



# United States Department of the Interior

## BUREAU OF MINES

4900 LASALLE ROAD  
AVONDALE, MARYLAND 20782

April 26, 1984

Mr. George J. Dippold, Vice President  
Whittaker, Clark & Daniels, Inc.  
1000 Coolidge Street  
South Plainfield, New Jersey 07080-1000

Dear Mr. Dippold:

The 18 talc samples received in March 1984 have been examined using polarized light microscopy (PLM), X-ray diffraction (XRD), and transmission electron microscopy (TEM). The samples were examined for the presence of asbestiform mineral particulates.

The mineral serpentine is present in minor amounts in samples 720TGRRx, 720TGRPd, 720TTPRx, 720TTPPd, 720TTERx, and 720TTEPd. Only the platy variety of serpentine was observed; no chrysotile, the asbestos variety of serpentine, was observed by PLM or TEM.

Approximately 1/2 to 1 weight percent tremolite is present in samples 720TTPPd, 720TTPRx, and 720 TTEPd. Trace amounts (<1/2 weight percent) were observed in samples 720TGRPd, 720TGRx, 720TDPd, 720T13Pd, and 720TDMRx. All tremolite particles observed using PLM were blocky with maximum aspect ratios of approximately 8 to 1. Some short, thin tremolite particles with widths below the resolution of the light microscope, were observed using TEM. The maximum aspect ratio observed by TEM was 20 to 1 with most of the elongated tremolite particles being 10 to 1 or less in aspect ratio. Some of the tremolite observed in these samples would meet the current regulatory dimensional definition of asbestos (>5  $\mu$ m in length and >3 to 1 aspect ratio).

Fourteen of the eighteen samples contained fibrous talc in trace to minor amounts. Aspect ratios of the fibrous talc particles were generally less than 10 to 1 with a few particles approaching an aspect ratio of 20:1. Many of these particles exceed 5  $\mu$ m in length and meet the morphological criteria of a regulatory fiber, however, they would not be classified as asbestos.

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EXHIBIT  
**WCD-185**

WCD 001685

These analyses represent only the samples submitted for examination. If you have any questions concerning the analyses, please contact Robert Virta at (301)436-7541, or call me at (301)436-7501.

Sincerely,

*William J. Campbell*  
William J. Campbell  
Research Director

Enclosures: Figures 1 and 2

cc: Robert A. Clifton, Jr.

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FIGURE 1. - Electron micrograph showing platy talc particles observed in sample 720TEEPd



FIGURE 2. - Nonrepresentative field of view of sample 720TGRRx showing talc ranging from platy to fibrous in morphology

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