FILE NAME: Talc (TALC)

DATE: 1972 Aug 3

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DOCUMENT DESCRIPTION: Report for FDA - Analysis of Products Containing Talc with Cover Letter

August 3, 1972

Dr. Alfred Weissler, Acting Director
Division of Colors and Cosmetics Technology
Office of Product Technology
Food and Drug Administration
Department of Health, Education and Welfare
Washington, D. C. 20204

Dear Dr. Weissler:

Enclosed please find my final analytical results on the mineral compositions of 102 examples of standard, commercial products containing talc. These include all the specimens you sent me from Washington, except for a few (principally the pharmaceutical specimens) which I will report on separately, as well as a number that I purchased in New York and in Boston.

The analyses show that 59 of the products have no detectable amounts of any of the asbestiform minerals (by the technique employed, prpportions by weight of 1-2% or less could escape detection), 20 had small but definite percentages of tremolite, 7 had small percentages of chrysotile, 9 had small percentages of both tremolite and chrysotile, and 7 had substantial percentages of one or both of these asbestiform minerals.

I shall retain and preserve the original specimens, and the x-ray diffractograms, until you advise me otherwise.

With very best personal regards,

Sincerely yours,

S. Z. L.

Seymour Z. Lewin
Professor of Chemistry

QE-CPC2-00000011

TABULATION OF X-RAY DIFFRACTION ANALYSES OF COMMERCIAL PRODUCTS CONTAINING TALC

A. Products having no detectable amounts of asbestiform minerals (limit of detectability=ca. 1 to 2% for each mineral)

Product	Mineral Composition					
	Talc	Chlorite	Phlogopite	α-Quartz	Dolomite	Other
1	70%	3%	7%	n.d.	n.d.	ZnO
2	100%	n.d.	n.d.	n.d.	n.d.	
3	99%	n.d.	1%	n.d.	n.d.	
4	100%	n.d.	n.d.	n.d.	n.d.	
5	95%	2%	3%	n.d.	n.d.	
6	80%	2%	5%	n.d.	n.d.	ZnUd
7	86%	7%	2%	3%	2%	
8	95%	2%	3%	n.d.	n.d.	
9	89%	7%	2%	2%	n.d.	
10	93%	3%	2%	2%	n.d.	
11	90%	2%	2%	4%	2%	
12	120%	n.d.	n.d.	n.d.	n.d.	
13	60%	n.d.	n.d.	n.d.	n.d.	ZnUd
14	31%	50%	2%	10%	7%	
15	100%	n.d.	n.d.	n.d.	n.d.	
16	--	--	--	--	--	K,S
17	60%	30%	4%	n.d.	6%	
18	90%	4%	2%	2%	2%	
19	97%	1%	2%	n.d.	n.d.	
20	35%	60%	1%	4%	n.d.	
21	67%	25%	2%	3%	3%	
22	59%	35%	1%	n.d.	5%	
23	42%	50%	2%	3%	3%	
24	94%	1%	2%	3%	n.d.	
25	95%	2%	3%	n.d.	n.d.	
26	95%	1%	4%	n.d.	n.d.	
27	88%	n.d.	2%	n.d.	19%	
28	20%	1%	n.d.	n.d.	n.d.	$CaCO_3$ X
29	94%	2%	2%	n.d.	2%	
30	97%	1%	2%	n.d.	n.d.	

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Product	Mineral Composition					
	Talc	Chlorite	Phlogopite	α-Quartz	Dolomite	Other
31	47%	50%	2%	3%	8%	
32	80%	7%	3%	2%	8%	
33	55%	40%	2%	n.d.	3%	
34	78%	7%	4%	3%	8%	
35	78%	5%	2%	10%	5%	
36	79%	4%	2%	15%	n.d.	
37	38%	50%	5%	n.d.	7%	
38	87%	5%	4%	2%	2%	
39	94%	3%	n.d.	3%	n.d.	
40	66%	25%	1%	3%	5%	
41	81%	8%	4%	2%	5%	
42	89%	6%	2%	n.d.	3%	
43	96%	n.d.	1%	3%	n.d.	
44	n.d.	n.d.	n.d.	n.d.	n.d.	ZnO, K
45	65%	30%	1%	n.d.	4%	
46	48%	40%	n.d.	5%	7%	
47	100%	n.d.	n.d.	n.d.	n.d.	
48	88%	4%	2%	2%	4%	
49	100%	n.d.	n.d.	n.d.	n.d.	
50	95%	5%	n.d.	n.d.	n.d.	
51	100%	n.d.	n.d.	n.d.	n.d.	
52	85%	8%	4%	3%	n.d.	
53	90%	4%	2%	2%	2%	
54	90%	3%	3%	n.d.	4%	
55	78%	15%	2%	5%	n.d.	
56	86%	7%	2%	3%	2%	
57	79%	15%	1%	n.d.	5%	
58	96%	n.d.	n.d.	4%	n.d.	
59	90%	n.d.	n.d.	3%	n.d.	S

