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 reproducability 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 INVESTIGATORS ON ANALYSIS OF COMMERCIAL COSMETIC TALC PRODUCTS FOR ASBESTOS MINERALS

SAMPLE #	PRODUCT NAME & MFG.	CODE	CHRYSOTILE				TREMOLITE			
			S.Z. Lewin X-Ray Diffr. (A)*	A.E. Schulze Opt. Micros. (B)*	Pfizer X-Ray Diffr. (C)*	Columb. Sci. Diff. Therm.Ana. (D)*	(A)*	(B)*	(C)*	(D)*
63	Beloved Perfumed Dtg. Pwdr, Prince Matchabelli, (Chesebrough-Ponds)	-	n.d.	-	-	-	5%	m.a.	-	-
66	Emeraude Dtg. Pwdr., (Coty)	-	2%	-	-	-	n.d.	-	-	-
67	Emeraude Spray Dtg. Pwdr., (Coty)	1AEY	n.d.	-	-	-	2%	-	-	-
71	Jolie Madame Dtg. Pwdr, Balmain, (Revlon)	-	n.d.	-	-	-	3%	n.d.	-	-
76	To Know Me Is To Love Me, Tinkerbell, (Tom Fields, Ltd.	-		-	-	-	5%	-	-	-
77	Touch & Glow Face Pwdr., Creamy Peach, (Revlon)	-	n.d.	-	-	-	3%	s.a.	-	-
78	Toujours Moi Bath Pwdr., (Corday)	-	n.d.	-	-	-	5%	m.a.	-	-
88	Constance Carroll, Bouquet,	-	5%	n.d.	-	-	4%	l.a.	-	-
89	Djer-Kiss Talcum, (Kerkoff)	-	5%	n.d.	n.d.	±	5%	l.a.	-	-
90	Flamingo Dtg. Pwdr., (Tussy)	L1047	5%	±	-	-	3%	l.a.	-	-
91	Lander Lilacs & Roses Talc,	-	5%	-	-	-	n.d.	-	-	-
92	Mavis Talcum, (Vivaudou)	-	5%	±	-	-	5%	l.a.	-	-
93	Mavis Body Pwdr., (Vivaudou)	-	4%	-	-	-	5%	l.a.	-	-
94	Tangee, (Luft-Tangee)	-	±	n.d.	n.d.	±	4%	l.a.	1.9%	-
95	ZBT Baby Pwdr,	B0048	3%	-	-	-	2%	-	-	-

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96	Blanchard's Dusting Pwdr., (Del Labs.)	-	10%	±	n.d.	±	8%	m.a.	0.7%	-
97	Born Wild Dtg. Pwdr., (Del Labs.)	-	15%	n.d.	n.d.	±	12%	l.a.	8.1%	-
01	Tai Winds Spray Talc, (Avon)	-	n.d.	-	-	-	15%	l.a.	-	-
02	Tosca Dtg. Pwdr.	-	7%	n.d.	-	-	10%	l.a.	-	-
08	Revlon Intimate Perfumed Bath Pwdr.	241	n.d.	-	-	-	2%	-	-	-
09	Jean Nate' Bath Pwdr., (Lanvin-Charles of the Ritz)	2137	±	-	-	-	2%	-	-	-
11	Old Spice Body Talc, (Shulton)	MFO	n.d.	-	-	-	1%	-	-	-
30	Vaseline Intensive Care, (Chesebrough-Ponds)	-	tr	-	-	-	tr	-	-	-
31	Johnson & Johnson Medicated Pwdr, (Johnson & Johnson)	-	n.d.	-	-	-	tr	-	-	-
13	Pin-Zow Talque, (Perfection Beauty Products)	-	10%	-	-	-	5%	-	-	-
14	Overton's "High-Brown" Face Pwdr.	-	±	-	-	-	5%	-	-	-
15	Softee Face Pwdr.	-	2%	-	-	-	n.d.	-	-	-
18	Lady Wayne Face Pwdr.	-	n.d.	-	-	-	2%	s.a.	-	-
19	Solitaire Cake Makeup	-	±	-	-	-	8%	-	-	-
54	Bismoline Medicated Pwdr.	-	n.d.	-	-	-	2%	s.a.	0.5%	-

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156	Warner Pure Baby Pwdr.	-	n.d.	-	-	-	2%	-	-
157	Mavis Imported Talcum, (Nestle Le Mur)	-	8%	-	-	-	6%	-	-
163	Pinaud Clubman Talc	-	10%	n.d.	n.d.	±	10%	l.a.	3.3%
164	Grand Union Baby Pwdr.	101672	1%	±	-	-	n.d.	n.d.	-
167	Tawny Tone Body Talc from Black Heritage, (Beauty Mustus, Inc.)	-	n.d.	-	-	-	2%	-	-
170	"C" Bouquet Talc, (Winarick, Ind., Distr. by: F.W. Woolworth)	2662	8%	-	-	-	n.d.	-	-
172	Joris Talc, (Winarick)	2732	n.d.	-	-	-	2%	-	-
183	Tweed Bath Pwdr., Lentheric, (Yardley)	44	±	-	-	-	1%	-	-
184	Yardley Next to Nature Sheer Pressed Pwdr., (Yardley)	A2	n.d.	-	-	-	3%	-	-
187	Yardley Springflowers Talc, (Yardley)	260	n.d.	-	-	-	2%	-	-
188	Yardley White Lavendar Talc, (Yardley)	271	n.d.	-	-	-	1%	-	-
189	Yardley Red Roses Talc	214	n.d.	-	-	-	1%	-	-

ABBREVIATIONS

m.a.= moderate amount
l.a.= large amount
n.d.= not detected
± = inconclusive
tr= trace
s.a.= small amount
- = no analysis done

TALC FILE

Memorandum for the Record
Telephone Conversation: Friday, November 3, 1972 between:

Dr. J. C. Wagner, Medical Research Council's
Pneumoconiosis Unit, Llandough Hospital
Penarth, Glamorgan, Wales, U.K.

and

Dr. Raymond E. Shapiro, BF-5 RE Shapiro

Dr. Wagner is conducting feeding studies, at his laboratory, with blue asbestos, crocidolite. This study has been under way about six months. This will be a two year study with a talc control as well.

Of the feeding studies Dr. Wagner is aware of, almost all have been done with crocidolite. No one has reported on studies (feeding) with chrysotile, but several investigators are supposed to be starting up work in this area. With respect to feeding studies with tremolite, Dr. Wagner said he knew of no work reported on any intentions to start work with this material.

Dr. Wagner stated that they will look, shortly at his laboratory, at industrial talc, in reality a low grade asbestos.

In discussing malignant tumors, Dr. Wagner claimed that there are no malignant tumors associated with talc, while the case is cleanly clear-cut with respect to asbestos.

With respect to his South African studies, Dr. Wagner stated there appeared to be a dose-response relationship with respect to pulmonary carcinoma, but not with respect to mesothelioma.

Dr. Wagner stated in discussion, that food grade and cosmetic grade talc containing less than 1% tremolite and no chrysotile, anthophillite and crocidolite would be a reasonable temporary approach to the problem. However, during this temporary period, he advocated a research program to resolve present uncertainties.

About half-way through the conversation, Dr. Wagner seemed very anxious to terminate the dialogue, stating he had an important interview to attend. He did promise, however, to keep us informed of all new developments in this subject area.

On behalf of FDA and the Bureau of Foods, I thanked Dr. Wagner for his help and cooperation.

Rec. OFT
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