

SUMMARY AND COMMENTS ON ANALYSES FOR ASBESTOS IN COSMETIC TALC PRODUCTS

This summary contains the analytical results for asbestos in cosmetic talc preparations, comments on these analyses, and other pertinent information on the work carried out by the following investigators:

1. Seymour Z. Lewin, Ph.D., Professor of Chemistry, New York University. Dr. Lewin was commissioned by FDA in 1971 to analyze commercial cosmetic talc products. He purchased and analyzed 195 samples by x-ray powder diffraction. Dr. Lewin was chosen because he is an internationally recognized expert on mineralogical chemistry.
2. Arnold E. Schulze, Microanalytical Branch, Division of Microbiology (BF-216), FDA. Mr. Schulze investigated 32 of the 195 samples by means of polarizing microscopy.
3. Minerals, Pigments and Metals Division, Pfizer, Inc, Easton, Pa. This investigator employed the techniques of x-ray powder diffraction and reported on 7 of the 195 samples. This work was complimentary.
4. Columbia Scientific Industries, Austin, Texas. This firm checked samples for chrysotile by means of differential thermal analysis. This work was complimentary.

There is poor correlation between Dr. Lewin's results and the findings of the other investigators. Dr. Lewin found definite indications of chrysotile in 17 of the samples (many of these also had tremolite) and definite indications of tremolite but not chrysotile in 23 samples. The chrysotile content could not be confirmed with certainty by the other investigators, and tremolite was detected by the others only in a few instances.

The reason for these discrepancies may be found in Dr. Lewin's own notes of July 10, 1973, in which he stated: "The chrysotile that I found in commercial talcs is generally different in significant respects from the chrysotile that occurs as massive, fibrous growth in veins in serpentine rocks. That is, the former has diffraction peaks that may differ from the latter by as much as 0.2 Å (at 7.3 Å); it is more reactive toward dilute acids; it shows a different appearance under the microscope; and its DTA endotherms and exotherms are shifted relative to those of the latter (and apparently diminished)." He further states that "the analytical method (x-ray diffraction) gives a reproducibility of $\pm 2\%$ to 3% average deviation in replicate determinations on the same sample, but different samples from the same bulk container are found to vary as much as 200%."

In the light of these discrepancies and because the inhalation of certain asbestiform minerals is a potential health hazard, the FDA has engaged in an intensive research project to develop one or several methods of sufficient sensitivity and reliability which will permit the determination of asbestos in talc-containing products with the necessary degree of accuracy and at concentrations at which this contaminant presents the health hazard.

SUMMARY TABLE OF RESULTS OF FOUR INVESTIGATIONS ON ANALYSIS OF COMMERCIAL COSMETIC TALC PRODUCTS FOR ASBESTOS MINERALS

SAMPLE #	PRODUCT NAME & MFG.	CODE	CHRYSOTILE				TREMOLITE			
			S.E. Levin X-Ray Difr. (A) *	A.E. Schulze Opt. Micros. (B) *	Pfizer X-Ray Difr. (C) *	Columb. Sci. Diffr. Therm. Ana. (D) *	(A) *	(a) *	(C) *	(c) *
63	Beloved Portuned Dtg. Pwdr, Prince Matchabell, (Chesebrough-Pondus)	-	n.d.	-	-	-	5%	n.s.	-	-
66	Emeraude Dtg. Pwdr., (Coty)	-	2%	-	-	-	n.d.	-	-	-
67	Emeraude Spray Dtg. Pwdr., (Coty)	1AEX	n.d.	-	-	-	2%	-	-	-
71	Jolie Mafine Dtg. Pwdr, Balmain, (Revlon)	-	n.d.	-	-	-	3%	n.d.	-	-
76	To Know Me Is To Love Me, Tinkerbell, (Tom Fields, Ltd.)	-	-	-	-	-	3%	-	-	-
77	Touch & Glow Face Pwdr., Creamy Peach, (Revlon)	-	n.d.	-	-	-	3%	n.s.	-	-
78	Toujours Moi Bath Pwdr., (Corday)	-	n.d.	-	-	-	5%	n.s.	-	-
88	Constance Carroll, Bouquet,	-	5%	n.d.	-	-	4%	1.1.	-	-
89	Cler-Siss Talcum, (Kerofot)	-	5%	n.d.	n.d.	±	5%	1.0.	-	-
90	Flemingo Dtg. Pwdr., (Tussy)	11047	5%	±	-	-	3%	1.0.	-	-
91	Lecher Lilacs & Roses Talc,	-	5%	-	-	-	n.d.	-	-	-
92	Mavis Talcum, (Vivaudou)	-	5%	±	-	-	5%	1.0.	-	-
93	Mavis Body Pwdr., (Vivaudou)	-	4%	-	-	-	5%	1.3.	-	-
94	Talgeu, (Tuff-Talgeu)	-	±	n.d.	n.d.	±	4%	1.0.	1.91	-
95	227 Baby Pwdr,	80048	3%	-	-	-	2%	-	-	-

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SAMPLE #	PRODUCT NAME & MFG.	CODE	CHRYSOTILE				TREMOLITE			
			S.Z. Lewin X-Ray Differ. (A) *	A.E. Schulze Opt. Micros. (B) *	Pfizer X-Ray Differ. (C) *	Columb. Sci. Diff. Therm Ana. (D) *	(A) %	(B) %	(C) %	(D) %
96	Blanchard's Dusting Pwd., (Del Labs.)	-	10%	+	n.d.	+	8%	n.s.	0.7%	-
97	Born Wild Dtg. Pwd., (Del Labs.)	-	15%	n.d.	n.d.	+	12%	1.2%	8.1%	-
101	Tal Winds Spray Talc, (Avon)	-	n.d.	-	-	-	15%	1.2%	-	-
102	Wesca Dtg. Pwd.	-	7%	n.d.	-	-	10%	1.3%	-	-
108	Revlon Intimate Perfumed Bath Pwd.	261	n.d.	-	-	-	2%	-	-	-
109	Jean Rata' Bath Pwd., (Lanvin-Charles of the Ritz)	2137	+	-	-	-	2%	-	-	-
111	Old Spice Body Talc, (Shulton)	NEO	n.d.	-	-	-	1%	-	-	-
130	Vaseline Intensive Care, (Cresborough-Ponds)	-	tr	-	-	-	tr	-	-	-
131	Johnson & Johnson Medicated Pwd., (Johnson & Johnson)	-	n.d.	-	-	-	tr	-	-	-
143	3ir-20w Talcus, (Perfection Beauty Products)	-	10%	-	-	-	5%	-	-	-
144	Overton's "High-Brown" Face Pwd.	-	+	-	-	-	5%	-	-	-
145	Softie Face Pwd.	-	2%	-	-	-	n.d.	-	-	-
149	Lady Wayne Face Pwd.	-	n.d.	-	-	-	2%	n.s.	-	-
149	Solitaire Cake Makeup	-	+	-	-	-	8%	-	-	-
154	Bismoline Medicated Pwd.	-	n.d.	-	-	-	2%	n.s.	0.5%	-