



Office of the General Counsel
1600 Clifton Road, N.E.
M/S D53
Atlanta, GA 30333

AFFIDAVIT

LOUISE MOORE, being first duly sworn, deposes and states as follows:

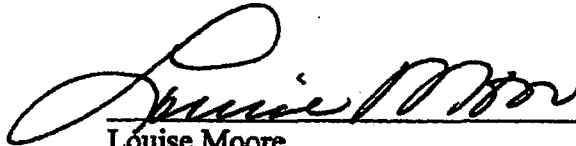
1. I am a Legal Technician in the Office of the General Counsel, Centers for Disease Control and Prevention (CDC), United States Department of Health and Human Services. I make this affidavit upon personal knowledge, and where indicated, upon the basis of information communicated to me by employees of the United States because of my official position.
2. In my position, I am a custodian of and authorized to certify the official records of CDC, an agency of the U.S. Department of Health and Human Services.
3. The attached records, imprinted with the official CDC seal, are true copies of official records of CDC/ATSDR, an agency of the U.S. Department of Health and Human Services.
4. The documents referred to above are part of the official records of the United States Department of Health and Human Services.

PLAINTIFF'S
EXHIBIT
CAM-152

Page Two

I declare under penalty of perjury that the foregoing is to the best of my knowledge and belief true and correct.

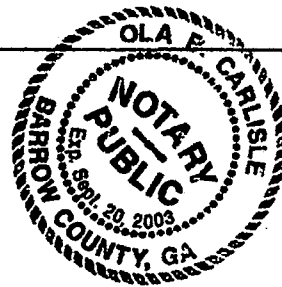
Executed at Atlanta, Georgia.


Louise Moore

State of Georgia)
County of DeKalb) ss

Subscribed and sworn to before me this 1st day of
November, 2001.


Notary Public



File No.	36 ✓
	KL 4/1/70
	gpc

April 18, 1979

Mr. Allan Harvey, Manager
Technical Development Dept.
R.T. Vanderbilt Company, Inc.
30 Winfield Avenue
Norwalk, Connecticut 06855

Dear Mr. Harvey:

As you requested on April 17 I am enclosing a list identifying the 100 talc samples analyzed under Contract No. CDC 210-75-0063 by Walter G. McGraw Associates, Inc. and reported in "Analysis of Talc by X-ray Diffraction and Polarized Light Microscopy." The results of the talc samples originating from your company's mines in New York were included in the NIOSH report "Industrial Hygiene Study of the Gouverneur Talc Company, Number One Mine and Mill" finalized in June 1977.

If you have any questions, please let me know. I can be reached at (513) 684-3735.

Sincerely yours,

Howard E. Ludwig
Industrial Hygiene Engineer
Industrial Hygiene Section
Industry-wide Studies Branch
Division of Surveillance, Hazard
Evaluations, and Field Studies

1 Enclosure

HLUDWIG:pj:RM. 8415:FOB:Cincinnati, Ohio:4-18-79

CERTIFIED TO BE A TRUE COPY OF THE ORIGINAL

Certifying Official

Dataset

**PRODUCT TALC SAMPLES
FOR LABORATORY ANALYSIS**

DSHEFS Sample #	Company and Sample Designation	Source of Sample
001	Gouverneur Talc Company (NY) Nytal 300	Supplier
002	Gouverneur Talc Company (NY) Nytal 400	Supplier
003	Gouverneur Talc Company (NY) 5X	Supplier
004	Gouverneur Talc Company (NY) 325	Supplier
005	Gouverneur Talc Company (NY) X	Supplier
006	Gouverneur Talc Company (NY) FT	Supplier
007	Gouverneur Talc Company (NY) 3X	Supplier
009	Johnson & Johnson, Vermont Product Talc (98% Pure)	Company
034	Hitchcock Talc Company Murphy, N.C., Product Talc	Harvard
035	Windsor Minerals, Gassetts "37" July 29, 1975 (Vermont)	Harvard
036	Windsor Minerals, West Windsor Mineral Ray Grind Composite, Vermont	Harvard
037	Windsor Minerals, Ludlow "36" July 29-30, 1975 (Vermont)	Harvard
038	Windsor Minerals, "Gassetts" 36, July 28-30, 1975 (Vermont)	Harvard
039	Vermont Talc Co-Bagging Bulk Sample, 7/16/75, 2nd shift, VT	Harvard

PRODUCT TALC SAMPLES
FOR LABORATORY ANALYSIS

DSHEFS Sample #	Company and Sample Designation	Source of Sample
040	Vermont Talc Company - Bagging Bulk Sample, vertical XXXD 9/17/75 1st shift (Vermont)	Harvard
041	Southern Talc Co. (Cohutta Mill) Chatsworth, Ga. Product (Powder) Sample Mine I.D. 04-00493	MESA
042	Packer Station #3, Vanderbilt Talc, Mill #1 Gouverneur, N.Y. 1st shift 11/4/75 (PT)	NIOSH Survey
043	Packer Station #2, Vanderbilt Talc, Mill #1 Gouverneur, N.Y. (Nytal 100), 1st shift 11/4/75	NIOSH Survey
044	Ceramitalc HDT, Vanderbilt Talc Co. 1st shift 11/4/75 (NY)	NIOSH Survey
045	Bagging Station #3, Vanderbilt Talc Co., Mill #1, Gouverneur, N.Y. 11/4/75 (Nytal 200)	NIOSH Survey
046	Hitchcock Corp. #5 Mine ID# 3100222 (NC)	MESA
047	Hitchcock Corp., #3 Mine ID# 3100683 (NC)	MESA
048	Wray Mine & Mill, Ipt. Minerals and chemicals ID# 31-0008 (Vermont)	MESA
049	Bagging Station, Vandervilt Talc Co. 2nd shift, Mill #1 Gouverneur, N.Y. (Nytal 300) 11/3/75	NIOSH Survey
050	Bagging Station, Vanderbilt, 2nd shift, 11/3/75 (Nytal 200) Mill #1, Gouverneur, N.Y.	NIOSH Survey
051	Southern Talc Co., Southern Mill Product Talc sample, Chatsworth, Ga. Rock Cliff Mine, ID# 0900492, 9/3/74	MESA
052	Southern Talc Co., Southern Mill, Chatsworth, Ga. ore from Rock Cliff ID# 09-00492	MESA
053	Southern Talc Co., Southern Mill Ore from Judge Hole Mine ID# 09-00492	MESA
054	Winterboro Mine & Mill, American Talc Co., Alpine, Ala. Willowcreek Mine, Ore from (Mont), ID# 01-00433 9/5/74	MESA

