

What is Asbestos?

Asbestos is the name given to a number of naturally occurring fibrous silicate minerals that have been mined for their useful properties such as thermal insulation, chemical and thermal stability, and high tensile strength. The three most common types of asbestos are: a) chrysotile, b) amosite and c) crocidolite. Chrysotile, also known as white asbestos and a member of the Serpentine mineral group is the commonest. Asbestos can only be identified under a microscope.

Asbestos differs from other minerals in its crystal development. The crystal formation of asbestos is in the form of long thin fibers. Asbestos is divided into two mineral groups --- Serpentine and Amphibole. The division between the two types of asbestos is based upon the crystalline structure. Serpentine have a sheet or layered structure where amphiboles have a chain-like structure. As the only member of the serpentine group, Chrysotile(A, B) is the most common type of asbestos found in buildings. Chrysotile makes up approximately 90%-95% of all asbestos contained in buildings in the United States.

In the amphibole group, there are five types of asbestos. As an acronym for the Asbestos Mines of South Africa, Amosite is the second most prevalent type of asbestos found in building materials. Amosite is also known as "brown asbestos." Next, there is Crocidolite or "blue asbestos," which is an asbestos found in specialized high temperature applications. The other three types (Anthophyllite, Tremolite, and Actinolite) are rare and found mainly as contaminants in other minerals. Asbestos deposits can be found throughout the world and are still mined in Australia, Canada, South Africa, and the former Soviet Union.

Why is asbestos a hazard?

Asbestos is made up of microscopic bundles of fibers that may become airborne when distributed. These fibers get into the air and may become inhaled into the lungs, where they may cause significant health problems. Researchers still have not determined a "safe level" of exposure but we know the greater and the longer the exposure, the greater the risk of contracting an asbestos related disease. Some of these health problems include:

a) **Asbestosis** - a lung disease first found in naval shipyard workers. As asbestos fibers are inhaled, they may become trapped in the lung tissue. The body tries to dissolve the fibers by producing an acid. This acid, due to the chemical resistance of the fiber, does little to damage the fiber, but may scar the surrounding tissue. Eventually, this scarring may become so severe that the lungs cannot function. The latency period (meaning the time it takes for the disease to become developed) is often 25-40 years.

b) **Mesothelioma** - a cancer of the pleura (the outer lining of the lung nad chest cavity) and/ or the peritoneum (the lining of the abdominal wall). This form of cancer is peculiar because the only known cause is from asbestos exposure. The latency period for mesothelioma is often 15-30 years.

c) **Lung Cancer** - caused by asbestos. The effects of lung cancer are often greatly increased by cigarette smoking (by about 50%). Cancer of the gastrointestinal tract can also be caused by asbestos. The latency period for cancer is often 15-30 years.

Despite the common misconception, asbestos does not cause head-aches, sore muscles or other immediate symptoms. As mentioned above, the effects often go unnoticed for 15-40 years.

When is asbestos a hazard?

Asbestos is not always an immediate hazard. In fact, if asbestos can be maintained in good condition, it is recommended that it be left alone and periodic surveillance performed to monitor its condition. It is only when asbestos containing materials (ACM) are disturbed or the materials become damaged that it becomes a hazard. When the materials become damaged, the fibers separate and may then become airborne. In the asbestos industry, the term '**friable**' is used to describe asbestos that can be reduced to dust by hand pressure. '**Non-friable**' means asbestos that is too hard to be reduce to dust by hand. Non-friable materials, such as transite siding and floor tiles are not regulated provided it does not become friable. Machine grinding, sanding and dry-buffing are ways of causing non-friable materials to become friable.