

# RECOMMENDED PROCEDURES FOR REDUCING ASBESTOS DUST DURING BRAKE SERVICING

While most friction materials used for brake service may still contain asbestos, many suppliers are now replacing asbestos with steel, mineral, and/or synthetic fibers. The OSHA regulations refer directly to the asbestos used in friction materials. However, since the long term medical effects of the non-asbestos fibers are unknown, it is suggested that exposure levels be controlled for all replacement friction materials.

1. The OSHA regulations on asbestos exposure emphasize two levels for airborne concentrations of asbestos. These levels determine (1) if the workplace is in compliance with the regulations, and (2) if not, what action must be taken.

- (1) The Permissible Exposure Level (PEL): 0.2 fiber per cc, 8 hour time weighted average (TWA).

- (2) The Action Level: 0.1 fiber per cc 8 hour TWA. (The regulation is not activated if fiber exposure remains below 0.1 fiber per cc.)

If certain precautions are taken, it is believed that the workplace can be maintained at levels below the Action Level, and if this is the case, several requirements of the OSHA regulations may be avoided. Monitoring of these levels is required where exposure is or may be expected to exceed the Action Level.

2. Areas where brakes are serviced should be set aside. If concentrations exceed the permissible exposure level (PEL), a "regulated area" must be established which restricts occupancy to authorized personnel. Where a "regulated area" is designated a warning sign must be displayed at each entrance to the area:

**DANGER  
ASBESTOS  
CANCER AND LUNG DISEASE HAZARD  
AUTHORIZED PERSONNEL ONLY  
RESPIRATORS AND PROTECTIVE CLOTHING  
ARE REQUIRED IN THIS AREA**

3. When removing worn friction materials or cleaning used brake parts, remove the accumulated dust with a vacuum cleaner equipped with a High Efficiency Particulate Air (HEPA) filter. If removing accumulated dust or other debris from the brake assembly, alternate wet methods may be used: (a) Compressed air/solvent bottle system where parts are sprayed with a mist and the wetted particles are removed with a wet rag, or (b) Solvent spray-mist with final clean-up with a wet rag. Do not use compressed air or dry brushing for cleaning unless the assembly is enclosed and properly exhausted. (Refer to OSHA Asbestos Regulations, CFR Title 29, Part 1910. 1001, Appendix F).
4. Whenever possible, purchase friction materials preground and ready for installation. If machining

is necessary, there is the possibility that the permissible exposure level (PEL) may be exceeded, in which case respirator protection is required. There must be local exhaust ventilation such that worker exposures are maintained below the PEL. Local exhaust ventilation consists of dust collection hoods or enclosures connected by duct or piping to a collection filter and suction source.

5. In certain grinding operations, where concentrations cannot be reduced below the permissible exposure level (PEL), a respirator program shall be used. The respirator must be one approved by the National Institute for Occupational Safety and Health (NIOSH) for the concentrations encountered. Respirators may also be required during certain maintenance, start-up or emergency situations where engineering controls cannot maintain concentrations below the PEL. Where a regulated area is designated for concentrations exceeding the PEL, approved respirators with high efficiency filters must be worn.
6. Industrial vacuum cleaner bags containing asbestos dust, cloths used for wiping brake assemblies, used cartridges from respirators, and disposable work clothing should be sealed in plastic bags and labeled with the following warning label printed in letters of sufficient size and contrast to be readily visible and legible:

**DANGER  
CONTAINS ASBESTOS FIBERS  
AVOID CREATING DUST  
CANCER AND LUNG DISEASE HAZARD**

All asbestos waste should be disposed of in accordance with OSHA and EPA asbestos regulations and local ordinances.

7. Good housekeeping is essential in a workplace where asbestos-containing materials are handled. Industrial vacuum cleaners equipped with High Efficiency Particulate Air (HEPA) filters should be used for removing accumulations of asbestos dust and waste. Never use compressed air or dry sweeping for cleaning. Water or other dust suppressants should be applied if brooms are used.
8. Good personal hygiene practices are important in minimizing asbestos dust exposure. Do not smoke. Wash before eating. Shower after work. If the PEL is exceeded, protective clothing must be worn. Change to work clothes upon arrival at work and change from work clothes at conclusion of work. Do not take work clothing home. Laundering of asbestos contaminated clothing shall be done so as to prevent release of airborne asbestos fibers in excess of the permitted exposure level.

**CAUTION: DO NOT BREATHE ASBESTOS DUST**