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New Brunswick, NJ 08901
Tel: (732) 545-4717 Fax: (732) 545-4579
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Michael L. Lazarus
Of Counsel
mlazarus@hoaglandlongo.com



July 3, 2013

Leah Kagan, Esq.
Levy, Phillips & Konigsberg, LLP
800 Third Avenue, 11th Floor
New York, NY 10022
BY EMAIL (HARD COPY TO FOLLOW)

Re: Kaenzig Sr, Steven (NJ) vs. Whittaker Clark & Daniels
Our File No.: 5965882 - MLL
Docket No.: MID-L-4873-12

Dear Ms. Kagan:

Enclosed please find documents requested by you after my review of 4 more banker boxes removed from archive and sent to me. My apologies for the delay due to disability. I have received the expert reports of Dr. Moline and Dr. Fitzgerald and doubt very much that anything contained in these documents will change any of their opinions.

Feel free to contact me to discuss and be assured there is nothing here that required attention over the holiday weekend.

Very truly yours,


MICHAEL L. LAZARUS

MLL:mme
Enclosures
cc: All Defense Counsel of Record

10-18-73

Telephone Call Lucy McCrone

NO CHRYSOTILE IN ANY SAMPLE

Sample

1615 A NO TREMOLITE

141 B LESS THAN 0.1% TREMOLITE, NOT FIB.

128 C NO

2450 D less than 0.5% " " "

4608 E " " " " "

4473 F " " 0.1% " " "

4615 X G 6-8% TREMOLITE (CONFIRMED BY X-RAY) ^{FIBROUS}

150 H NO

4767 X I less than 1.0%, some fibrous

4720 ~~J~~ J NO

Date 3-17-76

LAB REPORT NO. 1112

ATTN: File

Product Talc for Asbestos

Remarks Analyzed at McCrone

LABORATORY REPORT

319L 41 141 Talc, Lot 2-5-6
X-Ray NEW PRODUCTION MAKE 4615
MADE IN MTA

319L 50 2450 Talc, Lot 111775
X-Ray + TEN 7350
11-12-7.

319L 73 4473 Talc, Lot 18520

X-Ray - TEN
319L 15A 4615 Talc, Lot 751715
X-Ray

319L 15B 1615 Talc, Lot 262715
X-Ray + TEN

Also sent 4-1-76 Ray Thomas

319L 28 128 Talc Lot 11-13-1
X-RAY + TEN

319L 41N 141 Talc lot 3-17-18
X-RAY + TEN all Montana



walter c. mcrone associates, inc.

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

19 October 1973

Mr. Ray R. Krammes
Manager - Technical Services
Whittaker, Clark and Daniels, Inc.
1000 Coolidge Street
South Plainfield, New Jersey 07080

Dear Ray:

Attached are the individual analysis sheets for your twelve talc samples, A through L. All but one were analyzed by light microscopy only. Sample G was also analyzed by x-ray diffraction to confirm estimates of the quantity of tremolite present.

To summarize the results: no chrysotile asbestos was detected in any sample; appreciable amounts of tremolite (5-10%) were found in Samples G and K, lesser amounts (~1-2%) in Samples I and L and traces in Samples B, D, E and F. Part of the tremolite would have to be called "fibrous" in Samples G, I, K and L; in the other four samples it was all equant.

It was a pleasure to see you again yesterday and to meet your colleagues. If you have any questions about these results, please contact Ian Stewart or me. We will hold the samples until you advise us that they can be discarded.

Sincerely yours,

Lucy B. McCrone
Senior Research Microscopist

LBM:bb
Ref: MA 3591
enclosures

10/2/11

Samples for Walter McCrone Associates

A----#1615, from lot #7470, location 209
B----#141, from lot #7283, location 116
C----#128, from lot #7439, location 216
D----#2450, from lot #6816, location 112
E----#4608, from lot #7333, location 216
F----#4473, from lot #7554, location 511
G----#4615, from lot #6040, location 210
H----#150, from lot #7596, location 410
I----#4767(#767T), from lot #233, location 300
J----#4720(#2620), from sample sent by Pioneer Talc Co.
K----#3371, from sample submitted by Mr. Cooper
L----#57, from sample submitted by Mr. Cooper

Anne DePrimio

REGISTERED MAIL

cc: FFR JCW
GJI
JHB

ASBESTOS

ASBESTOS CORPORATION LIMITED

Head Office 1940 SUN LIFE BUILDING - 1155 METCALFE STREET, MONTREAL, QUEBEC, CANADA, H3B 2X6

REG. CABLE ADDRESS: "AMASCOLIM" - TELEX 05-25582

October 22, 1975

Whittaker, Clark and Daniels Inc.
1000 Coolidge St.,
South Plainfield, N.J. 07080
U.S.A.

ATTENTION: Mr. C.U. Driscoll
President

Dear Sirs:

We wish to hereby confirm our cable dated October 20th, 1975, a copy of which is enclosed, advising our decision to terminate our representative's memorandum of agreement with you, and confirm that as our cable advice was dated October 20th, 1975 and taking the required 90 days' notice into consideration, our agreement, therefore terminates January 20th, 1976.

This decision is the result of a careful study of our present and future representational needs, bearing in mind particularly the reduced fibre availability brought about by the loss of our King-Beaver mill and our need in the face of rising costs to reduce our selling expenses and concentrate on sales to house accounts.

As your account has been relatively inactive over the past few years, I am sure you understand our position and will be mutually relieved at our decision. I wish to take this opportunity to thank you for the efforts you have expended on our behalf over the years, and wish you also the best of success for the future.

Sincerely yours,

ASBESTOS CORPORATION LTD.

A.S. Johnson
A.S. Johnson
Vice President - Sales

ASJ/cp
Encl.



CF-BALL-12

October 9, 1987

Zucker, Facher & Zucker
Counsellors At Law
David C. Bandush, Esq.
100 Executive Drive
West Orange, NJ 07052

RE: Donald Macaulay v. Celotex Corp., et als.

Dear David:

Enclosed is a copy of draft answers to standard asbestos
interrogatories to be filed in above matter, duly signed.

Also enclosed is a copy of our Product Bulletin you have
requested.

Thank you for your efforts in this matter.

Very truly yours,

WHITTAKER, CLARK & DANIELS, INC.

George J. Bippold
Executive Vice President

GJB:lab
Enclosures

bcc; Mike Argyelan



CF-BALL-14

ZUCKER, FACHER AND ZUCKER

A PROFESSIONAL CORPORATION

COUNSELLORS AT LAW

100 EXECUTIVE DRIVE

WEST ORANGE, NEW JERSEY 07052

SAUL J. ZUCKER (1901-1984)
MORRIS R. ZUCKER
IRWIN L. FACHER
ROGER C. WILSON
PAUL J. SODERMAN
DAVID C. BENDUSH

(201) 736-0444

TELECOPIER (201) 736-4011

September 29, 1987

Mr. Mike Argyelan
& Whittaker, Clark & Daniels, Inc.
1000 Coolidge Avenue
South Plainfield, NJ 07080

Re: Macaulay v. Celotex Corp. et als.

Dear Mr. Argyelan:

Enclosed please find copy of draft answers to standard asbestos interrogatories to be filed on behalf of Whittaker, Clark & Daniels in the above matter. I would ask that you review these answers as carefully as possible, particularly those regarding whether or not anyone in your Company has ever testified concerning asbestos, and whether or not you know of any other company to which Whittaker, Clark & Daniels might have sold asbestos in the past.

I would also ask that you provide us with another copy of the "Product Bulletin", referred to in answer B8, which was annexed to the interrogatories filed on your behalf in early 1983 in the case of Sylvester v. Whittaker, Clark & Daniels.

I must emphasize the necessity for a timely response regarding these interrogatories because of the potential for a trial of this matter on October 13, 1987. In addition, I believe that the sooner I am able to forward these answers to plaintiffs' counsel, the sooner and more likely we are to be able to get out of this case before trial as I mentioned to you in my letter of last week.

Please also notice that I have enclosed a certification page at the back of the answers to interrogatories which has been left blank intentionally so that you may determine who is most qualified, or you most want to answer these interrogatories. Simply have your secretary type the name below the signature line and have the appropriate person sign on the line. If you have any questions or need any assistance, please do not hesitate to call me.

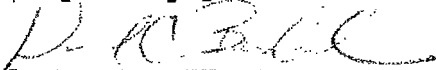
ZUCKER, FACHER AND ZUCKER

September 29, 1987 ... Page No. 2
Re: Macaulay v. Celotex Corp., et als.

I have also enclosed several sheets of yellow paper. If you find that any of the answers are not completely accurate, or need to be changed or modified in any way, please make the necessary corrections on the yellow paper and return same to us, together with the answers to interrogatories.

As always, I will keep in touch and advise you of any and all pertinent developments as they occur.

Very truly yours,



DAVID C. BENDUSH
For the Firm

DCB:mm
Enc.

ZUCKER, FACHER AND ZUCKER

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COUNSELLORS AT LAW

100 EXECUTIVE DRIVE

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DAVID C. BENDUSH

(201) 736-0444

TELECOPIER (201) 736-4011

September 28, 1987

Garruto, Galex & Cantor, Esqs.

Att: Jane B. Cantor, Esq.

P. O. Box 308

East Brunswick, NJ 08816-0308

Re: Donald Macaulay v. Celotex Corp., et als.

Dear Ms. Cantor:

The defendant, Whittaker, Clark & Daniels, hereby provides answers to the standard set of defendant interrogatories. This defendant does not answer Group A since no jurisdiction defense is being raised by it. The following constitutes the answers to Interrogatories.

B1. George Dippold, Vice President Whittaker, Clark & Daniels, South Plainfield, New Jersey.

(A) George Dippold, Vice President of Whittaker, Clark & Daniels, South Plainfield, New Jersey; Clarence Clark, 80 Celestial Way, Juno Beach, Florida (former employee of Whittaker, Clark & Daniels).

B2. Marketing and Distribution of functional pigments and colors.

B3. 1890.

B4(a) Yes. (b1) Whittaker, Clark & Daniels distributed asbestos products for Asbestos Corporation Limited of Thetford Mines, Quebec, Canada. (2) The relationship began sometime during the 1930s, the exact date of which is unknown and there are no records available to establish the exact time when the relationship began; it terminated sometime in the late 1960s or early 1970s, again with no records available to be more specific as to the date of termination. (3 and 4) the following are a list of the officers and directors of the corporation: Fred Roesch, chairman; Dick Light, president; George Dippold, executive vice president; Bill Hobson, vice president; Clarence Clark and Clarence Driscoll, directors; Mike Argyelan, secretary-treasurer; Florian J. Hailer, Jr., vice president; Julia R. Pabst, assistant secretary.

ZUCKER, FACHER AND ZUCKER

September 28, 1987 ... Page No.2

Re: Donald Macaulay v. Celotex Corp., et als.

B5. None.

B6. No.

B7. No.

B8. Yes, see Product Bulletin annexed hereto.

B9. No.

B10. No.

B11. Yes.

B12. Yes.

B13. Yes, the minutes are in the custody of Mr. Mike Argyelan at the company headquarters in South Plainfield, New Jersey.

B14. Yes, Whittaker, Clark & Daniels has distributed asbestos.

B15. Whittaker, Clark & Daniels did not use asbestos in any of its products but merely sold it in the containers in which it was received from Asbestos Corporation Limited.

B16. No.

B17. N/A

B18. (a) This defendant believes that it commenced distributing asbestos sometime during the 1930s.

(b) Sometime during the late 1960s or early 1970s.

(c) Generally throughout New Jersey, but there are no records available to accurately show the locations where the product was sold.

B19. No.

(a,b,c and d not applicable).

B20. N/A

B21. No.

B22. Yes. a limited one; (a) in the laboratory; (b) see attached list; (c) for general use; (d) not a formal one.

ZUCKER, FACHER AND ZUCKER

September 28, 1987 ... Page No. 3

Re: Donald Macaulay v. Celotex Corp., et als.

B23. No.

B24. No.

B25. No.

B26. The only awareness was an academic awareness which was gained by reading newspapers, magazines and the like.

B27. No.

B28. No.

B29. No.

B30. N/A

B31. N/A

B32. N/A

B33. No.

B34. No.

B35. No.

B36. This defendant generally became aware of the problems dealing with asbestos through the media and other readings during the late 1960s and early 1970s.

B37. This defendant has no information with respect to causal relationship between asbestos and disease or illness.

B38. N/A

B39. Not to the best of our knowledge.

B40. No.

B41. N/A

B42. N/A

B43. All persons named in these answers to interrogatories and any other party's interrogatory answers.

B44. To be supplied.

ZUCKER, FACHER AND ZUCKER

September 28, 1987 ... Page No. 4

Re: Donald Macaulay v. Celotex Corp., et als.

- B453. This defendant has no independent knowledge, but shall rely upon claims asserted by other defendants involved in this litigation.
- B46. This defendant has no such knowledge, but shall rely upon proofs adduced by other parties to this litigation.
- B47. This defendant has no such knowledge, but shall rely upon proofs adduced by other parties to this litigation.
- B48. No.
- B49. This defendant does contend that the plaintiffs should have been aware of the dangers of working with asbestos if such dangers existed. The information should have been imparted to them by their employers or by those who manufactured the asbestos products.
- B50. This defendant has no such knowledge, except to state that asbestos dust has been known to cause certain problems and that the use of respirators have been available to all people working with the product.
- C1. No.
(a) As stated above, Whittaker, Clark & Daniels carried asbestos for resale to other businesses beginning sometime in the 1930s and terminating in the late 1960s or early 1970s.
(b) Asbestos Corporation Limited, Thetford Mines, Quebec;
(c) The asbestos was only sold to other companies, and was not utilized by Whittaker, Clark & Daniels.
(d) Do not know.
- C2. Yes.
(a) South Kearny, New Jersey, only for the distribution of asbestos fibers;
(b) See answer to C1a;
(c) This defendant does not now, nor has it ever, produced any asbestos products.
- C3. This question cannot be answered by the defendant since this defendant only distributed the raw asbestos fiber to other companies.
- C4. N/A
- C5. N/A
- C6. Inasmuch as this defendant does not have any records at the current time, this question cannot be answered definitively. However, Quigley Company has claimed that asbestos fibers were sold by Whittaker, Clark & Daniels to it and Quigley has not yet furnished Whittaker, Clark & Daniels with any records as to the amount sold and when.

ZUCKER, FACHER AND ZUCKER

September 28, 1987 ... Page No. 5

Re: Donald Macaulay v. Celotex Corp., et als.

C7. See answer to C6.

C8. No.

C9. Yes.

(a) Raw asbestos;

(b) Essentially because it was not a large part of our business and because there were increasing reports that the use of asbestos could be dangerous;

(c) The late 1960s or early 1970s.

C18. No.

C19. No.

C20. No.

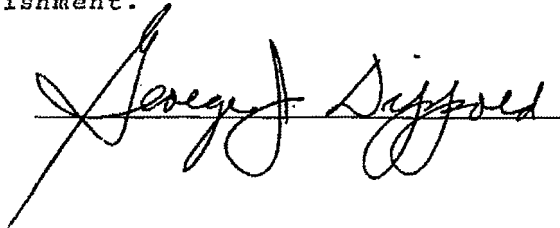
C21. No.

ZUCKER, FACHER AND ZUCKER

September 28, 1987 ... Page No. 6

Re: Donald Macaulay v. Celotex Corp., et als.

I certify that the foregoing statements made by me are true.
I am aware that if any of the foregoing statements made by me are
wilfully false, I am subject to punishment.

A handwritten signature in cursive script, reading "Joseph J. Sifford", written over a horizontal line.



CF-BALL-13

18990

CODE

T21H-5810

Card #1

PURCHASE RECORD

WT. PER GAL.

MATERIAL

~~Canadian Std. 7TS Asbestos 1400~~ ~~North 1-2000~~ Mr. Staubing
 LAKE ASBESTOS LAQ-17-T-4 17-T-4

DATE ORDERED	ORDER NUMBER	SUPPLIER	QUANTITY ORDERED	PRICE	R/S NO.	FREIGHT	QUANTITY RECEIVED	DATE RECEIVED	REMARKS
12/17/70	H7571	Whittaker-Clark & Daniels 100 Church Street New York, New York 10007 1910	1000#	.0434#	7121	(2.50)	1000#	12/17/70	7/21.00350#
1/7/71	H2437	Whittaker-Clark	1000#	.0460#	9313	(2.10)	600#	4/2/71	PCA
4/29/71	H2722	"	600#	.0460#	9512	(3.50)	1000#	7/1/71	PCA - 4/29/71
5/22/71	H9053	"	1000#	.0460#	9512	(3.50)	1000#	7/23/71	PCA
7/15/71	H4686	"	2000	.046#	5-67	(7.50)	2000#	11/15/71	PCA
		D.H. LITTER CO. INC. 116 EAST 16TH ST. NEW YORK NY 10003 1973							7/7/71 W-C-D NO LONGER HANDLING ASBESTOS. WHEN NEEDED CONTACT THEM FOR ALTERNATE SOURCE
2/19/73	J3318	O.H. LITTER	2000#	94% 100% 34461	(16.77)	2000#	2/19/73	2/19/73	OK TO COMBINE W/TW 14-3316 FOR TON PRICE LITTER PICKED UP 1400# FROM PCA LEAVING ONLY 30# LEFT. MAY 6/1/73

DO NOT RE-ORDER WITHOUT CHECKING DR. BK

CODE T21H-3316

Card #1

PURCHASE RECORD

WT. PER GAL

MATERIAL #401 Asbestos Fibre Canadian Grade #7M

Worth 4-2060

DATE ORDERED	ORDER NUMBER	SUPPLIER	QUANTITY ORDERED	PRICE	R/S NO.	FREIGHT	QUANTITY RECEIVED	DATE RECEIVED	REMARKS
8/1/68	#5195	Whittaker-Clark & Daniels, Inc. 100 Church Street New York 7, New York 1968	700 #	.04435 #	9682 PA.	700 #	8/1/68	1/1/69	ANY 700 .04435 # .0391 w. # 1/1/69 .00307 #

CODE T21H-3316

Card # 2
PURCHASE RECORD

WT. PER GAL.

MATERIAL Asbestos Fiber Canadian Grade #7M-Cpde #401

Worth 4-2060

DATE ORDERED	ORDER NUMBER	SUPPLIER	QUANTITY ORDERED	PRICE	R/S NO.	FREIGHT	QUANTITY RECEIVED	DATE RECEIVED	REMARKS
		Whittaker-Clark & Daniels 1000 Coolidge Street South Plainfield, N.J. 07080							† Ton-.0423/lb. 5 Tons. .0398 can be combined
		1970							
7/2/70	H 6050		1000#	.0423	1000	(4.11)	1000#	7/2/70	1000#
4/12/70	H 6056		1000#	.0398	5566	(8.13)	2500#	4/12/70	1000#
7/24/70	H 6056		1000#	.0398	5668	(7.75)	3000#	7/24/70	1000#
7/6/70	H 6053		1000#	.0423	1000	(4.11)	3000#	7/6/70	1000#
5/3/71	4855A		1000#	.0495	8705	(3.75)	1200#	5/3/71	1000#
5/2/71	11371C		1000#	.0470	8766	(9.38)	2500#	5/2/71	1000#
6/4/71	11371C		1000#	.0470	9099	(2.25)	1000#	6/4/71	1000#
7/26/71	149053		1000#	.0470	9514	(3.75)	1000#	7/26/71	1000#
8/12/71	H 9201		600#	.0470	9725	(2.10)	600#	8/12/71	600#
10/5/71	H-9501		2,000#	.0470	10207	(7.00)	2,000#	10/5/71	2,000#
11/9/71	H 5686		2000	.047	5-68	(7.50)	2,000#	11/9/71	2,000#
		1972							
3/14/72	5-1114		2000	.047	51553	(8.00)	2000#	3/14/72	2000#
		1973							
		see next card referred to York insulation by W-C-D							

Delayed until 3/30
7/1/72 W-C-D NO LONGER HANDLING ASBESTOS. WHEN NEEDED, CONTACT THEM FOR ALTERNATE SOURCE

CODE T21R-3316

Card 3
PURCHASE RECORD

WT. PER GAL.

(LITTER - OK TO COMBINE W/ T21H 5810 FOR TON PRICE 7/1/73)

MATERIAL 7M-06 Asbestos

SEE BELOW FOR OTHER DESCRIPTION

(373-2212 Al Binger York)

DATE ORDERED	ORDER NUMBER	SUPPLIER	QUANTITY ORDERED	R/S	DATE RECEIVED	REMARKS
		York Insulation 6 Hoffman Place Hillside, N.J. 07205 1973		DH LITTER CO. INC. 14 E. 16TH ST. NEW YORK NY. 10003 DH LITTER		(referred to York by W-C-D) 1973 price \$105.00/ton fob Hillside
				LITTER = 7M4 AT 100 ⁰⁰ /TON FOB NEWARK (LAKE ASBESTOS LAQ 7M4)		LITTER 212-777-4410
1/24/73	J-3115	YORK INSULATION	2,000 ⁰⁰	105 ⁰⁰ /TON J428(20.00)	1/25/73	EARLY WK. 1/29 DEL. TO W SIDE / PCA
3/24/73	J-3556	D.H. LITTER	2,000 ⁰⁰	100 ⁰⁰ /TON J5088(16.77)	4/10/73	4/12 ⁰⁰ / PCA

DO NOT RE-ORDER WITHOUT CHECKING DR. GK

MM/SH 6/22/73

*Call on
Whittaker
for*

*Minerals
Colors
Pigments*

WHITTAKER



CF-BALL-10

WHITTAKER, Inc.
260 West Broadway, N.Y.

ALBATEX—Substitute for Zinc Oxide.
ALUMINUM SILICATE—Natural, High and Low Alumina.
ALUMINUM STEARATE—High, Medium and Low Gel.
ASBESTOS—Shorts, Fibre, Powdered.
ATOMITE—Natural Calcium Carbonate, Wet Ground.
AQUALINE BLUE
BARIIUM CARBONATE—Precipitated.
BARIIUM SULFATE—Natural, Precipitated.
BARIIUM STEARATE
BARYTES—Off Color, Prime White Water Floated.
BENTONITE—Volclay, KWK, High and Low Gel, Powdered, Granular.
BLACKS—Lamp, Mineral, Oxide.
BLANC FIXE—By-Product, Direct Process.
BLUE—Phthalocyanine, Ultramarine.
CALCITE—Powdered, Granular.
CALCIUM CARBONATE—Natural, Precipitated, Commercial, Technical, U.S.P.
CALCIUM HYDROXIDE—Powdered.
CALCIUM OXIDE
CALCIUM STEARATE
CALCIUM SULFATE—Anhydrous, Natural.
CHALK—Lump, Pellets, Prepared, Cliffstone, Whiting, Precipitated, U.S.P., French.
CLAYS—Colloidal, English, Domestic, Ball, Modeling, China.
CLIFFSTONE WHITING — Dry and Wet Ground.
COLORS—Natural Earth, Lo-Micron.
COSMETIC COLORS—Certified D & C, Lo-Micron.
CROCUS MARTIS—Venetian Red.
CHROMIUM OXIDE GREEN
CRAYONS—"Clover" Brand, Metal Workers.
CYCLONOX—Polishing Abrasive.
DENTAL PLASTER
DIATOMACEOUS EARTH—Natural: Powdered.
EARTH COLORS—Natural, Lo-Micron.
FELDSPAR—Powdered, Graded.
FIBROUS TALC—Powdered, Lo-Micron.
FILTER AIDS—Fullers Earth, Talc, Magnesia Carbonate, Pumice, Quartz.
FILTERING EARTHS—Clays, Fullers Earth.
FLINT—Powdered, Graded.
FLUORSPAR—Powdered, Graded.
FORMALDEHYDE DUST—Agricultural.
FOSSIL FLOUR—Infusorial Earth, Diatomaceous Earth, Kieselguhr.
FULLERS EARTH—Powdered, Granular.
FUSE FILLER—Pellets.
GRAPHITE—Powdered.
GROUND GLASS—Powdered, Graded.
GYPSUM—Terra Alba, Powdered.
HYDRATED LIME—Powdered, High Calcium.
HYDRO MAGMA—Base Material for 'Milk of Magnesia'.
INFUSORIAL EARTH—Natural, Powdered.
IRON OXIDE—Red, Black, Yellow.
KAOLIN—Washed, Colloidal, Air Floated, Lo-Micron, Lump, Powdered.
KIESELGUHR—Natural, Powdered.
LESAMITE—Controlled Particle Size Calcium Carbonate.

LIME—Powdered, Lump, Vienna.
LIMESTONE—Ground, Agricultural, Graded.
MAGNESIUM CARBONATE—Light, Heavy, U.S.P., Technical.
MAGNESIUM HYDROXIDE—Medical, Powdered, Paste.
MAGNESIUM OXIDE—Light, Heavy, U.S.P., Technical.
MAGNESIUM SILICATE—Lo-Micron, U.S.P., Ground, Fibrous.
MAGNESITE—Powdered.
MAGNESIUM STEARATE—Powdered.
MARBLE—Powdered, Granular.
MAGLITE M—Magnesium Oxide for Neoprene.
MICA—Water and Dry Ground, Scrap, Block, Sheet.
OCHRE—Domestic, French Type American.
OPTICAL ROUGE—White, Red.
PARIS WHITE—Powdered.
PHthalOCYANINE BLUE (Aqualine, Regaline).
PLASTER PARIS—Common, Gauging, Dental, Orthopedic, Pottery, Casting.
PUMICE STONE — "VALENCIA" ALL AMERICAN—Powdered, Granular, Lump.
PYROPHYLLITE—Powdered, Lump.
QUARTZ—Powdered, Graded.
RED OXIDE—Pure Copperas, Venetian, Spanish.
REGALINE BLUE—Resinated.
ROTTENSTONE—Powdered.
ROUGE—White, Red, Black, Green.
SERICITE—Powdered, Micaceous.
SIENNAS—Raw, Burnt.
SILEX—Powdered, Granular.
SILICA—Sand, Quartz, Amorphous, Diatomaceous.
SLATE—Gray, Powdered.
SOAPSTONE—Powdered, Granular, Blocks, Air Floated, Lo-Micron, Crayons.
SOLAR SHADE—Green House Shading.
STEARATES—Aluminum, Calcium, Magnesium, Zinc, Barium.
STEATITE—Powdered, Block, (Lava).
STEARIC ACID—Impalpable Powder, Flake, U. S. P.
TALC—All Grades: U.S.P., Powdered, Lo-Micron, Fibrous, Steatite.
TERRA ALBA—Domestic, English.
TERRAZZO STRIPS
THOMASSET D & C COLORS
TITANIUM DIOXIDE — Purified, Cosmetic Grade.
TRIPOLI—Powdered.
UMBERS—Raw, Burnt.
VENETIAN RED—Powdered.
VIENNA LIME—Powdered, Lump.
VOLCANIC ASH—Powdered.
VOLCLAY—Bentonite: High Gel, Crushed, Air Floated, Granular, KWK.
WHITING—Chalk, Commercial, Gilders, Limestone, Precipitated, Natural.
YELLOW OXIDE—Natural.
ZINC OXIDE—U. S. P.
ZINC STEARATE—U.S.P., Technical.

QUALITY IS OUR FIRST CONSIDERATION

• For over fifty years, Whittaker, Clark & Daniels, Inc., a dependable source for minerals, colors and chemicals, have rigidly adhered to their slogan "Quality is our first consideration". This, with good service and satisfied customers, has placed us in the high position we occupy today.

A list of industries and professions served by Whittaker minerals, colors and pigments would fill a large book. Suffice to say, this comprehensive experience with all industry, this diversification and perspective, adds an immeasurable amount to Whittaker's ability to please YOU. Here are some who rely on Whittaker's high uniform quality.

Agricultural	Electric Plating
Cosmetic	Paint
Drug	Lacquer
Rubber	Glass
Foundry	Ceramic
Steel	Paper
Soap	Roofing
Chemical	Food
Floricultural	Optical
Insecticide	Monument
Metalworking	Printing Ink
Dentistry	Jewelry
Orthopedic	Instrument
Art	Medical
Leather	Porcelain
Electrical	Shipbuilding
Textile	Welding
Plastic	Steel Fabricating
Furniture	Construction
	Brick



WHITTAKER, CERAMIC MATERIALS

Aluminum Oxide
Antimony Oxide
Barium Carbonate
Bentonite
China Clay
Bell Ball Clays
Feldspar
Flint
Fluorspar
Fullers Earth
Ground Glass
Lime
Magnesium Oxide
Magnesium Carbonate
Calcined Magnesite
Crude Magnesite
Mica
Plaster
Pumice
Pyrophyllite
Rottenstone
Rouge
Silica
Placing Sand
Stearates
Talc
Zinc Oxide
Chrome Green Oxide
Spanish Red Oxide
Red Iron Oxide

WHITTAKER, CLARK & DANIELS, INC.
260 West Broadway
New York 13, N. Y.

The Technical Service Department has prepared this small booklet on general information on ceramic products which are handled by Whittaker, Clark & Daniels for the information of their salesmen and sales agents. We feel that it may be of value to you in talking to customers and prospective customers for ceramic materials; that is, whiteware, glass and porcelain enameling manufacturers.

CERAMIC MATERIALS

(Whiteware, Glass and Porcelain Enameling)

ALUMINUM OXIDE - #607

This material is available in less than carload lots.

Aluminum Oxide is used to prevent pieces from sticking together during firing by electrical porcelain manufacturers and manufacturers of vitrified specialties. Steatite insulator manufacturers use Aluminum Oxide as a part of the body formula. Aluminum Oxide #607 will raise the softening or fusion point in the manufacture of crucible and specialized refractory materials

ANTIMONY OXIDE - #1616

Available in less carload and carload lots.

Antimony Oxide is used in glass as a decolorizer and refining material, and in porcelain enameling as an opacifier where it is generally incorporated in the frit. A new item in the W. C. & D. line and we do not have complete information available as to its complete use in ceramic manufacture. Salesmen should watch for potential customers.

BARIUM CARBONATE - #81

Available in less carload lots and carload lots.

Barium Carbonate #81 is a basic glaze ingredient used in practically all types of ceramic and glazed ware. It is used by glass companies to give special properties to glass and especially to optical glass. Manufacturers of heavy clay products such as bricks, drain tile, etc. use Barium Carbonate in small percentages to reduce the tendency of blooming. The amount used is approximately one-fourth of one per cent. This material is often used in talc bodies to widen the firing range, and is used as an auxiliary flux by whiteware manufacturers in body formulations.

BENTONITE - #49

Sold in less than carload lots and occasionally in carload lots.

Bentonite #49 is used to improve plasticity in art pottery, refractories, and heavy clay products. The amount used is generally under three per cent as Bentonite has a tendency to make casting difficult and also a tendency to throw off the fired color. Bentonite is an excellent suspending material used in minor percentages in formulations for glazes when required.

CHINA CLAY - #1353

Sold in carload and less than carload lots.

China clay is used in glass body formulations as a source of aluminum. #1353 is especially adaptable because of the small percentages of iron. Porcelain enamel formulators also use China Clay as a source of aluminum.

Manufacturers of whiteware, including art pottery, dinnerware, wall tile, use China Clay as a main body ingredient where the percentages used may go as high as twenty-five per cent. The average formulation use of China Clay in this type of ceramic manufacture averages about fifteen per cent. #1353 China Clay is recommended especially because of its fast casting characteristics and its excellent fired color.

Calcining tests show that #1353 China Clay has a better color at 1800°F. than any other Clay used in a similar manner, including English Clays.

We are having experimental work conducted by the Ceramic Laboratories at Rutgers University on this material, and because of our work along these lines, have a six-month exclusive contract to promote the sale of #1353 China Clay in the ceramic industry.

CHINA CLAY - #1431 and #1432

Sold in carload and less than carload lots.

China Clays #1431 and #1432 are used as a body ingredient in the formulations for art pottery, dinnerware and wall tile. It is used in a similar manner to the #1353 China Clay. The Ceramic Department of the University of Georgia are investigating the use of this Clay in all kinds of ceramic manufacture and will probably have some definite information on the use of China Clay #1431 and #1432 by the end of this summer. Whittaker, Clark & Daniels have had both good and bad reports on casting properties of these Clays.

CHINA CLAY - #41

Sold in less than carload lots.

China Clay #41 is used the same way as the previous China Clays and is the same as R. T. Vanderbilt's "Peerless" Clay.

#1353, #1431, #1432 and #41 China Clays are Georgia Kaolins.

CHINA CLAY, ENGLISH - #372

Sold in less than carload lots.

China Clay #372 is an English China Clay and is used in the same manner by ceramic manufacturers as are the domestic Clays but is preferred by some manufacturers because of the fired color of the material. Ceramic users buy English China Clay chiefly for vitrified ware.

"EPK FLORIDA" KAOLIN (CHINA CLAY) - #609

Sold in less than carload lots.

This Clay can only be handled by Whittaker, Clark & Daniels in less than carload shipments. It has much better plasticity than is exhibited by the previous described China Clays. This Clay is between a China Clay and a Ball Clay in respect to its plasticity characteristics and use.

BELL BALL CLAYS

Sold in carload and less than carload lots.

Hard and fast rules for the use of Bell Ball Clays cannot be established, but in general pulverized Clays are used where a dry mixing process exists. Pulverized Clays are also used for plants making casting bodies who blend directly, eliminating a filter press operation. Crude Clays are used generally where filter pressing is used; that is, wet processing.

Another type of Bell Ball Clay, a controlled dry Clay for silo storage, is used by some large producers due to lower handling and freight rate charges.

General characteristics of Bell Ball Clays can be classified as follows: Dark Ball Clay is the whitest burning; Dresden is the strongest; and the Dark or Universal tend to be the best for casting.

Bell Ball Clays are shipped as specified in six grades. Dark, Dresden and Gray are straight Clay as mined. Universal, Superior and Special are blends of the above clays. All six of these clays are available in crude, controlled-dried or pulverized form.

The Crude contains approximately 20% moisture. It is never shipped direct from the pits. The Controlled-Dried contains approximately 10-12% moisture which is guaranteed according to customer specification. The Pulverized, which is an air floated clay, contains only hygroscopic moisture.

Karblite Ball Clay is a specially processed, pulverized clay to have guaranteed low lignite.

BELL BALL CLAYS

There follows a general suggested list for the industrial uses of Bell Ball Clays.

Art Ware -----	Dark Special
Glaze -----	Dark, Karblite
Enamel Ware -----	Dark, Karblite
Chemical Porcelain -----	Dark Dresden
Heat Insulators -----	Universal Dresden Dark
Crucibles -----	Dresden
Dental Porcelain -----	Dark, Karblite
Saggers -----	Sagger
Kiln Furniture -----	Dark
Stilts, Pins, General Refractories -----	Special
Dinnerware -----	Dark Dresden Superior
Whiteware -----	Dark
Hotel China -----	Dark Dresden Superior
Wall Tile -----	Special Dark
Sanitary Ware -----	Dark Special
Electrical Porcelain -----	Universal Dresden Dark Superior
Steatite -----	Dresden Universal
Terra Cotta -----	Gray

FELDSPAR - #181 and #330

Sold in less than carload lots.

Feldspar #181 and #330 are used by glass companies and manufacturers of porcelain enamel as a source of aluminum. The manufacturers of art pottery, dinnerware and wall tile, use Feldspar as a flux.

#181 Feldspar is a 200 mesh material and is the standard generally used. However, where maximum fluxing is desired #330 Feldspar, which is a 325 mesh material, should be suggested.

Some competitive materials are Nepheline Syenite, which is sold in this area by the EPK Clay Co. of Metuchen, N.J., Multi-Flux, sold by the Foote Mineral Co. of Philadelphia, Pa., and Uni-Flux sold by the Great Lakes Carbon Co. These competitive materials tend to have shorter firing range, greater warpage and poorer color than does Feldspar. The users of Nepheline Syenite are particularly liable to have warpage trouble and we suggest the use of #330 Feldspar as our offering to a prospective customer who is in this position.

FLINT - See Silica

FLUORSPAR - #157

This material is sold in less than carload lots.

For porcelain enamel manufacture, Fluorspar #157 is a source of calcium fluoride. Fluorspar because of its calcium fluoride content is used in glazes for increased fluxing characteristics. Fluorspar #157 is used in glass formulations as an auxiliary flux.

FULLERS EARTH - #699

This material is sold in less than carload lots.

Fullers Earth is used as an absorbent around motors and pumps in practically all plants for good housekeeping purposes.

GROUND GLASS

#718 - Sold in less than carload lots.
#374 - Sold in truckload lots.

Ground Glass is used in refractory coatings, art pottery and novelties as an auxiliary, low temperature flux. Ground Glass is desired by a number of customers but is not guaranteed as to uniformity of chemical analysis. This type material is currently used by several of our customers manufacturing bodies for hobbyists, and refractory coatings for furnaces and boilers.

LIME - #101

This material is sold in less than carload lots.

In the manufacture of glass, Lime is used as a source of calcium, acting as a flux with the silica used in the formulation. Whittaker, Clark & Daniels have this material available only in less than carload lots.

MAGNESIUM OXIDE - #310
MAGNESIUM CARBONATE - #690

These materials are sold in less than carload lots.

These materials are used in porcelain enameling formulations and in steatite insulators to increase the Magnesium Oxide content of the body. Sometimes used in glazes as an added source of Magnesium Oxide.

CALCINED MAGNESITE - #222
CRUDE MAGNESITE - #1320

These materials are sold in less than carload lots.

Magnesites are used in glass formulations as a source of Magnesium Oxide and are used in refractory specialties and refractory coatings to improve resistance to heat shock.

MICA - #279

This material is sold in less than carload lots.

Mica #279 is occasionally used in casting difficult shapes. The Mica is dusted on the inside of the molds to improve the release of the pieces.

PLASTER - #122

This material is sold in less than carload lots.

Plaster is used by all art ware, dinnerware and novelty companies.

PUMICE

This material is sold in less than carload lots.

Glass companies who cut sometimes use Pumice. Specifications on mesh sizes vary. Pumice may be suspended by Bentonite in a slurry.

PYROPHYLLITE - #16 and #29

These materials are sold in less than carload lots.

Pyrophyllite is used in art pottery, wall tile and dinnerware formulations to control shrinkage. #16 has a better fired color than #29 but due to the small amount of Sericite in its analysis, it is sometimes found objectionable. Pyrophyllite #16 and #29 are used in refractory materials to improve the resistance to heat shock and also to control shrinkage factor. Pyrophyllite does not wet readily and is therefore difficult to use in a casting body. Pyrophyllite is the only ceramic material that expands with firing and thus it is used to counteract shrinkage of the other ingredients.

ROTTENSTONE - #120

This material is sold in less than carload lots.

Rottenstone is used by some glass companies to polish glass after cutting.

ROUGES - RED AND WHITE

Sold in less than carload lots.

These materials are used by plate glass and flat glass manufacturers for polishing.

SILICA - #213 and #219

This material is sold in less than carload lots.

Silica is used as a body ingredient in art ware, dinnerware, wall tile, floor tile, sanitary ware, etc. formulations. It is a body ingredient in this type of ceramic work and oftentimes is as much as 35% of the total formulation.

Silica #219 is finer than Silica #213 and is therefore somewhat more reactive. As a note of information, too much Silica in a ceramic formulation causes shivering and dunting. These are the opposite effects of crazing.

PLACING SAND (SILICA) - #284

Sold in less than carload lots.

This type of material is used in the bottom of saggars to prevent the ceramic ware from sticking. The general requirements are for a coarse sand of this type, and the material is used over and over.

STEARATES -
#906 Calcium Stearate
#1345 Calcium Stearate
#905 Magnesium Stearate
#904 Zinc Stearate

These materials are sold in less than carload lots.

Manufacturers of steatite insulators and ferro-magnetic cores use metallic soaps to improve the pressing properties of their product. The grade of Stearate used depends upon the individual customer's specifications.

TALC

Sold in carload lots and less than carload lots.

The ceramic industry as a whole consumes large quantities of Talc. The Talcs selected find their place because of their various chemical and physical properties.

Manufacturers of steatite insulators require Talcs of low iron, low lime and low aluminum content, and the Talc must have good dielectric properties. Whittaker, Clark & Daniels' Talcs #1439, #1729 and #1730 are excellent for these purposes. W. C. & D. Talcs #486, #1286 and #1211 are also widely used by steatite insulator manufacturers.

Ceramic heat insulators, refractory ceramics and kiln furniture require a Talc low in iron and low in lime, but with some aluminum content to give maximum resistance to heat shock. Whittaker, Clark & Daniels' Talcs #11, #481 and #486 are found most useful in this type of formulation.

Art pottery and dinnerware require Talcs that have good casting characteristics, and should have some calcium in the chemical analysis to give good fired color. Whittaker, Clark & Daniels' Talcs #463, #610, #783 and #786 are all excellent for this type of formulation. These Talcs are also suitable for wall tile formulations. Talcs as a whole increase the resistance to heat shock, improve the glaze fit, decrease the tendency to craze and improve the electrical properties of ceramic formulations.

The percentage of Talc used in ceramic formulations vary from 5% to 90%. In general, steatite insulators are made with approximately 80% Talc in their composition, wall tile formulations carry approximately 40% Talc, and dinnerware and art pottery ceramic items will contain approximately 15% Talc.

Several of the Talc items which are handled by Whittaker, Clark & Daniels are used outside of the previous recommendations. #5 Canadian Talc is used by some art pottery manufacturers but is not recommended for this purpose by Whittaker, Clark & Daniels

because the calcium content cannot be guaranteed. Our #13 Fibrous New York State Talc is not recommended by us for use in the ceramic industry because of the selling arrangement existing between the W.H. Loomis Talc Corp. and Donald Hagar. #160 Maryland Talc is used in sizable quantities for saggers where the iron content is not important.

WHITING (CHALK)

Sold in carload and less than carload lots.

Whitings are used as an added source of calcium and also as an auxiliary flux, and generally the customer has preferences as to the type of Whiting he will use. A large number of ceramic manufacturers still prefer English Chalk Whiting #62 because of its established reputation for purity. A dry ground Whiting such as W. C. & D. #629 is largely used as a domestic grade and has proven acceptable by many manufacturers.

ATOMITE #319 is used where fine particle size is most desirable.

Whiting is used in glazes as a flux and is particularly desirable in pinks. The specifications of purchase vary accordingly to the preferences of plant ceramic engineers.

ZINC OXIDE - #1429 and #956

Sold in less than carload lots.

Zinc Oxide is used in glass as an opacifying agent. It is a common ingredient in glazes, especially if a crystalline effect is desired. Zinc Oxide #1429 is used in ferrite magnetic cores.

CHROME GREEN OXIDE - #513

Sold in less than carload lots.

Chromium Oxide is used to give green ceramic colors and when combined with tin oxide to give pinks. Chromium Oxide is used in some refractory coatings to raise the melting point.

SPANISH RED OXIDE - #587

Sold in carload and less than carload lots.

This material is used by some ceramic manufacturers as a source of iron oxide. Spanish Red Oxide fires to soft yellow and brownish red colors.

RED IRON OXIDE - #2594

Sold in carload and less than carload lots.

The use of Pure Red Iron Oxide #2594 varies widely as it is mainly for color purposes. This material is also widely used in ferro-magnetic cores as a major body ingredient.

<u>Sample</u>	<u>No. of Fibers With R.I. Greater Than 1590</u>	<u>No. of Fibers With R.I. Less Than 1574</u>	<u>Status With Regard to Pro- posed FDA Method</u>
<u>Dr. John A. Reffner (U. of Conn.) for Avon Cont'd</u>			
Montana-I	0	5,844	Fails chrysotile Passes tremolite
Montana-II	13	9,281	Fails chrysotile Passes tremolite
Alabama	26	15,125	Fails chrysotile Passes tremolite
Vermont	41	165	Fails chrysotile Passes tremolite
No. Carolina	14	11,852	Fails chrysotile Passes tremolite

<u>Dr. Trygve Baak of United Sierra</u>			
Spiked	3,000	2,000	Fails
Italian	1,000	0	Passes
Montana-I	0	0	Passes
Montana-II	0	0	Passes
Alabama	0	0	Passes
Vermont	0	0	Passes
No. Carolina	500	0	Passes

<u>Richard E. Stevens of Ernest F. Fullam, Inc. for Whittaker C&D</u>			
Italian	8,250	1,350	Fails chrysotile & tremolite
Montana-I	18,000	450	Fails chrysotile & tremolite
Montana-II	29,250	5,200	Fails chrysotile & tremolite
Alabama	21,825	6,075	Fails chrysotile & tremolite
Vermont	3,225	675	Fails chrysotile & tremolite
No. Carolina	20,850	6,000	Fails chrysotile & tremolite

Spiked sample was not run.



CF-BALL-8

<u>Sample</u>	<u>No. of Fibers With R.I. Greater Than 1590</u>	<u>No. of Fibers With R.I. Less Than 1574</u>	<u>Status With Regard to Pro- posed FDA Method</u>
<u>Mrs. Lucy McCrone of McCrone Associates for Kolmar</u>			
Italian	53	0	Passes
Montana-I	0	0	Passes
Montana-II	0	0	Passes
Alabama	0	0	Passes
Vermont	0	0	Passes
*No. Carolina	0	0	Passes
Spiked Sample	488	16	Passes

*Sample noted to contain some fiber bundles which are rolled up talc plus some non-fibrous tremolite

The following participants examined their samples but were unable conscientiously to count particles with confidence, therefore, did not report numbers:

Miss Marie Jones for Dr. G. Cohen - Bristol-Myers Products Research Labs.
Mr. Salvatore DiBianca - The Mennen Company
Liberty Mutual Insurance Co., Research Center - for Kolmar Laboratories
Mr. John Facq - The Colgate Palmolive Company, Research Center

The table reveals strong inconsistency between results obtained by the different scientists applying the method to the same group of coded talc samples. This inconsistency is the result of problems encountered in the methodology.

1. The alpha refractive index of talc - one of the two indices exhibited by talc plates standing on edge - varies in value between 1.539 and 1.550¹. This in combination with item 2, below, may easily result in the mis-classification of such plates as "fibrous, less than 1.574" and therefore chrysotile.

Dr. Reffner of the University of Connecticut, in his report to Avon, admits that this factor is paramount - "counts for chrysotile are high since (talc) edges will often be mistaken for fibrous particles".

2. The immersion method for the determination of relative refractive index becomes unreliable when applied to extremely small (ca. 1 μ m) particles. This is due in part to the fact that particles around 1 μ m in width approach the limit of resolution of the human eye when both size and contrast are considered, especially when applying the Becke line technique prescribed. This will

2. cause eye fatigue and resulting errors. Thus, a fine talc shard or plate on edge may be easily mistaken for an asbestos fiber. This applies to both the chrysotile and amphibole portions of the test.
3. It is quite likely that chlorite - a mineral of varied composition commonly found in pharmaceutical grade talc - would be incorrectly identified as tremolite. Refractive indices for chlorite vary in the range 1.57-1.66².
4. The examination of a sample of one milligram dispersed on a single microscope slide presents the investigator with a preparation which is too dense for a petrographic study.
5. The method is laborious and time consuming. Dr. Reffner quotes an analysis time of about five hours per sample and at JOHNSON & JOHNSON the investigator (D. H. Hamer) estimated at least two or three hours.
6. Dr. Walter C. McCrone in an earlier letter to the FDA suggested that there were relatively few scientists in the country who could use the method effectively. Scientists at Bristol-Myers, The Mennen Company, Liberty Mutual and Colgate-Palmolive had great difficulty in following the method to conclusion.
7. The proposed FDA method implies that all fibrous particles in talc having optical properties similar to those of asbestos minerals are in fact asbestos. This is probably an unwarranted assumption.

REFERENCES:

1. Deer, W.A., Howie, R.A., and Zussman, J., Rock-Forming Minerals, Vol. 3, p. 121 (1962).
2. *ibid*, p. 131.

We have concluded that the method published in the Federal Register does not provide a truly reliable means for the detection of asbestos in talc. It results in both false-positive and false-negative findings. It is also tedious and may consume as much as one half day per sample.

The subcommittee urges that the Food and Drug Administration defer finalizing the proposed optical microscopic method and proceed into a Phase II program which would combine FDA and Industry in a strong effort to develop a truly reliable method for measuring chrysotile content in talc. We are confident that the detection and estimation of fibrous tremolite can also be done, if necessary, as a fringe benefit, at the same time.

We estimate that a satisfactory method will take at least six months to a year to develop. We suggest a close liaison between FDA and industry in this all-out effort with updating reviews to take place as frequently as necessary.

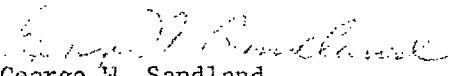
Review of Alternate Methods

The CTFA Talc Subcommittee has reviewed several methods to detect chrysotile and tremolite in talc, including modifications of the optical microscopic method. These are listed with comments.

1. Optical Microscopic Method - may be used with some modification. Possibly better selection of R.I. liquids and reduction of sample size per slide.
2. X-ray Step Scanning - A good method for detecting tremolite if we could accept about 0.2% as the threshold of detection. It does not distinguish fibrous from non-fibrous tremolite. The simultaneous detection of chlorite makes method impractical for chrysotile.
3. X-Ray Step Scanning + Optical Microscopy - Acceptable as in #2 above but the optical method continues to present the dilemma in reliable identification of chrysotile. However, this does not rule out a major revision of the optical method to do the chrysotile identification and counting.
4. X-Ray Scanning - The problem of chlorite interference in the detection of chrysotile is present in all x-ray procedures thus far available. It is reliable for the detection of 1% tremolite (both fibrous and non-fibrous).
5. Differential Thermal Analysis - This procedure is capable of detecting chrysotile at the 1% level, however, it will not detect tremolite.
6. Scanning Election Microscopy - This procedure is not capable of identifying asbestos. Even with energy dispersive analysis, completely satisfactory identification is not possible.
7. Transmission Electron Microscopy + Electron Diffraction - This appears to offer the best, most reliable method and is probably capable of detecting chrysotile and tremolite (fibrous), both at a level of 0.1%. It is estimated that an installation would cost about \$130M +, and is obviously prohibitive for the small manufacturer who uses talc. The amount of talc sample examined by this procedure is miniscule.

Summary

The CTFA Talc Subcommittee has completed its review of the Optical Microscopic Method for the Estimation of Chrysotile and Fibrous Tremolite in Talc, which appeared in the Federal Register, vol. 38 (No. 188), (p. 27076, September 28, 1973). It recommends postponement of the finalization of the proposed regulation on talc. In addition, a collaborative effort between FDA & industry to resolve a satisfactory method of estimating chrysotile and tremolite in talc, is recommended, with periodic liaison reviews to monitor the project status. A task force of industry experts has been designated to pursue alternate methods. We invite FDA to participate in collaboration with the task force.


George W. Sandland
Chairman CTFA Talc Subcommittee

GWS:dd

MEMBERSHIP LIST - CTFA TALC SUBCOMMITTEE

G. W. Sandland, Chairman (SAC) Bristol-Myers Products	Dr. DeWitt Petterson Johnson & Johnson Research Center
Dr. Murray Berdick (SAC) Chesebrough-Ponds, Inc.	Dr. Robert Rolle Johnson & Johnson Research Center
Dr. George Cohen Bristol-Myers Products	Mr. Fred Roesch Whittaker, Clark and Daniels
Dr. Christopher Costello (SAC) Colgate-Palmolive Company	Dr. Charles Rowland (SAC) Avon Products, Inc.
Mr. Salvatore DiBianca The Mennen Company	Dr. Harold Schwartz (SAC) The Mennen Company
Mr. John Facq Colgate-Palmolive Company	Dr. Joseph Simko Colgate-Palmolive Company
Mr. David Hamer Johnson & Johnson Research Center	Mr. Harold D. Stanley, Jr. Pfizer
Mr. Alan M. Harvey R. T. Vanderbilt, Inc.	Mr. Wallace Steinberg (SAC) Johnson & Johnson
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Mr. Adolph Maruszewski (SAC) Kolmar Laboratories, Inc.	Dr. C. S. Thompson R. T. Vanderbilt, Inc.
Mr. Louis D. Murino United Sierra	Mr. Ronald Yakupcin Kolmar Laboratories
	Dr. Tryggve Baak United Sierra

December 11, 1973

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December 10, 1973

TO: MEMBERS OF THE CTFA TALC SUBCOMMITTEE & SCIENTIFIC ADVISORY
COMMITTEE:

Mr. Lucia Ruesca

Attached herewith and submitted for your reading and
comments is a finalized submission of the report of the CTFA
Talc Subcommittee which we wish to submit to the Food & Drug
Administration.

Please read at once and, likewise, call me at once if
you disagree with any of the content matter.

In view of the very short time left to process this
submission, your immediate attention is of paramount importance.

Thank you,

George W. Sandland
George W. Sandland
Chairman CTFA Talc Subcommittee

REPORT OF CTFA TALC SUBCOMMITTEE ON METHOD TO DETECT CHRYSOTILE AND
TREMOLITE IN TALC.

December 10, 1973

The Scientific Advisory Committee of the Cosmetic, Toiletry & Fragrance Association, 1625 Eye Street, N.W., Washington, D.C. 20006 at a meeting held on September 2, 1973, designated that a subcommittee be set up to study the optical microscopic method proposed by the Food and Drug Administration. This method was published in the Federal Register of September 28, 1973. The present membership of the CTFA Talc Subcommittee is shown on an attached sheet.

At the first meeting of the Subcommittee, it was agreed to submit several samples of talc to members who volunteered to apply the FDA proposed optical microscopic method. The following talc samples were distributed without identification - except for randomly applied and non-duplicated code numbers:

Italian Talc	Grade #1615
Montana Talc	Source P
Montana Talc	Source F
Vermont Talc	Grade #66
Alabama Talc	
No. Carolina Talc	Grade 643

In addition, a sample of Italian Talc spiked w/w with 1% chrysotile and 0.15% tremolite was sent to each participant. The participants were aware that the sample was spiked, but did not know the percentage of spiking.

