

CAW

Health and Safety Fact Sheet



HAZARDOUS SUBSTANCE

ASBESTOS

What is Asbestos?

Asbestos is a natural, fibrous mineral which is mined and processed. There are several types of asbestos. The main type is chrysotile (white asbestos) which accounts for 99% of present world production. It is the type mined in Canada, Russia, China, Kazakhstan, Brazil and Zimbabwe. The other types are crocidolite (blue asbestos), amosite (brown asbestos), tremolite, anthophyllite and actinolite. The vast majority of asbestos used in the world has been chrysotile. To the naked eye, chrysotile asbestos looks curly so it is classed as serpentine (like a snake) asbestos, while the other types are amphiboles, characterized by straighter looking fibres.

Uses of Asbestos:

The word “asbestos” comes from the Greek term for “inextinguishable” and refers to the use in temple lamps of asbestos wicks that would not be consumed by the flame. Asbestos has unique physical properties which made it valuable in a wide range of industrial applications. In addition to being incombustible, it is virtually immune to the forces of corrosion and decay under almost every condition of temperature and moisture and is also immune to almost all chemical reactions. Consequently, it had various uses. It was woven into protective clothing for workers who were exposed to heat and hot metal. It was used in brake linings and clutches. Charlemagne used asbestos napkins in 900 AD. When he threw them into the fire, they came out clean.

Asbestos has been used in cement to make water pipes and roofing materials. It was used as a spray-on insulation material for ceilings and beams, and put on pipe lagging and around boilers. It is still found in many buildings as insulation and in vinyl floor tiles and in ceiling tiles.

There used to be some 3,000 products manufactured in North America from asbestos.

Today, there are almost no products of any sort manufactured here from asbestos, though in North America it is still legal to use asbestos in products like vinyl floor tiles and asbestos cement. Asbestos use has been banned in the European Community since January 1, 2005.

The reason asbestos has been banned is because the very properties that made asbestos

useful in so many different ways -- its indestructibility -- made it a health hazard for workers. Asbestos fibres lodge in the body and stay there forever, causing a variety of diseases.

Asbestos was first mined in Canada in 1879 and is still being mined here. Today, 95% of Canadian asbestos is exported to countries in the developing world where it is mostly used to make asbestos cement pipes and roofing tiles. Workers in these developing countries have little or no protection and they will die of asbestos related diseases in enormous numbers over the coming decades.

Asbestos and Health:

Asbestos enters your body through breathing in the tiny asbestos fibres. As well, you can ingest (eat) them by breathing through your mouth and by taking them in on food or drinks.

Asbestosis - The ancient Romans had noted that slaves who corded and wove asbestos fibres into cloth suffered from a sickness in their breathing. This knowledge of what we now know as asbestosis lay dormant until 1900, when an autopsy on the body of a 33 year old man who had worked for 14 years in one of the earliest asbestos-textile factories, established the cause of death as scarring and thickening (fibrosis) of the lung tissues, in which asbestos fibres were imbedded. This man was the last survivor of a group of ten who were employed at the small factory in 1886. All the rest died before their thirtieth birthdays.

Each asbestos fibre which can be seen by the naked eye or under a microscope, consists of thousands of smaller fibres so tiny that there are a million of them in three centimetres. When such extremely fine fibres get into the air they are almost weightless and, instead of settling like ordinary dust particles, they float indefinitely and invisibly. When they are breathed in they are not trapped by the hairs or mucous of the air passages, but are inhaled deep into the tissues of the lungs and into the air sacs through which oxygen is transferred to the bloodstream.

The body cannot destroy these asbestos fibres, so over a period of time forms scar tissue around them. The lungs become tough and inelastic. Breathing becomes difficult, insufficient oxygen reaches the blood and the heart becomes enlarged and weakened. Death will result if the condition is allowed to continue unchecked.

