Inter Office

Scientific Research Staff

May 29, 1973

To: J. R. Knauss

cc: R. M. Quarles
J. E. Mayer, Jr.
C. D. Melvin*
L. Bartosiewicz*
J. A. Keller
R. L. Gealer*
W. R. Pierson*

Subject: Asbestos Fiber Emissions During Brake Servicing

At your request, several members of our staff (asterisks) have collectively gathered some information about the asbestos fiber release during brake service.

First of all, our brake vendors presently use the air hose or an industrial vacuum cleaner with auxilliary brush. Bendix, in its many garages, has only vacuums available for brake work. All air guns and booms were reportedly removed.

The British, with more stringent standards, have adopted commercial vacuum cleaners or special shrouded cleaners for brake service. These are described in "Annals of Occupational Hygiene," Volume 13, 1970, which has been supplied to you.

A simple test was performed in the Transportation Garage during brake service on a Chateau Club Wagon, using a small commercial vacuum (5 gal. Power Vac, Shop Vac Corp., Hackensack, N.J., Model RM-150, 115 VAC/DC at 5.2 amps). As the mechanic serviced the right front brake (11" x 3" drum) one sample was collected from a filter on his upper chest and another sample was collected from the vacuum discharge duct. Millipore 0.8 μm membrane type filters (35 mm effective diameter) were used with Gelman filter holders and vacuum pumps. Sampling was conducted for the four minutes during which maximum exposure would be expected. Thus, the results would be expected to represent the peak fiber levels, and not the average.

PLAINTIFF'S EXHIBIT FD-8

The vacuum cleaner exhaust was found to have collected .98 fibers/cc while the mechanic's sampler collected .45 fibers/cc (see attached test report). These levels are well below present and proposed OSHA standards, but the higher level from the vacuum cleaner exhaust suggests that further improvements could be made. For example, a heavier duty vacuum has a larger and better sealed bag. With use, the fiber discharge rate from the vacuum could be expected to decrease as the larger particles bridge the bag openings to reduce the effective pore size. A larger, more powerful vacuum should also provide substantially greater cleaning effectiveness on the brake parts.

Mr. Quarles suggested the vacuum drum be lined with a plastic bag before use. This appears to offer the best means for disposal of the collected dust and bag.

A visit to a Bendix garage facility is planned to provide your personnel with added data on implementation, equipment, and procedures.

[redacted]
Anderson
Mechanical Research Department

PROPERTY OF FORD MOTOR CO

ELECTRON AND X-RAY OPTICS INVESTIGATION REQUEST

NAME	DATE	REQUEST NO.

PROJECT NO.	TELEPHONE	ROOM NO.	DEPT NO

INSTRUMENTATION:

- ☐ ELECTRON MICROPROBE
- ☐ SAMPLE PREPARATION
- ☐ ION THINNING
- ☐ X-RAY FLUORESCENCE
- ☐ ELECTRON MICROSCOPE
- ☐ SCANNING ELECTRON MICROSCOPE
- ☐ THERMIONIC EMISSION
- ☐ LIGHT MICROSCOPE
- ☐ X-RAY DIFFRA
- ☐ OTHER

SPECIMEN INFORMATION: (INCLUDE MATERIAL, COMPOSITION, AND SPECIMEN PREPARATION FOR PROBE WORK)

SAMPLES TO BE RETURNED AFTER ANALYSIS?

DESCRIBE INVESTIGATION REQUIRED; QUANT , SEMI QUANT , QUAL , OTHER

TECHNIQUE EMPLOYED

RESULTS

Sample 1 contains

Sample 2 contains

See attached report

DISPOSITION OF SAMPLES

WORK BY

DATE COMPLETED

Inter Office — Scientific Research Staff

To: Mr. A. E. Anderson

Subject: Determination of Asbestos Fiber Count in Air Samples Collected at the Transportation Garage.

Techniques employing optical as well as television microscopy has been used to determine the fiber count of the two submitted samples from the Transportation Garage. The fiber count per ml of the "personal sample" is 0.45 fibers, and the "vacuum cleaner exhaust" sample contains 0.98 fibers per ml. The "vacuum cleaner" sample compared to the "personal sampler" sample not only contains more fibers but the density level of contamination represents the upper limit for proper fiber counting.