The attached table summarizes all reports submitted:

<u>Sample</u>	<u>No. of Fibers With R.I. Greater Than 1590</u>	<u>No. of Fibers With R.I. Less Than 1574</u>	<u>Status With Regard to Pro- posed FDA Method</u>
<u>Mrs. Lucy McCrone, McCrone Associates for Chesebrough</u>			
Spiked	320	16	Passes
Italian	120	0	Passes
Montana-Pfizer	0	0	Passes
Alabama	0	0	Passes
Vermont	0	0	Passes
No. Carolina	0	0	Passes
Montana-Ferry	0	0	Passes

Mr. Harold Stanley of Pfizer

Italian	~ 100	> 100	Fails Chrysotile Passes tremolite
Montana-Pfizer	~ 100	> 100	Fails Chrysotile Passes tremolite
Montana-Ferry	~ 100	> 100	Fails Chrysotile Passes tremolite
Alabama	~ 100	> 100	Fails Chrysotile Passes tremolite
Vermont	~ 100	> 100	Fails Chrysotile Passes tremolite
No. Carolina	~ 100	> 100	Fails Chrysotile Passes tremolite

Mr. David Hamer of Johnson & Johnson

Italian	0	0	Passes
Montana-Pfizer	1	0	Passes
Montana-Ferry	25	0	Passes
Alabama	0	0	Passes
Vermont	0	0	Passes
No. Carolina	0	0	Passes

Dr. John A. Reffner (U. of Conn.) for Avon

Spiked	632	12,930	Fails Chrysotile Passes Tremolite
Italian	220	1,114	Fails Chrysotile Passes Tremolite

Jack Travers reported that NIOSH has proposed a revised (lower) TLV of 50 mcg/cubic meter for crystalline silica.

Bob Rolle described the latest results of Round Robin #3 using the CTFA Proposed Optical Microscope Procedure For Detection of Chrysotile in Talc. This is the method intended to be used as a back-up to the DTA method, since DTA can give a false positive for chrysotile when non fibrous antigorite is present. Unfortunately, there was disagreement among 3 very capable investigators, McCrone Associates, Harold Stanley of Pfizer and Dave Hamer of Johnson & Johnson.

It was agreed, however, that chrysotile is never found in cosmetic talcs, based on numerous analyses by several investigators. The only discoverer of chrysotile in cosmetic talcs has been Professor Lewin, and his results have been refuted in a repeat testing of the same samples by John Stuart at FDA.

The committee concurred, therefore, that our only courses of action are either to rely only on DTA by itself (without a back-up procedure), or else, based on the wealth of data available, eliminate the need for a chrysotile specification in cosmetic talc. Either way, we are confident at this point, that chrysotile won't be found and simply is not present in cosmetic talc.

We are still awaiting additional DTA results on talc samples (some spiked) which were sent to Colgate-Palmolive, Mennen, Pfizer, and Whittaker Clark & Daniels. In addition, Jack Travers has submitted a set of samples to John Reffner (V. of Comm) for DTA analysis.

Jack Schelz described an inexpensive DTA unit sold by Columbia Scientific Industries costing \$3350 without a recorder and about \$4600 with a recorder. This instrument was evaluated by Dr. Schelz and was found to be capable of detecting serpentine minerals above the 0.5% w/w level in talc, when used according to the proposed CTFA test method.

It was agreed that we include in the procedure for chrysotile, the latest definition of a fiber as published by OSHA in Field Information Memorandum #74-92, which was sent to OSHA Assistant Regional Directors and Area Directors. This memorandum states that:

"In order to be considered asbestiform or fibrous the following criteria will be used by the Salt Lake City Laboratory of OSHA,



CF-BALL-6

- A. Particles must appear to be fibrous, rather than as crystals or slivers.
- B. The maximum diameter of a fiber to be counted is 3 microns.
- C. The maximum length of a fiber to be counted is 30 microns.
- D. The length to width ratio must be 5 or more to 1, that is, 5 times or more longer than wide.
- E. The separate or individual fibers must contain fibrils or the "bundle of sticks" effect, unless they are at a non-divisible stage. A fibril cannot be subdivided and would be counted, if it meets the other criteria. The electron microscope may be used to prove the fibrous nature of the particles. The length to width ratios of 5 or more to 1 is not meant to imply that other particles are not hazardous."

The directive states at the end that the above guidance is temporary and may change as a result of findings from an on-going NIOSH study on this subject.

A CTFA Talc Task Force comprised of Dr. Berdick, Dr. Estrin (CTFA), Mr. Lee, Dr. Rolle and Mr. Sandland will meet with Dr. Robert Schaffner, Mr. Eiermann and their designated personnel at FDA on Friday, February 7, 1975. It is planned to propose the 0.5 to 1.0% limit for each fibrous tremolite and chrysotile in cosmetic talc. Our CTFA Task Force developed methodology will be submitted in latest form as part of the proposal. A preliminary meeting at CTFA Headquarters will be held in the morning and the meeting with FDA is scheduled at 1:00 P.M.

A report of this meeting will be submitted to the members of the CTFA Talc Subcommittee.

Allan Harvey reported that he will attend a meeting on Tuesday, February 11, 1975 which has been called by Dr. Raymond E. Shapiro of FDA who is heading up a Subcommittee on Asbestos Protocols. This subcommittee was assigned the job of reviewing all existing data with respect to the biological effects of orally administered asbestos, with particular reference to carcinogenesis, and if necessary of

developing appropriate protocols for studies to elaborate on any data deficiencies in this area.

At the meeting of February 11th, the subcommittee members will discuss a working draft which has been furnished to them to provide a basis for comment and discussion.

A paper entitled "Is Short-Fibred Asbestos Dust a Biological Hazard?" by Paul Gross, M.D., Charleston, S. C. was discussed. Here Gross states there is evidence that asbestos particles which are submicroscopic in size (<5 microns) elicit only a macrophage reaction in the lungs of monkeys. Similar results resulted in several other animals including rats and hamsters when submicroscopic asbestos was injected intratracheally and intra-abdominally.

There being no further business, the meeting was adjourned.


G. W. Sandland
Chairman, CTFA Talc Subcommittee



Members of Talc Subcommittee

Any comments on this? Please
bring to meeting TALC 3/11/75

2/26/75

CTFA Specification

TALC

(Formerly TGA Spec No. 10)

Issued: 6-1-42

Revised: 3-23-62

5-20-73

George Sandland

DEFINITION: Talc is a white, odorless or very slightly earthy, finely powdered, native, hydrous, magnesium silicate, sometimes containing a small portion of aluminum silicate.

TEST	SPECIFICATION	METHOD
Color	As specified by the buyer and showing no change after heating	Heat 1 to 2 g at 200°C for 5 minutes
Odorless	As specified by the buyer	
Identification	Positive: Close match to CTFA Spectrum—IR with no indication of foreign materials	CTFA G 3-1
Slip	As specified by the buyer	
Lustre	Do.	
Carbonates	No effervescence	USP XVIII, page 703 Observe reaction for effervescence during digestion in Test for Acid-Soluble Substances
Water-Soluble Iron	Passes test	USP XVIII, page 703
Screen Test	100% through 100 mesh 98% minimum through 200 mesh Finer grades: as specified by the buyer	CTFA C 6-1
Alkalis and Acids	Neutral to litmus paper	USP XVIII, page 703 See Test for Reaction and Soluble Substances.
Water Soluble Substances	0.1% maximum	Do.
Acid-Soluble Substances	2.0% maximum	USP XVIII, page 708
Loss on Ignition	5.0% maximum	Do.
Arsenic (as As)	3 ppm maximum	CTFA F 1-1, Parts I-A and II
Lead (as Pb)	20 ppm maximum	CTFA F 2-1, Parts I-A and II
→ Tremolite (fibrous)	none detected *****	CTFA —

Note

The Cosmetic, Toiletry and Fragrance Association, Inc.

1133 15th STREET, N.W., WASHINGTON, D.C. 20005 • 202/331-1770 • TELEX 89-2673

James H. Merritt
President

Norman F. Estrin, Ph.D.
Vice President—Science

TALC TASK FORCE

MINUTES

A meeting of the Talc Task Force was held on February 7th, 1975. After a pre-meeting at the CTFA Offices, the Task Force reconvened at the office of Dr. Robert Schaffner at the Food and Drug Administration, 200 C Street, SW, Washington, DC. Those in attendance were:

Mr. George Sandland, Bristol-Myers (Chairman)
Dr. Murray Berdick, Chesebrough-Pond's
Mr. George Lee, Johnson & Johnson
Dr. Robert Rolle, Johnson & Johnson
Dr. Norman Estrin, CTFA

Those in attendance from the Food and Drug Administration were:

Dr. Robert Schaffner
Mr. Henry Davis
Mr. Heinz Eiremann
Dr. William Horwitz
Mr. Ronald Yates

Mr. Sandland opened the meeting stating that the objective of the Task Force meeting was to give a status report on its activities and at the same time ascertain the status of work at FDA in this area. Dr. Schaffner responded FDA was still interested in development of satisfactory methodology and Dr. Horwitz noted briefly his work in this area.

Mr. Sandland called upon Dr. Rolle to give a report on CTFA progress. Dr. Rolle reported on the development of a Differential Thermal Analysis procedure for serpentine followed by an optical microscopy procedure, with detection limits between 0.5 and 1%. For amphiboles like tremolite, an x-ray diffraction method, followed by dispersion staining optical microscopy has been developed; this procedure allows determination of whether the

FEB 24 1975

G. W. SANDLAND

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FEB 24 1975

G. W. SANDLAND

material is fibrous or not. Dr. Rolle noted successful completion of round robin tests with detection levels between 0.5 and 1%. Dr. Rolle observed that he has been unable to obtain a single naturally occurring sample containing chrysotile.

Dr. Berdick questioned the need for a regulation on chrysotile since no sample has yet to be confirmed as containing this material.

Mr. Eiremann responded that he sees no problem with a regulation covering both amphiboles and chrysotile, since "if chrysotile is not there, you should have no problems."

Dr. Estrin and Dr. Berdick objected, stating that Mr. Eiremann was proposing regulations for the sake of regulation, and has not considered the wasteful tax on resources that would arise from inclusion of a standard for chrysotile. Dr. Berdick and Dr. Estrin concluded that if a regulation is not necessary, it should not be proposed.

Dr. Schaffner responded with a suggestion that CTFA send in a letter with documentation, showing the extent of tests and results which would support a recommendation about the inappropriateness of a regulation for chrysotile.

It was noted that Professor Lewin was the only scientist to ever have mentioned chrysotile in his report and the lack of confirmation of his results by other scientists.

Dr. Schaffner asked for a progress report on Professor Lewin's activities, and stated that FDA will speak to Dr. Lewin shortly concerning his progress.

Mr. Sandland noted that CTFA specifications for Talc published as part of the CTFA Standards, are up for revision. He reported that the new specifications will add a tremolite specification and the methodology for continuous scanning x-ray diffraction, but added that CTFA would not expect to include a specification for chrysotile. He added that chrysotile has never been found in cosmetic talcs from either European or domestic sources.

FDA was asked for its present timetable, and responded, it is ~~are~~ awaiting results from the Franklin Institute and have arrived at no definite time schedule for either a food or a cosmetic regulation.

Mr. Sandland proposed limits of 1% for tremolite, stating that based on the OSHA limit of 2 fibers per cc in an 8-hour day proposed for 1976, one would arrive at a safety factor of 48,000 if such a limit were adopted.

Mr. Eiermann questioned this calculation on the basis of his understanding of the OSHA limits for short and long-term exposures.



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Dr. Schaffner added the political inadvisability of citing mine-worker standards for cosmetic talcs, and advised that it would be more meaningful to have animal studies with talc than statistical estimates.

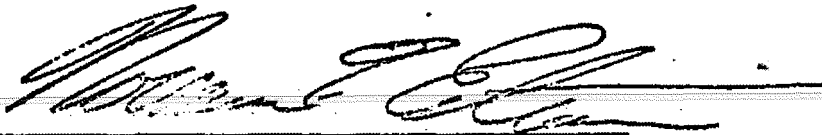
Mr. Lee responded by noting animal work in progress.

Mr. Eiremann then proposed "non-detectable" terminology rather than numerical limits.

Mr. Yates noted briefly that there was no progress yet on enrichment for chrysotile and that he was pessimistic about the possibilities in this area.

Mr. Lee offered participation of the CTFA Talc Subcommittee in evaluating any methods developed by FDA.

There being no further business, the meeting adjourned.



Norman F. Estrin, Ph.D.
Vice President - Science

NFE:mp
2/17/75

Metropolitan Talc Company, Inc.

P. O. BOX 529 . . . 77 RIVER STREET

Hoboken, N. J. 07030

Telephones:

New Jersey (201) 659-4412

New York (212) 227-3618

Plant:

Metuchen Road

South Plainfield, N. J. 07080

(201) 754-4880

February 16, 1970

Mr. Robert G. Smith, President
Whittaker, Clark & Daniels, Inc.
100 Church Street
New York, New York 10007

Dear Bob:

We have been reviewing the situation of Metropolitan Talc Co. and its future operations here in this office, and believe that because of the recent developments, that serious consideration should be given to the raising of price on all grades of Canadian Talc currently sold. While our initial estimate of the situation seemed to indicate a more gradual approach to the problem, several things have occurred which we believe make it reasonable to increase prices almost immediately.

The large loss sustained last year by Metropolitan was caused by failure of prices to meet the costs of producing at South Plainfield. As you are well aware we have received the initial order from Johnson & Johnson of New Brunswick, for 1100 tons of #1615 Talc to cover the period of February 23rd through June 15th. They have indicated great concern to us that if Shower to Shower should meet with good market approval, they might have to increase this tonnage and wonder about our abilities to supply. We have assured them that with the existing business we have in hand, we could take care of between 2000 and 2500 tons on an annual basis. However, with Ponds and the other 1615 customers and Johnson & Johnson's business and with the possible additions of either Cheramy or Mennen, or perhaps both, we must look ahead to our production capabilities. It is our opinion here that we should announce a \$5.00 increase on all new business on and after March 15th to March 30th at the latest. Of course, where we have accepted business on Canadian Talc for future deliveries at a

(Continued on page 2)



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Page 2

given price, we must honor these commitments. Nestle-LeMur have ordered 300 tons of 4602 at \$70.00 per ton, approximately half of which they have already received. However, after the balance of this order has been delivered, we would advise them of a price increase of \$5.00 per ton. While we do not know the ultimate effect of this increase on customers such as Kentile, I believe we are in a position to accept their possible loss without seriously jeopardizing the picture of Metropolitan Talc Company.

We would appreciate your thoughts on this matter together with Larry's and Mr. Clark's. Please let us know if you think that this is a wise move.

Very truly yours,

CHARLES MATHIEU, INC.

DRF:ls


Donald R. Ferry
President

Code
No.

Product Description

Uses

141 Talc, Alpine USP "B.C."
Press & Aerosol

) --Generally accepted as standard
) press powder. Good liquid sus-
pension.

643 Talc, North Carolina
200 mesh

)
) Excellent quality, fair color
)

Sperry

1615 Talc, A.G.I. "B.C."

) Domestic ground Italian

2450 Talc, North Carolina

) Same as 643 but better color



CF-BALL-4

Code
No.

Product Description

Uses



WHITTAKER, CLARK & DANIELS, INC.

(201) 581-6100 CABLE "SLEINAD"

PRODUCT DATA

ULTRAMARINE BLUE USED IN THE RUBBER INDUSTRY

Ultramarine blue is used extensively in the rubber industry. There are several key uses. It is used to aid in the whiteness of a white rubber, example on a whitewall tire. It is also used for a full color, such as the trademark on a well known brand of basketball shoes. It could be used for hot water bottles, rubber thread, bottle stoppers, color for latex in carpeting and an assortment of mechanical rubber goods.

Generally speaking the percentage is ranged from 1/10% for whitening of the white rubber to approximately 4% for a full color.

Reasons for using ultramarine blue:

- Non Bleeding - That is, alkali resistance - especially in latex
- Heat Stability
- Easy Dispersion Characteristics
- Rich Red Clean Ultramarine Color
- Light Fastness
- Chemically Stable
- Compatibility - Except in acidic conditions
- Non Toxic

Note, comparative figures on phthalo versus ultramarine blue in rubber. In rubber 10 to 12:1 stronger than ultramarine blue whereas, normally 20:1 in some other media.

For new business the recommended ultramarine blues for Rubber Industry are the #5008 red shade #5021 for the green shade.

These are available - Stocked in South Plainfield, N.J. - Chicago, Illinois

Not for Distribution



PRODUCT DATA

WHITTAKER METALLIC SOAPS

When a fatty acid (such as Stearic) is combined with an alkali such as caustic soda the resultant product is known as a soap. When the soap is made with Stearic Acid it is known in chemistry as a Stearate. This soap, or Stearate, is soluble in water and has been in domestic and industrial uses for years.

A number of years ago the chemists found that by replacing the sodium content with a metal such as Aluminum, Zinc, Calcium, Magnesium, or Barium the resultant product was completely insoluble in water. These new products were called Metallic Soaps or Stearates with the name of the metal used as a prefix, i.e. Aluminum Stearate.

With this discovery a whole new field of uses were opened up. By employing different methods of production it was found that different grades of metallic stearates could be made. As a result of this we have been able to make a specific Stearate for almost any purpose.

Some Stearates, for example Aluminum, were found to possess properties that were not associated with any other compounds. When treated with solvents, like petroleum oils, or for that matter any other oil, animal, vegetable or mineral, or with waxes, they formed gels. It was also found that by regulating the amount of free-fatty acid in the finished Stearate the type of gel and its durability could be controlled or changed. In this respect also the gel forming properties could also be increased or decreased by the amount of metallic base incorporated into the Stearate. Through these means we are able to make Stearates to fit almost any demand of industry.

Stearates possess remarkable waterproofing properties. They can be incorporated as a dry powder when the material is mixed; when dissolved in suitable solvents they can be applied to concrete, stucco or plaster as waterproofing.

Certain Stearates possess lubricating properties. These are used for mold lubrication in the plastic industry, artificial leather industry, rubber industry and in wire drawing mills; applied as a dry powder which can be dusted into the molds before they are filled.

U.S.P. Stearates are widely accepted in the cosmetic industry because of their adhesive or clinging characteristics and their ability to lessen sheen. Among numerous cosmetic uses, Stearates are ingredients in face powder, hand creams, lotions, body dusting powder, medicinal powders and dressings.

Continued


ESTABLISHED 1890

PRODUCT DATA

2

WHITTAKER METALLIC SOAPS

Like pigments, in general Stearates are composed of clusters of individual particles whose ultimate size is one micron or less in diameter. When examined by the microscope, they appear colorless and transparent. Their refractive index ranges between 1.36-1.61. Although they are a little heavier than water with specific gravities ranging between 1.007 and 1.230, they are so water repellent that they float even in boiling water.

Some Stearates have a greasy or unctuous texture, while others feel dry and will not stick together when compressed.

The melting points reveal several interesting features of the Stearates. Some of them, like Zinc Stearate, fuse to a thin liquid within a narrow temperature range. Others, like Aluminum Stearate show an initial softening point and become viscous liquids up to a much higher temperature. Some will not fuse at all but will char and decompose.



WHITTAKER, CLARK & DANIELS, INC.

(201) 561-6100 CABLE "SLEINAD"

PRODUCT DATA

GLOSSARY OF WC&D METALLIC STEARATES

ALUMINUM STEARATE

A metallic soap used in paints, varnishes and lacquers to give special properties which may be summarized as follows:

1. To thicken oils and organic solvents
2. To aid in suspension and deflocculation of pigments
3. To impart water-proofness
4. To impart flatness to organic finishes
5. As a surface active agent when it is used as an oil-in-water emulsifier

USES

Waterproofing, ingredient of lubricants, cutting compounds; cements, flattening agent; cosmetics and pharmaceuticals.

GRADES AVAILABLE

908 Aluminum Stearate

"KEY" DESCRIPTION

Aluminum tri-Stearate high in free fatty acid. Low gel characteristics permit use of this material with minimum bodying.

909 Aluminum Stearate

Hi-gel di-Stearate for paint, ink, etc.

BARIUM STEARATE

Barium Stearate combines lubricating characteristics with good heat stabilizing properties. Its unusual melting characteristics recommend it for use where high melting points are desired.

USES

Waterproofing agent; lubricant; packing for bearings.

GRADE AVAILABLE

902 Barium Stearate

"KEY" DESCRIPTION

High melting point lubricant for rubber and plastics.

Continued



PRODUCT DATA

2

CALCIUM STEARATE

A metallic soap used in paints, varnishes and lacquers to accomplish the following purposes:

1. To facilitate wetting of pigments, thereby improving gloss
2. To aid in suspension properties without causing excessive bodying
3. To harden lacquers and varnishes which are used as sanding sealers

USES

Waterproofing, flatting agent in lacquers; also used in varnish, paints, enamels, plastics; lubricant; emulsions; cements; wax crayons.

GRADES AVAILABLE

"KEY" DESCRIPTION

1345 Calcium Stearate

All-purpose; exceptionally fine uniform particle size.

2284 Calcium Wettable Stearate

Water dispersible.

2307 Calcium Food Grade Stearate

High bulk material. Provides great covering power and is a most efficient conditioning agent. Can also be offered under Kosher label by special arrangement.

LITHIUM STEARATE

Lithium Stearate is considered a very efficient lubricant for powdered metal operations. In addition, its oxygen-scavenging effect promotes the sintering rate in non-ferrous parts. Extra care must be taken when using Lithium Stearate with brass parts, since an excess of stearate can cause some surface discoloration.

GRADES AVAILABLE

"KEY" DESCRIPTION

1083 Lithium Stearate

High degree of lubricity. Sometimes used in greases.

Continued



PRODUCT DATA

3

MAGNESIUM STEARATE

A metallic soap used in paints, varnishes and lacquers to give special properties. They are used to aid in suspension and deflocculation of pigments, to impart waterproofness, to form water-in-oil emulsions and to serve as an external and internal lubricant in tableting water colors.

USES

Dusting powder, flatting agent; in medicines; stabilizer and lubricant for plastics.

GRADES AVAILABLE

905 Magnesium Stearate U.S.P.

"KEY" DESCRIPTION

Standard U.S.P. material (Light Density). Highest degree of lubricity. Recommended for most uses.

2311 Magnesium Stearate U.S.P.

U.S.P. Food Grade (Heavy Density).

ZINC STEARATE

A metallic soap used in paints, varnishes and lacquers to impart special properties which may be summarized as follows:

1. To aid in suspension properties with only slight bodying
2. For hardening lacquers and varnishes which are used in sanding sealers
3. For controlling the flow of enamels formulated with rutile-type titanium pigments
4. To aid in flocculating and as an anti-settling agent in zinc chromate primers

USES

Medicine; cosmetics; drying lubricant in rubber; waterproofing agent; lacquers; plastics; powder metallurgy.

GRADES AVAILABLE

695 Zinc Stearate U.S.P.

"KEY" DESCRIPTION

Most commonly used, all purpose cosmetic grade. Has a very fine particle size and tends to be quite fluffy.

Continued



WHITTAKER, CLARK & DANIELS, INC.

(201) 561-6100 CABLE "SLEINAD"

PRODUCT DATA

4

903 Zinc Stearate

Recommended "lacquer grade."

904 Zinc Rubber Grade Stearate

Standard lubricant and dusting agent for rubber application.

1349 Zinc Stearate

All purpose grade.

2271 Zinc Wettable Stearate

Aqueous products.

2288 Zinc Stearate

Stir-in grade developed for lacquer manufacturers.

2302 Zinc Heat Stable Stearate

Heat-stable grade. Especially developed for polystyrene.

2304 Zinc Hi Temp Stearate

Used where a lower bulking material is desired or where ease of dispersion is important. Special "non-agglomerating" product for surface treatment applications and for rubber if 904 not satisfactory.

2310 Zinc Stearate

Non-blooming stir-in grade for sealer lacquers. Shows excellent suspension.

2313 Zinc Stearate

Higher apparent density (lower bulk value) than 904. Freer-flowing and useful where it is desirable to apply a thicker, but uniform, zinc stearate coating to uncured rubber sock.

STEARATES FOR PAINT, LACQUER AND PRINTING INK

ALUMINUM STEARATE

Historically, Aluminum Stearates have been used for suspension in oleo resinous paints. While there are other types of suspension aids now on the market, there is still application. A recommendation is 0.25% of Aluminum Stearate based on the weight of pigment is the recommended level.

MAGNESIUM STEARATE

Magnesium Stearate is used as a flattening agent for paints, varnishes and lacquer. You would use it in place of the Aluminum where there was a concern as to the increase in viscosity in aging. In other words, the Calcium does not increase viscosity as much as the Aluminum Stearate. Calcium Stearate can be used as a suspension agent. Again, it is not as effective as the Aluminum Stearate.

- JTY -

Aluminum Stearate is an ingredient of putty. As an ingredient in putty, it prevents bleeding and separation of the oils from the solids in the finished canned product. Paint and varnish removers - as you know, are both liquid and paste or cream consistency. Remover - is the Aluminum Stearate can be used to body the paint remover and retard the evaporation. Printing inks - you will find here that there is a bigger potential per gallon usage for the use of Aluminum Stearate as a bodying agent. Also used as water proofing aids in this area.

LACQUERS

Zinc Stearates are used extensively in sanding sealers in the lacquer industry. Zinc Stearates assist in the penetration of wet pores. It is colorless and we particularly recommend our #2310 - this is a non-blooming zinc stearate, stir in grade.

Phenolics

Calcium Stearate #1345

Zinc Stearate #904

Polystyrene

Polyethylene

There is very little usage of Stearates here, occasionally some Zinc for lubricity.

Polypropylene

Calcium Stearate #1345

Zinc Stearate #2304 - recommended to improve pigment dispersion

ABS resins

Polyesters Zinc Stearate #904

Calcium Stearate #2286

Vinyl

This is a very specialized area of Stearates. I am going to list below recommendations, however, you will find with most vinyl manufacturers that they use what are known as vinyl stabilizers. Vinyl stabilizers are in actuality metallic soaps both in liquid and powdered form. In practically all cases they are blends of several metals. Primarily, Barium, Cadmium and Zincs with some use of leads and some of Calcium. While these are technically Stearates, they are marketed as vinyl stabilizers and it is a very, very specialized area. In many cases the stabilizers are custom mixed by the manufacturer for the specific requirements of the particular vinyl plastic manufacturer. Your competition in this particular field would be Nuodex, Argus, division of Witco, Ferro, and Advance - division of Carlyle Chemical, however, for the record, here again is a rundown of possible recommendations.

In rigid vinyls:

Calcium Stearate #1345

Plastisols

Aluminum Stearate #907 - used as a viscosity modifier

Aluminum Stearate #914 - used as a pre-gel in DOP Plasticizers

Vinyl Film #2314 Cadmium Stearate serves as a light stabilizer

Barium #902 for long term heat

Zinc #2304 for early color hold

As I mentioned earlier by and large these are blended by the chemical manufacturers. I trust this will give you a start on your Stearate program.

STEARATES

The people making Stearates would be Parsons-Plymouth, division of Corn Products, Witco Chemical, Harshaw, Mallinckrodt, Nopco trade name Metasap, Nuodex division of Tenneco and American Cyanamid. I would imagine the ~~strongest competition in your territory would be Nuodex who has a regional~~ office and warehouse facilities throughout the Southeast and Nopco, who make some of their Stearates in Cedartown, Georgia. Overall, Witco is probably the strongest on a national basis. You will find the other people popping up in various areas. American Cyanamid is probably the smallest and generally make very little effort on their Stearate marketing. There is one other Synpron, from Cleveland, who are known primarily as price cutters. Whittaker Stearates are manufactured to our specifications in Newark, New Jersey.

I have put together a cross-index showing the Whittaker Stearates and the competitive numbers.

~~You asked specifically for general rundown on usage in the plastic industry;~~
the following should give you a good starting base.

~~All of the metallic Stearates find extensive use in plastics. Zinc, Calcium and Aluminum are used as internal and external lubricants. They act as mold release agents, general processing aids, catalysts, scavengers, flatting agents, stabilizers and gelling agents.~~

The main usage is as a lubricant; to improve melt flow but more important to aid in mold release. Calcium, Magnesium and Zinc Stearates serve these purposes. Zinc is used because of its inherent high lubricity. One would use Magnesium or Calcium when the need for higher melting point justifies a sacrifice in lubricating efficiency.

The point of lubricity is not only for better finished plastic product but to minimize wear on the metal molds. The Stearates are added to the mix in most cases and is usually about 1% Stearate based on the weight of the resin, however, this can vary from 3/4 to 1% to 2 1/2% depending on demands. I will list below the various types of plastics and suggested Stearates to be used.



PRODUCT DATA

Product Number	Dry Brightness	Oil Absorption (Rub-Out)	Through 325 Mesh	Hegman Fineness	pH	Specific Gravity	Descriptions	Applications
5	86	22	98.00	1.5	9.8	2.80	Crypto Crystalline	G-1-2
123	91	32	96.00		7.7	2.70	U.S.P. Lo-Soluble Salts	G- Pencil & Toy Coatings
128	89	29	89.00		7.7	2.70	U.S.P. Lo-Soluble Salts	
141	92 +	38	100.00	5.0	7.7	2.70	U.S.P. Lo-Soluble Salts	
150	67	29	95.00	2.5	9.0	2.78	Feathering-Sanding	8-9
367	60	24	96.00	2	9.6	2.90	Low Cost-Off Color	8-9
399	92 +	50	100.00	6.0	8.7	2.70	Easy Dispersing	G-4-6-7
462	84	35	99.00	3.5	8.5	2.85	Lo-Soluble Salts	G-8-9
505	88	26	99.00	2.5	9.5	2.80	Crypto-Crystalline	G-2
971	87	26	99.00	3.0	8.7	2.76	Platey	G-1
1196	87	36	100.00	5.5	8.5	2.65	Low-Micron	G-3-4
1313	92 +	34	99.00	3.5	9.0	2.88	Soft - Platey	G-1-5
1726	90	42	100.00	4.5	8.0	2.58	Soft -Platey	G-1-5-7
1731	91	38	100.00	6.0	8.6	2.70	Easy Dispersing	G-1-3-4-6
1767	60	27	99.00	2.0	9.3	2.80	Platey Low Color	G-1-3-6-7
2131	87	26	99.00	3.0	8.3	2.70	Platey	G-1
2610	92	51	100.00	6.5	8.8	2.70	Platey - Low Micron	G-4-6-7
2620	84	28	100.00	4.0	9.0	2.70	Fine White	G-1
2755	92	50	100.00	6.0	8.5	2.70	U.S.P. Low Micron	G-4-6-7
2789	89	29	98.00	3.5	8.5	2.76	Easy Dispersing	
2794	92	27	99.99	4.0	8.3	2.70	Platey	G-
2798	92	39	100.00	5.5	9.5	2.70	Platey	G-1-3-6
4404	88	40	99.80	5.5	9.5	2.70	Low-Micron	G-1-3-6
4416	86	40	99.90	6.5	9.5	2.70	Platey	G-1-5-7
							Platey	G-1-5-7

CODE FOR APPLICATIONS

G GENERAL

- 1 EXTERIOR PAINTS
- 2 CAULKING - PUTTY
- 3 PRIMER - SURFACER

- 4 VISCOSITY AND GLOSS CONTROL
- 5 INTERIOR EMULSION PAINTS
- 6 SEALER AND UNDERCOATS

- 7 INTERIOR PAINTS
- 8 AUTO PATCHING COMPOUNDS
- 9 ASPHALT EMULSIONS

The above information has been carefully prepared and we believe it to be entirely correct.
However, it is furnished gratis for your guidance only and is without guarantee.



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WHITTAKER, CLARK & DANIELS, INC.

MARKETING GUIDE
for
WC&D MATERIALS

Mai
gui

Julia R. Bonechi



CF-BALL-1

Rubber – high loading with little loss of softness, elongation or resilience

Putty caulks and sealants (low binder demand and good color)

Joint cements

Paper (high brightness and durability on aging)

Adhesives and carpet backing

Precipitated – Cosmetics, pharmaceuticals, paper

CALCIUM HYDROXIDE – plastics, cements, ammonia recovery in gas manufacture, hard rubber products, food additive as a buffer neutralizing agent

CALCIUM SULPHATE – filler in paints, molds, polishing powders, nutrient supplement, dyeing and calico printing, metallurgy (reduction of zinc minerals) – USP grade used in tablets as binder filler

CHALK (Whiting) – English whittings have long been noted for quality and consistency of classification – freedom from hard particles renders them non-abrasive to mild steel.

Paper – low abrasiveness of whiting finds particular use when good cutting properties are important, easy to disperse, good durability in filled papers, foam rubber, oil and alkyd based paints, adhesives, linoleum

CLAY (KAOLIN) – Calcined – paints, increase titanium efficiency

Hydrated – paper filling (smoother, whiter, brighter, more opaque sheet), paper coating (smoothness, high gloss, high brightness, good opacity, easy water dispersibility).

Ceramics – (plasticity and low shrinkage)

Rubber – reinforcement, imparts stiffness, tear resistance, hardness and abrasion resistance

Electrical insulation – calcined clay reduces tackiness and improves processability

Reinforced plastics (in thermosetting polyester)

COLORS – Lampblack – this pigment possesses excellent heat resistance and is permanent to light, acids and alkalis. Their physical and

FUNCTIONAL PIGMENTS
MAJOR REASONS FOR USE

ALUMINA - Calcined - ceramics (brake liners, nose cones, kiln furniture, burner elements, crucibles, etc.)

Hydrated - extender and filler pigment in adhesives, rubber, ink, paints, paper, plastic, cosmetics and dentrifices. Desirable properties are purity, high brightness, availability in submicron sizes, fire retardant capabilities, good dispersibility, low cost, and reinforcing qualities. As a spacer for titanium dioxide.

Tabular - refractories, electrical, insulators, kiln furniture, plastics, stair treads, silicone, rubber filler.

ANHYDROUS CALCIUM SULPHATE - filler in resin compounds of polyester/fiberglass type and as an extender in combination with high strength prime pigments in paint systems. As a nutrient in dietary formulations. As a filler in the preparation of pill and tablet coatings, etc.

BARIUM SULPHATE - used in paints specifically industrial. Also see BARYTES and BLANC FIXE

BARYTES - undercoats and primers (good build and holdout), chemical resistant coatings. Floor coatings - linoleum and composition flooring (highly resistant to abrasion and heavy traffic conditions)
Rubber - imparts weight and film toughness
Ceramics - glass

BENTONITE - Granular - waterproofing of pools, ponds and basements, purification flocculation of liquids

Powdered - refractory (lining), foundries (binder), drilling mud, cements and plasters as plasticizing agent.

U.S.P. - cosmetic and pharmacal applications - bacteria controlled

BLANC FIXE - used as pigment extender for paints and printing inks

Water paints - good opacity, inert to alkalies - light and heat
photographic paper - use as substrate for dyes, filler for rubber, linoleum oilcloth, resins, polymeric fibers and storage battery plates

CALCIUM CARBONATE - dry ground and water ground - paints, surface coatings and plastics (low binder demand, reduces chalking rate, color retardation of tints, increases mold resistance) good impact resistance

electrical characteristics make them valuable for the manufacture of arc carbons, brushes, and resistors. Their high tinting strength and hiding power (almost complete absorption of visible light) enhances their use in such products as blackboards, leather goods, crayons, and cement, as well as protective and decorative coatings, inks, and plastics

Ultramarine Blue - plastics - ultramarine blue and violet are used in plastic applications as colorants - their resistance to light and heat as well as insolubility make them highly acceptable Also ease of dispersion.

Printing ink - regular as well as specially treated ultramarine for lithographic and off-set inks (hydrophobic & oleophilic)

Paint - ease of dispersion - heat stability - clean bright colors - acid resistant grade available for specific paint formulas

Laundry powders and bleaches - good alkali stability - good resistance to chlorine and peroxide (in the case of bleaches) excellent dispersion.

Other uses - rubber paper coating - plastic flooring - sugar manufacture - crayons (wax) - pencils - leathercloth - roofing granules

Cosmetic - organic - these are certified by the FDA as meeting purity standards for use in drugs and cosmetics. Referred to as certified D & C colors. Used in cosmetics only and not around the area of the eyes. Do not confuse with F D & C colors used in food.

Cosmetic - Inorganic - these are purified iron oxides for use in makeup products, lotions, powders and tablets. Ultramarine blue, iron blue, chromium green hydrate, chromium oxide, carbon black, are also found in this category

CRAYONS - "Clover Brand" soapstone crayons are a natural cut talc for use by metal workers to mark steel with ability to withstand heat of an acetylene torch without destroying marks.

CUSTOM BLENDING - controlled blending of dry white pigments to customer specification. This does not include colors, fragrances, pharmaceuticals or toxic substances.

Example: Stearate & Talc blend
Controlled density blends of calcium carbonates, etc.

FELDSPAR - Porcelain insulators

Ceramic products - dinnerware, pottery, plumbing fixtures, floor and wall tile, etc.

Porcelain enamel - such as enamel frits, enamel bathroom fixtures, ranges, etc.

Glass products - window glass, plate glass, fiberglas, glass blocks, ~~glass tubing, glass bottles, etc.~~

Foam latex - filler in carpets and furniture padding

Abrasive Cleaners - Bon Ami, cake soap, window sprays, etc.

Plastics applications such as PVC, epoxies and polyesters

FLINT - a graded or powdered quartz used where a controlled particle size is required as an abrasive or inert filler

FULLERS EARTH - Filtering operations (to decolorize, clarify, neutralize, deodorize, and remove taste) oils distillates petrolatums, vegetable oils, pesticide carrier, refining and reclaiming oil

- HYDRO MAGMA - is a trade name of Merck & Company for magnesium hydroxide paste for use in manufacture of milk of magnesia

KAOLIN - also referred to as clay or aluminum silicate. Used in pharmaceuticals or cosmetics as a medicinal kaolin suspension agent or filler in powders or tablets. Available in N.F. and bacteria controlled state.

MAGLITE - a trade name of Merck & Company for their specialty grades of magnesium oxides for their use in neoprene rubber, plastics, paint, adhesives, or steel.

MAGNESIUM CARBONATE - the technical light grade is sold under trade name "Magcarb". Purified grade meets N.F. specification in light and heavy density.

MAGNESIUM HYDROXIDE POWDER - purified grade for use in antacid. technical grades for use in plastics. Sold under Merck trade name "Marinco"

MAGNESIUM OXIDE POWDER - in light and heavy grades for pharmaceuticals USP quality. Technical grades see Maglite.

MAGNESIUM SILICATE (Talc) - Paper - talc products produced from appropriate ores and ground to optimum particle size provide highly useful high brightness fillers for paper manufacture. Partial replacement for titanium dioxide. The hydrophobic nature of talc makes the ultra-fine grades efficient pitch adsorbers.

Paint - talc pigments are normally self-suspending in paint vehicles. They assist in keeping associated pigments also suspended. Talc disperses with relative ease in most paint vehicles. Certain talcs impart flattening effect that can be used to control gloss of enamels (specifically #399 Lo-micron Magnesium Silicate S.F.). Both acicular and platy talcs improve bonding properties, film toughness and durability of paints. Platy talcs are especially prized in metal primers due to their excellent sanding properties - in top coats due to their contribution to burnish resistance and good scrubability.

Traffic Paints - latex paints - house paints - industrial undercoats and structural steel primers.

Ceramics - talc improves the dry pressing and other operations used for forming ceramic bodies - permits faster firing schedules at lower temperatures.

Plastics - talc is a reinforcing filler in plastic compositions

Electrical wire insulation, sheeting, refrigerator gasketing, vinyl asbestos tile

Cosmetics - the utilization of talcs in cosmetics ranges from dusting powders (200 mesh) to micro-fine talc designed for aerosol application.

Rubber - dusting of unvulcanized rubber to prevent surface sticking

MARBLE (Flour-Dust) - this pigment is similarly used to Calcium Carbonate (as previously reported). It is actually ground marble, a metamorphic, highly crystalline, carbonate rock that is either high calcium or dolomite in nature. Used in paints, putty, caulks, adhesives, and joint cements.

MICA - wallpaper and coated papers (imparts a silky or pearly lustre)

Nacreous pigments - mica is used as a flake substrate for coating with various metal oxides to obtain pearlescent effects in vehicles.

Rubber - dusting to overcome tackiness (mold release), dry lubricant - in tire production (vulcanization)

Paints - exterior (reduces penetration) reduces running and sagging.

Primers & metal coatings - to reduce moisture penetration

Aluminum paints - to replace a portion of the aluminum flake

Sealers (reinforcing action)

Traffic paints - wearability, good adhesion, reduced cracking

Wallboard and joint cements - reduced shrinkage and cracking

Texture paints - reduced cracking adds stability and firmness

Mastics - Plastics - Block fillers

MINERAL COLLOID - Albagel hydro-purified inorganic colloid applicable in the modification of aqueous systems. These products are useful in the preparation of dilute water suspensions and to obtain the greatest degree of viscosity and thickening with the minimum of solids.

Albagel Premium - is specifically prepared to meet the U.S. Pharmacopoeia specification for bentonite.

Albagen - hydro-purified inorganic colloid of limited reactivity. This product has unique characteristics. Its lower alkaline reaction assures a more uniform constant behavior. It overcomes objectionable use of products which release considerable amounts of free sodium ions when hydrated. The lower pH range is an attractive consideration.

These colloids are used as emulsifiers in creams, film formers and binders, as a penetrant, demulcent and protective colloid, dessicant, acid neutralizer and buffer - foam stabilizer. Clarifies sorbent - lubricant - thickener.

Bentolite "L" - low iron, low viscosity, white calcium bentonite, excellent white firing ceramic plasticizer.

Gelwhite - low viscosity suspending agent for aqueous systems. Gellant, thickener, emulsion stabilizer. Excellent color - catalyst

PYROPHYLLITE - this is chemically a clay but has the appearance and physical properties of talc. The principal use is as a carrier for agricultural toxicants. This product is also used in water paints, dry wall plastics and as a filler for plastics.

QUARTZ (Silica) - see crystalline silica for applications

SERECITE - low grade mica used for dusting. Mainly is used in some of the applications reported for mica.

SILICA - Amorphous - Paint - flat paints, undercoaters, paste wood fillers (easy brushing improved adhesion) floor paints, deck paints (good wear resistance and antislip)

Plastics - (polyester and epoxy)

Elastomers (polyurethane, silicone rubber) adhesive, toiletries (toothpaste)

Ceramics - glazes, electrical resistors, insecticides (compatible carrier)

Crystalline - latex paints - increased sheen, uniformity, improved burnish resistance, excellent flattening characteristic, excellent weathering, brushing and leveling.

Undercoats - harsh texture imparts tooth which assists in bonding

Traffic paints - (wear resistance), silicone elastomers (semi reinforcement, rubber sealants, coatings, adhesives)

SOAPSTONE (Talc) - is a greenish gray color. It is characterized by a soapy feel.

STEARATES - the function of metallic stearates depends upon their physical and chemical properties. Most of the many uses of these compounds can be attributed to one or more of the following basic characteristics:

1. Gelling action in hydrocarbon solvents and petroleum, vegetable, and animal oils.
2. Surface active and related electrical properties
3. Water repellent characteristics
4. Lubricating action
5. Plasticizing action
6. Covering and adhesive qualities

Plastics- Phenolics - zinc and calcium stearate are used in phenolic molding compounds.

Polystyrene - in polystyrene zinc stearate acts as a lubricant and color dispersing agent.

Polyethylene - improved mold release and less down time

Polypropylene - as a lubricant and pigment dispersant

ABS - magnesium and calcium stearate for ABS molding compounds

Rigid PVC - calcium stearate - internal and external lubricant, prevents scorching in pipe extrusion

Plastisols - aluminum stearate - gelling properties either to modify viscosity or to form plastigels.

Calcium stearate - viscosity modifier and mold release - good heat stability

Reinforced polyester - calcium and zinc stearate to facilitate mold release, less machine down time - minimize surface bloom - prevent loss of adhesion

Paint, varnish and lacquer - in coatings aluminum stearate aids in suspension of associated pigments and control flow - effective as flattening agents. In sanding sealers they weaken the film to make it easier to sand and lubricating the sandpaper to prevent it from gumming up.

Waterproofing - metallic stearates are highly water repellent and their fine particle size, high bulk and large surface area make them efficient waterproofing agents. Cement waterproofing, waterproofing cordage oils and masonry coatings

Rubber - zinc stearate is a good lubricant for rubber compounds. It is an effective dusting agent to prevent uncured stock from sticking together. Being soluble in rubber at elevated temperatures it will be absorbed in the rubber during the final cure.

Metallurgy - zinc stearate as a lubricant

Cosmetics - zinc stearate is widely used throughout the industry in face powders, presscake, dusting powder, creams and makeup specialties.

Food - as conditioning agent to prevent caking and to insure free flow of hygroscopic powders. As a lubricant or die release agent in tableting pressed candies.

Pharmaceuticals - tableting lubricant. Zinc stearate as a nutrient in dietary food supplements.

General use in textile compounds, wood preservatives, artificial leather, crayons, waxes, inks, silk screen and masking, bricks, tile, adhesive paper coatings

TALC see listing under MAGNESIUM SILICATE

TELLURIUM - a secondary vulcanizing agent in rubber

TERRA ALBA - see listing under CALCIUM SULPHATE

TITANIUM DIOXIDE - purified grades meeting specifications for CTFA, NF and USP. For use in pharmaceuticals, cosmetics, food products.

TRIPOLI - abrasive compounds, fuffing compounds, buffing wheels, scouring soaps and powders, polishes (hardness) suitable particle shape and porous, auto polish

VOLCLAY BENTONITE - see listing under BENTONITE

WHITING - see listing under CHALK

ZINC OXIDE USP - for use in pharmaceuticals and cosmetics



TALC USE ENCYCLOPEDIA

Abrasives: Even though extremely soft mineralogically, talc is used to give the final high polish to stainless steel and certain metal alloys. It is used also for tumbling soft plastics that would be marred by harder abrasives.

Typical Talcs:

Powdered: 618, 1600, 486, 3016
Granular: 2676, 2408

Adhesives: Talc is used as a filler in many types of adhesives to increase the spreading rate.

Typical Talcs: 11, 367, 399, 2407, 2426

"After-Shave" Powder (cosmetic): See "Face Powder"

Agricultural Dusting: See "Insecticides"

Art Carvings: Use massive Block or Lava Talc (white, green, gray, black) Wonderstone.

Art Pottery: Body component to increase resistance to crazing, to reduce moisture expansion and to reduce firing temperature.

Typical Talcs: 786, 783, 610, 1772

Artificial Flowers: Used to dust the stamen so as to prevent sticking and to extend the tinting colors.

Artificial Fruit: Used as a filler and for dusting surface.

Typical Talcs: 5, 618, 1600, 2401

Artificial Leather (plastic vinyl coating):
both as a filler and as a dusting agent.

Used

Typical Talcs:

Dusting: 367, 150, 11, 1648, 2407,
2426

Filler:

Lo-Micron types: 399, 2130, 490
Powdered: 5, 130, 618, 2401

Asphalt Coatings (paint):

Inert filler. Can
be supplied with guaranteed ignition loss if requested.

Typical Talcs: 367, 470, 1367, 1371

Asphalt Packing: Inert filler.

Typical Talcs: 470, 1367, 1751

Asphalt Roofing:

Coarse talc for surfacing.
powdered talc for backing.

Inert filler and parting com-
pound.

Generally processed to cus-
tomer specification.

Typical Talcs:

Granular: 943, 1751, 1769
Powdered: 367, 1768

Asphalt Shingles:

Inert filler and parting com-
pound.

Typical Talcs: 1076, 1372, 1769

Asphalt Tiles:

Inert filler and parting com-
pound.

Typical Talcs: 367, 470

Baby Powders: Used as the principal ingredient. Selected on basis of purity, softness and color.

Typical Talcs: 1, 1625, 454, 643, 1600,
1755, 2406, 647, 7, 461, 1222, 8, 618, 766, 2427,
1736.

Barber Supplies (cosmetic): Principal ingredient in powders.

Typical Talcs: 4, 5, 618, 2401

Battery Boxes: Inert filler.

Typical Pyrophyllite: 29, 15

Bituminous Coatings: Inert filler - can be supplied with a guaranteed ignition loss if requested by customer.

Typical Talcs: 9, 367, 470, 1367, 1836

Body Powders: Used as principal ingredient. Selected on basis of purity, softness and color.

Typical Talcs: 1, 1625, 454, 1606, 1602, ¹⁷⁵⁵ ~~12~~
12, 2427, 643, 7, 232, 461, 4, 2406, 2403, 1224, ~~647~~
766, 40 - See 15 Pyrophyllite ₆₁₈

Boiler Coverings: Used as filler.

Typical Talcs: 367, 9, 150

Book Binders: Dusting to dry pastes and inks

Typical Talcs: 406, 11, 1514, 2402, 637

Buttons:

Inert filler and tumbling.

Typical
Talcs:

5, 783, 618, 1600

Cable

See "Pulling Cable".

Cast Backings:

Filler in paste to stiffen and

Expend

Typical
Talcs:
2425

5, 1750, 1153, 637, 2402,

Paint:

See "Surface Coatings".

Cracking
Compounds:

See "Surface Coatings".

Cement

See "Refractory Cement".

Decoratives

See "Art Pottery"

"Cooking Ware"

Dinnerware (semi-por-
celain)"

"Electrical Insulators"

"Heat Insulators"

"Hobbyists"

"Kiln Furniture, etc."

"Refractory Cements"

"Saggers"

"Steatite"

"Wall Tile"

In general

~~are~~ not used by manufacturers of vitrified
ware, floor tile, etc.

Ceramics:

Selection depends on customer

specification and use.

Typical
Talcs:

232, 454, 462, 618, 150, 5,

461, 11, 367, 9,

2401

(4)

Chewing Gum (tablets): Dusting to prevent sticking. U. S. P. is generally specified.

Typical Talcs: 1, 662, 1755

Cleaning Compounds: Filler and extender.

Typical Talcs: 160, 1751, 2402, 2425, 3016

Coated Papers and Paste Board: See "Paper".

Coated Wire: See "Wire".

Color Pigments: Inert filler and extender.

Typical Talcs: 454, 490, 399, 1625

Confectionery Products: Dusting to prevent sticking.

Typical Talcs: 1, 662, 454, 1625.

Cooking Ware (ceramic): Used as a body ingredient to increase resistance to heat shock.

Typical Talcs: 486, 11, 481, 1736

Cordage, Twine: Lubricant and filler.

Typical Talcs: 5, 367, 783, 11, 2401

Cork Products: Dusting molds, lubricating.

Typical Talcs: 406, 483, 367, 150, 9, 1, 1600, 662, 1625, 1750, 637

5

Cosmetics:

See "After-Shave Powder"
See "Face Powder"
"Baby Powder"
"Barber Supplies"
"Body Powder"
"Creams"
"Face Powder"
"Liquid Powder"
"Lotions"
"Pan Cake"
"Rouge"

Crayons:

CLOVER Brand for metal
marking - all standard. See "Soapstone" (Talc)
Crayons under "Specialties".

Creams (cosmetic): Used as a filler or extender.

Typical Talcs: 1, 662, 1222, 1625

Dental Supplies: Investment casting, as a filler
and extender.

Typical Talcs: 150, 13, 486
As a dusting powder, U.S.P. 1, 662, 1222, 1755
1625

Innerware (semi-porcelain ceramics): Component
part of body to increase resistance to heat shock and
to decrease tendency to craze.

Typical Talcs: 786, 783, 610, 1772

Drugs: Carrier and diluent of chemicals in pills,
powders and liquids. Lubricant in tablet manufacture.

Typical Talcs: 454, 662, 1625, 12, 490,
1602, 1755, 1222, 1640, 232, 1603, 618, 2406, 2427

Dusting, Miscellaneous: Can be supplied according to customer specifications; vary widely as to use.

Typical Talcs: 1, 1625, 1600, 643, 677, 8, 1736, 399, 1153, 367, 4, 5, 1750, 160, 2401, 1367

Electrical Insulators: As a body component to improve di-electric properties.

Typical Talcs: 486, 1211, 1736, 2786, 5486

Enamel: See "Surface Coatings".

Engraving: Dusting

Typical Talcs: 643, 1603, 486, 11

Exterminating: See "Insecticides".

Fabricated Plastic Products: Used as filler.

Typical Talcs: 399, 461, 4, 1648, 2403

Face Powder: Major ingredient.

Typical Talcs: 1, 1625, 1606, 1612, 647, 2427, 1729, 1600, 7, 1640, 1153, 2406, 1603, 8, 618

Fats (edible): Filtering

Typical Talcs: 662, 1, 1755, 647

Felt: Used as a filler.

Typical Talcs: 150, 783, 367, 5.

Fertilizer: Used as carrier and diluents.

Typical Talcs: 367, 1750

(7)

Fibre Board: Used as filler.
Typical Talcs: 367, 13, 643, 1648, 1750,
1153, 5

Fillers, Miscellaneous: Used to fill and
extend all types of products.

Typical Talcs: 1, 1625, 399, 490, 1602, 677,
1603, 1153, 5, 367, 1750, 2401, 2408, 2676, 1836

Filtration: Used to filter perfumes,
essential oils and drugs.

Typical Talcs: 454, 1625, 1, 2407, 2426

Finishing (textiles): Filler, dusting to dry inks.

Typical Talcs: 150, 677, 486, 1648, 2441,
2442

Floors, Magnesite: Used as filler.

Typical Talcs: 367, 1750, 9, 1153.

Foods: Polishing grains.

Typical Talcs: 235, 456, 1635

Dusting of confections.

Typical Talcs: 1, 662, 1625, 1755

Extenders

Typical Talcs: 1, 662, 399

Footwear (rubber and plastic): Filler and dusting.

Typical Talcs: 367, 1750, 1603, 399

(2)

Foundries: Used as dust mold facing,
parting compound for core and lubricant.

Typical Talcs: 367, 160, 1153

Fungicides: Carrier and diluent.