In 1931 the British Parliament passed legislation which recognized asbestosis as a compensable occupational disease, required improved exhaust ventilation and dust-suppression in asbestos-textile plants, and provided for periodic medical examination of workers exposed to especially high asbestos dust concentrations.

The latency period for asbestosis is usually at least ten years and the higher the exposure, the greater the chance of developing the disease. Asbestosis tends to be linked to heavy occupational exposure, although cases of asbestosis among those not occupationally exposed have been known.

Lower dust levels in industry and the removal of workers from industry before their lungs were so scarred as to render them completely disabled reduced the incidence of asbestosis.

Cancer:

By the 1950s a few doctors were beginning to suggest that asbestos workers, instead of dying young with asbestosis were living long enough to develop asbestos-induced cancer. Cancers may not develop for decades from the time workers were exposed to asbestos.

There are several types of cancer caused by asbestos:

- Lung (80% fatal within 5 years), trachea, and laryngeal cancer
- gastro-intestinal cancer (including oesophagus, stomach, colon and rectum)
- mesothelioma (A rare cancer always associated with asbestos, always fatal, usually within 18 months to two years; it is cancer of the lining of the lung, or, in cases of very high asbestos exposure, of the lining of the abdomen.)

Studies have found that excess cancer rates can occur among workers exposed to relatively low levels of asbestos (that is, within present allowable limits according to government regulations) for long periods of time or exposed to high levels for relatively brief periods of time (even a few weeks of high exposure are enough).

Lung Cancer

Asbestos-related lung cancer can occur from occupational or environmental exposure; it is virtually incurable. The chances of recovery for those whose lung cancer is caused by asbestos are worse because the lungs may already be damaged by the dust. One type of lung cancer asbestos causes, undifferentiated, small-cell type, is the one with the least hope of treatment. The latency period for lung cancer associated with asbestos exposure is usually between 15 and 35 years. Lung cancer is found among asbestos workers in even great numbers than the incidence of mesothelioma.

Lung cancer may result from relatively low-dose exposure and a review of eight studies showed that there is no evidence of a threshold below which excess disease does not appear. Less than one month of work in one factory was sufficient to significantly increase the risk of death 15 to 20 years later.

Mesothelioma

Mesothelioma is a formerly rare, but increasingly common cancer of the lining around the lung which is always caused by asbestos. This type of mesothelioma is called pleural mesothelioma.

In the past, high exposures to asbestos led to peritoneal mesothelioma which is found in the lining around the abdominal cavity. Malignant mesothelioma can be contracted from very low exposures to asbestos and accounts for the majority of victims who contract an asbestos-related disease through environmental exposure in the community or in the home from being exposed to a family member's clothing. The latency period for mesothelioma is generally between 30 to 50 years but it can be less. On average, mesothelioma patients survive for eighteen months to two years following diagnosis although some people survive considerably longer. Currently, there is no known cure.

Today, most victims have only secondary links with asbestos, often as construction workers, carpenters, plumbers or electricians.

The mesothelioma rate per million people for Canada is one or two cases per year but for Québec, where asbestos has been mined since 1879, it is 14.9 per million for men and 3.2 per million for women (1982-86). Of the 180 Québécois who die each year as a result of their work, about 60 of them (one-third) die because exposure to asbestos gave them mesothelioma, lung cancer or asbestosis.

Other Diseases

Chronic obstructive lung disease (chronic bronchitis and emphysema), cor pulmonale and other heart disease (caused by the stress on the heart from difficulty breathing) are additional effects of asbestos exposure. Pleural plaques are areas of scarring on the lining of the lung which can be seen on an X-ray or CT scan but usually there are no symptoms such as shortness of breath at this stage. Asbestos warts are skin growths that occur when fibres penetrate the skin but usually disappear after exposure ceases.

