PLAINTIFF'S EXHIBIT
FOS-273

CHARACTERIZATION OF HEDMAN "CATIONIC FIBER"

SUBMITTED BY:

JOHNS-MANVILLE SALES CORPORATION
RESEARCH & DEVELOPMENT CENTER
P. O. BOX 5108, DENVER, COLORADO 80217

DECEMBER 17, 1974

FOR

DR. GEORGE WRIGHT - CONSULTANT

PREPARED BY:

DR. J. P. LEINEWEBER
MANAGER, APPLIED RESEARCH

FOS-00-0000002169

Title: CHARACTERIZATION OF HEDMAN "CATIONIC FIBER"

Requested by: Dr. George Wright - Consultant

INTRODUCTION

A sample of Hedman "Cationic Fiber," identification number N3220, was received from Dr. Wright on November 15, 1974. He requested that we examine the product by both optical and scanning electron microscopy to characterize any asbestos fibers which might be present.

RESULTS

Petrographic examination showed that the product is essentially all serpentine mineral, including chrysotile fiber. The sample was then examined under phase contract illumination to determine the approximate size distribution of the fibers. Essentially all the fibers visible at 500X were longer than 5 micrometers.

The sample was also examined with the scanning electron microscope to resolve all of the fibers present. Again, the majority of fibers were greater than 5 micrometers in length. The lengths of 50 fibers were measured to obtain the following distribution:

Length (micrometers)	Number
Less than 5	1
5-10	15
11-30	21
31-60	8
61-100	3
Greater than 100	2

Minimum Length Measured - 4 micrometers
Maximum Length Measured - 160 micrometers

Finally, it is estimated that 25 percent of the mass of the product is in the form of chrysotile fibers.

The following micrographs are included:

Negative No.	
E-4462	Phase Contrast at 312X
E-4463	Phase Contrast at 312X
E-4464	Phase Contrast at 500X
SEM-639	SEM at 100X
SEM-640	SEM at 500X
SEM-641	SEM at 1000X
SEM-642	SEM at 5000X

These negatives are on file at the Johns-Manville Research & Development Center Microscopical Laboratory.

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DR. GEORGE WRIGHT - CONSULTANT

PREPARED BY:

DR. J. P. LEINEWEBER
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FOS-00-0000002172

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JOHNS-MANVILLE RESEARCH
AND ENGINEERING CENTER

Rep. No. 500-25

Date December 17, 1974

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Requested by: Dr. George Wright - Consultant

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