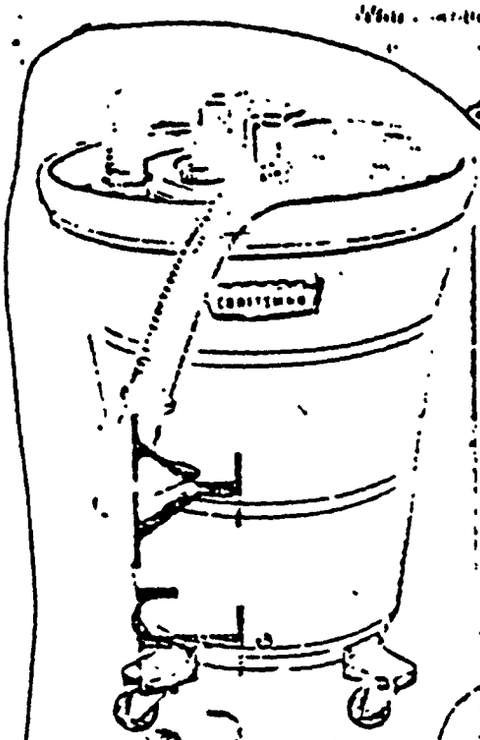
Judging from the observation of both samples, it appears that the amount of air sampled for the "personal sampler" sample, could be almost doubled, while for the "vacuum cleaner exhaust" sample it should be reduced by one third.

J. Bartosiewicz

PROPERTY OF FORD MOTOR CO RETURN

PROS - THIS SEEMS UNIT LOOKS ADEQUATE - LARGE, HIGH FLOW, TALL UNIT, HOSE STORES ON & EASY TO FAS TO HEAVY BASE IT WONT TIP OR "GET LOST"

Aime 5/29/73



In addition, you get powerful and full-strength pickup from empty to full tank-container because of direct-line air flow. Debris or liquid by passes motor, falls directly into tank-container—can't reduce suction or recirculate through the motor.

Also, as a result of this unique system, "clean" dirt-free air blows through the motor fans. This, plus independent motor cooling, lengthens the life of the motor.

Guaranteed 1 full year.

CRAFTSMAN® 45-gallon Heavy-duty Industrial Vac

$92.99

Perfect for [illegible], factories. 3-bushel capacity. Two by-pass motors develop 1½ HP each (the [illegible]—1 for heavy pickup). Sealed ball bearings. Powerful 3-stage motors or blowers action. Permaseal™ steel container [illegible]-gal.-cap. 24½-in. diam. Large motor clear through. Drain plug. Lift-off steel cover, gray enamel. Flexible 6-ft. hose 2½-in. diam. Swivels 360°. Triangular nozzle. Hose, cord store on cover. Dolly with 4 ball bearing casters wraps on. 6-ft. 3-wire cord. Filter bags. UL listed at 115-v., 60-c. AC. For heavy duty wet pickup order nozzle (4). 1 99 KT 17823 [illegible] wt. 60 lbs....192.99

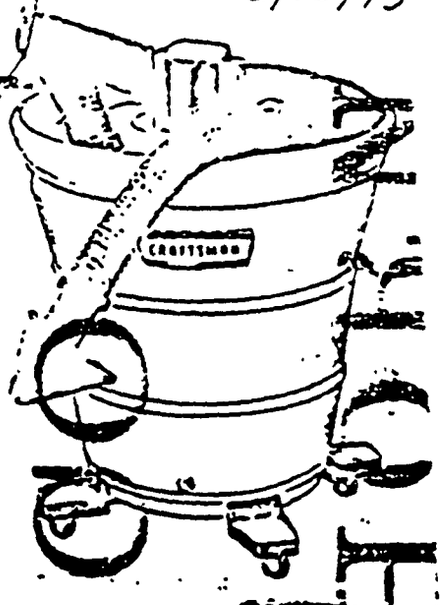
SHIPPING NOTE: 99 KT 17821N, [illegible] 99 KT 17831N, sent freight [illegible] by truck or express.

