PLAINTIFF'S EXHIBIT

KG-127

GRACE

Construction Products Division

W.R. Grace & Co.
62 Whittemore Avenue
Cambridge, Mass. 02140

(617) 876-1400

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TO ALL KEARNEY VERMICULITE CONCENTRATE CUSTOMERS

The attached Material Safety Data Sheet is as complete a statement as we can make on the tremolite content of our vermiculite concentrate. Of necessity, it is stated in precise technical terms, the format of the information is dictated by the OSHA Form 20, and it is phrased so that the information is relatable to the OSHA Regulations which are controlling with regard to air-borne fiber. In the spirit of helping our customers understand and interpret the complex nature of the asbestos contaminant in vermiculite, this memorandum is designed to supplement the data sheet with some background material.

(1) A Definition of the Contaminant

The OSHA Regulation (1910.1001 (a) 1 — Definitions) lists by mineralogical name six minerals which the Government defines as asbestos (tremolite is one). All of these substances are controlled by the Regulation. It is an established fact that each of these six minerals do occur in nature in more than one physical form: fibrous -- tightly compacted bundles which can be fibrillated and release air-borne fibers and platy -- an irregular particle which cannot be fibrillated. All of the six minerals are basically silicates combined with a variety of other metallic ions (Na, Mg, Fe, Ca, Al, Ti). Because of the marked similarity in chemical structure, differentiating between these minerals either chemically or physically can be very difficult. Finally, most of the six minerals listed are classed mineralogically as amphibole materials; chrysotile asbestos is not classed as an amphibole. The mineral hornblende also belongs to the amphibole class of minerals; however, it is not listed in the OSHA Regulations as asbestos.

(2) Analytical Methods

The analytical testing procedure commonly used to qualitatively identify the presence of any of the six minerals is X-ray diffraction, which differentiates on the basis of crystal structure. X-ray diffraction is also capable of producing quantitative data -- the percent by weight of the mineral present in a sample. X-ray diffraction can distinguish between vermiculite and tremolite. However, it is blind to the difference between tremolite in fibrous form and tremolite in platy form. It is also blind to the difference between tremolite and hornblende.

(3) The Intent of the OSHA Regulation

The OSHA Regulation which begins with the definition of the six minerals to be controlled continues in Section (b) with a statement of its intent: To establish "permissible exposure to air-borne concentrates of asbestos fibers longer than 5 micrometers". There is a basic awkwardness to the Regulation as it is written, i.e. the controlled minerals occurring in platy form do not create air-borne fiber problems in their end use. In these cases, the presence of the controlled mineral is of secondary importance. The release of air-borne fibers from the use of a mineral is of primary importance.

Our South Carolina vermiculite deposits contain significant quantities of non-vermiculite mineral components. It is difficult to separate some of these components in our milling process, consequently; they appear in the finished concentrate.

One of the predominant non-vermiculite minerals is the amphibole, hornblende. It is not classified as asbestos by OSHA. Unfortunately, we cannot distinguish it from tremolite by X-ray diffraction.

Tremolite is also one of the amphibole materials present. It's form is predominantly platy. Unfortunately, this cannot be established by X-ray diffraction. Therefore, we have employed electron microscopy and allied techniques to confirm this.

In summary, our Material Safety Data Sheets shows the presence of significant percentages of amphibole materials which we must report. Our analytical work has confirmed that the presence of "asbestos fibers" is rare.

The above analytical conclusion is confirmed in practice when we physically handle the vermiculite concentrate in our Enoree operations. Extensive air-borne sampling in the mill consistently shows negligible air-borne asbestos fiber. Our in-house air quality controls and equipment are directed at nuisance dust. We are confident that our customers can also achieve OSHA compliance in the same manner.

Robert C Ericson

Robert C. Ericson
Quality Assurance Manager

RCE:M
Attachment

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