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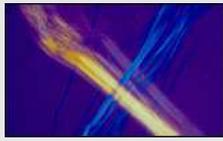

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## Asbestos

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### What is asbestos?

Asbestos is the name given to a group of naturally occurring minerals that are resistant to heat and corrosion. Asbestos has been used in products, such as insulation for pipes (steam lines for example), floor tiles, building materials, and in vehicle brakes and clutches. Asbestos includes the mineral fibers chrysotile, amosite, crocidolite, tremolite, anthophyllite, actinolite and any of these materials that have been chemically treated or altered. Heavy exposures tend to occur in the construction industry and in ship repair, particularly during the removal of asbestos materials due to renovation, repairs, or demolition. Workers are also likely to be exposed during the manufacture of asbestos products (such as textiles, friction products, insulation, and other building materials) and during automotive brake and clutch repair work.



### What are the hazards of asbestos?

Asbestos is well recognized as a health hazard and its use is now highly regulated by both OSHA and EPA. Asbestos fibers associated with these health risks are too small to be seen with the naked eye. Breathing asbestos fibers can cause a buildup of scar-like tissue in the lungs called asbestosis and result in loss of lung function that often progresses to disability and death. Asbestos also causes cancer of the lung and other diseases such as mesothelioma of the pleura which is a fatal malignant tumor of the membrane lining the cavity of the lung or stomach. Epidemiologic evidence has increasingly shown that all asbestos fiber types, including the most commonly used form of asbestos, chrysotile, causes mesothelioma in humans.<sup>1,2,3</sup>

### What can be done to reduce the hazards of asbestos?

Worker exposure to asbestos hazards are addressed in specific OSHA standards for the construction industry, general industry and shipyard employment sectors. These standards reduce the risk to workers by requiring that employers provide personal exposure monitoring to assess the risk and hazard awareness training for operations where there is any potential exposure to asbestos. Airborne levels of asbestos are never to exceed legal worker exposure limits. There is no "safe" level of asbestos exposure for any type of asbestos fiber.<sup>4,5</sup> Asbestos exposures as short in duration as a few days have caused mesothelioma in humans.<sup>4,5,6,7</sup> Every occupational exposure to asbestos can cause injury of disease; every occupational exposure to asbestos contributes to the risk of getting an asbestos related disease.<sup>8</sup> Where there is exposure, employers are required to further protect workers by establishing regulated areas, controlling certain work practices and instituting engineering controls to reduce the airborne levels. The employer is required to ensure exposure is reduced by using administrative controls and provide for the wearing of personal protective equipment. Medical monitoring of workers is also required when legal limits and exposure times are exceeded.

### How can OSHA Help?

OSHA has developed this webpage to provide workers and employers useful, up-to-date information on asbestos. For other valuable worker protection information, such as Workers' Rights, Employer Responsibilities and other services OSHA offers, read [OSHA's Workers](#) page.

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Highlights

-  [Self-Inspection Checklist.](#)  
OSHA. Use this checklist to determine compliance to the asbestos standard.

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<sup>1</sup> "Asbestos (Chrysotile, Amosite, Crocidolite, Tremolite, Actinolite, and Anthophyllite) [8 MB PDF, 526 pages]." World Health Organization (WHO), International Agency for Research on Cancer (IARC) Monographs on the Evaluation of Carcinogenic Risks to Humans, Volume 100C, 2012.

<sup>2</sup> Pira et. al. "Mortality from cancer and other causes in the Balanqero cohort of chrysotile asbestos miners." *Occup Environ Med* 2009;66:12 805-809.

<sup>3</sup> Wang X, Lin S, et. al. "Cause-specific mortality in a Chinese chrysotile textile worker cohort." *JC School of Public Health and Primary Care, The Chinese University of Hong Kong, Hong Kong, China.*

<sup>4</sup> Skammeritz, E. et al. "Asbestos Exposure and Survival in Malignant Mesothelioma: A Description of 122 Consecutive Cases at an Occupational Clinic [1 MB PDF, 13 pages]." *The International Journal of Occupational and Environmental Medicine (IJOEM)*, Vol 2, No 4 October 2011.

<sup>5</sup> Greenberg M., Davies L, T. A. [Mesothelioma Register 1967-68](#). *British Journal of Industrial Medicine*, 31, 91-104, 1974.

<sup>6</sup> "Asbestos (Actinolite, amosite, anthophyllite, chrysotile, crocidolite, tremolite)(Group 1) [1 MB 454 pages]." World Health Organization (WHO), International Agency for Research on Cancer (IARC) Monographs on the Evaluation of Carcinogenic Risks to Humans, Overall Evaluations of Carcinogenicity: An Updating of IARC Monographs Volumes 1 to 42, Supplement 7, 1998.

<sup>7</sup> Hodgson JT, Darton A. "The quantitative risks of mesothelioma and lung cancer in relation to asbestos exposure." *Epidemiology and Medical Statistics Unit, Health and Safety Executive, Magdalen House, Stanley Precinct, L20 3QZ, Bootle, UK, 2000.*

<sup>8</sup> Hammar SP, Henderson DW, Klebe S, Dodson RF. "Chapter 43: Neoplasms of the pleura." In: Tomashefski JF Jr., ed. *Dail and Hammar's Pulmonary Pathology*, 3rd Edition. New York: Springer, 2008.

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