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DEPARTMENT OF MATERIALS CHEMISTRY

Non-metallic Minerals Section

PLAINTIFF'S EXHIBIT

UC-252

ASBESTOS-CEMENT PROPERTIES OF WET ROD-MILLED ATLAS ASBESTOS

Non-metallic Minerals Services
Report No. NMS 459-79-1

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for

Atlas Asbestos Company
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Attention: Mr. Irving F. Moore
President

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INTRODUCTION

A sample of raw Atlas asbestos fibre was received from Beloit for wet rod milling followed by asbestos-cement strength test evaluation.

EXPERIMENTAL

Rod milling was done in a 25 cm x 19 cm diameter mill with a 5 kg rod charge and a speed of 64 rpm. Pulp density was 15% using 20g of fibre in saturated lime-gypsum water. Grinding times of 5, 10, 15, 20, 25 and 30 min. were evaluated.

The ORF version of the asbestos-cement relative strength test was run on each batch of ground fibre using 12½% fibre concentration. Unground fibre was also included.

RESULTS AND DISCUSSION

The asbestos-cement properties are summarized in Table I.

The average Modulus of Rupture and Drainage Rate for the ground fibre are 286 kg/cm^2 and 2.8 ml/s respectively; these values are independent of the grinding time within the range tested but are considerably different from those for unground material (149 kg/cm^2 and 7.7 ml/s).

CONCLUSIONS

Wet rod-milled Atlas fibre has an asbestos cement relative strength of 286 kg/cm^2, equivalent to a Quebec 6D fibre, but a very low drainage rate of 2.8 ml/s.

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TABLE I

ASBESTOS-CEMENT PROPERTIES OF ATLAS FIBRE

	Asbestos-Cement Properties					
Grinding Time (min)	Drainage Rate (ml/s)	Water Retention (%)	Average Thickness (mm)	Average Load (lb)	Average Density (g/cm^3)	Modulus of Rupture (kg/cm^2)
0	7.7	14.6	5.60	80	1.61	149
5	3.2	24.0	6.05	200	1.64	309
10	2.3	31.3	6.26	206	1.66	289
15	2.9	32.8	6.39	198	1.61	282
20	3.0	33.6	6.38	172	1.66	231
25	2.9	27.8	6.11	198	1.64	299
30	2.4	41.9	6.68	216	1.66	304

(1 kg/cm^2 = 0.098 MPa)

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