**PRODUCT TALC SAMPLES
FOR LABORATORY ANALYSIS**

DSHEFS Sample #	Company and Sample Designation	Source of Sample
055	Thompson-Weinman Co., Cartersville, Plant, Cartersville, Ga.. Ore from Brady Mine, ID#09-00224	MESA 9/5/74
056	Cohutta Mill, Southern Talc Co. Chatsworth, Ga. 9/3/74, Ore from Ernest Mine ID#09-00493	MESA
057	American Talc Co., Alpine, Ga. Winterboro Mine & Mill, 9/5/75 #01-00433, Final Prod. Ore from Mont.	MESA
058	Pioneer Talc Co, Garren Pit Prod. #6, Allamore, Hudspeth Co., Texas ID# 41-00869	MESA
059	Pioneer Talc Co. Inc., Apache Pit Product, #4, Texas ID# 41-00869	MESA
060	Pioneer Talc Co. Inc., #4 Texola Pit Product, Texas ID# 41-00869	MESA
061	Southern Clay Products, #2, Bottom Product, Allamore, Hudspeth Co., Texas #18	MESA
062	Milwhite Co. Inc., Van Horn, Cumberson Co, Texas ID#41-01527 Ground Calcined Product	MESA
063	Milwhite Co. Inc., #11, Van Horn, Culberson Co. Texas, Eagle Har Pit Crude ID#41-01527	MESA
064	Pioneer Talc Co., Allamore, Hudspeth Co, Texas, #8 Garren Ceramic ID# 41-00869	MESA
065	Milwhite Co. Inc., Van Horn, Texas #14 Tumble Down Pit Product, ID# 41-01527	MESA
066	Emtal 42, Eastern Magnesia Talc Co. Vermont 8/28/75	HARVARD
067	Pfizer (Barretts Mill) Montana minus 12 micron	NIOSH Survey
068	Pfizer (Barretts Mill) Montana minus 325 mesh	NIOSH Survey
069	Pfizer (Barretts Mill) Montana minus 20 microns	NIOSH Survey

**PRODUCT TALC SAMPLES
FOR LABORATORY ANALYSIS**

DSHEFS Sample #	Company and Sample Designation	Source of Sample
070	Cyprus (Three Forks Mill) Montana minus 325 mesh	NIOSH Survey
071	Cyprus (Three Forks Mill) Montana Mistron Vapor (minus 10 micron)	NIOSH Survey
072	Cyprus (Three Forks Mill) Montana Floor Sweepings (Bagging Area)	NIOSH Survey
073	Cyprus (Yellowstone Mine) Montana Drill Hole	NIOSH Survey
074	Southern Talc (Southern Mill) Ga. 98% passing 200 mesh	NIOSH Survey
075	Southern Talc (Southern Mill) Ga. 99% passing 325 mesh (#1767)	NIOSH Survey
076	Southern Talc (Cohutta Mill) Ga. 95% passing 325 mesh	NIOSH Survey
077	Southern Talc (Cohutta Mill) Ga. 25% passing 200 mesh	NIOSH Survey
078	Milwhite Talc Co. Inc. (Tex.) Finished CM4 product	NIOSH Survey
079	Westex Talc Co. (TDM) Dark - (Milwhite Inc.) Tex.	NIOSH Survey
080	Milwhite Talc Co. (Tex) Marshal mix - 92-200 mesh	NIOSH Survey
081	Westex Talc Co. (Milwhite Inc.) (Tex) White mine 93-200 mesh	NIOSH Survey
082	Southern Clay Products - Tex. Garren Mine #2	NIOSH Survey
083	Texas Talc Co. - TP1 (Tex.) Mine (Texas Pacific)	NIOSH Survey
084	Texas Talc Co. Tex. David Mine	NIOSH Survey

PRODUCT TALC SAMPLES
FOR LABORATORY ANALYSIS

DSHEFS Sample #	Company and Sample Designation	Source of Sample
085	Texas Talc Co. (Tex.) TP2 Mine	NIOSH Survey
086	Cyprus Industrial Minerals Co. Loyce Fine Mine (Tex.)	NIOSH Survey
087	Pioneer Talc Co. Inc. (Tex.) Texola Mine	NIOSH Survey
088	Pioneer Talc Co. Inc. (Tex.) Dees Mine	NIOSH Survey
089	Milwhite Co. Inc. Bryant Soapstone Mine Arkansas	NIOSH Survey
090	Laws Mill (Calif.) Clay sample, kaolin + 1% glue	NIOSH Survey
091	Laws Mill Micro talc from White Eagle Mine (Calif) Standard Industrial Minerals	NIOSH Survey
092	Laws Mill (Calif) Desert Talc Standard Industrial Minerals	NIOSH Survey
093	Laws Mill (Calif) Holiday Talc Standard Industrial Minerals	NIOSH Survey
094	Keeler T-076 (Cyprus) (Calif) Tacopa Mine (100% Panamint)	NIOSH Survey
095	Keeler HGO-55 Blend (Cyprus)(Cal) 4 Panamint, 3 Oasis, 3 White Eagle	NIOSH Survey
096	Keeler Sierra Cloud Blend (Cyprus) 4 Panamint, 1 White Eagle (Calif)	NIOSH Survey
097	Keeler, MSC Mistron (Cyprus)(Calif) Panamint + 0.5% stearite	NIOSH Survey
098	Keeler Sierralite (Cyprus)(Calif) Talc City (Frisco)	NIOSH Survey
099	Keeler Glacier 200 (Cyprus)(Calif) Talc City (Tailings)	NIOSH Survey

PRODUCT TALC SAMPLES
FOR LABORATORY ANALYSIS

DSHEPS Sample #	Company and Sample Designation	Source of Sample
100	Keeler USP (Cyprus)(Calif) Oasis Mine (100%)	NIOSH Survey
101	Keeler (Calif) (Cyprus) White Eagle Screenings	NIOSH Survey
102	Keeler (Calif) (Cyprus) Suggar Mine	NIOSH Survey
103	Pfizer (Cal) Talcron CP 44-31 Eclipse, Bonnie, Mongolian	NIOSH Survey
104	Pfizer (Cal) Cercron CF 96-38 Eclipse, Acme, Mongolian	NIOSH Survey
105	Pfizer cercron CF 96-36 (Calif) White Eagle, Mongolian, Apex	NIOSH Survey
106	Cyprus (LA) Furnace Creek (Calif) Tecopa (100% Panamint)	NIOSH Survey
107	Cyprus (LA) Vanderbilt crude Soft LB (Calif)	NIOSH Survey
108	American Talc (Alabama) 84 Color Dark 200 Mesh ore from Willow Creek Mine in Mont.	NIOSH Survey
109	American Talc (Alabama) 92 Color 99% 400 Mesh ore from Willow Creek Mine in Mont.	NIOSH Survey
110	Ludlow Cassetts Mill (Vermont) Windsor Minerals Product	
111	West Windsor Mill (Vermont) Windsor Minerals Product	
112	West Windsor Mill (Vermont) Hammondsville Mine Windsor Minerals	
113	Vermont Talc Company (Vermont) Chester Mill Vertal 77	
114	Vermont Composite Sample Moretown, Vermont	Dr. Froines

**PRODUCT TALC SAMPLES
FOR LABORATORY ANALYSIS**

DSHEFS SAMPLE #	COMPANY AND SAMPLE DESIGNATION	SOURCE OF SAMPLE
115	R.T. Vanderbilt (NY) Mouldene	Company
116	Resubmittal of #071	
117	Resubmittal of #089	
118	Resubmittal of #098	
119	R.T. Vanderbilt (NY) Fibertal 1	Company
120	R.T. Vanderbilt (NY) Fibertal 6	Company
121	R.T. Vanderbilt (NY) Fibertal 12	Company
122	California Mine no longer in operation	MESA
123	Western Talc (California) (R.T. Vanderbilt) MESA ID #0401138	MESA
124	American Talc Co. Alpine, Ala. Winterboro Mine & Mill Primary Crusher, Sample 9/5/74, ID#01-00433 Ore From Willow Creek Mine in Alder, Montana	MESA
125	Georgia Mine no longer in operation	MESA



walter c. mc crone associates, inc.