Typical Talcs: 150, 367

Graphite Crucibles: As an extender and to increase
resistance to heat shock.

Typical Talcs: 11, 486

Greases: Lubricant extender.

Typical Talcs: 367, 11, 1153, 399

Gray Iron Casting: See "Foundries".

Gutta Percha: Inert Filler.

Typical Talcs: 367, 399, 2405

Hats (felt body): See "Felt".

Heat Insulators (ceramics): Principal
component used to increase resistance to heat shock.

Typical Talcs: 11, 486, 1772, 1736

Hobbyist (ceramic): See "Art Pottery".

Hospitals: Pharmaceutical -- see "Drugs"

Talcum for dusting gloves and rubber sheets.

Typical Talcs: 454, 399, 662, 1755, 2406,
2427

Ink (printing): Filler and extender.

Typical Talcs: 1514, 486, 399, 40, 1736,
2776

Non-offset: 4, 2403

Insecticides: Used as carrier and diluent
in airplane dusting, emulsions and hand spray dust-
ing.

Typical Talcs:
Northeastern: 1750, 29, 5, 2401
Southern: 367, 9, 2367
Central: 29, 160, 2367
Western: 29

In ulated Wire: See "Wire".

In sulation: Filler and extender.

Typical Talcs: 367, 1750

In sulators (ceramic): Major component part of body.

Typical Talcs: Block or Lava - to be machined.

Heat Insulators -

Typical Talcs: 486, 11, 481

Electronic Insulators -

Typical Talcs: 486, 1211, 1736, 2786, 5486

Jewelry: See "Precision Casting".

Semi-gems carved from compact Block
of Lava Talc (white, green, gray, black).

Kiln Furniture: Used as a body component to
increase resistance to heat shock.

Typical Talcs: 11, 486, 461

Lacquers: See "Surface Coatings".

Latex: See "Rubber".

Lava Insulators: Used Block or Lava Talc.
Available only in limited quantities. Must be compact
and free from laminations or flaws.

Lead Pencils: Filler and lubricant.

Typical Talcs: 367, 150, 406, 8

Leather (artificial): Filler and dusting.

Typical Talcs: 150, 232, 618, 5, 2401

Leather (natural): Dusting, sizing.

Typical Talcs: 232, 367, 399, 5, 2401

Linoleum: Filler and dusting.

Typical Talcs: 1750, 367, 618

Liquid Powder (cosmetic): See "Face Powder".

Lotions (cosmetic):

Typical Talcs: 1625, 1600, 1755, 12

Lubricant:

Typical Talcs: 367, 1600, 1625, 11

(11)

<u>Malleable Iron Casting:</u>	See "Foundries".
<u>Medicine:</u>	See "Drugs".
<u>Metal Finishing:</u>	See "Abrasives".
<u>Models:</u> or Lava Talc. Used to carve models of intricate details. In some cases can be heat hardened.	Carved from compact Block
<u>Polys:</u>	Dusting and lubricating.
<u>Typical Talcs:</u>	367, 1750, 11, 5...
<u>Poliments (polishing):</u>	See "Abrasives".
<u>Polician Supplies:</u>	Dusting powder.
<u>Typical Talcs</u>	454, 1600, 1625, 4, 2403
<u>Polys:</u>	Lubricant in nailing machines.
<u>Typical Talcs:</u>	367, 150, 11, 1153
<u>Cloth:</u>	Filler and dusting.
<u>Typical Talcs:</u>	367, 399
<u>Polys:</u>	See "Filtration".
<u>Pol Cake Make-up (cosmetic):</u> principal component.	Used as principal
<u>Typical Talcs:</u> 1600, 1222, 1	1625, 1755, 1602, 454, 829,
<u>Polys:</u>	See "Surface Coatings".

Paper (filler): Color and softness being of importance.

Typical Talcs: 399, 1731, 7, 643, 4, 1736, 2403, 367, 1750, 1153, 486

Paper Board: Filler

Typical Talcs: 367, 1750, 232, 1153

Paper and Paste Board (coated): Coating - color is generally important.

Typical Talcs: 399, 1731, 1625, 490, 1600, 1736, 2404, 2424

Parting Compounds: See "Dusting Agents".

Paste: Filler and Extender.

Typical Talcs: 367, 150, 5, 2401

Pencils: See "Lead Pencils".

Perfumes: See "Filtration".

Petroleum Refining: See "Filtration".

Pharmaceutical: See "Drugs".

Phonograph Records: Filler

Typical Talcs: 406, 677

Pitch: See "Asphalt Compounds"

Plastics: Filler, dusting, polishing.

Typical Talcs:

Filler: 367, 399, 11, 130



Tumbling (polishing): 1600, 643, 1153,
2408, 2676

Porcelain Insulators: Body component.

Typical Talcs: 481, 1211

Pottery: Component part of body to
reduce tendency to craze.

Typical Talcs: 783, 786, 610

Precision and Centrifugal Casting Compound:
Mixed with plaster to increase resistance to heat
Shock.

Typical Talcs: 380, 486, 11

Printing Inks: See "Ink".

Pulling Cable: Utility companies use soap-
stone to give added slip.

Typical Talcs: 367, 150

Putty: Improves slip under knife.

Typical Talcs: 150, 11, 1153.

Refractory Cement: Component material to increase
resistance to heat shock.

Typical Talcs: 481, 11, 486, 1772

Refractories (ceramic): Component body
material to increase resistance to heat shock.

Typical Talcs: 11, 160, 481, 1736, 486

Rice: Polishing.

Typical Talcs: 235, 456, 1635

Roof Coatings: Filler and dusting - generally supplied according to customer specification.

Typical Talcs:

Powdered: 483, 470, 1768, 160

Granular: 1368, 1371

See "Specialties"

Rouge (cosmetic):

Typical Talcs: 399, 1731, 1625, 1606, 643, 1222, 7, 1755

Rubber: Talc is used as a filler and for dusting. The selection on the proper grade of talc depends upon the properties of the final product.

Typical Talcs:

Adhesives: 406, 11, 150, 232

Dusting: 367, 11, 1153, 150, 1836

Fabrics (sheeting): 399, 677, 406, 11

Filling: 367, 1750, 11, 5, 2401

Footwear (soft): 367, 11

Gloves: 11, 677, 399

Hard Products: 367, 1750

Heels and Soles: 367, 160, 1750, 11

Insulated Wire and Cable: 11, 406, 399, 1603

Latex: 367, 11, 486, 2407, 2426

Mannequins and Dolls: 399, 11

Mats, Flooring: 9, 1153

Mechanical Goods: 4, 9, 367, 1750

Molds: 367, 160, 1750

Soft Products:	11, 406, 486
Sponge and Foam:	11, 677, 399
Surgical Sundries:	11, 454, 1222,
1755, 2427	
Synthetic:	1603, 1153
Thread:	406, 1603, 399, 643
Tile:	367, 160, 1313,
1750	
Tires:	483, 1750, 9, 367
Tubes and Tubing:	367, 1750, 11

Sagger: Used as a body component to
rease resistance to heat shock.

Typical Talcs: 486, 11, 160, 1736

Sealing Compound:

Typical Talcs: 367, 150, 11, 1153

Shopbuilding: CLOVER Brand Crayons for
marking metal - all standard sizes.

Shoes: Prevents white shoes from oil
spotting in manufacturing process. Extender in polish.

Typical Talcs: 399, 5, 618, 2401

Silica: Delustering.

Typical Talcs: 399, 1600, 643, 1731

Slide Fasteners: Tumbling

Typical Talcs: 1373, 1750, 2408, 2676

Soap: Filler and Extender

Typical Talcs: 5, 130, 2405

Stagnary, Cast: Dusting of molds and filler.

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Statues (carved): Block or Lava Talc used in a compact form and carved either by hand or by power machines. (White, green, gray, black.)

Steam Pipe and Boiler Covering: Filler

Typical Talcs: 367, 1750, 5, 2401

Steatite Insulators for Electronics: Major component of body to give di-electric properties.

Typical Talcs: 1211, 486, 1736, 2786, 5486

Steel Castings: See "Foundry".

Steel (polishing, stainless): See "Abrasives".

SURFACE COATINGS:

Asphalt Coatings: Used as a filler - generally not as finely ground as usual talcs - must have low ignition loss.

Recommended Talc: 1367

Caulking Compounds: Talc, because of the fibrous nature of its particle and the oil absorption, is a necessary ingredient to a limited extent in caulking compounds.

Typical Talcs: 367, 1836

Color in Oil: Sometimes extended with talcs for suspension purposes and for lower cost.

Typical Talcs: 2130, 648, 399, 2405

Eggshell Enamels: Used as the extending pigment for controlling the matt effect without employing agents which tend to give soft or cheesy film.

Typical Talcs: 200, 1731, 1065

Enamel Undercoat: Talcs are used for flow control characteristics which give smooth, sandable surfaces.

Recommended Talcs: 1731, 399, 1767

Exterior House Paints (white and colored): Because of particle distribution, some talcs aid in the durability characteristics of outside house paints.

Typical Talcs: 233, 971, 2405, 463, 1060, 1065, 1104

Colored Exterior Paint: 5, 233, 1767, 2405

Glazing Compounds: These materials are similar to caulking compounds and talcs are used for their consistency characteristics.

Recommended Talcs: 462, 367, 150, 1065, 1767, 2405

Inert Filler:

Typical Talcs: 399, 1731, 1060, 2130, 462, 1065, 1767, 1641, 5, 367, 648, 1104, 2405

Interior Flat Wall Paint: Used in long oil flat wall paint of low side sheen.

Recommended Talcs: 399, 1731, 1030, 2405 - Excellent sole extender used with titanium calcium flat paints.

Note: On deep tone flats, 399 reduces some mar resistance to the dry film and aids in suspension of other ingredients.

Lacquer Surfacers: Need to be sanded and therefore talcs are introduced to give slip.

Typical Talcs: 400 406 367 677 399 1030 1767

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Metal Primer Surfacers:

Made with suitable vehicle, these need some platy talc to lend slip to the film for easy sanding and clean cutting.

Typical Talcs: 367, 677, 399, 1767, 1030

Some talcs also improve the adherence characteristic of this type material

Recommended Talcs: 1767, 399, 1768

Military Specifications:

Information upon request.

Paper Lacquers:

Sometimes a lower sheen than the usual glossy finish is desired - this is easily accomplished.

Typical Talcs: 399, 406, 677, 1731, 1090

Protein Emulsion:

Filler and extender.

Typical Talcs: 11, 1641, 2405

Putty:

Generally a small amount of talc is used in putty to hold oil in the mass to minimize bleeding and to improve knifing when applying.

Typical Talcs: 462, 367, 1090, 2405

Resin Emulsion:

Filler and extender.

Typical Talcs: 11, 1104, 1641, 2405

Sanding Surfacers:

Need an ingredient to give easy sanding characteristics which are found in platy talcs. Talcs are used to impart easy sanding and good cutting for the other ingredients in the formula.

Typical Talcs: 461, 462, 618, 399, 1767, 1030, 1768

Sheen Control: Use approximately 1/4 oz. per gallon - reduce gloss from 90 reading on 60% Glossmeter to 75 reading.

Recommended Talcs: 399, 1731

Toy Enamel: In some toy enamels, manufacturers desire all ingredients to be of known purity and therefore U. S. P. talcs are recommended for this type of surface coating.

Recommended Talcs: 1, 1736

Wood Filler: Incorporate talc in this type formulation for filling properties to prevent shrinking and for clean wiping.

Recommended Talcs: 367, 461, 1060, 1767, 1768

Wrinkle Finish: Employ talc to give uniform sheen and help control other characteristics of the wrinkle.

Typical Talcs: 399, 1731

Surgical: Heart operations. Data on request.

Textiles: Filler weighting.

Typical Talcs: 643, 11, 1648, 2441, 2442, 2450

Tile, Wall (ceramic): Component body material to reduce tendency to craze.

Typical Talcs: 786, 783, 610, 463.

Tires and Tubes: Filler and dusting.

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Toilet Preparations: See specific type.

Tumbling Compounds: See "Abrasives"

Vinyl Resins: Used both as a filler and for dusting.

Typical Talcs: 399, 367, 461, 2424, 2404

Wall Board: Filler

Typical Talcs: 367, 1750, 1153, 2408, 2676

Wall Tile (ceramic) See "Tile".

Welding: Soapstone Crayons to mark both cold and hot metal to lay out cutting patterns.

CLOVER Brand Metal Worker's Crayons - all popular sizes.

Whiteware (ceramics): Component body material to reduce tendency to craze.

Typical Talcs: 786, 783, 610

Wire (insulation and coating): Used as a filler in rubber and plastic coatings. Also for dusting.

Typical Talcs: 406, 677, 11, 399

Wire Drawing: Lubricant in drawing.

Typical Talcs: 367, 150, 1153

Zippers: Used to tumble.

Typical Talcs: 1373, 2408, 2676



TALC BY SPECIAL PROPERTIES

Best Color	1625	454	1602	2427
Oil Absorption:				
High	399	1731	1446	
Low	4	5	130	
pH:				
High	4	5	130	
Low	1153	160	462	1153
Slip:				
High	1625	1602	643	454
Bulk:				
High	399	2755	1	
Low	4	5	130	
Lo-Micron Particle Size	2755	399	1731	
U. S. P.	1755	2755	662	
Fibrous	13	233		



ESTABLISHED 1890

PRODUCT DATAMAGNESIUM SILICATE TALC

The designation "talc" covers a wide range of natural products. The given theoretical formula for talc mineral (hydrated magnesium silicate) corresponds to a weight ratio of magnesia (MgO) to silica (SiO₂) of about 1:2 but in actual practice this ratio may reach or exceed 1:1.

For reporting purposes, talc, soapstone, steatite and Asbestine are considered as a group. Soapstone refers to a talclike material of variable composition containing sufficient impurities to prevent its use in applications requiring white color or chemical purity. Steatite refers to a particularly massive compact form of talc and differs from soapstone in terms of its relative purity (Soapstone may only contain 50% talc). To qualify as a steatite grade talc, it must contain less than 1.5% CaO, 1.5% Fe₂O₃, and 4% Al₂O₃. Asbestine is a fibrous form of talc that is mined in the northern section of New York State

In view of the many composition variables associated with talc, it is understandable the talc of commerce may not always contain the mineral talc as a major constituent although this is usually the case. It also explains many grades of talc that are offered as commercial pigments to industry.

The types and amount of mineral impurities associated with talc are more less indicative of the areas from which they are mined. Montana deposits very nearly pure talc. New York talcs commonly contain only about 20% to 30% of mineral talc. Vermont talcs are high in magnesite, Texas talcs run high dolomite, and California talcs vary in associated mineral content depending their relative softness or hardness.

The five principal United States talc mining districts are California, Nevada, Montana, New York and Vermont. Texas, North Carolina, Georgia and Alabama, although not listed among the top five, are significant in talc mining.

The purest talcs that approach theoretical purity, are characterized by the whitest color, and command the highest price. Pure talc is the softest known mineral, exhibits hydrophobic surface properties, and has a slippery feel. Although pure talc is the standard for softness of 1 on the moh scale (diamond=10) commercial products may be less soft due to the presence of impurities or associated minerals such as calcite, tremolite and silicious materials.

Magnesium is the eighth most abundant element in the earth's crust, the sixth most abundant element in the sun's atmosphere, and in the form of magnesium silicate is the second most important component of meteorites.



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continued....



ESTABLISHED 1890

PRODUCT DATA

Magnesium Silicate Talc (continued)

Page 2

The color of natural talc is white, gray, yellow, or a greenish shade and is characterized by a silvery or pearllike luster. It occurs in veins and/or masses formed from preexisting mineral aggregates. The entire talc vein can seldom be completely extracted because of ore dilution with detrimental adjacent rock.

Discounting minor yearly fluctuations the consumption of talc domestically¹ produced has grown at an annual rate of 4% since 1960 and this trend is expected to continue.

About 40% of the talc sold in the past has been low cost and low quality product. Industry is looking more and more to the better grades of talc and their controlled physical and chemical characteristics.

Talc is probably used in a wider variety organic coatings than any other single extender pigment. This widespread utilization of talc pigment is well justified. Talc pigments are normally self-suspending in paint vehicles. Moreover, they assist in keeping associated pigments also suspended. Whatever settling occurs is generally soft and readily redispersed (platy talcs are especially effective for antissettling behavior).

Talcs disperse with relative ease in most paint vehicles. Certain grades are especially useful for incorporation in aqueous systems.

Since talcs chalk more readily than most extenders, they are frequently used in a compromise pigment combination (for instance with ground limestone) to provide controlled chalking (self cleaning exterior paints).

Most paint-grade talcs possess both a high specific surface area and a fairly high oil absorption capacity. Although these properties limit the amount of talc that can be incorporated in a paint, their presence in moderate amounts contribute to improved rheological properties (antissettling, brushability, satisfactory leveling and antisag).

Certain talcs impart a flattening effect that can be used to control the gloss of enamels (high-purity Montana talc is reported as ideal for this purpose). These talcs are generally 10-micron grades with a top size below 25 microns and readily dispersible stir-in extender pigments producing Hegman fineness values of 5 and above in high-speed paint mixing equipment. In wall paint formulations their use results in improved brushability and clean-up. The finest 10-micron talcs produce excellent flattening, good low-angle sheen, and good resistance to burnishing. In primers they exhibit excellent suspension, holdout, and sanding properties.

continued....



PRODUCT DATA

Magnesium Silicate Talc (continued)

Page 3

Both acicular and platy talcs improve the bonding properties, film toughness and durability of paints. Of the two, the platy talcs are claimed as more effective in upgrading the physical properties of a paint. Platy talcs also appear superior to fibrous talcs in improving the water and humidity resistance of a paint film (less permeable due to physical configuration). On the other hand fibrous talcs are preferred for imparting better blister resistance.

It is stated that talcs are equal or somewhat superior to other extenders in resisting corrosion influences.

The platy and granular talcs like the 10-micron grades are especially prized in metal primers due to their excellent sanding properties and in top coats due to their contribution to burnish resistance and good scrubability. All talcs exhibit outstanding holdout properties. However, the platy grades are by far superior.

The relatively coarse grades are utilized where residual surface roughness (tooth) is desirable such as for wall primers, undercoaters, and texture paints.

Talc is commonly used in white linseed oil house paints, traffic paints, latex paints, industrial undercoats, and structural steel primers.

Talcs tend to be commodity pigments in that products from different manufacturers are frequently used interchangeably. However in view of the many grades of talcs offered, the formulator should carefully evaluate the effect of the replacement talc on the performance of the end compositions before committing himself to this substitution.

Talcs are supplied in a broad range of particle sizes and distributions. Further diversifications arise from the fact that, depending on the talc source, talcs vary greatly in particle shape. Thus the talc pigment may be predominantly acicular, fibrous, granular, or platy. The method of reducing the crude ore to pigment particle size has little to do with the talc particle configuration, the origin of the talc being all important.

In view of this situation, it is understandable that a talc manufacturer may stock as many as 70 standard grades of talc for sale to industry, all of which are designed for definite end uses. It also suggests that consultation with the technical personnel of a talc manufacturer is in order when a customer introduces talc pigment into his product.

It is the policy of Whittaker, Clark & Daniels to make available talc products especially designed for use by the paint industry at strategic points throughout the country. Thus industry can have the advantage of not only a ready supply of a selected product, but also a product that is economically desirable.


ESTABLISHED 1880

PRODUCT DATA

399 MAGNESIUM SILICATE S.F.

No. 399 Magnesium Silicate is a low micron magnesium silicate (talc) which has been produced by Whittaker, Clark & Daniels for a number of years. This talc has gradually grown to become the standard of comparisons for all low micron talcs.

No. 399 Magnesium Silicate is ground from a Montana ore and is extremely white in color. It is used in various ways in the paint and printing ink industries.

The popularity of No. 399 Magnesium Silicate S.F. has increased considerably with the increased popularity in the use of new manufacturing facilities for paint products.

No. 399 Magnesium Silicate S.F. is an ideal pigment, not only for its original intent of use in production enamels and other paints for sheen control, but because of its fine particle size and particle size distribution uniformity from lot to lot, bag to bag, No. 399 Lo-Micron Magnesium Silicate is an ideal pigment for formulations which are processed on high speed dispersors and/or sand mills.

No. 399 Lo-Micron Magnesium Silicate still retains its popularity as a formulating tool for sheen control where the sheen of the finished enamel must be uniform on all parts of assembled item. Representative of this type of work would be metal cabinets, bicycles, various heavy toys and any and all sundry items which are produced in individual pieces and assembled on any assembly line.

The reason for this is that most paint batches of enamels when they come down for final inspection vary somewhat in the degree of gloss and the item which is to be coated with this enamel must naturally have and maintain a uniform gloss or when the assembled parts were finally put together in the finished product, it would be rather a sorry looking manufactured piece because of variations in gloss from part to part.

No. 399 Magnesium Silicate S.F. is used at this point in the manufacture of enamels to bring the gloss to a uniform standard and is introduced by the paint manufacturer either by sprinkling into the finished batch and dispersing under the mixing paddles or by having the No. 399 Magnesium Silicate pre-wet in some diluent or solvent that is already in the formula and introducing it at the end of the batch make-up in this form so that there are no possible opportunities for any talc particles to agglomerate and cause trouble either in the straining or in the final finish by showing speckiness.

continued....



PRODUCT DATA

399 Magnesium Silicate S.F. (continued)

There are several talcs which are sold in this category, but No. 399 Magnesium Silicate S.F. is by far the most efficient both from a standpoint of the reducing of the gloss of the paint by the nonsettling characteristics and also by the ease of dispersion and the slight increase in viscosities attributed to the introduction of Magnesium Silicate S.F. to the formula.

There are some specialized purposes for some of the competitive low micron materials which might act as substitutes for No. 399 Magnesium Silicate, but in general use none of the competitive materials make a satisfactory overall substitute for No. 399.

No. 399 Magnesium Silicate S.F. is also widely used in plants where it has been introduced (first as a sheen control item) as a formulating tool in the manufacture of quality satin egg shell and flat enamel paints for general trade sales. One reason for this is that formulations made with No. 399 never lose nor change the gloss readings which were obtained on the dried films when the enamel was first made. This is really quite a problem in the manufacture of this type of trade sales goods because on standing, egg shell and flat enamels generally increase in sheen unless No. 399 Magnesium Silicate is used as the sheen control item.

399 MAGNESIUM SILICATE S.F.

<u>Material</u>	<u>Hegman Test</u>	<u>Viscosity</u>			<u>Glossmeter Reading</u>		
		<u>1/4#</u>	<u>1/2#</u>	<u>1#</u>	<u>1/4#</u>	<u>1/2#</u>	<u>1#</u>
399	6+	100 KU	105 KU	120 KU	78	50	37
1731	6	99	101	112	84	70	54



PRODUCT DATA

BARYTES

Functional Applications

Paints - A major utilization of barytes in paints is in the formulation of industrial undercoats and especially industrial primers. The nodular structure of the barytes particles and their low oil absorption or oil demand permit the formulations of primers possessing good leveling and excellent build properties with associated good enamel holdout. As a result, subsequent top coats exhibit outstanding gloss.

The chemical inertness of barytes also recommends its use in designing chemically resistant coatings that must withstand the attack of acids, alkalis and corrosive gases.

Due to its high index of refraction (for an extender pigment), barytes functions as a weak white pigment in water paints and provide a moderate degree of hiding power. In oil paints it is essentially transparent, but because of its low tinting strength, it offers a good extender base for the incorporation of both white and colored pigments.

Barytes is occasionally employed to improve the dispersion properties of certain inorganic pigments.

In floor coatings it densifies the coating and imparts wear resistance.

Barytes is also used in flat interior wallpaints. Barytes in some formulations effects the speed of dry semigloss latex paints, imparts a harder film without loss of gloss.

Flooring - Barytes is commonly used in the manufacture of linoleum and composition flooring. It readily disperses in most binder systems to yield flooring products that are highly resistant to abrasives and heavy traffic conditions.

Rubber - High loadings of barytes can be readily incorporated with elastomers to provide dense elastomeric products. Such heavy rubber of reasonable toughness are occasionally desirable where weighting is necessary.

Ceramics - A coarse grade of barytes is used in the glass industry where the fluxing action of the barium sulphate is utilized to reduce the melting point of the glass melt. The high index of refraction of the barite also imparts a degree of sparkle to the glass.

Well Drilling - A fine grade of barytes is used in the formulation of oil well slurries and drilling muds. During the drilling operations the ground rock and debris that accumulates must be removed. This is done by first suspending this accumulated material in a slurry of barytes. The high density of the slurry prevents the settling of the rock particles. The suspension of the drillings or residual in the barite slurry is removed by pumping. Also the addition of barytes tends to sufficiently weigh the water slurry above the drill to prevent gases from blowing out through the casing walls.

2 pg.



CF-BALL-3

MARKETING GUIDE
FOR
COSMETIC - PHARMACEUTICAL
INDUSTRIES

GLOSSARY OF TERMS

BACTERIA CONTROL - or the indication "B.C." designates that the product was processed in some way to eliminate or control bacteria or mold present. WC&D control is usually 0 colonies of gram positive type bacteria and less than 100 colonies per gram of mold. Any discussion on this subject or correspondence must be handled through our laboratory not by salesmen or sales desk personnel.

C.T.F.A. - denotes a specification, standard, or test method to control purity to cosmetic industry requirements. C.T.F.A. stands for Cosmetic, Toiletries and Fragrance Association. (formerly called T.G.A.).

D & C COLORS - means organic colors certified for use in cosmetics, mostly lipstick and cannot be used around the eyes. These colors are all dispersible and not water soluble as are F D & C (food colors). We do not sell food grade certified colors.

F.C.C. - Food Chemical Codex is a compilation of standards for food grade chemicals.

F. D. A. - Food and Drug Administration - a federal department charged with setting controls on food and cosmetics and regulate many of our products. For example, they certify our D & C colors.

F. D. & C. - Food, Drug & Cosmetic - these are certified colors for use in Food products and are usually water soluble. They are also used in cosmetics and drugs but we do not sell this type color.

GRAS - a term not now generally used but means "generally regarded as safe" because of past history of safety.

N.F. - stands for a specification control listed in the National Formulary another source of control for the pharmaceutical industry. This source of information is quite the same as U.S.P. but ruled by a different group. Products can be listed as both N.F. and U.S.P. Some materials are listed as N.F. and not U.S.P. or vice versa.

OSHA - stands for Occupational Safety and Health Act. This is a federal department responsible to control safe conditions for workers. This would refer to dust, asbestos, arsenic, lead, or other limits of harmful substances as relates to our products.

continued

Glossary of Terms - continued

U. S. P. - a notation in the nomenclature of a product indicating a specification standard listed in the United States Pharmacopoeia to control products for use in drugs but also used by other industries such as cosmetics or foods.

GENERAL AND CONTINUING GUARANTY - is a method we use for customers who request a check or statement from us that our product meets specifications - this letter eliminates the necessity of sending confirmation on each and every shipment.

CERTIFICATE OF ANALYSIS - a certificate stating our product meets standards requested such as U.S.P, C.T.F.A., N.F. or even our own specification. Sent on request only.

I N D E X

Blanc Fixe - Barium Sulphate, Precipitated "French White"

Bentonites - Mineral Colloid - Powdered - Granular
U.S.P. and Technical

Calcium Carbonates - Precipitated U.S.P. Chalk & Calcite

Calcium Sulphates - Anhydrous, Hydrous N.F.

Clay - see Kaolin

Colors - "Thomasset Colors" - Certified Organic for lipsticks
Purified Inorganic Pigments "B.C.", Lo-micron

Fullers Earth - Powdered - Granular

Hydro-Magma Paste - Magnesium Hydroxide in water

Kaolin - Colloidal - Airfloated - Lo-micron
Domestic - English - N.F.

Lime - Hydrated N.F.

Magnesium Carbonate - Light, Heavy, N.F.

Magnesium Hydroxide - N.F. Powdered and Paste

Magnesium Oxide - Light, Heavy U.S.P.

Mica - Water Ground cosmetic grade, Bacteria Controlled

Mineral Colloids - Albagel - Albagen - Bentolite
U.S.P. and Technical

Soapstone - see Talc

Stearates - Aluminum, Magnesium, Calcium, Zinc, U.S.P.

Talc - DOMESTIC, Alabama, North Carolina, Metropolitan, Texas
IMPORTED, Italian, French, Korean

Special grinds for bath powders, press powders, tablet-coatings,
aerosols, lo-micron
U.S.P., C.T.F.A., Bacteria Controlled, Technical

Titanium Dioxide - Purified C.T.F.A., U.S.P., N.F. - Bacteria Controlled
Water dispersible, Oil dispersible

Zinc Oxide - U.S.P.

<u>Code</u> <u>No.</u>	<u>Product Description</u>	<u>Uses</u>
604	Alumina, Hydrated "Hydral 710", 1 micron	
614	Alumina, Hydrated C-331	As abrasive
617	Alumina, Hydrated	Toothpaste - Skin Products
619	Alumina, Hydrated C-33	etc.
639	Alumina, Hydrated C-31	controlled particle size
647	Alumina, Hydrated "Hydral 705" ½ micron	

<u>Code</u> <u>No.</u>	<u>Product Description</u>	<u>Uses</u>
1525	Barium Sulphate Imported "Blanc Fixe"	Bulk Density control White Filler - sometimes referred to as "French White"
2278	Barium Sulphate Imported "Blanc Fixe"	
49	Bentonite, Technical Grade	
344	Bentonite, Technical Grade 30-40 mesh Granular	
670	Bentonite U.S.P. 5 micron	Not recommended for cosmetic or pharmaceutical use. Use for filtration and waste control
4430	Bentonite "Bentolite H"	
4439	Bentonite "Albagen"	Low cost USP Montmorillinite . Use for facial mask-gelling and suspension-Grit free-High Gel type
4444	Bentonite U.S.P. "Albagel Premium"	
4446	Bentonite "Albagel Regular"	
		Mineral colloid of highest quality and purity for food, cosmetics and pharmaceutical uses.

<u>Code</u> <u>No.</u>	<u>Product Description</u>	<u>Uses</u>
64	Calcium Carbonate, Precipitated) USP - English - Dense) 76 - 86 lbs./cu.ft.))	
300	Calcium Carbonate, Precipitated) USP, Light 12-13 lbs./cu.ft.))	Toothpaste, tablets,
2048	Calcium Carbonate, Precipitated) USP, heavy mix))	capsules, cosmetic make-up
2064	Calcium Carbonate, Precipitated) USP, extra heavy))	products.
2090	Calcium Carbonate, Precipitated) USP))	Controls density in tableting
2923	Calcium Carbonate, Precipitated) Heavy, 23-29 lbs./cu.ft.))	
2924	Calcium Carbonate, Precipitated) USP, extra light 14 lbs./cu.ft.))	
2925	Calcium Carbonate, Precipitated) USP, medium 13-15 lbs./cu.ft.))	
2931	Calcium Carbonate) Food Grade (codex)))	

Calcium Carbonates - controlled density prepared to customer's specification
are also available.

164	Calcium Sulphate) Anhydrous))	Nutrient in food and beverages
255	Calcium Sulphate N.F.) Hydrous "Terra Alba"))	Use as a binder in tablets, etc.
256	Calcium Sulphate N.F.) Hydrous "Terra Alba"))	
115	Fullers Earth) 110 mesh (coarse)))	Attapulgate Type - used for absorption,
2829	Fullers Earth) "Min-U-Gel 400"))	filtration, filler, etc.

Code No.	Product Description	Uses
347	Kaolin, English Colloidal N.F. White	Use for suspension lotions
825	Kaolin, Medicinal	facial talcum powders
2462	Kaolin, White Domestic "Hydrite #121"	face products - creams, lotions
2747	Kaolin, Colloidal Fine N.F. - B.C.	Internal absorption -
2749	Kaolin, Colloidal N.F. - B.C.	pharmaceutical lotions and creams
802	Lime (Calcium Oxide) Chemically Hydrated	
309	Magnesium Carbonate Light - N.F.	Antacid - Bulk agent
320	Magnesium Carbonate Heavy - N.F.	Fragrance retention Buffer - Conditioning agent
314	Magnesium Hydroxide Paste Standard Viscosity	Milk of Magnesia base and Antacid
370	Magnesium Hydroxide N.F. Powder	
310	Magnesium Oxide Heavy - USP	Use in Antacids
311	Magnesium Oxide Light - USP	
280	Mica, Water ground, white Cosmetic Grade B.C.	Use for slip and glitter in powders & makeup products

Code

No. Product DescriptionUses

907	Aluminum Stearate	)	Also available	)
	Standard Medium Gel	)		)
		)	in	) Lubricants & Gel
2285	Aluminum Stearate	)		)
	Non gel	)	Low and High Gel	)

1345	Calcium Stearate	)		
		)	Both Calcium and Magnesium	

2307	Calcium Stearate	)		
	"Food Grade", also "Kosher")	)	Stearates are used for	

905	Magnesium Stearate	)	making tablets, Magnesium	
	USP	)		
		)	Stearate is usually preferred	

2311	Magnesium Stearate	)		
	USP Food Grade	)	for this.	

695	Zinc Stearate USP	)	Pharmaceutical Tablets. Lends adhesion to powders. Anti-caking body agent in shaving creams and lotions.	
-----	-------------------	---	---	--

February 11, 1986

Bond, Schoeneck & King
John D. Callahan, Esq.
One Lincoln Center
Syracuse, NY 13202

Dear John:

Re: Carbola Chemical Co., Inc. - Quit Claim Deed

Last fall, we were notified by the tax assessor in the Town of Diana that Carbola had not paid real estate taxes and several notices to Edward F. Smith had gone unanswered.

It was our opportunity to submit a bid for the parcel retained by Carbola and the quit claim deed was the result of the Town of Diana accepting our offer.

The enclosed document is sent to you for your records.

We send our best personal regards and thank you for your past services.

Very truly yours,

CLARK MINERALS, INC.

J. H. Bennett, Jr.
Secretary-Treasurer

JHB/mcl
Enclosure

bcc: Mr. R.G. Light
Voucher File

M.T. Viscardi, Esq.
Apruzzese & McDermott
500 Morris Avenue
Springfield, NJ 07081



CF-BALL-11

COUNCILMEN

JOSEPH J. DUNDON
HENRY LESPERANCE

TOWN OF DIANA

DORAN E. WAUGH, SUPERVISOR
VIVIAN HILL, TOWN CLERK

HARRISVILLE, NEW YORK 13648

COUNCILMEN

FRANK MANTLE
GEORGE PIERCE, JR.

December 30, 1985

Clark Minerals, Inc.
P.O. Box 208
Carthage, N.Y. 13619

Dear Sirs:

I received your check in the amount of \$3,700.00 and enclosed find receipt for same.

Your Quit claim deed will be sent as soon as possible.

Thank you.

Very truly yours,

Vivian L. Hill

Vivian L. Hill
Town Clerk
Town of Diana

QUIT CLAIM DEED
TAX SALE
TOWN OF DIANA

THIS INDENTURE made

BETWEEN THE TOWN OF DIANA, a Municipal Corporation of the State of New York, party of the first part and

CLARK MINERALS, INC.

A corporation with an office and principal place of doing business in Carthage, New York, party of the second part,

WITNESSETH, the Town of Diana, the party of the first part, in consideration of Three Thousand Seven Hundred and 00/100 Dollars (\$3700.00), lawful money of the United States, and other good and valuable consideration paid by the said CLARK MINERALS, INC., does hereby remise, release and quit claim unto the said CLARK MINERALS, INC., their heirs and assigns forever,

ALL THAT TRACT, PIECE OR PARCEL OF LAND, situate in the Town of Diana, County of Lewis, and State of New York, assessed on the tax roll of the Town of Diana in the year 1982 to

CARBOLA CHEM. CO., INC.

and bound and described on such tax roll from the description furnished pursuant to law thereof as set forth in the Notices of Sale prepared therefrom and duly published pursuant to law as follows:

Carbola Chem. Co., Inc., tax map no. 034.00-01-02.100. N. SIDE NYS RT. 3. Coded 322, vacant land, containing Thirty and Fifty hundredths (30.50) acres of land, more or less.

Said property having been sold at Tax Sale and bid in by the County of Lewis, State of New York and conveyed to the Town of Diana by said County pursuant to Chapter 896 of the Laws of 1945 and recorded in the Lewis County Clerk's office on November 4, 1985, in Liber 462 of Deeds

at page 253.

This conveyance is made pursuant to a resolution of the Town Board of the Town of Diana, Lewis County, New York, adopted on December 11, 1985.

It is further agreed that this deed, executed by virtue of said resolution of the Town Board of the Town of Diana, shall be executed and conveyed upon the condition and covenant that the Town of Diana shall in no event be or become liable for any defects in the title so conveyed or for any cause whatsoever and that no claim or demand of any nature shall ever be made of the Town of Diana arising from such sale or any proceedings leading thereto.

TOGETHER with the appurtenances and all the estate and rights of the party of the first part in and to said premises.

TO HAVE AND TO HOLD the premises herein granted unto the party of the second part, CLARKS MINERALS, INC., it successors and assigns forever.

IN WITNESS WHEREOF, the party of the first part has hereunto set its hand and seal the day and year first above written.

THE TOWN OF DIANA
By Doran Waugh
Doran Waugh, Supervisor

STATE OF NEW YORK)
) ss.
COUNTY OF LEWIS)

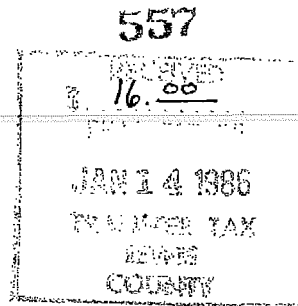
On this 16 day of Dec. 1985, before me, the subscriber, personally came DORAN WAUGH to me personally known and being by me duly sworn, deposes and says; that he resides in the Town of Diana, New York, that he is the Supervisor of the Town of Diana, State of New York, the Municipal Corporation described in and which executed the above instrument;

that he knows the seal of said Corporation; that the seal affixed to said instrument is such corporate seal; that it was affixed by order of the Town Board of said Corporation and that he signed his name thereto by like order.

Dorothy L. Waugh
Notary Public

DOROTHY L. WAUGH
Notary Public in the State of New York
Filed in Lewis County
State File No. 25-4173350
My Commission Expires Mar. 30, 1987

RECORDED
Jan. 14, 1986 at 12:00 Noon
Book 46 of Deeds Page 143
Jesse Schaub
Lewis County Clerk



— Robin May

Village
Town of Diana

General Receipt

4819

Dec 30 19 85

Received of Clark Minerals, Inc. \$ 3,700.00

Three Thousand Seven Hundred Dollars ⁹⁸/₁₀₀ DOLLARS

For Int Claim Deed For Parcel No. 034.00-01-02.100 (32.02) acres more or less
DISTRIBUTION: Located in the Town of Diana

FUND	CODE	AMOUNT

By

Vivian K. Hill

Town Clerk

Title

June 10, 1985

Jefferson National Bank
Mrs. Judith A. Condino
Outer Washington Street
Watertown, NY 13601

Dear Mrs. Condino:

In reply to your letter of June 11, 1985, the bond which we executed with Carbola Chemical in the amount of \$256,000.00 was satisfied in March, 1983.

Very truly yours,

CLARK MINERALS, INC.

J. H. Bennett, Jr.
Secretary-Treasurer

JHB/mcl

HUBERT C. STRATTON (1927-1978)
HOWARD H. CANNON (1927-1979)
ANTON H. ZANN (1947-1984)
WILLIAM F. FITZPATRICK (1929-1984)

BOND, SCHOENECK & KING

ONE LINCOLN CENTER

SYRACUSE, NEW YORK 13202-1355

(315) 422-0121

III WASHINGTON AVENUE
ALBANY, NEW YORK 12210-2280
(518) 462-7421

216 WASHINGTON STREET
WATERTOWN, NEW YORK 13601-3389
(315) 788-3327

PYLON PARK
5301 NORTH FEDERAL HIGHWAY
BOCA RATON, FLORIDA 33431-4990
(305) 997-0411

1167 THIRD STREET SOUTH
NAPLES, FLORIDA 33940-7098
(813) 262-6812

JOHN E. NOAKES
OF COUNSEL

CHARLES A. SCHOENECK, JR.
TRACY H. FERGUSON
LYLE W. HORNBECK
CHESTER H. KING, JR.
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DONALD S. DIBENEDETTO
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MAURA A. FLOOD
SCOTT C. SELBACH
RICHARD A. REED
MARGARET M. CASSADY
SHEILAH E. FOLEY
PATRICK J. PEDRO
ROBERT J. SLYE
DANIEL J. VENUTI
DIANE E. KATZ
DENNIS G. WHELPLEY
PAUL F. KING **
D. FRED GARNER ***
B. ERIN BABIKIAN ****
JOHN S. WESTRICK
JUDY A. BARRINGER *

* ALSO ADMITTED TO FLA. BAR
** ADMITTED IN FLA. ONLY
*** ADMITTED IN W.VA. ONLY
**** ADMITTED IN CALIF. ONLY

February 18, 1986

Mr. J.H. Bennett, Jr.
Wittaker, Clark and Daniels
1000 Coolidge Street
South Plainfield, New Jersey 07080

Re: Carbola Chemical Co., Inc.

Dear Jack:

We acknowledge receipt of your letter dated February 11, 1986 with enclosed copy of Quit Claim Deed from the Town of Diana to Clark Minerals, Inc. It was a pleasure to hear from you.

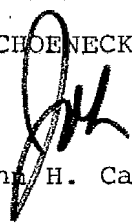
What did our friend Mr. Smith do with all his money? In any event, it is fortunate that Clark Minerals was able to purchase this parcel at a reasonable sum.

Please do not hesitate to contact us if we can be of service in the future. As you may or may not know, we recently opened an office in Watertown, New York which is located at 216 Washington Street, Watertown, New York.

Best personal regards.

Very truly yours,

BOND, SCHOENECK & KING

By:  John H. Callahan

JHC/lc

KEVIN M. McARDLE

Attorney & Counselor at Law

MEMBER:

New York Bar
Florida Bar

P.O. Box 128
7659 North State Street
Lowville, New York 13367
(315)376-7543

February 4, 1986

Clark Minerals, Inc.
Carthage, New York 13619

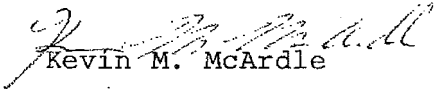
Re: Town of Diana to Clark Minerals, Inc.

Dear Clark Minerals, Inc.:

Enclosed please find your Quit Claim Deed in the Sale from the
Town of Diana to yourself.

If you have any questions or comments, please feel free to con-
tact me immediately.

Very truly yours,



Kevin M. McArdle

amh

Enclosure

JEFFERSON NATIONAL BANK

OUTER WASHINGTON STREET
WATERTOWN, NEW YORK 13601
(315) 788-8800

June 11, 1985

Clark Minerals, Inc.
Natural Bridge, NY 13665

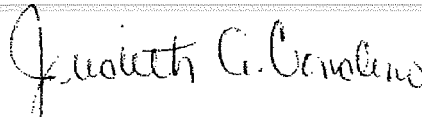
RE: Carbola Chemical, Inc.

Gentlemen:

Please advise if the bond which you executed with Carbola Chemical on December 19, 1980, in the amount of \$256,000 has been satisfied.

If you have any questions regarding this request, do not hesitate to contact me at 788-8800.

Very truly yours,



(Mrs.) Judith A. Condino
Manager/Assistant Treasurer

JAC/bt



BOND, SCHOENECK & KING

ONE LINCOLN CENTER

SYRACUSE, NEW YORK 13203-1355

(315) 422-0121
TELEX 646-690

III WASHINGTON AVENUE
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(518) 462-7421

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MAURA A. FLOOD

*ALSO ADMITTED TO FLA. BAR
**ADMITTED IN FLA. ONLY

August 27, 1984

Mr. Joshua H. Bennett, Jr.
Whittaker, Clark & Daniels, Inc.
1000 Coolidge Street
South Plainfield, New Jersey 07080

Re: Clark Minerals, Inc. v.
Carbola Chemical Co., Inc.

Dear Jack:

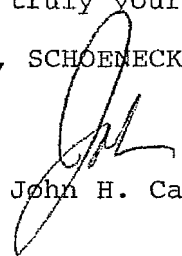
Enclosed is our bill for professional services rendered in obtaining a discharge of mortgage from Carbola Chemical Co., Inc. It is unfortunate that Ed Smith dragged us through the mud, but, the matter has been resolved favorably to Clark Minerals.

I apologize for the delay in sending this bill to you, but, it has been a very hectic summer.

Thank you for referring this matter to us. As always, it is a pleasure to be of service to you and your company. Please do not hesitate to contact us for any further assistance that you might need.

Very truly yours,

BOND, SCHOENECK & KING

By:  John H. Callahan

JHC/lc
Enclosure

BOND, SC DENECK & KING

ATTORNEYS AT LAW

ONE LINCOLN CENTER

SYRACUSE, N. Y. 13202

IRS. NO. 15-0528062

August 30, 1984

Whittaker, Clark & Daniels, Inc.
1000 Coolidge Street
South Plainfield, New Jersey 07080

Re: Clark Minerals, Inc. v.
Carbola Chemical Co., Inc.

FOR PROFESSIONAL SERVICES RENDERED through July 31, 1984 including numerous telephone conferences and correspondence with client, mortgagee, County of Lewis County Clerk, counsel for Royal Bank & Trust Company and Monroe Abstract & Title Corporation; examined law re: potential action to compel mortgagee to issue discharge of mortgage; examined documents from client re: satisfaction of mortgage held by Carbola Chemical Co., Inc.; prepared discharge of mortgage; conducted out-of-office conference with president of Carbola Chemical and obtained execution of discharge of mortgage; recorded discharge of mortgage with County of Lewis County Clerk; and examined Abstract of Title for verification that discharge of mortgage was recorded.....\$500.00

DISBURSEMENTS

Telephone.....\$13.08
Recording Fees for
Mortgage Discharge..... 9.00

22.08
\$522.08

[Handwritten signature]

Accounts Are Payable Within 30 Days

William H. Kissel

Attorney at Law

61 Main Street • Lake Placid, New York 12946

518-523-1980

Sandra A. Melville

May 30, 1984

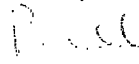
Joshua H. Bennett, Jr.
Whittaker, Clark & Daniels, Inc.
1000 Coolidge Street
South Plainfield, NJ 07080

re: Discharge of Mortgage
Carbola Chemical Co., Inc.

Dear Jack:

Thanks very much for the copy of Mr. Callahan's letter and the attachments. I am glad that this matter has finally been resolved and I only wish that I could have been more help to you but, as I mentioned, I haven't seen Ed or done any of his work since the closing.

Sincerely,



William H. Kissel

WHK:mam

BOND, SCHOENECK & KING

ONE LINCOLN CENTER

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May 16, 1984

CHARLES A. SCHOENECK, JR.
WILLIAM F. FITZPATRICK
TRACY H. FERGUSON
LYLE W. HORNBECK
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GEORGE J. GETMAN
JEAN A. MACCHIAROLI
JANET H. BLISS
DEBORAH H. KARALUNAS
RYNA E. MEHR **
CHRISTIAN B. FELDEN **

* ALSO ADMITTED TO FLA. BAR
** ADMITTED IN FLA. ONLY

Mr. Joshua H. Bennett, Jr.
Whittaker, Clark & Daniels, Inc.
1000 Coolidge Street
South Plainfield, New Jersey 07080

Re: Discharge of Mortgage
Carbola Chemical Co., Inc.

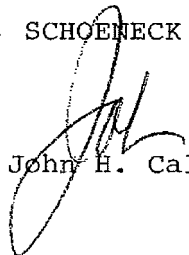
Dear Jack:

I have received confirmation from the Lewis County Clerk's Office that the Discharge of Mortgage has been recorded. In addition, Monroe Abstract & Title Company was instructed to update the Abstract of Title to your property which would reflect the recordation of the Discharge of Mortgage. We obtained the original Abstract of Title from the Royal Bank and Trust Company in New York City. Enclosed is a copy of the Abstract of Title which demonstrates recordation of the Discharge.

I am pleased that this matter has been brought to a successful conclusion. If you have any questions, please do not hesitate to contact me. As always, it is a pleasure to be of service to you and your company.

Very truly yours,

BOND, SCHOENECK & KING

By:  John H. Callahan

JHC/lc
Enclosure

National Abstract Corporation 98-21,300-5

a corporation organized under the laws of the State of New York, hereby certifies, That upon examination, by means of the General Alphabetical Indices thereto, of the records kept in the Lewis County Clerk's Office of Deeds, Contracts, Leases, Mortgages, Homestead Exemptions, Notices of Pendency of Action, Foreclosure by Advertisement, General Assignments, Insolvent's Assignments and Wills, and also from an Examination of the Loan Commissioner's Mortgages the following were found:

No. A Carbola Chemical Inc : Warranty Deed
of Natural Bridges, N.Y. : (with lien covenant)
to : Dated Dec. 19, 1980
Clark Minerals Inc of : Ack'd Dec. 19, 1980
Natural Bridges, N.Y. : Consideration \$1.00&c
: Recorded Dec. 22, 1980
: Liber 414 of Deeds cp 148

For particulars, reference may be had to the record thereof.

No. B Clark Minerals Inc : Mortgage
 of Natural Bridge, N.Y. : Dated Dec. 19, 1980
 to : Ack'd Dec. 19, 1980
 Carbola Chemical Co., Inc. : Dec. 19, 1980
 of Natural Bridge, N.Y. : Amount \$256,000.00
 Bv : Recorded Dec. 22, 1980
 : Liber 212 of Mtgs cp 183

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Disposed
4/13/84
Book 50
Page 156
sub E 188

DISCHARGED
Monroe Abstract & Title Corporation

For particulars, reference may be had to the record thereof.

No. C	Carbola Chemical Co Inc	:	Postponement & Subordination
	of Watertown, N.Y.	:	Dated June 2, 1981
	and	:	Ack'd June 2, 1981
	The Royal Bank and Trust	:	Recorded June 22, 1981
	Company	:	at 4:38 o'clock P. M.
		:	Liber 214 of Mtgs cp_____

For particulars, reference may be had to said record.

No. D	Clark Minerals Inc	:	Warranty Deed
	of Natural Bridge, N.Y.	:	(with lien covenant)
		:	Dated June 22, 1981
	to	:	Ack'd June 22, 1981
	County of Lewis Industrial	:	Consideration \$1.00&c
	Development Agency of	:	Recorded June 22, 1981
	Lowville, N.Y.	:	at 4:38 o'clock P. M.
		:	Liber 418 of Deeds cp_____

For particulars, reference may be had to said record.

No. E	County of Lewis Industrial	:	Mortgage
	Development Agency	:	Dated June 1, 1981
	to	:	Ack'd June 22, 1981
	The Royal Bank and Trust	:	Amount \$1,000,000.00
	Company	:	Recorded June 22, 1981
		:	at 4:38 o'clock P. M.
		:	Liber 214 of Mtgs cp_____

For particulars, reference may be had to said record.

NATIONAL TRUST COMPANY

No. F County of Lewis Industrial : Lease Agreement
Development Agency : Dated June 1, 1981
and : Ack'd June 22, 1981
Clark Minerals Inc : June 22, 1981
: Recorded June 22, 1981
: at 4:38 o'clock P. M.
: Liber 418 of Deeds cp

For particulars, reference may be had to said record.

No. G County of Lewis Industrial : Assignment of Lease
Development Agency : Dated _____, _____
to : Ack'd June 22, 1981
The Royal Bank and Trust : Recorded June 22, 1981
Company : at 4:38 o'clock P. M.
 : Liber 418 of Deeds cp

For particulars, reference may be had to said record.

Acknowledgement and consent of Clark Minerals Inc by agreement of lease forms a part of said instrument.

No. H	A T T O R N E Y	Affidavit	:	Sworn to June 22, 1981
		of	:	Recorded June 22, 1981
		Paul V. Forte	:	at 4:38 o'clock P. M.
			:	Liber 418 of Deeds cp

For particulars, reference may be had to said record.

AND FURTHER, That upon such examination as aforesaid, no conveyance or instrument, executed by or against either of the following named persons, was found recorded in said office, indexed against said persons, or either of them, within the period during which search was made as set opposite their respective names, viz:

Clark Minerals Inc. from Dec. 18, 1980 to June 22, 1981

County of Lewis Industrial)

Development Agency) : from June 21, 1981 to June 22, 1981

Royal Bank & Trust Company from June 21, 1981 to June 22, 1981

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affecting the title to the premises in No. D herein - - - - -

of the foregoing abstract, except as in said abstract set forth.

And that upon examination of the Judgment Dockets kept in said office, there is no Judgment, Transcript of Judgment or Decree, which remains undischarged and appears to be a lien upon said premises, docketed against

Clark Minerals Inc from June 22, 1971 to June 22, 1981

County of Lewis Industrial)
Development Agency) : from June 22, 1971 to June 22, 1981

Royal Bank & Trust Company from June 22, 1971 to June 22, 1981

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except as in said abstract noted, and upon examination of the Dockets or Indices thereto, kept in said office, no

Sheriff's Certificate of Sale since Dec. 18, 1980

Orders appointing Receiver's since Dec. 18, 1980

Collector's Bonds within the three years last past,

Federal Tax Liens since ~~September 1, 1979~~ during the six yrs. last past

Conditional Sales Contracts of goods and chattels affixed to real estate within the three years last past,

Notices of Liens for Public Welfare Relief since March 15, 1934,

Criminal Surety Bond Liens since January 5, 1936

Mechanic's Liens within the two years last past, docketed or recorded in said office, executed by or docketed against the above named persons or either of them which affect the title to the premises described in No. D herein - - - - -

except as in said abstract noted,

IN WITNESS WHEREOF, the said National Abstract

Corporation has caused its corporate signature and seal

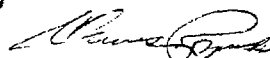
to be hereunto affixed by its Vice President

duly authorized thereto, this 22nd day of

June 1981, at 4:40 o'clock P.M.

