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Jean Ryan:

Please transmit the enclosed four page manuscript this AM to:

Mr. F. S. Daley, Raybestos/Manhattan, Trumbull, CT. 203-371-0101

and ask for Telecopy Operator.

Urgent that Mr. Daley have copy this AM.

Hal Nelson

Auto Industries
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F. S. Daley
Call this guy
at 215-687-8200
with your comments
+/or approval.

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Environmental Realities

It didn't take brake engineers long to realize some magic material was required to function as the friction element. Even today, empirical methods of friction material development are still employed. Conclusion, the ideal friction material still eludes the brake engineer.

The single component and the one which contributes the most to the characteristic performance of brake friction materials is asbestos. Literally all brake linings now manufactured contain asbestos and like most good things, there's always a bad side.

So what's the problem? Stated simply, it's your health. In the past few years medical and industrial safety authorities have labled asbestos as one of the most dangerous air contaminants. Over 300,000 workers are exposed daily to this hazard.

Asbestos contaminates in the form of microparticle dust emissions. These emissions when suspended in air are inhaled, resulting in physiological irritants for which there is no known cure.

Researchers believe, asbestos exposures are responsible for many present day diseases dating back to the 1930's. At that time, world asbestos production was 50,000 t (45,000 mt) per year. It is now over 60 times that amount. Based on past experiences, effects of exposures of the 1970's will not be known until the end of the century.

The average motor vehicle wears out three or four sets of brake linings and one or two clutch linings in its lifetime. Commercial and public transport vehicles deplete many more in their lifetime. These linings consist largely of asbestos which is ground to dust as they wear. Most wear occurs in highly urbanized areas. This, alone in most cities, would involve the discharge of many tons of asbestos dust and fibers each year.

The average mechanic still uses an air blow gun to clean brake lining dust, thus exposing himself and others to this airborne hazard. All tests and research indicate this is the worst way to remove lining dust. The best system for cleaning is an efficient industrial vacuum with an exhaust filter which will not pass the smallest particle.

The environmental control group at Raybestos Manhattan, Inc. have long been involved with the establishment of controls in asbestos processing. Even before OSHA, several corporations were involved with research to minimize the asbestos health hazard. Even though, a move to reduce the asbestos content in friction materials is under way, present day air samples in the rear brake maintainance stations indicate a substantial health hazard could could exist.

Raybestos has developed a very up to date procedure to manage brake lining asbestos emissions during automotive brake maintainance:

1. Areas where brake work is done should be set aside if possible.
2. During brake servicing, the machanic should wear an air purifying respirator, either a throwaway or one with replaceable particulate filer(s). It should be worn during all procedures starting with the removal of the wheels and including reassembly.
3. During disassembly, all parts should be carefully placed on the floor to minimize the possibility of creating airborne dust. Dust should first be cleaned from the brake drums, brake backing plates and brake assemblies using an industrial type vacuum cleaner equipped with a high efficiency filter system.
4. Of extreme importance are the precautions which must be taken during machining of friction material. In addition to the approved respirator, there must be local exhaust ventilation such that the worker exposures are maintained at least below the 1976 OSHA asbestos standards

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5. Industrial vacuum cleaner bags containing asbestos dust and cloths used for wiping brake assemblies should be sealed in plastic bags and labeled with a warning label printed in letters of sufficient size and contrast to be readily visible and legible. All asbestos wastes should be disposed of in accordance with the OSHA asbestos regulation. During removal of vacuum bags, an approved respirator should be worn.

6. All floor cleaning in areas where brakes are repaired should be done with the high efficiency industrial vacuum cleaner. Under no circumstances should dry sweeping take place. Grinding (arcing) machines should also be cleaned with such a vacuum cleaner and any remaining dust wiped with a damp cloth. An approved respirator should be used during cleaning.

7. Although adherence to the above procedures should minimize any contamination of work clothing, it is necessary that the appropriate sections of the OSHA regulations on asbestos be followed when ceiling levels on asbestos dust exceed current standards. This could involve special clothing, change rooms, etc. At the very least the work clothes should not be taken home but should remain at work for industrial laundering.

8. Proper hygiene practices will help minimize exposure to asbestos dust. Wash thoroughly before eating and do not eat in the work area.

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- To provide industry-wide information on asbestos, health and industry-wide standards to eliminate existing hazards.
- To cooperate with governmental agencies in developing and implementing industry-wide standards for worker protection and for the control of asbestos dust emissions into the community air.
- To exchange information on methods and techniques of asbestos dust control.
- To correct misleading and uniformed reportage on asbestos health problems.
- To publicize the unique benefits and importance of asbestos in protecting human life and property.

Tests conducted by- 'Medical Services, Ford of Britain' say, the hygiene standard suggests that exposure should not exceed an accumulation of 100 fiber years/cc. This exposure is improbable in the case of the automotive mechanic.

The air blown dust cloud in a typical car or truck brake job exceeds the standard. However, personal exposure of car mechanics was well below the standard while exposure of truck mechanics approached it.

Besides asbestos, other known biological irritants exist in brake dust such as free silica and lead compounds. It is therefore wise to take any and all industrial precautions to guard against this subtle but sure health hazard.

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