDI, HDI, PPI

Store

Cinnamon (*Cinnamomum Zeylanicum*)

Stucco handler

Esparto (*Stipa tenacissima* and *Lygeum spartum*)

Stucco worker

Mucor species (contaminating esparto fibers)

Tanner

Casein (cow's milk)

Tea processor

Tea plant dust (*Camellia sinensis*)

Technician

Arthropods (*Chrysoperla carnea*, *Leptinotarsa decemlineata*, *Ostrinia nubilalis* and *Epehestia kuehniella*)

Aspergillus niger

Dictyostelium discoideum (mold)

Nematode (*Steinernema feltiae*)

Phytase from *Aspergillus niger*

Sheep blowfly (*Lucilia cuprina*)

Occupational Asthma - Agents by occupation

Technician (cosmetic factory)

Miracle tree (*Moringa oleifera*) seed

Technician pharmacy

Passion flower (*Passiflora alata*) & Cascara sagrata (*Rhamnus purshiana*)

Technicians in Pharmacy

Royal jelly

Textile industry

Cibachrome brilliant scarlet 32

Drimaren brilliant blue K-BL

Drimaren brilliant yellow K-3GL

Textile worker

Synozol Red-K 3BS

Thalassotherapist

Algae (specie unspecified)

Tobacco manufacturer

Tobacco leaf

Toolsetter

(?) Oil mist

Trout processor

Trout (?)

Various

Bat guano

Various industries

TDI, MDI, HDI

Vegetable plant

Brassica oleracea (cauliflower and broccoli)

Vegetable wholesaler

Chicory

Venipuncture technician

Tributyl tin oxide

Vine grower

McDaniel spider mite (*Tetranychus macdanieli*)

Water plant

Sulfites (unspecified)

Welder

Chromium & Nickel

Manganese

Welders

Iron (unspecified)

Wine cellar

Lallzyme EX-V (from *Aspergillus niger*)

Wood furniture

Falcata (*Albizia falcataria*)

Woodcarver

California redwood (*Sequoia sempervirens*)

Wood-machinist

African zebrawood (*Microberlinia*)

Kejaat (*Pterocarpus angolensis*)

Occupational Asthma - Agents by occupation

Woodworker

Cocabolla (*Dalbergia retusa*)
Pau Marfim (*Balfourodendron riedelianum*)
Ramin (*Gonystylus bancanus*)
Tanganyika aningre

Wool worker

Dermestidae spp

Workers on factory ships

Alaska pollock and Yellowfin sole

Zoo keepers

Birds