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## References

### Health Canada

March 2004  
Attic Insulation  
ISBN # H50-3/150-2004E-HTML

April 2004  
Asbestos  
ISBN # H50-3/83-2004E-PDF

### EPA

Asbestos Contamination  
March 2004  
910-R-04-004

Attic Insulation  
January 2004  
600/R-04/004

## Asbestos in Vermiculite Attic Insulation [Asbestiform Amphiboles]

Vermiculite is a naturally occurring mineral that has the unusual property of expanding into “books” or worm-like accordion shaped pieces when heated. The expanded vermiculite is a light-weight, fire-resistant, absorbent, and odorless material. These properties allow vermiculite to be used in numerous applications, including attic insulation. Vermiculite Attic Insulation (VAI) is a pour-in-product, fragments of which are generally approximately 5mm to 1cm in dimension, and usually light-brown or gold in colour. Deposits of Vermiculite usually contain other mineral phases and some ore bodies may contain fibrous amphibole.

Prior to 1990, a large proportion of North America’s consumption of vermiculite originated from the mine at Libby, Montana. Depending on the date of production, this material may have contained several percent of fibrous amphibole, down to a fraction of a percent shortly before the mine was closed in 1990.

Asbestos is a Class A human carcinogen that commonly enters the body through inhalation of asbestos fibres, this action increases the risk of nonmalignant interstitial and pleural lung disease, lung cancer, and mesothelioma. Several studies have implicated the fibrous amphiboles, such as those found in Libby vermiculite, and in cases of asbestos related disease. These studies provide evidence that mineral forms of asbestos not specifically regulated in North America can cause diseases such as asbestosis, lung cancer, and mesothelioma. The risk of developing these diseases depends upon many factors, including the chemistry and shape of fibre, level of exposure, duration of exposure, the individual’s physiological response to fiber exposure, and the smoking history of the exposed individual.

Health Canada’s concern is that VAI products can cause health risks if disturbed during maintenance, renovation or demolition. However, there is currently no evidence of risk to your health if the insulation is sealed behind wallboards and floorboards, isolated in an attic, or otherwise kept from exposure to the interior environment. The best way to minimize your risk of asbestos exposure **is to avoid disturbing vermiculite-based insulation** in any way. If vermiculite-based insulation is contained and not exposed to the home or interior environment, it poses very little risk.

