

## Frequently Asked Questions

### **1) *What is vermiculite?***

Vermiculite is a naturally occurring mineral that expands when heated. Expanded vermiculite has unique and versatile characteristics; it is lightweight, provides energy savings when used as insulation, it is non-combustible, highly absorbent, pH neutral, inert, non-reactive to all but very strong acids and compressible. These desirable characteristics allow vermiculite to be widely and beneficially used in industrial and commercial applications including: packaging, fire protection, refractory and high temperature insulation, loose fill insulation, lightweight concrete screeds, plasters, friction linings, special coatings, swimming pool liners, animal feedstuffs and horticultural potting mixes.

Technically, vermiculite is a hydrated magnesium iron aluminium silicate mineral in the form of shiny flakes, which are usually golden brown to blackish in colour. Vermiculite is expanded (exfoliated) by heating the crude flaky mineral. The exfoliated (expanded) granules are many times greater in volume than before heating and are more concertina shaped, more golden to light, greyish brown sometimes silvery gold in colour and are much less dense.

### **2) *Is vermiculite safe to use?***

Vermiculite – as mined and used today under the strict protocols followed by the industry -- is safe to use. Vermiculite has a long history of use in gardening, commercial horticultural uses, construction, and even as a UN approved packaging material for some hazardous liquids.

### **3) *There are some news stories I've heard about vermiculite being unsafe to use, are these articles right?***

Vermiculite itself is safe to use; there is no evidence that any acute or chronic toxicity or carcinogenicity exists from long-term exposure to vermiculite. Any health and safety problems that you may hear about are associated with one specific vermiculite deposit where naturally occurring asbestos minerals developed alongside the vermiculite. When the vermiculite was mined, some asbestos minerals contaminated the vermiculite. These asbestos minerals are called Libby Amphibole Asbestos (LAA). This mine, located in Libby, Montana was closed in 1990. With the exception of this one notable occurrence for a single mine, vermiculite products and uses have a successful history replacing other materials that pose environmental or health risks to the public. Vermiculite products sold in the North American market prior to 1991 could potentially contain vermiculite mined from Libby Montana and should be handled with care as a precaution.

### **4) *How much vermiculite was mined at Libby?***

The mine near Libby, Montana in the USA was the estimated source of over 70 percent of all vermiculite sold in the USA from 1919 to 1990. Not all vermiculite sold in the North American market prior to 1991 came from Libby Montana. If the vermiculite did not originate from Libby Montana then there is virtually no risk associated with it.

Currently vermiculite comes from many countries across the world with vermiculite deposits in each continent and producers test vermiculite for the absence of asbestos to ensure it safe to use.

### **5) *Coming from Europe, virtually all of what I read about vermiculite on the Internet seems to be focused on issues in the United States. Is this something I need to worry about here?***

Very little Libby vermiculite was exported to Europe. So the issues related to Libby vermiculite are much less relevant outside of the USA. European vermiculite suppliers ensure that the products sold are properly tested, meet International standards and are safe to use.

**6) Where could I expect to encounter vermiculite in everyday life?**

- i) Vermiculite was widely used as loose fill insulation especially in attics in domestic residences from the early 1940's onwards. However, over the last two to three decades its use in domestic housing has declined and has usually been replaced by manmade mineral fibres such as rock wool and glass fibre (fiberglass).
- ii) Vermiculite is widely used as a beneficial additive in commercial greenhouse potting soils and in the cultivation of seedlings. It is found in many good quality packaged consumer "composts" and potting mixes available from garden centres and horticultural supply outlets.
- iii) Vermiculite is often used in passive fire protection products in high-rise construction projects to increase the fire safety of the building by preventing the premature collapse of a building, which has caught on fire; allowing for a safe evacuation and saving lives.
- iv) Industrially, vermiculite is used to insulate high temperature kilns and furnaces and to make waste combustion plants more efficient and environmentally sound which helps reduce greenhouse gas emissions.
- v) In the automotive sector, vermiculite has been used to safely replace hazardous asbestos in brake linings in cars and commercial vehicles.
- vi) Pressed and moulded vermiculite boards are used in household wood burning stoves to improve the combustion efficiency helping to reduce unwanted emissions.
- vii) Vermiculite is also used as a safety packaging material in the hazardous goods shipping business, especially in the airfreight sector.

