

June 22, 1973

Mr. J. A. Keller, Supervisor
Personnel Services Section
General Services

Subject: Asbestos Fiber Emissions from Sears Model No. 758.17831 -
Shop Vacuum Cleaner

As requested, we evaluated asbestos fiber emissions from the Sears and Roebuck Model No. 758.17831 shop vacuum cleaner. This vacuum cleaner is intended to be used in lieu of compressed air clean up of asbestos laden brake lining dust on brake linings and drums.

The Sears vacuum has two vacuum motors each having its own discharge. Each discharge has a paper and a cloth type filter. The contaminant is deposited in a 45 gallon plastic drum.

Section 1910.93a of the Federal Register specifies: asbestos fiber in air determinations to comply with the provisions of the Occupational Safety and Health Act (OSHA) will be determined by 430X phase microscopy and collected at two liters per minute on a 37 mm open face Type AA Millipore membrane filter or its equivalent. In order to conduct an isokinetic efficiency of the vacuum cleaner, it would have been necessary to deviate drastically from the prescribed sampling rate and from the open face filter mode, thereby yielding sample results with no standard to compare the results to. Therefore, it was decided to place the vacuum cleaner in a small sealed room with no air changes taking place, and the only air movement in the room would be that generated by the discharge of the vacuum cleaner. The room chosen held a volume of 880 ft³ of air. The vacuum was placed in the middle of the room and then five sampling stations were set up around the room equidistant from the vacuum cleaner. Ten pounds of asbestos fiber insulating material was then vacuumed up over a 12 minute period.

The current OSHA Threshold Limit Value for airborne asbestos fiber is 5 fibers greater than 5 microns in length per milliliter of air with a downward revision to 2 fibers greater than 5 microns in length per milliliter of air scheduled for July 1, 1976. The results of all five air samples taken during the test of the vacuum cleaner are well within the 5 fiber and 2 fiber greater than 5 microns in length per ml of air TLV's.

We feel that the Sears Model 758.17831 shop vacuum is acceptable from an asbestos fiber emission standpoint, but special precautions will be required when emptying and cleaning the vacuum. An approved dust respirator for pneumoconiosis producing dust should be worn when cleaning the vacuum. The dust in the plastic drum should be removed from the drum wet and then disposed of in properly labeled sealed containers. The filters on discharge ports should also be disposed of when they become loaded rather than attempting to clean them. These filters should be disposed of in properly labeled sealed containers.

Henry B. Lick
Industrial Hygienist

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Data Sheet

Sears Model No. 758.17831 Shop Vacuum Cleaner

June 13, 1973

Asbestos Emission

Remarks

8 Hours OSHA Asbestos Threshold Limit Value

" " " " " " Effective July 1, 1976

Concentration of Fibers
Greater than 5 Microns
in Length per Milliliter
of Air

5
2

Sample No. 1
" " 2
" " 3
" " 4
" " 5

0.6
0.9
0.9
0.7
0.7

Note: Room size 800 Ft.³ samples taken equidistant from vacuum cleaner.

Instrumentation: MEA Model G Pumps and Millipore Membrane Type AA 37 mm Filters.

Analysis: 430K Phase Microscopy by Ford Scientific Research Optics Section.

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