

# Workplace Health and Safety Bulletin



## Control of Asbestos During Brake Maintenance and Repair

In the automotive industry, asbestos was historically used as a friction material in brake linings, disc brake pads and clutch facings in vehicles. Although asbestos-containing friction products have been mostly phased out, they still may be present in older and imported vehicles. Asbestos friction products are also still available for sale.

Hazardous concentrations of asbestos dust can be generated during the maintenance and repair of asbestos-containing friction materials. Principal sources of asbestos exposure occur during the removal of dust from brake drums and assemblies and when linings are machined before installation.

The inhalation of asbestos fibres is a serious risk to health. Exposure to asbestos over many years can lead to impaired lung function, asbestosis and lung cancer. To protect workers, proper work practices and controls must be used.

Employers are required by the *Alberta Occupational Health and Safety (OHS) Act* to take the necessary precautions to protect the health and safety of their workers. Workers are also required to perform their jobs in a safe manner and to follow proper work practices established by their employer. The Alberta OHS Code has specific requirements for asbestos in Part 4.

This Safety Bulletin contains guidelines for minimizing asbestos exposure associated with brake maintenance and repair. These procedures are also effective when servicing clutches or when working with asbestos-free brake linings.

**Government of Alberta** ■  
Employment and Immigration

## Cleaning of brake drums and assemblies

The removal of debris from drums, rotors and backing plates can be a source of asbestos exposure. To reduce worker exposure to airborne asbestos during cleaning of brake drums:

- (a) use an industrial vacuum equipped with High Efficiency Particulate Air (HEPA) filter and brush attachment to remove dust. A regular vacuum filter will allow asbestos fibres to escape through the vacuum exhaust air and increase the potential for re-exposure.
- (b) wet assemblies down with a low pressure hose and/or wipe clean with damp cloths when vacuuming is not feasible. Techniques such as cleaning with compressed air, dry brushing and banging drums to remove dust must not be used.
- (c) cleaning and servicing of brakes should occur in a separate work area designated for that purpose.

## Machining of friction materials

Machining and fabricating brake linings and shoes is no longer a common practice. Where this procedure is used, hazardous conditions can arise. To reduce worker exposure to airborne asbestos during machining of brake lining and shoes:

- (a) purchase asbestos-free friction materials in a prefabricated form.
- (b) use high velocity/low volume dust collection systems on all machining equipment where the fabrication of friction material occurs. An industrial vacuum equipped with a HEPA filter can be used for this purpose.
- (c) wear approved respiratory protection with a 100% efficient particulate filter. This measure must be considered when ventilation can not be used or when a temporary control measure is needed. Respirators must be approved by the National Institute of Occupational Safety and Health (NIOSH).
- (d) wear disposable coveralls over street clothing.

## Installation of brake assemblies

Normal handling and installation of brake linings should not pose a serious exposure problem since asbestos fibres are bonded in a resinous material. Loose dust, due to abrasion during shipping, should be removed using a damp cloth or a vacuum with a HEPA filter.

## Housekeeping and waste disposal

Proper clean-up and disposal practices are important to ensure that asbestos dust is not regenerated during routine work activities. To reduce worker exposure to airborne asbestos:

- (a) collect contaminated washings and loose dust on floors and around equipment for proper disposal.
- (b) wet down dust and collect it using an industrial vacuum with a HEPA filter. A combination of wet sweeping and wiping with damp cloths can be used if no vacuum is available.
- (c) place waste from vacuum bags, scrap friction materials and wet sweepings into sealed containers, e.g. 6 mil polyethylene bags, drums. Containers must be labelled to indicate the contents and its potential cancer hazard. The label must also contain a warning that the dust should not be inhaled. These containers must be properly disposed of.

## Personal protective equipment

Workers who clean brake drums and assemblies, machine friction materials or install brake assemblies that contain asbestos must wear appropriate personal protective equipment. At a minimum, the worker should wear

- a NIOSH approved air purifying respirator with a high efficiency filter (R100 or P100)
- coveralls that prevent contamination of the workers' clothing.

