



## Just the Facts...

## Provider Fact Sheet: Asbestos

**Introduction:** Asbestos is a general term used to describe 6 distinct naturally occurring fibrous mineral silicates. Asbestos is resistant to both acid and heat, and as a result has been used widely in industrialized countries. Common uses have included insulation around pipes and furnaces, as a strengthener in concrete, floor tile and siding, as a component in brake shoes and as an additive in paints. Outdoor air in all large cities contains some level of asbestos, either naturally occurring or as a result of previous commercial use. The Occupational Safety and Health Administration (OSHA) has established acceptable airborne levels for the work environment. If levels exceed these established standards, medical surveillance and the use of Personnel Protective Equipment (PPE) may be required.

### Health Effects

Historically, exposure to high levels of airborne asbestos dust has been associated with a medical condition known as asbestosis, a form of chronic lung disease. Current OSHA guidelines are intended to protect workers from developing this debilitating disease. Asbestos exposure is also associated with lung cancer and mesothelioma, a cancer of the lining of the lung and pleural cavity.

Short term (or acute) effects from exposure to asbestos can include shortness of breath, chest or abdominal pain, and irritation of skin and mucous membranes.

Long term (or chronic) effects can occur as long as 20 to 30 years after exposure and include asbestosis, lung cancer and mesothelioma. The likelihood of developing these diseases is dose dependent, with longer exposures and exposures to higher concentrations increasing risk. Asbestos workers who smoke are 10 times more likely to develop lung cancer than similarly exposed non-smokers. The importance of smoking cessation must be stressed when dealing with asbestos workers.

### Signs and Symptoms

*Acute exposures:* shortness of breath, chest or abdominal pain, and irritation of skin and mucous membranes.

*Chronic or delayed effects:* shortness of breath, dry cough, broadening and thickening of the ends of the fingers, bluish discoloration of the skin. Testing may reveal reduced pulmonary function tests, and chest x-ray changes (pleural thickening and plural plaques)

### Onset of symptoms

Acute symptoms are due to the irritant effects of the fibers and occur immediately after exposure. Chronic effects may not become evident until after 20 or 30 years.

### Prevention

Prevention is based on monitoring the condition of asbestos containing materials, to avoid airborne particles. Encapsulation and removal are both successful prevention strategies. When airborne particles exceed standards the proper wear of Personnel Protective Equipment will prevent illness and injuries.

### Medical Surveillance

The purpose of medical surveillance is to assure that workers are capable of safely performing their job and to identify any work related illnesses or injuries at a time when intervention can prevent or reduce permanent injury. Workers being assigned to an occupation with exposure to airborne concentrations of asbestos at or above the OSHA Permissible Exposure Limit (PEL), or Excursion limit for more than 30-days per year or where the employee will be performing asbestos abatement as outlined in OSHA 1926.1101 for more than 30-days per year, will have preplacement, annual and termination medical examinations.

a. Preplacement examinations. Before being assigned asbestos related work as described above a pre-placement medical evaluation is required and includes

(1) Comprehensive medical and work histories to document symptomatology of respiratory disease, smoking history, and any past exposure to asbestos.

(2) A physical examination with emphasis on respiratory, cardiovascular, and gastrointestinal systems.

(3) Clinical laboratory studies. Specifically --

(a) Chest x-ray, 14 x 17 inches, posterior-anterior.

(b) Pulmonary function tests to include measurement of forced vital capacity and forced expiratory volume at one second.

(4) Completion of OSHA respiratory disease standardized questionnaire is required for workers who will be required to wear a respirator. It is available at [www.osha-slc.gov/OshStd\\_data/1910\\_0134.html](http://www.osha-slc.gov/OshStd_data/1910_0134.html).

b. Annual examinations.

Content of annual examinations will be as discussed in paragraph a. above, except:

(1) Chest x-ray evaluations will be conducted at the discretion of the physician for construction and abatement workers as discussed in 29 CFR 1926.1101.

(2) Chest x-ray evaluations for all other workers will be conducted every 5 years until the elapsed time since first exposure reaches 10 years or greater. Then the frequency of chest x-ray evaluation will be every 2 years for workers between 35 and 44 years of age, and yearly for workers 45 years or older.

c. Termination of employment examinations.

