

February 22, 1977

John P. Schelz, Chairman
CTFA Task Force on Round Robin
Testing of Consumer Talcum Products
Control Analytical Laboratories
Johnson & Johnson Research Center
New Brunswick, N.J. 08910

Dear Jack:

Enclosed are the results of my analysis of the samples (Set J) for the CTFA round robin analysis of consumer talc products for asbestiform amphibole minerals.

As I mentioned to you over the phone February 3, 1977, I was able to follow your method pretty closely. Our instrument, a Phillips APD 3500, has a computer program for determining background and giving net counts during the step scan. The principle used, however, is the same as the one in the CTFA method. Although we used the slits recommended in the CTFA method, we find that a divergence slit of 0.5° and a receiving slit of 0.3 mm give slightly greater sensitivity.

We did not follow the dispersion staining method for the optical microscopy determination. Instead, we used a refractive index liquid between the RI of talc and that of amphiboles. The amphiboles were identified by the Beche lines method and their orientation in polarized light. Arnold Shultze, Division of Microbiology, has evaluated and compared the dispersion staining and polarized light techniques. His comments are attached.

If you have any questions please give me a call.

CC: HJE HFF-440
JAW HFF-441
HMD HFF-446
CHW HFF-446
AES, HFF-127

Sincerely yours,



Clifton H. Wilson
Division of Cosmetics Technology
Bureau of Foods

CHW:dce

Approved:HMDaivs:02/22/77

THE DETERMINATION OF ASBESTIFORM AMPHIBOLE MINERALS IN TALC
BY X-RAY DIFFRACTION AND OPTICAL MICROSCOPY

(SET J)

SAMPLE #	X-RAY DIFFRACTION	OPTICAL MICROSCOPY
10	+ Tremolite	+ Tremolite
21	+ Tremolite	+ Tremolite
33	-	-
44	+ Tremolite	+ Tremolite
53	-	-
70	-	-
78	-	-
90	+ Tremolite	+ Tremolite
99	+ Anthophyllite	+ Anthophyllite

THE DETERMINATION OF ASBESTIFORM AMPHIBOLE MINERALS IN TALC
BY X-RAY DIFFRACTOMETRY AND OPTICAL MICROSCOPY

(317 J)

SAMPLE #	X-RAY DIFFRACTION	OPTICAL MICROSCOPY
10	+ Tremolite	+ Tremolite
21	+ Tremolite	+ Tremolite
33	-	-
44	+ Tremolite	+ Tremolite
53	-	-
70	-	-
78	-	-
90	+ Tremolite	+ Tremolite
99	+ Anthophyllite	+ Anthophyllite

February 25, 1977

Comments on CITA Method J 4-1; Asbestiform Amphibole Minerals in Cosmetic Talc, Part II, Asbestiform Amphibole Minerals by Optical Microscopy and Dispersion Staining. (Issued 10-7-76)

Dispersion staining - In the 1.605 liquid the dispersion colors mentioned in the method will appear if the mineral has a certain refractive index range, but other colors or none will appear if the range is different. The colors may vary even for different lots of the same mineral since all lots may not have the same refractive indices. A mineral like crocidolite will show no dispersion colors in the 1.605 liquid, because the liquid and the mineral have no refractive index in common for any wavelength.

In my experience, amphibole fibers can be detected just as easily by the use of polarized light (polarized in, analyzer out) as by dispersion staining, if not more easily. If talc is mounted in a liquid with an index equal to or higher than the highest index of talc, and lower than the lowest index of amphibole (for example 1.590), amphibole fibers will stand out brightly, especially if one focuses upward.

Arnold E. Schulze
Division of Microbiology
Bureau of Foods

AES/dal:

February 25, 1977

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