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I have heard a lot about vermiculite insulation in the news recently. How do I know if I have it in my home, and should I be concerned?



Vermiculite is a mineral that is found in many parts of the world, including the United States, South Africa, China, Zimbabwe, and Brazil. When it is first mined, vermiculite has a crystal-like form that resembles mica. When heated to temperatures above 870° Celsius, however, the water in the crystals evaporates and expands the vermiculite into the form that is most often used. This process of expansion is called exfoliating. In this form, vermiculite is light-weight, non-reactive, odourless, fire-resistant, and absorbent. This interesting combination of characteristics make it suitable for a wide variety of uses, including: horticultural applications as an additive to soil; in concrete that is lightweight and fire resistant; and as an insulation and packing material that is easy to use.

Recently, there have been several news reports that vermiculite insulation is a potential health concern, because it contains asbestos. Although it may be true that some vermiculite insulation does contain asbestos, vermiculite itself does not intrinsically contain asbestos. From approximately 1920 to 1990, about 70 percent of vermiculite that was produced world-wide came from a mine in Libby, Montana owned and operated from 1963 onwards by W.R. Grace. This mine contained not only significant amounts of vermiculite, but also a deposit of tremolite-actinolite asbestos. When asbestos particles become airborne and are inhaled, they enter the lungs and are known to cause lung disease, cancer, asbestosis, and other serious respiratory illnesses. The

type of asbestos that was found at the Libby Mine is particularly harmful. Workers at the mine and residents in the nearby town became ill reportedly due to the long-term exposure of airborne asbestos fibres at the mine and in the local community. The health effects of asbestos exposure are not always immediately realized; it can take 10 to 40 years for cancer or asbestosis to develop in a person who inhaled large amounts of asbestos fibres. Vermiculite processing plants were also located in six Canadian provinces and the final product was sold in Canada under the brand name Zonolite. As insulation, vermiculite was sold in bags and typically installed by the homeowner.

Vermiculite was an acceptable material under the Canadian Home Insulation Program (CHIP) from approximately 1977 to 1986, and thousands of homeowners installed it in their walls and attics. It is impossible to determine if the vermiculite contains asbestos without performing analytical laboratory tests on a representative sample of the vermiculite. Given the high percentage of vermiculite that was produced in Libby, Montana, and the presence of Grace's processing plants in Canada, it would be safe to assume that the vermiculite contains asbestos, until proven otherwise. If empty bags are present in the attic labelled Zonolite, the probability that the vermiculite contains asbestos is very high. It is important to remember that the people who have become sick from asbestos in vermiculite were exposed to high levels of asbestos dust over long periods of time. The level of asbestos particles present in an attic or in wall cavities that contains undisturbed vermiculite would be significantly lower than the levels found in the vermiculite processing plants. In addition, vermiculite contained in attics and wall cavities would, in most situations, be concealed and isolated from the habitable living space of most homes and therefore create minimal risk of asbestos dust exposure in the habitable areas of a home containing vermiculite.

However it is possible for small amounts of dust from concealed spaces to enter the habitable spaces in some homes under certain circumstances, which may include, but not be limited to, having openings in wall/ceiling cavities, large pressure differentials between the inside and outside of the home (i.e. due to wind or large temperature differences between the inside and outside of the house), etc.

If vermiculite is found in a home, there are several courses of action that can be taken, depending on the planned use of these spaces. When vermiculite is installed in a properly concealed and sealed space that will not be accessed (such as in the walls or in an attic space), it is best to leave it alone. The asbestos particles will only become airborne when the vermiculite is disturbed, so if it is not disturbed, the risk to health would be minimal. Even storing boxes in an attic that contains asbestos containing vermiculite will disturb the insulation, so accessing these areas should be avoided. If renovations are planned that will disturb the insulation (i.e. installing a light fixture that will require vermiculite in an attic to be moved), the vermiculite should be tested to determine if it contains asbestos. Vermiculite that contains asbestos should be professionally removed by a qualified/certified asbestos abatement contractor, if renovations are planned. The removal of the asbestos containing vermiculite would produce significant amounts of airborne asbestos and should never be undertaken by the homeowner. In addition, any contractor working in a home that contains vermiculite insulation should be warned about its presence as well as the potential health concerns, if it is disturbed.

To speak with a certified and trained AmeriSpec home inspector, contact us today.

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