
FREQUENTLY ASKED QUESTIONS ABOUT ASBESTOS

What is asbestos?

Asbestos is a naturally occurring family of fibrous minerals found in certain types of rock formations. These minerals are made-up of long, thin fibers that vary in length and may be straight or curled. The typical size of asbestos fibers is 0.1 to 10 µm in length, a size that is not generally visible to the human eye. There are six types of asbestos: chrysotile, amosite, crocidolite, anthophyllite, actinolite, and tremolite. Of these general types, the minerals chrysotile (white), amosite (brown), and crocidolite (blue) have been most commonly used in buildings. Approximately 95% of all asbestos used in commercial products is chrysotile.



Where was asbestos used?



Asbestos fibers are heat resistant, strong, and flexible. They are incombustible and cannot be degraded or destroyed easily. Because of these properties, asbestos has been used in more than 3,000 products, including ceiling and floor tiles, thermal and electrical insulation, cement pipe and sheet, filters, coatings, brake linings, clutch facings, gaskets, plastics, fireproofing textiles, insulating papers, and protective clothing. The amount of asbestos contained in these products varies from 1 to 100%, depending on the particular use. Most products made today do not contain asbestos. Homes built before 1977 may have asbestos-containing materials.

How does asbestos enter the environment?

When disturbed, asbestos fibers may become suspended in the air for many hours. The potential of an asbestos-containing product to release fibers is dependent upon its degree of friability. Friable means that the material can be crumbled, pulverized, or reduced to powder with hand pressure and, therefore, is likely to emit fibers. The fibrous or fluffy spray-applied asbestos materials found in many buildings for fire proofing, insulating, and sound proofing generally considered friable. All forms of asbestos have a tendency to break down into a dust of tiny fibers that can float in the air, stick to clothes, and may be easily inhaled or swallowed.

How might I be exposed to asbestos?

Human exposure to asbestos is primarily through inhalation and ingestion of fibers. Because asbestos is so widely used, most people are exposed to low levels in the air they breathe. Exposure to higher levels of asbestos might be found near industries that use or make asbestos products, living near a building that is being renovated that contains asbestos

products, or living near a waste site where asbestos is not properly stored to protect it from wind erosion. Trace amounts might also be found in drinking water containing asbestos from natural sources or from asbestos-containing cement pipes in drinking water distribution systems. In rural areas, an average of around 0.03 to 3 fibers are usually present in a cubic meter (f/m^3) of outdoor air. Higher levels are found in cities, where there may be 3-300 f/m^3 . Close to an asbestos mine or factory, levels could reach 2,000 f/m^3 or higher.

The concentrations of indoor air depend on whether asbestos-containing materials are in good condition or are deteriorated and easily crumbled. Concentrations measured in homes, schools, and other buildings that contain asbestos range from 30 to 6,000 f/m^3 . People who work with asbestos (e.g. miners, insulation workers, automobile brake mechanics) are likely to be exposed to much higher levels of asbestos in air.

Drinking water might also contain asbestos. Even though asbestos does not dissolve in water, fibers can enter water from natural deposits or piles of waste asbestos, or from cement pipes used to carry drinking water. Most drinking water supplies in the United States have concentrations less than 1 million fibers per liter (MFL).

How can asbestos enter and leave my body?

When breathing asbestos fibers into the lungs, some of the fibers will be deposited in the air passage and on the cells that make up the lungs. Most fibers are removed from the lungs by being carried away in a layer of mucous to the throat, where they are swallowed into the stomach. This process usually takes place within a few hours, but fibers that are deposited in the deepest parts of the lung are removed more slowly, and some can remain in place for many years and may never be removed.

When swallowing asbestos fibers (either those present in water or those that are moved to the throat from lungs), nearly all fibers pass along the intestines within a few days and are excreted in the feces. A small number of fibers may penetrate into cells that line the stomach or intestines and may enter the blood stream. Some of these become trapped in other tissues or some are removed in urine.

How can I prevent exposure during remodeling?

If you suspect your house contains asbestos and you are planning to do remodeling, check with your local health, environmental, or other appropriate officials to learn about proper handling and disposal procedures. It is not recommended to do even minor home repairs or improvements without a licensed professional because handling asbestos-containing materials may create an unnecessary hazard. There are licensed professionals who specialize in repair and removal of asbestos.



There are tips to follow if simple home improvements are done privately. Take precautions to avoid damaging asbestos-containing materials. Do not saw, sand, scrape, or drill holes in asbestos containing materials. When asbestos flooring needs to be replaced, install new flooring over top. Tearing up the old floor will cause fibers to be released, exposing individuals to high levels of asbestos. Use a wet mop when cleaning. Do not dust, sweep, or vacuum debris that contains asbestos. Improper handling will increase the risk of exposure and health effects.

What are the health risks of asbestos exposure?

Although the inhalation of asbestos fibers can cause serious health risks, the risk of asbestos-related disease depends upon the level of exposure to airborne fibers. How many fibers a person must breathe to develop disease is uncertain. However, at very low exposure levels, health risks are not serious. Inhalation of asbestos fibers at very high levels in occupational settings has been shown to cause asbestosis (a fibrous scarring of the lungs), lung cancer (bronchogenic carcinoma), and mesothelioma (a cancer of the lining of the chest or abdominal cavity) in workers. These diseases do not develop immediately after inhalation of asbestos fibers. Symptoms may occur 10 to 20 years after exposure.

What are the interactive effects of asbestos and cigarette smoke?

Cigarette smoking and asbestos exposure have a strong synergistic interaction in the development of lung cancer. Increased cases of asbestos-related lung cancer occurred among people who smoked (for who has the risk of lung cancer is already high) and were exposed to asbestos. Smoking doesn't just add to the risk, it multiplies it. Because of some interaction in the body, people who are exposed to asbestos and also smoke have an increased risk of lung cancer fifty to ninety times greater than people who do not smoke and are not exposed to asbestos. Although there is an interactive effect on lung cancer, smoking does not appear to increase the risk of mesothelioma.

Is there a medical test to determine whether I have been exposed to asbestos?

Medical testing is usually recommended only for people with long-term occupational exposure to asbestos who are having symptoms of lung disease. The most common test used to determine if a person's symptoms are caused by asbestos is a chest X-ray. Chest X-rays cannot detect asbestos fibers, but can detect signs of lung disease caused by asbestos. Tests are available to measure asbestos fibers in urine, feces, mucus, or material rinsed out of the lung. However, low levels of asbestos fibers are found in the body fluids of nearly all people; higher than average levels can only show that one has been exposed to asbestos, not whether one will experience any health effects.

Are there any standards or guidelines to protect people from exposures to asbestos?

The U.S. Occupational Safety and Health Administration (OSHA) standards require that employers ensure that no employee is exposed to an airborne concentration of asbestos in excess of 0.1 f/cm^3 of air as an 8-hour time weighted average. The U.S. Environmental Protection Agency (EPA) banned all new uses of asbestos on July 12, 1989. Uses established before this date are still allowed. The EPA has established regulations that require school systems to inspect for damaged asbestos and to eliminate or reduce exposure by removing the asbestos or covering it up so it cannot enter the air. The EPA has set a limit of 7 MFL as the allowable concentration of long asbestos fibers in drinking water.

Whom should I contact to get more information about asbestos?

If you need further information regarding the health effects of asbestos, please contact the Virginia Department of Health, Division of Environmental Epidemiology, (804)-864-8182.

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