

Asbestos

Asbestos is a mineral that occurs naturally. It is composed of silicon in glass-like threads. The properties that make it dangerous are also the properties that made it useful in construction and manufacturing. Primarily, asbestos fibers are inert. They will not naturally degrade from chemicals, sunlight or even high heat. This is also why they are so dangerous when inhaled. Because the human body cannot break down the fibers, they can accumulate in the lungs, causing irritation and eventual damage.

Asbestosis and mesothelioma are two of the serious consequences of chronic exposure to asbestos. Asbestosis is a progressive lung disease caused by the physical damage and scarring that the sharp fibers can cause. Mesothelioma is a type of cancerous tumor that is triggered by exposure to asbestos. The exact mechanism of how asbestos causes cancer is not currently known.

What is the best air purifier for asbestos?



Asbestos fibers crystallize in the mineral form in a wide range of sizes. They are also brittle. This means they are easily broken into very small and even microscopic sizes. The real danger of asbestos particles comes when they are very small, small enough to float in the air and small enough to reach deep into the lungs. One mechanism for the cancer-causing nature of asbestos is thought to come from fibers as small as the chromosomes inside of cells.

The best air purifiers use cHEPA/HEPAfast grade filtration systems. These can catch and remove particles as small as 0.3 microns, as small as some viruses. Commercial air purifiers, used where asbestos is manufactured for brake pad linings or for cements, use filters of this grade. Dust masks that professionals use when removing asbestos or mining substances that may also have asbestos, also use these types of filters. In a sense, the mask itself becomes a mini air purification system.

Since the particle size is the issue, air purifier systems with cHEPA/HEPAfast quality filters are a must. Commercial air purifiers will be rated on both particle size they can remove and by how much air volume they can handle per minute. The best air purifiers have both a high-quality filter and move enough air to clean a substantial volume of air quickly. Volume here is important because asbestos fibers can settle out of the air and then become airborne again when disturbed.

Where might exposure occur?

In the US, building materials containing asbestos were largely banned. However, they were still used in older homes and were used longer. There are still applications where asbestos fibers may be found in commercial or institutional buildings.

Some uses were for:

- Insulation around hot water pipes
- Tiles Wraps around duct work for hot air supplies
- Cement board used in high temperature locations (fireplace, near ovens, furnaces).
- Fireproofing tiles
- Sound dampening acoustical tiles

Non-building uses were in brake pads (for the high temperature resistance) and in fabrics used in handling hot items. It is thought that much of the asbestos in the environment today resulted from wear on brake pads over many years of automobile travel. This is particularly bad, since the friction from stopping tends to break the asbestos fibers down to a size that allows them to get airborne.

There are also natural sources of asbestos. It is, after all, a mineral. Sometimes it will occur in small amounts in vermiculite and talc. If the amount is low, sellers of these items do not have to report it or remove products from sale.

The real danger comes from the way asbestos circulates in the environment. Damage to the brittle crystal fibers turns one into two or more and this process continues. The particles get smaller and more dangerous as they cycle through the environment. Air purifier systems have the advantage of removing them entirely and allowing for proper disposal, away from the home and the interior air.