

Chemical Profiles

Asbestos

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What are other names or identifying information for asbestos?

CAS Registry No.: 1332-21-4

Other Names: Chrysotile, White asbestos, Serpentine asbestos

Main Uses: Historical use in industrial applications, construction, and as fire retardant.

Appearance: Fibres. Colour varies depending on type of asbestos

Odour: Odourless.

Canadian TDG: UN2590

What is the WHMIS classification?

According to the Commission des normes, de l'équité, de la santé et de la sécurité du travail (CNESST), [asbestos](#) can be classified as:

Carcinogenicity - Category 1A

Specific target organ toxicity - repeated exposure - Category 1



The signal word is danger.

The hazard statements include:

- May cause cancer.
- Causes damage to organs through prolonged or repeated exposure

Please note that this classification was retrieved from the [CNESST](#) site on February 21, 2023 and was established by CNESST personnel to the best of their knowledge based on data obtained from scientific literature and it incorporates the criteria contained in the *Hazardous Products Regulations* (SOR/2015-17). It does not replace the supplier's classification which can be found on its Safety Data Sheet.

What are the most important things to know about asbestos in an emergency?

Emergency Overview: Fibres. Odourless. Will not burn. VERY TOXIC. Prolonged or repeated exposure causes damage to lungs. CANCER HAZARD. May cause cancer, if inhaled.

What are the potential health effects of asbestos?

Main Routes of Exposure: Inhalation; skin contact; eye contact.

- **Inhalation:** Not harmful. However, can cause very serious effects from long-term exposure.
- **Skin Contact:** Not irritating.
- **Eye Contact:** May cause slight irritation as a "foreign object". Tearing, blinking and mild temporary pain may occur as particles are rinsed from the eye by tears.
- **Ingestion:** Not harmful.

- **Effects of Long-Term (Chronic) Exposure:** VERY TOXIC. Can cause lung damage if the dust is breathed in. Symptoms may include shortness of breath, chronic cough and weight loss. There may be a decrease in lung function and ability to do some physical activities. In severe cases, there can be effects on the heart and death from heart failure. Inhalation of asbestos fibres can also lead to four types of non-cancerous abnormalities in the lining of the chest cavity (pleura). These are: localized deposits of collagen (pleural plaques); fluid in the pleural space (pleural effusion); diffuse thickening and fibrosis of the pleura; and folded lung or rounded atelectasis (a condition which occurs when an area of pleural fibrosis rolls into the lung making a portion of it airless).
 - **Carcinogenicity:** CARCINOGEN. May cause cancer. Known to cause: lung cancer, mesothelioma (cancer of the lining of the chest cavity, the abdominal cavity or around the heart).
 - International Agency for Research on Cancer (IARC): Group 1 - Carcinogenic to humans.
 - American Conference for Governmental Industrial Hygienists (ACGIH): A1 - Confirmed human carcinogen.
 - **Teratogenicity / Embryotoxicity:** Not known to harm the unborn child.
 - **Reproductive Toxicity:** Not known to be a reproductive hazard.
 - **Mutagenicity:** Conclusions cannot be drawn from the limited studies available.
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What are first aid measures for asbestos?

Inhalation: Take precautions to ensure your own safety before attempting rescue (e.g. wear appropriate protective equipment). Move victim to fresh air.

Skin Contact: Wash gently and thoroughly with gently flowing water and non-abrasive soap for 5 minutes.

Eye Contact: Immediately flush the contaminated eye(s) with gently flowing water for 5 minutes, while holding the eyelid(s) open. Get medical attention immediately.

Ingestion: Call for medical assistance if the victim feels unwell.

First Aid Comments: If exposed or concerned, see a doctor for medical advice. All first aid procedures should be periodically reviewed by a medical professional familiar with the chemical and its conditions of use in the workplace.

Note to Physicians: Some jurisdictions specifically regulate asbestos and require a complete medical surveillance program. Specific information should be sought from the appropriate government agency in your jurisdiction.

What are fire hazards and extinguishing media for asbestos?

Flammable Properties: Does not burn.

Suitable Extinguishing Media: Not combustible. Use extinguishing agent suitable for surrounding fire.

Specific Hazards Arising from the Chemical: Caution must be exercised if a fire or explosion occurs in an area or building containing asbestos. Evacuate area. When possible, avoid generation of asbestos dust into the air. Not known to generate any hazardous decomposition products in a fire.

What are the stability and reactivity hazards of asbestos?

- **Chemical Stability:** Normally stable.
 - **Conditions to Avoid:** Not applicable.
 - **Incompatible Materials:** Chemically stable. Not corrosive to metals.
 - **Hazardous Decomposition Products:** None known.
 - **Possibility of Hazardous Reactions:** None known.
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What are unintentional release measures for asbestos?

Only trained personnel should work with this product.

Personal Precautions: Evacuate the area immediately. Isolate the hazard area. Keep out unnecessary and unprotected personnel.

Methods for Containment and Clean-up: Avoid generating dust. Collect using shovel/scoop or approved HEPA vacuum and place in a suitable container for disposal. Avoid dry sweeping. If necessary, use a dust suppressant such as water. Do not use compressed air for clean-up.

What handling and storage practices should be used when working with asbestos?

Handling: Before handling, it is important that all engineering controls are operating and that protective equipment requirements and personal hygiene measures are being followed. Avoid generating dusts. Only trained personnel should work with this product. Comply with applicable regulations.

Storage: Store in tightly closed, properly labelled containers. Empty containers may contain hazardous residue. Store separately. Keep closed.

What is the American Conference of Governmental Industrial Hygienists (ACGIH®) recommended exposure limit for asbestos?

ACGIH® TLV® - TWA: 0.1 f/cc (respirable fibers); A1

Exposure Guideline Comments: TLV® = Threshold Limit Value. TWA = Time-Weighted Average. A1 = Confirmed human carcinogen.

Adapted from: 2022 TLVs® and BEIs® - Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices. Cincinnati: American Conference of Governmental Industrial Hygienists (ACGIH)

NOTE: In many (but not all) Canadian jurisdictions, the exposure limits are similar to the ACGIH® TLVs®. Since legislation varies by jurisdiction, contact your local jurisdiction for exact details. A list is available in the OSH Answers on [Canadian Governmental Occupational Health & Safety Departments](#).

A list of which acts and regulations that cover [exposure limits to chemical and biological agents](#) is available on our website. Please note that while you can see the list of legislation for free, you will need a subscription to view the actual documentation.

What are the engineering controls for asbestos?

Engineering Controls: Use stringent control measures such as process enclosure to prevent product release into the workplace. Use a ventilation system separate from other exhaust ventilation systems. Filter the contaminated air before it is directly exhausted to the outside.

What Personal Protective Equipment (PPE) is needed when working with asbestos?

Eye/Face Protection: Not required but it is good practice to wear safety glasses or chemical safety goggles.

Skin Protection: Coveralls or long sleeve shirts and pants.

Respiratory Protection:

At concentrations above the NIOSH REL, or where there is no REL, at any detectable concentration:

(APF = 10,000) Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode; or Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained positive-pressure breathing apparatus.

APF = Assigned Protection Factor; REL = Recommended Exposure Limit

Recommendations apply only to National Institute for Occupational Safety and Health (NIOSH) approved respirators. Refer to the [NIOSH Pocket Guide to Chemical Hazards](#) for more information.

NOTE: NIOSH has classified this material as a potential occupational carcinogen, according to specific NIOSH criteria. See [Appendix E](#) of the NIOSH Pocket Guide to Chemical Hazards for more information. The requirements in Canadian jurisdictions may vary.

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