August 22, 195[illegible]

Dr. R. E. Joyner, Medical Director
Carbide and Carbon Chemicals Company
P. O. Box 471
Texas City, Texas

Dear Dr. Joyner:

Your request for information concerning Thermobestos and Superex insulation have been forwarded to me for reply, and I am pleased to give you the available information.

One of the ingredients in the Superex insulation is flux-calcined diatomaceous earth. In the processing of this material from the natural diatomaceous earth, which is an amorphous silica, a partial conversion to approximately 35 per cent crystalline silica, cristobalite in form, takes place. Experimental animal research, carried out for several years at the Saranac Institute, has indicated that the natural powders, when inhaled, produce little or no fibrosis. However, inhalation of the flux-calcined powders may produce varying degrees of fibrosis in the lungs. Clinical experience at our mines and factories has substantiated this experimental evidence. Independent studies made by Drs. E. R. Tabbing and E. E. Pearl of the University of California and Stanford University of Medicine confirm the findings on the natural earth powders. These observations have been further confirmed in the preliminary report by the U. S. Public Health Service in their study of the diatomaceous earth industry. [illegible] has advised us that publication of this report is planned within the next several months.

Among the findings of the industry study is the recommendation that the maximum acceptable concentration for cristobalite-bearing materials be set at five million particles per cubic foot and the maximum acceptable concentration for non-cristobalite bearing, or natural earth powders, be set at twenty million particles per cubic foot.

Attached for your reference is a copy of "Pneumoconiosis Due to Diatomaceous Earth" by Drs. Smart and Emerson which was published in INDUSTRIAL MEDICINE AND SURGERY November, 1952.

The Thermobestos insulation contains expanded perlite. The only reference to perlite of which I am aware is the recent bulletin of the Bureau of Mines, Report of Investigations 5199, "Composition of Perlite". Under recommendations this report states:

"As specific information is not available on the physiological effects of inhaled perlite dust, the Bureau of Mines suggests that concentrations of airborne perlite dust, as with other potentially harmful dusts, be held to low levels in in-

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dustrial environments until experience or experimentation indicates an allowable limit of exposure."

It is my understanding that some experimental research on perlite was conducted for the industry at Saranac Laboratory, and that no published report has been issued. We have been given to understand that although the dust does not produce pulmonary fibrosis it can result in an adverse effect upon tuberculous infection. In our own operations we have arbitrarily adopted a maximum acceptable concentration of five million particles per cubic foot and have established a six months x-ray schedule for exposed employees.

For both dusts the measures which we employ to control the exposure potential include point of operation ventilation control, vacuum cleaning of work areas and spilled material, the use of U. S. Bureau of Mines respirators for intermittent exposures, job methods to minimize bag breakage and a vigorous program of housekeeping.

Should there be other information that you desire, do not hesitate to request such.

Very truly yours,

H. M. Jackson
Manager
Industrial Health Program

Enclosure
cc: M. W. Ball
M. B. Burleson (3)