NATIONAL ABSTRACT CORPORATION.

By


Vice President

*Original sent to
Mr. Bennett
on 4-10-84
js*

BOND, SCHOENECK & KING

ONE LINCOLN CENTER

SYRACUSE, NEW YORK 13202-1355

(315) 422-0121
TELEX 646-690

III WASHINGTON AVENUE
ALBANY, NEW YORK 12210-2280
(518) 462-7421

PYLON PLAZA
5455 NORTH FEDERAL HIGHWAY
BOCA RATON, FLORIDA 33431-4990
(305) 997-0411

1167 THIRD STREET SOUTH
NAPLES, FLORIDA 33940-7098
(813) 262-6812

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* ALSO ADMITTED TO FLA. BAR
** ADMITTED IN FLA. ONLY

April 5, 1984

Mr. Joshua H. Bennett, Jr.
Whittaker, Clark & Daniels, Inc.
1000 Coolidge Street
South Plainfield, New Jersey 07080

Re: Discharge of Mortgage
Carbola Chemical Co., Inc.

Dear Jack:

This letter follows up our phone conversation of this afternoon.

Enclosed are copies of the following documents:

- 1) A Discharge of Mortgage executed by Edward R. Smith, President of Carbola Chemical Co., Inc. This pertains to the mortgage previously held by Carbola Chemical on property owned by Clark Minerals, Inc. in Diana, New York;
- 2) A copy of the Promissory Note between Clark Minerals, Inc. and Carbola Chemical. At the bottom of the addendum to this Note is a signed acknowledgement by Edward R. Smith, President of Carbola Chemical indicating that the original Note has not been located, but, the Note has been paid in full.

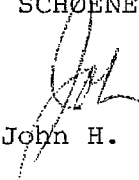
I will take the necessary steps to record the Discharge of Mortgage and insure its documentation on the Abstract of Title to the property.

Page 2
Mr. Joshua H. Bennett, Jr.
April 5, 1984

If you have any questions, please contact me.

Very truly yours,

BOND, SCHONECK & KING

By:  John H. Callahan

JHC/lc
Enclosures

Know all Men by these Presents

That CLARK MINERALS, INC., a New York Corporation with offices at Natural Bridge, New York,

COPY

obligor is held and firmly bound unto

CARBOLA CHEMICAL CO., INC.

obligee in the sum of

Two Hundred Fifty-Six Thousand and no/100 (\$256,000.00) Dollars,

lawful money of the United States of America, to be paid to the said Carbola Chemical Co., Inc.

its ~~executors, administrators, successors or assigns~~: **For which payment** well and truly to be made it binds itself, its successors or assigns firmly by these presents.

Sealed with its seal

Dated the

day of

December

Nineteen Hundred and Eighty

The Condition of the above obligation is such that if the above bounden Clark Minerals, Inc.

its successors or assigns, shall

well and truly pay, or cause to be paid, unto the above named Carbola Chemical Co., Inc.

its ~~executors, administrators, successors or assigns~~ the just and full sum of

Two Hundred Fifty-Six Thousand and no/100 (\$256,000.00) with interest at the rate of 8 1/2% per annum, payable as follows:

\$107,500.00 plus interest accrued on the outstanding principal balance on April 1, 1981;

\$107,500.00 plus interest accrued on the outstanding balance on April 1, 1982; and

\$41,000.00 plus interest accrued on the outstanding balance on April 1, 1983.

Obligor shall have the privilege of prepayment at any time after March 1, 1981 without penalty.

And it is her y expressly agreed that the whole of said principal sum shall become due at the option of the said obligee its legal representatives or assigns after default in the payment of any installment of principal or of interest for thirty days, or after default in the payment of any tax, water rate or assessment which may be levied or imposed upon the premises described in the mortgage accompanying this bond for thirty days after notice and demand.

And it is also agreed that the said obligor will keep the buildings on the said premises described in the said mortgage insured against loss by fire for the benefit of the mortgagee therein. All of the covenants and agreements in the mortgage covering premises therein described and collateral hereto, are hereby made part of this instrument.

See Addendum to Note

In Presence of

In Witness Whereof, The

obligor has caused its corporate seal to be hereunto affixed, and these presents to be signed by its duly authorized officer the day and year first above written.

Clark Minerals, Inc.

By Joshua H. Bennett, Jr.
Joshua H. Bennett, Jr.

State of New York
County of Jefferson } ss..

of

Eighty before me personally came Joshua H. Bennett, Jr. to me personally known, who, being by me duly sworn, did depose and say that he resides in Richway Kentucky, that he is the President of Clark Minerals, Inc. the corporation described in, and which executed, the above Instrument; that he knows the seal of said corporation; that the seal affixed to said Instrument is such corporate seal, that it was so affixed by order of the Board of Directors of said corporation; and that he signed his name thereto by like order.

Joshua H. Bennett, Jr.
Notary Public

9-30

LAW OFFICES
APRUZZESE & McDERMOTT
A PROFESSIONAL CORPORATION
INDEPENDENCE PLAZA
500 MORRIS AVENUE
SPRINGFIELD, N.J. 07081

(201) 467-1776
Aug. 17, 1983

TO: Mr. Joshua H. Bennett, Jr.

HERE IT IS --- To get this to you promptly we are mailing it without taking the time to write you a personal note.

Merritt J. Wiscardi

cc: Jim Kissel letter of 8/6/83.

JEFFERSON NATIONAL BANK
WATERTOWN, NEW YORK 13601

OFFICE
DEPART. NT

WE **CHARGE** YOUR ACCOUNT CC# 32707 to Carbola Chemical Co Inc.

Deluxe N 31055

506	00308	6	115,071.29
ACCOUNT NUMBER		TR.CODE	AMOUNT

DATE 4/24/81 PREPARED BY _____ APPROVED BY KP
Sign In Full

Clark Minerals Inc.
% Whitaker, Clark & Daniels, Inc.
1000 Coolidge St.
S. Plainfield, N.J. 07080

G 205,SF-3 PART

DO NOT WRITE BELOW THIS LINE

506 00308 6" "0011507129"

PHONE:
(315) 644-4443

50-CLARK
NATURAL BRIDGE, N.Y. 13665
MINERALS, INC.

001382

50-1165
213

VENDOR	DATE	AMOUNT
013045	03-26-82	*****120,122.50

TO THE ORDER OF

CARBOLA CHEMICAL CO. INC.
1877 STATE STREET
WATERTOWN

Jefferson National Bank
WATERTOWN, N.Y. 13601

NY 13601

R. Knight
J. Bennett

AUDIT

001311655: 506 00308 611

0012012250

ADDENDUM TO NOTE
BETWEEN
CLARK MINERALS, INC., OBLIGOR
AND
CARBOLA CHEMICAL CO., INC., OBLIGEE

DATED: DECEMBER 19, 1980

Obligor shall have a right of offset under this Bond in the event that any claim should arise under the Uniform Commercial Code - Bulk Transfers Act (UCC Section 6-101 et. seq.) or under the provisions of the New York State Tax Law with respect to sales tax liability arising from transfers in bulk (Tax Law Section 1141).

If such a claim is asserted against Obligor, Obligor shall promptly notify Obligee. Obligee may contest, at its own expense, the validity of any claim. If Obligee does not contest the claim in a timely manner, or if the claim be finally adjudicated against Obligor, without opportunity for further appeal or without further appeal being taken at Obligee's request, Obligor shall set off from the next payment due Obligee under the bond the full amount of such claim, any interest or penalties added to such claim, and reasonable expenses incurred by Obligor in connection with such claim, including reasonable attorneys' fees and disbursements.

Should the sums eligible for offset exceed the amount then due and owing under the Bond, Obligee shall indemnify and save harmless Obligor from any liability or liabilities in connection with such claims pursuant to the Bulk Sales Law or above stated section of the Tax Law. Such indemnity shall include all reasonable expenses incurred by Obligor in contesting or defending any such claims, including attorneys' fees and disbursements.

Clark Minerals, Inc.

Edward R. Smith personally known to me, appeared before me and swore to the accuracy of the hand written statement below.

JOHN G. MCGOWAN
Notary Public, State of New York
Qualified in Onon. Co. No. 4765003
My Commission Expires March 30, 1984

John G. McGowan
February 11, 1984

By *Arthur H. Bennett Jr.*

CARBOLA CHEMICAL CO., INC.

By *Edward R. Smith*

I Edward R. Smith President of Carbola Chemical Co., Inc. acknowledge that this note, consisting of 3 pages, is a true copy of the original note. The original has not been located but I believe it be in the possession of my company. All obligations as contained in this note have been performed by Clark Mineral Co. Inc. and the note is paid in full.

February 11, 1984

Edward R. Smith
Edward R. Smith, Pres. Carbola Ch. Co., Inc.

Know All Men By These Presents.

That CARBOLA CHEMICAL CO., INC.

does hereby certify that a certain Indenture of Mortgage bearing date the 19th day of December Nineteen Hundred and Eighty made and executed by CLARK MINERALS, INC., a New York corporation with offices at Natural Bridge, New York

to CARBOLA CHEMICAL CO., INC., Natural Bridge, New York

to secure payment of the principal sum of Two Hundred Fifty Six Thousand and 00/100-----Dollars, and interest, and duly recorded in the office of the Clerk of the County of Lewis N. Y., in Liber 212 of Mortgages, of section page 183, on the 22nd day of December Nineteen Hundred and Eighty IS PAID, and does hereby consent that the same be discharged of record. The said mortgage has not been assigned, ~~xxxxxx xxxxxxxx~~

In Witness Whereof, the party of the first part has caused its corporate seal to be hereunto affixed, and these presents to be signed by its duly authorized officer this day of Nineteen Hundred and

CARBOLA CHEMICAL CO., INC.

By

Edward R. Smith, President

State of New York
County of

ss.

On this 11th day of February
Nineteen Hundred and Eighty-four

before me personally came

EDWARD R. SMITH

to me personally known, who, being by me duly sworn, did depose and say that he resides in Watertown, New York

the President of Carbola Chemical Co., Inc.

the corporation described in, and which executed, the within instrument; that he knows the seal of said corporation; that the seal affixed to said Instrument is such corporate seal; that it is a true and correct copy of the original of said instrument; and that he signed name thereto by

BOND, SCHOENECK & KING

ONE LINCOLN CENTER

SYRACUSE, NEW YORK 13202-1355

(315) 422-0121
TELEX 646-690

III WASHINGTON AVENUE
ALBANY, NEW YORK 12210-2280
(518) 462-7421

PYLON PLAZA
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1167 THIRD STREET SOUTH
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JOHN C. KINNEY (1947-1974)
HUBERT C. STRATTON (1927-1976)
HOWARD H. CANNON (1927-1979)

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*ALSO ADMITTED TO FLA. BAR

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T. PETER POETZSCH
JOHN D. ALLEN
DAVID M. PELLOW
THOMAS E. MYERS
LOUIS P. DILORENZO
CARL ROSENBLUM

January 27, 1984

Mr. Joshua H. Bennett, Jr.
Whittaker, Clark & Daniels, Inc.
1000 Coolidge Street
South Plainfield, New Jersey 07080

Re: Discharge of Mortgage
Carbola Chemical Co., Inc.

Dear Jack:

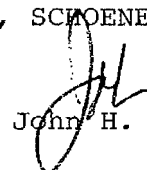
I acknowledge receipt of your various materials in reference to this matter.

We have located Edward R. Smith. He is currently residing at 1106 State Street, Watertown, New York. An associate in our office, John McGowan, knows Mr. Smith personally and has dealt with him in the past in other legal matters. I decided that it would be worth our while to have John contact Smith to see if he would voluntarily agree to executing the discharge. John had no trouble reaching Smith and he assured John that he would execute the discharge as soon as he received it. With the hope of saving additional legal expense, we will give Smith one last chance.

Today, by separate cover, the discharge of mortgage was mailed out to Smith for his execution. We have also asked him to return the mortgage note with the stamp that it has been paid. I hope Smith has not misplaced this note over the course of time.

I will keep you advised of all future developments. Please do not hesitate to contact me if you have any questions.

Very truly yours,
BOND, SCHOENECK & KING

By:  John H. Callahan

JHC/lc

PHONE:
(315) 644-4443

002225

50-1165
213

VENDOR	DATE
013045	03-28-83

CLARK
MINERALS, INC.
NATURAL BRIDGE, NY 13665

JEFFERSON NATIONAL BANK

AMOUNT

*****44,485.00

Jefferson National Bank
WATERTOWN, NY 13601

TO THE ORDER OF

CARBOLA CHEMICAL CO. INC.
1106 STATE STREET
WATERTOWN

NY 13601

R. Shight
J. Bennett

AUDIT

00213116550 506 00308 611

0004448500

Jack Bennett

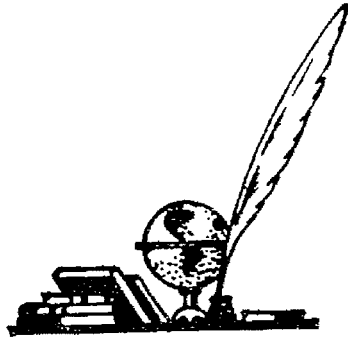


John H. Callahan
O Bond Schoeneck & King
about the paid note &
~~20%~~ satisfaction of
mortgage document we
haven't received from
Smith

I called Callahan but
he was out & will return
my call.

1-11-84

He called me @ 9:37 a.m. on
1-12-84 & he will start on
the problem & get him
Kirkwood's name for info
s & s printing services, inc
possibilities JCB



from the desk of
JACK BENNETT

January 18, 1984

John —

I hope the enclosed are
what you need. Let me know
if I can do anything more.

Jack

12-30

William H. Kissel

Attorney at Law

61 x155 Main Street • Lake Placid, New York 12946

518-523-1980

December 8, 1983

Mr. Jack Bennett
Whittaker, Clark & Daniels, Inc.
1000 Coolidge Street
S. Plainfield, NJ 07080

Dear Jack:

In response to your letter of November 18, 1983, I, unfortunately, have not heard from, seen nor been in touch with Ed Smith for the last six months, other than my letter to him of August 10, 1983. In fact, I have had very little to do with Ed for about the last year and a half. I wish I could be of some help to you regarding this matter but I am afraid I have done all I can.

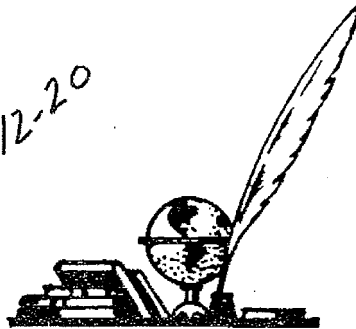
Sincerely,



William H. Kissel

WHK:mam

12-20



from the desk of
JACK BENNETT

11-18-83

Dear Bill —

I am sending you a copy
of your letter to Ed Smith which
we received here on 8-17.

Well, well, what would have
happened if we had not made the
final payment to him? Do you
think he would have gone this long
without legal action? Why can't
we get something simple from him —
like the paid note and discharge of
mortgage?

Jack

LAW OFFICES
APRUZZESE & McDERMOTT

A PROFESSIONAL CORPORATION

INDEPENDENCE PLAZA

500 MORRIS AVENUE

P.O. Box 329

SPRINGFIELD, N.J. 07081

(201) 467-1776

1730 PENNSYLVANIA AVE., N.W.

SUITE 1000

WASHINGTON, D.C. 20006

(202) 393-7315

521 FIFTH AVENUE

SUITE 1700

NEW YORK, N.Y. 10017

(212) 662-5644

TELECOPIER (201) 487-8612

IN REPLY PLEASE REFER

TO FILE NO.

VINCENT J. APRUZZESE (1)
FRANK X. McDERMOTT (1) (2)
MERRITT T. VISCARDI (2)
FRANCIS A. MASTRO (1)
JAMES F. MURPHY (1)
FREDERICK T. DANSER, III
ELWOOD J. HEERWAGEN, JR. (1) (6)
MAURICE J. NELLIGAN, JR. (5)
RICHARD C. MARIANI
MELVIN L. GELADE
PHILIP B. WHITCOMB
BONNIE H. DANSER
CHARLES F. WASKEVICH, JR. (1) (3) (4)
BARRY MARELL
LEWIS M. LEFKOWITZ (2)

July 27, 1983

ALSO D.C. BAR (1)
ALSO N.Y. BAR (2)
ALSO CONN. BAR (3)
ALSO PA. BAR (4)
ALSO MD. BAR (5)
ALSO CALIF. BAR (6)

William H. Kissel, Esq.
P. O. Box 1980
Lake Placid, N.Y. 12946

Re: Clark Minerals, Inc. with Carbola Chemical Co., Inc.

Dear Mr. Kissel:

This is to confirm my telephone request to your office regarding cancellation of the second mortgage held by your client, Carbola Chemical Co., Inc., upon the property in Diana, Lewis County, New York.

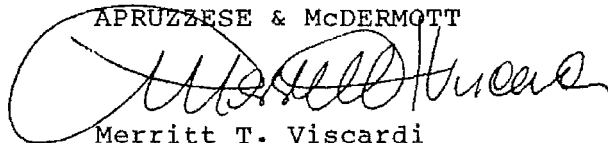
As I understand it, the mortgage was paid in full as of April 1, 1983 and our client is still awaiting return of the mortgage papers with the Bond marked "paid and cancelled" and with an appropriate satisfaction piece for recording of record.

I believe you will agree these papers are now long overdue, after repeated requests, and we would request that they be forwarded to us without further delay within ten (10) days from date hereof.

Your cooperation in concluding this matter will be greatly appreciated.

Very truly yours,

APRUZZESE & McDERMOTT



Merritt T. Viscardi

MTV:jrc

cc: Mr. Joshua H. Bennett, Jr.

LAW OFFICES
APRUZZESE & McDERMOTT

A PROFESSIONAL CORPORATION

INDEPENDENCE PLAZA

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July 27, 1983

1730 PENNSYLVANIA AVE., N.W.
SUITE 1000
WASHINGTON, D.C. 20006
(202) 393-7315

521 FIFTH AVENUE
SUITE 1700
NEW YORK, N.Y. 10017

(212) 682-5844

TELESCOPIER (201) 467-8012

IN REPLY PLEASE REFER
TO FILE NO.

ALSO D.C. BAR (1)
ALSO N.Y. BAR (2)
ALSO CONN. BAR (3)
ALSO PA. BAR (4)
ALSO MD. BAR (5)
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William H. Kissel, Esq.
P. O. Box 1980
Lake Placid, N.Y. 12946

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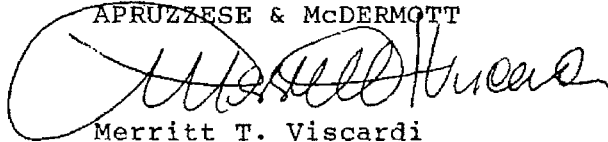
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Very truly yours,

APRUZZESE & McDERMOTT



Merritt T. Viscardi

MTV:jrc

cc: Mr. Joshua H. Bennett, Jr.

H-8

- ① rec'd attchd from Smith
- ② need to receive paid and mortgage note.

H-20



from the desk of

MERRITT T. VISCARDI

820
July 27, 1983

TO Joshua H. Bennett, Jr.

Re: Clark Minerals, Inc. with
Carbola Chemical Co., Inc.

Dear Jack:

Have the items in Paul Lapin
Saifter's letter of April 24, 1981
been taken care of?

Kindly advise.

M.T.V.

Werritt —
Enclosure

These matters
were taken care of, although the
motors were sold by the repair company
to satisfy a debt of Saifter's/Carbola's which
I think was slightly illegal. We
never earned this on after that
was found out.
Jeh 7-28-83

FOLLOW UP COPY

PS Form 3811, Dec. 1980

SENDER: Complete items 1, 2, 3, and 4.
Add your address in the "RETURN" space on reverse.

(CONSULT POSTMASTER FOR FEES)

1. The following service is requested (check one).
☒ Show to whom and date delivered
☐ Show to whom, date, and address of delivery ..
☐ **RESTRICTED DELIVERY**
 (The restricted delivery fee is charged in addition to the return receipt fee.)

TOTAL \$

3. ARTICLE ADDRESSED TO:
**EDWARD R. SMITH
 1106 STATE ST
 WATERTOWN NY 13601**

4. TYPE OF SERVICE: **ARTICLE NUMBER**
☐ REGISTERED ☐ INSURED
☒ CERTIFIED ☐ COD **032490**
☐ EXPRESS MAIL

(Always obtain signature of addressee or agent)

I have received the article described above.
SIGNATURE ☐ Addressee ☐ Authorized agent
E. Smith

5. DATE OF DELIVERY **POSTMARK**
 MAR 6 1983

6. ADDRESSEE'S ADDRESS (Only if requested)

7. UNABLE TO DELIVER BECAUSE: **7a. EMPLOYER'S INITIALS**
 S

RETURN RECEIPT, REGISTERED, INSURED AND CERTIFIED MAIL

No. 032490 *WAB*

RECEIPT FOR CERTIFIED MAIL
 NO INSURANCE COVERAGE PROVIDED—
 NOT FOR INTERNATIONAL MAIL.
 (See Reverse)

SENT TO
Edward R. Smith
 STREET AND NO.
1106 State Street
 P.O. STATE AND ZIP CODE
Watertown NY 13601

POSTAGE \$9.20
CERTIFIED FEE 75¢
SPECIAL DELIVERY 0¢
RESTRICTED DELIVERY 0¢

CONSULT POSTMASTER FOR FEES
OPTIONAL SERVICES
RETURN RECEIPT SERVICE
 SHOW TO WHOM AND DATE DELIVERED **60¢**
 SHOW TO WHOM, DATE, AND ADDRESS OF DELIVERY 0¢
 SHOW TO WHOM AND DATE DELIVERED WITH RESTRICTED DELIVERY 0¢
 SHOW TO WHOM, DATE AND ADDRESS OF DELIVERY WITH RESTRICTED DELIVERY 0¢

TOTAL POSTAGE AND FEES \$15.50

POSTMARK OR DATE
 SOUTH PLAINFIELD
 MAR 28 1983
 NJ

PS Form 3800, Apr. 1976

**STICK POSTAGE STAMPS TO ARTICLE TO COVER FIRST CLASS POSTAGE,
CERTIFIED MAIL FEE, AND CHARGES FOR ANY SELECTED OPTIONAL SERVICES. (see front)**

1. If you want this receipt postmarked, stick the gummed stub on the left portion of the address side of the article, leaving the receipt attached, and present the article at a post office service window or hand it to your rural carrier. (no extra charge)
2. If you do not want this receipt postmarked, stick the gummed stub on the left portion of the address side of the article, date, detach and retain the receipt, and mail the article.
3. If you want a return receipt, write the certified-mail number and your name and address on a return receipt card, Form 3811, and attach it to the front of the article by means of the gummed ends if space permits. Otherwise, affix to back of article. Endorse front of article **RETURN RECEIPT REQUESTED** adjacent to the number.
4. If you want delivery restricted to the addressee, or to an authorized agent of the addressee, endorse **RESTRICTED DELIVERY** on the front of the article.
5. Enter fees for the services requested in the appropriate spaces on the front of this receipt. If return receipt is requested, check the applicable blocks in item 1 of Form 3811.
6. Save this receipt and present it if you make inquiry.

☆ GEO 1978 - 256-015

(City, State, and ZIP Code)

MR. J. H. BENNETT
WHITTAKER CLARK & DANIELS INC
1000 COULIDGE STREET
SOUTH PLAINFIELD N.J. 07080

TO
RETURN

- Print your name, address, and ZIP Code in the space below.
- Complete items 1, 2, 3, and 4 on the reverse.
- Attach to front of article if space permits.
- Otherwise affix to back of article.
- Endorse article "Return Receipt Requested" adjacent to number.

SENDER INSTRUCTIONS

OFFICIAL BUSINESS

UNITED STATES POSTAL SERVICE

PENALTY FOR PRIVATE
USE TO AVOID PAYMENT
OF POSTAGE, \$300



4-10
March 28, 1983

Mr. Edward R. Smith
1106 State Street
Watertown, NY 13601

Dear Ed:

Enclosed is Check No. 2225, dated March 28, 1983, for \$44,485.00, drawn to the order of Carbola Chemical Co., Inc.

The amount includes the final payment of the principal of \$41,000.00 on the second mortgage note and \$3,485.00 interest. Will you kindly have the second mortgage note properly marked paid and returned to me at your earliest convenience.

Thank you very much for taking care of this matter. We all send our best personal regards to you.

Sincerely,

WHITTAKER, CLARK & DANIELS, INC.

J. H. Bennett, Jr.
Vice President

JHB/mcl
Enclosure

Certified Mail, Return Receipt Requested

bcc: Mr. R. G. Light
Mr. M. C. Arguelan

Dick: Just as soon as we receive the paid note, I will arrange to take the necessary steps to remove this restriction from the records of the Lewis County Recorder, in Lowville, New York.

TOTALLY OR PARTIALLY EXEMPTED REAL PROPERTY
TOWN OF DIANA
DIANA, NEW YORK

July 31
~~June~~, 1982

To Whom It May Concern:

This is to certify that Assessment Roll/s show the property or properties assessed as follows:

<u>Township</u>	<u>Lot No.</u>	<u>Description</u>	<u>Name</u>	<u>Assessed Valuation</u>
Diana	896, 908, and 909	Northside N.Y.S. Route 3	County of Lewis I.D.A. (Clark Minerals Project)	\$400,000.00 Exempt

The current Tax and Assessment Roll shows the said property to be exempt in the amount of \$400,000.00 under Section 874 of the General Municipal Law.

Bradley Farr
Bradley Farr
Assessor
Town of Diana

THB
May 18, 1982

Mr. John Richards
The Royal Bank & Trust Company
68 William Street
New York, New York 10005

Dear John:

With respect to the Consolidated Financial Statements for the years ended December 31, 1980 and 1981, which were forwarded to you in a separate envelope, we certify that the executive officers of this company have reviewed the terms of the Guaranty between Whittaker, Clark & Daniels, Inc., The Royal Bank and Trust Company, and The County of Lewis Industrial Development Agency.

As such, we have made a review of the transactions and conditions of the company during the fiscal years with respect to which such financial statements were delivered and that review has not disclosed the existence, during the accounting periods covered, of any condition or event which constitutes an "event of default" specified in Section 1.04 of the Guaranty. Further, to the best of my knowledge, no event or condition exists as of the date of this letter which would constitute an "event of default."

Further, to the best of our knowledge, no transaction has occurred with respect to the agreement which would, in of itself or in conjunction with other transactions, jeopardize the nontaxable status of the Bond.

Very truly yours,

WHITTAKER, CLARK & DANIELS, INC.

R. G. Light
Executive Vice President

RGL/mcl

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1. 1. 1. 1. 1.

BOND, SCHOENECK & KING

ONE LINCOLN CENTER

SYRACUSE, NEW YORK 13202-1355

(315) 422-0121

III WASHINGTON AVENUE
ALBANY, NEW YORK 12210-2280
(518) 462-7421

PYLON PLAZA
5455 NORTH FEDERAL HIGHWAY
BOCA RATON, FLORIDA 33431-4990
(305) 997-0411

1167 THIRD STREET SOUTH
NAPLES, FLORIDA 33940-7098
(813) 262-6812

GEORGE H. BOND, JR. (1936-1973)
JOHN C. KINNEY (1947-1974)
HUBERT C. STATHON (1927-1978)
HOWARD H. CANNON (1927-1979)

JOHN D. ALLEN
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DAVID M. PELLOW
PAULA LAPIN SEITZ
THOMAS E. MYERS
LOUIS P. DILORENZO
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S. PAUL BATTAGLIA
L. LAWRENCE TULLY
PAUL M. SANSOUCY
DAVID PATRICK O'HARA
GARY M. CLARK
RICHARD C. HEFFERN

May 14, 1982

Mr. Michael C. Argyelan
Controller
Whittaker, Clark and Daniels, Inc.
1000 Coolidge Street
South Plainfield, New Jersey 07080

Re: Clark Minerals, Inc.

Dear Mike:

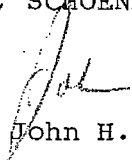
Enclosed please find a conformed copy for your files of our opinion letter to Lewis County Industrial Development Agency and the Royal Bank and Trust Company as required by Section 3.6 of the Lease Agreement between Clark Minerals, Inc. and The Agency.

Today I mailed out the opinion letter and the Certificate of Project Completion Date to the Agency and the Bank. We did not issue this letter sooner because we were waiting for the New York State Secretary of State's written search report verifying that the appropriate UCC-1 Financing Statements were on record.

Thank you for your cooperation and patience in this matter. If you have any questions, please do not hesitate to contact me.

Very truly yours,

BOND, SCHOENECK & KING

By:  John H. Callahan

JHC/lc
Enclosures

BOND, SCHOENECK & KING

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L. LAWRENCE TULLY
PAUL M. SANSOUCY *
DAVID PATRICK O'HARA
GARY M. CLARK
RICHARD C. HEFFERN

May 14, 1982

The Royal Bank and Trust Company
New York, New York

County of Lewis Industrial
Development Agency
Lowville, New York 13367

Re: \$1,000,000.00 - Principal Amount
County of Lewis Industrial
Development Agency
Industrial Development Bond
(Clark Minerals, Inc. Project)
Series 1981 (the "Bond")

Gentlemen:

We have acted as counsel to Clark Minerals, Inc., a New York corporation, (the "Company") in connection with the purchase by the Royal Bank and Trust Company (the "Bank") on June 23, 1981 of the Bond pursuant to a Bond Purchase Agreement (the "Agreement"), dated as of June 1, 1981, among the County of Lewis Industrial Development Agency (the "Agency"), the Bank and the Company. Unless otherwise provided, the capitalized terms used in this letter shall have the same meanings assigned to them in the Agreement.

Pursuant to Section 3.6 of the Lease dated as of June 1, 1981 between the Company and the Agency, we are required to issue an opinion describing any adverse changes in the title in the Agency to the Project and whether all

The Royal Bank & Trust Co.
County of Lewis Industrial
Development Agency
May 14, 1982
Page 2

equipment purchased or installed in and made part of the Project subsequent to the date of the Series 1981 Bond and to and including the Project Completion Date, December 31, 1981, is secured by a lien and security interest in and to the Project in favor of the Bank.

Monroe Abstract & Title Corporation has made a continuation search of title in the Lewis County Clerk's Office from June 23, 1981 to December 31, 1981. This continuation also included a search for UCC-1 Financing Statements against all equipment purchased or installed as part of the Project from June 23, 1981 to December 31, 1981. The results of this continuation are reflected in a letter dated January 27, 1982, from Edmund W. Romocki, Vice President of Monroe Abstract & Title Corporation, to us. A copy of this letter is annexed.

We also conducted a search for similar UCC-1 Financing Statements that were filed with the New York State Secretary of State's Office immediately following the closing.

This search showed that the financing statement between the Agency and the Bank, which was mailed to the Secretary of State for filing, was not on file with the New York State Secretary of State. To remedy this, a new financing statement identical to the one executed on the date of the closing was executed by the Agency and the Company and was filed with the New York State Secretary of State on March 9, 1982.

Based upon the foregoing, we are of the opinion under existing law that as of March 9, 1982:

1. There has been no adverse change in the Agency's title in and to the Project, except for Permitted Encumbrances.

The Royal Bank & Trust Co.
County of Lewis Industrial
Development Agency
May 14, 1982
Page 2

2. All Equipment purchased or installed in and made a part of the Project subsequent to the date of the Series 1981 Bond and to and including the Project Completion Date is secured by and subject to the lien and security interest in and to the Project in favor of the Bank.

Very truly yours,

BOND, SCHOENECK & KING

Stephen L. Johnson

By: Stephen L. Johnson

SLJ/lc
Enclosure

MONROE ABSTRACT & TITLE CORPORATION

333 EAST ONONDAGA STREET
SYRACUSE, NEW YORK 13202

Telephone (315) 472-4761

PAUL D. MOONAN
President

JOHN C. MCGUIRE
Executive Vice-President

JACOB J. FRICANO
Senior Vice-President

EDMUND W. ROMOCKI
PATRICK F. KELLY
Vice-Presidents

ROSEMARY K. LANE
ROBERT M. CHARD
*Assistant Vice-Presidents &
Associate Title Officers*

DOROTHY I. OBRIST
Assistant Vice-President

ELAINE M. LOCK
Assistant Treasurer

LOUIS BENZ
NANCY L. KOSTERS
MICHAEL P. YOUNG
YVONNE A. HAYES
MARGARET KARAFILOPOULOS
Assistant Secretaries

OTHER OFFICES

ROCHESTER

BUFFALO

ALBANY

LYONS

BINGHAMTON

SCHENECTADY

GENESEO

BELMONT

CORTLAND

BALLSTON SPA

January 19, 1982

Bond, Schoeneck & King
One Lincoln Center
Syracuse, New York 13202

Attention: John Callahan, Esq.

Dear John:

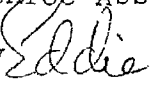
RE: T.I. 21,299-S
Pt Lts 896, 897, 908 & 909
Great Tract No. 4 Macomb
Purchase, Town of Diana
Lewis County
Lewis Industrial Dev. Agency
- The Royal Bank & Trust
Company

The title in the above captioned matter was continued in the Lewis County Clerk's Office, from June 21, 1981 to December 31, 1981 and nothing further was found; said continuation also included a search for financing statements against personal property.

We are enclosing our invoice in this matter.

Very truly yours

Monroe Abstract & Title Corporation

By 

Vice-President

EWR:jms
Encl.

BOND, SCHOENECK & KING

ONE LINCOLN CENTER

SYRACUSE, NEW YORK 13202

(315) 422-0121

111 WASHINGTON AVENUE
ALBANY, NEW YORK 12210
(518) 462-7421

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(305) 467-7105

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DAVID A. RIGGS
THADDEUS J. LEWKOWICZ
CARLA A. AMUSSEN
LUCIA M. IZZO
LAURENCE G. BOUSQUET
ALAN J. KNAUF *
ANN R. PURDUE

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JAMES P. McDONALD *
STEPHEN J. VOLLMER
S. PAUL BATTAGLIA
L. LAWRENCE TULLY
PAUL M. SANSOUCY *
DAVID PATRICK O'HARA
GARY M. CLARK
RICHARD C. HEFFERN

July 21, 1981

Mr. Jack Bennett, President
Mr. Richard G. Light
Executive Vice President
Whittaker, Clark & Daniels, Inc.
1000 Coolidge Street
South Plainfield, New Jersey 07080

Dear Dick:

I enclose the original Title Insurance Policy insuring
Clark Minerals, Inc. as owner of the leasehold on the property
in the Town of Diana. Please safeguard this policy.

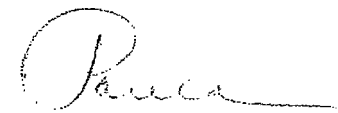
I expect to be receiving a binder of closing documents
from Ken Bond in the near future and will forward it to you
upon receipt.

Best regards.

Very truly yours,

BOND, SCHOENECK & KING

By:


Paula Lapin Seifter

PLS/ldw

Enclosure

December 23, 1980

Miss Kathryn Poulsen
Jefferson National Bank
Washington Street
Watertown, New York 13601

Dear Miss Poulsen:

Regarding: Account No. 506-003-08-6

This letter will confirm our instructions to you last Wednesday and Friday, December 17 and 19 to issue the following cashier's check to be charged against the above account number in the name of Clark Minerals, Inc.:

<u>Check No.</u>	<u>Payee</u>	<u>Amount</u>
30748	Internal Revenue Service	\$ 644.20
30747	New York State	
	Unemployment Insurance	\$1,672.64
31035	New York State	
	Tax Commission	\$3,828.51

Thank you very much for all of your help last Friday. It was very much appreciated.

Very truly yours,

WHITTAKER, CLARK & DANIELS, INC.

J. H. Bennett, Jr.
Vice President

JHB/ep
bcc: M.C. Argyelan
R.G. Light

JEFFERSON NATIONAL BANK

50-116F

Nº 14408

_____, N.Y., 12-19-1982
WE ARE CHARGING YOUR ACCOUNT AS PER ITEMS BELOW. PLEASE SEE THAT THE
AMOUNT IS DEDUCTED ON YOUR BOOKS SO THAT OUR ACCOUNTS MAY AGREE.

FOR _____

CC # 31035Pay Tax CommissionAMT. OF
CHARGE

3	8	51

CHARGE

Clark Minerals, Inc.PO Box 395Natural Bridge Mt 13665

ACCOUNT NUMBER

506-003086

APP'D BY

ENTR'D BY

h

PURCHASER'S RECEIPT - RETAIN FOR YOUR RECORDS

Clark Minerals, Inc.

Jefferson National Bank
WATERTOWN, N. Y. 13601

31035

December 19

80

50-116F
213PAYABLE TO New York State Tax Commission

3828.51

NOT NEGOTIABLE

Three Thousand Eight Hundred Twenty-eight and 51/100

MEMORANDUM

CASHIER'S CHECK

FOR _____

Pay to order of

⑆021311655⑆ 001 00001 7⑈

JEFFERSON NATIONAL BANK

50-116F 3

Nº 14407

_____, N.Y., 12-19-1982
WE ARE CHARGING YOUR ACCOUNT AS PER ITEMS BELOW. PLEASE SEE THAT THE
AMOUNT IS DEDUCTED ON YOUR BOOKS SO THAT OUR ACCOUNTS MAY AGREE.

FOR _____

CC # 307483074730749AMT. OF
CHARGE

	6	4	4	2	0
1	6	7	2	6	4
1	3	8	8	8	5
3	7	6	5	6	9

CHARGE

Clark Minerals, Inc.

ACCOUNT NUMBER

506-003086

APP'D BY

ENTR'D BY

h

PURCHASER'S RECEIPT - RETAIN FOR YOUR RECORDS
Clark Minerals, Inc.



Jefferson National Bank
WATERTOWN, N. Y. 13601

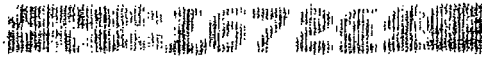
30747

NOT NEGOTIABLE

50-1165
213

PAYABLE TO New York State Unemployment Insurance

1672.64



MEMORANDUM

CASHIER'S CHECK

FOR

⑆021311655⑆ 001 00001 71⑈

PURCHASER'S RECEIPT - RETAIN FOR YOUR RECORDS
Clark Minerals, Inc.



Jefferson National Bank
WATERTOWN, N. Y. 13601

30748

NOT NEGOTIABLE

50-1165
213

PAYABLE TO Internal Revenue Service

644.20



MEMORANDUM

CASHIER'S CHECK

FOR

⑆021311655⑆ 001 00001 71⑈

BANK SYMBOL, TRANSACTION NUMBER, DATE AND
AMOUNT OF DEPOSIT ARE SHOWN BELOW

DEPOSITED WITH

Deluxe TR 3

JEFFERSON NATIONAL BANK

THIS IS YOUR RECEIPT

WHEN MAKING A DEPOSIT AT A TELLERS WINDOW, ALWAYS OBTAIN AN OFFICIAL RECEIPT.
Checks and other items are received for deposit subject to the provisions of
the Uniform Commercial Code or any applicable collection agreement.

101 JNB*06073

138885Das2198

PURCHASER'S RECEIPT - RETAIN FOR YOUR RECORDS
Clark Minerals, Inc.

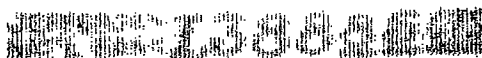


Jefferson National Bank
WATERTOWN, N. Y. 13601

30749

50-1165
213

PAYABLE TO Carbola Chemical Co., Inc. **NOT NEGOTIABLE** 1388.85



MEMORANDUM

CASHIER'S CHECK

FOR _____

⑆021311655⑆ 001 00001 7⑈

CERTIFIED
CHECK REGISTER

JEFFERSON NATIONAL BANK
Watertown, N.Y. 13601

Nº 2042

DATE CERTIFIED 12-19-80 DATE OF CHECK 12-19-80 CHECK NO. 114

MAKER Clark Mineral Inc., ACCOUNT NO. 506 00308 6 \$ 82.98

FOR CERTIFIED CHECK IN FAVOR OF Internal Revenue Service FEE \$ _____

REQUESTED BY _____ CERTIFIED BY M.S. TOTAL CHARGE \$ 82.98

AT THE REQUEST OF THE BANK EXAMINERS, WE WILL RETAIN THE CHECK WHICH THIS VOUCHER COVERS WHEN PRESENTED FOR PAYMENT. SHOULD YOU REQUIRE THE CHECK, IT WILL BE NECESSARY TO PRESENT THIS VOUCHER.

RECEIVED CANCELLED CHECK AS COVERED BY ABOVE ITEM ON _____ 19____

506 00308 6⑈ ⑆00000008298⑆

A. E. MARTELL CO., KEENE, N. H. A59408

JEFFERSON ATIONAL BANK

50-1165 3

Nº 14408

_____, N.Y., 12-19-1980
WE ARE CHARGING YOUR ACCOUNT AS PER ITEMS BELOW. PLEASE SEE THAT THE AMOUNT IS DEDUCTED ON YOUR BOOKS SO THAT OUR ACCOUNTS MAY AGREE.

FOR _____

_____ 10 713 1035

_____ 10 243 395

CHARGE Clark Mineral Inc.

10 243 395

Internal Revenue Service 506 00308 6⑈

AMT. OF
CHARGE

ACCOUNT NUMBER

516 00308 6

APP'D BY _____ ENTR'D BY _____
⑆0000382851⑆

APPRO'D BY	ENTR'D BY
50100750000001	

JEFFERSON NATIONAL BANK

50-116 3

Nº 14407

_____, N.Y., 12-19-80
 WE ARE CHARGING YOUR ACCOUNT AS PER ITEMS BELOW. PLEASE SEE THAT THE
 AMOUNT IS DEDUCTED ON YOUR BOOKS SO THAT OUR ACCOUNTS MAY AGREE.

FOR

PA #12,048

30747

30749

AMT. OF
CHARGE

	40	20
1	67	64
1	71	15
2	70	69

CHARGE

Clark Minerals Inc.

ACCOUNT NUMBER

506 00308 6

518-103686
 APP'D BY 000003 ENTR'D BY 00569

CERTIFIED CHECK REGISTER

JEFFERSON NATIONAL BANK

Nº 2041

Watertown, N.Y. 13601

DATE CERTIFIED 12-19-80 DATE OF CHECK 12-19-80 CHECK NO. 111

MAKER

Clark Minerals Inc.

ACCOUNT NO.

506 00308 6

\$554.20

FOR CERTIFIED
CHECK IN FAVOR OF

Byrns Motor Express

FEE \$ n/a

REQUESTED BY

CERTIFIED BY

TOTAL

CHARGE \$ 554.20

AT THE REQUEST OF THE BANK EXAMINERS, WE WILL RETAIN THE CHECK WHICH THIS VOUCHER COVERS WHEN
 PRESENTED FOR PAYMENT. SHOULD YOU REQUIRE THE CHECK, IT WILL BE NECESSARY TO PRESENT THIS VOUCHER.

RECEIVED CANCELLED CHECK AS COVERED BY ABOVE ITEM ON

19

SIGN HERE 506 00308 6

000000554.20

A. E. MARTELL CO., KEENE, N. H. A59408

Ask Merrill -
when opinion
letter

Send Paula 2 copies of
WCFD financial
statements.
+ copy of WCFD Bylaws

Summary of checks drawn and debits charged - 12-19-80

Check No.	Payee	Amount
101	VOID	
102	Athea Laboratories Inc.	\$ 821.70
103	Strathmore Products Inc.	125.00
104	Owens Illinois Inc.	1,212.54
105	Jefferson National Bank	15,717.60
106	Gateway Equipment Corp.	571.14
107	M. Berger Company	541.80
108	Great American Insurance Co.	148.73
109	Small Business Administration	45,087.29
110	Frank Miller & Sons Inc. VOID	295.40
111	Cyrus Motor Express	554.20
112	Giles Malone, Marsh, Swartz, Goodman	992.30
	Total checks drawn	\$ 66,067.70
* Add debit advice #14407		3,705.69
	Total	69,773.39
* Addtl debit advice		2,439.66
#113 Sales Tax		578.84
		72,791.89
#114 IRS		82.98
#115 Calkins & Brett	same amt as #110	no charge
		72,874.87
#116 Niagara Mohawk		3940.47
		76,815.34

#119 Lewis County - Treasurer	76,815.34
	<u>4,855.25</u>
	\$ 81,670.59
#120 Bond Schoeneck & King Escrow	<u>10,500.00</u>
	92,170.59
121 Carbola Chemical Co Inc	20,000.00
122 " " "	<u>43,172.36</u>
	155,342.95

PMI c/c Ch #118 County Clerk - Lewis Cty. 3,065.50

West tax	2,560.00	
Red steps	456.50	- Seller
Redy deed	19.00	
Recy deed tax	5.00	- Seller
" "	22.00	
Recy 30000 term	30.00	- Seller
	<u>3,065.50</u>	

464.50

Buyer - 2601

TABLE OF CONTENTS

- A. /* *2000-01-01* *10000000*
A. / *2000-01-01* *10000000* *10000000* *10000000*
1. Purchase Contract
 2. Assignment of Contract
 3. Deed
 4. Bond
 5. Mortgage
 6. Timbering Agreement
 7. Certified Copy of Resolution to Mortgage - Whittaker,
Clark & Daniels, Inc.
 8. Certified Copy of Resolution to Mortgage - Clark
Minerals, Inc.
 9. Resolution of Board of Directors of Carbola Chemical
Co., Inc.
 10. Resolution of Shareholders of Carbola Chemical Co., Inc.
 11. Bill of Sale
 12. Sales Tax Bureau Notification of Sale, Transfer or
Assignment in Bulk
 13. Casual Sales Tax Return
 14. Letter Agreement Regarding Removal of Personal Property
 15. Escrow Agreement
 16. Insurance Binder
 17. Letter Agreement Regarding lis pendens
 18. Statement of Sale
 19. Guaranty

December 19, 1980

Carbola Chemical Co., Inc.
Natural Bridge, New York

re: Sale of Lewis County property to Clark Minerals,
Inc.

Gentlemen:

This letter shall constitute our guaranty to you as follows:

1. You are about to lend Two Hundred and fifty Six Thousand (\$256,000.00). (the "Loan") to Clark Minerals, Inc., with offices at Natural Bridge, New York (the "Borrower"). The Loan will be evidenced by a bond of the Borrower in that principal amount and will be secured by a mortgage of Borrower (the loan documents) covering certain premises situate in the Town of Diana, Lewis County, New York (the "Premises").

2. To induce you to make the Loan and in consideration of your doing so, the undersigned unconditionally guarantees to you and your successors and assigns the full and prompt payment when due of all sums payable under the Loan documents and the full and prompt performance and observance of all the other covenants, conditions and agreements to be performed or observed by the Borrower under the Loan documents.

3. This guaranty is and shall be construed to be an absolute and unconditional present and continuing guaranty of payment and not merely of collection, and the liability of the undersigned is the liability of a surety and is no way conditioned or contingent

Carbola Chemical Co., Inc.
Page Two

upon any attempt to collect from the Borrower or upon any other condition or contingency. This guaranty shall continue in full force and effect until all sums becoming due under the Loan documents have been paid in full and all covenants of the Borrower under the Loan documents have been fully performed.

4. Our obligations under this guaranty shall remain in full force and effect without regard to any amendment or modification of any of the terms of any of the Loan documents or any substitution or release of any security under the Loan documents whether or not we shall have had notice of these circumstances.

5. We waive notice of acceptance of this guaranty, ~~presentment and protest under the Loan documents and all other~~ notices to which we may otherwise be entitled.

6. This guaranty shall be enforceable as to borrower's obligations under the loan documents despite borrower's discharge in bankruptcy or despite adjustment of such debt, liabilities or obligations in insolvency proceedings or pursuant to any other compromise with creditors.

7. Any omissions or delays by you in exercise of any right hereunder shall not act as a waiver and the singular or partial exercise of any such right or rights shall not preclude any other or further exercise thereof.

8. This guaranty cannot be changed or terminated orally.

9. This guaranty shall be binding upon our successors and

Carbola Chemical Co., Inc.
Page Three

assigns and shall inure to the benefit of your successors and
assigns.

Very truly yours,

WHITTAKER, CLARK & DANIELS, INC.

BY Frederick F. Roesch
Frederick F. Roesch
President

STATE OF NEW YORK)
COUNTY OF JEFFERSON) ss.:

On the 19th day of December, 1980, before me personally
came FREDERICK F. ROESCH, to me known, who being by me duly sworn,
did depose and say that he resides at Middletown, New Jersey;
that he is the President of Whittaker, Clark & Daniels, Inc., the
corporation described in and which executed the foregoing instrument;
and that he signed his name thereto by order of the Board of
Directors.

Paula Lapin Seifter
Notary Public

PAULA LAPIN SEIFTER
Notary Public in the State of New York
Certified in Onondaga Co. No. 4627286
My Commission Expires March 30, 1982

BOND, SCHOENECK & KING

ONE LINCOLN CENTER

SYRACUSE, NEW YORK 13202

(315) 422-0121

III WASHINGTON AVENUE
ALBANY, NEW YORK 12210
(518) 462-7421

JOHN A. BEACH
RESIDENT PARTNER

ONE FINANCIAL PLAZA
FORT LAUDERDALE, FLORIDA 33394
(305) 467-7105

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STEPHEN J. VOLLMER
S. PAUL BATTAGLIA
L. LAWRENCE TULLY
PAUL M. SANSOUKY *
DAVID PATRICK O'HARA

March 9, 1981

Joshua H. Bennett, Jr.
Vice President
Whittaker, Clark & Daniels, Inc.
1000 Coolidge Street
South Plainfield, N.J. 07080

Dear Jack:

I think that in the binder of documents I sent you after we closed I may have omitted the guaranty which Whittaker gave to Carbola of Clark's obligations under the purchase money mortgage. I am enclosing an extra copy of the guaranty, as well as an amended table of contents for the binder in the event that the document was omitted from your copy.

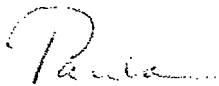
Please let me see a copy of your commitment with the Royal Bank once it is finalized.

I will be in Florida from March 12th through 21st. However, if I am needed for any reason my office will know where to find me.

Very truly yours,

BOND, SCHOENECK & KING

By:


Paula Lapin Seifter

PLS/jb
encs.

BOND, SCHOENECK & KING

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SYRACUSE, NEW YORK 13202

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THOMAS S. EVANS
H. DEAN HEBERLIG, JR.
THOMAS J. DROCHS
RICHARD L. SMITH
CARL E. M. WORRIGS
JAMES R. McDONALD
STEPHEN J. VOLLMER
S. PAUL BATTAGLIA
L. LAWRENCE TULLY
PAUL M. SANSQUET
DAVID PATRICK O'HARA

February 27, 1981

Merritt T. Viscardi, Esq.
Apruzzese & McDermott
Independence Plaza
500 Morris Avenue
P. O. Box 329
Springfield, N.J. 07081

Re: Clark Minerals, Inc. - purchase of
350± acres, Town of Diana, New York
from Carbola Chemical Co., Inc.

Dear Mr. Viscardi:

I hope you will excuse my delay in sending this letter to you but, as you are aware, there have been a few outstanding matters which we have first sought to clear.

In your capacity as corporate counsel to Whittaker, Clark & Daniels, Inc., you have asked for confirmation from us that all requirements of the purchase agreement have been satisfied.

The closing of the above transaction took place on December 19, 1980 in Watertown, New York. A binder of closing documents is enclosed for your file. Clark Minerals purchased 350± acres of land in the Town of Diana, New York. The seller reserved title to an adjacent 30 acre parcel but conveyed its mineral rights to Clark Minerals. In connection with the conveyance of the 350 acre parcel, the seller reserved firewood cutting rights as described in a timbering agreement affecting the northeasterly quadrant of the premises.

Merritt T. Viscardi, Esq.
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All personalty was conveyed by full warranty bill of sale. The applicable New York State sales tax was paid and remitted to the State at the time of closing, along with a casual sales tax return.

The Sales Tax Bureau was notified of the sale in connection with the bulk sales provisions of the New York State Tax Law, and has recently issued its release. In our opinion, the Uniform Commercial Code Bulk Sales Act did not apply because the sale included no inventory; but set-off provisions were included in the mortgage note to protect against any claims which might be asserted under the Act.

Clark Minerals gave the seller its note for the sum of \$256,000.00 secured by a mortgage on the property. The mortgage provides for its subordination to a later mortgage of up to one million dollars to be given to the bond purchaser when the anticipated IDA financing is completed.

As to the status of the proposed financing through the Lewis County Industrial Development Agency, enclosed are copies of minutes of the Agency, along with a memorandum of inducement and intent which evidences the Agency's willingness to issue industrial revenue bonds in the principal amount of not more than \$1,000,000.00 for the purpose of paying the costs of reconstruction and equipping of the plant. These minutes and memorandum of inducement and intent incorporate by reference the original inducement resolution of the agency dated October 29, 1980, also enclosed. All funds expended after that date in the equipping and reconstruction of the plant will be eligible for reimbursement from bond proceeds. Until the company receives a satisfactory loan commitment, there are no steps that can be taken toward a closing on the industrial revenue bonds.

You have asked for the current status of the matter concerning Francis Costanzo, a 10% shareholder of Carbola Chemical. As you know, he has raised a question as to whether Carbola's failure to give him a proper notice required by the New York Business Corporation Law may give rise to a claim by him against Carbola. Mr. Costanzo's attorney wrote to Whittaker putting it on notice of his claim. A copy of his letter is enclosed, along with the notice of shareholder's meeting sent to Mr. Costanzo and his response to the corporation.

I have spoken with Mr. Costanzo's attorney on two occasions. I informed him that the allegations in the second paragraph of his letter dated January 23rd were factually incorrect. No rights owned by the corporation were retained by the

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majority shareholder in his individual capacity. This is evidenced by our "timbering agreement" which is included in your closing binder, and to which the attorney's letter addresses itself.

