Abex
An IC Industries Company

Abex Corporation
Research Center
Mahwah, NJ 07430
201 529-3400

March 1, 1979

TO: Mr. A. A. Roberts

FROM: Robert F. Young

SUBJECT: Storage and Handling of Asbestos Substitutes

1 In the last two weeks I have been doing independent research, on my own time, to find ways of storing and conveying asbestos substitutes.

2 The first item of investigation was reclaimed scrap stock from our own process. Scrap stock, as currently used, can be stored and handled in the system designed for F.P.G., Winchester. The storage silos, weigh hopper and pneumatic conveyor system, as designed, make it quite feasible for the handling of scrap stock. We use seven different fiber lengths of asbestos in the process in Winchester. The system for storage has nine silos. We could store reclaimed scrap in one of the remaining silos and the last silo for fiberglass.

3 The second item of investigation was fiberglass. Fiberglass, as discussed with a number of different manufacturers has a bulk density of approximately 28 lbs. per cubic foot vs. 23 lbs. per cubic foot for asbestos. The fiber length discussed was 1/8" through 1/2" long, both mill cut and chopped strand. The chopped strand material is a poor product to convey pneumatically with the exception of Owens-Corning fiber.

4 Owens-Corning has three fibers used by our competitors as a direct replacement for asbestos in friction materials. Their part numbers are P-197B for dry line operations, H-670 formulated for wet line operations and 739 which is a general purpose fiber suitable as an asbestos substitute; all of which can be pneumatically conveyed.

5 A second manufacturer, P.P.G., has milled cut and chopped fibers to replace asbestos. Chopped strand, No. 1156, has a tendency for the fiber to degrade back to the filament state upon impact with obstruction in the conveying line, elbows, diverter valves and cyclone separator. The process of making a batch of friction material requires the asbestos to be chopped and shredded. If this process would remain the same for fiberglass then it wouldn't matter which material is used.

6 The 1/8" mill cut fiber is more suited for conveying by a pneumatic conveyor. This fiber has a much stronger binder and the fiber degrading does not occur in pneumatic conveying. A substitute fiber for the proposed #1156 material is #3029 mill cut supplied by P.P.G. Winchester management knows of these two products.

Abex

An Abex Industries Company

Abex Corporation
Research Center
Mahwah, NJ 07430
(201) 529-5450

7 Ferro, a third supplier, makes a special 1/8" milled cut fiber, #657. They are currently supplying this fiber as a direct replacement or substitute for asbestos to a number of asbestos users. Again this fiber, #657, can be conveyed pneumatically.

8 Modifications to the proposed storage and handling system for Winchester are slight.

9 First: The rotary air locks proposed in the system in Winchester would have to be slightly modified. In place of a steel rotor, a steel rotor with semi hard tips on the vanes should be used. This would allow the air lock to seal if fibers are wedged between the rotor and the casing while still feeding the fibers into the air stream. This is a good idea even for asbestos. If fiberglass fibers were wedged between the rotor and housing with steel to steel contact, the air lock can bind causing a shut-down in the system. This does not happen with asbestos.

10 Second: Fiberglass flows and does not have the tendency to bridge such as asbestos does. This means there is less of a problem handling fiberglass than asbestos.

11 Third: It is recommended that wide radius elbows be used to ease the flow of material. We have this designed into the system for Winchester.

12 The above recommendations are basic. If a system were designed to store and handle fiberglass, it would be a much simpler system, allowing the use of standard cylindrical silos and belt feeders. The overall system for fiberglass is expected to cost 25% to 30% less than the cost of a system for asbestos.

13 Below is a list of companies that manufacture products using asbestos and have switched to fiberglass as a substitute or are in the process of switching.

1. All G.A.F. Industries
2. Celotex Corporation
3. Regal Products
4. Raybestos - Manhatten

(NOTE!) A larger list can be obtained, if required.

14 In conclusion, fiberglass probably can be handled better in the system designed for Winchester than asbestos. It flows, does not bridge, it is available in large quantities, and there are a wide range of fibers to choose from.

Robert Young

Robert F. Young

RFY:rk

cc: Messrs. Manly
Miller
Mathews
C-1851
Potts
Keenan
Chasteen
Indelicato

SUMMARY OF REFERENCES USED THROUGHOUT TEXT:

MATERIAL SUPPLIERS

P.P.G. Industries
Fiberglass Division
Pittsburgh, Pa.

Ferro
F.R.P. Materials Division
Nashville, Tenn.

Owens-Corning
Engineering Division
Toledo, Ohio

Owens-Corning
Sales Division
Scarsdale, N.Y.

MATERIAL HANDLING COMPANIES

Simco Corporation
Engineering Division
Huston, Texas

B&K Material Handling
System Division
Livonia, Mich.

J. E. Coleman Company
Material Handling Systems
New York, N.Y.

Buhler-Miag, Inc.
Handling Division
Englewood Clifts, N.J.

Solids Flow Control Company
Siletta Equipment
W. Caldwell, N.J.