PLAINTIFF'S
EXHIBIT
WH-1023

ICOLET INDUSTRIES INC.
Wissahickon Ave. Ambler, Pa. 19002
LABORATORY TEST REPORT
Technical Service Dept.

CONFIDENTIAL

Report on
Measurement of Airborne Asbestos Fibers
by the
Membrane Filter Method
Westinghouse Electric Corporation
Sharon, Pa. 16146

This report covers the sampling and analysis of the air at various locations in the plant of Westinghouse Electric Co., Sharon, Pa. The samples were collected on June 27, 1973.

OSHA Procedure:

The unit of measurement for airborne asbestos that is used by OSHA is "the number of fibers longer than five micrometers per cubic centimeter of air", or briefly, fibers per c.c. To be counted as a fiber, a particle must not only be longer than five micrometers but must be at least three times as long as its maximum diameter. Five micrometers are about 1/5000".

In sampling, a measured volume of air is drawn through a membrane filter which catches all dust particles. The filter is taken to the laboratory, a portion of the filter is mounted on a microscope slide and examined at 440X. The number of fibers longer than five micrometers in a measured area of the microscope field is counted and this is repeated for 100 different areas or until 100 fibers are counted. The fibers per c.c. can then be calculated.

Two types of samples may be taken: a "personal" sample for which the monitor is attached near the breathing zone of an individual who then performs his usual job functions or an "environmental" or "area" sample for which the monitor is placed in a fixed location to sample the air at that point.

The present OSHA requirements read "The eight-hour time weighted average (TWA) airborne concentrations of asbestos fibers to which any employee may be exposed shall not exceed five fibers, longer than five micrometers, per cubic centimeter of air". This means that an employee could be exposed to air containing seven fibers per c.c. for four hours and two fibers per c.c. for four hours and still meet the requirement. TWA = $(4x7+4x2)/8 = (28+8)/8 = 36/8 = 4.5$ fibers per c.c. Beginning July 1, 1976, the maximum TWA will be reduced to two fibers per c.c.

OSHA also has a ceiling limit which requires that "no employee shall be exposed at any time to airborne concentrations of asbestos fibers in excess of ten fibers, longer than five micrometers, per cubic centimeter of air".

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A copy of section 1910.93a of the Federal Register Vol. 37, No. 202 dated October 18, 1972, is attached which gives details of the rules and regulations concerning asbestos.

Sampling:

On June 27, 1973, ten samples were collected in the Westinghouse factory and brought to Ambler for analysis at the Nicolet Laboratories. In the sample numbering, it will be noted that samples WS-5 and WS-7 are missing. These filters were used for experimental purposes outside the manufacturing area and are not a part of this report.

Results:

Attached are copies of all the original data sheets showing information taken at the time of sampling and the laboratory analysis of the samples. In addition to the calculated value for fibers per c.c., an estimate of the 95% Confidence Limits is given. These limits are calculated by statistical procedures based upon the data and our previous experience with this test procedure. Their significance is that we believe one can state with the assurance of being right 95 times out of 100 that "the true concentration of fibers per c.c. at the time of test was within this range".

A table showing a summary of the results is attached.

Five samples were collected in Department A-20 at the Transite saw, WS-1, WS-2 WS-3, WS-4, and WS-6. Of these, only WS-6 with 8.3 fibers per c.c. exceeded five fibers per c.c. Since the task represented by WS-6 is performed less than one hour a day and the remaining work period is spent in a concentration of less than three fibers per c.c., there is no indication that the eight-hour TWA limit of five fibers per c.c. was being exceeded.

The upper 95% Confidence Limit for WS-6 was 10.9 fibers per c.c.; this indicates that there is a slight possibility that the ceiling limit of 10 fibers per c.c. was being exceeded at the time of test. A total of 200 fields were counted for this sample to reduce the spread of the 95% Confidence Limits.

Two samples, WS-8 and WS-9, were collected in Department I-35 at the Drill Press. Both results were less than two fibers per c.c., much less than the ceiling limit of ten fibers per c.c. applicable to this short-time task.

Three samples, WS-10, WS-11 and WS-12, were collected in Department I-35 at the Transite cut-off saw. All results were less than one fiber per c.c.

Conclusions:

Except for the slight possibility that the ceiling limit of ten fibers per c.c. was being exceeded when sample WS-6 was being collected, there is no

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other indication that the eight-hour TWA limit of five fibers per c.c. or the ceiling limit of ten fibers per c.c. was being exceeded for any person at the operations which were sampled.

Nicolet Industries, Inc.

Ralph L. Lanz

Ralph L. Lanz
Technical Administrator

July 6, 1973

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