

Fiberglass

Background

Fiberglass is a man-made fiber that is used to insulate homes and buildings. Fiberglass is used in electrical insulation, cement and plastic reinforcement, thermal and acoustic insulation, and for heat resistance. It is also used to make light-weight materials. In the school setting, fiberglass is typically used in walls, ceilings, ceiling tiles, and for the insulation of ventilation ducts. The information in this fact sheet is based on review of selected published documents.

Fiberglass in the Environment

Fiberglass can enter the environment from the manufacture, use, and disposal of fiberglass-containing materials. Damaged or disturbed materials, such as fiberglass insulation, may release fibers into the air. Airborne fiberglass may eventually settle with other airborne particles as a component of dust.

Routes of Exposure to Fiberglass

A person may be exposed to fiberglass by breathing, ingestion, or skin contact. Occupational exposure is expected to be highest among workers who install or remove insulation or are routinely involved in building maintenance and repair. Non-occupational exposures, such as that experienced in your home, office, or school, would likely vary depending on the condition and movement of fiberglass-containing materials and airflow within the building or room.

Individuals may be exposed to fiberglass through home maintenance work or by moving materials containing fiberglass. Once fiberglass is installed in buildings, exposure to fiberglass is

unlikely, unless the material is disturbed during renovations or other activities.

What Happens to Fiberglass in the Body?

When a person inhales fiberglass, larger fibers may be trapped in the upper airway. Smaller fibers may be inhaled deep into the lungs. Inhaled fibers are removed from the body partially through sneezing or coughing, and through the body's defense mechanisms. Fiberglass that reaches the lungs may remain in the lungs or the thoracic region. Ingested fiberglass is removed from the body via feces.

Possible Health Effects Associated with Fiberglass

Short-term exposure:

Direct contact with fiberglass or breathing airborne dust containing fiberglass may irritate the skin, eyes, nose and throat. The symptoms of irritation are often nonspecific, temporary, and may include itching, coughing, or wheezing. High levels of exposure to airborne fiberglass may aggravate existing asthma or bronchitis-like conditions.

Long-term exposure:

In 2000, the National Academy of Sciences reviewed studies of fiberglass manufacturing workers and concluded that "...glass fibers do not appear to increase the risk of respiratory system cancer." In 2001, the International Agency for Research on Cancer said that "glass wool", which is a form of fiberglass, is not classifiable as a human carcinogen. Deaths from lung diseases, including lung cancer and

mesothelioma, in groups of workers involved in the manufacture of glass wool, are not consistently different from what is found in the United States general population.

Possible Health Effects of Exposure to Fiberglass in Children

Like adults, children may exhibit signs of irritation to the eyes, skin, or the upper respiratory tract if exposed to fiberglass. Maternal exposure to fiberglass is not expected to have an effect on the developing fetus.

Measures suggested to Avoid Exposure to Fiberglass and Possible Health Effects

The best way to avoid exposure to fiberglass particles is to avoid disturbing or contacting insulation material in attics or walls. People who work with fiberglass should wear protective clothing, gloves, and safety glasses with side shields, as well as a particulate respirator.

Existing Guideline for Fiberglass

In 1999, the Occupational Safety and Health Administration (OSHA) and the manufacturers, the National Insulation Association, and The Insulation Contractors Association of America; voluntarily agreed on ways to control workplace exposure to avoid irritation. The agreement established a voluntary eight-hour time-weighted permissible exposure limit of one respirable fiber per cubic centimeter of air. Respirable fibers are particles with a length greater than five micrometer and diameter less than three micrometer, with a ratio greater than or equal to 3:1. This limit is supported by the National Academy of Sciences.

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- U.S. Environmental Protection Agency. Integrated Risk Information System. <http://www.epa.gov>
- Facts About Fiberglass – The American Lung Association. <http://www.lungusa.org>
- For additional information please contact:**
1-877-485-7316
www.doh.wa.gov/ehp/ts



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