Bystanders

The families of asbestos workers can be harmed, including suffering from cancer, from the relatively low exposure from the clothes workers wear home. One of our members' sons died at 16 from mesothelioma. His father had brought asbestos home on his clothes. Even ordinary urban dwellers are exposed to certain levels of risk from dust from asbestos insulation that can be circulated through heating or air conditioning systems, thrown off by worn brake drums (used in cars well into the 1980s), or released when old buildings are torn down.

What about Smoking?

The risk of lung cancer from smoking is 10 times that of the general population. The risk of lung cancer from asbestos exposure is 9 times that of the general population. But the risk of lung cancer to those who both smoked and were exposed to asbestos as insulation workers was 92 times that of the general population, according to an article that appeared in the Journal of the American Medical Association.

Support the International Ban on Asbestos

Asbestos kills people. It should be banned and safer substitutes used. Asbestos mines must be shut down and the miners provided income continuity, re-training and re-location assistance. Asbestos must not be exported from Canada to other countries where people often have few resources to protect themselves.

Prevention in the Workplace:

1. Ban asbestos and substitute less hazardous, asbestos-free products.
2. Inventory and map where asbestos is found.
3. Inspect asbestos areas regularly for damage or deterioration.
4. Ensure no work is done in any area where asbestos is found to be damaged or friable (crumbly to hand pressure).
5. Insist all damaged or friable asbestos is first removed by competent asbestos removal experts.
6. Segregate the area in which asbestos is being removed and ensure that there is a proper plastic covering with negative pressure so fibres cannot escape.
7. Provide Personal Protective Equipment - for all workers who may be exposed to dust in emergency situations. This includes approved respirators which have been fit-tested.
8. Educate and train everyone who may come into contact with asbestos.

Asbestos is found in or on the following areas in our workplace:

Ceilings	Yes	No	Where:	Action:
Walls	Yes	No	Where:	Action:
Cladding	Yes	No	Where:	Action:
Pipes	Yes	No	Where:	Action:
Boilers	Yes	No	Where:	Action:
Floor tiles	Yes	No	Where:	Action:
Cement	Yes	No	Where:	Action:

Asbestos Substitutes

Asbestos fibres are being replaced by various substitute fibres - both natural and man made. Although there is a lack of full health and toxicological data for substitute fibres, based on basic principles of fibre toxicology (based on size, diameter and propensity of a material to release fibres into the air), countries world-wide are replacing asbestos in the following products:

- Asbestos cement products (profiled sheet, flat sheet, building boards, slates, pressure pipes and moulded goods): with polyvinyl alcohol (PVA), cellulose, polyacrylonitrile (PAN), glass fibre, unplasticised polyvinyl chloride (for pressure pipes).
- Friction material (brake linings, brake pads and clutch facings): with aramid fibres, PAN, some metal and semi-metallic materials are also used in combination.

- Gaskets and sealing materials: with aramid fibres in conjunction with cellulose pulp or glass fibres with various mineral fillers. For sealing material, glass yarn and mineral wools are used.
- Composites: with aramid fibre, glass fibre, carbon fibre, cotton, organic fibre, man-made mineral fibres and particulate mineral fillers.
- Heat-resistant textiles: with blends of organic, glass, metal and synthetic fibres. Refractory fibres are used at higher temperatures and synthetic organic fibres at lower temperatures.

Occupational Exposure Limits

Most provinces have 0.1 f/cc as the legal limit for asbestos. The federal and Québec limits, however, are ten times less stringent at 1 f/cc for chrysotile asbestos, the type mined in Québec. Why should workers in Québec and in the federal jurisdiction not be protected with the same legal limit as other workers in Canada? After all, the strictest occupational exposure limits for chrysotile asbestos (0.1 f/cc) are estimated to be associated with lifetime risks of 5/1,000 for lung cancer and 2/1,000 for asbestosis. The ACGIH TLV for all types of asbestos is 0.1 f/cc.

Useful Information on Asbestos

We consult the International Ban Asbestos Secretariat. Their home page is:

www.ibas.btinternet.co.uk

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