

# Asbestos

## Asbestos - What is...

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## What is asbestos?

Asbestos is the generic name for 6 different naturally-occurring fibrous minerals. A "fibre" is defined as a particle that is more than 5 micrometres ( $\mu\text{m}$ ) in length and having a length to width ratio of at least 3:1. Many Canadian regulations further add that a fibre of asbestos must also be less than 3  $\mu\text{m}$  wide.

Based on their physical and chemical properties, there are two major groups of asbestos: serpentine and amphibole.

**Serpentine:** Serpentine fibres are long, flexible and curved. These fibres can be woven together. The main type of serpentine asbestos is chrysotile (white asbestos), which is the main type of asbestos used in manufacturing.

**Amphibole:** Amphibole fibres are straight and stiff. These fibres are generally brittle and rod- or needle-shaped, which limits their commercial usefulness. There are 5 sub-types of amphibole asbestos, including:

- Crocidolite (blue asbestos)
- Amosite (brown asbestos)
- Actinolite
- Anthophyllite
- Tremolite

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## What was covered in this document?

This document is part of a series of documents on asbestos:

- **Asbestos - What is...**
- [Asbestos - Health Effects](#)
- [Asbestos - Control Strategies for Workplaces](#)
- [Asbestos - In the Home](#)

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## Where was asbestos mined in Canada?

Asbestos occurs in large natural deposits, or as contaminants in other minerals. For example, tremolite asbestos may occur in deposits of chrysotile, vermiculite, and talc.

While asbestos has not been mined in Canada since 2012, according to the American Geographical Society's Geographical Review in 1967, almost 40% of the world's asbestos production was at that time concentrated in a narrow area in southern Quebec, known as the "Serpentine Belt".

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## Where was asbestos used?

Because it has heat-resistant and insulating properties, asbestos was used in a wide range of manufactured products. Before 1990, asbestos was mainly used for insulating buildings and homes against cold weather and noise, and for fireproofing. Asbestos was used by industry, construction, and commercial sectors in products such as:

- Building materials (roofing shingles, roof sealants, ceiling and floor tiles, paper products and felts, house siding, and asbestos-containing cement and plaster products).
- Friction materials (automobile clutch pads, brake linings, pads and shoes, and transmission parts).
- Fire and heat protection wear.
- Industrial furnaces and heating systems.
- Asbestos textiles (fabrics).
- Heat, electrical, and sound insulation or wrappings.
- Insulation for hot and cold areas.
- Packing materials, gaskets, linings, and coatings.
- Reinforcement of plastic products, thermoset and thermoplastic resins.

- Filler in resins, plastics and caulking and in asphalt road surfacing.
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## Why was asbestos used in so many products?

All forms of asbestos are resistant to heat, fire, chemical, and biological break-down. Asbestos does not dissolve in water or evaporate. These properties mean that asbestos fibres do not burn, do not undergo significant reactions with most chemicals, and do not break down significantly in the environment. Other properties of asbestos that made it so commercially desirable include its wear and friction characteristics, its tensile strength, its heat, electrical and sound insulation capabilities, and its adsorption capacity. With these properties, asbestos was useful in a wide range of manufactured products such as building materials, friction products, and heat-resistant fabrics.

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## What is the concern about asbestos?

Asbestos is a friable material which means that when it is dry, it can be crumbled, pulverized or powdered. Small fibres and clumps of fibres may be released into the air as dust. Inhaling asbestos during its manufacturing or use is the main health concern.

The human [health effects](#) from long-term asbestos exposure are well documented, including asbestosis and changes in the lining of the lungs (pleural abnormalities). All forms of asbestos have been shown to cause lung cancer and mesothelioma.

There are no significant health risks if the materials containing asbestos in your home or work are:

- Tightly bound in the original product, and it is in good condition.
  - Sealed behind walls and floorboards.
  - Isolated in the attic.
  - Left undisturbed.
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## Where is asbestos banned?

Asbestos has been banned entirely in 39 countries since 1983, including the European Union, Argentina, Australia, Chile, Croatia and Saudi Arabia. Other countries are either severely restricting its use or phasing it out over a specified period of time. All new uses of asbestos were banned in the US by the Environmental Protection Agency (EPA) in July 1989. In Canada, the federal government restricted use of asbestos in 2018 through enactment of the [Prohibition of Asbestos and Products Containing Asbestos Regulations](#) SOR/2018-196 (as under the Canadian Environmental Protection Act, 1999). Please consult the regulations for further details.

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## What are some international hazard ratings for asbestos?

The Commission des normes, de l'équité de la santé et de la sécurité du travail (CNESST) suggests that asbestos be classified as the following under the Workplace Hazardous Materials Information System (WHMIS) criteria:

- Carcinogenicity - Category 1A
- Specific target organ toxicity - repeated exposure - Category 1

Asbestos is listed as carcinogenic by:

- International Association for Research on Cancer (IARC): Group 1 (Carcinogenic to humans).
- American Conference of Governmental Industrial Hygienists (ACGIH), A1 (Confirmed human carcinogen).
- US National Toxicology Program (NTP) Report on Carcinogens: Known to be a human carcinogen.
- European Union EU Classification and Labelling information: Carcinogenic, Category 1. May cause cancer.

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