**7) What sorts of insulation products other than vermiculite might be encountered in my attic and how could I tell which is which?**

Vermiculite is just one of many insulation products used in attic insulation. Vermiculite is a granule/pebble like pour-in, loose-fill product. It is not a fibrous mat or roll type product nor is it a rigid board type product.

Photograph below shows coarse grade exfoliated vermiculite



**8) What should I do if my home is insulated with vermiculite?**

If your home in North America was insulated with vermiculite between 1920 and 1991, TVA endorses the EPA's five (5) safety guidance steps:

*It is recommended that you:*

- *Leave vermiculite insulation undisturbed in your attic or in your walls.*
- *Do not store boxes or other items in your attic if it contains vermiculite insulation.*
- *Do not allow children to play in an attic with vermiculite insulation.*
- *Do not attempt to remove the insulation yourself.*
- *Hire a professional asbestos contractor if you plan to remodel or conduct renovations that would disturb the vermiculite in your attic or walls to make sure the material is safely handled and/or removed.*

TVA also agrees with the EPA statement: *"Removal of the vermiculite insulation may not be necessary if it is confined in a manner where it will be left undisturbed"*.

If your home in North America was insulated with vermiculite between the early 1920's and 1991, it is reasonable to assume that the vermiculite insulation may have originated from the Libby mine. Treat this material as if it contained asbestos by not disturbing it, or by using a trained professional if it needs to be removed. If in doubt, you can hire a trained professional to test your attic for asbestos. The typical cost for such a test ranges from \$175 - \$250. The EPA and TVA do not recommend that you open your walls to check for vermiculite.

Since 1990 when the Libby mine closed alternative sources of vermiculite have been used to meet the demand for vermiculite insulation. Also, if you live outside of North America it is highly unlikely that the vermiculite that was used in your home is from the Libby Montana mine in the USA, so it is unlikely to be a potential problem.

**9) I'm a keen gardener, and have used vermiculite quite regularly over the years, so should I be concerned?**

Vermiculite has been used in gardening and commercial horticulture worldwide since the early 1960's to improve soil aeration while retaining moisture. Vermiculite has high cation exchange capacity (CEC), which means that it holds on to added nutrients to feed plants, cuttings and seeds, for faster and optimum growth.

An EPA investigation into vermiculite containing horticultural products used in the United States indicates that consumers face only a minimal health risk from using vermiculite products at home, or in their gardens.

To further reduce any risk associated with the occasional use of vermiculite products during gardening activities, EPA recommends that consumers:

- Use vermiculite outdoors or in a well-ventilated area.
- Avoid creating dust by keeping vermiculite damp during use.
- Avoid bringing dust into the home on clothing.

**10) I've heard about "amphiboles" in the press and on the Internet in connection with vermiculite, but I'm not sure if these are the same as asbestos or something else?**

Vermiculite is not asbestos, but it can occur in association with some minerals called amphiboles.

Please see: <http://www.vermiculite.org/wp-content/uploads/2014/10/Vermiculite-is-not-asbestos.pdf>

Amphiboles are a group of naturally occurring minerals that are widespread in many igneous and metamorphic rocks. Some current deposits of vermiculite may contain low concentrations of amphibole minerals, which are not the same as asbestos. So, the presence of amphiboles in vermiculite (or any other mineral or rock product) does not necessarily mean that "asbestos" is present in the product.

Asbestos is a naturally-occurring material and can be found in trace amounts in the air, water and your garden soil. Vermiculite is not asbestos and is a safe, highly versatile mineral used widely through the world in many products.

For more information, contact The Vermiculite Association at 717-238-9902 or via email to [tva@vermiculite.org](mailto:tva@vermiculite.org).