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B. Products having small amounts of Tremolite -- more than 1%, but not more than (5±2)% by weight

Product	Mineral Composition					
	Talc	Chlorite	Phlogopite	∝-Quartz	Dolomite	Tremolite
60	61%	30%	n.d.	n.d.	7%	2%
61	35%	40%	2%	3%	18%	2%
62	89%	2%	‹1%	3%	n.d.	5%
63	87%	2%	2%	4%	n.d.	5%
64	84%	5%	3%	2%	3%	3%
65	79%	15%	n.d.	n.d.	4%	2%
66	85%	5%	3%	n.d.	2%	5%
67	75%	15%	1%	n.d.	5%	4%
68	78%	15%	n.d.	n.d.	5%	2%
69	96%	1%	1%	n.d.	n.d.	2%
70	26%	60%	n.d.	5%	7%	2%
71	84%	10%	n.d.	3%	n.d.	3%
72	86%	5%	3%	4%	n.d.	2%
73	79%	10%	1%	3%	5%	2%
74	92%	n.d.	n.d.	n.d.	5%	3%
75	75%	5%	2%	n.d.	15%	3%
76	75%	n.d.	5%	5%	10%	5%
77	91%	n.d.	4%	2%	n.d.	3%
78	85%	2%	1%	4%	3%	5%
79	86%	5%	4%	n.d.	2%	3%

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C. Products having small amounts of Chrysttile -- more than 1%, but not more than (5r2)% by weight.

Product	Mineral Composition					
	Talc	Chlorite	Phlogopite	α-Quartz	Dolomite	Chrysotile
80	48%	40%	n.d.	8%	n.d.	4%
81	80%	7%	1%	6%	4%	2%
82	76%	12%	2%	4%	3%	3%
83	81%	6%	5%	n.d.	4%	4%
84	87%	4%	1%	n.d.	3%	5%
85	83%	5%	2%	n.d.	8%	2%
86	82%	4%	2%	4%	4%	4%

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D. Products having small amounts of both Tremolite and Chrysotile -- more than 1%, but not more than (5±2)% of each by weight.

Product	Mineral Composition						
	Talc	Chlorite	Phlogopite	α-Quartz	Dolomite	Tremolite	Chrysotile
87	28%	50%	n.d.	4%	12%	4%	2%
88	61%	n.d.	n.d.	5%	25%	4%	5%
89	68%	1%	3%	8%	10%	5%	5%
90	55%	n.d.	3%	7%	25%	5%	5%
91	23%	1%	4%	60%	3%	4%	5%
92	61%	n.d.	3%	6%	20%	5%	5%
93	55%	1%	4%	6%	25%	5%	4%
94	43%	4%	3%	6%	35%	4%	5%
95	87%	n.d.	n.d.	5%	4%	2%	2%

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E. Products having substantial amounts of Chrysotile and/or TRemolite -- more than (5±2)% by weight.

Product	Mineral Composition						
	Talc	Chlorite	Phlogopite	α-Quartz	Dolomite	Tremolite	Chrysotile
96	66%	n.d.	3%	6%	7%	8%	10%
97	31%	1%	1%	5%	35%	12%	15%
98	39%	n.d.	3%	40%	6%	2%	10%
99	37%	3%	3%	40%	6%	3%	8%
100	78%	7%	4%	n.d.	2%	3%	6%
101	53%	8%	3%	7%	4%	25%	n.d.
102	65%	n.d.	n.d.	3%	15%	10%	7%

QE-CPC2-00000017

NOTES TO THE TABULATED DATA

1. All products tested were standard and commercial brands, purchased in drug stores or the drug departments of department stores or super-markets in the cities of Washington, D. C., New York, and Boston.

2. All data are based upon continuous scan x-ray powder diffraction patterns. The precision, in terms of average deviation, is of the order of magnitude of ±2% absolute for each of the mineral species reported. The data are given in units of percentage composition by weight.

3. The limits of detectability by the method employed are of the order of magnitude of 1 to 2% by weight for each of the mineral species cited.

4. A. Where an asbestiform mineral was indicated by the x-ray pattern as being present to a definitely detectable extent, its presence was verified by the use of optical microscopy to disclose the presence of significant numbers of fiber particles.