CONSULTING: ULTRAMICROANALYSIS • MICROSCOPY • SMALL PARTICLE PROBLEMS • SOLID-STATE CHEMISTRY

22 December 1975

Mr. Martin Abell
Room 206
1014 Broadway
Cincinnati, Ohio 45202

Dear Marty:

Enclosed are two copies of our first sample data report. Six more are nearly finished, but cannot be mailed until after the first of the year. I will return to the office on January 5.

With best wishes,

Sincerely,

Lucy B. McCrone

Lucy B. McCrone
Senior Research Scientist

LBM:fe
enclosure
ref: 4800

- 0.7
- (1) Calibration curves? ✓
- (2) get portions of asbestos and quartz dilution standards for TEM
- ✓ (3) Want 1/2 dozen curves used for the various minerals

Data Summary, Sample No. 83755 (001)
average particle size: 2.97 μ m

mineral	detected	not detected	amount	qualified by	comments
talc	+		30-40%	XRD line scan	rolled talc "fibers" present
anthrophyllite	+?		<3%	XRD step scan	identification uncertain
chrysotile		+	0		
quartz	+		2%	XRD step scan	
tremolite	+		40-50%	XRD step scan	about 3% by weight of the tremolite is fibrous
amosite		+	0		
calcite	+		trace	light microscope	
chlorite		+	0		
crocidolite		+	0		
delomite	+		trace	light microscope	
magnesite		+	0		
lizardite	+		10-15	XRD line scan	
antigorite		+	0		

lower limit

Particle size distribution. The particle size distribution was determined by light microscopy with a manual count based on Martin's diameter. Results are plotted in Figure 1. Since the average particle size is $2.97 \mu\text{m}$ grinding the sample is unnecessary for x-ray diffraction.

Data summary. The first ten minerals following talc in the data summary are those specified for analysis in Contract No. 210-75-0063. (These will be tabulated in that order in all subsequent Sample Data Reports). Since no chrysotile or chlorite could be found microscopically to explain the peak at 12.1° on the x-ray line scan we examined the sample for the two serpentines, antigorite and lizardite.

Talc. The weight percent of talc was calculated by difference to be between 30 and 45%. Some fibrous talc is present as rolled up sheets. In Cargille high dispersion liquid 1.550 they show talc colors by dispersion staining with $\lambda_{\text{D}} = 430$ to 440 nm and $\lambda_{\text{D}} = 610$ -620 nm.

Anthophyllite. Analysis for anthophyllite is somewhat hampered because we have not yet found a completely satisfactory standard to use in preparing calibration curves for x-ray diffraction and dispersion staining. In general, the dispersion staining colors of anthophyllites are close to those of tremolites and the two are distinguishable only by the extinction positions of the α - γ view: tremolites show oblique extinction of from about 10° to about 21° , while anthophyllites show parallel extinction.

We found a very few particles in the sample which appeared to have parallel extinction on the α - γ view but complete confidence is lacking because there were too few particles to be sure. The three principal x-ray diffraction lines for the

most reliable anthophyllite pattern in the ASTM file (16-401) occur at 10.61°, 27.59° and 29.16°. Another pattern in the ASTM file (9-455) gives the same lines as 10.70°, 27.50° and 29.26°. The UI CC standard sample contains a major proportion of anthophyllite, confirmed optically, as well as various impurities. A line scan of the appropriate regions gives the three anthophyllite lines at 10.85°, 27.70° and 29.45°. Ignoring possible instrumental errors of our own we must assume that peaks within the ranges 10.61°-10.85°, 27.50°-27.70° and 29.16°-29.45°, could be due to anthophyllite. Tremolite overlaps in the regions around 10.55° and possibly 27.25°. Calcite overlaps at 28.40°.

Step scans of these regions are given in Figure 2. Anthophyllite peak centers are marked in red, tremolite in green. We cannot say that these are in fact anthophyllite peaks but they could be, especially since a peak appears in each of the three regions. Without calibration curves we only suggest the quantity represented by the peaks as less than 3%. The optical results suggest a lower value.

Serpentines. The peak at 12.1° in the line scan, Figure 5, is not due to chrysotile but to the nonfibrous serpentine, lizardite. No chrysotile fibers were found by dispersion staining in samples mounted in Cargille high dispersion liquid 1.550. Particles showing λ_0 's of 540 and 610 nm were identified as lizardite rather than antigorite, which shows 500 and 520 nm under the same conditions. The quantity of lizardite was estimated to be 10-15% from the x-ray line scan.

Quartz. The dispersion staining colors for quartz and lizardite are different by only 10 to 40 nm in the high dispersion Cargille liquid of choice, 1.550, thus they are difficult to distinguish optically, since they have similar morphology. They can be so distinguished but the procedure is slow.

The strongest x-ray diffraction peak, at 26.84° , is relatively free of interferences. Step scanning, gives the amount of quartz as about 2% (see Figure 3).

- calibration curves?

Tremolite. So much tremolite is present, 40-50% by weight estimated from the x-ray line scan (Figure 5), that step scanning was unnecessary. Step-scanned tremolite peaks at 10.55° and 27.26° are shown, however, in Figure 1.

Using dispersion staining the proportion of fibrous tremolite was estimated at 3% of the total tremolite. Because of the great differences in weight between the massive particles and the fibers the percentage could not be derived from fiber counts. It was obtained by estimating areas occluded by fibers and by massive particles, then converting to volume (weight) percent by dividing the percent fibers by four.

For ten fields examined at 200X the averaged percent of the tremolite present as fibers by area was 13.6%, which would be about 3% by volume.

Other minerals. A few particles of calcite were identified optically by their dispersion staining colors and refractive index relative to the mounting media in Cargille liquids 1.605, 1.650 and 1.670. The principal calcite x-ray peak at 29.40° is buried in the presumed anthophyllite peak (Figure 2). Not enough calcite was observed optically to account alone for this peak.

A few particles of dolomite but no magnesite were detected in Cargille liquid 1.670 by dispersion staining.

X-ray line scans. The total sample is represented by Figure 5, the x-ray line scan from 2θ of 5° to 70° . Conditions were: Cu radiation with Ni filter, at 42 kV and 25 ma. Scale factor was 1000, time constant was 2, multiplier 2, scan speed 1° per minute, chart speed $1/2$ inch per minute, slits 1° , $0.024''$, 1°

The sample was rotated in an aluminum holder which contributes a large peak at 38.5° and a smaller one at about 44.5°. Alignment of the goniometer is checked daily using a quartz standard. A slower scan of the region between 6° and 12° was also run for better resolution. This scan, Figure 4, was made at the same operating conditions except that the scan speed was 1/2° per minute.