A meeting between the parties to negotiate a buy-out of Mr. Costanzo's interest in the corporation was held on Friday, February 6th, in Watertown. Thus far, there has been cooperation between the parties. If, however, an agreement cannot be reached, a suit will likely be commenced naming Clark Minerals as a stakeholder. If no suit is brought and the matter is not otherwise determined in the next few weeks, appropriate and timely action should be taken to ensure that the April mortgage payment can be made by Clark Minerals without exposure to Mr. Costanzo.

Monroe Abstract & Title Corporation has issued a fee title insurance policy numbered 21,697-S dated December 22, 1980 in the amount of \$715,000.00. A copy of the policy is enclosed for your file. The policy insures that title in fee simple is vested in Clark Minerals, Inc. subject only to the matters indicated as exceptions. The amount of coverage was arrived at by adding \$300,000 to the purchase price of the property, that sum representing Dick Light's estimate of the amount to be expended on permanent improvements to the property.

We had hoped to be able to omit the franchise tax exception and the two judgments from the list of exceptions in the title policy prior to sending this letter. While the franchise taxes owed by Carbola were, in fact, paid to the State at the time of closing, we have been unable to get a current franchise tax search from Albany to verify this. The two judgments have, in fact, been paid but remain open of record because the satisfactions forwarded by the seller's attorney for filing were returned by the County Clerk because of unacceptable signatures. We will have these matters cleared shortly and will forward an amendment to the title policy to you at that time.

If a suit should be brought by Mr. Costanzo and Clark Minerals is made a party to it, solely in its capacity as stakeholder, the title company will not defend and the suit will have to be defended at Clark's expense. If, however, a suit should be brought by Mr. Costanzo which attempts to affect the title, the title insurance will cover the claim and our firm will defend the claim at no charge to Clark. A copy of our letter agreement dated February 23, 1981 with the title company to this effect is enclosed.

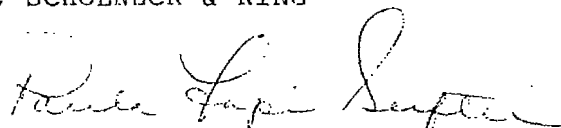
Merritt T. Viscardi, Esq.
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Page 4

Based upon the enclosed policy of title insurance issued by Monroe, we are of the opinion that the requirements of the Agreement dated November 17, 1980, as amended, have been complied with so as to vest good title to the premises in Clark Minerals, Inc., subject to those matters excepted in the policy.

If you require any further documentation for your file apart from the enclosures or, if you have any questions, please advise. We will, of course, keep you apprised of all developments.

Very truly yours,

BOND, SCHOENECK & KING

By: 
Paula Lapin Seifter

PLS/wp

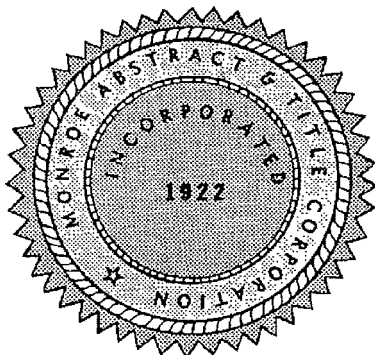
cc: Richard G. Light
Joshua H. Bennett, Jr.

MONROE ABSTRACT & TITLE CORPORATION

POLICY OF TITLE INSURANCE

The MONROE ABSTRACT & TITLE CORPORATION, in consideration of the payment of its charges for the examination of title and its premium for insurance, insures the within named insured against all loss or damage not exceeding the amount of insurance stated herein and in addition the costs and expenses of defending the title estate or interest insured, which the insured shall sustain by reason of any defect or defects of title affecting the premises described in Schedule A or affecting the interest of the insured therein as herein set forth, or by reason of unmarketability of the title of the insured to or in the premises, or by reason of liens or incumbrances affecting title at the date hereof, or by reason of any statutory lien for labor or material furnished prior to the date hereof which has now gained or which may hereafter gain priority over the interest insured hereby, or by reason of a lack of access to and from the premises, excepting all loss and damage by reason of the estates, interests, defects, objections, liens, incumbrances and other matters set forth in Schedule B, or by the conditions of this policy hereby incorporated into this contract, the loss and the amount to be ascertained in the manner provided in said conditions and to be payable upon compliance by the insured with the stipulations of said conditions, and not otherwise.

IN WITNESS WHEREOF, the MONROE ABSTRACT & TITLE CORPORATION has caused this policy to be signed and sealed on its date of issue set forth herein.



John C. McKenna
Vice-President

Yvonne Hayes
Assistant Secretary

CONDITIONS OF THIS POLICY

Section One.

Definitions

(a) Wherever the term "insured" is used in this policy it includes those who succeed to the interest of the insured by operation of law including, without limitation, heirs, distributees, devisees, survivors, personal representatives, next of kin or corporate successors, as the case may be, and those to whom the insured has assigned this policy where such assignment is permitted by the terms hereof, and whenever the term "insured" is used in the conditions of this policy it also includes the attorneys and agents of the "insured."

(b) Wherever the term "this company" is used in this policy it means Monroe Abstract & Title Corporation.

(c) Wherever the term "final determination" or "finally determined" is used in this policy, it means the final determination of a court of competent jurisdiction after disposition of all appeals or after the time to appeal has expired.

(d) Wherever the term "the premises" is used in this policy, it means the property insured herein as described in Schedule A of this policy including such buildings and improvements thereon which by law constitute real property.

(e) Wherever the term "recorded" is used in this policy it means, unless otherwise indicated, recorded in the office of the recording officer of the county in which property insured herein lies.

Section Two.

Defense and Prosecution of Suits

(a) This company will, at its own cost, defend the insured in all actions or proceedings founded on a claim of title or incumbrances not excepted in this policy.

(b) This company shall have the right and may, at its own cost, maintain or defend any action or proceeding relating to the title or interest hereby insured, or upon or under any covenant or contract relating thereto which it considers desirable to prevent or reduce loss hereunder.

(c) In all cases where this policy requires or permits this company to prosecute or defend, the insured shall secure to it the right and opportunity to maintain or defend the action or proceeding, and all appeals from any determination therein, and give it all reasonable aid therein, and hereby permits it to use therein, at its option, its own name or the name of the insured.

(d) The provisions of this section shall survive payment by this company of any specific loss or payment of the entire amount of this policy to the extent that this company shall deem it necessary in recovering the loss from those who may be liable therefor to the insured or to this company.

Section Three.

Cases Where Liability Arises

No claim for damages shall arise or be maintainable under this policy except in the following cases:

(a) Where there has been a final determination under which the insured may be dispossessed, evicted or ejected from the premises or from some part or undivided share or interest therein.

(b) Where there has been a final determination adverse to the title, upon a lien or incumbrance not excepted in this policy.

(c) Where the insured shall have contracted in good faith in writing to sell the insured estate or interest, or where the insured estate has been sold for the benefit of the insured pursuant to the judgment or order of a court and the title has been rejected because of a defect or incumbrance not excepted in this policy and there has been a final determination sustaining the objection to the title.

(d) Where the insurance is upon the interest of a mortgagee and the mortgage has been adjudged by a final determination to be invalid or ineffectual to charge the insured's estate or interest in the premises, or subject to a prior lien or incumbrance not excepted in this policy; or where a recording officer has refused to accept from the insured a satisfaction of the insured mortgage and there has been a final determination sustaining the refusal because of a defect in the title to the said mortgage.

(e) Where the insured shall have negotiated a loan to be made on the security of a mortgage on the insured's estate or interest in the premises and the title shall have been rejected by the proposed lender and it shall have been finally determined that the rejection of the title was justified because of a defect or incumbrance not excepted in this policy.

(f) Where the insured shall have transferred the title insured by an instrument containing covenants in regard to title or warranty thereof and there shall have been a final determination on any of such covenants or warranty, against the insured because of a defect or incumbrance not excepted in this policy.

(g) Where the insured estate or interest or a part thereof has been taken by condemnation and it has been finally determined that the insured is not entitled to a full award for the estate or interest taken because of a defect or incumbrance not excepted in this policy.

No claim for damages shall arise or be maintainable under this policy

(1) if this company, after having received notice of an alleged defect or incumbrance, removes such defect or incumbrance within thirty days after receipt of such notice; or (2) for liability voluntarily assumed by the insured in settling any claim or suit without the written consent of this company.

Section Four.

Notice of Claim

In case a purchaser or proposed mortgage lender raises any question as to the sufficiency of the title hereby insured, or in case actual knowledge shall come to the insured of any claim adverse to the title insured hereby, or in case of the service on or receipt by the insured of any paper, or of any notice, summons, process or pleading in any action or proceeding, the object or effect of which shall or may be to impugn, attack or call in question the validity of the title hereby insured, the insured shall promptly notify this company thereof in writing at its main office and forward to this company such paper or such notice, summons, process or pleading. Delay in giving this notice and delay in forwarding such paper or such notice, summons, process or pleading shall not affect this company's liability if such failure has not prejudiced and cannot in the future prejudice this company.

Section Five.

Payment of Loss

(a) This company will pay, in addition to the loss, all statutory costs and allowances imposed on the insured in litigation carried on by this company for the insured under the terms of this policy. This Company shall not be liable for and will not pay the fees of any counsel or attorney employed by the insured.

(b) In every case where claim is made for loss or damage this company (1) reserves the right to settle, at its own cost, any claim or suit which may involve liability under this policy; or (2) may terminate its liability hereunder by paying or tendering the full amount of this policy; or (3) may, without conceding liability, demand a valuation of the insured estate or interest, to be made by three arbitrators or any two of them, one to be chosen by the insured and one by this company, and the two thus chosen selecting an umpire. Such valuation, less the amount of any incumbrances on said insured estate and interest not hereby insured against, shall be the extent of this company's liability for such claim and no right of action shall accrue hereunder for the recovery thereof until thirty days after notice of such valuation shall have been served upon this company, and the insured shall have tendered a conveyance or assignment of the insured estate or interest to this company or its designee at such valuation, diminished as aforesaid. The foregoing option to fix a valuation by arbitration shall not apply to a policy insuring a mortgage or lease-hold interest.

(c) Liability to any collateral holder of this policy shall not exceed the amount of the pecuniary interest of such collateral holder in the premises.

(d) All payments made by this company under this policy shall reduce the amount hereof pro tanto except (1) payments made for counsel fees and disbursements in defending or prosecuting actions or proceedings in behalf of the insured and for statutory costs and allowances imposed on the insured in such actions and proceedings, and (2), if the insured is a mortgagee, payments made to satisfy or subordinate prior liens or incumbrances not set forth in Schedule B.

(Continued on Inside Back Cover)

(c) When liability has been definitely fixed in accordance with the conditions of this policy, the loss or damage shall be payable within thirty days thereafter.

**Section Six.
Co-insurance
and
Apportionment**

(a) In the event that a partial loss occurs after the Insured makes an improvement subsequent to the date of this policy, and only in that event, the Insured becomes a co-insurer to the extent herein-after set forth.

If the cost of the improvement exceeds twenty per centum of the amount of this policy, such proportion only of any partial loss established shall be borne by the Company as one hundred twenty per centum of the amount of this policy bears to the sum of the amount of this policy and the amount expended for the improvement. The foregoing provisions shall not apply to costs and attorneys' fees incurred by the Company in prosecuting or providing for the defense of actions or proceedings in behalf of the Insured pursuant to the terms of this policy or to costs imposed on the Insured in such actions or proceedings, and shall apply only to that portion of losses which exceed in the aggregate ten per cent of the face of the policy.

Provided, however, that the foregoing co-insurance provisions shall not apply to any loss arising out of a lien or encumbrance for a liquidated amount which existed on the date of this policy and was not shown in Schedule B; and provided further, such co-insurance provisions shall not apply to any loss if, at the time of the occurrence of such loss, the then value of the premises, as so improved, does not exceed one hundred twenty per centum of the amount of this policy.

(b) If the premises are divisible into separate, independent parcels, and a loss is established affecting one or more but not all of said parcels, the loss shall be computed and settled on a pro rata basis as if this policy were divided pro rata as to value of said separate, independent parcels, exclusive of improvements made subsequent to the date of this policy.

(c) Clauses "(a)" and "(b)" of this section apply to mortgage policies only after the insured shall have acquired the interest of the mortgagor.

(d) If, at the time liability for any loss shall have been fixed pursuant to the conditions of this policy, the insured holds another policy of insurance covering the same loss issued by another company, this company shall not be liable to the insured for a greater proportion of the loss than the amount that this policy bears to the whole amount of insurance held by the insured, unless another method of apportioning the loss shall have been provided by agreement between this company and the other insurer or insurers.

**Section Seven.
Assignment
of Policy**

If the interest insured by this policy is that of a mortgagee, this policy may be assigned to and shall inure to the benefit of successive assignees of the mortgage without consent of this company or its endorsement of this policy. Provision is made in the rate manual

of New York Board of Title Underwriters filed with the Superintendent of Insurance of the State of New York on behalf of this and other member companies for continuation of liability to grantees of the insured in certain specific circumstances only. In no circumstance provided for in this section shall this company be deemed to have insured the sufficiency of the form of the assignment or other instrument of transfer or conveyance or to have assumed any liability for the sufficiency of any proceedings after the date of this policy.

Section Eight.

Subrogation

(a) This company shall to the extent of any payment by it of loss under this policy, be subrogated to all rights of the insured with respect thereto. The insured shall execute such instruments as may be requested to transfer such rights to this company. The rights so transferred shall be subordinate to any remaining interest of the insured.

(b) If the insured is a mortgagee this company's right of subrogation shall not prevent the insured from releasing the personal liability of the obligor or guarantor or from releasing a portion of the premises from the lien of the mortgage or from increasing or otherwise modifying the insured mortgage provided such acts do not affect the validity or priority of the lien of the mortgage insured. However, the liability of this company under this policy shall in no event be increased by any such act of the insured.

Section Nine.

Misrepresentation

Any untrue statement made by the insured, with respect to any material fact, or any suppression of or failure to disclose any material fact, or any untrue answer by the insured, to material inquiries before the issuance of this policy, shall void this policy.

Section Ten.

**No Waiver
of Conditions**

This company may take any appropriate action under the terms of this policy whether or not it shall be liable hereunder and shall not thereby concede liability or waive any provision of this policy.

Section Eleven.

**Policy Entire
Contract**

All actions or proceedings against this company must be based on the provisions of this policy. Any other action or actions or rights of action that the insured may have or may bring against this company in respect of other services rendered in connection with the issuance of this policy, shall be deemed to have merged in and be restricted to its terms and conditions.

Section Twelve.

**Validation and
Modification**

This policy is valid only when duly signed by a validating officer or agent. Changes may be effected only by written endorsement. If the recording date of the instruments creating the insured interest is later than the policy date, such policy shall also cover intervening liens or encumbrances, except real estate taxes, assessments, water charges and sewer rents.

**POLICY
of
TITLE INSURANCE**

**MONROE ABSTRACT
&
TITLE CORPORATION**

OFFICES

130 PEARL STREET
BUFFALO, NEW YORK 14202

TWENTY MAIN STREET WEST
ROCHESTER, NEW YORK 14614

THREE THIRTY-THREE E. ONONDAGA STREET
SYRACUSE, NEW YORK 13202

COR. JAMES STREET & MAIDEN LANE
ALBANY, NEW YORK 12209

59-61 COURT STREET
BANKERS TRUST BUILDING
BINGHAMTON, NEW YORK 13901

THIRTY-FOUR WILLIAM STREET
P.O. BOX 271, LYONS, NEW YORK 14489

608 STATE STREET
SCHENECTADY, NEW YORK 12305

2 NORTH STREET
GENESEO, NEW YORK 14454

P.O. BOX 95
BELMONT, NEW YORK 14813

5 COURT HOUSE PARK
CORTLAND, NEW YORK 13045

COURT HOUSE — McMASTER STREET
BALLSTON SPA, NEW YORK 12020

SCHEDULE A

1. Name of Insured	Policy No.	21,300-S
Clark Minerals, Inc.	Amount of Insurance	\$1,500,000.00
	Date of Issue	June 22, 1981
2. The estate or interest insured by this policy is		leasehold

vested in the insured by means of

Lease Agreement between County of Lewis Industrial Development Agency and Clark Minerals Inc., dated the 1st day of June, 1981 and filed for record in the Office of the Clerk of the County of Lewis, State of New York on the 22nd day of June, 1981 and recorded at 4:38 P.M.

3. The premises in which the insured has the estate or interest covered by this policy is described as follows:

SEE SCHEDULE "A" ATTACHED

SCHEDULE "A"

PARCEL I

ALL THAT TRACT OR PARCEL OF LAND situate in the Town of Diana, County of Lewis and State of New York, and further described as follows:

BEGINNING at a concrete monument found in the northerly highway limits of N.Y.S. Route 3, said concrete monument is situate North $71^{\circ} 54'$ West along the northerly highway limits of N.Y.S. Route 3, a distance of 725.1 feet from a concrete monument found at an angle point in said highway limits, said last mentioned concrete monument is situate North $73^{\circ} 17'$ West along the northerly highway limits of N.Y.S. Route 3, a distance of 109.8 feet from a concrete monument found at an angle point in said highway limits, said last mentioned concrete monument is situate North $82^{\circ} 09'$ West along the northerly highway limits of N.Y.S. Route 3, a distance of 88.3 feet from the intersection of the northerly highway limits of N.Y.S. Route 3 and the westerly margin of lands now or formerly owned by the Penn Central Transportation Co., said point of beginning also being the intersection of the northerly highway limits of N.Y.S. Route 3 and the most easterly property line of the parcel of land conveyed by Adelaide B. Montondo to Miguel Rodriguez by deed recorded in the Lewis County Clerk's Office in Liber 337 at Page 48 on September 19, 1973;

thence North $35^{\circ} 33'$ East along the Rodriguez easterly property line a distance of 166.3 feet to an iron pipe found;

thence North $56^{\circ} 10'$ West along the Rodriguez northerly property line a distance of 208.6 feet to an iron pipe found;

thence South $32^{\circ} 49'$ West along the Rodriguez westerly property line a distance of 228.3 feet to a rod found in the abandoned centerline of the former State Highway;

thence in a generally northwesterly direction along the abandoned centerline of the former State Highway a distance of 257.5 feet to an iron pipe found in the most southeasterly corner of the parcel of land conveyed by International Talc Company, Inc. to Richard W. Lozo and Carol Lozo by deed recorded in the Lewis County Clerk's Office in Liber 314 at Page 443 on 2/18/71;

thence North $33^{\circ} 38'$ East along the Lozo easterly property line a distance of 160.0 feet to a rod found;

thence North $56^{\circ} 28'$ West along the Lozo northerly property line a distance of 125.0 feet to an iron pipe found;

SEE SCHEDULE "A" (Continued)

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SCHEDULE "A" (Continued)

thence South 33° 38' West along the Lozo westerly property line, passing through an iron pipe found at 141.9 feet and continuing a total distance of 160.0 feet to a point in the centerline of the Old State Road;

thence in a generally northwesterly direction along the centerline of the Old State Road a distance of 525.3 feet to a point;

thence North 5° 53' West passing through an iron pipe found at 27.6 feet and continuing a total distance of 864.6 feet to a point;

thence North 5° 06' West passing through a stump at 1147.4 feet and continuing a total distance of 1158.0 feet to a point;

thence South 85° 40' 30" West a distance of 581.4 feet to an iron pipe found;

thence North 3° 16' 30" West a distance of 1764.0 feet to a nail set in a tree;

thence North 7° 55' 30" West a distance of 563.5 feet to an iron pipe found;

thence South 45° 19' East a distance of 2533.9 feet to an iron pipe found;

thence North 42° 24' East a distance of 1434.6 feet to an iron pipe found;

thence South 47° 57' 30" East a distance of 5120.8 feet to an iron pipe found;

thence South 50° 01' West a distance of 894.6 feet to an iron pipe found in the northerly margin of the land of the Penn Central Transportation Co.;

thence in a generally southwesterly direction along the Penn Central Transportation Co. northerly margin a distance of 1286.7 feet to a point, said margin being 40 feet northerly of and parallel to the centerline of the existing tracks;

thence North 58° 54' West a distance of 2036.3 feet to a point;

thence South 31° 06' West a distance of 1366.3 feet to a point in the northerly margin of N.Y.S. Route 3;

thence North 71° 54' West along the northerly margin of N.Y.S. Route 3 a distance of 260.6 feet to the point of beginning.

SEE SCHEDULE "A" (Continued)

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SCHEDULE "A" (Continued)

CONTAINING 351.01 acres of land more or less.

TOGETHER with a 100 foot Right of Way along the existing railroad siding which crosses the 30.45 acre parcel which is to be retained by Carbola Chemical Co., Inc., said Right of Way is as shown on the map titled "Survey Map of the Land of Carbola Chemical Co., Inc., N.Y.S. Route 3, Town of Diana, County of Lewis, State of New York", prepared by Bernier, Peck & Gozalkowski, Watertown, New York and dated December 11, 1980.

PARCEL II

TOGETHER with mineral rights excluding sand and gravel in and to the following described parcel of land:

ALL THAT TRACT OR PARCEL OF LAND, situate in the Town of Diana, County of Lewis and State of New York bounded and described as follows:

BEGINNING at a concrete monument located at the intersection of the northerly highway limits of N.Y.S. Route 3 and the westerly margin of lands now or formerly owned by the Penn Central Transportation Co.;

thence along the northerly limits of N.Y.S. Route 3 the following three courses and distances:

- (1) North 82° 09' West, 88.3 feet;
- (2) North 73° 17' West, 109.8 feet, and
- (3) North 71° 54' West, 464.5 feet;

thence North 31° 06' East, a distance of 1366.3 feet to a point;

thence South 58° 54' East, a distance of 2036.3 feet to the northerly margin of lands now or formerly owned by the Penn Central Transportation Co.;

SEE SCHEDULE "A" (Continued)

NOTHING IS TO BE WRITTEN ON THIS PAGE

SCHEDULE "A" (Continued)

thence North 82° 38' West along the northerly margin of lands now or formerly owned by the Penn Central Transportation Co., a distance of 821.7 feet to a point;

thence in a generally southwesterly direction along the northerly margin of lands now or formerly owned by the Penn Central Transportation Co., a distance of 1143.4 feet to the point and place of beginning, containing 30.45 acres of land, more or less.

TOGETHER with an easement for ingress and egress in and over the parcel just described as may be reasonably necessary to exercise the mineral rights, such ingress and egress to be carried out in a manner that minimizes to the extent possible disruption and interference of the interest of Carbola Chemical Co., Inc.

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SCHEDULE B

The following estates, interests, defects, objections to title, liens, and incumbrances and other matters are excepted from the coverage of this policy:

1. Defects and incumbrances arising or becoming a lien after the date of this policy, except as herein provided.
 2. Consequences of the exercise and enforcement or attempted enforcement of any governmental war or police powers over the premises.
 3. Any laws, regulations or ordinances (including, but not limited to zoning, building, and environmental protection) as to the use, occupancy, subdivision or improvement of the premises adopted or imposed by any governmental body, or the effect of any noncompliance with any violation thereof.
 4. Judgments against the insured or estates, interests, defects, objections, liens or incumbrances created, suffered, assumed or agreed to by or with the privity of the insured.
 5. Title to any property beyond the lines of the premises, or title to areas within or rights or easements in any abutting streets, roads, avenues, lanes, ways or waterways, or the right to maintain therein vaults, tunnels, ramps or any other structure or improvement, unless this policy specifically provides that such titles, rights, or easements are insured. Notwithstanding any provisions in this paragraph to the contrary, this policy, unless otherwise excepted, insures the ordinary rights of access and egress belonging to abutting owners.
 6. Title to any personal property, whether the same be attached to or used in connection with said premises or otherwise.
 7. No title or interest is insured to any land within the lines of any highway or road entering into, running through or abutting upon the premises.
 8. This policy is written upon the express covenant that any contract to sell, or application to mortgage, all or any portion of the insured premises shall provide for acceptance by the vendee or mortgagee as the sole title evidence, a title insurance policy issued by any title company licensed to do business in New York State, which policy shall contain this same covenant and be issued without exception as to any alleged right of any Indian or tribe of Indians and be issued at the then applicable rate. This Corporation agrees upon application to re-issue its policy with the same covenant included therein.
 9. The exact acreage of the premises described in Schedule "A" herein is not insured.
- This policy excepts rights to any gold and silver in subject premises, if any.
10. Rights to firewood and ingress and egress to cut same as provided in unrecorded Agreement between Carbola Chemical Co., Inc. and Clark Minerals Inc., dated December 19, 1980.
 11. Survey of Leo Floyd Gozalkowski, dated December 11, 1980 and redated June 17, 1981 discloses the following:
 - (a) Overhead utility lines with power poles cross south westerly corner.
 - (b) Electric Service for well house enter New York State Route #3.

SEE SCHEDULE "B" (Cont'd)

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SCHEDULE "B" (Cont'd)

12. Terms and Conditions contained in Lease Agreement between County of Lewis Industrial Development Agency and Clark Minerals, Inc., dated June 1, 1981 and recorded June 22, 1981 in the Lewis County Clerk's Office at 4:38 P.M.

13. Mortgage made by Clark Minerals Inc. to Carbola Chemical Co. Inc., which mortgage is given to secure the sum of \$256,000.00, dated December 19, 1980 and recorded December 22, 1980 in the Lewis County Clerk's Office in Liber 212 of Mortgages, Page 183.

14. Mortgage made by County of Lewis Industrial Development Agency to The Royal Bank and Trust Company, which mortgage is given to secure the sum of \$1,000,000.00, dated June 1, 1981 and recorded June 22, 1981 in the Lewis County Clerk's Office at 4:38 P.M.

15. Assignment of Lease from County of Lewis Industrial Development Agency to The Royal Bank and Trust Company, Ack'd June 22, 1981 and recorded June 22, 1981 in the Lewis County Clerk's Office at 4:38 P.M.

16. Financing Statement from County of Lewis Industrial Develop. Agency to The Royal Bank and Trust Company, filed June 22, 1981 in the Lewis County Clerk's Office at 4:38 P.M. as File No. 811324.

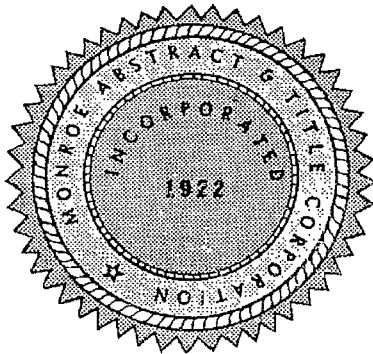
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MONROE ABSTRACT & TITLE CORPORATION

POLICY OF TITLE INSURANCE

The MONROE ABSTRACT & TITLE CORPORATION, in consideration of the payment of its charges for the examination of title and its premium for insurance, insures the within named insured against all loss or damage not exceeding the amount of insurance stated herein and in addition the costs and expenses of defending the title estate or interest insured, which the insured shall sustain by reason of any defect or defects of title affecting the premises described in Schedule A or affecting the interest of the insured therein as herein set forth, or by reason of unmarketability of the title of the insured to or in the premises, or by reason of liens or incumbrances affecting title at the date hereof, or by reason of any statutory lien for labor or material furnished prior to the date hereof which has now gained or which may hereafter gain priority over the interest insured hereby, or by reason of a lack of access to and from the premises, excepting all loss and damage by reason of the estates, interests, defects, objections, liens, incumbrances and other matters set forth in Schedule B, or by the conditions of this policy hereby incorporated into this contract, the loss and the amount to be ascertained in the manner provided in said conditions and to be payable upon compliance by the insured with the stipulations of said conditions, and not otherwise.

IN WITNESS WHEREOF, the MONROE ABSTRACT & TITLE CORPORATION has caused this policy to be signed and sealed on its date of issue set forth herein.



Joseph J. McLean
Vice President

Yvonne Hayes
Assistant Secretary

CONDITIONS OF THIS POLICY

Section One.

Definitions

(a) Wherever the term "insured" is used in this policy it includes those who succeed to the interest of the insured by operation of law including, without limitation, heirs, distributees, devisees, survivors, personal representatives, next of kin or corporate successors, as the case may be, and those to whom the insured has assigned this policy where such assignment is permitted by the terms hereof, and whenever the term "insured" is used in the conditions of this policy it also includes the attorneys and agents of the "insured."

(b) Wherever the term "this company" is used in this policy it means Monroe Abstract & Title Corporation.

(c) Wherever the term "final determination" or "finally determined" is used in this policy, it means the final determination of a court of competent jurisdiction after disposition of all appeals or after the time to appeal has expired.

(d) Wherever the term "the premises" is used in this policy, it means the property insured herein as described in Schedule A of this policy including such buildings and improvements thereon which by law constitute real property.

(e) Wherever the term "recorded" is used in this policy it means, unless otherwise indicated, recorded in the office of the recording officer of the county in which property insured herein lies.

Section Two.

Defense and Prosecution of Suits

(a) This company will, at its own cost, defend the insured in all actions or proceedings founded on a claim of title or incumbrances not excepted in this policy.

(b) This company shall have the right and may, at its own cost, maintain or defend any action or proceeding relating to the title or interest hereby insured, or upon or under any covenant or contract relating thereto which it considers desirable to prevent or reduce loss hereunder.

(c) In all cases where this policy requires or permits this company to prosecute or defend, the insured shall secure to it the right and opportunity to maintain or defend the action or proceeding, and all appeals from any determination therein, and give it all reasonable aid therein, and hereby permits it to use therein, at its option, its own name or the name of the insured.

(d) The provisions of this section shall survive payment by this company of any specific loss or payment of the entire amount of this policy to the extent that this company shall deem it necessary in recovering the loss from those who may be liable therefor to the insured or to this company.

Section Three.

Cases Where Liability Arises

No claim for damages shall arise or be maintainable under this policy except in the following cases:

(a) Where there has been a final determination under which the insured may be dispossessed, evicted or ejected from the premises or from some part or undivided share or interest therein.

(b) Where there has been a final determination adverse to the title, upon a lien or incumbrance not excepted in this policy.

(c) Where the insured shall have contracted in good faith in writing to sell the insured estate or interest, or where the insured estate has been sold for the benefit of the insured pursuant to the judgment or order of a court and the title has been rejected because of a defect or incumbrance not excepted in this policy and there has been a final determination sustaining the objection to the title.

(d) Where the insurance is upon the interest of a mortgagee and the mortgage has been adjudged by a final determination to be invalid or ineffectual to charge the insured's estate or interest in the premises, or subject to a prior lien or incumbrance not excepted in this policy; or where a recording officer has refused to accept from the insured a satisfaction of the insured mortgage and there has been a final determination sustaining the refusal because of a defect in the title to the said mortgage.

(e) Where the insured shall have negotiated a loan to be made on the security of a mortgage on the insured's estate or interest in the premises and the title shall have been rejected by the proposed lender and it shall have been finally determined that the rejection of the title was justified because of a defect or incumbrance not excepted in this policy.

(f) Where the insured shall have transferred the title insured by an instrument containing covenants in regard to title or warranty thereof and there shall have been a final determination on any of such covenants or warranty, against the insured because of a defect or incumbrance not excepted in this policy.

(g) Where the insured estate or interest or a part thereof has been taken by condemnation and it has been finally determined that the insured is not entitled to a full award for the estate or interest taken because of a defect or incumbrance not excepted in this policy.

No claim for damages shall arise or be maintainable under this policy

(1) if this company, after having received notice of an alleged defect or incumbrance, removes such defect or incumbrance within thirty days after receipt of such notice; or (2) for liability voluntarily assumed by the insured in settling any claim or suit without the written consent of this company.

Section Four.

Notice of Claim

In case a purchaser or proposed mortgage lender raises any question as to the sufficiency of the title hereby insured, or in case actual knowledge shall come to the insured of any claim adverse to the title insured hereby, or in case of the service on or receipt by the insured of any paper, or of any notice, summons, process or pleading in any action or proceeding, the object or effect of which shall or may be to impugn, attack or call in question the validity of the title hereby insured, the insured shall promptly notify this company thereof in writing at its main office and forward to this company such paper or such notice, summons, process or pleading. Delay in giving this notice and delay in forwarding such paper or such notice, summons, process or pleading shall not affect this company's liability if such failure has not prejudiced and cannot in the future prejudice this company.

Section Five.

Payment of Loss

(a) This company will pay, in addition to the loss, all statutory costs and allowances imposed on the insured in litigation carried on by this company for the insured under the terms of this policy. This Company shall not be liable for and will not pay the fees of any counsel or attorney employed by the insured.

(b) In every case where claim is made for loss or damage this company (1) reserves the right to settle, at its own cost, any claim or suit which may involve liability under this policy; or (2) may terminate its liability hereunder by paying or tendering the full amount of this policy; or (3) may, without conceding liability, demand a valuation of the insured estate or interest, to be made by three arbitrators or any two of them, one to be chosen by the insured and one by this company, and the two thus chosen selecting an umpire. Such valuation, less the amount of any incumbrances on said insured estate and interest not hereby insured against, shall be the extent of this company's liability for such claim and no right of action shall accrue hereunder for the recovery thereof until thirty days after notice of such valuation shall have been served upon this company, and the insured shall have tendered a conveyance or assignment of the insured estate or interest to this company or its designee at such valuation, diminished as aforesaid. The foregoing option to fix a valuation by arbitration shall not apply to a policy insuring a mortgage or lease-hold interest.

(c) Liability to any collateral holder of this policy shall not exceed the amount of the pecuniary interest of such collateral holder in the premises.

(d) All payments made by this company under this policy shall reduce the amount hereof pro tanto except (1) payments made for counsel fees and disbursements in defending or prosecuting actions or proceedings in behalf of the insured and for statutory costs and allowances imposed on the insured in such actions and proceedings, and (2), if the insured is a mortgagee, payments made to satisfy or subordinate prior liens or incumbrances not set forth in Schedule B.

(Continued on Inside Back Cover)

(c) When liability has been definitely fixed in accordance with the conditions of this policy, the loss or damage shall be payable within thirty days thereafter.

**Section Six.
Co-insurance
and
Apportionment**

(a) In the event that a partial loss occurs after the Insured makes an improvement subsequent to the date of this policy, and only in that event, the Insured becomes a co-insurer to the extent herein-after set forth.

If the cost of the improvement exceeds twenty per centum of the amount of this policy, such proportion only of any partial loss established shall be borne by the Company as one hundred twenty per centum of the amount of this policy bears to the sum of the amount of this policy and the amount expended for the improvement. The foregoing provisions shall not apply to costs and attorneys' fees incurred by the Company in prosecuting or providing for the defense of actions or proceedings in behalf of the Insured pursuant to the terms of this policy or to costs imposed on the Insured in such actions or proceedings, and shall apply only to that portion of losses which exceed in the aggregate ten per cent of the face of the policy.

Provided, however, that the foregoing co-insurance provisions shall not apply to any loss arising out of a lien or encumbrance for a liquidated amount which existed on the date of this policy and was not shown in Schedule B; and provided further, such co-insurance provisions shall not apply to any loss if, at the time of the occurrence of such loss, the then value of the premises, as so improved, does not exceed one hundred twenty per centum of the amount of this policy.

(b) If the premises are divisible into separate, independent parcels, and a loss is established affecting one or more but not all of said parcels, the loss shall be computed and settled on a pro rata basis as if this policy were divided pro rata as to value of said separate, independent parcels, exclusive of improvements made subsequent to the date of this policy.

(c) Clauses "(a)" and "(b)" of this section apply to mortgage policies only after the Insured shall have acquired the interest of the mortgagor.

(d) If, at the time liability for any loss shall have been fixed pursuant to the conditions of this policy, the insured holds another policy of insurance covering the same loss issued by another company, this company shall not be liable to the insured for a greater proportion of the loss than the amount that this policy bears to the whole amount of insurance held by the insured, unless another method of apportioning the loss shall have been provided by agreement between this company and the other insurer or insurers.

**Section Seven.
Assignment
of Policy**

If the interest insured by this policy is that of a mortgagee, this policy may be assigned to and shall inure to the benefit of successive assignees of the mortgage without consent of this company or its endorsement of this policy. Provision is made in the rate manual

of New York Board of Title Underwriters filed with the Superintendent of Insurance of the State of New York on behalf of this and other member companies for continuation of liability to grantees of the insured in certain specific circumstances only. In no circumstance provided for in this section shall this company be deemed to have insured the sufficiency of the form of the assignment or other instrument of transfer or conveyance or to have assumed any liability for the sufficiency of any proceedings after the date of this policy.

**Section Eight.
Subrogation**

(a) This company shall to the extent of any payment by it of loss under this policy, be subrogated to all rights of the insured with respect thereto. The insured shall execute such instruments as may be requested to transfer such rights to this company. The rights so transferred shall be subordinate to any remaining interest of the insured.

(b) If the insured is a mortgagee this company's right of subrogation shall not prevent the insured from releasing the personal liability of the obligor or guarantor or from releasing a portion of the premises from the lien of the mortgage or from increasing or otherwise modifying the insured mortgage provided such acts do not affect the validity or priority of the lien of the mortgage insured. However, the liability of this company under this policy shall in no event be increased by any such act of the insured.

**Section Nine.
Misrepresentation**

Any untrue statement made by the insured, with respect to any material fact, or any suppression of or failure to disclose any material fact, or any untrue answer by the insured, to material inquiries before the issuance of this policy, shall void this policy.

**Section Ten.
No Waiver
of Conditions**

This company may take any appropriate action under the terms of this policy whether or not it shall be liable hereunder and shall not thereby concede liability or waive any provision of this policy.

**Section Eleven.
Policy Entire
Contract**

All actions or proceedings against this company must be based on the provisions of this policy. Any other action or actions or rights of action that the insured may have or may bring against this company in respect of other services rendered in connection with the issuance of this policy, shall be deemed to have merged in and be restricted to its terms and conditions.

**Section Twelve.
Validation and
Modification**

This policy is valid only when duly signed by a validating officer or agent. Changes may be effected only by written endorsement. If the recording date of the instruments creating the insured interest is later than the policy date, such policy shall also cover intervening liens or encumbrances, except real estate taxes, assessments, water charges and sewer rents.

**POLICY
of
TITLE INSURANCE**

**MONROE ABSTRACT
&
TITLE CORPORATION**

OFFICES

130 PEARL STREET
BUFFALO, NEW YORK 14202

TWENTY MAIN STREET WEST
ROCHESTER, NEW YORK 14614

THREE THIRTY-THREE E. ONONDAGA STREET
SYRACUSE, NEW YORK 13202

COR. JAMES STREET & MAIDEN LANE
ALBANY, NEW YORK 12209

59-61 COURT STREET
BANKERS TRUST BUILDING
BINGHAMTON, NEW YORK 13901

THIRTY-FOUR WILLIAM STREET
P.O. BOX 271, LYONS, NEW YORK 14489

608 STATE STREET
SCHENECTADY, NEW YORK 12305

2 NORTH STREET
GENESEO, NEW YORK 14454

P.O. BOX 95
BELMONT, NEW YORK 14813

5 COURT HOUSE PARK
CORTLAND, NEW YORK 13045

COURT HOUSE — McMASTER STREET
BALLSTON SPA, NEW YORK 12020

SCHEDULE A

1. Name of Insured	Policy No.	21,697-S
Clark Minerals Inc.	Amount of Insurance	\$715,000.00

Date of Issue December 22, 1980

2. The estate or interest insured by this policy is fee simple

vested in the insured by means of
Warranty Deed with Lien Covenant executed by Carbola Chemical Co., Inc. to Clark Minerals Inc., dated the 19th day of December, 1980 and filed for record in the Office of the Clerk of the County of Lewis, State of New York on the 22nd day of December, 1980 and recorded in Liber 414 of Deeds, page 148.

3. The premises in which the insured has the estate or interest covered by this policy is described as follows:

SEE SCHEDULE "A" (Attached)

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SCHEDULE "A"

PARCEL I

ALL THAT TRACT OR PARCEL OF LAND situate in the Town of Diana, County of Lewis and State of New York, and further described as follows:

BEGINNING at a concrete monument found in the northerly highway limits of N.Y.S. Route 3, said concrete monument is situate North $71^{\circ} 54'$ West along the northerly highway limits of N.Y.S. Route 3, a distance of 725.1 feet from a concrete monument found at an angle point in said highway limits, said last mentioned concrete monument is situate North $73^{\circ} 17'$ West along the northerly highway limits of N.Y.S. Route 3, a distance of 109.8 feet from a concrete monument found at an angle point in said highway limits, said last mentioned concrete monument is situate North $82^{\circ} 09'$ West along the northerly highway limits of N.Y.S. Route 3, a distance of 88.3 feet from the intersection of the northerly highway limits of N.Y.S. Route 3 and the westerly margin of lands now or formerly owned by the Penn Central Transportation Co., said point of beginning also being the intersection of the northerly highway limits of N.Y.S. Route 3 and the most easterly property line of the parcel of land conveyed by Adelaide B. Montondo to Miguel Rodriguez by deed recorded in the Lewis County Clerk's Office in Liber 337 at Page 48 on September 19, 1973;

thence North $35^{\circ} 33'$ East along the Rodriguez easterly property line a distance of 166.3 feet to an iron pipe found;

thence North $56^{\circ} 10'$ West along the Rodriguez northerly property line a distance of 208.6 feet to an iron pipe found;

thence South $32^{\circ} 49'$ West along the Rodriguez westerly property line a distance of 228.3 feet to a rod found in the abandoned centerline of the former State Highway;

thence in a generally northwesterly direction along the abandoned centerline of the former State Highway a distance of 257.5 feet to an iron pipe found in the most southeasterly corner of the parcel of land conveyed by International Talc Company, Inc. to Richard W. Lozo and Carol Lozo by deed recorded in the Lewis County Clerk's Office in Liber 314 at Page 443 on 2/18/71;

thence North $33^{\circ} 38'$ East along the Lozo easterly property line a distance of 160.0 feet to a rod found;

thence North $56^{\circ} 28'$ West along the Lozo northerly property line a distance of 125.0 feet to an iron pipe found;

SEE SCHEDULE "A" (Continued)

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SCHEDULE "A" (Continued)

thence South 33° 38' West along the Lozo westerly property line, passing through an iron pipe found at 141.9 feet and continuing a total distance of 160.0 feet to a point in the centerline of the Old State Road;

thence in a generally northwesterly direction along the centerline of the Old State Road a distance of 525.3 feet to a point;

thence North 5° 53' West passing through an iron pipe found at 27.6 feet and continuing a total distance of 864.6 feet to a point;

thence North 5° 06' West passing through a stump at 1147.4 feet and continuing a total distance of 1158.0 feet to a point;

thence South 85° 40' 30" West a distance of 581.4 feet to an iron pipe found;

thence North 3° 16' 30" West a distance of 1764.0 feet to a nail set in a tree;

thence North 7° 55' 30" West a distance of 563.5 feet to an iron pipe found;

thence South 45° 19' East a distance of 2533.9 feet to an iron pipe found;

thence North 42° 24' East a distance of 1434.6 feet to an iron pipe found;

thence South 47° 57' 30" East a distance of 5120.8 feet to an iron pipe found;

thence South 50° 01' West a distance of 894.6 feet to an iron pipe found in the northerly margin of the land of the Penn Central Transportation Co.;

thence in a generally southwesterly direction along the Penn Central Transportation Co. northerly margin a distance of 1286.7 feet to a point, said margin being 40 feet northerly of and parallel to the centerline of the existing tracks;

thence North 58° 54' West a distance of 2036.3 feet to a point;

thence South 31° 06' West a distance of 1366.3 feet to a point in the northerly margin of N.Y.S. Route 3;

thence North 71° 54' West along the northerly margin of N.Y.S. Route 3 a distance of 260.6 feet to the point of beginning.

SEE SCHEDULE "A" (Continued)

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SCHEDULE "A" (Continued)

CONTAINING 351.01 acres of land more or less.

TOGETHER with a 100 foot Right of Way along the existing railroad siding which crosses the 30.45 acre parcel which is to be retained by Carbola Chemical Co., Inc., said Right of Way is as shown on the map titled "Survey Map of the Land of Carbola Chemical Co., Inc., N.Y.S. Route 3, Town of Diana, County of Lewis, State of New York", prepared by Bernier, Peck & Gozalkowski, Watertown, New York and dated December 11, 1980.

PARCEL II

TOGETHER with mineral rights excluding sand and gravel in and to the following described parcel of land:

ALL THAT TRACT OR PARCEL OF LAND, situate in the Town of Diana, County of Lewis and State of New York bounded and described as follows:

BEGINNING at a concrete monument located at the intersection of the northerly highway limits of N.Y.S. Route 3 and the westerly margin of lands now or formerly owned by the Penn Central Transportation Co.;

thence along the northerly limits of N.Y.S. Route 3 the following three courses and distances:

- (1) North 82° 09' West, 88.3 feet;
- (2) North 73° 17' West, 109.8 feet, and
- (3) North 71° 54' West, 464.5 feet;

thence North 31° 06' East, a distance of 1366.3 feet to a point;

thence South 58° 54' East, a distance of 2036.3 feet to the northerly margin of lands now or formerly owned by the Penn Central Transportation Co.;

SEE SCHEDULE "A" (Continued)

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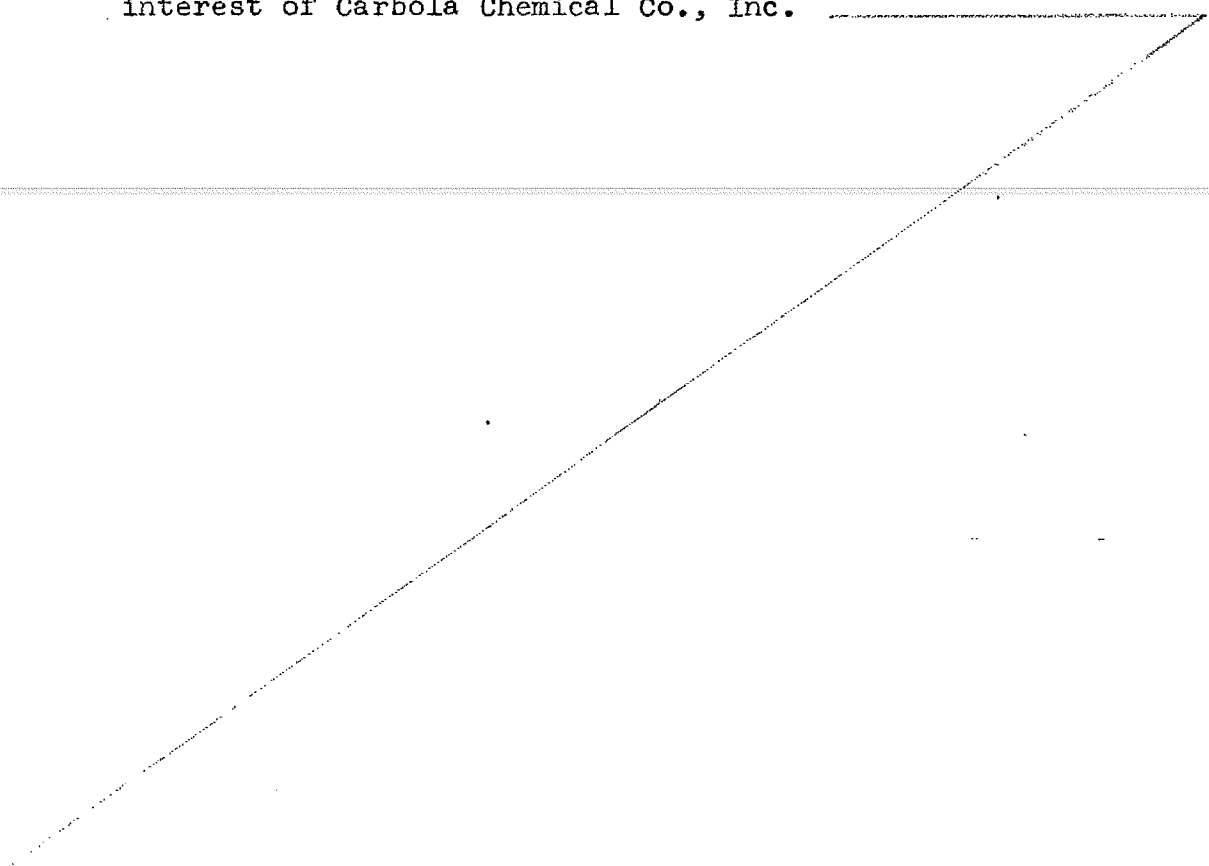
Daily Record Corp.-14R

SCHEDULE "A" (Continued)

thence North 82° 38' West along the northerly margin of lands now or formerly owned by the Penn Central Transportation Co., a distance of 821.7 feet to a point;

thence in a generally southwesterly direction along the northerly margin of lands now or formerly owned by the Penn Central Transportation Co., a distance of 1143.4 feet to the point and place of beginning, containing 30.45 acres of land, more or less.

TOGETHER with an easement for ingress and egress in and over the parcel just described as may be reasonably necessary to exercise the mineral rights, such ingress and egress to be carried out in a manner that minimizes to the extent possible disruption and interference of the interest of Carbola Chemical Co., Inc.



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SCHEDULE B

The following estates, interests, defects, objections to title, liens, and incumbrances and other matters are excepted from the coverage of this policy:

1. Defects and incumbrances arising or becoming a lien after the date of this policy, except as herein provided.
2. Consequences of the exercise and enforcement or attempted enforcement of any governmental war or police powers over the premises.
3. Any laws, regulations or ordinances (including, but not limited to zoning, building, and environmental protection) as to the use, occupancy, subdivision or improvement of the premises adopted or imposed by any governmental body, or the effect of any noncompliance with any violation thereof.
4. Judgments against the insured or estates, interests, defects, objections, liens or incumbrances created, suffered, assumed or agreed to by or with the privity of the insured.
5. Title to any property beyond the lines of the premises, or title to areas within or rights or easements in any abutting streets, roads, avenues, lanes, ways or waterways, or the right to maintain therein vaults, tunnels, ramps or any other structure or improvement, unless this policy specifically provides that such titles, rights, or easements are insured. Notwithstanding any provisions in this paragraph to the contrary, this policy, unless otherwise excepted, insures the ordinary rights of access and egress belonging to abutting owners.
6. Title to any personal property, whether the same be attached to or used in connection with said premises or otherwise.

7. No title or interest is insured to any land within the lines of any highway or road entering into, running through or abutting upon the premises.

8. This policy is written upon the express covenant that any contract to sell, or application to mortgage, all or any portion of the insured premises shall provide for acceptance by the vendee or mortgagee as the sole title evidence, a title insurance policy issued by any title company licensed to do business in New York State, which policy shall contain this same covenant and be issued without exception as to any alleged right of any Indian or tribe of Indians and be issued at the then applicable rate. This Corporation agrees upon application to re-issue its policy with the same covenant included therein.

9. The exact acreage of the premises described in Schedule "A" herein is not insured.

10. This policy excepts rights to any gold and silver in subject premises, if any.

11. Survey of Leo Floyd Gozalkowski, dated December 11, 1980 discloses the following:

(a) Overhead utility lines with power poles cross southwesterly corner.

(b) Electric service for well house enters from N.Y. State Route #3.

12. Franchise Taxes due the New York State Tax Commission from Carbola Chemical Co., Inc. for the periods 2/28/74, 2/28/79 and 2/29/80.

13. Judgment out of Supreme Court, Lewis County in favor of FMC Corporation Agricultural Chemical Division, Middleport, N.Y. against Carbola Chemical Co. Inc., Natural Bridge, N.Y. in the amount of \$866.93; filed and docketed December 14, 1977.

SEE SCHEDULE "B" (continued)

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SCHEDULE "B" (continued)

14. Judgment out of Supreme Court, Onondaga County in favor of Smith Transport (US) ltd., 7025 Schuyler Rd., Syracuse, New York against Carbola Chemical Co., Natural Bridge, N.Y., in the amount of \$983.18, filed and docketed March 23, 1979.
 15. Mortgage made by Clark Minerals Inc. to Carbola Chemical Co. Inc., which mortgage is given to secure the sum of \$256,000.00, dated December 19, 1980 and recorded December 22, 1980 in the Lewis County Clerk's Office in Liber 212 of Mortgages, page 183.
 16. Conditions as to mineral rights contained in Deed to Clark Minerals, Inc., dated December 19, 1980 and recorded December 22, 1980 in the Lewis County Clerk's Office in Liber 414 of Deeds, page 148.
 17. Rights to firewood and ingress and egress to cut same as provided in unrecorded Agreement between Carbola Chemical Co., Inc. and Clark Minerals Inc., dated December 19, 1980.
-

AGREEMENT

The date of this Agreement is Feb 17, 1980 and the parties are CARBOLA CHEMICAL CO., INC. having an address at Natural Bridge, New York 13665 ("Seller") and WHITTAKER, CLARK & DANIELS, INC., a corporation organized and existing under the laws of the State of New Jersey, having an office at 1000 Coolidge Street, South Plainfield, New Jersey ("Purchaser").

In consideration of mutual covenants, the parties agree as follows:

1. Subject to the terms of this Agreement, Seller agrees to sell and Purchaser agrees to purchase the land, buildings, fixtures, equipment, described in Exhibit A to this Agreement and referred to below as the "Property." Seller shall reserve to itself for the benefit of its designee, Mr. Edward Smith, timbering rights with respect to the Property except for the portion indicated in red on the attached survey (Exhibit "B"). These rights shall be limited to 15 year hardwood cutting rights for firewood with good conservation practices as may be monitored by a New York State forester, and shall be personal to Mr. Smith. The details of these rights will be the subject of a separate letter of understanding between Seller, Purchaser and Mr. Smith, to be executed at closing. Seller shall also convey to Purchaser mineral rights and appropriate access easements ("the Mineral Rights") to the parcel to be retained by

Seller consisting of 38⁺ acres and indicated in blue on the Survey.

2. The price to be paid to Seller by Purchaser for the Property is \$415,000.00 payable as follows:

(a) \$154,000.00 in certified or cashier's check on the day of closing. Seller acknowledges the receipt of \$5,000.00 toward the purchase price, which is non-refundable.

