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Asbestos

Overview



Asbestos is the common name given to a group of six different naturally occurring fibrous minerals that can be separated into long fibers that can be spun and woven. The material is strong, flexible, resistant to heat and most solvents and acids, making it a very useful industrial product. Knowledge of asbestos goes back to the 2nd century B.C., but the first recorded use of the word asbestos was in the 1st century A.D. by Pliny the Elder.

History

The fire-resistant properties of asbestos were recognized early and contributed to its derivation from the Greek sbestos or "extinguishable," thus asbestos or inextinguishable. The Romans used asbestos to make cremation cloths and lamp wicks and in the Middle Ages, knights used asbestos to insulate their suits of armor. The use of asbestos increased with the Industrial Revolution and the need for a material to insulate steam boilers, such as those in locomotives. The first asbestos mine opened in 1879 in Quebec, Canada. Canada continues to be the world's largest producer of asbestos, followed by Russia, China, Brazil and several other countries. In the United States, California produces a small amount but the majority of the asbestos used in the United States is imported from Canada.

Health Effects

Serious lung disease associated with asbestos inhalation was first described in the early 1900s in England. This disease became known as asbestosis and was fully described in British medical journals in 1924 as young workers died from asbestos exposure. By the early 1930s, dose-related injury, length of time exposed, and the latency of response were being well characterized in both Europe and the United States. By the mid and late 1930s the first associations with lung cancer were documented. In the 1960s the consequences of asbestos exposure for many workers in World War II started to become evident. Mesothelioma, a cancer of the lining of the lung, was found to be almost exclusively associated with asbestos exposure.

Also see our section on cancer.

Regulation

In the United States, regulation of asbestos exposure started in the early 1970s, with exposure limits rapidly decreasing as the serious and latent consequences of asbestos exposure became apparent. White asbestos or chrysotile was used in thousands of consumer products and is common in many older homes. The serious health effects of asbestos exposure have resulted in both regulatory and legal action, and many countries have instituted complete bans on asbestos use.

Uses

In the United States, chrysotile has been the most commonly used type of asbestos. Chrysotile is often present in a wide variety of materials, including but not limited to:

- sheetrock taping
- mud and texture coats
- vinyl floor tiles, sheeting, adhesives and ceiling tiles
- plasters and stuccoes
- roofing tars, felts, siding, and shingles
- "transite" panels, siding, counter tops, and pipes
- acoustical ceilings
- fireproofing
- putty
- caulk
- gaskets
- brake pads and shoes
- clutch plates
- stage curtains
- fire blankets
- interior fire doors

Amphibole Group

Amosite and crocidolite were used in many products until the early 1980s. The use of all types of asbestos in the amphibole group was banned in the mid-1980s. These products were mainly:

- low-density insulation board and ceiling tiles
- asbestos-cement sheets and pipes for construction, casing for water and electrical/telecommunication services
- thermal and chemical insulation

Resources

- US Environmental Protection Agency (EPA). Online:
<<http://www.epa.gov/opptintr/asbestos/>> (accessed: 07 July 2009).
Extensive information on asbestos.
- U.S. Cancer Information Service (CSI) - Facts of Asbestos. Online:
<http://cis.nci.nih.gov/fact/3_21.htm> (accessed: 07 July 2009).
Extensive information on asbestos.

- US Agency for Toxic Substance Disease Registry (ATSDR). Online: <<http://www.atsdr.cdc.gov/>> (accessed: 07 July 2009). See fact sheets and case studies on environmental asbestos.

References

Schneider, Andrew. "A Town Left to Die." *The Seattle Post Intelligencer*. November 18, 1999.