Respectfully submitted,

Jan N. Stewart

for

Lucy B. McCrone
Senior Research Scientist

LBM:fe
ref: 4890

PARTICLE SIZE DISTRIBUTION
Sample 83755
(001)

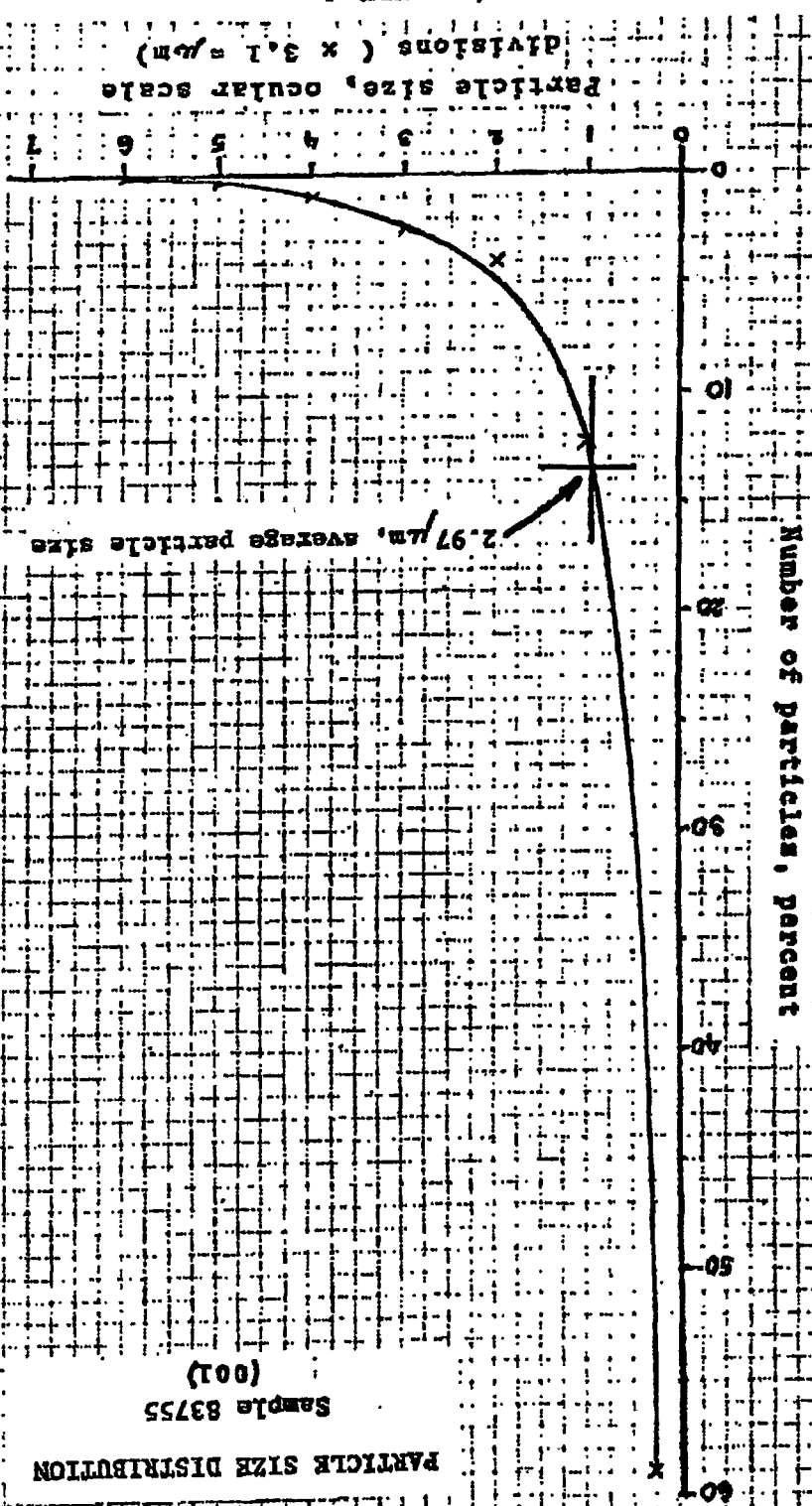
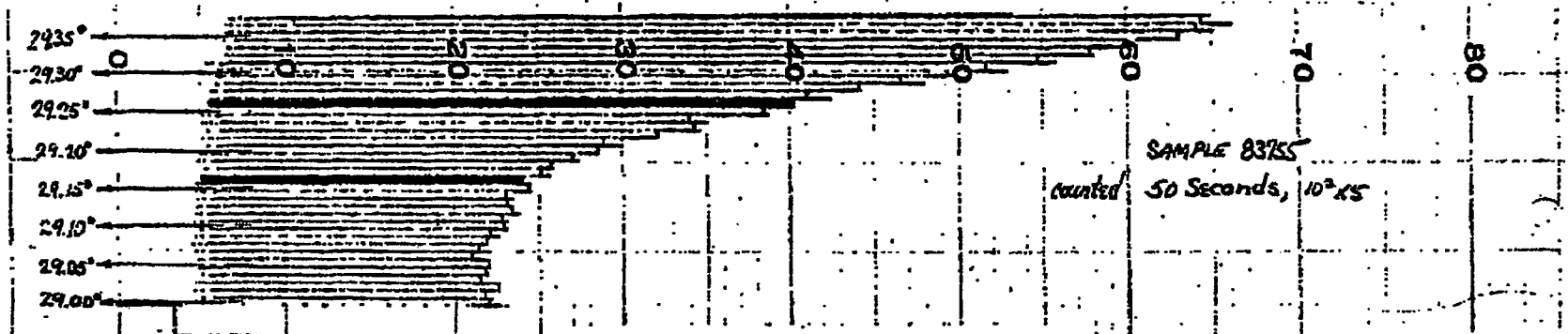


FIGURE 1.

FIGURE 2A. X-ray step scans at
anthophyllite lines in the regions
of 100 and 290 2 θ .



Instrumental conditions:
500 counts/sec., 8 second time
constant, 10, 20 or 50 second
counts, 0.01" 2 θ steps, 1/8"/min.
c chart speed, 0.024" slit.