Respirators must be properly selected and fit tested.

## For more information

 [http://employment.alberta.ca/documents/WHS/WHS-PUB\\_ppe004.pdf](http://employment.alberta.ca/documents/WHS/WHS-PUB_ppe004.pdf)  
Guideline for the Development of a Code of Practice for Respiratory Protective Equipment (PPE004)

 [http://employment.alberta.ca/documents/WHS/WHS-PUB\\_ppe001.pdf](http://employment.alberta.ca/documents/WHS/WHS-PUB_ppe001.pdf)  
Respiratory Protective Equipment: An Employers Guide (PPE001)

 [http://employment.alberta.ca/documents/WHS/WHS-PUB\\_mg005.pdf](http://employment.alberta.ca/documents/WHS/WHS-PUB_mg005.pdf)  
Medical Assessment of Fitness to Wear a Respirator (MG005)

## Personal hygiene

[http://employment.alberta.ca/documents/WHS/WHS-PUB\\_al017.pdf](http://employment.alberta.ca/documents/WHS/WHS-PUB_al017.pdf)  
Asbestos dust from the various procedures in brake maintenance and repair can contaminate the worker's skin and clothing. To reduce worker exposure to asbestos:

- (a) clean the hands and face following work involving products containing asbestos. Workers must wash before eating, drinking or smoking. In areas where brakes are maintained or repaired, eating, drinking and smoking must not be done.
- (b) shower before leaving work, if possible. At a minimum, the worker should wash their face and hands before leaving work.
- (c) remove work clothing at the end of the work day and place it in a sealed bag. This clothing must not be laundered at home to reduce the risk of exposure to asbestos outside the workplace.

## Training and information

Workers who are potentially exposed to asbestos must be trained in proper safe work practices and in the health hazards of asbestos. To reduce the risks of exposure to asbestos the employer must:

- (a) provide a manual of safe work procedures for brake maintenance and repair.
- (b) provide a written code of practice for respiratory protection when respiratory protection is used.

- (c) make the OHS legislation accessible to workers. Workers need to be informed of their rights and responsibilities under the *Occupational Health and Safety Act* and regulations.
- (d) inform workers of the hazards of smoking as it relates to asbestos exposure. Workers exposed to asbestos and who smoke have a significantly greater risk of developing lung cancer.
- (e) post signs at the entrances or on the periphery of a restricted area where asbestos brake maintenance is being done. The signs should specify that asbestos is present, access to the area is restricted and that drinking, eating and smoking are prohibited in the area.

For more information

 [http://employment.alberta.ca/documents/WHS/WHS-PUB\\_ch019.pdf](http://employment.alberta.ca/documents/WHS/WHS-PUB_ch019.pdf)  
Asbestos at the Work Site (CH019)

 [www.hre.gov.ab.ca/documents/WHS/WHS-PUB\\_asbestos\\_manual.pdf](http://www.hre.gov.ab.ca/documents/WHS/WHS-PUB_asbestos_manual.pdf)  
Asbestos Abatement Manual

## Contact us:

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### Province-Wide Contact Centre

 Edmonton & surrounding area:  
780-415-8690

 Throughout Alberta:  
1-866-415-8690

 Deaf or hearing impaired

- In Edmonton: **780-427-9999**

or

- **1-800-232-7215** throughout Alberta

### Web Site

 [www.worksafely.org](http://www.worksafely.org)

## Getting copies of OHS Act, Regulation & Code:

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### Queen's Printer

 [www.qp.gov.ab.ca](http://www.qp.gov.ab.ca)

 Edmonton 780-427-4952

### Workplace Health and Safety

 <http://employment.alberta.ca/whs-ohs>

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Dial 310-0000, then the area code and telephone number you want to reach

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