ASBESTOS FACT SHEET

Office of Environment Health and Hazard Assessment webpage

http://www.oehha.ca.gov/INDEX.html

Asbestos is the common name for a group of naturally occurring fibrous silicate minerals that can separate into thin but strong and durable fibers. The principal forms of asbestos include chrysotile, crocidolite, amosite, tremolite, actinolite, and anthophyllite. All but chrysotile are classified as amphiboles, which tend to have a thin, needle-like appearance. Chrysotile breaks into curly fibers. Asbestos deposits are located in many parts of California and are commonly associated with serpentine.

- Asbestos is classified as a known human carcinogen by State, Federal, and International agencies. Asbestos was identified as a Toxic Air Contaminant in 1986 by the Air Resources Board.
- Asbestos fibers can cause health problems if inhaled. When asbestos fibers become airborne, they can be inhaled deep into the lung. Many fibers deposited in the lung are retained there for long periods of time, others may be translocated to other parts of the body (e.g., the lining of the lung and abdomen), and others are completely cleared, albeit slowly. The fibers can cause chronic local inflammation and disrupt orderly cell division, both of which can facilitate the development of asbestosis and cancer. Thus, inhalation of asbestos fibers can initiate a chain of events resulting in cancer or other asbestos-related illness, which may not become apparent for years, even long after the exposure has ended.
- Most of the information on health effects comes from studies of workers exposed regularly to high levels of asbestos. In occupational settings all forms of asbestos have been shown to cause asbestosis, lung cancer and mesothelioma. Asbestosis is a noncancerous lung disease involving diffuse fibrotic scarring of the lungs. Persons with asbestosis can experience progressive shortness of breath. Lung cancer is associated with asbestos exposures; cigarette smoking and asbestos exposure multiply the risk of lung cancer beyond that caused by exposure to either of these materials separately. Mesothelioma is an incurable cancer of the lining of the chest cavity and abdomen.
- People have been exposed to asbestos by living with asbestos workers or living in the vicinity of asbestos mines and factories. People exposed to asbestos in such non-occupational settings have also had asbestos-related diseases including cancer. While most asbestos-associated cancers are related to the intensity and duration of exposure, reports in medical journals have linked some mesotheliomas to short exposure periods, on the order of months. Even in these cases, however, usually many years (20 years or more) elapse between the time of initial exposure to asbestos and the development of mesothelioma. In addition, there are reports of markedly elevated mesothelioma rates in populations living in areas in Greece, Turkey and New Caledonia with substantial quantities of tremolite in soil, particularly among individuals who used tremolite asbestos to whitewash their homes, resulting in substantial exposure. These populations had ongoing low-level as well as episodic high-level exposures to tremolite.
- There are some data that indicate amphibole forms of asbestos are more potent than chrysotile in inducing mesothelioma (but equipotent in inducing lung
cancer). However, the data do not allow conclusive statements in this regard. Chrysotile and tremolite forms frequently occur together. Since many factors impact the potency of asbestos, the quantification of risk is inexact and at the present time all forms of asbestos are treated in risk assessment as equally potent carcinogens for both lung cancer and mesothelioma.

- Asbestos was used in many household and building products in the past. In part because of this indiscriminate dispersal of asbestos in the human environment in past years, it is common to find hundreds of thousands to millions of fibers in human lungs. Generally those with heavy exposures have greater asbestos lung burdens. For example, lung tissue taken from patients with mesothelioma often contains over a million fibers per gram of tissue.
- "Background" rates of mesothelioma for the general population in the United States with minimal exposure to asbestos are about 1 to 2 cases per 1 million people, though in communities in which there has been substantial occupational exposure such rates may be several-fold higher. Background rates for lung cancer are higher mostly due to smoking. Asbestosis is generally associated with occupational exposures but nonoccupational exposures, particularly to household contacts of people working in the industry, have resulted in asbestosis.
- For individuals living in areas of naturally occurring asbestos, there are many potential pathways for airborne exposure. Exposures to soil dust containing asbestos can occur under a variety of scenarios, including children playing in the dirt, dust raised from unpaved roads and driveways covered with crushed serpentine, uncontrolled quarry emissions, grading and construction associated with development of new housing, gardening and other human activities. For homes built on asbestos outcroppings, asbestos can be tracked into the home and can also enter as fibers suspended in outdoor air. Once such fibers are indoors, they can be resuspended by normal household activities, such as vacuuming (as many fibers will simply pass through vacuum cleaner bags).

The general public exposed to low levels of asbestos may be at elevated risk (e.g., above background rates) of lung cancer and mesothelioma. The risk is proportional to the cumulative inhaled dose (number of fibers), and also increases with the time since first exposure. Although there are a number of factors that influence the disease-causing potency of any given asbestos, such as fiber length and width, fiber type, and fiber chemistry, all forms are carcinogens, and exposure should be minimized. The Air Resources Board has additional information on asbestos including ways to reduce exposure on its web page at [http://www.arb.ca.gov/toxics/Asbestos/general.html](http://www.arb.ca.gov/toxics/Asbestos/general.html)