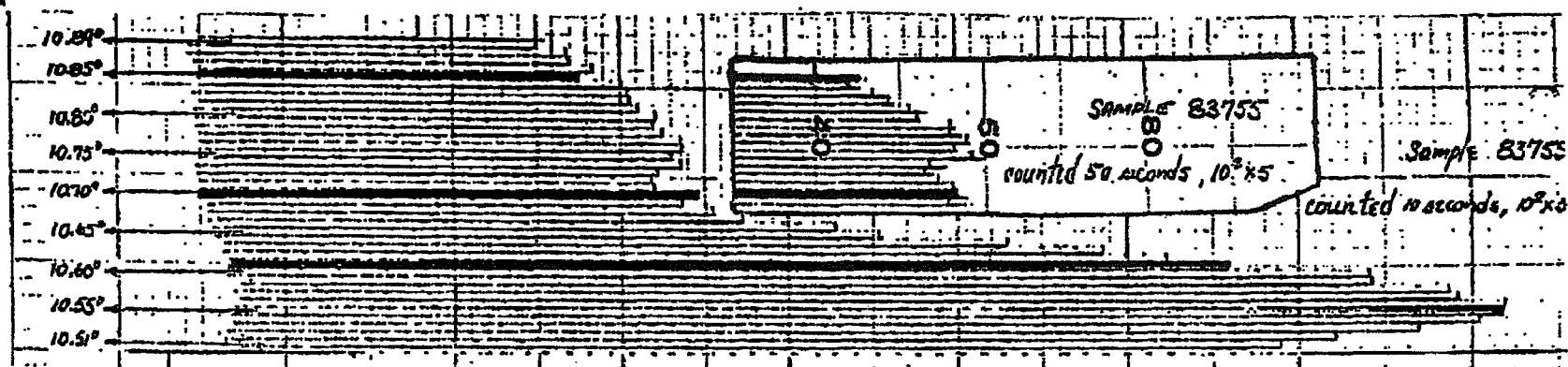
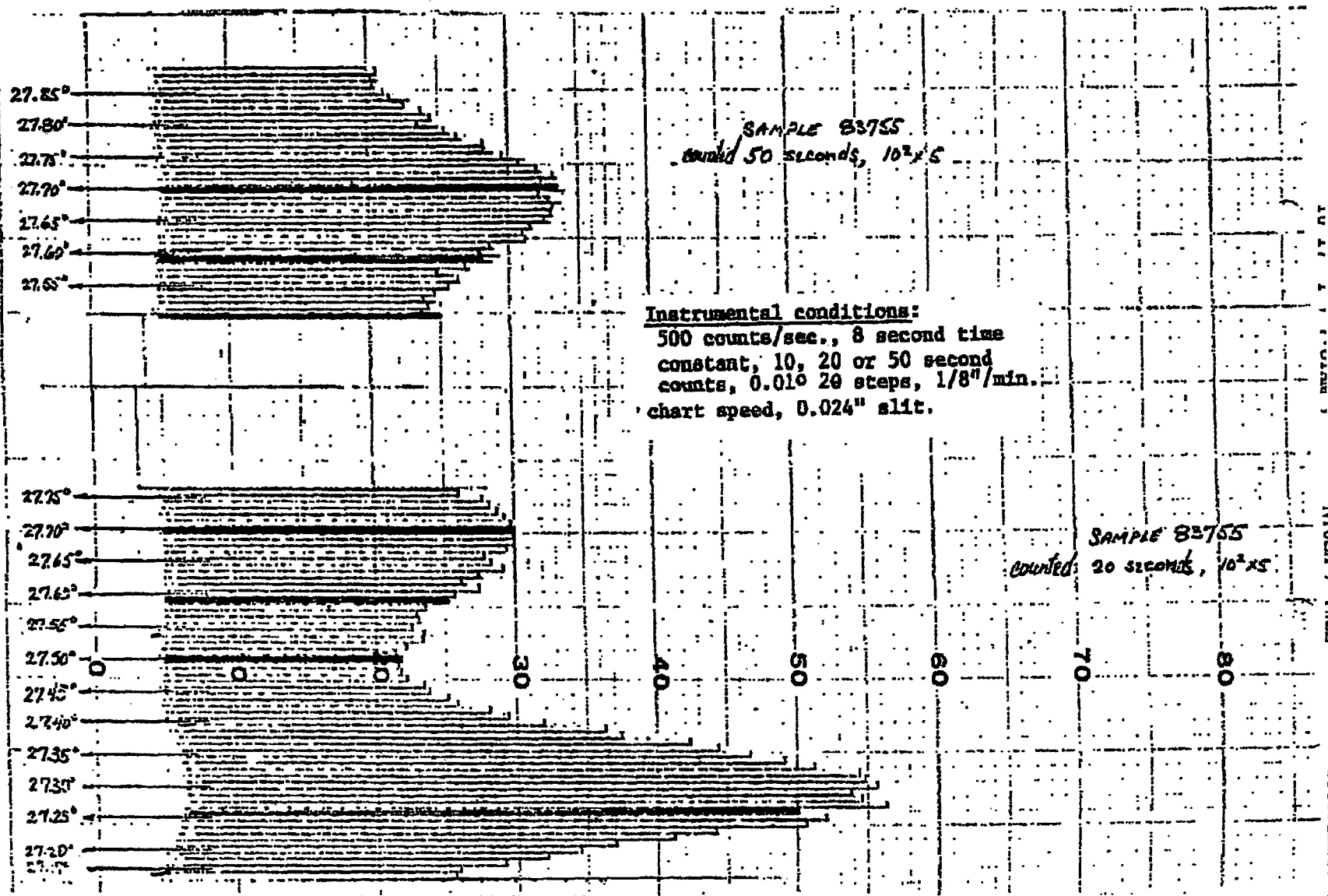
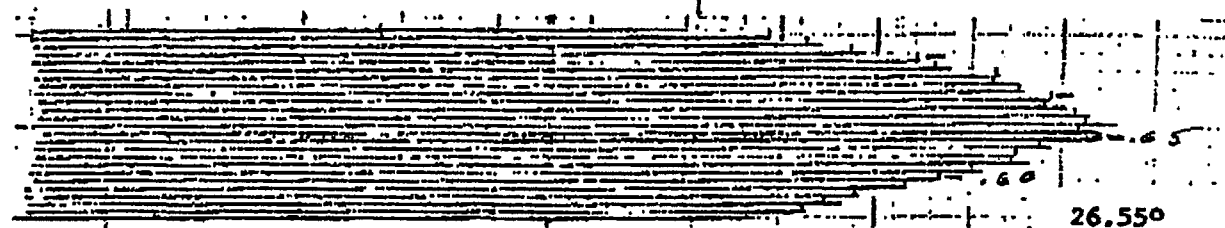
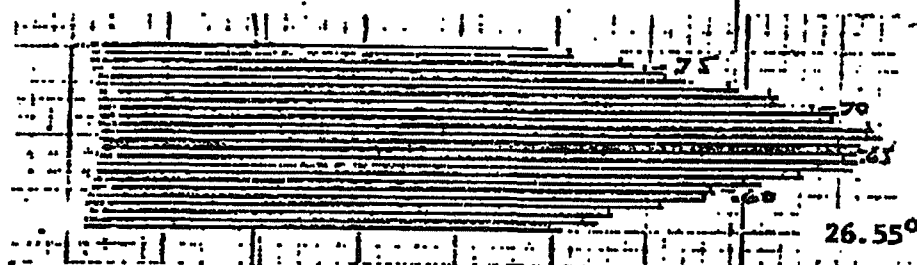
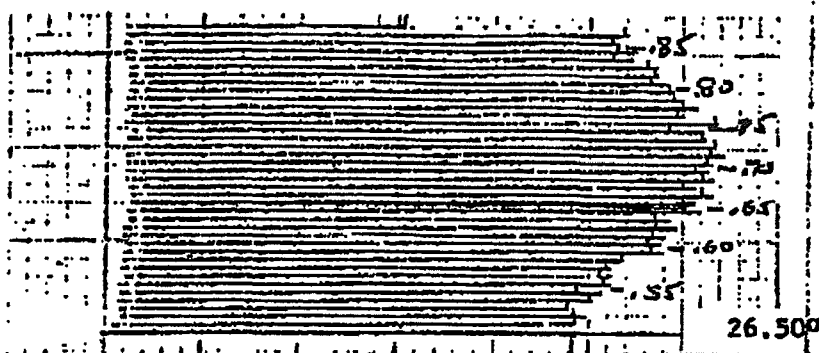


FIGURE 2B. X-ray step scans at
anthophyllite lines near $27^{\circ} 2\theta$.