(1) Personnel who are no longer exposed to asbestos will be removed from the asbestos medical monitoring program and will receive a medical evaluation within 30 calendar days before or after termination of employment or asbestos exposure. The components of the medical exam are the same as in a. (1), (2) and (3) above.

(2) No examination is required if the employee has undergone a preplacement or annual examination within the past year.

**Physician's statement**

a. The examining physician will include a written signed statement in the employee's medical record stating:

(1) The results of the examination.

(2) Information as to whether the employee has any medical condition which would place the employee at increased risk of health impairment subsequent to asbestos exposure.

(3) Recommended limitation on use of personal protective equipment by the employee.

(4) A statement that the employee has been appraised of the examination results to include any conditions that may be related to asbestos exposure

b. The OSHA Asbestos Standards 29 CFR 1910.1001, 29 CFR 1926.1101, and 29 CFR 1915.1001, require the employer to obtain the written signed statement from the examining physician and provide a copy to the affected employee within 30 days from its receipt.

**Definition and Terms**

Asbestos: General term used to describe six distinctive varieties of fibrous mineral silicates; chrysotile, amosite, crocidolite, tremolite, anthrophyllite, and actinolite. Asbestos is a naturally occurring fibrous material that is resistant to heat.

Asbestosis: A form of lung disease (pneumoconiosis) caused by inhaling large quantities of asbestos fibers.

Latent Period: A period where the effects of an exposure are not apparent. Effects become apparent at a time remote from the actual exposure. It is common to both cancer causing and infectious agents.

Environmental Differential Pay (EDP)/Hazardous Duty Pay (HDP): Additional pay given to workers who are exposed to unusually large environmental risks without proper protection.. EDP is for only WG employees while HDP is for only GS & GM employees.

Personnel Protective Equipment: Equipment worn by an individual to protect them from environmental hazards. Gloves and respirators are common forms of PPE.

Respiratory Protection: The use of a respirator to protect the worker. A respirator is a device that provides clean air to the worker's respiratory tract. The respirator can clean the air using some type of filter or media or it can provide a separate source of clean air. Respirators are designed to protect the workers from airborne contaminants. Respirators can range from a disposable dust/mist mask to Self-contained breathing air (SCBA) respirators. Respirators must be NIOSH or Army approved. An M-40 Protective mask is an example of a respirator intended to protect the soldiers from chemical warfare agents; however it is not currently NIOSH approved for use to protect from asbestos and cannot be used for this purpose.

***References:***

DODI 6055.5M, Occupational Medical Surveillance Manual, May 1988

Army Regulation (AR) 11-34, The Army Respiratory Protection Program, 15 Feb 1990

AR 200-1, Environmental Protection and Enhancement, 21 February 1997

AR 420-79, Buildings and Structures, 10 October 1997

Technical Bulletin Medical (TB MED) 502, The Army Respiratory Protection Program, February 1982

TB MED 509, Spirometry in Occupational Health Surveillance, 24 Dec 1986

TB MED 513, Occupational and Environmental Health, Guidelines for the Evaluation and Control of Asbestos Exposure, 15 December 1986

Public Works Technical Bulletin 420-70-8, Installation Asbestos Management Program, 23 March 1998

Memorandum from DASG-PPM-NC, Subject: Interim Changes to TB MED 502 and TB MED 509, for Medical Examinations and the use of Spirometry in Medical Respirator Clearance, dated 9 Apr 2002

Title 29 Code of Federal Regulations (CFR) Part 1910.1001, Occupational Safety and Health Standards (General Industries), Asbestos, Revised August 1994

Title 29 CFR Part 1926.1101, Occupational Safety and Health Standards (Construction Industries), Asbestos, Revised August 1994

Title 29 CFR Part 1915.1001, Occupational Safety and Health Standards (Maritime Ship Repair Industries), Asbestos, August 1995

Title 29 CFR 1910.134, Respiratory Protection Standard, 8 Jan 1998 [www.osha-slc.gov/OshStd\\_data/1910\\_0134.html](http://www.osha-slc.gov/OshStd_data/1910_0134.html)