**CAUSATIVE AGENT:**
**PRESERVATIVES**

**SKIN ALLERGEN, SKIN IRRITANT, LUNG SENSITIZER**

**DEFINITION**
Compound added to slow or prevent bacterial growth and/or unwanted changes in chemical property; exposure may lead to exposure may lead to skin irritation or allergy as well as lung sensitization (i.e. allergy).

**HEALTH EFFECTS**
- Allergic contact dermatitis: an allergic reaction of the skin triggered by exposure to a chemical allergen
- Irritant contact dermatitis: a skin rash triggered by over-exposure to water, solvents, friction, or contact with irritating substances (e.g. soaps, detergents)
- Occupational asthma: asthma (i.e. airway obstruction) or the exacerbation of pre-existing asthma resulting from an exposure in the workplace
- Cancer resulting from exposure to carcinogenic compounds

**EXAMPLES**
- Adhesive
- Antimicrobial
- Bleaching agent
- Blockboard
- Chelation agent
- Defoamer
- Dye solutions
- Fiber board
- Flame resistant clothing
- Glulam (glue-laminated timber”)
- Latex emulsions
- Metal working fluids (i.e. coolants, cutting oils, drilling fluids, lubricants, machining fluids)
- Paints
- Particle boards
- Parquets
- Pigment suspensions
- Polymers
- Pulp slurries
- Resin
- Sizing agents
- Starch solution
- Vehicle exhaust
- Vinyl flooring
- Wood cleaner
- Wood products

**KEY COMPOUNDS**
Review cleaning products’ Safety Data Sheets to identify the presence of these compounds. Follow the appropriate precautionary measures.

- 2,2-dibromo-3-nitrilopropionamide (DBNPA)
- Aldehydes (e.g. acetaldehyde, formaldehyde, glutaraldehyde)
  - Acetaldehyde is classified by the International Agency for Research on Cancer (IARC) as a Group 1 carcinogen
  - Formaldehyde is classified as an IARC Group 2B carcinogen
- Alkaline copper quaternary (ACQ)
- Ammonium compounds (e.g. ammonium bromide, ammonium sulfate)
- Bronopol
- Chlorine dioxide
- Chlorothalonil
  - Classified as an IARC Group 2B carcinogen
- Creosotes
  - Classified as IARC Group 2A carcinogens
- Dazomet
- Dichlorophen
- Ethylenediaminetetraacetic acid (EDTA)
- Ethoxyquin
- Formaldehyde releasers [e.g. diazolidinyl urea (DIAZ), dimethylidimethyl (DMDM) hydantoins, imidazolidinyl urea, quaternium 15 (Q-15)]
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KEY COMPOUNDS (CONTINUED)

- Hexahydrotriazine
- Inorganic arsenic compounds [(e.g. ammoniacal copper arsenate (ACA), chromated copper arsenate (CCA))
  - Classified as IARC Group 1 carcinogens
- Iodopropynyl butylcarbamate (IPBC)
- Isothiazolinones [e.g. benzisothiazolinone (BIT), methylchloroisothiazolinone (MCI), methylisothiazolinone (MI), octylisothiazolinone]
- Methylene bisthiocyanate (MBT)
- Parabens (e.g. methylparaben, ethylparaben, propylparaben, butylparaben) pentachlorophenol
  - Classified as IARC Group 1 carcinogens
- Peracetic acid
- Polyethylene glycol
- Sodium bromide
- Sodium hypochlorite
- Tetrakis hydroxymethyl phosphonium sulfate (THPS)
- Thiabendazole
- Thiocyanomethylthio-benzothiazole (TCMTB)

SECTORS: Forestry, mining, pulp and paper.

JOBS

Forestry
Entomologist, field worker/researcher, harvester, logging labourer, pesticide handler, tree planter, timber miller

Mining
Camp attendant, cook, miner (i.e. surface or underground), service crew

Pulp and Paper
Bleachery worker, maintenance technician, mill operator (e.g. sulfite processes)

OTHER CONSIDERATIONS

- Some preservatives have workplace exposure limits

HOW COMMON ARE THE HEALTH EFFECTS?
Approximately 63,000 workers in Ontario are exposed to formaldehyde.
Approximately 8,600 workers in Canada are exposed to acetaldehyde and 4,300 to pentachlorophenol.
14.2% of patients with occupational contact dermatitis tested positive for preservative contact allergy.

KEY PREVENTION STRATEGIES

Substitution
- Use mild skin care products (i.e. mild soap for cleansing, mild detergent for industrial cleaning, waterless hand cleanser for oil and grease removal)
- Replace biocide (e.g. chlorine) use with ultraviolet light (UV) technology

Engineering Controls
- Use automated cold sterilization machines
- Use tools to prevent direct contact with preservatives or products containing preservatives

Administrative Controls
- Provide training on proper glove use (i.e. use cotton liners with nitrile gloves), skin care (i.e. moisturize after hand-washing and throughout the day) and hand washing (i.e. use lukewarm water; avoid hot)
- Rotate workers throughout the work shift to minimize their exposure to preservatives

Personal Protective Equipment
- Use appropriate respirator and gloves (consult manufacturer)
- Avoid gloves made from natural rubber latex (if necessary, use low-protein and powder-free styles)
CAUSATIVE AGENT: PRESERVATIVES

SOURCES