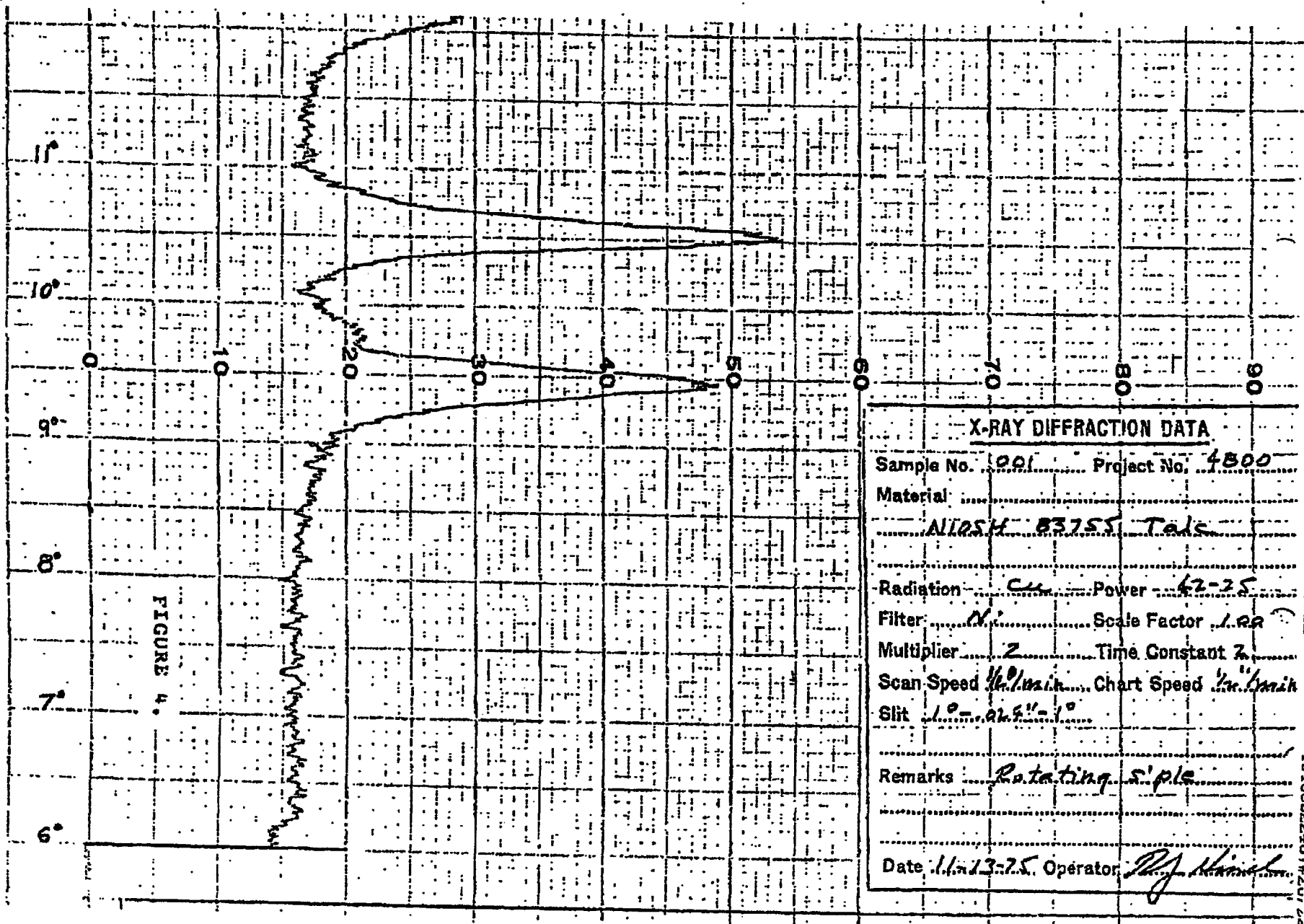




Instrumental conditions:

500 counts/sec., 8 second time
constant, 50 second counts,
steps of 0.01° 2θ, 1/8" / min.
chart speed, 0.024" slit.

FIGURE 3.



X-RAY DIFFRACTION DATA

Sample No. 001 Project No. 4800

Material NIOASH-83755 Talc

Radiation Cu Power 42-25

Filter Ni Scale Factor 1.00

Multiplier 2 Time Constant 2

Scan Speed 1/4°/min Chart Speed 1/4°/min

Slit 1°-0.5°-1°

Remarks Rotating s'ple

Date 11-13-75 Operator RJ. Minich

Chief
Industrial Hygiene Section

December 16, 1976

Industrial Hygienist
Industrial Hygiene Section

Visit to Walter McCrone Associates for the retrieval of talc analytical data.

On December 6, 1976 a visit was made to Walter McCrone Associates for the purpose of discussing with Ian Stewart the procedures used for analysing our talc samples and the retrieval of completed analytical data. McCrone is currently completing the analysis of bulk talc samples which were submitted to them by the Industrial Hygiene Section. A characterization and identification of all mineral constituents was requested. This analytical data will supplement our current research in assessing the mineral composition of various talc deposits within the United States.

Qualitative analysis performed by McCrone on these samples appears to complement and support our findings.

Ralph Zumwalde

File No.	36.4.1
Approval	<i>[Signature]</i>
Approval	<i>[Signature]</i>

R. Zumwalde/pj/room 540/P.O. Bldg/Cincinnati, Ohio 45202/December 15, 1976

Re No.	36.4
	ALL 4/16
	Opie

April 16, 1979

Walter G. McCrone
Walter G. McCrone Associates, Inc.
2820 South Michigan Avenue
Chicago, Illinois 60616

Dear Mr. McCrone:

For your information, I have attached the description of most of the 100 Talc samples you analyzed under Contract No. CDC 210-75-0063. As you may remember, I sent a general listing of the samples' origin to you about a year ago. Sample #'s 122 & 123 are from inactive mines in California and Sample #125 is from an inactive mine in Georgia. Sample #124 is a primary crusher sample from the American Talc Co. in Alpine, Alabama. The talc, however, came from the Willow Creek Mine in Alder, Montana (as did #034, 037, 108 & 109).

If you have any questions, please call me at (513) 684-3255.