(b) The balance of \$256,000.00 payable in three payments as follows: \$107,500.00 on April 1, 1981; \$107,500.00 on April 1, 1982; and \$41,000.00 on April 1, 1983, plus interest accrued on outstanding balances, said payments to be secured by a note and mortgage with interest at the rate of eight and one-half percent (8½%) per annum. Seller agrees, at purchaser's option, to subordinate its mortgage to a first mortgage, arranged through the Lewis County Industrial Development Agency, not to exceed \$1,000,000.00 the language of such subordination agreement to be in substantially the same form as Exhibit C, attached hereto, and to be acceptable to Seller and Purchaser. Purchaser shall provide Seller with an appropriate bond and mortgage in form acceptable to Seller indicating the following terms:

(i) The Purchaser shall have the privilege of pre-payment at anytime after March 1, 1981, without penalty;

(ii) The mortgage shall be freely assumable, provided that Purchaser will remain fully liable on the bond and any assumption agreement will contain language satisfactory to Seller reciting Purchaser's continued obligation.

3. Seller shall deliver to Purchaser or its attorneys, Bond, Schoeneck & King, with offices at One Lincoln Center, Syracuse, New York, at least thirty days prior to closing of title,

an abstract of title covering a period of at least 40 years and beginning with a warranty deed or other source of title reasonably satisfactory to Purchaser, receipted current tax bills and an updated survey of the Property certified to Purchaser or their designee to be corrected by a licensed land surveyor showing a good and marketable title in fee simple to be vested in Seller free and clear of all liens and encumbrances except easements and restrictions of record, so long as the title is not rendered unmarketable and the Property is not restricted from operation as a grinding and mining facility. The survey shall show no facts which would render the title unmarketable.

4. Interest, taxes and charges for water, fuel, electricity and sewers which cannot be read by meter on the Closing date are to be apportioned between Seller and Purchaser as of the closing date.

5. The transfer of title shall be completed in the offices of Bond, Schoeneck & King, One Lincoln Center, Syracuse, New York, on or about November 30, 1980 or at such later date as may be agreed upon by the parties, at which time the Seller shall convey to Purchaser by warranty deed with lien covenant a good and marketable title in fee simple to the Property and the Mineral Rights together with full warranty Bills of Sale, Assignments of all licenses and/or permits, if any and other instruments of conveyance which are required by Monroe Abstract & Title Corporation to effectively transfer the Property and Mineral Rights to Purchaser.

6. Seller warrants, represents and covenants as follows:

(a) At the time of closing it will own the Property in fee simple and will have the power and authorization to convey title to the Property in accordance with this Agreement;

(b) The Property is unzoned and no governmental consents, permits, approvals, or certificates of occupancy (including subdivision approval) were obtained to operate the Property or are currently needed to complete this conveyance;

(c) The Property, as operated by Seller, complies with OSHA and Federal Mining Safety requirements and Seller has not been cited for any violation of any environmental laws, ordinances, orders, rules and regulations;

(d) Litigation is pending which could result in judgments against the Property. Such judgments will be satisfied by the time of closing;

(e) All gas, sewer, water and other utility lines or services used by Seller in the operation of the Property are located on the Property;

(f) Except as otherwise provided in this Agreement, the representations and warranties set forth in this paragraph shall be deemed made and effective as of the closing. Transfer of title is contingent upon the representations and warranties of Seller contained in this Agreement being true and complete in all material respects as of the time of closing.

7. Seller authorizes Purchaser to enter the Property prior to closing on the following conditions:

(a) Such entry shall be made by Purchaser, at Purchaser's option, to repair, refurbish, remodel and improve the Property as follows:

- (i) heating system in office to be made operational;
- (ii) main mill building to be closed in;
- (iii) additional electrical service to Property to be established.

These changes are called "Improvements" below.

(b) If the Closing does not take place for any reason, all Improvements made by Purchaser shall remain the sole property of Purchaser. In such event, Purchaser shall have the option of removing said Improvements without injury to the Property, and such removal shall be accomplished within sixty (60) days after notice from Purchaser or Seller that the Agreement is null and void.

(c) Purchaser agrees that it and not Seller will be responsible for safeguarding the Improvements prior to the closing date, and for any damages it may cause to the Property in connection with installation of the Improvements.

(d) Purchaser agrees to notify Seller of locations on the Property where Improvements are to be made so that Seller can have a reasonable time to remove or store elsewhere items of Seller's property which can be moved without unreasonable effort or expense.

8. Upon any purchase money mortgage given, Purchaser agrees to pay the usual mortgage tax and recording fee. Seller shall pay the real estate transfer tax.

9. The representations and warranties made by Seller shall survive the closing and Seller shall indemnify and hold Purchaser harmless for and from any and all damages, claims or losses sustained as a result of any breach of representation or warranty.

10. Except as otherwise provided in Paragraph 7, Seller shall have full responsibility for the Property and shall have all the risks, expenses and benefits of it until the date of closing and passage of title to Purchaser.

11. Seller and Purchaser represent to each other that neither it nor its agents have employed or used any broker or finder in connection with the sale of the Property.

12. This Agreement expresses the entire agreement of the parties regarding the sale of the Property and related matters, and all prior understandings and agreements have no further effect.

13. This Agreement may be assigned by the Purchaser without the prior written consent of the Seller except that if this Agreement is assigned by the Purchaser, Purchaser shall guarantee in form satisfactory to Seller all obligations assumed by the Assignee with respect to this Agreement.

14. This Agreement may not be changed or terminated orally. The provisions of this Agreement shall bind the successors, assigns and legal representatives of the parties.

The parties have executed this Agreement as of the date first written above.

CARBOLA CHEMICAL CO., INC.

BY

WHITTAKER, CLARK & DANIELS, INC.

BY

STATE OF NEW YORK)
COUNTY OF Essex) ss.:

On this 11 day of November, 1980 before me personally came EDWARD R. SMITH to me known, who being by me duly sworn, did depose and say that he resides in Natural Bridge, New York, that he is the President of CARBOLA CHEMICAL CO., INC. the corporation described in and which executed the above instrument; that he knows the seal of said corporation; that the seal affixed to said instrument is such corporate seal; that it was so affixed by order of the Board of Directors of said corporation, and that he signed his name thereto by like order.

[Signature]
Notary Public

STATE OF NEW YORK)
COUNTY OF Jefferson) ss.:

MICHELE A. STUNZI
Notary Public, State of New York
4609283 Essex County
Commission Expires March 30, 1981

On this 19 day of December, 1980 before me personally came Joshua H. Bennett to me known who being by me duly sworn did depose and say that he resides in Middletown Rockaway Town New Jersey; that he is the Secy of WHITTAKER, CLARK & DANIELS, INC., the corporation described in and which executed the above instrument; that he knows the seal of said corporation; that the seal affixed to said instrument is such corporate seal; that it was so affixed by order of the Board of Directors of said corporation, and that he signed his name thereto by like order.

[Signature]
Notary Public

Paula Chapin
Notary Public, State of New York
Qualified in Overlook, No. 16
Commission Expires March 30, 1981

AM. ED
SCHEDULE "A"

PARCEL I

ALL THAT TRACT OR PARCEL OF LAND situate in the Town of Diana, County of Lewis and State of New York, and further described as follows:

BEGINNING at a concrete monument found in the northerly highway limits of N.Y.S. Route 3, said concrete monument is situate North $71^{\circ} 54'$ West along the northerly highway limits of N.Y.S. Route 3, a distance of 725.1 feet from a concrete monument found at an angle point in said highway limits, said last mentioned concrete monument is situate North $73^{\circ} 17'$ West along the northerly highway limits of N.Y.S. Route 3, a distance of 109.8 feet from a concrete monument found at an angle point in said highway limits, said last mentioned concrete monument is situate North $82^{\circ} 09'$ West along the northerly highway limits of N.Y.S. Route 3, a distance of 88.3 feet from the intersection of the northerly highway limits of N.Y.S. Route 3 and the westerly margin of lands now or formerly owned by the Penn Central Transportation Co., said point of beginning also being the intersection of the northerly highway limits of N.Y.S. Route 3 and the most easterly property line of the parcel of land conveyed by Adelaide B. Montondo to Miguel Rodriguez by deed recorded in the Lewis County Clerk's Office in Liber 337 at Page 48 on September 19, 1973;

thence North $35^{\circ} 33'$ East along the Rodriguez easterly property line a distance of 166.3 feet to an iron pipe found;

thence North $56^{\circ} 10'$ West along the Rodriguez northerly property line a distance of 208.6 feet to an iron pipe found;

thence South $32^{\circ} 49'$ West along the Rodriguez westerly property line a distance of 228.3 feet to a rod found in the abandoned centerline of the former State Highway;

thence in a generally northwesterly direction along the abandoned centerline of the former State Highway a distance of 257.5 feet to an iron pipe found in the most southeasterly corner of the parcel of land conveyed by International Talc Company, Inc. to Richard W. Lozo and Carol Lozo by deed recorded in the Lewis County Clerk's Office in Liber 314 at Page 443 on 2/18/71;

thence North $33^{\circ} 38'$ East along the Lozo easterly property line a distance of 160.0 feet to a rod found;

thence North $56^{\circ} 28'$ West along the Lozo northerly property line a distance of 125.0 feet to an iron pipe found;

SEE SCHEDULE "A" (Continued)

SCHEDULE "A" (Continued)

CONTAINING 351.01 acres of land more or less.

TOGETHER with a 100 foot Right of Way along the existing railroad siding which crosses the 30.45 acre parcel which is to be retained by Carbola Chemical Co., Inc., said Right of Way is as shown on the map titled "Survey Map of the Land of Carbola Chemical Co., Inc., N.Y.S. Route 3, Town of Diana, County of Lewis, State of New York", prepared by Bernier, Peck & Gozalkowski, Watertown, New York and dated December 11, 1980.

PARCEL II

TOGETHER with mineral rights excluding sand and gravel in and to the following described parcel of land:

ALL THAT TRACT OR PARCEL OF LAND, situate in the Town of Diana, County of Lewis and State of New York bounded and described as follows:

BEGINNING at a concrete monument located at the intersection of the northerly highway limits of N.Y.S. Route 3 and the westerly margin of lands now or formerly owned by the Penn Central Transportation Co.;

thence along the northerly limits of N.Y.S. Route 3 the following three courses and distances:

- (1) North 82° 09' West, 88.3 feet;
- (2) North 73° 17' West, 109.8 feet, and
- (3) North 71° 54' West, 464.5 feet;

thence North 31° 06' East, a distance of 1366.3 feet to a point;

thence South 58° 54' East, a distance of 2036.3 feet to the northerly margin of lands now or formerly owned by the Penn Central Transportation Co.;

SEE SCHEDULE "A" (Continued)

SCHEDULE "A" (Continued)

thence North 82° 38' West along the northerly margin of lands now or formerly owned by the Penn Central Transportation Co., a distance of 821.7 feet to a point;

thence in a generally southwesterly direction along the northerly margin of lands now or formerly owned by the Penn Central Transportation Co., a distance of 1143.4 feet to the point and place of beginning, containing 30.45 acres of land, more or less.

Also conveying an easement for ingress and egress in and over the parcel just described as may be reasonably necessary for party of the second part to exercise its mineral rights, such ingress and egress to be carried out in a manner that minimizes to the extent possible disruption and interference of the interest of party of the first part. The mineral rights herein conveyed shall be exercised in accordance with good and prudent standards of the industry and shall be in full compliance with all local, state and federal laws, rules and regulations.

In exercising its mineral rights, party of the second part shall have the absolute and unlimited right to disrupt the sand and gravel rights retained by party of the first part. If, in the sole opinion of party of the second part in its good faith exercise of its mineral rights, it becomes necessary, party of the second part may render useless the sand and gravel rights retained by party of the first part.

SCHEDULE "A" (Continued)

thence South 33° 38' West along the Lozo westerly property line, passing through an iron pipe found at 141.9 feet and continuing a total distance of 160.0 feet to a point in the centerline of the Old State Road;

thence in a generally northwesterly direction along the centerline of the Old State Road a distance of 525.3 feet to a point;

thence North 5° 53' West passing through an iron pipe found at 27.6 feet and continuing a total distance of 864.6 feet to a point;

thence North 5° 06' West passing through a stump at 1147.4 feet and continuing a total distance of 1158.0 feet to a point;

thence South 85° 40' 30" West a distance of 581.4 feet to an iron pipe found;

thence North 3° 16' 30" West a distance of 1764.0 feet to a nail set in a tree;

thence North 7° 55' 30" West a distance of 563.5 feet to an iron pipe found;

thence South 45° 19' East a distance of 2533.9 feet to an iron pipe found;

thence North 42° 24' East a distance of 1434.6 feet to an iron pipe found;

thence South 47° 57' 30" East a distance of 5120.8 feet to an iron pipe found;

thence South 50° 01' West a distance of 894.6 feet to an iron pipe found in the northerly margin of the land of the Penn Central Transportation Co.;

thence in a generally southwesterly direction along the Penn Central Transportation Co. northerly margin a distance of 1286.7 feet to a point, said margin being 40 feet northerly of and parallel to the centerline of the existing tracks;

thence North 58° 54' West a distance of 2036.3 feet to a point;

thence South 31° 06' West a distance of 1366.3 feet to a point in the northerly margin of N.Y.S. Route 3;

thence North 71° 54' West along the northerly margin of N.Y.S. Route 3 a distance of 260.6 feet to the point of beginning.

SEE SCHEDULE "A" (Continued)

EXHIBIT C

TO	}	Mortgage to secure \$
		Dated , 19 .
		Recorded , 19 , in
		Liber of Mortgages, at page
		in
		County Clerk's Office.

TO	}	Mortgage to secure \$
		Dated , 19
		Recorded , 19 . in
		Liber of Mortgages, at page
		, in said Clerk's office.

This Indenture, Made this day of
 in the year One thousand nine hundred and
 BETWEEN

of the of , County of N. Y.
 of the first part, and

of the of , County of N. Y.
 of the second part,

Witnesseth, That the said part of the first part, for valuable consideration to paid, receipt of which is hereby acknowledged, do hereby postpone and make junior and subordinate the first above described mortgage, of which now the sole owner and holder , and the lien thereof, to the second above described mortgage, held by said part of the second part, and the lien thereof, and to all advances heretofore made or which hereafter may be made upon said second above described mortgage to the extent of the amount thereof, so that the lien of the said second above described mortgage, including all such advances, shall be in all respects prior and superior in equity, and in fact, to the lien of the said first above described mortgage, and all such advances may be made without notice to said part of the first part.

In Witness Whereof, The said part of the first part has hereunto set hand and seal the day and year first above written.



Instrument
OF MORTGAGE

TO

Given,

49

STATE OF NEW YORK

County of _____ ss.

RECORDED ON THE

day of _____ 19____
at _____ H. in LIBER____
of _____
Page _____ and exhibited

CLERK

NIXON, HARGRAVE, DEVANS & DOYLE
ONE EXCHANGE STREET
ROCHESTER, NEW YORK 14614
PHONE 8-48-0000

State of New York }
County of _____ } ss.
of _____

On this _____ day of _____ Nineteen Hundred and _____
before me, the subscriber, personally appeared _____

to me personally known and known to me to be the same person described
in and who executed the within Instrument, and he
acknowledged to me that he executed the same

ASSIGNMENT

Whittaker, Clark & Daniels, Inc., a New Jersey corporation having an office at 1000 Coolidge Street, South Plainfield, New Jersey ("Assignor") hereby assigns as of December 8, 1980 to Clark Minerals, Inc., a New York corporation with offices in Natural Bridge, New York ("Assignee") all of its right, title and interest in and to a certain agreement of purchase and sale dated November 17, 1980 between Carbola Chemical Co., Inc., as seller, and Assignor, as purchaser, for the purchase of a talc grinding facility in Natural Bridge, New York.

Assignee assumes as of December 8, 1980 all obligations of Assignor as purchaser under the above described agreement, a copy of which is attached as Exhibit "A".

WHITTAKER, CLARK & DANIELS, INC.

Dated: *Dec 19, 1980*

By: *Joshua W. Bennett*
Vice President & Secretary

CLARK MINERALS, INC.

Dated: *Dec 19, 1980*

By: *Joshua W. Bennett*
President



This Indenture,

December

Nineteen Hundred and Eighty

day of

Between

CARBOLA CHEMICAL CO., INC.

a corporation organized under the laws of the State of New York, with
offices at Natural Bridge, New York

CLARK MINERALS, INC., a New York corporation with
offices at Natural Bridge, New York

Witnesseth that the party of the first part, in consideration of One and no/100
----- Dollar (\$ 1.00)
lawful money of the United States, and other good and valuable consideration
paid by the party of the second part, does hereby grant and release unto the
party of the second part, its successors and assigns forever, all
that tract or parcel of land as more particularly described in
Schedule A attached.

Together with the appurtenances and all the estate and rights of the party of the first part in and to said premises,

To have and to hold the premises herein granted unto the party of the second part, its successors and assigns forever.

And the party of the first part covenants as follows:

First, That the party of the second part shall quietly enjoy the said premises;
Second, That the party of the first part will forever warrant the title to said premises.

Third, That, in Compliance with Sec. 13 of the Lien Law, the grantor will receive the consideration for this conveyance and will hold the right to receive such consideration as a trust fund to be applied first for the purpose of paying the cost of the improvement and will apply the same first to the payment of the cost of the improvement before using any part of the total of the same for any other purpose.

In Presence of

In Witness Whereof, the party of the first part has caused its corporate seal to be hereunto affixed, and these presents to be signed by its duly authorized officer this 19th day of December Nineteen Hundred and Eighty

CARBOLA CHEMICAL CO., INC.

By

State of New York } ss. On this 19th day of December
County of Jefferson } ss. Nineteen Hundred and Eighty
before me personally came Edward R. Schuchman

to me personally known, who, being by me duly sworn, did depose and say that he resides in Syracuse, New York that he is the President of Carbola Chemical Co., Inc. the corporation described in, and which executed, the within Instrument; that he knows the seal of said corporation; that the seal affixed to said Instrument is such corporate seal; that it was so affixed by order of the Board of Directors of said corporation; and that he signed his name thereto by like order.

Notary Public

RECORDED

CORPORATION WARRANTY WITH LIEN COVENANT

TO

Dated. 19

BOND, SCHOENECK & KING
ATTORNEYS AT LAW
ONE LINCOLN CENTER
SYRACUSE, N. Y. 13202

SCHEDULE "A" (Continued)

thence North 82° 38' West along the northerly margin of lands now or formerly owned by the Penn Central Transportation Co., a distance of 821.7 feet to a point;

thence in a generally southwesterly direction along the northerly margin of lands now or formerly owned by the Penn Central Transportation Co., a distance of 1143.4 feet to the point and place of beginning, containing 30.45 acres of land, more or less.

Also conveying an easement for ingress and egress in and over the parcel just described as may be reasonably necessary for party of the second part to exercise its mineral rights, such ingress and egress to be carried out in a manner that minimizes to the extent possible disruption and interference of the interest of party of the first part. The mineral rights herein conveyed shall be exercised in accordance with good and prudent standards of the industry and shall be in full compliance with all local, state and federal laws, rules and regulations.

In exercising its mineral rights, party of the second part shall have the absolute and unlimited right to disrupt the sand and gravel rights retained by party of the first part. If, in the sole opinion of party of the second part in its good faith exercise of its mineral rights, it becomes necessary, party of the second part may render useless the sand and gravel rights retained by party of the first part.

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AMENDED
SCHEDULE "A"

PARCEL I

ALL THAT TRACT OR PARCEL OF LAND situate in the Town of Diana, County of Lewis and State of New York, and further described as follows:

BEGINNING at a concrete monument found in the northerly highway limits of N.Y.S. Route 3, said concrete monument is situate North 71° 54' West along the northerly highway limits of N.Y.S. Route 3, a distance of 725.1 feet from a concrete monument found at an angle point in said highway limits, said last mentioned concrete monument is situate North 73° 17' West along the northerly highway limits of N.Y.S. Route 3, a distance of 109.8 feet from a concrete monument found at an angle point in said highway limits, said last mentioned concrete monument is situate North 82° 09' West along the northerly highway limits of N.Y.S. Route 3, a distance of 88.3 feet from the intersection of the northerly highway limits of N.Y.S. Route 3 and the westerly margin of lands now or formerly owned by the Penn Central Transportation Co., said point of beginning also being the intersection of the northerly highway limits of N.Y.S. Route 3 and the most easterly property line of the parcel of land conveyed by Adelaide B. Montondo to Miguel Rodriguez by deed recorded in the Lewis County Clerk's Office in Liber 337 at Page 48 on September 19, 1973;

thence North 35° 33' East along the Rodriguez easterly property line a distance of 166.3 feet to an iron pipe found;

thence North 56° 10' West along the Rodriguez northerly property line a distance of 208.6 feet to an iron pipe found;

thence South 32° 49' West along the Rodriguez westerly property line a distance of 228.3 feet to a rod found in the abandoned centerline of the former State Highway;

thence in a generally northwesterly direction along the abandoned centerline of the former State Highway a distance of 257.5 feet to an iron pipe found in the most southeasterly corner of the parcel of land conveyed by International Talc Company, Inc. to Richard W. Lozo and Carol Lozo by deed recorded in the Lewis County Clerk's Office in Liber 314 at Page 443 on 2/18/71;

thence North 33° 38' East along the Lozo easterly property line a distance of 160.0 feet to a rod found;

thence North 56° 28' West along the Lozo northerly property line a distance of 125.0 feet to an iron pipe found;

SEE SCHEDULE "A" (Continued)

SCHEDULE "A" (Continued)

thence South 33° 38' West along the Lozo westerly property line, passing through an iron pipe found at 141.9 feet and continuing a total distance of 160.0 feet to a point in the centerline of the Old State Road;

thence in a generally northwesterly direction along the centerline of the Old State Road a distance of 525.3 feet to a point;

thence North 5° 53' West passing through an iron pipe found at 27.6 feet and continuing a total distance of 864.6 feet to a point;

thence North 5° 06' West passing through a stump at 1147.4 feet and continuing a total distance of 1158.0 feet to a point;

thence South 85° 40' 30" West a distance of 581.4 feet to an iron pipe found;

thence North 3° 16' 30" West a distance of 1764.0 feet to a nail set in a tree;

thence North 7° 55' 30" West a distance of 563.5 feet to an iron pipe found;

thence South 45° 19' East a distance of 2533.9 feet to an iron pipe found;

thence North 42° 24' East a distance of 1434.6 feet to an iron pipe found;

thence South 47° 57' 30" East a distance of 5120.8 feet to an iron pipe found;

thence South 50° 01' West a distance of 894.6 feet to an iron pipe found in the northerly margin of the land of the Penn Central Transportation Co.;

thence in a generally southwesterly direction along the Penn Central Transportation Co. northerly margin a distance of 1286.7 feet to a point, said margin being 40 feet northerly of and parallel to the centerline of the existing tracks;

thence North 58° 54' West a distance of 2036.3 feet to a point;

thence South 31° 06' West a distance of 1366.3 feet to a point in the northerly margin of N.Y.S. Route 3;

thence North 71° 54' West along the northerly margin of N.Y.S. Route 3 a distance of 260.6 feet to the point of beginning.

SEE SCHEDULE "A" (Continued)

SCHEDULE "A" (Continued)

CONTAINING 351.01 acres of land more or less.

TOGETHER with a 100 foot Right of Way along the existing railroad siding which crosses the 30.45 acre parcel which is to be retained by Carbola Chemical Co., Inc., said Right of Way is as shown on the map titled "Survey Map of the Land of Carbola Chemical Co., Inc., N.Y.S. Route 3, Town of Diana, County of Lewis, State of New York", prepared by Bernier, Peck & Gozalkowski, Watertown, New York and dated December 11, 1980.

PARCEL II

~~TOGETHER with mineral rights excluding sand and gravel in and to the following described parcel of land:~~

ALL THAT TRACT OR PARCEL OF LAND, situate in the Town of Diana, County of Lewis and State of New York bounded and described as follows:

BEGINNING at a concrete monument located at the intersection of the northerly highway limits of N.Y.S. Route 3 and the westerly margin of lands now or formerly owned by the Penn Central Transportation Co.;

thence along the northerly limits of N.Y.S. Route 3 the following three courses and distances:

- (1) North 82° 09' West, 88.3 feet;
- (2) North 73° 17' West, 109.8 feet, and
- (3) North 71° 54' West, 464.5 feet;

thence North 31° 06' East, a distance of 1366.3 feet to a point;

thence South 58° 54' East, a distance of 2036.3 feet to the northerly margin of lands now or formerly owned by the Penn Central Transportation Co.;

SEE SCHEDULE "A" (Continued)



Know all Men by these Presents

That CLARK MINERALS, INC., a New York Corporation with offices at Natural Bridge, New York,

obligor is held and firmly bound unto

CARBOLA CHEMICAL CO., INC.

obligee in the sum of

Two Hundred Fifty-Six Thousand and no/100 (\$256,000.00) Dollars,

lawful money of the United States of America, to be paid to the said Carbola Chemical Co., Inc.

its ~~executors, administrators~~, successors or assigns: For which payment well and truly to be made it binds itself, its successors or assigns firmly by these presents.

Sealed with its seal

Dated the

day of

December

Nineteen Hundred and Eighty

The Condition of the above obligation is such that if the above bounden Clark Minerals, Inc.

its successors or assigns, shall

well and truly pay, or cause to be paid, unto the above named Carbola Chemical Co., Inc.

its ~~executors, administrators~~, successors or assigns the just and full sum of Two Hundred Fifty-Six Thousand and no/100 (\$256,000.00) with interest at the rate of 8 1/2% per annum, payable as follows:

\$107,500.00 plus interest accrued on the outstanding principal balance on April 1, 1981;

\$107,500.00 plus interest accrued on the outstanding balance on April 1, 1982; and

\$41,000.00 plus interest accrued on the outstanding balance on April 1, 1983.

Obligor shall have the privilege of prepayment at any time after March 1, 1981 without penalty.

without any fraud or other delay, then the above obligation to be void, otherwise to remain in full force and virtue.

And it is hereby expressly agreed that the whole of said principal sum shall become due at the option of the said obligee its legal representatives or assigns after default in the payment of any installment of principal or of interest for thirty days, or after default in the payment of any tax, water rate or assessment which may be levied or imposed upon the premises described in the mortgage accompanying this bond for thirty days after notice and demand.

And it is also agreed that the said obligor will keep the buildings on the said premises described in the said mortgage insured against loss by fire for the benefit of the mortgagee therein. All of the covenants and agreements in the mortgage covering premises therein described and collateral hereto, are hereby made part of this instrument.

See Addendum to Note

In Presence of

In Witness Whereof, The

obligor has caused its corporate seal to be hereunto affixed, and these presents to be signed by its duly authorized officer the day and year first above written.

Clark Minerals, Inc.

By Joshua H. Bennett, Jr.
Joshua H. Bennett, Jr.

State of New York }
County of Jefferson } ss.
of

On this 19 day of December, Nineteen Hundred and Eighty before me personally came Joshua H. Bennett, Jr. to me personally known, who, being by me duly sworn, did depose and say that he resides in Rockaway Township, New Jersey that he is the President of Clark Minerals, Inc. the corporation described in, and which executed, the above Instrument; that he knows the seal of said corporation; that the seal affixed to said Instrument is such corporate seal; that it was so affixed by order of the Board of Directors of said corporation; and that he signed his name thereto by like order.

Paula Lapin Seifter
Notary Public

PAULA LAPIN SEIFTER
Notary Public in the State of New York
Qualified by Court-Judge Co. No. 1001106
My Commission Expires March 30, 1982

ADDENDUM TO NOTE
BETWEEN
CLARK MINERALS, INC., OBLIGOR
AND
CARBOLA CHEMICAL CO., INC., OBLIGEE

DATED: DECEMBER 19, 1980

Obligor shall have a right of offset under this Bond in the event that any claim should arise under the Uniform Commercial Code - Bulk Transfers Act (UCC Section 6-101 et. seq.) or under the provisions of the New York State Tax Law with respect to sales tax liability arising from transfers in bulk (Tax Law Section 1141).

If such a claim is asserted against Obligor, Obligor shall promptly notify Obligee. Obligee may contest, at its own expense, the validity of any claim. If Obligee does not contest the claim in a timely manner, or if the claim be finally adjudicated against Obligor, without opportunity for further appeal or without further appeal being taken at Obligee's request, Obligor shall set off from the next payment due Obligee under the bond the full amount of such claim, any interest or penalties added to such claim, and reasonable expenses incurred by Obligor in connection with such claim, including reasonable attorneys' fees and disbursements.

Should the sums eligible for offset exceed the amount then due and owing under the Bond, Obligee shall indemnify and save harmless Obligor from any liability or liabilities in connection with such claims pursuant to the Bulk Sales Law or above stated section of the Tax Law. Such indemnity shall include all reasonable expenses incurred by Obligor in contesting or defending any such claims, including attorneys' fees and disbursements.

Clark Minerals, Inc.

By William H. Bennett Jr.

CARBOLA CHEMICAL Co., Inc.

By Edmund P. Luntz



This Mortgage.

Made the 19 day of December Nineteen Hundred and Eighty

Between CLARK MINERALS, INC., a New York corporation
with offices at Natural Bridge, New York,

the mortgagor, and

CARBOLA CHEMICAL CO., INC.,
Natural Bridge, New York,

the mortgagee

Witnesseth, That to secure the payment of an indebtedness in the sum of
Two Hundred Fifty-Six Thousand and no/100----- Dollars,
(\$256,000.00) lawful money of the United States, to be paid

according to a certain bond or obligation bearing even date herewith, the
mortgagor hereby mortgages to the mortgagee all that tract or parcel
of land with the improvements thereon situate in the Town of Diana,
County of Lewis, and State of New York, as more particularly
described in Schedule A attached.

And the mortgage

covenants with the mortgagee as follows:

First. That the mortgagor will pay the indebtedness as hereinbefore provided.

Second. That the mortgagor will keep the buildings on the premises insured against loss by fire for the benefit of the mortgagee; that it will assign and deliver the policies to the mortgagee; and that it will reimburse the mortgagee for any premiums paid for insurance made by the mortgagee on the mortgagor's default in so insuring the buildings or in so assigning and delivering the policies.

Third. That no building on the premises shall be removed or demolished without the consent of the mortgagee.

Fourth. That the whole of said principal sum and interest shall become due at the option of the mortgagee: after default in the payment of any installment of principal or of interest for thirty days; or after default in the payment of any tax, water rate or assessment for thirty days after notice and demand; or after default after notice and demand either in assigning and delivering the policies insuring the buildings against loss by fire or in reimbursing the mortgagee for premiums paid on such insurance, as hereinbefore provided; or after default upon request in furnishing a statement of the amount due on the mortgage and whether any offsets or defenses exist against the mortgage debt, as hereinafter provided.

Fifth. That the holder of this mortgage, in any action to foreclose it, shall be entitled to the appointment of a receiver.

Sixth. That the mortgagor will pay all taxes, assessments or water rates, and in default thereof, the mortgagee may pay the same.

Seventh. That the mortgagor within fifteen days upon request in person or within twenty days upon request by mail will furnish a written statement duly acknowledged of the amount due on this mortgage and whether any offsets or defenses exist against the mortgage debt.

Eighth. That notice and demand or request may be in writing and may be served in person or by mail.

Ninth. That the mortgagor warrants the title to the premises.

Tenth. That, in Compliance with section 13 of the Lien Law, the mortgagor will receive the advances secured by this mortgage and will hold the right to receive such advances as a trust fund to be applied first for the purpose of paying the cost of improvement, and that the mortgagor will apply the same first to the payment of the cost of improvement before using any part of the total of the same for any other purpose.

ELEVENTH: It is understood and agreed that Mortgagor shall transfer title into the Lewis County Industrial Development Agency in connection with the financing of rehabilitation of the mortgaged premises. Mortgagee agrees, at Mortgagor's option, to subordinate the lien of this Mortgage to a certain first mortgage to be given by the Lewis County Industrial Development Agency to an industrial revenue bond purchaser in a sum not to exceed \$1,000,000 and any advances heretofore or to be made and to any extensions, modifications or renewals thereof.

In Presence of

In Witness Whereof, The mortgagor has caused its corporate seal to be hereunto affixed, and these presents to be signed by its duly authorized officer the day and year first above written.

CARBOLA CHEMICAL CO., INC.
(mortgagee)

CLARK MINERALS, INC.

By

By

Joshua H. Bennett

State of New York

County of Jefferson

ss..

of

On this 19 day of December, Nineteen Hundred and Eighty before me personally came Joshua H. Bennett, Jr. to me personally known, who, being by me duly sworn, did depose and say that he resides in the President of Clark Minerals, Inc. the corporation described in, and which executed, the within Instrument; that he knows the seal of said corporation; that the seal affixed to said Instrument is such corporate seal; that it was so affixed by order of the Board of Directors of said corporation; and that he signed his name thereto by like order.

Paula Lapin Seifter
Notary Public

PAULA LAPIN SEIFTER
Notary Public in the State of New York
Qualified in Jefferson Co. No. 4627286
My Commission Expires March 30, 1987

STATE OF NEW YORK)
COUNTY OF JEFFERSON) SS:

On this 19 day of December, Nineteen Hundred and Eighty before me personally came ~~Carroll~~ to me personally known, who, being by me duly sworn, did depose and say that he resides in ~~Carroll~~, that he is the ~~Carroll~~ of Carbola Chemical Co., Inc., the corporation described in, and which executed, the within Instrument; that he knows the seal of said corporation; that the seal affixed to said Instrument is such corporate seal; that it was so affixed by order of the Board of Directors of said corporation; and that he signed his name thereto by like order.

Carroll
Notary Public

Carroll
CORPORATION

TO

Dated, 19

BOND, SCHONECK & KING
ATTORNEYS AT LAW
ONE LINCOLN CENTER
SYRACUSE, N. Y. 13202

AMENDED
SCHEDULE "A"

PARCEL I

ALL THAT TRACT OR PARCEL OF LAND situate in the Town of Diana, County of Lewis and State of New York, and further described as follows:

BEGINNING at a concrete monument found in the northerly highway limits of N.Y.S. Route 3, said concrete monument is situate North $71^{\circ} 54'$ West along the northerly highway limits of N.Y.S. Route 3, a distance of 725.1 feet from a concrete monument found at an angle point in said highway limits, said last mentioned concrete monument is situate North $73^{\circ} 17'$ West along the northerly highway limits of N.Y.S. Route 3, a distance of 109.8 feet from a concrete monument found at an angle point in said highway limits, said last mentioned concrete monument is situate North $82^{\circ} 09'$ West along the northerly highway limits of N.Y.S. Route 3, a distance of 88.3 feet from the intersection of the northerly highway limits of N.Y.S. Route 3 and the westerly margin of lands now or formerly owned by the Penn Central Transportation Co., said point of beginning also being the intersection of the northerly highway limits of N.Y.S. Route 3 and the most easterly property line of the parcel of land conveyed by Adelaide B. Montondo to Miguel Rodriguez by deed recorded in the Lewis County Clerk's Office in Liber 337 at Page 48 on September 19, 1973;

thence North $35^{\circ} 33'$ East along the Rodriguez easterly property line a distance of 166.3 feet to an iron pipe found;

thence North $56^{\circ} 10'$ West along the Rodriguez northerly property line a distance of 208.6 feet to an iron pipe found;

thence South $32^{\circ} 49'$ West along the Rodriguez westerly property line a distance of 228.3 feet to a rod found in the abandoned centerline of the former State Highway;

thence in a generally northwesterly direction along the abandoned centerline of the former State Highway a distance of 257.5 feet to an iron pipe found in the most southeasterly corner of the parcel of land conveyed by International Talc Company, Inc. to Richard W. Lozo and Carol Lozo by deed recorded in the Lewis County Clerk's Office in Liber 314 at Page 443 on 2/18/71;

thence North $33^{\circ} 38'$ East along the Lozo easterly property line a distance of 160.0 feet to a rod found;

thence North $56^{\circ} 28'$ West along the Lozo northerly property line a distance of 125.0 feet to an iron pipe found;

SEE SCHEDULE "A" (Continued)

SCHEDULE "A" (Continued)

thence South 33° 38' West along the Lozo westerly property line, passing through an iron pipe found at 141.9 feet and continuing a total distance of 160.0 feet to a point in the centerline of the Old State Road;

thence in a generally northwesterly direction along the centerline of the Old State Road a distance of 525.3 feet to a point;

thence North 5° 53' West passing through an iron pipe found at 27.6 feet and continuing a total distance of 864.6 feet to a point;

thence North 5° 06' West passing through a stump at 1147.4 feet and continuing a total distance of 1158.0 feet to a point;

thence South 85° 40' 30" West a distance of 581.4 feet to an iron pipe found;

thence North 3° 16' 30" West a distance of 1764.0 feet to a nail set in a tree;

thence North 7° 55' 30" West a distance of 563.5 feet to an iron pipe found;

thence South 45° 19' East a distance of 2533.9 feet to an iron pipe found;

thence North 42° 24' East a distance of 1434.6 feet to an iron pipe found;

thence South 47° 57' 30" East a distance of 5120.8 feet to an iron pipe found;

thence South 50° 01' West a distance of 894.6 feet to an iron pipe found in the northerly margin of the land of the Penn Central Transportation Co.;

thence in a generally southwesterly direction along the Penn Central Transportation Co. northerly margin a distance of 1286.7 feet to a point, said margin being 40 feet northerly of and parallel to the centerline of the existing tracks;

thence North 58° 54' West a distance of 2036.3 feet to a point;

thence South 31° 06' West a distance of 1366.3 feet to a point in the northerly margin of N.Y.S. Route 3;

thence North 71° 54' West along the northerly margin of N.Y.S. Route 3 a distance of 260.6 feet to the point of beginning.

SEE SCHEDULE "A" (Continued)

SCHEDULE "A" (Continued)

CONTAINING 351.01 acres of land more or less.

TOGETHER with a 100 foot Right of Way along the existing railroad siding which crosses the 30.45 acre parcel which is to be retained by Carbola Chemical Co., Inc., said Right of Way is as shown on the map titled "Survey Map of the Land of Carbola Chemical Co., Inc., N.Y.S. Route 3, Town of Diana, County of Lewis, State of New York", prepared by Bernier, Peck & Gozalkowski, Watertown, New York and dated December 11, 1980.

PARCEL II

TOGETHER with mineral rights excluding sand and gravel in and to the following described parcel of land:

ALL THAT TRACT OR PARCEL OF LAND, situate in the Town of Diana, County of Lewis and State of New York bounded and described as follows:

BEGINNING at a concrete monument located at the intersection of the northerly highway limits of N.Y.S. Route 3 and the westerly margin of lands now or formerly owned by the Penn Central Transportation Co.;

thence along the northerly limits of N.Y.S. Route 3 the following three courses and distances:

- (1) North 82° 09' West, 88.3 feet;
- (2) North 73° 17' West, 109.8 feet, and
- (3) North 71° 54' West, 464.5 feet;

thence North 31° 06' East, a distance of 1366.3 feet to a point;

thence South 58° 54' East, a distance of 2036.3 feet to the northerly margin of lands now or formerly owned by the Penn Central Transportation Co.;

SEE SCHEDULE "A" (Continued)

SCHEDULE "A" (Continued)

thence North 82° 38' West along the northerly margin of lands now or formerly owned by the Penn Central Transportation Co., a distance of 821.7 feet to a point;

thence in a generally southwesterly direction along the northerly margin of lands now or formerly owned by the Penn Central Transportation Co., a distance of 1143.4 feet to the point and place of beginning, containing 30.45 acres of land, more or less.

Also conveying an easement for ingress and egress in and over the parcel just described as may be reasonably necessary for party of the second part to exercise its mineral rights, such ingress and egress to be carried out in a manner that minimizes to the extent possible disruption and interference of the interest of party of the first part. The mineral rights herein conveyed shall be exercised in accordance with good and prudent standards of the industry and shall be in full compliance with all local, state and federal laws, rules and regulations.

In exercising its mineral rights, party of the second part shall have the absolute and unlimited right to disrupt the sand and gravel rights retained by party of the first part. If, in the sole opinion of party of the second part in its good faith exercise of its mineral rights, it becomes necessary, party of the second part may render useless the sand and gravel rights retained by party of the first part.

CLARK MINERALS, INC.
1000 Coolidge Street
South Plainfield, New Jersey

Carbola Chemical Co., Inc.
Natural Bridge. New York

Attention: Mr. Edward Smith

Dear Mr. Smith:

Pursuant to the agreement of purchase and sale dated November 17, 1980 between Whittaker, Clark & Daniels, Inc. and Carbola Chemical Co., Inc., this letter shall represent our understanding regarding the firewood rights to be retained by Carbola Chemical Co., Inc. ("Carbola").

The rights reserved shall be limited to the area indicated on the attached survey. Carbola shall have the right for 15 years from the date the title is transferred to Whittaker, Clark & Daniels, Inc. or its assignee, to enter upon the designated area of the property to cut hardwood for firewood purposes. Such firewood removal shall be in accordance with good conservation practices as may be monitored by a New York State Forester, and shall be in full compliance with all other state, local and federal laws and regulations. The removal of firewood and the necessary ingress to and egress from the property shall not disrupt the operation of the talc processing facility or any other operations in the area excluded from firewood rights on the attached survey, and shall be carried out so as to minimize interference with our interests in the entire parcel.

It is understood that these rights shall be personal to Carbola and shall not benefit its successors or assigns.

It is understood and agreed that all removal of firewood is at Carbola's sole risk. Carbola shall defend and indemnify Clark Minerals, Inc. for any and all liability it may incur for damages to person or property, which may occur as a result of the exercise of the above rights.

Very truly yours,

CLARK MINERALS, INC.

BY

Joshua H. Bennett, Jr.
Joshua H. Bennett, Jr.
President

Dated: Dec 19, 1980

CARBOLA CHEMICAL CO., INC.

BY

Edward Smith
Edward Smith, President

CERTIFIED COPY OF RESOLUTION
TO MORTGAGE

I, Joshua H. Bennett, Jr., Secretary of Whittaker, Clark & Daniels, Inc., a New Jersey corporation with offices at 1000 Coolidge Street, South Plainfield, New Jersey, do hereby certify that at a meeting of the Board of Directors of the corporation duly called, held at the offices of Whittaker, Clark & Daniels, Inc., South Plainfield, New Jersey, on the 8th day of December, 1980, at which a quorum was present, the following resolutions were unanimously adopted:

WHEREAS, the corporation has entered into a contract to purchase the premises described in Schedule A annexed from Carbola Chemical Co., Inc., and

WHEREAS, the corporation has formed a subsidiary, Clark Minerals, Inc., to own and operate the facility, and

WHEREAS, to induce the seller to take a mortgage from Clark Minerals, Inc., it required that the corporation agreed to guarantee this indebtedness,

NOW THEREFORE, BE IT RESOLVED that this corporation ratify and confirm the contract with Carbola Chemical Co., Inc. to buy the property described in Schedule A, a copy of which contract is attached, and

BE IT FURTHER RESOLVED that all of the corporation's rights under the contract be assigned to Clark Minerals, Inc., who will assume all of the corporation's obligations under the

contract, and

BE IT FURTHER RESOLVED that this corporation guarantee the indebtedness of Clark Minerals, Inc. to Carbola Chemical Co., Inc. which will be secured by a note and mortgage in the sum of \$256,000.00 to be repaid with interest thereon at 8 1/2% per annum on the terms set forth in the contract, and

BE IT FURTHER RESOLVED that the form of the assignment and guaranty and all other necessary and proper documents executed in connection with them shall be in a form approved by counsel to the corporation, and

BE IT FURTHER RESOLVED that the President or any other officer of the corporation is authorized to execute and deliver on behalf of the corporation the assignment, guaranty and other necessary and proper documents and to affix the corporate seal to them.

I do hereby certify that the certificate of incorporation and the by-laws of the corporation do not require the consent of shareholders.

WHITTAKER, CLARK & DANIELS, INC.

BY: Joshua H. Bennett, Jr.
Joshua H. Bennett, Jr.
Secretary

STATE OF NEW JERSEY)
COUNTY OF Jefferson) SS:

On this 24 day of December, 1980, before me personally came Joshua H. Bennett, Jr., to me known and known to me to be the individual described in and who executed the within instrument, and he acknowledged to me that he executed the same.

Ph. [Signature]

AMENDED
SCHEDULE "A"

PARCEL I

ALL THAT TRACT OR PARCEL OF LAND situate in the Town of Diana, County of Lewis and State of New York, and further described as follows:

BEGINNING at a concrete monument found in the northerly highway limits of N.Y.S. Route 3, said concrete monument is situate North $71^{\circ} 54'$ West along the northerly highway limits of N.Y.S. Route 3, a distance of 725.1 feet from a concrete monument found at an angle point in said highway limits, said last mentioned concrete monument is situate North $73^{\circ} 17'$ West along the northerly highway limits of N.Y.S. Route 3, a distance of 109.8 feet from a concrete monument found at an angle point in said highway limits, said last mentioned concrete monument is situate North $82^{\circ} 09'$ West along the northerly highway limits of N.Y.S. Route 3, a distance of 88.3 feet from the intersection of the northerly highway limits of N.Y.S. Route 3 and the westerly margin of lands now or formerly owned by the Penn Central Transportation Co., said point of beginning also being the intersection of the northerly highway limits of N.Y.S. Route 3 and the most easterly property line of the parcel of land conveyed by Adelaide B. Montondo to Miguel Rodriguez by deed recorded in the Lewis County Clerk's Office in Liber 337 at Page 48 on September 19, 1973;

thence North $35^{\circ} 33'$ East along the Rodriguez easterly property line a distance of 166.3 feet to an iron pipe found;

thence North $56^{\circ} 10'$ West along the Rodriguez northerly property line a distance of 208.6 feet to an iron pipe found;

thence South $32^{\circ} 49'$ West along the Rodriguez westerly property line a distance of 228.3 feet to a rod found in the abandoned centerline of the former State Highway;

thence in a generally northwesterly direction along the abandoned centerline of the former State Highway a distance of 257.5 feet to an iron pipe found in the most southeasterly corner of the parcel of land conveyed by International Talc Company, Inc. to Richard W. Lozo and Carol Lozo by deed recorded in the Lewis County Clerk's Office in Liber 314 at Page 443 on 2/18/71;

thence North $33^{\circ} 38'$ East along the Lozo easterly property line a distance of 160.0 feet to a rod found;

thence North $56^{\circ} 28'$ West along the Lozo northerly property line a distance of 125.0 feet to an iron pipe found;

SEE SCHEDULE "A" (Continued)

SCHEDULE "A" (Continued)

CONTAINING 351.01 acres of land more or less.

TOGETHER with a 100 foot Right of Way along the existing railroad siding which crosses the 30.45 acre parcel which is to be retained by Carbola Chemical Co., Inc., said Right of Way is as shown on the map titled "Survey Map of the Land of Carbola Chemical Co., Inc., N.Y.S. Route 3, Town of Diana, County of Lewis, State of New York", prepared by Bernier, Peck & Gozalkowski, Watertown, New York and dated December 11, 1980.

PARCEL II

TOGETHER with mineral rights excluding sand and gravel in and to the following described parcel of land:

ALL THAT TRACT OR PARCEL OF LAND, situate in the Town of Diana, County of Lewis and State of New York bounded and described as follows:

BEGINNING at a concrete monument located at the intersection of the northerly highway limits of N.Y.S. Route 3 and the westerly margin of lands now or formerly owned by the Penn Central Transportation Co.;

thence along the northerly limits of N.Y.S. Route 3 the following three courses and distances:

- (1) North 82° 09' West, 88.3 feet;
- (2) North 73° 17' West, 109.8 feet, and
- (3) North 71° 54' West, 464.5 feet;

thence North 31° 06' East, a distance of 1366.3 feet to a point;

thence South 58° 54' East, a distance of 2036.3 feet to the northerly margin of lands now or formerly owned by the Penn Central Transportation Co.;

SEE SCHEDULE "A" (Continued)

CERTIFIED COPY OF RESOLUTION
TO MORTGAGE

COPY

I, RICHARD G. LIGHT, Secretary of Clark Minerals, Inc., a New York corporation with offices at Natural Bridge, New York, do hereby certify that at a meeting of the Board of Directors of the corporation duly called, held at the offices of Whittaker, Clark & Daniels, Inc., South Plainfield, New Jersey, on the 8th day of December, 1980, at which a quorum was present, the following resolutions were unanimously adopted:

WHEREAS, the corporation is to purchase the premises described in Schedule A annexed from Carbola Chemical Co., Inc. and desires to finance the purchase by giving a note and mortgage to seller in the sum of \$256,000.00,

NOW THEREFORE, BE IT RESOLVED that this corporation purchase from Carbola Chemical Co., Inc. the property described in Schedule A and finance the purchase by giving to the seller a note and mortgage in the sum of \$256,000.00 to be repaid with interest thereon at 8 1/2% per annum and on the terms set forth in the contract between the corporation and the seller dated November 17, 1980, and,

BE IT FURTHER RESOLVED that the form of the note and mortgage and all other necessary and proper documents executed in connection with them shall be in a form approved by counsel to the corporation, and

COPY

BE IT FURTHER RESOLVED that the President or any other officer of the corporation is authorized to execute and deliver on behalf of the corporation the note, mortgage and other necessary and proper documents and to affix the corporate seal to them.

I do hereby certify that the certificate of incorporation and the by-laws of the corporation do not require the consent of shareholders.

CLARK MINERALS, INC.

By: Richard G. Light

STATE OF NEW JERSEY)
COUNTY OF) SS:

On this 23 day of December, 1980, before me personally came Richard G. Light, to me known and known to me to be the individual described in and who executed the within instrument, and he acknowledged to me that he executed the same.

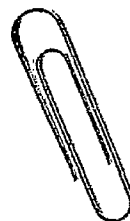
Julia R. Pabst
Notary Public
NOTARY PUBLIC OF NEW JERSEY
My Commission Expires Jan. 12, 1982

copy

SCHEDULE "A" (Continued)

thence North 82° 38' West along the northerly margin of lands now or formerly owned by the Penn Central Transportation Co., a distance of 821.7 feet to a point;

thence in a generally southwesterly direction along the northerly margin of lands now or formerly owned by the Penn Central Transportation Co., a distance of 1143.4 feet to the point and place of beginning, containing 30.45 acres of land, more or less.



COPY

SCHEDULE "A" (Continued)

CONTAINING 351.01 acres of land more or less.

TOGETHER with a 100 foot Right of Way along the existing railroad siding which crosses the 30.45 acre parcel which is to be retained by Carbola Chemical Co., Inc., said Right of Way is as shown on the map titled "Survey Map of the Land of Carbola Chemical Co., Inc., N.Y.S. Route 3, Town of Diana, County of Lewis, State of New York", prepared by Bernier, Peck & Gozalkowski, Watertown, New York and dated December 11, 1980.

PARCEL II

TOGETHER with mineral rights excluding sand and gravel in and to the following described parcel of land:

ALL THAT TRACT OR PARCEL OF LAND, situate in the Town of Diana, County of Lewis and State of New York bounded and described as follows:

BEGINNING at a concrete monument located at the intersection of the northerly highway limits of N.Y.S. Route 3 and the westerly margin of lands now or formerly owned by the Penn Central Transportation Co.;

thence along the northerly limits of N.Y.S. Route 3 the following three courses and distances:

- (1) North 82° 09' West, 88.3 feet;
- (2) North 73° 17' West, 109.8 feet, and
- (3) North 71° 54' West, 464.5 feet;

thence North 31° 06' East, a distance of 1366.3 feet to a point;

thence South 58° 54' East, a distance of 2036.3 feet to the northerly margin of lands now or formerly owned by the Penn Central Transportation Co.;

SCHEDULE "A" (Continued)

thence South 33° 38' West along the Lozo westerly property line, passing through an iron pipe found at 141.9 feet and continuing a total distance of 160.0 feet to a point in the centerline of the Old State Road;

thence in a generally northwesterly direction along the centerline of the Old State Road a distance of 525.3 feet to a point;

thence North 5° 53' West passing through an iron pipe found at 27.6 feet and continuing a total distance of 864.6 feet to a point;

thence North 5° 06' West passing through a stump at 1147.4 feet and continuing a total distance of 1158.0 feet to a point;

thence South 85° 40' 30" West a distance of 581.4 feet to an iron pipe found;

thence North 3° 16' 30" West a distance of 1764.0 feet to a nail set in a tree;

thence North 7° 55' 30" West a distance of 563.5 feet to an iron pipe found;

thence South 45° 19' East a distance of 2533.9 feet to an iron pipe found;

thence North 42° 24' East a distance of 1434.6 feet to an iron pipe found;

thence South 47° 57' 30" East a distance of 5120.8 feet to an iron pipe found;

thence South 50° 01' West a distance of 894.6 feet to an iron pipe found in the northerly margin of the land of the Penn Central Transportation Co.;

thence in a generally southwesterly direction along the Penn Central Transportation Co. northerly margin a distance of 1286.7 feet to a point, said margin being 40 feet northerly of and parallel to the centerline of the existing tracks;

thence North 58° 54' West a distance of 2036.3 feet to a point;

thence South 31° 06' West a distance of 1366.3 feet to a point in the northerly margin of N.Y.S. Route 3;

thence North 71° 54' West along the northerly margin of N.Y.S. Route 3 a distance of 260.6 feet to the point of beginning.

