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DATE: 1970 & 1973

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DOCUMENT DESCRIPTION: Internal Air Sampling Memos & Test Results
Indicating Asbestos Emissions

File Name Ford Motor Company

Scanned ? yes

Source JMA: JMA:

Start Year 1970

Stop Year 1973

Contents memo, test results

Notes BC notes in file

7/5/98:

Ford Motor Company

Nov. 1970 documents refer to Ford efforts to substitute or control asbestos in making housing units for heaters and air conditioners.

Ford brake tests in 1973 demonstrate asbestos emissions in brake wear products. "Asbestos Emissions from Brake Dynamometer Tests," by A. Anderson, R. Gealer, R. McCume and J. Sprys.

Environmental Control Department
Research & Engineering Center
November 17, 1970

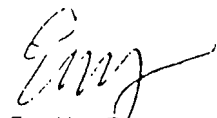
W. P. O'Reilly - Cleveland Dist. Off.

cc: A. C. Smith
N. W. Hendry - Asbestos 1500
H. M. Ball - GHQ
W. P. Raines - GHQ
H. G. Donovan
J. Goldfield
File & C

FORD MOTOR COMPANY
PLYMOUTH, MICHIGAN
YOUR LETTER OF NOVEMBER 13, 1970

I contacted Dr. George Bauer today in accordance with your request. He told me that Ford was greatly concerned with the health hazards related to asbestos fiber usage and that he had been looking for substitute materials. He further stated that his search had convinced him that other materials were equally, if not more, hazardous than asbestos fiber and that instead of using a substitute, they should improve the dust control at their operations. He asked if anyone from Johns-Manville could visit their plant and advise them on dust control procedures.

I informed Dr. Bauer that J. Goldfield and I expected to be in the Detroit-Toledo area sometime within the next two weeks and would visit their plant to review the problem with him and Mr. Leonard Evans, their Plant Engineer.



E. M. Fenner

EMF/ems

9. 1. 775 -
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Cleveland Office
November 13, 1970

E.M. Fenner - Finderne

cc: N.W. Hendry - Asbestos
H.M. Ball - GHQ
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File

FORD MOTOR COMPANY
HARDWARE & ACCESSORIES DIVISION
14425 SHELDON ROAD
PLYMOUTH, MICHIGAN

This plant manufactures the Heaters and Air Conditioners for all Ford vehicles and the housing for these units is a molded polyester premix compound. For the past three years they have purchased from us in excess of 2000 tons of Asbestos Fiber grade 7T15.

Last month we heard through Dr. George Bauer, a chemist and their formulator for this item, that he was instructed to investigate possible substitutes for asbestos, and that if we had any comments on the subject, we, rather than he, should approach Ford about it. Last week, on the 5th of November, Noel Hendry and I visited there and brought up the matter with our contacts seeking their advice. They felt that although the subject had come up, a presentation on our part would be premature at this time, and I believe Noel is to write them to the effect that we have such a presentation and would be glad to offer it at their convenience. Dr. Bauer was not present at this meeting.

Now, on November 11th, Dr. Bauer has contacted our distributor (Mr. John Hastings of International Fibers) asking that someone from the J-M Environmental Control Department telephone him to discuss recommended asbestos dust levels. Their ECD feels the asbestos dust in their operation exceeds the allowable limits and if so, they wish to know how to reduce the dust. Dr. Bauer stated a dust level of 2 fibers per cc, which I think is a little low.

At any rate, may I suggest that you or someone in your group telephone Dr. George Bauer at Ford in Plymouth, Michigan (Phone (313) 445-0600) to discuss allowable asbestos dust levels? Then would you kindly drop a note to Noel Hendry and me informing us of what transpired?

V.P. O'Reilly

WPO/mc

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Research & Development Center
May 22, 1973

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ASBESTOS EMISSIONS FROM BRAKE DYNAMOMETER TESTS

A. E. Anderson, R. L. Gealer, R. C. McCane and J. W. Spys,
Scientific Research Staff, Ford Motor Company.

(Presented at the 1973 SAE National Automobile Engineering
Meeting, Detroit, May 16, 1973)

SUMMARY by J. W. Axelson

Dynamometer tests were made with a production disc brake and all airborne wear particles were collected on 0.45 um filters. Asbestos fibers were detected and measured by the use of transmission electron microscopy at 40,000X and positive identification was made by electron diffraction. Most of the lining asbestos (99.95 percent) was found to be converted to a non-fibrous material by the high flash temperatures of the braking surface. Brake flash temperatures as high as 980C have been observed on a test machine.

They estimate that about 28,000 tons of asbestos are used each year by the friction materials industry in the U.S. (J-M estimates about 45,000 tons). Less than half of this, or 12,000 tons, is estimated to wear away.

Throughout the paper they use a safety factor of 10 to make sure they are stating maximum quantities. For instance, they found that only 0.0023 percent of the lining wear was released as asbestos fibers, but state this figure as less than 0.02 percent. Likewise, the concentration of asbestos fibers in the atmosphere from brake usage was calculated as 0.007×10^{-9} gms per cu meter but was reported as 10 times that or 0.07×10^{-9} gms per cu meter.

Some of the pertinent data are given in the following table. These are actual values without multiplying by the factor of 10 as they did in the paper.

Background asbestos in ambient test air	1.9×10^{-9} g/m ³
Asbestos fiber from brake in exhaust air	1.3×10^{-9} g/m ³
Total asbestos fiber in exhaust air	3.2×10^{-9} g/m ³
Estimated brake asbestos in urban air*	0.007×10^{-9} g/m ³
Asbestos fiber from brake in airborne wear dust	0.005 percent
Asbestos fiber released from lining wear	0.0023 percent

*Extrapolated from data on residence times for lead particles.

Qm

May 22, 1973
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Asbestos Emissions from Brake Dynamometer Tests

Local Detroit atmospheric concentration ranges from 0.5 to 13.1×10^{-9} gms per cu meter so the calculated value of 0.007×10^{-9} gms per cu meter is only a minor fraction of normal conditions accruing from all sources including natural weathering of asbestos-bearing rock and soil, mining, farming and excavating. This leads to their final conclusion "Based on this upper bound, the use of brakes was judged to be not significant as a source of atmospheric asbestos".

cc: }

J. R. M. Hutcheson - Asbestos

N. W. Hendry - 3 West

H. G. Donovan - 3 West

E. M. Fenner - 4 North

F. J. Solon - 1 West

W. C. Streib - R&D Ctr

S. Speil - R&D Ctr