   B. Where the asbestiform mineral was indicated by the x-ray pattern as being present at the just barely detectable level, this was verified (or rejected) by employing the step-scan technique over the regions of the questionable diffraction peaks.

5. The following minerals were estimated by comparing the sum of the integrated intensities at the diffraction angles listed below, with the corresponding summed integrated intensities at the same angles of standards composed of the pure mineral:

Mineral	Two-Theta Values Summed
Dolomite	31.0 - 31.2; 44.8-45.0;
α-Quartz	20.4 - 20.6; 26.6-27.0; 39.3-39.7;
Chlorite	6.3-6.5; 12.4-12.8; 19.0-19.2; 25.0-25.4
Phlogopite	8.6-9.0; 25.9-26.1; 28.1-28.3.

6. Only two of the asbestiform minerals were detected in the products tested. Each of these was estimated by comparison with standards made up by mixing the pure mineral with pure talc in various proportions by weight. For both unknowns and standards, the parameter measured was the ratio of the integrated intensity of a diffraction peak, relative to that of an internal standard. The internal standard employed was 5% by weight of $Zn(OH)Cl$. The integrated intensities were summed at the following diffraction angles:

Asbestiform Mineral	Two-Theta Values Summed
Chrysotile	12.0 - 12.4; 24.3-24.8
Tremolite	10.4 - 10.6; 27.4-27.6; 29.4-29.7; 30.6-30.9; 33.2-33.4

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7. Talc was determined by difference.

8. The following abbreviations are employed:

n.d. = not detectable
ZnO = zinc oxide
$ZnUd$ = zinc undecylenate
K = kaolin
S = starch
$CaCO_3$ = calcite
X = phase not identified because deemed unimportant.

9. In several instances, the same brand of product was purchased in different places at different times, to check on the constancy of composition of the mineral mixture. Considerable variations were found. See product numbers 14 and 15; 22, 22 and 23, 53, 54, 55. In other instances, constancy within the precision of the analytical method was observed (e.g., in the case of product No. 7).

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KEY TO PRODUCT NAMES

Product Number	Product Name	Further Identification
1	AMMENS POWDER, MEDICATED	Bristol-Myers (No. IF25)
2	AMOLIN DEODORANT POWDER	Norwich
3	AQUAMARINE COOLING SPRAY BATH POWDER	Revlon (143)
4	BAGATELLE AMBER DUSTING POWDER	Corand (DCH)
5	BOURJOIS BATH POWDER	
6	CALDESENE MEDICATED POWDER	Pennwalt (5274)
7	CASHMERE BOUQUET BODY POWDER	Colgate-Palmolive
8	CHANEL NO. 5 BATH POWDER	
9	COUNTESS ROCHEAU CAKE DUSTING POWDER	Jergens
10	CREPE DE CHINE DUSTING POWDER, MILLOT	House of Fragrance (L1132
11	CREPE DE CHINE POUDRE MIST, MILLOT	House of Fragrance
12	CUTICURA TALCUM POWDER	Purex (07170)
13	DESENEX	WTS-Pharmacraft
14	DESITIN BABY POWDER	Pfizer (1139Z) (3/29/72)
15	DESITIN BABY POWDER	Pfizer (115A) (5/10/72)
16	DIAPARENE BABY POWDER	Breon (E1080)
17	DOROTHY GRAY "SECRET OF THE SEA" DUSTING POWDER	
18	EMERAUDE TALCUM POWDER	Coty (355-4010)
19	ENGLISH LEATHER	Mem (2891)
20	FABERGE "MUSIC" DUSTING POWDER	Shulton (3/27/72)
21	FRIENDSHIP GARDEN DUSTING POWDER	Shulton (5/9/72)
22	FRIENDSHIP GARDEN DUSTING POWDER	Shulton (7/13/72)
23	FRIENDSHIP GARDEN DUSTING POWDER	
24	HEAVEN SENT AEROSOL BATH POWDER MIST	Rubinstein
25	HEAVEN SENT BATH POWDER	Rubinstein
26	HELEN PRESSL "LITTLE LADY"	
27	IMPORTA, SPAIN MENS' TALC	
28	ISIS FLORAL TALCUM POWDER	(028Q)
29	JOHNSON'S BABY POWDER	(3612)
30	JOHNSON AND JOHNSON MEDICATED POWDER	
31	KOSCOT BEAUTY DUST--OIL OF MINK	
32	LANVIN ARPEGE DUSTING POWDER	(1288)
33	LANVIN ARPEGE POWDERED MIST	
34	LANVIN ARPEGE TALC	
35	LEWIS BABY POWDER	
36	LOVES FRESH LEMON GLOSSY POWDER	Manley & James
37	MACY'S SCENTED BORATED TALCUM	
38	MACY'S TALCUM, APPLE	(2K4)
39	MARCELLE DUSTING POWDER, HYPO-ALLERGENIC	
40	MARY CHESS PERFUMED DUSTING POWDER	

