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# Workplace Health & Safety

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Asbestos  
May 1997

## Asbestos at the Work Site

Asbestos presents a potential health hazard to workers at many work sites. It has been used in a variety of applications because of its strength and unique fire and chemical resistant properties.

Exposure to asbestos has been linked to serious health problems for many years. To ensure protection against exposure to asbestos, both workers and employers must be aware of its properties, how it affects the body and what special precautions are required when asbestos is present at the work site.

In the past, asbestos-containing materials were applied to structural steel and concrete because of their fire resistant and insulating properties. Asbestos-containing products were also used to insulate pipe and boilers. Asbestos has been incorporated into many building materials, including decorative wall board, caulking compounds, floor tiles, and dry wall and texturing products. The use of asbestos in consumer products, such as modelling clay and drywall products, has been prohibited.

Although substitutes for a number of the uses described are now available, asbestos is still used for some applications, such as cement board and corrosion-resistant water pipe. Fireproof asbestos textiles are made into gloves, aprons and protective suits, fire blankets and curtains. Many brake pads, clutch plates, and automotive and industrial gaskets may still contain asbestos. Asbestos is also an effective filtering medium in laboratory-scale work or for industrial processes.

Modifications to the building regulations have eliminated many of the uses of asbestos in new construction. Older buildings, however, may still contain asbestos materials.

## PROPERTIES OF ASBESTOS

The most commonly used types of asbestos are chrysotile, amosite, crocidolite and tremolite. The color of pure asbestos varies with the type and may be white, gray, brown or blue. However, its appearance can be much different when it is combined with other materials.

Asbestos is a fibrous mineral and therefore can be spun and woven like cotton. During handling it crumbles quite easily and can become airborne as a fibrous dust. Asbestos is resistant to heat and corrosive chemicals like acids.

## EFFECTS ON THE BODY

Asbestos can affect the body if microscopic fibres are inhaled. There are three major diseases associated with inhalation of asbestos fibres.

*Asbestosis* is a lung ailment resulting from prolonged and heavy occupational exposure to asbestos. It can appear from 10 to 30 years after exposure begins. The primary effects are scarring of the lung and shortness of breath. These develop gradually and may increase as the disease progresses, even if exposure stops.

Asbestos-exposed workers also have an increased risk of developing *lung cancer*. Workers who smoke tobacco have a much higher risk of lung cancer than non-smokers who do similar work.

*Mesothelioma* is a rare cancer occurring in the lining of the chest or abdominal cavity. Most people who develop mesothelioma have had some exposure to asbestos, although the amount of asbestos inhaled or the duration of exposure may have been small. Exposure to crocidolite asbestos is implicated in most cases of mesothelioma.

## CONTROLLING ASBESTOS EXPOSURE

In order to protect workers from the hazards of asbestos there are several control options available.

These include:

- substituting a material less hazardous than asbestos,
- administrative changes,
- changing or isolating the process/operation,
- using wet methods,
- providing mechanical ventilation, and
- training and educating workers.

The method(s) used will depend on the conditions at the work site and may require more than one approach.

If such measures fail to provide the workers with adequate protection, approved respirators must be used. It is important that workers are trained in the proper use of this equipment. A bulletin entitled “*Respiratory Protective Equipment: An Employer’s Guide*” (PPE001) is available on request. It provides information on the selection, care and use of respiratory protective equipment. Other personal protective equipment like disposable coveralls, caps and easily decontaminated footwear, must also be provided if necessary. Routine monitoring of the air may be required to ensure that airborne levels of asbestos do not exceed the Alberta Occupational Exposure limits.

Special considerations are necessary during the demolition of structures containing asbestos, the removal of asbestos and in controlling sprayed-on applications of asbestos-containing material. Strict procedures must be followed for evaluating the problem, for site preparation, contaminant control, worker protection and air monitoring. The booklet “*Asbestos Control: Sprayed on Applications*” provides useful guidelines and is available on request.

## EMPLOYER RESPONSIBILITIES

The *Alberta Occupational Health and Safety Act* sets out the employer’s responsibility to ensure the protection of workers at the work site.

Regulations under this Act have been established to define standards related to protection from specific hazards. The Chemical Hazards Regulation (AR 393/88) Part 3 outlines the need for the employer to adopt work practices that minimize worker exposure to airborne asbestos. Also, he must provide a manual of safe practice, suitable protective equipment and ensure that workers undergo medical assessment. The General Safety Regulation (AR 448/83) provides standards respecting safety at the work site, including personal protective equipment. The Chemical Hazards Regulation (AR 393/88) covers requirements relating to the control of chemical hazards and deals with aspects related to the Workplace Hazardous Material Information System (WHMIS). It also lists Occupational Exposure Limits (OELs) for many substances, including the 8-hour and 15-minute OELs for the various types of asbestos.

OELs are subject to periodic change. Please check the Chemical Hazards Regulation for current limits.

It is important to note that OELs represent minimum standards for worker protection. In order to protect workers from the hazards of asbestos, the employer must use control measures which will be effective in keeping asbestos levels as low as possible. As previously outlined, there are several control options available to the employer. The methods used will depend on the conditions at the work site. If personal protective equipment is used, it must be properly selected and cared for. Workers must also be trained in its use.

Employers must inform their workers of the hazards of asbestos, how to protect themselves from exposure and how to react in an emergency. Section 24.1 of the *Occupational Health and Safety Act* requires the employer to provide a material safety data sheet (MSDS) for asbestos. The MSDS outlines the health and safety hazards, handling procedures and precautions to be taken.

## WORKER RESPONSIBILITIES

The *Alberta Occupational Health and Safety Act* also places responsibilities on the worker for health and safety at the work site. The *Alberta Occupational Health and Safety Act* and Regulations require the worker to take reasonable care of himself and others at the work site. This includes co-operating with the employer for the purpose of protecting himself and others. The worker must:

- become aware of the hazards associated with asbestos,
- follow safe work procedures developed by the employer,
- practice good personal hygiene,
- wear protective equipment required to ensure protection and follow instructions on correct usage, and
- participate in education programs provided by the employer.

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For more information about workplace safety or safe work practices, contact the Alberta Human Resources and Employment, Workplace Health and Safety Call Centre by dialling toll-free:



1-866-415-8690

Deaf or hearing impaired call:

- Edmonton (780) 427-9999      Other locations 1-800-232-7215

For more publications, visit our web site at: [www.whs.gov.ab.ca](http://www.whs.gov.ab.ca)

To obtain copies of the Alberta Occupational Health and Safety Act and Regulations, view and download them from our web site or contact the Queen's Printer by dialling toll-free 310-0000 and one of the numbers listed below:

- Edmonton.....(780) 427-4952      Calgary.....(403) 297-6251
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