

Intestinal Cancer

Cancer of the large intestine can often be detected early by yearly exams of the rectum and sigmoid area, with a hemoccult test for blood in the stool. Early detection and treatment of this condition can result in cure.

Voice Box Cancer

Voice box cancer can often be discovered at a curable stage by a medical exam. It may show up as hoarseness that does not go away in a few weeks.

IV. EXTENT OF EXPOSURE DURING BRAKE AND CLUTCH MAINTENANCE

Using a compressed air hose to clean drum brakes can release up to 16 million asbestos fibers in the cubic meter of air around a mechanic's face (1).^{*} Even hitting a brake drum with a hammer can release over a million asbestos fibers (4). Much less dust from asbestos-lined disc brake pads will settle on disc brakes, but some dust can get on a mechanic's hands and into the garage air during maintenance. The asbestos fibers released from brake and clutch work can be scattered throughout a garage, where they can present a hazard for months or years.

Because of this, many garages are now turning to newer methods for brake cleaning. However, some of these newer methods may actually contribute to the problem. For example, millions of asbestos fibers can be released from drum brakes with these methods:

Wiping with a dry rag or brush (1-3).

Wiping with a wet rag or brush (2,3). The water doesn't prevent scattering of much of the asbestos, and when the rag dries or is shaken, asbestos is spread around the garage.

Liquid squirt bottles or solvent sprays (3). The water or solvent under pressure scatters much of the asbestos, and when it dries the asbestos is still all over the surrounding work surfaces. Brake cleaning equipment using these methods with a brush or squirt gun is likely to have the same problems. In fact, measurements from one manufacturer using a liquid spray system showed that over a million fibers can be released near a mechanic's face (28). Using a specially designed low-pressure spray

^{*}These are the larger fibers measured by common methods for counting asbestos fibers. The very small ones are far more numerous, but can be only be seen with the electron microscope.

and properly collecting and disposing of contaminated liquid may prevent some asbestos from spreading around the garage. Some recirculating wet method equipment uses a solvent to collect brake dust into a tray. If the solvent evaporates from the tray, normal air currents easily lift the asbestos fibers back into the air.

Using a garden hose may prevent some brake dust from becoming airborne, but this can easily contaminate the garage floor or other work areas by scattering the asbestos.

Using a standard shop vacuum cleaner. A shop vacuum cleaner can spread asbestos about a garage as much as does a compressed air hose (6: using a shop vacuum cleaner raised asbestos concentrations in adjacent bays to levels greater than those found using a compressed air hose). A shop vacuum cleaner filter is not fine enough to collect asbestos fibers.

All of these brake cleaning methods can release enough asbestos into a garage (6,29) so that an average of over one million of the larger fibers could be breathed each day by workers in that garage. These brake cleaning methods can also cause customers to be exposed, since asbestos from brake work can be spread 75 feet away from the mechanic (1).

When grinding is done to renew used brake block linings, concentrations of up to seven million asbestos fibers per cubic meter can be released. Beveling new linings can release concentrations of up to 72 million fibers and light grinding of new linings of up to 4.8 million fibers (7).

V. CONTROLLING EXPOSURES

NIOSH, OSHA, and EPA recommend that where asbestos exposures cannot be eliminated, they must be controlled to the lowest level possible (9,13). Effective containment prevents problems associated with housekeeping and with stirring up settled dust (13). The best approach is to contain brake dust and prevent its release into a garage.

Brake Cleaning

Enclosure equipment for brake cleaning is available, which slips easily over the brake assembly and forms a tight seal against the backing plate. A compressed air system can then be used inside this type of enclosure system for good brake cleaning without exposing the brake mechanic or others. Clear plastic