QE-CPC2-00000020

Product Number	Product Name	Further Identification
41	MENNEN BABY MAGIC POWDER	(B112)
42	MENNEN QUINSANA FOOT POWDER	(H202)
43	MERCK TALC, PRODUCT NO. 6460, LOT NO. 6460)	(8039301)
44	MEXSANA 2387-D MEDICATED POWDER	Plough
45	OLD SPICE BODY TALCUM	Shulton
46	PERSIAN LILAC DELUXE DUSTING POWDER	April Showers (LFN)
47	PERSIAN LILAC SPRAY BATH POWDER	April Showers (B200B)
48	POND'S PERFUMED TALC BODY DEODORANT DREAM FLOWER	(115B)
49	PRINCE MATCHABELLI BELOVED SPRAY POWDER	
50	QUEST DEODORANT POWDER	
51	REPLIQUE SPRAY BATH POWDER	Parfums Raphael (004)
52	RIVIANA FOODS - ITALIAN STEARIN TALC	For Rice
53	SEPTEMBER MORN BY POND'S	(19B)
54	SEVEN WINDS AFTER BATH TALC	DuBarry (021085)
55	U S P TALC	
56	VASELINE INTENSIVE CARE BABY POWDER	(I 209)
57	YVES SAINT LAURENT RIVE GAUCHE SPRAY TALC	
58	Z B T BABY POWDER	(R1021)
59	ZEASORB SUPER ABSORBENT MEDICATED POWDER	Stiefel
60	AMBUSH-DANA DUSTING POWDER	
61	APRIL SHOWERS	(9884)
62	AVON UNFORGETTABLE PERFUMED TALC	
63	BELOVED PERFUMED DUSTING POWDER, PRINCE MATCHABELLI	
64	COTY FACE POWDER RACHEL	
65	DESERT FLOWER SPRAY BATH POWDER	Shulton (F 1 BKI)
66	EMERAUDE DUSTING POWDER	Coty
67	EMERAUDE SPRAY DUSTING POWDER	Coty (1 AEY)
68	FABERGE FLAMBEAU DEODORANT SPRAY POWDER	(37 WBF)
69	JEAN NATE SPRAY BATH POWDER	(1 N 247)
70	JERIS TALC, FLESH	
71	JOLIE MADAME DUSTING POWDER, BALMAIN	
72	LADY ESTHER FACE POWDER, RACHEL	
73	MAX FACTOR FACE POWDER, RACHELLE	
74	MEDICATED COMFORT POWDER	Parke-Davis
75	OH! de LONDON TALC	Yardley (498)
76	TO KNOW ME IS TO LOVE ME - TINKERBELL	Tom Fields, Ltd.
77	TOUCH AND GLOW FACE POWDER, CREAMY PEACH	Revlon
78	TOUJOURS MOI BATH POWDER	Corday
79	YARDLEY APRIL VIOLETS	(4908)
80	CHANTILLY DUSTING POWDER	Houbigant (11B)
81	CASHMERE BOUQUET	
82	JEAN NATE TALC	
83	MENNEN SHAVE TALC	(B 81)
84	SHOWER TO SHOWER BODY POWDER	Johnson & Johnson (5507BG)
85	PURE BABY POWDER, DART DRUG	(K 11G)
86	POND'S DREAM FLOWER PERFUMED TALC	(0 13D)

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Product Number	Product Name	Further Identification
87	ALMAY HYPO-ALLERGENIC FACE POWDER	
88	CONSTANCE CARROLL, BOUQUET TALC	
89	DJER-KISS TALCUM	Kerkoff
90	FLAMINGO DUSTING POWDER, TUSSY	(L1047)
91	LANDER LILACS AND ROSES TALC	
92	MAVIS TALCUM	Vivaudou
93	MAVIS BODY POWDER	Vivaudou
94	TANGEE	Luft-Tangee
95	ZBT BABY POWDER	(B0048)
96	BLANCHARD'S DUSTING POWDER	
97	BORN WILD DUSTING POWDER	Del Labs
98	LANDER GARDENIA AND SWEET PEA TALC	
99	LANDER LILACS AND ROSES DEODORANT BODY TALC	
100	MISS DIOR DUSTING POWDER	
101	TAI WINDS SPRAY TALC	(Avon (DCC 1272 2-14-72,HWS)
102	TOSCA DUSTING POWDER	

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