AMENDED
SCHEDULE "A"

COPY

PARCEL I

ALL THAT TRACT OR PARCEL OF LAND situate in the Town of Diana, County of Lewis and State of New York, and further described as follows:

BEGINNING at a concrete monument found in the northerly highway limits of N.Y.S. Route 3, said concrete monument is situate North $71^{\circ} 54'$ West along the northerly highway limits of N.Y.S. Route 3, a distance of 725.1 feet from a concrete monument found at an angle point in said highway limits, said last mentioned concrete monument is situate North $73^{\circ} 17'$ West along the northerly highway limits of N.Y.S. Route 3, a distance of 109.8 feet from a concrete monument found at an angle point in said highway limits, said last mentioned concrete monument is situate North $82^{\circ} 09'$ West along the northerly highway limits of N.Y.S. Route 3, a distance of 88.3 feet from the intersection of the northerly highway limits of N.Y.S. Route 3 and the westerly margin of lands now or formerly owned by the Penn Central Transportation Co., said point of beginning also being the intersection of the northerly highway limits of N.Y.S. Route 3 and the most easterly property line of the parcel of land conveyed by Adelaide B. Montondo to Miguel Rodriguez by deed recorded in the Lewis County Clerk's Office in Liber 337 at Page 48 on September 19, 1973;

thence North $35^{\circ} 33'$ East along the Rodriguez easterly property line a distance of 166.3 feet to an iron pipe found;

thence North $56^{\circ} 10'$ West along the Rodriguez northerly property line a distance of 208.6 feet to an iron pipe found;

thence South $32^{\circ} 49'$ West along the Rodriguez westerly property line a distance of 228.3 feet to a rod found in the abandoned centerline of the former State Highway;

thence in a generally northwesterly direction along the abandoned centerline of the former State Highway a distance of 257.5 feet to an iron pipe found in the most southeasterly corner of the parcel of land conveyed by International Talc Company, Inc. to Richard W. Lozo and Carol Lozo by deed recorded in the Lewis County Clerk's Office in Liber 314 at Page 443 on 2/18/71;

thence North $33^{\circ} 38'$ East along the Lozo easterly property line a distance of 160.0 feet to a rod found;

thence North $56^{\circ} 28'$ West along the Lozo northerly property line a distance of 125.0 feet to an iron pipe found;

RESOLUTION OF BOARD OF DIRECTORS
OF CARBOLA CHEMICAL CO., INC.

Be it resolved that, the Board of Directors recommends to the shareholders of the corporation that the corporation be authorized to sell approximately 346 acres of land, including all of the mines, mills, plant, offices, buildings and improvements to Whittaker, Clark & Daniels, Inc. or its designee, upon the terms contained in the purchase option dated August 22, 1980 between this corporation and Whittaker, Clark & Daniels, Inc. and upon the basic terms outlined in the draft agreement attached to these minutes or upon such other terms as the Board of Directors may fix. The purchase price shall be not less than \$375,000.

Be it further resolved that the president of the corporation is authorized to execute all documents necessary to accomplish the above transaction, which represents disposition of substantially all of the assets of this corporation.

CERTIFICATION

I hereby certify that the above is a true and complete copy of a resolution adopted by the Board of Directors of Carbola Chemical Co., Inc. at a special meeting duly called and held on November 12, 1980 at the corporate offices at Natural Bridge, New York.


Edward R. Smith, Secretary

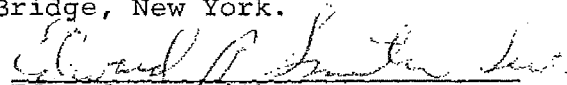
RESOLUTION OF SHAREHOLDERS OF
CARBOLA CHEMICAL CO., INC.

Be it resolved that, upon recommendation and approval of the Board of Directors, the corporation is authorized to sell approximately 346 acres of land, including all of the mines, mills, plant, offices, buildings and improvements to Whittaker, Clark & Daniels, Inc. or its designee, upon the terms contained in the purchase option dated August 22, 1980 between this corporation and Whittaker, Clark & Daniels, Inc. and upon the basic terms outlined in the draft agreement attached to these minutes or upon such other terms as the Board of Directors may fix. The purchase price shall be not less than \$375,000.

Be it further resolved that the president of the corporation is authorized to execute all documents necessary to accomplish the above transaction, which represents disposition of substantially all of the assets of this corporation.

CERTIFICATION

I hereby certify that the above is a true and complete copy of a resolution adopted by ninety percent of the outstanding shares of stock of Carbola Chemical Co., Inc. at a special meeting duly called and held on November 12, 1980 at the corporate offices at Natural Bridge, New York.


Edward R. Smith, Secretary



Know all Men by these Presents

That

CARBOLA CHEMICAL CO., INC.
Natural Bridge, New York

party
of the first part, for and in consideration of the sum of
the United States, to it in hand paid, at or before the ensealing and delivery
of these presents, by

lawful money of

CLARK MINERALS, INC.
Natural Bridge, New York

party
of the second part, the receipt whereof is hereby acknowledged, has bargained
and sold, and by these presents does grant and convey unto the said part
of the second part, its ~~executors, administrators~~ and assigns

all that equipment and personalty as set forth in Schedule A
attached, located on the property of party of the first part
located in the Town of Diana, New York.

To have and to hold the same unto the said part y of the second part, its ~~executors and administrators~~ and assigns forever. And said party of the first part, its successors and assigns covenants and agrees to and with the said part Y of the second part, to ~~Warrant and~~ defend the sale of the said personal property hereby sold unto the said part y of the second part, its executors, administrators and assigns, against all and every person and persons whomsoever.

In Presence of

In Witness Whereof, the
party of the first part has caused its corporate seal to be hereunto affixed, and these presents to be signed by its duly authorized officer this 19 day of December Nineteen Hundred and Eighty

CARBOLA CHEMICAL CO., INC.

By Edward R. Smith

State of New York }
County of Jefferson } ss. On this 19th day of December
before me personally came Nineteen Hundred and Eighty
EDWARD R. SMITH

to me personally known, who, being by me duly sworn, did depose and say that he resides in Watertown, New York that he is the President of Carbola Chemical Co., Inc. the corporation described in, and which executed, the within Instrument; that he knows the seal of said corporation; that the seal affixed to said Instrument is such corporate seal; that it was so affixed by order of the Board of Directors of said corporation; and that he signed his name thereto by like order.

MICHAEL A. MOONEY
NOTARY PUBLIC, STATE OF NEW YORK
NO. 41003-ERICK COUNTY
COMMISSION EXPIRES MARCH 30, 1921
Notary Public

Bill of Sale

TO

Dated, 19
Filed, 19

BOND, SCHOENECK & KING
ATTORNEYS AT LAW
ONE LINCOLN CENTER
SYRACUSE, N. Y. 13202

CLARK MINERALS, INC.

FIXED ASSET

INVENTORY

SCHEDULE "A"

<u>TICKET</u>	<u>LOCATION</u>	<u>QUANTITY</u>	<u>ASSET</u>
1	OFF	1	6' Executive Desk
1	OFF	1	5' Conference Table
1	OFF	2	Side Chair
1	OFF	1	Desk Chair
1	OFF	1	Safe (Combination Lock) (Safe Cabinet Co.)
2	OFF	1	Pitney Bowes Mailing Machine (no meter) 4100 6483
2	OFF	1	Wooden Table Composition Top
4	OFF	4	Cardex Files with Transfer
5	OFF	1	Nameplate File for 70 Plates
6	OFF	1	Nameplate File with 70 Drawers
7	OFF	1	Check Protector
7	OFF	1	Cole 5' Metal Desk
7	OFF	1	Wooden Chair
7	OFF	1	Bookcase
7	OFF	1	Cole File
8	OFF	1	4 Drawer File Cabinet Steel
9	OFF	1	Wessota Bench Grinder EM 7
10	OFF	1	3 Inch Gas Water Pump 7HP Motor
11	OFF	2	10 Tray Victor Cardex File
12	OFF	1	Wooden Kneehole Desk
12	OFF	1	Wooden Chair
13	LAB	1	Underwood Antique Typewriter 12" Carriage #3
14	LAB	1	Paper Drill 12DS
16	LAB	1	Balance Scale Christian Becker
17	LAB	Misc.	Glassware
18	LAB	1	Burette Holder
19	LAB	1	Misc. Drill Bits
20	LAB	2	New Allen Bradley Type N A/C Relays
20	LAB	1	Used Allen Bradley Type N A/C Relays
21	LAB OFF	2	Dodger Bearings 1 7/16"
21	LAB OFF	3	pcs Rock Drill Steel
22	OFF	1	Addressograph Printer Manual Oper. G 2807
23	OFF LOW	5	pcs Drill Steel
23	OFF LOW	1	Budget Electric Hoist Iton
24	OFF GAR	1	Laboratory Ball Mill
25	OFF LOW	1	Acme Paper Cutter
26	GAR	1	Fairbanks Hearse Induction Motor 75HP
27	GAR	1	3/4" Electric Drill
28	GAR	1	GE 150HP Induction Motor (needs repair)
30		1	#254 Trojan Front End Loader 2 1/2 yard S/N 327
31		1	1966 Int'l Dump Truck Front Hydraulic System
32	Main Mill East	1	Water Pump 6" on Trailer, Gas Engine
33	Main Mill East	2	Norblow Dust Collectors 1800 CFM
33	Main Mill East	2	45HP Motors & Norblow Exhaust Fans
34	Main Mill East	1	Hurricane Mill Pulverizer Micronizer with GE 75HP Motor (not in service - on floor)
35	Main Mill East	1	Schraum Electric 25HP Air Compressor NWD 105 132FM with 25HP Induction Motor S/N 796643 (not in service)
36	Main Mill East	1	2 Wheel Hand Truck

<u>TICKET</u>	<u>LOCATION</u>	<u>QUANTITY</u>	<u>ASSET</u>
37	Main Mill West	1	Induction Starter Allen Bradley Size B May 100HB
37	Main Mill West	1	200 AMP Fuse Box
37	Main Mill West	10	30 AMP Fuse Box
37	Main Mill West	1	100 AMP Fuse Box
37	Main Mill West	1	Reset Switch
37	Main Mill West	9	Start/Stop Switch
37	Main Mill West	1	Westinghouse Control Station (size unknown)
38	Main Mill	1	Jeffrey Electrical Control Panel
38	Main Mill	2	Constant Weight Control Feeders
38	Main Mill	4	GE Reset Switches
38	Main Mill	2	A Bradley Automatic Starters Size O
38	Main Mill	7	Start/Stop Switches
39	Sub Station	3	Davis 833 KVA Transformers
40	Sub Station	9	Cornell Dublier Capacitors RKVAR25 Style 1835
41	Sub Station	2	600 AMP Disconnect Switches Frank Adams
41	Sub Station	1	Close Trip ITE Circuit Breaker MOD KCG S/NG 9722 600 AMP
41	Sub Station	1	Allen Bradley Control Panel for #5 Mill Primary 2300 Volts with Inductotherm Overload for 150HP Motor
41	Sub Station	3	GE Controllers #7006-T-3E 2200 Volts
41	Sub Station	2	2300 Volt Disconnects GE Type ML 18934367
42	WHSE	5	1300 x 24 Loader Tires Spares Tube Type Small Loader
42	WHSE	4	20.5 x 25 Loader Spares Tube Type Large Loader
43	WHSE	4	Bearing Caps Parts Spare Jaw Crusher
43	WHSE	3	Chain Drivers " " " "
43	WHSE	1	Chain Parts Spare Jaw Crusher
43	WHSE	5	Bearing Seal Rings Parts Spare Jaw Crusher
43	WHSE	1	Eccentric Arm " " " "
43	WHSE	1	Balance Wheel " " " "
44	WHSE	1	New Base Kennedy Gyrotory Crushed #12 Parts
44	WHSE	1	New Motor " " " " "
44	WHSE	1	Used Motor " " " " "
44	WHSE	1	New Bearing " " " " "
44	WHSE	1	Crate Manganese Liners Kennedy Gyrotory Crushed #12 Parts
44	WHSE	1	DC Exciter Kennedy Gyrotory Crushed #12 Parts
44	WHSE	1	Oil Top " " " " "
44	WHSE	3	Bushings " " " " "
44	WHSE	4	GE Meters " " " " "
45	REAR WHSE	4	Tail Section Pulley w/Bearings Parts 24" Conveyor
45	REAR WHSE	1	Head Section Pulley w/Bearings " " "
45	REAR WHSE	9	Sections Troughing Idlers " " "
45	REAR WHSE	4	Return Rollers " " "
45	REAR WHSE	8	Section of Troughing Idlers " " "
45	REAR WHSE	4	Return Rollers " " "
46	REAR WHSE	1	50 # Buffalo Scale
47	REAR WHSE	1	GE 75HP Induction Motor Used #1271436
47	REAR WHSE	4	Banks Fuse Holders

<u>TICKET</u>	<u>LOCATION</u>	<u>QUANTITY</u>	<u>ASSET</u>
48	WHSE UPPER	1	New Syntron Elec. Controller S/N C52719 MOD C 3
49	WHSE UPPER	6	Boxes Dust Collector Bags for Stydust Collector
50	WHSE UPPER	37	Boxes Spacers for Stydust Collector
51	WHSE UPPER	45 Cases	Various Size Cans Fiber Sides
52	WHSE UPPER	1	2 Wheel Hand Truck with Rack Extension
53	WHSE UPPER	3	Five Gallon Gas Cans
54	MACH SHOP	1	Steel Work Bench 3' x 10'
54	MACH SHOP	1	Steel Work Bench 3' x 12'
55	WHSE OFF	2	Car Tires
55	WHSE OFF	1	Plow Blade
55	WHSE OFF	Misc.	Chemicals
56	TOOL STORAGE	1	Johnson Bar
56	TOOL STORAGE	5	Bearings
56	TOOL STORAGE	1	Combination Starter
57	MAIN MILL	1	Air Compressor Chicago Pneumatic CAP 300 CFM Diesel S/N 54005
58	ROLL STOCK	1	1958 Int'l Tandem Dump CAP 15 Ton S/N FA 13551
59	ROLL STOCK	1	1954 Ford Dumptruck S/N F 70 241 + 29043 Single Axle 5YD CAP - with Hydraulic Front Lift with Plow Plate
60	ROLL STOCK	1	1966 Clark Fork Lift 2 Ton - Propane S/N C1408-27-822-106
61	ROLL STOCK	1	1963 Trojan 114A S/N 11927 1 1/4 YD Front End Loader
62	SPEC BLDG	1	Dust Collector Without Working Parts, Motor, Etc.
63	SPEC BLDG	1	50 # Scale Howe 57
63	SPEC BLDG	1	Fairbanks
63	SPEC BLDG	1	50 # Scale MFG Unknown
64	SPEC BLDG	3	3HP Motors on Elevators for Insecticide Bin
64	SPEC BLDG	1	15HP Westinghouse Induction Motor to Run Blender
65	SPEC BLDG	1	Dry Blender
66	SPEC BLDG	2	Georgia Buggies mfd by General
67	SPEC BLDG	1	Mixer, ribbon with 10HP Motor & Speed Reducer
67	SPEC BLDG	1	Williams Pulverizer S/N 13408
68	SPEC BLDG	1	Toledo Packer 10 lb. with Electric Eye Control 2HP Motor
69	SPEC BLDG	1	Electric Heater
70	SPEC BLDG	1	Exact Weight Scale Type 213 311b. Max, # 104393
71	SPEC BLDG	1	Full Roll Boxcar Liner
71	SPEC BLDG	1/4	Full Boxcar Liner
72	SPEC BLDG	1	Stencile Machine - Hearsch 3/4" Letters
73	SPEC BLDG	1	Detecto Gram Scale S/N 46534
74	SPEC BLDG	3	Fraughe Can Packers (1 unit not working) for sample cans
75	SPEC BLDG	1	Fry Bag Sealer CSG SN 58801 for Open Mouth Bags
76	SSPEC BLDG	1	Can Labeler #8001 Burt Machine 3 1/4" x 7"
77	SPEC BLDG	1	3HP Air Compressor Twin Stage Ingersoll Rand Type 30 #244HD5 S/N 32736
78	SPEC BLDG	1	2 Valve Air Packer w/30T Holding Bin
78	SPEC BLDG	1	Dust Collector

TICKET	LOCATION	QUANTITY	ASSET
78	SPEC BLDG	3	3HP Motor with Speed Reducer
79	SPEC BLDG	14,500	50 # Bags 9 Ballets (Carbola Printing)
80	ORE DRYER	1	5' x 20' Ore Dryer Oil Fired
80	ORE DRYER	1	10HP Motor
80	ORE DRYER	1	5HP Motor
80	ORE DRYER	1	3HP Motor with Speed Reducer
80	ORE DRYER	1	15HP Gear Motor
81	ORE DRYER	1	1000 Gal Oil Tank
82		1	Fairbanks Morse Fluid Pump 6205
83	ENGR OFF	1	500 Gal Gas Tank (no pump)
84	ENGR OFF	1	Blue Print Table
84	ENGR OFF	1	Small Wooden Desk
84	ENGR OFF	1	Wooden Chair
85	FORGE ROOM	1	Ingersoll Rand Drill Sharpener Type IR 34 S/N 10446
85	FORGE ROOM	1	Electric Heater
86	CAP ROOM	1	Electric Heater
87	CAP ROOM	1	Dayton Electric Water Pump 3/4HP Motor
87	CAP ROOM	1	1HP Motor Hercules Water Pump
88	CAP ROOM	1	Swedish Tool Grinder for Sharpening Bits
			Air Driven S/N 41390 # 4200
89	CAP ROOM	1	Ingersoll Rand Air Compressor for Mine S/N 8553
			3-Type ESI Works Off Generator Motor
89	CAP ROOM	1	Ingersoll Rand Air Compressor for Mine
			S/N 73915 Type ESI Low Volt Starter, 100HP Motor
90	CAP ROOM	1	GE 127KVA Generator Standby for Emergency Service
			with Control Bank
91	POWER ROOM	1	Waukesha Mod 6WAK Aux. Power S/N 843003
92	POWER ROOM	1	180' x 18" Conveyor with 3HP Motor & Speed Reducer
93	SC ROOM	1	10HP Dust Collector
94	SC ROOM	1	Cedar Rapids Screen, Flat 4' x 10' Double Deck
			25HP Motor 1750RPM
95	SC ROOM	1	Plate Feeder with Electric Drive Unit, 3HP with
			Speed Reducer Motor 1750RPM
96	SC ROOM	1	Cedar Rapids Double Impactor Crusher S/N 19080
			30" x 42" Belt Driven
96	SC ROOM	2	Motors 50HP Fairbanks Morse
97	SC ROOM	1	Chain Hoist 3 Tons
98	SC ROOM	1	200 AMP Lincoln Welder S/N A61661
99	PPCR AREA	1	200' x 24" Conveyor with Link Belt Gear Motor 3HP
100	PPCR AREA	1	Allis Chalmers Hoist, 75HP, GE Motor with Euclid
			Electric Manual Controller, Type MSP 18000
101	PPCR AREA	1	Small Electric Heater
102	PPCR AREA	1	Allen Bradley Control Panel for 150HP Motor
103	PPCR AREA	1	Bench Vise Apprentice #183-B
104	PPCR AREA	1	Submersible Water Pump Flygt 9HP Motor
105	PPCR AREA	1	Westinghouse Main Feeder CAT # F355
105	PPCR AREA	1	Westinghouse Auto Starter Mod # Type A
106	PPCR AREA	1	Westinghouse Line Starter Spare
106	PPCR AREA	4	Allen Bradley On/Off Switch (3 service, 1 spare)

<u>TICKET</u>	<u>LOCATION</u>	<u>QUANTITY</u>	<u>ASSET</u>
107	PPCR AREA	1	Lincoln Grease Pump Mod. 1277
108	PPCR AREA	1	5HP Motor General Electric
109	PPCR AREA	1	100HP 1836 Cedar Rapids Primary Draw Crusher, 3HP Drive Motor with Speed Reducer
110	PPCR AREA	1	28' x 24" Conveyor
111	PPCR AREA	1	Kennedy Vibrating Screen 3' x 10' S/N 634, 10HP Motor
112	TURN ROOM	2	3HP Motors with Speed Reducers
112	TURN ROOM	1	Magnetic Pickup From Conveyor Belt, Eriez Mfg. Co.
113	TURN ROOM	1	120' Conveyor 16" with 3HP Drive Motor with Speed Reducer
114	MAIN PLANT	1	Kennedy Vibrating Screen 3' x 10', 2 Deck S/N 659
114	MAIN PLANT	2	3HP Motors with Speed Reducers
114	MAIN PLANT	1	3HP Motor No Speed Reducer
114	MAIN PLANT	1	American Blower Type ELS, Size 250, S/N 250-7
115	MAIN MILL	2	3HP Motors with Speed Reducers
115	MAIN MILL	1	6" Conveyor 40" with Motor
115	MAIN MILL	2	3HP Motors, 1 No Speed Reducer
115	MAIN MILL	5	14' Gayco Separators with 25HP Motors Fairbanks Morse
116	MAIN MILL	21	3HP Motors with Speed Reducers - All Part of Elevators
117	MAIN MILL	1	Dust Collector #1 & #4 Mill-Sly Bag Type 21,000 CFM, Barry Blower Size 633, Type RD S/N 67-1544
117	MAIN MILL	1	Wagner Electric Motor 75HP Model 37E 125 J 235
117	MAIN MILL	1	3HP Motor with Speed Reducer
118	MAIN MILL	1	Sly Dust Collector for #2 and #3 Mill.
118	MAIN MILL	1	Sly Blower H4-1914-D
118	MAIN MILL	1	Pacemaker 60HP Motor Type COG4B, Model 192540 M 26
118	MAIN MILL	1	3HP Motor with Speed Reducer
119	MAIN MILL	1	Dust Collector for #5 Mill, Approx. 1/3 Capacity of Other Collectors
119	MAIN MILL	1	Sterling 10HP Motor Model #L 16686, Buffalo Blower, Size 35, Type MW #F617
120	MAIN MILL	6	3HP Motors Various Screw Drive Units with Speed Reducers
120	MAIN MILL	1	Georgia Buggy
120	MAIN MILL	1	Wheelbarrow
120	MAIN MILL	5	Miscellaneous Shovels
120	MAIN MILL	1	Hurricane Mill with 15HP Motor
120	MAIN MILL	1	Rock Drill, hand in closet
120	MAIN MILL	4	Reduced Voltage Starters for 30HP Motor for Separators (Gayes)
122	MAIN MILL	12	Fuse Boxes for Screw Worms 30 AMP F351
122	MAIN MILL	1	Fuse Box for Screw Worms 200 AMP F354
122	MAIN MILL	12	Reset Boxes
122	MAIN MILL	13	Start/Stop Switches
123	MAIN MILL	8	Fuse Boxes 30 AMP
123	MAIN MILL	5	Reset Boxes
123	MAIN MILL	10	Start/Stop Switches
123	MAIN MILL	1	100 AMP Fuse Box
123	MAIN MILL	2	Combination Starters Allen Bradley Size 0

<u>TICKET</u>	<u>LOCATION</u>	<u>QUANTITY</u>	<u>ASSET</u>
124	MAIN MILL	1	400 AMP Fuse Box
124	MAIN MILL	1	100 AMP Fuse Box F353
124	MAIN MILL	2	30 AMP Fuse Box
124	MAIN MILL	4	Reset Boxes/Switches
124	MAIN MILL	4	On/Off Switches
124	MAIN MILL	7	30 AMP Fuse Boxes
124	MAIN MILL	3	Reset Switches
124	MAIN MILL	17	Start/Stop Switches
124	MAIN MILL	6	30 AMP Fuse Boxes
124	MAIN MILL	8	Reset Switches
124	MAIN MILL	11	Start/Stop Switches
124	MAIN MILL	13	30 AMP Fuse Boxes
124	MAIN MILL	2	60 AMP Fuse Boxes
125	MAIN MILL	1	Allen Bradley Bulletin 645 Reduced Voltage Starter 200HP
126	MAIN MILL	5	6' x 24' Allis Chalmers Tube Mills 5' x 10' Blender, Ball Mill
126	MAIN MILL	9	Capacitor KVAR 15 Style DB11, Type PF 405-R Cornell Dublier
126	MAIN MILL	2	200 AMP Fuse Boxes
127	MAIN MILL	1	Jeffrey Scale Automatic-Insecticide Blending
128	MAIN MILL	2	GE 150HP Induction Motor
129	MAIN MILL	1	Kennedy Gyrotory Crusher #25 Secondary
130	MAIN MILL	2	Loading Ramps - Steel Diamond Plate
131	MAIN MILL	2	50# Exacta Scale
132	MAIN MILL	1	St. Regis Packer - Valve Bag/Hand Fed Bags, Type 100Fl, S/N 4016
132	MAIN MILL	1	Allis Chalmers 15HP Motor #714E
133	MAIN MILL	1	Fuller Dump Valve with Gear Motor # C-40A52-B71
134	MAIN MILL	15	3HP Motors with Speed Reducers
134	MAIN MILL	1	75HP Induction Motor
134	MAIN MILL	1	Georgia Buggy
134	MAIN MILL	5	200 AMP Fuse Box
134	MAIN MILL	1	600 AMP Fuse Box
134	MAIN MILL	15	Combination Starters with Disconnects Size 0
134	MAIN MILL	2	Reset Switches
134	MAIN MILL	15	Start/Stop Switches
134	MAIN MILL	1	Combination Starters with Disconnects Size 1
134	MAIN MILL	3	Arrow Hart Enclosed Switches 575 AMP
134	MAIN MILL	3	Reset Switches
135	LOWER MILL	1	60 AMP Fuse Box
135	LOWER MILL	4	30 AMP Fuse Box
135	LOWER MILL	3	Start/Stop Switches
135	LOWER MILL	1	60 AMP Fuse Box
135	MAIN MILL	2	30 AMP Boxes
135	MAIN MILL	2	Start/Stop Switches
135	MAIN MILL	4	30 AMP Fuse Box
136	MAIN MILL	1	Portable Fan - Axidane Joy S/N MF655, Mod. # L-21, 470CCFM

NOTIFICATION OF SALE, TRANSFER OR ASSIGNMENT IN BULK

(to be filed in triplicate)

READ INSTRUCTIONS ON REVERSE BEFORE MAKING ENTRIES BELOW

The following information should be submitted by registered mail at least ten (10) days before taking possession of or paying for the property. Mail this notice to the NEW YORK STATE SALES TAX BUREAU, AUDIT AND REVIEW UNIT, STATE CAMPUS, ALBANY, N.Y. 12227.

Section I - Mailing Address of Purchaser, Seller and Escrow Agent (if any)

PURCHASER Clark Minerals, Inc. c/o Wittaker, Clark & Daniels, Inc. 1000 Coolidge South Plainfield, NJ CITY STATE ZIP CODE			SELLER Carbola Chemical Co., Inc. Natural Bridge, NY CITY STATE ZIP CODE			ESCROW AGENT Bond, Schoeneck & King 1 Lincoln Center Syracuse, NY 13202 CITY STATE ZIP CODE		
---	--	--	---	--	--	---	--	--

Section II - Vendor Identification

PURCHASER'S CERTIFICATE OF AUTHORITY IDENTIFICATION NO.		SELLER'S CERTIFICATE OF AUTHORITY IDENTIFICATION NO. 160995910	
PURCHASER'S NAME Clark Minerals, Inc.		SELLER'S NAME Carbola Chemical Co., Inc.	
BUSINESS LOCATION c/o Whittaker, Clark & Daniels, Inc., 1000 Coolidge, Plainfield, NJ		BUSINESS OR TRADE NAME Carbola Chemical Co., Inc.	
BUSINESS LOCATION		BUSINESS LOCATION Natural Bridge, NY	

Section III - Details of Sale

SCHEDULED DATE OF SALE 12/19/80	TOTAL SALES PRICE OF BUSINESS OR PROPERTY \$415,000.00	SALES PRICE OF FURNITURE, FIXTURES, ETC.	AMOUNT OF ESCROW FUND
LOCATION OF PROPERTY WHEN TRANSFERRED Town of Diana, County of Lewis		TYPE OF BUSINESS OR PROPERTY SOLD Talc Mining and Mill Operation	
NAME OF BANK IN WHICH ESCROW FUND IS DEPOSITED Lincoln First Bank, NA		ACCOUNT IDENTIFICATION (NAME AND NUMBER) 101008712	
ADDRESS Lincoln Center, Syracuse, NY			

TERMS AND CONDITIONS OF SALE

Miscellaneous furniture, equipment and personal property is being transferred as part of the conveyance of 350 acres of land, which includes mine, mill and office space. Inventory not included. Mining business has not operated for over one year. This is not a sale of the entire business assets.

Section 1141 (c) Article 28 of the New York State Sales and Use Tax Law provides in part as follows:

"Whenever a person required to collect tax shall make a sale, transfer, or assignment in bulk of any part or the whole of his business assets, otherwise than in the ordinary course of business, the purchaser, transferee or assignee shall at least ten days before taking possession of the subject of said sale, transfer or assignment, or paying therefor, notify the tax commission by registered mail of the proposed sale and of the price, terms and conditions thereof whether or not the seller, transferor or assignor, has represented to, or informed the purchaser, transferee or assignee that he owes any tax pursuant to this article, and whether or not the purchaser, transferee, or assignee has knowledge that such taxes are owing, and whether any such taxes are in fact owing."

James H. Bennett
SIGNATURE

President, Clark Minerals, Inc.
TITLE (IF OTHER THAN PURCHASER, PLEASE IDENTIFY) DATE 12-20-80

FED. I.D. No. 16-1152748

Jefferson National Bank
WATERTOWN, N. Y. 13601

CLARK MINERALS, INC.

P. O. BOX 398
OLD HARRISVILLE ROAD
NATURAL BRIDGE, N.Y. 13665

113

50-1165
213

Dec. 20 19 80

PAY
TO THE
ORDER
OF

Five hundred seventy-eight & 84/100

DOLLARS \$ 578.84

State Tax Commission

sales tax on personal property

R. J. Hight
J. M. Bennett

⑆021311655⑆ 506 00388 6⑆

ONLINE CHECK PRINTERS INC.

ST-100New York State
Department
of Taxation
and Finance

380

**New York State and Local
Sales and Use Tax Return**

Page 1

Under Articles 28 and 29 of the Tax Law

~~DECEMBER 1, 1979 - FEBRUARY 29, 1980~~**CASUAL SALE**Use Labeled Form and Return
Envelope for filing your return.THIS RETURN MUST BE FILED WHETHER
OR NOT THERE IS TAX TO BE REMITTEDIf incorrect on label, enter
correct information below.

ID NUMBER

160995910

NAME

CAROLINA CHEN CO INC

NO. AND STREET

10 ASPEN BRIDGE NY

CITY

STATE

ZIP

13665

Complete page 2 of this form before making entries below.

SUMMARY OF BUSINESS ACTIVITY	GROSS SALES AND SERVICES A (to nearest dollar)	TAXABLE SALES AND SERVICES B (to nearest dollar)	PURCHASES SUBJECT TO USE TAX C (to nearest dollar)	TOTAL CREDITS CLAIMED ON PAGE 2 OR ATTACHED SCHEDULES D (dollars and cents)
		14,471		

IF THE AMOUNT REPORTED IN BOXES B & C ABOVE TOTALS \$300,000 OR MORE, YOU ARE REQUIRED TO FILE RETURNS
MONTHLY. CONTACT THE SALES TAX PROCESSING UNIT OR YOUR LOCAL DISTRICT TAX OFFICE IMMEDIATELY FOR
FURTHER INFORMATION.

ENTER TYPE OF BUSINESS

TALL MINING AND MCL OPERATION

If this return reports sales tax for
more than one location, check here. ☐

1	Sales and Use Taxes (total column (e), page 2 and amounts from Schedules A, B and N, if any)	\$	578	84
2	(a) Credits Not Claimed on Page 2 (attachments required)	\$		
	(b) Prepayments (attach Form ST-330)	\$		
	(c) Total Credits and Prepayments		0	
3	Sales and Use Taxes Due (line 1 less line 2 (c))	\$	578	84
4	Add: Late Filing Charge			
5	Amount Due including Late Filing Charge (line 3 plus line 4)	Pay this amount	\$	578 84

Attach remittance payable to "New York State Sales Tax" and mail in the
enclosed envelope to the applicable P.O. Box on or before **March 20, 1980**.

For office use only

SIGNATURE OF VENDOR

Edward A. Smith

TITLE

Pres.

DATE

12-19-80

SIGNATURE OF PREPARER, IF OTHER THAN VENDOR

DATE

PREPARER'S ADDRESS

Did you complete the other side of this form?

ST-100 (12/79)

ST-100 (Back)

(12-79)

380

NOTE: Vendors reporting amounts for cities below marked "0" report only amounts applicable to the area within the official city limits.

Page 2

STATE AND LOCAL
SALES AND USE TAX

Show Net Credits (negative amounts) in parenthesis on appropriate lines below.

TAXING JURISDICTION (a)	% RATE (b)	TAXABLE SALES AND SERVICES (to nearest dollar) (c)	PURCHASES SUBJECT TO USE TAX (to nearest dollar) (d)	SALES AND USE TAXES b x (c + d) (dollars and cents) (e)	C O D E	TAXING JURISDICTION (a)	% RATE (b)	TAXABLE SALES AND SERVICES (to nearest dollar) (c)	PURCHASES SUBJECT TO USE TAX (to nearest dollar) (d)	SALES AND USE TAXES b x (c + d) (dollars and cents) (e)	C O D E
NEW YORK STATE	4	14,471		578	84	0002 Oswego (city)	7	-			3542
Albany	7					0172 Otsego	6				3602
Allegany	7					0212 Putnam	5				3702
Broome	7					0312 Rensselaer - except	6				3872
Cattaraugus - except	7					0492 Troy (city)	7				3832
●Olean (city)	7					0412 St. Lawrence - except	7				4092
●Salamonca (city)	7					0422 Ogdensburg (city)	7				4012
Cayuga	7					0502 Mechanicville (city)	6				4112
Chautauqua	7					0602 Saratoga Springs (city)	6				4132
Chemung - except	7					0792 Schuyler	7				41
●Elmira (city)	7					0712 Steuben - except	7				4662
Chenango	6					0802 ●Hornell (city)	7				4622
Clinton - except	7					0992 ●Corning (city)	7				4612
●Plattsburgh (city)	7					0912 Suffolk	7				4712
Columbia	6					1002 Sullivan	7				4812
Cortland	7					1102 Tioga	6				4902
Dutchess - except	5					1302 Tompkins - except	7				5092
●Poughkeepsie (city)	7					1332 ●Ithaca (city)	7				5012
Erie	7					1412 Ulster	7				5112
Essex	7					1502 Warren - except	7				5292
Franklin	7					1602 ●Glens Falls (city)	7				5212
Fulton (county)	7					1702 Washington	7				5302
Genesee	6					1802 Wayne	7				5402
Greene	7					1912 Westchester - except	5				5502
Hamilton	7					2002 ●Mount Vernon (city)	7				6522
Jefferson	7					2202 ●New Rochelle (city)	7				6502
Livingston	7					2402 ●White Plains (city)	7				5
Madison - except	6					2592 ●Yonkers (city)	8				6572
●Oneida (city)	7					2522 Yates	7				5702
Monroe	7					2602 New York City	8				8002
Montgomery - except	7					2792					
●Amsterdam (city)	7					2712					
Nassau	7					2842	REPORT BELOW SALES AND PURCHASES SUBJECT ONLY TO LOCAL TAX (See ST-150.1, Instructions IV C and D.)				
Niagara	7					2902	NEW YORK CITY	4			8010
●Sherrill (city)	5					3042					
Onondaga	7					3102					
Ontario - except	7					3272					
●Canandaigua (city)	7					3232					
●Geneva (city)	7					3242					
Orleans	7					3472					
●Fulton (city)	7					3532					
TOTALS -											
ENTER ON PAGE 1,							BOX B	BOX C	LINE 1		

December 19, 1980

Clark Minerals, Inc.
Natural Bridge, NY

Gentlemen:

In connection with our closing today on the purchase of 350⁺ acres in the Town of Diana, New York, we agree to remove all personal property still owned by Carbola Chemical Co., Inc. from the premises by January 31, 1981.

If we do not remove all property by that date, Clark Minerals, Inc. may dispose of all remaining property as it sees fit.

Carbola Chemical Co., Inc.

BY

Edward R. Smith

William H. Kissel, Esq.
P.O. Box 1980
Lake Placid, NY 12946

re: Carbola Chemical Co., Inc. - sale to
Clark Minerals, Inc.

Dear Mr. Kissel:

This letter will set forth our escrow agreement made December 19, 1980 between Carbola Chemical Co., Inc. ("Owner") and Clark Minerals, Inc., ("Buyer").

An escrow fund (the "Fund") in the sum of \$10,500 will be held by Buyer's attorneys, Bond, Schoeneck & King, as escrow agent ("Agent") to provide a source of payment of liens against the property for which satisfactions of judgment will not be available at the time of closing. The Fund represents 125% of the estimated amount required to pay the principal amount plus interest of the following judgments:

James Huggins & Sons, Inc. - \$996.05
M. Berger Company - \$541.80
FMC Corporation Agricultural Division - \$866.93
Smith Transport (US) Ltd. - \$983.18
Ogdensburg Electric - \$614.66
International Paper - \$3,654.43

This agreement is made in consideration of Buyer's agreement to close on the purchase of the Town of Diana property with the above judgments still of record against the Property.

The Fund shall be held by Agent without interest in its non-interest bearing account. Owner agrees to deposit additional amounts into the Fund in the event the deposit is not sufficient to cover the judgments listed above or in the event that the Fund is not sufficient to cover additional judgments which may become of record up to the time of closing.

William H. Kissel, Esq.
Page Two

Agent shall withdraw sums from the Fund to pay the judgments listed above or the actual amount of the above listed judgments with interest if the above amounts should be incorrect, and shall pay such sums to Owner's attorney. Agent shall only make such payments upon receipt of duly executed and acknowledged satisfactions of judgment from Owner's attorney. Such satisfactions of judgment shall be received within 45 days from the date of closing. Upon receipt of said satisfactions and payment to Owner's attorney Agent shall have no further responsibility under this agreement and shall refund the sums remaining in the Fund, less recording charges, to Owner's attorney.

In the event that the satisfactions of judgment are not received during the 45-day period, Agent shall deal directly with the judgment creditors to obtain satisfactions of judgment and shall make payment in full to the respective judgment creditors to satisfy the liens against the Property. In this event, Agent shall be entitled to receive from the Fund reasonable attorneys' fees and disbursements in connection with the satisfaction of the above judgments.

In the event that any sums remain in the Fund after payment of all judgments and payment of Agent's attorneys' fees, as provided in the preceding paragraph, the balance shall be returned by Agent to Owner's attorney, William H. Kissel, P. O. Box 1980, Lake Placid, New York 12946.

Owner agrees to indemnify and hold harmless Buyer and Agent for any losses or damages they may sustain or any liability they may incur by reason of holding or making payments from the Fund and to defend Buyer and Agent in any legal action brought against either of them arising from such payments. Provided, however, that this indemnity shall not extend to any payments made by Agent other than to satisfy judgments against the Property or payment of Agent's attorneys' fees as indicated above.

If your client accepts the terms of the above agreement, please have the appropriate officer sign where indicated below.

CLARK MINERALS, INC.

By: Joshua H. Bennett
Joshua H. Bennett, Jr.
President

Accepted:

CARBOLA CHEMICAL CO., INC.

By: Edward R. Smith

Date: 12-19-80

INSURANCE BINDER

THIS BINDER IS A TEMPORARY INSURANCE CONTRACT, SUBJECT TO THE CONDITIONS SHOWN ON THE REVERSE SIDE OF THIS FORM.

ACORD

Binding No.

NAME AND ADDRESS OF AGENT

Northland Agency, Ltd.
1116 Arsenal Street
Watertown, New York 13601

COMPANY

COMMERCIAL UNION ASSURANCE COMPANY

Effective 10:00 a.m. December 19 1980

Expires 12:01 a.m. 11:00 a.m. Feb. 19 1981

☐ This binder is issued to extend coverage in the above named company per expiring policy # (attach to policy)

NAME AND ADDRESS OF INSURED

CLARK MINERALS, INC.
P.O. Box 398
Natural Bridge, New York 13665

Description of Operation/Vehicles/Property

Ore Milling Operation

Type and Location of Property	Coverage/Perils/Forms	Amt of Insurance	Ded.	Comp %
Buildings and Contents located Route #3 and Old Harrisville Road Town of Diana, Lewis County, New York.	Blanket Fire, Extended Coverage, Vandalism & Malicious Mischief	\$1,150,000	\$100	80%

Type of Insurance	Coverage/Forms	Limits of Liability
☐ Scheduled Form ☒ Comprehensive Form		
☒ Premises Operations		
☒ Products Completed Operations		
☒ Contractual		
☒ Other (specify below)		
☐ Med. Pay. \$ Per Person \$ Per Accident		
☒ Personal Injury	☒ A ☒ B ☒ C	

Type of Insurance	Coverage/Forms	Limits of Liability
☒ Liability ☒ Non-owned ☒ Hired		
☐ Comprehensive-Deductible \$		
☐ Collision Deductible \$		
☐ Medical Payments \$		
☐ Uninsured Motorist \$		
☐ No Fault (specify)		
☐ Other (specify)		

☐ WORKERS' COMPENSATION - Statutory Limits (specify states below)	☐ EMPLOYERS' LIABILITY - Limit \$
--	--

SPECIAL CONDITIONS/OTHER COVERAGES

Including Owner's & Contractor's Protective Liability @ \$1,000,000.

NAME AND ADDRESS OF ☒ MORTGAGEE ☐ LOSS PAYEE ☐ ADDL INSURED

Carbola Chemical Co., Inc.
1106 State Street
Watertown, New York 13601

LOAN NUMBER

NORTHLAND Agency, Ltd.

Signature of Authorized Representative

12/19/80
Date

WILLIAM H. KISSEL, ESQ.
P.O. Box 1980
Lake Placid, NY 12946

518-523-4211

December 19, 1980

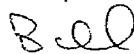
Paula Seifter, Esq.
Bond, Schoeneck & King
1 Lincoln Center
Syracuse, NY 13202

re: Carbola Chemical Co., Inc.
to Whittaker, Clark & Daniels
Inc.

Dear Paula:

As we discussed at the closing of the above matter today, I will, as attorney for the seller, take whatever action is necessary to remove the lis pendens which was recorded on March 25, 1975 in the Lewis County Clerk's Office. As you know, Mr. Parker has also agreed to take whatever action is necessary on this matter but in the unexpected event that he fails to do so within a time frame satisfactory to you, you have my commitment to take care of this matter.

Sincerely,



William H. Kissel

WHK:mas

STATEMENT OF SALE

Dated.....December 19, 1980

Seller.....Carbola Chemical Co., Inc. Buyer.....Whittaker, Clark & Daniels

No..... Street Avenue
Village
City or Town.....Diana..... County.....Lewis..... State.....New York

Purchase Price.....	\$ 415,000.00
Insurance Adjustment	\$
.....	\$
.....	\$
Fuel	\$
City Taxes (Adjusted).....	\$ 26.11
County and Town Taxes (Adjusted) $\$733.12 \div 365 = 2.1181 \times 13 =$	\$ 27.52
Village " "	\$
School " " $\$948.09 \div 365 = 2.5975 \times 256 =$	\$ 664.96
Fire " "	\$
.....	\$
Total Amount Due Seller	\$ 415,672.49

Credits to Purchaser:

Amount Paid Down	\$ 5,000.00
First Mortgage	\$ 255,000.00
Interest From.....To.....	\$
Second Mortgage	\$
Interest From.....To.....	\$
.....	\$
.....	\$

Village Taxes (Assumed)	\$
City Taxes (Assumed)	\$
County Taxes (Assumed)	\$
Local Assessment (Assumed)	\$
School Taxes (Assumed)	\$
Water	\$
Rents: (Pro-rated)	\$
.....	\$ 260,000.00

Balance Due Seller..... \$ 155,672.49

Paid as follows:

Sec Sch A..... \$ 54,691.31
..... \$ 91,054.21
..... \$ 63,636.86

Expense of Purchaser:

Recording Deed	\$ 15.00
Recording Mortgage	\$ 22.00
.....	\$
Mortgage Tax	\$ 25.00
.....	\$
Escrows	\$
.....	\$
Lender's Fees	\$
.....	\$
Services & Disbursements	\$

Expenses of Seller:

Continuing Search	\$ 63,156.36
Revenue Stamps, Deed	\$ 456.50
Closing Redate	\$
Recording Discharge of Mortgage	\$
Recording mortgage - immediate	\$
Recording mortgage - assignment	\$
Tax and Federal Search	\$ 10.25
.....	\$
Services	\$

Total \$

Total \$

Received payment this..... 19th day of..... 1980

Joshua H. Bennett Jr.

SCHEDULE 1

CARBOLA CHEMICAL CO., INC. - JUDGMENT CREDITORS
AND OTHER LIEN HOLDERS

R	Gateway Equipment Corporation.....	571.14
R	Owens Illinois, Inc.....	1,212.54
R	Strathmore Products, Inc.....	125.00
R	Athea Laboratories, Inc.....	821.70
R	M. Berger Company.....	541.80
R	Hungerford-Holbrook, Co.....	148.73
R	Byrns Motor Express.....	554.20
R	Giles, Maloney, Marsh, Swartz & Goodwin.....	992.30
R	Frank Miller & Sons, Inc.....	295.40
R	Niagara Mohawk Power Corporation.....	3,940.48
R	Niagara Mohawk Power Corporation.....	3,794.00
R	James Huggins & Son, Inc. 3/15/76 \$1,992.10.....	996.05
R	FMC Corporation 12/14/77 \$866.93.....	866.93
R	Smith Transport (US) Ltd. 3/23/79 \$983.18.....	983.18
R	Ogdensburg Electric Supply, Inc. 9/17/80 \$614.66.....	614.66
R	INTERNATIONAL PAPER 12/8/78 \$2,365.43.....	2,365.43
R	New York State Industrial Commissioner.....	19,161.48
R	Internal Revenue Service.....	1,672.64
R	Franchise Tax Warrants 1974, 1977, 1978.....	727.18
R	Franchise Tax 1978.....	644.20
R	Franchise Tax 1979.....	1,984.17
R	Sales Tax - Past Due.....	1,388.85
R	Sales Tax - Withholding Tax Warrant 1978.....	
R	Sales Tax - Bulk Sales.....	1,478.80
R	Real Estate Taxes.....	365.54
R	Small Business Administration.....	4,855.25
R	Jefferson National Bank.....	45,087.29
R	Jefferson National Bank.....	15,721.86
R	155,672.49	64,618.28
R	91,054.21	20,000.00
R	64,618.28	44,618.28
R	Withholding Tax 12/1/80	77.60
R		84.26
R		91,054.21

<u>Sample,</u>	<u>No. of Fibers With R.I. Greater Than 1590</u>	<u>No. of Fibers With R.I. Less Than 1574</u>	<u>Status With Regard to Pro- posed FDA Method</u>
<u>Dr. John A. Reffner (U. of Conn.) for Avon Cont'd</u>			
Montana-Pfizer	0	5,844	Fails chrysotile Passes tremolite
Montana-Ferry	13	9,281	Fails chrysotile Passes tremolite
Alabama	26	15,125	Fails chrysotile Passes tremolite
Vermont	41	165	Fails chrysotile Passes tremolite
No. Carolina	14	11,852	Fails chrysotile Passes tremolite

<u>Dr. Tryggve Baak of United Sierra</u>			
Spiked	3,000	2,000	Fails
Italian	1,000	0	Passes
Montana-Pfizer	0	0	Passes
Montana-Ferry	0	0	Passes
Alabama	0	0	Passes
Vermont	0	0	Passes
No. Carolina	500	0	Passes

<u>Richard E. Stevens of Ernest F. Fullam, Inc. for Whittaker C&D</u>			
Italian	8,250	1,350	Fails chrysotile & tremolite
Montana-Pfizer	18,000	450	Fails chrysotile & tremolite
Montana-Ferry	29,250	5,200	Fails chrysotile & tremolite
Alabama	21,825	6,075	Fails chrysotile & tremolite
Vermont	3,225	675	Fails chrysotile & tremolite
No. Carolina	20,850	6,000	Fails chrysotile & tremolite

Spiked sample was not run.



CF-BALL-9

<u>Sample</u>	<u>No. of Fibers With R.I. Greater Than 1590</u>	<u>No. of Fibers With R.I. Less Than 1574</u>	<u>Status With Regard to Pro- posed FDA Method</u>
<u>Mrs. Lucy McCrone of McCrone Associates for Kolmar</u>			
Italian	53	0	Passes
Montana-Pfizer	0	0	Passes
Montana-Ferry	0	0	Passes
Alabama	0	0	Passes
Vermont	0	0	Passes
*No. Carolina	0	0	Passes
Spiked Sample	488	16	Passes

*Sample noted to contain some fiber bundles which are rolled up talc plus some non-fibrous tremolite

The following participants examined their samples but were unable conscientiously to count particles with confidence, therefore, did not report numbers:

Miss Marie Jones for Dr. G. Cohen - Bristol-Myers Products Research Labs.
Mr. Salvatore DiBianca - The Mennen Company
Liberty Mutual Insurance Co., Research Center - for Kolmar Laboratories
Mr. John Facq - The Colgate Palmolive Company, Research Center

The table reveals strong inconsistency between results obtained by the different scientists applying the method to the same group of coded talc samples. This inconsistency is the result of problems encountered in the methodology.

1. The alpha refractive index of talc - one of the two indices exhibited by talc plates standing on edge - varies in value between 1.539 and 1.550¹. This in combination with item 2, below, may easily result in the mis-classification of such plates as "fibrous, less than 1.574" and therefore chrysotile.

Dr. Reffner of the University of Connecticut, in his report to Avon, admits that this factor is paramount - "counts for chrysotile are high since (talc) edges will often be mistaken for fibrous particles".

2. The immersion method for the determination of relative refractive index becomes unreliable when applied to extremely small (ca. 1 μ m) particles. This is due in part to the fact that particles around 1 μ m in width approach the limit of resolution of the human eye when both size and contrast are considered, especially when applying the Becke line technique prescribed. This will

2. cause eye fatigue and resulting errors. Thus, a fine talc shard or plate on edge may be easily mistaken for an asbestos fiber. This applies to both the chrysotile and amphibole portions of the test.
3. It is quite likely that chlorite - a mineral of varied composition commonly found in pharmaceutical grade talc - would be incorrectly identified as tremolite. Refractive indices for chlorite vary in the range 1.57-1.66².
4. The examination of a sample of one milligram dispersed on a single microscope slide presents the investigator with a preparation which is too dense for a petrographic study.
5. The method is laborious and time consuming. Dr. Reffner quotes an analysis time of about five hours per sample and at JOHNSON & JOHNSON the investigator (D. H. Hamer) estimated at least two or three hours.
6. Dr. Walter C. McCrone in an earlier letter to the FDA suggested that there were relatively few scientists in the country who could use the method effectively. Scientists at Bristol-Myers, The Mennen Company, Liberty Mutual and Colgate-Palmolive had great difficulty in following the method to conclusion.
7. The proposed FDA method implies that all fibrous particles in talc having optical properties similar to those of asbestos minerals are in fact asbestos. This is probably an unwarranted assumption.

REFERENCES:

1. Deer, W.A., Howie, R.A., and Zussman, J., Rock-Forming Minerals, Vol. 3, p. 121 (1962).
2. *ibid*, p. 131.

We have concluded that the method published in the Federal Register does not provide a truly reliable means for the detection of asbestos in talc. It results in both false-positive and false-negative findings. It is also tedious and may consume as much as one half day per sample.

The subcommittee urges that the Food and Drug Administration defer finalizing the proposed optical microscopic method and proceed into a Phase II program which would combine FDA and Industry in a strong effort to develop a truly reliable method for measuring chrysotile content in talc. We are confident that the detection and estimation of fibrous tremolite can also be done, if necessary, as a fringe benefit, at the same time.

We estimate that a satisfactory method will take at least six months to a year to develop. We suggest a close liaison between FDA and industry in this all-out effort with updating reviews to take place as frequently as necessary.

Review of Alternate Methods

The CTFA Talc Subcommittee has reviewed several methods to detect chrysotile and tremolite in talc, including modifications of the optical microscopic method. These are listed with comments.

1. Optical Microscopic Method -- may be used with some modification. Possibly better selection of R.I. liquids and reduction of sample size per slide.
2. X-ray Step Scanning -- A good method for detecting tremolite if we could accept about 0.2% as the threshold of detection. It does not distinguish fibrous from non-fibrous tremolite. The simultaneous detection of chlorite makes method impractical for chrysotile. X
3. X-Ray Step Scanning + Optical Microscopy -- Acceptable as in #2 above but the optical method continues to present the dilemma in reliable identification of chrysotile. However, this does not rule out a major revision of the optical method to do the chrysotile identification and counting.
4. X-Ray Scanning -- The problem of chlorite interference in the detection of chrysotile is present in all x-ray procedures thus far available. It is reliable for the detection of 1% tremolite (both fibrous and non-fibrous).
5. Differential Thermal Analysis -- This procedure is capable of detecting chrysotile at the 1% level, however, it will not detect tremolite.
6. Scanning Election Microscopy -- This procedure is not capable of identifying asbestos. Even with energy dispersive analysis, completely satisfactory identification is not possible.
7. Transmission Electron Microscopy + Electron Diffraction -- This appears to offer the best, most reliable method and is probably capable of detecting chrysotile and tremolite (fibrous), both at a level of 0.1%. It is estimated that an installation would cost about \$130M +, and is obviously prohibitive for the small manufacturer who uses talc. The amount of talc sample examined by this procedure is miniscule.

Summary

The CTFA Talc Subcommittee has completed its review of the Optical Microscopic Method for the Estimation of Chrysotile and Fibrous Tremolite in Talc, which appeared in the Federal Register, vol. 38 (No. 188), (p. 27076, September 28, 1973). It recommends postponement of the finalization of the proposed regulation on talc. In addition, a collaborative effort between FDA & industry to resolve a satisfactory method of estimating chrysotile and tremolite in talc, is recommended, with periodic liaison reviews to monitor the project status. A task force of industry experts has been designated to pursue alternate methods. We invite FDA to participate in collaboration with the task force.


George W. Sandland
Chairman CTFA Talc Subcommittee

GWS:dd

MEMBERSHIP LIST - CTFA TALC SUBCOMMITTEE

G. W. Sandland, Chairman (SAC)
Bristol-Myers Products

Dr. DeWitt Petterson
Johnson & Johnson Research Center

Dr. Murray Berdick (SAC)
Chesebrough-Ponds, Inc.

