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ASBESTOS PRODUCT TEST RESULTS

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SAMPLING OF BRAKE REPAIR WORK

On September 21, 1979 samples of ambient particulate were collected in a garage while brake work was being performed. A representative of Nilfisk of America was present to demonstrate the value of Nilfisk control equipment in brake lining repair work. Sampling was permitted on the condition that the facility and its location remain anonymous.

Three types of ambient samples were collected:

In the garage away from the workspace
(background levels).

Near the workspace while Nilfisk devices were in use.

Near the workspace without any controls.

Table 1 shows the result of analysis of such samples by Scanning Electron Microscope (SEM).

TABLE 1

BACKGROUND LEVELS OF ASBESTOS

<u>SAMPLING LOCATION</u>	<u>DURATION (Min.)</u>	<u>SAMPLING FLOW (lpm)</u>	<u>FIBERS</u>	<u>FIELDS</u>	<u>CONCENTRATION (f./cc)</u>
About 25' from workspace	60	2.2	4	130	0.1
About 55' from workspace	60	2.2	4	450	0.1

Samples away from the workspace were collected during brake work taking place inside Nilfisk control equipment. They would typify fiber levels in the garage from day to day since, as Table 2 shows, fiber release when the Nilfisk devices were used. Release may be seen to be minim

Clearly, the one fiber collected during the Nilfisk controlled work could have come from background contamination.

Two sets of samples were collected near the workspace when brake work was being done in the usual manner, without Nilfisk controls. First, a brake housing was removed and cleaned by being struck repeatedly with a hammer. Second, the worker opened a brake housing, cleaned it with a jet of compressed air, then swept up all the debris which had accumulated on the garage floor. Employees and supervisors gave assurance that these procedures were routine.

TABLE 2

AMBIENT LEVELS OF ASBESTOS
DURING NILFISK-CONTROLLED WORK

<u>SAMPLING</u> <u>LOCATION</u>	<u>DURATION</u> <u>(Min.)</u>	<u>SAMPLING</u> <u>FLOW</u> <u>(lpm)</u>	<u>FIBERS</u>	<u>FIELDS</u>
On Nilfisk exhaust vent during front brake work	10	2.2	0	350
On Nilfisk exhaust vent during front brake work	8	1.9	0	390
On worker during both front and rear brake work (above)	25	1.9	1	550
On Nilfisk exhaust vent during truck front brake work	5	2.2	0	420
On worker during truck front brake work	15	2.2	0	470
8' from truck front brake work	22	1.9	0	400
On Nilfisk exhaust	10	2.2	0	330

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TABLE 3**AMBIENT LEVELS OF ASBESTOS
DURING ROUTINE BRAKE WORK**

<u>SAMPLING LOCATION</u>	<u>DURATION (Min.)</u>	<u>FLOW (lpm)</u>	<u>FIBERS</u>	<u>FIELDS</u>
Clean Housing by banging:				
On Worker	14	2.2	14	320
3' from Workspace	14	2.2	1	150
10' from Workspace	14	2.1	3	105
25' from Workspace	14	2.3	0	380
Clean Housing with Compressed Air:				
On Worker	13	2.2	12	450
3' from Workspace	10	2.2	7	390
10' from Workspace	10	2.1	6	400
25' from Workspace	10	2.3	1	400

Dust dispersed more rapidly and extensively with compressed air cleaning as the results 25 feet from the workspace indicate.

Three samples of dust were also collected during garage visit:

- Brake dust - rear brakes.
- Brake dust - truck front brakes
- Overhead dust on rafters

Optical microscopy did not reveal any asbestos in these samples. Brake dusts were primarily quartz and carbon, while overhead dust was almost entirely cellulose. SEM analysis revealed a small number of very short asbestos fibers among these more visible substances.