PLAINTIFF'S EXHIBIT
BIR-415

DEPARTMENT OF GEOLOGY AND GEOPHYSICS

MASSACHUSETTS INSTITUTE OF TECHNOLOGY
CAMBRIDGE 39, MASSACHUSETTS

15 November 1961

Mr. Leonard W. Weaver
Asst. Product Development Manager
Building Materials Division
Bird and Son, Inc.
East Walpole, Massachusetts

Dear Len:

You can think of spectroscopy as a rapid method of chemical analysis which, in general, can be readily applied to various solids.

I think it may be just possible to do the job of measuring the amount of asbestos in your mixture, but it is a borderline case. Assuming:

pure chrysotile asbestos, - MgO	=	43.5%
5% asbestos in mix - MgO	=	2.2
Allowable variation $\pm$ 0.05 (2.2)	=	$\pm$0.11
Mix contains 85% rhyolite dust, and rhyolite runs 0.5% MgO MgO	=	0.4
Total MgO in mix	=	2.6%
Allowable variation	=	$\pm$ 0.1
percent variation in MgO which must be recognized = $\pm$ 0.1 $\div$ 2.6	=	$\pm$4%

A value of $\pm$ 4% is just about the level of the best spectrochemical methods.

I would certainly <u>not</u> recommend that you enter the spectrographic business because the capital outlay is high and a large volume of work would be needed to amortize an investment.

The Jarrell-Ash Co. at 26 Farwell Street, Newtonville, Mass. operates a custom analysis laboratory under the direction of Mr. Boyd Fagin. I would suggest that you contact them on the possibility of doing this work.

I see no alternatives to some type of chemical analysis unless optical studies could be made. Could you, for example, obtain an asphalt-free residuum which could be examined under the microscope and the serpentine content measured by point counting techniques?

I should also mention the techniques of rapid silicate analysis which short cut the classical methods by use of colormetric and flame photometric procedures. Results are very good.

Sincerely yours,

W. H. Dennen

WHD/d

BIRD 011504