PUBLIC HEALTH FACT SHEET

ASBESTOS

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What is asbestos?

Asbestos is a commercial/generic term for certain types of naturally occurring minerals. It has been used since the Early Roman Empire in consumer and building products. The health problems associated with asbestos pertain to its unique ability to be broken down into microscopic fibers that can be inhaled into the lungs without being eliminated by the body's natural defenses. There are five minerals included in the definition of asbestos: chrysotile, crocidolite, amosite, anthophyllite, and actinolite-tremolite. Several of these minerals can break down into two types of fibers, asbestiform and acicular. Acicular fibers have the same minimum length-to-width ratio as asbestos fibers, but do not have the strength, flexibility, or potentially hazardous properties of the asbestos fibers and therefore are not asbestos.

How is asbestos identified?

The identification of asbestos is complex because many of the minerals that are almost identical in chemical structure exhibit perfect prismatic cleavage, resulting in fragments that are chemically as well as physically indistinguishable from asbestos fibers. However asbestos fibers, as compared to non-asbestos cleavage fragments of the same mineral, have the following properties:

1. **Fiberlike Morphology.** Asbestos fibers are characterized by small crystal diameter, by extreme length-to-width ratio and by smooth longitudinal faces.

2. **Enhanced Strength and Flexibility.** Asbestos fibers have great strength and flexibility.

3. **Diameter-Dependent Strength.** The smaller the diameter of fiber, the greater its strength.

4. **Increased Physical and Chemical Durability.** Asbestos fibers are more resistant to physical stress than non-asbestos varieties of the same mineral. Similarly, fibers of asbestos are more resistant to dissolution by acids.

5. **Defect-Free Structure.** Many asbestos fibers have the shiny luster and high reflectivity indicative of a surface structure that is relatively free of defects.

Where is asbestos present?

Asbestos may be present in the following consumer products: pipe and boiler insulation, sprayed-on fireproofing, wall board, floor tiles, gaskets in wood-burning stoves, hot pads, house siding, brake linings, and clutch and transmission components. Asbestos fibers could be released into the environment by degradation of these products.

In some areas of the country, asbestos fibers originating from natural formations or milling operations may be present in the outdoor air. This is not the case in the New England area.

Is exposure to asbestos harmful?

Occupational exposure to asbestos has been associated with a significantly increased risk of mesothelioma, lung cancer and asbestosis. The risk to the general public, however, is not so well understood. A Canadian report (1984) found no evidence that disease afflicts individuals who breathe asbestos fibers in outdoor air or inhale it as occupants of asbestos-containing buildings. The U.S. National Research Council Committee on Non-occupational Exposure to Asbestiform Fibers concluded that the risk of asbestos-related disease could be as high as 1700 per million population, or could be nil.

What can be done to reduce exposure to indoor asbestos?

It is important to understand that an asbestos hazard occurs only when the product is friable; i.e., releasing fibers into the air. Properly protected and intact asbestos, such as boiler insulation, is not a problem. It is therefore important to make sure that all asbestos-containing products are properly protected from damage.

Pipe and boiler insulation should be kept in repair or, if badly deteriorated, removed by professionals. Asbestos-containing floor tiles and wall board should not be cut, sanded or drilled. Individuals doing their own automobile brake work should do it outside and wear respirators.

Asbestos and asbestos-containing products which are being disposed of should be identified and brought to approved landfills so that they will not present future hazards.

Where can I get additional information?

Massachusetts Department of Public Health

Division of Community Sanitation (617) 727-2660
Office of Public Information and Health Education (617) 727-0049

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