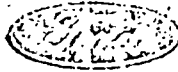


FILE NAME: Ford (FD)

DATE: 1970 Nov 16

DOC#: FD106

DOCUMENT DESCRIPTION: Memo - Asbestos Emissions from Brake Lining Wear



Intra Company

ENGINEERING AND
MANUFACTURING STAFF

November 16, 1970

To: Mr. H. L. Misch
cc: Mr. D. A. Jensen
Mr. B. H. Simpson

009682

Subject: Asbestos Emissions from Brake Lining Wear

Studies of asbestos emissions from brake lining wear are being conducted by Dr. R. Gealer of the Scientific Research Staff. The brake lining wear test is conducted with a dynamometer stand which simulates stop-and-go conditions under variable load conditions. The ambient air is blown past the brake lining to simulate the actual driving condition and to cool the brake lining assembly. Brake lining wear materials are collected from this air stream with a membrane filter at a rate of about 1 CFM. A sampling duration of about 40 hours is required to collect weighable amounts of the wear material.

In his preliminary experiments, Dr. Gealer found about 12 asbestos fibers on a filter paper area of 40,000 square microns using the transmission microscopy technique. This corresponds to approximately 3×10^8 fibers per gram of wear material collected. Although 3×10^8 fibers per gram appears to be an enormous number of fibers, when dispersed in the atmosphere, the concentration is extremely low (see attachment A).

The present industrial hygiene standard, in the construction trade utilizing asbestos, is two fibers per cm^3 at 8 hour exposure for 50 years. The calculations in attachment A show that the concentration of fibrous asbestos is only 0.65 fibers per cm^3 if it is assumed that the total emission for one month is to be spread over a given volume instantaneously. If wind velocity, fiber size (larger fibers will settle out quickly), and the height of the inversion layers are considered, the actual concentration of fibrous asbestos is indeed believed to be very small.

Dr. Gealer is constructing an improved test stand which will be used to obtain more accurate information on asbestos emissions. His test data will relate the number of asbestos fibers emitted as a function of weight lost by brake lining wear.

At the beginning of 1970, Professor Selikoff of the Mount Sinai School of Medicine, gave a seminar at Ford. He stated that asbestos emissions from automobiles are very small when compared to those emitted by construction trades. I am attaching a copy of a letter written by Professor Selikoff for your information. In this

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Mr. E. I. Misch

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letter, he states that ". . . while it is my informed guess that brake linings contribute less than is commonly assumed to asbestos contamination of the ambient air, I think this should be documented, . . ." Dr. Gealer intends to publish his findings

Professor Selikoff is scheduled to visit Ford on November 23, 1970. Any new information which may be discussed at this meeting will be summarized for your information.

J. S. Ninomiya
J. S. Ninomiya
Automotive Emissions Office

CONCURREN BY:

W. M. Brehob

W. M. Brehob
Automotive Emissions Office

JSN/rj

Attachments

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