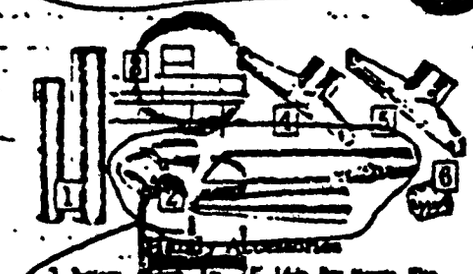
CRAFTSMAN® 27-gallon HOME-N-SHOP® Vac

$64.99

All the features of vac at left except has 2-bushel capacity. 1 by-pass motor that develops 1½ HP and large Permaseal™ tank-container is 31¼ inches high, 22½-in. diameter. Excellent for workshop, [illegible], apartment. Ideal. With 6-foot 3-conductor, filter bags. UL listed at 115-volt, 60-cycle AC. [illegible]-duty vac with pickup order special wet pickup nozzle (4), below left. 99 KT 17821N—Shipping weight 41 pounds....164.99

GUARANTEE: If any vac on this page shows defects in materials or workmanship, we'll repair it, without charge, if returned during guarantee period. All guaranteed 90 days if in domestic duty, except 99 KT 17805, 30 days. Guarantee does not apply if vac used in rental service.





Vac Accessories

1 Suction [illegible] Wt. 1 lb. [illegible]

2 Accessory [illegible] Plastic. Ship. wt. 1 lb. 9 KT 16693....

3 Bank for accessories. Hang on vac or wall. Holds 7 accessories. Ship. wt. 1 lb. 10 oz. 9 KT 17616.....$1.99

4 Wet Nozzle. Only for vacs w/ KT 17821N and 99 KT 17831N above. 14 in. wide. Ship. wt. 1 lb. 3 oz. 9 KT 17617.....$4.19

5 14-in. Dry Nozzle. Fits hose and extension handle. Made of plastic. Ship. wt. 1 lb. 2 oz. 9 KT 16692.....$3.99

16 Hose Adapter. Takes most standard hoses over accessories. 9 KT 16666—Wt. 6 oz. $1.59

Lock Hose. 1¼-in. diam. Ship. wt. 3 lbs. 4 oz. 9 KT 17818 .....$3.99

Cloth Filter Bag. Fits over protector sleeve. 9 KT 16667—Wt. 4 oz. $1.49

Paper Filter Bag. Use over cloth bag for fine dust. Fits all 3. Ship. wt. 4 oz. 9 KT 16668....Pkg. $1.49



Radial Arm Saw Dust Collector

CRAFTSMAN Collects standard through 9½ x 16-inch [illegible] and 1¼-inch bore [illegible]. Sawed cavity attaches to table of [illegible]. Effective in crosscut, rip, dado[illegible] cuts or miter operations. Use with any blade vac on also mode. Removable motor.

Shipping weight 3 pounds 6 ounces. 9 KT 16698.....$12.99

CRAFTSMAN® HOME-N-SHOP® Vac...holds 3-bushel dry load

$39.99

Similar to 99 KT 17821N above, but for dry pickup only. Single-stage motor (not by-pass) develops 1 HP. 27-gal. large Permaseal™ container 27¼ in. high, 22½-in. diam. 1-pc. aluminum. UL listed at 115-v., 60-c. AC. 99 KT 17811N—Ship. wt. 29 lbs.....$39.99

Steel Dolly for above. With 4 plastic casters. 9 KT 17815—Ship. wt. 4 lbs. 10 oz....$5.99

Compact...1¼-bushel dry load

$29.99

Pickup only. 1-stage motor (not by-pass) develops 1 HP. 12-gal. fiber drum 15 in. high, 16-in. diam. 6-ft. hose swivels 360°. Triangular nozzle. 6-ft. 2-wire cord. UL listed at 115-volt, 60-cycle AC. 90-day guarantee... above. 99 KT 17805—Ship. wt. 17 lbs. $29.99

Dolly for 99 KT 17805. Steel frame, 4 plastic casters. 9 KT 17805—Ship. wt. 3 lbs. 11 oz....$3.99

Power tools on these 2 pages meet safety standards of Power Tool Institute, page 3