Sincerely yours,

Howard R. Ludwig
Industrial Hygiene Engineer
Industrial Hygiene Section
Industry-wide Studies Branch
Division of Surveillance, Hazard
Evaluations, and Field Studies

1 Enclosure

HLUDWIG:pj:RM. 8415:FOB:Cincinnati, Ohio:4-26-79

QE-CPC00004070

NIOSH Results of Talc Samples from "Analysis of Talc by X-Ray Diffraction and Polarized Light Microscopy"
PB84190651, May 1977

DSHE FS Sample #	Company and Sample Designation	Source of Sample	Particle Size	anthophyllite	chrysotile	talc % low	talc % high	tremolite-actinolite
1	Gouverneur Talc Company Nyal 300	GTC	2.97	12		40	55	30 (3% fibers)
2	Gouverneur Talc Company Nyal 400	GTC	1.64	8		30	45	45 (<1% fibers)
3	Gouverneur Talc Company 5X	GTC	1.87	13		38	50	35 (<2% fibers)
4	Gouverneur Talc Company 325	GTC	5.48	11-23		19	32	45 (~5% fibers)
5	Gouverneur Talc Company X	GTC	5.11	8		20		57 (1% fibers)
6	Gouverneur Talc Company FT	GTC	6.00	5		41		33 (25 % fibers)
7	Gouverneur Talc Company 3X	GTC	4.95	15		5		59 (10% fibers)
9	Johnson & Johnson, Vermont Product Talc (98% Pure)	J & J	11.30			98	99	<0.1
34	Hitchcock Talc Company, Murphy, NC, Product Talc	Harvard	6.37			75	87	<0.1m
35	Windsor Minerals, Gassets "37", July 29, 1975 (Vermont)	Harvard	28.90			45	55	
36	Windsor Minerals, West Windsor Mineral Ray Grind Composite, Vermont	Harvard	3.21			60	70	
37	Windsor Minerals, Ludlow "36", July 29-30, 1975	Harvard	16.20			48	59	
38	Windsor Minerals, Gassets "36", July 28-30, 1975	Harvard	22.40			69	76	
39	Vermont Talc Company - Bagging Bulk Sample, 7/16/75, 2nd Shift Vermont	Harvard	4.50			50	55	
40	Vermont Talc Company - Bagging Bulk Sample, vertical XXXD 9/17/75, 1st Shift Vermont	Harvard	6.15			53	61	
41	Southern Talc Co. (Cohutta Mill) Chatsworth, Ga. Product (Powder) Sample Mine I.D. 04-00493	MESA	6.00	0?		50	60	6.5 (~2% fibers)
42	Packer Station #3, Vanderbilt Talc, Mill #1 Gouverneur, N.Y. 1st Shift 11/4/75 (FT)	NIOSH Survey	1.47	10		31	36	40 (1-2% fibers)
43	Packer Station #2, Vanderbilt Talc, Mill #1 Gouverneur, N.Y. Nyal 100 1st Shift 11/4/75	NIOSH Survey	7.12	4.5		43	48	~37 (<0.1% fibers)
44	Ceramitalc HDT, Vanderbilt Talc Co. 1st Shift 11/4/75 (NY)	NIOSH Survey	5.62	5.5		30	35	49 (<0.1% fibers)
45	Bagging Station #3, Vanderbilt Talc Co., Mill #1, Gouverneur, N.Y. 11/4/75 (Nyal 200)	NIOSH Survey	6.15	8		33	38	43 (1-2% fibers)
46	Hitchcock Corp. #5 Mine ID# 3100222	MESA	8.20			94	97.5	0.1-0.5m
47	Hitchcock Corp. #3 Mine ID# 3100683	MESA	7.60			93	95	
18	Wray Mine & Mill, Int. Minerals and Chemicals ID# 31-0008 (VT)	MESA	6.85		4-5	1	2	5-7m
49	Bagging Station #3, Vanderbilt Talc Co., Mill #1, 2nd Shift, Gouverneur, N.Y. 11/3/75 (Nyal 300)	NIOSH Survey	6.80	10		30	40	38 (3% fibers)

NIOSH Results of Talc Samples from "Analysis of Talc by X-Ray Diffraction and Polarized Light Microscopy"
PB84190651, May 1977

DSHE FS Sample #	Company and Sample Designation	Source of Sample	Particle Size	anthophyllite	chrysotile	talc % low	talc % high	tremolite-actinolite
50	Bagging Station #3, Vanderbilt Talc Co., Mill #1, 2nd Shift, Gouverneur, N.Y. 11/3/75 (Nytal 200)	NIOSH Survey	5.24	15		14		59 (<1% fibers)
51	Southern Talc Co., Souther Mill Product Talc sample, Chatsworth, Ga. Rock Cliff Mine. ID# 0900492. 9/3/74	MESA	14.50			55		5 (<1% fibers)
52	Southern Talc Co., Souther Mill, Chatsworth, Ga. ore from Rock Cliff Mine, ID# 0900492.	MESA	7.73	9		35	50	8 (<0.01% fibers)
53	Southern Talc Co., Souther Mill, Chatsworth, Ga. ore from Judge Hole Mine. ID# 0900492.	MESA	5.73	12?		55	84	4.5 (5% fibers)
54	Winterboro Mine and Mill. American Talc Co., Alpine, Ala. Willowcreek Mine, Ore from Montana. ID# 01-00433 9/5/74	MESA	17.50			90		
55	Thompson-Weinman Co., Cartersville Plant, Cartersville, GA., ore from Brady Mine. ID# 09-00224	MESA	17.00			5		
56	Cohutta Mill, Southern Talc Co. Chatsworth, GA. 9/3/74, Ore From Ernest mine ID# 09-00493	MESA	24.80	0?m		25	45	8
57	American Talc Co., Alpine, Ga. Winterboro Mine & Mill, 9/5/75, ID# 01-00433. Final prod. Ore from Montana	MESA	6.14			99		
58	Pioneer Talc Co., Garren Pit Prod. #6, Allamore, Hudspeth Co., Texas ID# 41-00869	MESA	3.22			85	92	
59	Pioneer Talc Co., Apache Pit Product, #4, Texas ID# 41-00869	MESA	5.80			82	87	
60	Pioneer Talc Co., Texacola Pit Product, #4. Texas ID# 41-00869	MESA	15.20			92	95	<0.2m
61	Southern Clay Products, #2, Bottom Product, Allamore, Hudspeth Co., Texas #18	MESA	11.00			88	92	
62	Milwhite Co. Inc., Van Horn, Cumberson Co., Texas ID# 41-01527, Ground Calcined Product	MESA	5.70			77	88	
63	Milwhite Co. Inc., #11 Van Horn, Cumberson Co., Texas Eagle Hat Pit Crude ID# 41-01527	MESA	6.90			70	75	
64	Pioneer Talc Co., Allamore Hudspeth Co, Texas, #8 Garren Ceramic ID# 41-00869	MESA	5.81			84	91	
65	Milwhite Co. Inc., Van Horn, Cumberson Co., Texas Tumble Down Pit Product ID# 41-01527	MESA	4.94			76	87	
66	Emtal 42, Eastern Magnesia Talc Co. Vermont 8/28/75	Harvard	5.85			43	67	

