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THE SAFETY OF MANMADE VITREOUS FIBRES

The Issue

Manmade Vitreous Fibres (MMVFs) are fibres made from minerals and used for insulation, for reinforcing other materials and in protective clothing. There is concern that they can cause breathing problems, skin irritation and other health effects.

Background

There are several different MMVFs. The best known in Canada are the "wools" used to insulate houses. These fibres were first developed as an alternative to asbestos, which caused lung cancer in those working with it. However, there are now health concerns about the safety of MMVFs.

How the Government Rates MMVFs

The family of MMVF fibres is on a list of Priority Substances the government has reviewed under the Canadian Environmental Protection Act (CEPA). Scientists at Health Canada have looked at each class of these fibres separately. Here is what they found.

Glass Wool

Glass wool makes up about 70 percent of the MMVFs produced in Canada. It is used mostly as insulation.

Studies show that exposure to glass wool for a short time, while installing it in a building for example, might cause minor symptoms. These symptoms might include irritated skin and eyes, a stuffy nose and scratchy throat. Other studies show that even long-term exposure to glass wool does not cause cancer in humans or animals. Even where glass wool fibres were clearly shown to reach the lungs of lab animals, there was no increase in tumours.

Studies from other countries confirm that there is no health risk from glass wool to the general population. Even during installation, the highest levels of fibres in the air are well below the level which might cause mild breathing problems in animals.

Rock and Slag Wool

Rock and slag wools, or "mineral" wools, make up about 20 percent of all MMVFs produced in Canada. They are used as insulation, like glass wool, and in the making of acoustic ceiling tiles.

In human studies that have been done, there is some evidence of a link between working with rock/slag wool and lung cancer. However, the studies are not conclusive. Breathing tests on lab animals failed to show any link between rock/slag wool fibres and cancer. Apart from those working with fibres, there seems to be little risk to the general population. Studies from other countries show that even during installation, the highest levels of fibres in the air are hundreds of times lower than the levels at which animals have breathing problems.

Glass Microfibres

Glass microfibres aren't produced in Canada, but they are imported for use in batteries, high performance filtration equipment and as insulation in aircraft.

When the microfibres were directly injected into the lungs of lab animals, scientists saw an increase in lung tumours. Animal studies where the fibres were simply breathed in showed no such link. Although no studies have been done on Canadians exposed to glass microfibres, it is not likely that they pose a general health risk. Since the products that use glass microfibres are limited, the amount of these fibres in indoor air is probably quite low.

Continuous Glass Filament

Continuous glass filament or textile fibres make up about 10 percent of the MMVFs produced in Canada. They are used to reinforce plastics, cement, tires and roofing materials. They can also be woven into protective clothing and industrial fabrics.

There is not enough data available to say whether continuous glass filament causes cancer. However, of all the MMVFs, these appear to be the least likely to do harm, because the fibres are generally too large to reach the lungs.

Refractory Ceramic Fibres

Refractory ceramic fibres (RCFs) account for less than one percent of the MMVFs produced in Canada. As they resist heat, they are used in furnace and kiln insulation and other high temperature situations.

Studies show RCFs cause cancer in animals. Since their use is so limited, there is likely to be very little concentration of RCFs in the air and very little health risk to the general population.

Due to the potential cancer concern, RCFs are the only group of the MMVFs that have gone through a risk management process under CEPA.

Recommendations have included the monitoring of RCF releases into the atmosphere from RCF manufacturers, and the implementation of a product stewardship program.

Minimizing Your Risk

MMVFs can cause irritation. When working with MMVFs, both homeowners and workers should follow the manufacturer's instructions and take the following steps:

- Wear a breathing mask
- Wear clothing that covers your whole body
- Use gloves and protect your eyes

If you work with MMVFs, occupational health authorities have taken steps to reduce your risk. For more information, contact your local occupational health office.

Need More Info?

Contact the manufacturer of the MMVFs in question.

Canadian Centre for Occupational Health and Safety
1-800-263-8466 (Toll free in Canada only)
<http://www.ccohs.ca/>