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PB84190651, May 1977

DSHE FS Sampl e #	Company and Sample Designation	Source of Sample	Particle Size	anthophy llite	chryso tile	talc % low	talc % high	tremolite-actinolite
67	Pfizer (Barretts Mill) Montana minus 12 microns	NIOSH Survey	3.73			96	98	
68	Pfizer (Barretts Mill) Montana minus 325 mesh	NIOSH Survey	6.91			97	98	
69	Pfizer (Barretts Mill) Montana minus 20 microns	NIOSH Survey	4.88			97		
70	Cyprus (Three Forks Mill) Montana Minus 325 mesh	NIOSH Survey	8.64			90	92	
71	Cyprus (Three Forks Mill) Montana Mistron Vapor minus 10 microns	NIOSH Survey	2.61			96	98	
72	Cyprus (Three Forks Mill) Montana Floor Sweepings (Bagging Area)	NIOSH Survey	5.51			95	97	
73	Cyprus (Yellowstone Mine) Montana Drill Hole	NIOSH Survey	4.30			10		
74	Southern Talc (Southern Mill) Ga. 98% Passing 200 mesh	NIOSH Survey	3.94			72	80	5 (~5% fibers)
75	Southern Talc (Southern Mill) Ga. 99% Passing 325 mesh (#1767)	NIOSH Survey	9.30			70	82	4 (10 % fibers)
76	Southern Talc (Cohutta Mill) Ga. 95% Passing 325 mesh	NIOSH Survey	9.95			27	35	5 (2% fibers)
77	Southern Talc (Cohutta Mill) Ga. 25% Passing 200 mesh	NIOSH Survey	16.80			42	58	6
78	Milwhite Talc Co. Inc. (Tex.) Finished CM4 Product	NIOSH Survey	4.45			54	70	
79	Westix Talc Co. (TDM) Dark - (Milwhite Inc.) Texas	NIOSH Survey	15.60			85	95	
80	Milwhite Talc Co. (Tex) Marshel mix - 92-200 mesh	NIOSH Survey	5.30			67	76	
81	Westex Talc Co (Milwhite Inc.) (Tex) White mine 93-200 mesh	NIOSH Survey	6.41			65	80	
82	Southern Clay Products - Texas Garren Mine #2	NIOSH Survey				70	85	
83	Texas Talc Co. - TP1 (Tex.) Mine (Texas Pacific)	NIOSH Survey				78	83	
84	Texas Talc Co. Texas David Mine	NIOSH Survey				75	86	
85	Texas Talc Co. TP2 Mine, Texas	NIOSH Survey	14.60			75	87	
86	Cyprus Industrial Minerals Co. Loyce Fine Mine (Texas)	NIOSH Survey				65	83	
87	Pioneer Talc Co. Inc. (Tex.) Texola Mine	NIOSH Survey	8.70			85	93	25 (80 % fibers)
88	Pioneer Talc Co. Inc. (Tex.) Dees Mine	NIOSH Survey				68	90	
89	Milwhite Co. Inc. Bryant Soapstone Mine Arkansas	NIOSH Survey	9.60			33	57	

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PB84190651, May 1977

DSHE FS Sampl e #	Company and Sample Designation	Source of Sample	Particle Size	anthophy llite	chryso tile	talc % low	talc % high	tremolite-actinolite
90	Laws Mill (California) Clay Sample, kaolin + 1% glue	NIOSH Survey	1.34			5	10	
91	Laws Mill Micro talc from White Eagle Mine (California) Standard Industrial Minerals	NIOSH Survey	8.40			88	93	
92	Laws Mill (California) Desert Talc, Standard Industrial Material	NIOSH Survey				77	90	7.5
93	Laws Mill (California) Holiday Talc, Standard Industrial Material	NIOSH Survey				89	95	
94	Keeler T-076 Cyprus California, Tecopa Mine (100% Panamint)	NIOSH Survey	4.10			67	90	
95	Keeler HGO 55 Blend, Cyprus, California, 4 panamint, 3 oasis, 3 white eagle	NIOSH Survey	3.20			59	88	
96	Keeler Sierra Cloud Blend (Cyprus, California) 4 panamint, 1 white eagle	NIOSH Survey	4.13			69	90	
97	Keeler MSC Mistron Cyprus, California, m Panamint + 0.5% stearite	NIOSH Survey	3.44			72	92	
98	Keeler Sierralite, Cyprus, California, Talc City (Frisco)	NIOSH Survey	6.05			1		
99	Keeler Glacier 200 Cyprus, California, Talc City (tailings)	NIOSH Survey	4.33			2	4	
100	Keeler USP Cyprus, California, Oasis Mine (100%)	NIOSH Survey	8.38			94	96	<1
101	Keeler Cyprus, California, White eagle Screenings	NIOSH Survey				80	94	
102	Keeler Cyprus, California, Suggar Mine	NIOSH Survey				5	10	
103	Pfizer (Cal) Talcron CP 44-31 Eclipse, Bonnie, Mongolian	NIOSH Survey	7.05			70	93	<0.1
104	Pfizer (Cal) Cercron CF 96-38 Eclipse, Acme, Mongolian	NIOSH Survey	4.95			55	77	10
105	Pfizer Cercron DF 96-36 (California) White eagle, Mongolian, Apex	NIOSH Survey	4.66			52	81	10
106	Cyprus (LA) Furnace Creek (California) Tecopa (100 % Panamint)	NIOSH Survey	6.07			82	93	
107	Cyprus LA) Vanderbilt crude Soft LB (California)	NIOSH Survey				78	86	
108	American Talc (Alabama) 84 Color Dark 200 Mesh ore from Willow Creek Mine in Montana	NIOSH Survey	6.67			82	84	
109	American Talc (Alabama) 92 Color Dark 99% 400 Mesh ore from Willow Creek Mine in Montana	NIOSH Survey	4.70			93	98	
110	Ludlow Gassetts Mill (Vermont) Windsor Minerals, Product		2.30			45	55	
111	West Windsor Mill (Vermont) Windsor Minerals, Product		8.80			97	98	

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DSHE FS Sample #	Company and Sample Designation	Source of Sample	Particle Size	anthophyllite	chrysotile	talc % low	talc % high	tremolite-actinolite
112	West Windsor Mill (Vermont) Hammondsville Mine, Windsor Minerals		3.33			45	75	
113	Vermont Talc Company (Vermont) Chester Mill, Vertal 77		3.52			46	57	
114	Vermont Composite Sample, Moretown, Vermont	Dr. Froines	6.85			66	87	
115	R.T. Vanderbilt (NY) Mouldene	RTV	4.17	11-18		29	71	44
116	Resubmittal of #071		1.55			90	94	
117	Resubmittal of #089		11.20			55	76	
118	Resubmittal of #098		4.34			2	3	
119	R.T. Vanderbilt (NY) Fibertal 1	RTV	3.58	7		72	73	13.5
120	R.T. Vanderbilt (NY) Fibertal 6	RTV	4.23	10.5		32	68	37
121	R.T. Vanderbilt (NY) Fibertal 12	RTV	4.80	11.5-16		31	69	45
122	California Mine no longer in operation	MESA	8.85			90	93	0.1 (5% fibers)
123	Western Talc (California) (R.T. Vanderbilt) MESA ID# 0401138	MESA	5.60			93	95	0.01 (50% fibers)
124	American Talc Co., Alpine, Ala. winterboro Mine & Mill Primary Crusher, Sample 9/5/74, ID# 01-00433 Ore from Willow Creek Mine in Alder, Montana	MESA	8.90			77	85	
125	Georgia Mine no longer in operation	MESA	9.15			1		