Dr. Robert Rolle
Johnson & Johnson Research Center

Dr. George Cohen
Bristol-Myers Products

Mr. Fred Roesch
Whittaker, Clark and Daniels

Dr. Christopher Costello
Colgate-Palmolive Company

Dr. Charles Rowland (SAC)
Avon Products, Inc.

Mr. Salvatore DiBianca
The Mennen Company

Dr. Harold Schwartz (SAC)
The Mennen Company

Mr. John Pacq
Colgate-Palmolive Company

Dr. Joseph Simko
Colgate-Palmolive Company

Mr. David Hamer
Johnson & Johnson Research Center

Mr. Harold D. Stanley, Jr.
Pfizer

Mr. Alan M. Harvey
R. T. Vanderbilt, Inc.

Mr. Wallace Steinberg (SAC)
Johnson & Johnson

Mr. Ray R. Krammes
Whittaker, Clark and Daniels

Dr. John Travers
Avon Products, Inc.

Mr. Adolph Maruszewski (SAC)
Kolmar Laboratories, Inc.

Dr. C. S. Thompson
R. T. Vanderbilt, Inc.

Mr. Louis D. Murino
United Sierra

Mr. Ronald Yakupcin
Kolmar Laboratories

December 11, 1973

The Cosmetic, Toiletry and Fragrance Association, Inc.

1625 EYE STREET, N.W., WASHINGTON, D. C. 20006 202/393-2070

James H. Merritt
President

Norman F. Estrin, Ph.D.
Vice President—Science

October 11, 1973

MINUTES

CTFA SUBCOMMITTEE OF SAC ON ASBESTOS IN TALC

The first meeting of the CTFA Subcommittee of the Scientific Advisory Committee, on Asbestos in Talc, was held on October 4, 1973 at the Colgate Palmolive Research Center, Piscataway, N.J. Those in attendance were:

Mr. George Sandland, Bristol-Myers Products (Chairman)
Dr. Murray Berdick, Chesebrough-Ponds, Inc.
Dr. George Cohen, Bristol-Myers Products
Dr. Christopher Costello, Colgate Palmolive Company
Mr. Salvatore Di Bianca, The Mennen Company
Mr. John Facq, Colgate-Palmolive Company
Dr. David Hamer, Johnson & Johnson
Mr. Ray R. Krammer, Whittaker, Clark and Daniels
Dr. DeWitt Petterson, Johnson & Johnson
Dr. Robert Rolle, Johnson & Johnson
Mr. Fred Roesch, Whittaker, Clark and Daniels
Dr. Joseph P. Simko, Jr., Colgate-Palmolive Company
Dr. John Travers, Avon Products, Inc.
Mr. Ronald Yakupcin, Kolmar Laboratories, Inc.

The meeting began with a discussion of the optical microscopic method for detecting asbestos in talc, which was published in the Federal Register of September 28, 1973.

The method, as written, is not completely reliable and discriminatory, since fibers other than chrysotile might fall within the critical range of refractive indices used. Cellulose fibers, for instance, would be counted according to the method guidelines.

It is estimated by at least two academic sources, that the running of a single sample would take at least six hours for a count and a tentative identification. The tedium effect on the person counting is obvious.

Several experts including Walter McCrone agree that there are probably a total of 20 microscopists in the United States who would be sufficiently qualified to do the analysis.

CTFA SUBCOMMITTEE OF SAC ON ASBESTOS IN TALC

It was generally agreed that with some modification the methodology could be strengthened to yield a more reliable identification and measurement.

A major consideration in the method is the extremely small sample, one milligram in size, which one must pore over for several hours, then based on the nature of this miniscule sample, make a judgment on a 20 ton lot. Bearing in mind the fact that most talc is produced by a continuous process, the reliability of a one milligram sample is poor, even if taken from a composite of several samples, since homogeneity of the sample is extremely difficult to achieve without changing fiber length.

A discussion of the step scanning X-ray diffraction procedure followed with a description by Joseph Simko of the method which was developed at Colgate. In contrast to optical microscopy, the X-ray method has a lower limit of detection of 0.5%. It is considerably more reliable for discriminating chrysotile and tremolite and uses a 500 milligram sample, thus providing much greater statistical assurance that the sample is representative. It takes about 3 hours to run including manual computation of results.

It was agreed that we run a "round robin" test using six samples of talc from several sources in the United States and including Italian talc. Bob Rolle agreed to furnish a set of samples which will be "seeded" with tremolite and chrysotile using a special technique to assure homogeneity. These are intended to assist in optical recognition and to estimate reproducibility of procedure.

The following eight volunteered to test (or have tested) samples by optical microscopy (Fed. Reg. 9/28/73) and those designated by asterisk will also test by the X-ray diffraction step scanning method used by Colgate.

Dr. Murray Berdick, Chesebrough Ponds
Dr. George Cohen, Bristol-Myers Products
*Dr. Christopher Costello, Colgate-Palmolive Company
Mr. Salvatore diBianca, The Mennen Company
*Dr. DeWitt Petterson, Johnson & Johnson
Mr. Fred Roesch, Whittaker, Clark and Daniels
Dr. John Travers, Avon Products, Inc.
Mr. Ronald Yakupcin, Kolmar Laboratories, Inc.

George Sandland will prepare, code and distribute the samples to the above list of persons.

It was also agreed that George Cohen will contact Pfizer to encourage participation in the work of the Committee.

CTFA SUBCOMMITTEE OF SAC ON ASBESTOS IN TALC

The Committee wishes to approach the evaluation of the FDA proposed optical microscopic with an open mind and recommends withholding the critical commenting in these notes until a fair evaluation through the "round robin" is completed.

Following the meeting, several members of the Committee visited the instrument facilities at Colgate to see the X-ray and optical units.

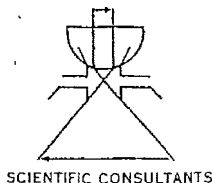
We wish to thank Dr. Costello and Colgate for permitting us to use their facilities for this meeting. Dr. Costello also offered to accommodate us for future meetings.

Respectfully submitted to the
Scientific Advisory Committee,

George W. Sandland
George W. Sandland, Chairman

GWS:dd

cc: P. Reisberg - Carter Products



ERNEST F. FULLAM, INC.

ELECTRON MICROSCOPY · DIFFRACTION · MICROPROBE ANALYSIS

P. O. BOX 444 · SCHENECTADY, NEW YORK 12301 · 518/785-5533

Fullam
Moore
COPY

October 16, 1973

Mr. Ray R. Krammes
Manager-Technical Services
Whittaker, Clark and Daniels, Inc.
1000 Coolidge Street
South Plainfield, New Jersey 07080

Ref: Request for quotation, October 11, 1973

Dear Ray:

Regarding your telephone conversation with Ernie on October 11 and your subsequent correspondence, we are definitely interested in analyzing talc samples for asbestos. Our charge for this work would be \$50.00 per sample, based on the official procedure described in the Federal Register (v. 38, no. 183, pg. 27080). The results would be described in terms of two parameters: the number of chrysolite fibers/mg. and the number of amphibole type fibers/mg.

As you know, it is often difficult to prove the identity of fibrous material by light microscopy, particularly if two or more particles have nearly identical refractive indices or are not clearly resolved at a magnification of 430 times. Electron microscopy and diffraction of the suspect particles may be required to positively identify specific types of asbestos. There would be an additional charge of \$100 per sample for the electron optical characterization of particles in each sample (qualitative information only).

It was good to hear from you again, and to find that you are still involved with microscopy. Drop me a note if you have time.

With best regards,

ERNEST F. FULLAM, INC.

Dick

Richard E. Stevens
Scientist

RES:jbc

File

Asbestos in Talc

October 11, 1973

Ernest F. Fullam Associates
P. O. Box 444
Schenectady, New York

Attention: Dr. Fullam

Gentlemen:

As per phone conversation on October 11, I have enclosed a copy of a proposed method for the optical microscope determination of asbestos in talc. Please examine this method and let us know whether you would be interested in examining samples of Talc and what your charges would be per sample.

Thank you for your cooperation in this matter.

Very truly yours,

WHITTAKER, CLARK & DANIELS, INC.

Ray R. Krammes
Manager - Technical Services

RRK/mw
Enclosure

#15

6

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 INVESTIGATORS ON ANALYSIS OF COMMERCIAL COSMETIC TALC PRODUCTS FOR ASBESTOS MINERALS

SAMPLE #	PRODUCT NAME & MFG.	CODE	CHRYSTILE				TREMOLITE			
			S.Z. Lewin	A.E. Schulze	Pfizer	Columb. Sci.	(A)*	(B)*	(C)*	(D)
			X-Ray Diff. (A)*	Opt. Micros. (B)*	X-Ray Diff. (C)*	Diff. Therm. Ana. (D)*				
63	Beloved Perfumed Dtg. Pwdr, Prince Matchabelli, (Chesebrough-Ponds)	-	n.d.	-	-	-	5%	n.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.)	-	-	-	-	-	3%	-	-	-
77	Touch & Glow Face Pwdr., Creamy Peach, (Revlon)	-	n.d.	-	-	-	3%	s.a.	-	-
78	Toujours Moi Bath Pwdr., (Corday)	-	n.d.	-	-	-	5%	n.a.	-	-
82	Constance Carroll, Bouquet,	-	5%	n.d.	-	-	1%	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	Landier Lilacs & Roses Talc,	-	5%	-	-	-	n.d.	-	-	-
92	Mavis Talcum, (Vivaudou)	-	5%	±	-	-	5%	l.a.	-	-
93	Mavis Body Pwdr., (Vivaudou)	-	4%	-	-	-	5%	l.a.	-	-
94	Trancee, (Lift-Tangee)	-	±	n.d.	n.d.	±	4%	l.a.	1.9%	-
95	ITF Baby Pwdr,	B0048	3%	-	-	-	3%	-	-	-

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SAMPLE #	PRODUCT NAME & MFG.	CODE	CHRYSTOTILE				TREMOLITE			
			S.Z. Lewin X-Ray Diff. (A)*	A.E. Schulze Opt. Micros. (B)*	Pfizer X-Ray Diff. (C)*	Columb. Sci. Diff. Therm Ana. (D)*	(A)*	(B)*	(C)*	(D)
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%	-
101	Tai Winds Spray Talc, (Avon)	-	n.d.	-	-	-	15%	l.a.	-	-
102	Tosca Dtg. Pwdr.	-	7%	n.d.	-	-	10%	l.a.	-	-
108	Ravlon Intimate Perfumed Bath Pwdr.	241	n.d.	-	-	-	2%	-	-	-
109	Jean Nate' Bath Pwdr., (Lanvin-Charles of the Ritz)	2137	+	-	-	-	2%	-	-	-
111	Old Spice Body Talc, (Shulton)	MFO	n.d.	-	-	-	1%	-	-	-
120	Vaseline Intensive Care, (Chesebrough-Ponds)	-	tr	-	-	-	tr	-	-	-
131	Johnson & Johnson Medicated Pwdr. (Johnson & Johnson)	-	n.d.	-	-	-	tr	-	-	-
143	Pir-Low Talque, (Perfection Beauty Products)	-	10%	-	-	-	5%	-	-	-
144	Overton's "High-Brown" Face Pwdr.	-	+	-	-	-	5%	-	-	-
145	Softex Face Pwdr.	-	2%	-	-	-	n.d.	-	-	-
148	Lady Wayne Face Pwdr.	-	n.d.	-	-	-	2%	s.a.	-	-
149	Solitaire Cake Makeup	-	+	-	-	-	8%	-	-	-
154	Bisroline Medicated Pwdr.	-	n.d.	-	-	-	2%	s.a.	0.5%	-

New York University

Department of Chemistry
4 Washington Place, Room 410
New York, N.Y. 10003
Telephone: (212) 598-3427

ATTACHMENT TO TABLE I

Memorandum to: Dr. George Thompson
Food and Drug Administration

From: S. Z. Lewin
Chemistry Department, New York University

Re: Determination of Asbestos Contents of Commercial Talcum Powders

This will serve to summarize the main points of our discussion on this date of July 10, 1973 with respect to the factors involved in the detection and estimation of asbestos in talc, and the status of the tabulation of results of the analyses of commercially available consumer products containing talcum powder.

My research group has been engaged in studies of talc and its accessory minerals continuously since July 1971, and we are continuing to work in this field. We have undertaken to investigate the following problems:

A. Tabulation of the x-ray diffraction data for talc and all solid phases (whether naturally occurring, or added in the course of processing) encountered with talc in mineral, industrial, cosmetic and pharmaceutical products.

B. Elucidation of the x-ray diffraction spectrum (i.e., precise locations and relative intensities of peaks and variability thereof) of chrysotile. Assignment of the diffraction peaks to the crystal planes responsible for them, and interpretation in terms of crystallography of the effects of grinding, orientation, and sample preparation.

C. Investigation of the chemical properties of chrysotile, antigorite, chlorite, tremolite, and talc; specifically, measurement of the rates of hydrolytic and ion replacement reactions.

D. Microscopy, both optical and electron, of chrysotile and of talcs containing various accessory minerals, including chrysotile and tremolite.

E. Measurement of the degree of enrichment, due to air elutriation, of asbestos in the lightest fractions of the dust from commercial talcs.

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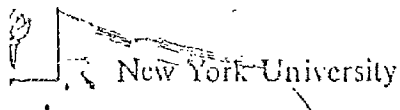
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(OVER)

F. Development of a method based on the combination of x-ray diffraction, chemical reactivity, and microscopy for the estimation of the chrysotile and tremolite contents of consumer products (these two being the only asbestiform minerals encountered in all the American products examined so far, with only one possible exception), and application of the method to the analysis of about 200 standard store-purchased specimens.

G. Investigation of alternative analytical methods, viz., differential thermal analysis and density gradient centrifugation, as alternative or supportive techniques.

Our results to date support the following conclusions:

1. The chrysotile that is found in commercial talcs is generally different in significant respects from the chrysotile that occurs as massive, fibrous growths 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 exotherm are shifted relative to those of the latter (and apparently diminished).

2. The presence of chrysotile as a minor constituent in talc may be established with reasonable certainty on the basis of (a) the presence of x-ray diffraction peaks in the vicinity of 7.23 to 7.43 Å and 3.59 to 3.65 Å, (b) the pronounced weakening or complete disappearance of these peaks upon treatment-upon-treatment of the specimen with 1 M HCl at 80°C for 1 hour, (c) the presence of fiber bundles of visible size under 250× or higher magnification in the optical microscope which show a refractive index of about 1.54 (these fiber bundles may be short and straight, and may be coated with a bumpy encrustation of MgC_2O_3 , or may be embedded in talc or other particles), and (d) the presence of fibers under the electron microscope which yield an electron diffraction pattern that corresponds in d-values to those found in the x-ray diffraction pattern (these fibers typically do not have a hollow central capillary running through them).

3. The concentration of chrysotile in a talc may be estimated by measuring the area under the x-ray diffraction peak at about 7.3 Å relative to that of an internal standard. The best internal standard

is calcium oxalate monohydrate (peak at 5.83 Å).

4. The quantitative results are conditioned by the fact that segregation effects in talc powders are considerable; the analytical method gives a reproducibility of ± 2 to 3% average deviation in replicate determinations on the same sample, but different samples from the same bulk container are found to vary by as much as 200%.

5. The quantitative results are further complicated by the fact that antigorite gives an x-ray pattern that is indistinguishable from that of chrysotile. The HCl treatment specified above does not affect ground antigorite, but it is not yet known whether antigorite, if it occurs in talc, has the same chemical reactivity as the ground material from massive antigorite, or whether (like chrysotile) its properties may be variable depending upon the rock matrix in which it is found.

6. Subject to the qualifications inherent in the above, we have obtained quantitative estimates of the chrysotile contents of about 200 commercial talcum powder specimens. We have also determined the contents of the other minerals in these products, including tremolite, quartz, chlorite, dolomite, and others. There is no ambiguity in the identification of these latter species, but the quantitative results for these are also affected by the segregation problem, which is most serious for those constituents present in the smallest amounts.

7. Most of the commercial talcs tested are free of any detectable amount of any of the asbestiform minerals, according to the criteria enumerated above. Thus, there appears to be an adequate supply of talc for which there is no ambiguity about the absence of chrysotile or tremolite. In about 10% of the samples tested, there appear to be definitely detectable amounts of either chrysotile or tremolite present

L. J. Levin

(OVER)

TABLE IV

KEY TO SAMPLE NUMBERS OF COSMETIC TALCUM-TYPE POWDERS

<u>SAMPLE NO.</u>	<u>PRODUCT NAME</u>	<u>FURTHER IDENTIFICATION</u>
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 (L113)
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 (E1030)
17	Dorothy Gray "Secret Of The Sea" Dusting Powder	
18	Emeraude Talcum Powder	Coty (355-4010)
19	English Leather	Mem
20	Faberge "Music" Dusting Powder	(2891)
21	Friendship Garden Dusting Powder	Shulton (3/27/72)
22	Friendship Garden Dusting Powder	Shulton (5/9/72)
23	Friendship Garden Dusting Powder	Shulton (7/13/72)

SAMPLE NO.	PRODUCT NAME	FURTHER IDENTIFICATION
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	
29	Johnson's Baby Powder	(028Q)
30	Johnson and Johnson Medicated Powder	(3612)
31	Koscot Beauty Dust--Oil of Mink	
32	Lanvin Arpege Dusting Powder	(1288)
33	<u>Lanvin Arpege Powdered Mist</u>	
34	Lanvin Arpege Talc	
35	Lewis Baby Powder	
36	Loves Fresh Lemon Glossy Powder	2. <i>Manley & James</i>
37	Macy's Scented Borated Talcum	2. <i>Manley & James</i>
38	Macy's Talcum, Apple	(2K4)
39	Marcelle Dusting Powder, Hypo-Allergenic	
40	Mary Chess Perfumed Dusting Powder	
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	<u>Persian Lilac Deluxe Dusting Powder</u>	<i>5/16/60</i> April Showers (LFN)
47	<u>Persian Lilac Spray Bath Powder</u>	<i>26. 1/20/60</i> April Showers (B200B)
48	<u>Pond's Perfumed Talc Body Deodorant Dream Flower</u>	(115B) <i>2/2/60</i>
49	Prince Matchabelli Beloved Spray Powder	

(OVER)

SAMPLE NO.	PRODUCT NAME	FURTHER IDENTIFICATION
50	Quest Deodorant Powder	
51	Replique Spray Bath Powder	Parfums Raphaël (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	(F1021)
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	Fabergé Flambeau Deodorant Spray Powder	(37 WBF)
69	Jean Naté 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)

<u>SAMPLE NO.</u>	<u>PRODUCT NAME</u>	<u>FURTHER IDENTIFICATION</u>
* 76	To Know Me Is To Love Me - Tinkerbelle	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 (11F)
81	Cashmere Bouquet	
82	Jean Naté Talc	(on 345)
83	Mennen Shave Talc	(B 81)
84	Shower To Shower Body Powder	Johnson & Johnson (5507EG)
85	Pure Baby Powder, Dart Drug	(K 11C)
86	Pond's Dream Flower Perfumed Talc	(O 13D)
87	Almay Hypo-Allergenic Face Powder	
* 88	Constance Carroll, Bouquet Talc	
* 89	Djer-Kiss Talcum	Kerkoff <i>Nesto L-1002</i>
* 90	Flamingo Dusting Powder, Tussy	(L1047)
* 91	Lander Lilacs And Roses Talc	
* 92	Mavis Talcum	Vivaudou <i>nestle L-1002</i>
* 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

(OVER)

<u>SAMPLE NO.</u>	<u>PRODUCT NAME</u>	<u>FURTHER IDENTIFICATION</u>
* 102	Tosca Dusting Powder	
103	Coty L'Aimant Talcum Powder	(1JJ)
104	Coty Emeraude Talcum Powder	(01A)
105	Coty L'Aimant Dusting Powder	(1M)
106	Coty Imprévu Dusting Powder	(1DE)
107	Coty Muguet des Bois Dusting Powder	(2DO)
* 108	Revlon Intimate Perfumed Bath Powder	(241)
* 109	Jean Naté Bath Powder	Lanvin - Charles of the Ri (2137)
110	Jean Naté Spray Bath Powder	Lanvin - Charles of the Ri (2103)
* 111	Old Spice Body Talc	Shulton, Inc. (MFO)
112	Dr. Scholl's Foot Powder	(20517)
113	Faberge Xanadu Luxury Bath Powder Spray	(Y1)
114	Faberge Zizanie de Fragonard	(2132) Ref. 61159-019
115	Faberge Tigress Bath Powder	Ref. 2052-003
116	Faberge Woodhue for Men	Ref. 5027 (0252)
117	Faberge Brut for Men Shower Buff All-Over Body Powder	Ref. 5400
118	Faberge Talc	(raw material: from France)
119	Faberge Aphrodesia Bath Powder	Ref. 2052 (2172)
120	Faberge Straw Hat Bath Powder	
121	Faberge Aphrodesia for Men Shower Buff	Ref. 5027
122	Faberge Xanadu de Luxe Bath Powder	Ref. 1244-028 (2342)
123	Faberge Woodhue Bath Powder	Ref. 2052-002
124	Faberge Music Dusting Powder	Ref. 0714-018 (3121)
125	Faberge Flambeau Bath Powder	Ref. 2052 (3471)

<u>SAMPLE NO.</u>	<u>PRODUCT NAME</u>	<u>FURTHER IDENTIFICATION</u>
126	Mennen Baby Magic	
127	Walgreen's Crib Age	
128	Caldesene Medicated Powder	
129	Desiten	
*130	Vaseline Intensive Care <i>100% Vaseline</i>	
131	Johnson and Johnson Medicated Powder	
132	Johnson Baby Powder	
133	Johnson's Baby Powder	(108T)
134	Johnson's Baby Powder	(109T)
135	Johnson and Johnson Medicated Powder	(0452K)
136	Johnson and Johnson Shower to Shower Body Powder	(C 512Z)
137	Johnson and Johnson Shower to Shower Body Powder	(0709X1)
138	Johnson and Johnson Shower to Shower Body Powder	(0872K)
139	Avon Brocade Spray	(31602)
140	Avon Bird of Paradise Spray	(B1652)
141	Avon Tai Winds Spray Talc	(4065)
142	Mennen Bath Talc	(A308)
*143	Pin-Zow Talque <i>57 Wm. L. ...</i>	Perfection Beauty Product Inc., Pearl River, N.Y.
*144	Overton's "High-Brown" Face Powder <i>57 Wm. L. ...</i>	
*145	Softee Face Powder <i>29% ...</i>	
146	Westport Face Powder	
147	Hazel Bishop Pressed Powder	
*148	Lady Wayne Face Powder <i>1 ...</i>	
*149	Solitaire Cake Makeup <i>5 ...</i>	
150	Dreamglo Pressed Powder	

(OVER)

<u>SAMPLE NO.</u>	<u>PRODUCT NAME</u>	<u>FURTHER IDENTIFICATION</u>
151	Early American Old Spice Talcum Powder	
152	Corsage Dusting Powder	Lander
153	Ammens Powder, Medicated	
* 154	Bismoline Medicated Powder <i>10 1/2 oz. jar</i>	
155	Rite Aid Pure Baby Powder	
* 156	Warner Pure Baby Powder <i>2. 1/2 oz. jar</i>	
* 157	Mavis Imported Talcum <i>6 1/2 oz. jar</i>	
158	Avon Brocade Perfumed Talc	
159	Avon Blue Lotus Perfumed Talc	
160	Avon Beauty Dust Refill - Charisma	
161	Avon Elusive Beauty Dust Refill	
162	Avon Régence Perfumed Talc	
* 163	Pinaud Clubman Talc <i>10 1/2 oz. jar</i>	
* 164	Grand Union Baby Powder <i>1 1/2 oz. jar</i>	(101672)
165	Cashmere Bouquet	(4212DX) (Supplied by Mfg.)
166	Almay Face Powder, Soft Beige	(List No. 719, Lot 201, Supplied by Mfg.)
* 167	Tawny Tone Body Talc From Black Heritage <i>2 1/2 oz. jar</i>	(Beauty Mustus, Inc. Greenwich, Conn.)
168	Colgate Tooth Powder	
169	Dr. Lyon's Tooth Powder	
* 170	"C" Bouquet Talc. <i>8 oz. jar</i>	(Winarick, Inc. Distr. by F. W. Woolworth)(2662)
171	Tangee Dusting Powder	(George W. Luft Co.)(2762)
* 172	Jeris Talc <i>2 1/2 oz. jar</i>	(Winarick) (2732)
173	Corsage Dusting Powder	(Lander Co.)
174	Lander Gardenia & Sweet Pea Deodorant Body Talc	

SAMPLE
NO.

PRODUCT NAME

FURTHER IDENTIFICATION

175	Lander Baby Powder	
176	Lander Lilac & Roses Body Talc	
177	Beloved Perfumed Dusting Powder	Prince Matchabelli (235A)
178	Jean Naté Talc No. 60	(2264)
179	Jean Naté Spray Bath Powder	(2101)
180	Tinkerbell Body Talc	(Tom Fields, Ltd., Div. of MEM)
181	Yardley Sigh Shadow Brush-On Eye Shadow	Ref. No. 721
182	Max Factor Face Powder, Rachelle	(Supplied by Mfgr.)
X 183	Tweed Bath Powder, Lenthéric / <i>1/2 lb</i>	(Yardley) (44)
X 184	Yardley Next to Nature Sheer Pressed Powder <i>3/4 lb</i>	(A2)
185	Yardley April Violets Dusting Powder	(162)
186	Yardley Red Roses Dusting Powder	(165)
X 187	Yardley Springflowers Talc <i>3/4 lb</i>	(260)
188	Yardley White Lavender Talc <i>1/2 lb</i>	(271)
X 189	Yardley Red Roses Talc <i>1/2 lb</i>	(214)
190	April Showers Deodorant Talc	Ref. No. 9882
191	Chantilly Houbigant Dusting Powder	(2JBB)
192	Tinkerbell Dusting Powder	(Tom Fields, Ltd.)
193	Tinkerbell Powder Mitt	(Tom Fields, Ltd.)
194	Tinkerbell Dusting Powder	(Tom Fields, Ltd.)
195	Tinkerbell Body Talc	(Tom Fields, Ltd.)

(OVER)

TABLE 1

FINAL REPORT

X-RAY POWDER DIFFRACTION ANALYSES OF COMMERCIAL COSMETIC POWDERS

Sample	Talc	Chlorite	Pyrogo- pate	a- Quartz	Dolo- mite	Calcite	Trem- olite	Chryso- talo	Other Species
1	70%	3%	7%	n.d.	n.d.	n.d.	n.d.	n.d.	
2	100%	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	
3	99%	n.d.	1%	n.d.	n.d.	n.d.	n.d.	n.d.	
4	100%	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	
5	95%	2%	3%	n.d.	n.d.	n.d.	n.d.	n.d.	
6	80%	2%	5%	n.d.	n.d.	n.d.	n.d.	n.d.	CaUndec
7	86%	7%	2%	3%	2%	n.d.	n.d.	?	
8	95%	2%	3%	n.d.	n.d.	n.d.	n.d.	n.d.	
9	89%	7%	2%	2%	n.d.	n.d.	n.d.	n.d.	
10	93%	3%	2%	2%	n.d.	n.d.	n.d.	n.d.	
11	90%	2%	2%	4%	2%	n.d.	n.d.	n.d.	
12	100%	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	
13	60%	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	ZnUndec
14	31%	50%	2%	10%	7%	n.d.	n.d.	n.d.	
15	100%	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	
16	--	--	--	--	--	--	--	--	Kaolin, Stark
17	60%	30%	4%	n.d.	6%	n.d.	n.d.	n.d.	
18	90%	4%	2%	2%	2%	n.d.	n.d.	n.d.	
19	97%	1%	2%	n.d.	n.d.	n.d.	n.d.	n.d.	
20	35%	60%	1%	4%	n.d.	n.d.	n.d.	n.d.	
21	67%	25%	2%	3%	3%	n.d.	n.d.	n.d.	
22	59%	35%	1%	n.d.	5%	n.d.	n.d.	n.d.	
23	42%	50%	2%	3%	3%	n.d.	n.d.	?	
24	94%	1%	2%	3%	n.d.	n.d.	n.d.	n.d.	
25	95%	2%	3%	n.d.	n.d.	n.d.	n.d.	?	
26	95%	1%	4%	n.d.	n.d.	n.d.	n.d.	?	
27	78%	n.d.	2%	n.d.	20%	n.d.	n.d.	n.d.	
28	ca. 20%	1%	n.d.	n.d.	n.d.	10%	n.d.	n.d.	Kaolin, Mica
29	ca. 94%	n.d.	2%	n.d.	2%	n.d.	n.d.	n.d.	Kaolin
30	97%	1%	2%	n.d.	n.d.	n.d.	n.d.	n.d.	
31	47%	50%	2%	3%	8%	n.d.	n.d.	n.d.	

<u>mpig</u>	<u>Talc</u>	<u>Chlorite</u>	<u>Phlogo- pito</u>	<u>a- Quartz</u>	<u>Dolo- mite</u>	<u>Calcsite</u>	<u>Trem- olite</u>	<u>Chryso- tale</u>	<u>Other Spinel</u>
3	55%	40%	2%	n.d.	3%	n.d.	n.d.	n.d.	
4	78%	7%	4%	3%	8%	n.d.	n.d.	n.d.	
5	78%	5%	2%	10%	5%	n.d.	n.d.	n.d.	
6	ca. 81%	4%	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	Mica
7	38%	50%	5%	n.d.	7%	n.d.	n.d.	n.d.	
8	87%	5%	4%	2%	2%	n.d.	n.d.	n.d.	
9	94%	3%	n.d.	3%	n.d.	n.d.	n.d.	n.d.	
0	67%	25%	n.d.	3%	5%	n.d.	n.d.	n.d.	
1	33%	8%	2%	2%	5%	n.d.	n.d.	n.d.	
2	89%	6%	n.d.	n.d.	3%	2%	n.d.	n.d.	
3	97%	n.d.	n.d.	3%	n.d.	n.d.	n.d.	n.d.	
4	--	--	--	--	--	--	--	--	ZnO, K ₂ O
5	66%	30%	n.d.	n.d.	4%	n.d.	n.d.	n.d.	
6	48%	40%	n.d.	5%	7%	n.d.	n.d.	n.d.	
7	98%	n.d.	n.d.	n.d.	n.d.	2%	n.d.	n.d.	
8	88%	4%	2%	2%	4%	n.d.	n.d.	n.d.	
9	100%	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	
0	95%	5%	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	
1	100%	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	
2	87%	8%	2%	3%	n.d.	n.d.	n.d.	n.d.	
3	90%	4%	2%	2%	2%	n.d.	n.d.	n.d.	
4	ca. 87%	3%	4%	n.d.	4%	n.d.	n.d.	?	
5	80%	15%	n.d.	5%	n.d.	n.d.	n.d.	n.d.	
6	90%	7%	n.d.	3%	n.d.	n.d.	n.d.	n.d.	
7	80%	15%	n.d.	n.d.	5%	n.d.	n.d.	n.d.	
8	96%	n.d.	n.d.	4%	n.d.	n.d.	n.d.	n.d.	
9	ca. 90%	n.d.	n.d.	3%	n.d.	n.d.	n.d.	n.d.	Starch
0	ca. 60%	30%	n.d.	n.d.	7%	2%	n.d.	n.d.	ZnStear.
1	38%	40%	n.d.	4%	18%	n.d.	n.d.	n.d.	
2	85%	2%	n.d.	3%	n.d.	10%	n.d.	n.d.	
3	87%	2%	2%	4%	n.d.	n.d.	5%	n.d.	
4	ca. 80%	5%	3%	2%	3%	n.d.	n.d.	n.d.	ZnStear.
5	ca. 78%	15%	n.d.	n.d.	4%	n.d.	n.d.	n.d.	ZnStear.
6	84%	5%	5%	3%	3%	n.d.	n.d.	2%	
7	78%	15%	n.d.	n.d.	5%	n.d.	2%	n.d.	
8	80%	15%	n.d.	n.d.	5%	n.d.	n.d.	n.d.	
9	97%	1%	n.d.	n.d.	n.d.	2%	n.d.	n.d.	

	<u>Quartz</u>	<u>Talc</u>	<u>Chlorite</u>	<u>Phlogopite</u>	<u>Quartz</u>	<u>Dolomite</u>	<u>Calcite</u>	<u>Tronolite</u>	<u>Chrysotile</u>	<u>Other Species</u>
7	1	28%	60%	n.d.	5%	7%	n.d.	n.d.	n.d.	
	1	85%	10%	n.d.	2%	n.d.	n.d.	3%	n.d.	
	2	86%	5%	3%	4%	n.d.	2%	n.d.	n.d.	
	3	ca. 80%	10%	n.d.	3%	5%	n.d.	n.d.	n.d.	ZnSteat
	4	90%	n.d.	n.d.	n.d.	5%	5%	n.d.	n.d.	
	5	75%	5%	n.d.	n.d.	15%	5%	n.d.	n.d.	
	5	75%	n.d.	5%	5%	10%	n.d.	5%	n.d.	
	7	91%	n.d.	4%	2%	n.d.	n.d.	3%	n.d.	
	3	85%	2%	1%	4%	3%	n.d.	5%	n.d.	
	2	81%	5%	4%	n.d.	2%	8%	n.d.	n.d.	
8	1	ca. 50%	40%	n.d.	8%	n.d.	n.d.	n.d.	?	
	1	ca. 80%	7%	1%	6%	4%	n.d.	n.d.	?	
	2	ca. 78%	12%	2%	4%	3%	n.d.	n.d.	?	
	3	ca. 84%	6%	5%	n.d.	4%	n.d.	n.d.	?	
	4	ca. 92%	4%	n.d.	n.d.	3%	n.d.	n.d.	?	
	5	ca. 86%	5%	n.d.	n.d.	8%	n.d.	n.d.	?	
	5	85%	4%	2%	4%	4%	n.d.	n.d.	?	
	7	ca. 30%	50%	n.d.	4%	12%	3%	n.d.	?	
	3	61%	n.d.	n.d.	5%	25%	n.d.	4%	5%	
	2	68%	1%	3%	8%	10%	n.d.	5%	5%	
9	1	55%	n.d.	3%	7%	25%	2%	3%	5%	
	1	ca. 50%	1%	n.d.	n.d.	3%	5%	n.d.	5%	Mica
	2	64%	n.d.	n.d.	6%	20%	n.d.	5%	5%	
	3	55%	1%	4%	6%	25%	n.d.	5%	4%	
	4	ca. 46%	4%	3%	6%	35%	n.d.	4%	?	
	5	86%	n.d.	n.d.	5%	4%	n.d.	2%	3%	
	6	28%	n.d.	3%	6%	45%	n.d.	8%	10%	
	7	31%	1%	1%	5%	35%	n.d.	12%	15%	
	8	ca. 40%	n.d.	3%	n.d.	6%	2%	n.d.	n.d.	Kaolin Mica
	9	ca. 40%	n.d.	3%	n.d.	6%	2%	n.d.	n.d.	Kaolin Mica
10	0	ca. 80	10%	4%	n.d.	2%	n.d.	n.d.	n.d.	ZnSteat
	1	63%	8%	3%	7%	4%	n.d.	15%	n.d.	
	2	63%	2%	n.d.	3%	15%	n.d.	10%	7%	
	3	93%	3%	n.d.	n.d.	4%	n.d.	n.d.	n.d.	
	4	91%	3%	1%	2%	3%	n.d.	n.d.	n.d.	

<u>Sample</u>	<u>Talc</u>	<u>Chlorite</u>	<u>Phlogopite</u>	<u>Quartz</u>	<u>Dolomite</u>	<u>Calcite</u>	<u>Tremolite</u>	<u>Chrysotile</u>	<u>Other Species</u>
05	92%	3%	1%	2%	2%	n.d.	n.d.	n.d.	
06	91%	3%	1%	3%	2%	n.d.	n.d.	n.d.	
07	87%	5%	2%	n.d.	6%	n.d.	n.d.	n.d.	
08	81%	10%	2%	2%	3%	n.d.	2%	n.d.	
09	74%	15%	3%	3%	3%	n.d.	2%	?	Kaolinite
10	99%	n.d.	1%	n.d.	n.d.	n.d.	n.d.	n.d.	
11	42%	40%	2%	n.d.	15%	n.d.	1%	n.d.	
12	ca. 60%	n.d.	n.d.	4%	n.d.	10%	n.d.	n.d.	Salicy? A., Box
13	75%	15%	n.d.	3%	7%	n.d.	n.d.	n.d.	
14	53%	40%	n.d.	3%	4%	n.d.	n.d.	n.d.	
15	53%	40%	n.d.	3%	4%	n.d.	n.d.	n.d.	
16	53%	40%	n.d.	3%	4%	n.d.	n.d.	n.d.	
17	42%	35%	n.d.	15%	4%	2%	n.d.	?	
18	53%	40%	n.d.	3%	4%	n.d.	n.d.	n.d.	
19	49%	40%	n.d.	6%	5%	n.d.	n.d.	n.d.	
20	46%	40%	n.d.	8%	4%	n.d.	n.d.	?	
21	87%	8%	2%	n.d.	3%	n.d.	n.d.	n.d.	
22	56%	35%	n.d.	5%	4%	n.d.	n.d.	?	
23	51%	40%	n.d.	3%	4%	n.d.	n.d.	?	
24	54%	40%	n.d.	3%	3%	n.d.	n.d.	?	
25	55%	40%	n.d.	2%	3%	n.d.	n.d.	?	
26	75%	10%	3%	4%	8%	n.d.	n.d.	n.d.	
27	85%	n.d.	n.d.	4%	n.d.	n.d.	n.d.	n.d.	Forsterite
28	60%	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	Calcite
29	97%	n.d.	n.d.	n.d.	3%	n.d.	n.d.	n.d.	
30	ca. 88%	7%	n.d.	2%	3%	n.d.	trace	trace	
31	ca. 92	3%	3%	n.d.	2%	n.d.	trace	n.d.	
32	95%	3%	2%	n.d.	n.d.	n.d.	n.d.	n.d.	
33	94%	2%	4%	n.d.	n.d.	n.d.	n.d.	n.d.	
34	93%	3%	2%	n.d.	2%	n.d.	n.d.	n.d.	
35	93%	2%	3%	n.d.	2%	n.d.	n.d.	n.d.	
36	89%	4%	3%	2%	2%	n.d.	n.d.	n.d.	
37	91%	4%	n.d.	3%	2%	n.d.	n.d.	n.d.	
38	85%	7%	3%	2%	2%	n.d.	n.d.	n.d.	
39	ca. 85%	n.d.	n.d.	2%	n.d.	n.d.	n.d.	n.d.	Forsterite MgO
40	ca. 85%	n.d.	n.d.	2%	1%	n.d.	n.d.	n.d.	2: Skarn Feldspar

<u>sample</u>	<u>Talc</u>	<u>Chlorite</u>	<u>Phlogo- pites</u>	<u>Quartz</u>	<u>Dolo- mite</u>	<u>Calcite</u>	<u>Tran- colite</u>	<u>Chryso- talle</u>	<u>Other Species</u>
41	80%	n.d.	n.d.	2%	1%	n.d.	n.d.	n.d.	ZnStear HgCO ₃
42	79%	7%	5%	4%	5%	n.d.	n.d.	n.d.	
43	55%	2%	n.d.	3%	25%	n.d.	5%	10%	
44	ca.70%	10%	n.d.	6%	n.d.	n.d.	5%	?	ZnStear Kaolin
45	ca.70%	3%	n.d.	n.d.	3%	n.d.	n.d.	2%	ZnStear Kaolin, ZnO
46	ca.85%	n.d.	n.d.	4%	n.d.	5%	n.d.	n.d.	ZnStear
47	ca.65%	n.d.	n.d.	n.d.	n.d.	5%	n.d.	n.d.	Kaolin
48	ca.45%	40%	n.d.	n.d.	8%	n.d.	2%	n.d.	ZnStear
49	ca.50%	10%	n.d.	10%	12%	n.d.	8%	?	Kaolin
50	30%	2%	n.d.	5%	n.d.	5%	n.d.	n.d.	Kaolin
51	63%	25%	n.d.	2%	10%	n.d.	n.d.	n.d.	
52	ca.70%	2%	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	Pyrophy ite
53	ca.80%	2%	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	ZnO, Bor Acid
54	ca.70%	10%	4%	4%	2%	n.d.	2%	n.d.	ZnO
55	ca.84%	10%	n.d.	4%	2%	n.d.	n.d.	?	
56	79%	10%	n.d.	6%	3%	n.d.	2%	n.d.	
57	63%	2%	n.d.	3%	18%	n.d.	6%	8%	
58	78%	7%	n.d.	3%	2%	10%	n.d.	n.d.	
59	ca.74%	10%	2%	n.d.	4%	10%	n.d.	?	
60	60%	25%	n.d.	n.d.	4%	10%	n.d.	trace	
61	59%	25%	n.d.	2%	4%	10%	n.d.	n.d.	
62	58%	25%	n.d.	2%	5%	10%	n.d.	n.d.	
63	55%	2%	n.d.	3%	20%	n.d.	10%	10%	
64	92%	3%	2%	n.d.	2%	n.d.	n.d.	1%	
65	92%	5%	n.d.	n.d.	2%	n.d.	n.d.	?	
66	ca.50%	40%	n.d.	2%	8%	n.d.	n.d.	?	
67	76%	10%	n.d.	n.d.	12%	n.d.	2%	n.d.	
68	---	---	---	---	---	---	---	---	Oxyapatite
69	---	---	---	---	---	ca.80%	---	---	
70	52%	n.d.	n.d.	5%	25%	n.d.	n.d.	8%	
71	70%	10%	n.d.	5%	15%	n.d.	n.d.	n.d.	
72	43%	50%	n.d.	n.d.	5%	n.d.	2%	n.d.	

sample	Talc	Chlorite	Phlogo- pita	Quartz	Dolomite	Calcite	Tremolite	Chrysotile	Other Species
'5	ca. 86%	3%	n.d.	10%	n.d.	n.d.	n.d.	?	
'6	ca. 79%	3%	2%	15%	n.d.	n.d.	n.d.	?	
7	84%	10%	4%	2%	n.d.	n.d.	n.d.	n.d.	
'8	ca. 50%	20%	2%	5%	4%	n.d.	n.d.	?	Kaolin
'9	97%	n.d.	n.d.	3%	n.d.	n.d.	n.d.	n.d.	
10	88%	n.d.	n.d.	n.d.	12%	n.d.	n.d.	n.d.	
11	ca. 70%	n.d.	n.d.	n.d.	n.d.	10%	n.d.	n.d.	Kaolin
12	ca. 40%	25%	15%	n.d.	n.d.	n.d.	n.d.	?	ZnO
13	ca. 76%	10%	n.d.	n.d.	2%	10%	1%	?	
14	93%	2%	n.d.	2%	n.d.	n.d.	3%	n.d.	
15	ca. 50%	8%	n.d.	n.d.	n.d.	25%	n.d.	n.d.	ZnO
16	ca. 50%	5%	n.d.	n.d.	n.d.	25%	n.d.	?	ZnO
17	ca. 65%	5%	n.d.	2%	n.d.	5%	2%	n.d.	
18	70%	15%	2%	3%	4%	5%	1%	?	
19	72%	12%	n.d.	3%	2%	5%	1%	n.d.	
20	ca. 82%	12%	2%	n.d.	3%	n.d.	n.d.	?	
21	96%	2%	n.d.	n.d.	2%	n.d.	n.d.	n.d.	
22	100%	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	
23	ca. 93%	2%	n.d.	2%	2%	n.d.	n.d.	?	ZnSte
24	ca. 94%	2%	n.d.	n.d.	3%	3%	n.d.	?	
25	97%	n.d.	n.d.	n.d.	3%	n.d.	n.d.	n.d.	

The Cosmetic, Toiletry and Fragrance Association, Inc.

1625 EYE STREET, N.W., WASHINGTON, D. C. 20006 202/393-2070

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President

Norman F. Estrin, Ph.D.
Vice President—Science

Mr. C.U. Driscoll
President
Whittaker, Clark & Daniels, Inc.
1000 Collidge Street
South Plainfield, New Jersey 07080

FRED ROELCH

The FDA, Mr. Driscoll --

-- has informed us that they are about to publish limits for asbestos in foods and will utilize an optical microscopy method for the determination.

Their problem is that the Bureau of Foods has been considering an X-ray diffraction method for cosmetic analysis of asbestos that has a sensitivity of one to two percent, as opposed to the claimed sensitivity microscopic method of 0.001 to 0.1 percent. FDA does not feel it can publish two different methods of differing sensitivities and has asked our cooperation in testing their optical method.

FDA proposes that cosmetic manufacturers test and submit coded data for various cosmetic grade talcs, so that they can check on the validity of the method and get a feel for the type of results which can be expected.

I have attached a copy of the method for your review and a copy of a letter from Heinz J. Eiermann (FDA) requesting assistance from the Cosmetic Industry.

If you would like to participate by testing talcs, please drop a note to me or to Mr. George Sandland (Bristol-Myers) who is chairing a subcommittee which will test this and other methods.

Thank you for your cooperation.

Cordially,



Norman F. Estrin, Ph.D.
Vice President - Science

NFE:jj
September 13th, 1973
Attachments - 2

10/4



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DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
PUBLIC HEALTH SERVICE
FOOD AND DRUG ADMINISTRATION
WASHINGTON, D.C. 20204

September 5, 1973

Norman F. Estrin, Ph.D.
Vice President, Science
Cosmetic, Toiletry & Fragrance Assoc.
1625 Eye Street, N.W.
Washington, D.C. 20006

Dear Norman:

This will confirm the discussion Dr. Schaffner, Mr. Wenninger and I had with you last Friday, August 31, 1973, concerning methods of determination of asbestos in cosmetic talc products.

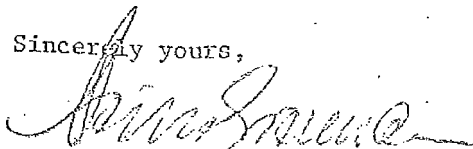
There is considerable controversy among investigators with regard to the accurate determination of asbestos at concentrations of less than 2 percent. Apparently, conventional methods employing x-ray diffraction or differential thermal analysis are not sufficiently reliable to produce quantitative results of the desired precision. The Food and Drug Administration, therefore, has been exploring refractory optical microscopy as a means of measuring asbestos in talc. A copy of this method was handed to you on Friday.

You were urged to contact the scientific experts in the cosmetic industry and have them analyze samples of cosmetic talcs by this method. The results of their findings and their comments on this analytical procedure should greatly assist FDA in the assessment of the asbestos problem.

The second request submitted to you concerned a statistical measurement of the amount of airborne talc that might be inhaled by an infant per day under average conditions of use of a baby talc product. This information should be helpful in estimating the potential exposure of a child to asbestos.

The data provided by industry will supplement the efforts initiated by FDA in this matter and hopefully resolve the asbestos question in a scientifically sound manner.

Sincerely yours,


Heinz J. Eiermann, Acting Director
Division of Cosmetics Technology
Office of Technology

ANNUAL SCIENTIFIC MEETING

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NEW YORK, N. Y.
NOVEMBER 30 - DECEMBER 1, 1978

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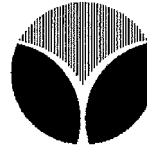
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January 31, 1977

Dr. Myron A. Mehlman, Editor
Journal of Toxicology & Environmental Health
National Institutes of Health
P. O. Box 1829
Rockville, Maryland 20850

Dear Dr. Mehlman:

In the November, 1976, issue of the Journal of Toxicology and Environmental Health there was published an article entitled "Consumer Talcums and Powders: Mineral and Chemical Characterization" by A. N. Rohi et al. I have read the above-mentioned article and in the interest of correcting the record by mentioning publications which may not have been brought to the attention of the authors, I am enclosing a Letter to the Editor which I would appreciate your publishing.

Sincerely yours,

Gavin Hildick-Smith, M.D.
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cc: Mr. George Lee
Mr. M. Q. Tatlow

SAFETY OF CONSUMER COSMETIC TALC PRODUCTS

In a paper entitled "Mineral and Chemical Characterization of Selected Consumer Talc Products" by Rohl et al. published in the November issue of the Journal of Toxicology and Environmental Health the author indicated that the disease potential of consumer talc products is unknown and needs investigation. Rohl et al. cite instances of pulmonary disease associated with exposure to talc dusts but fail to identify the composition of the talc dusts and the amount to which subjects were exposed. Recently a distinction has been made between the composition of industrial talcs and cosmetic grade talcs. Industrial grade talcs are mixed mineral dusts usually containing limited amounts of talc mineral dust which may be associated with varying amounts of asbestos and/or silica. Cosmetic grade talc consists typically of 90% mineral talc dust associated with mineral impurities as minor constituents but free of detectable fibrous asbestos minerals (1).

The pulmonary fibrosis associated with talc dust as cited by Rohl et al. has been predominantly reported to occur among employees working in industrial environments prior to improvements in working conditions. For instance, in the reference to a report by Rubino (2) the talc miners were exposed to talc dust known to contain significant amounts of silica.

The example of increased pulmonary cancer mentioned by Rohl et al. was reported in miners exposed to industrial talc dust containing anthophyllite and tremolite (3). Kleinfeld (4,5) however later reported that the incidence of pulmonary cancer in the mine employees dropped to the normal level for their age following improvement in the working environment.

The biological activity of cosmetic grade talc dust has been evaluated in recent years in controlled animal dust exposure studies and epidemiological studies conducted in mine employees exposed to cosmetic grade talc dust (6).

In one study, hamsters were exposed to cosmetic grade talc dust at a weekly exposure level approximately 1700 times the amount of talc dust to which an infant would be exposed in a week (6). The data obtained showed that the exposed animals at natural death showed no difference in incidence of any pathology noted from that observed in the control animals studied (7). These data and those obtained in other animal studies have failed to produce any evidence that cosmetic talc is a carcinogen (6).

Prospective and retrospective epidemiological studies conducted in employees milling and mining cosmetic grade talc have shown no difference in incidence of pulmonary fibrotic disease or cancer observed in the mine employees when compared with a control unexposed cohort even where a group of talc millers was exposed to approximately 7800 times the amount of talc dust in one week than that to which a consumer would be exposed in one week (6,8).

Although Rohl et al. suggest that cosmetic grade talc may be hazardous to health, the available data indicate that the normal usage of cosmetic grade talc by the consumer is not a hazard to health.

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4. Kleinfeld, M.J.: Mortality Experience of New York Talc Miners and Millers. Information Circular 8639, Proceedings of a Symposium on Talc, May 8, 1973. Bureau of Mines, Department of the Interior, Washington, D. C.
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Labor Agency Cancels Its Safety Exemption On Industrial Talc

By a WALL STREET JOURNAL Staff Reporter
WASHINGTON—The Labor Department has quietly rescinded a controversial 1974 ruling that exempted certain industrial talcs from asbestos job-safety standards.

The withdrawal of the exemption, covering talc containing the mineral tremolite, was ordered by Ford administration job safety chief Morton Corn on Jan. 19, his last day in office. In December, Mr. Corn came under attack from a public-interest health group that charged him with illegal actions because he had continued the 1974 ruling excluding tremolite from being treated as a form of asbestos.

At the time, Mr. Corn said the old ruling would remain in effect pending the results of a National Bureau of Standards study on whether tremolite is a form of asbestos, as the health activists had contended. But the Labor Department said he subsequently decided to rescind the ruling on the basis of other data, without waiting for the Bureau of Standards' results.

The company that makes the talc containing tremolite, R. T. Vanderbilt Co., Norwalk, Conn., had complained last year that, despite its exemption, its product was still suffering in the market-place because some customers viewed tremolite as asbestos, which has been linked to cancer.

A Vanderbilt official said yesterday that "we don't like" the rescinding of the 1974 exemption, but that sales hadn't been hurt so far, and that there aren't any plans to try to reverse the department's decision through legal action.

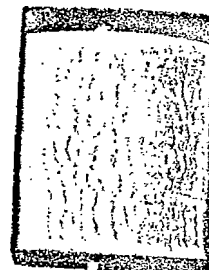
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GAMMA PROCESS COMPANY, INC.

150 BROADWAY NEW YORK, N. Y. 10038 • CODE 111-243-0470

July 16, 1969

Dear Sir:

Cosmetic manufacturers are watching Washington with mounting concern these days.

Regulatory agencies have been studying revised microbiological standards, as you know, and there is talk of new Government controls on cosmetic products. So, naturally, manufacturers are more eager than ever to succeed in their continuing search for new ways to improve microbiological quality control procedures.

That's why I believe you'll be interested in STERILEX TALC--the bacteria-free cosmetic talc that insures positive control on cosmetic talc and adds a new microbiologically clean dimension to all of your cosmetic products containing talc.

A sealed package of STERILEX TALC is guaranteed to contain less than 10 bacteria per gram.

And less than 10 molds per gram.

These guaranteed low levels of micro-organism population are produced by treating well-known commercial grades of talc--and then packaging STERILEX TALC not only in the customary talc package of a multi-layer paper bag, but also in an over-wrapping of a sealed polyethylene bag to prevent external contamination. In addition, shipment is made in fiber drums or cartons for added protection.

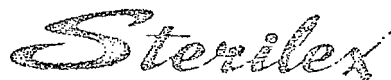
For your review, I am enclosing data sheets containing complete prices and information about the typical physical and chemical properties you can expect from STERILEX TALC. If you don't find here the grade of talc that you wish, just let me know. We can add it to our STERILEX TALC product line.

In order to make your own evaluation, won't you send us a purchase order for a trial quantity? We look forward to serving you..

Sincerely yours,

Neil F. Fitchay

Neil F. Fitchay
Vice President--Marketing



The Bacteria Free Cosmetic Talc

A Product of Gamma Process Company, Inc.

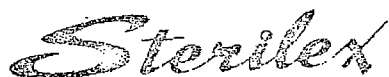
160 Broadway, New York, N.Y. 10038 • (212) 233-8570

GUARANTEE AND PRICE LIST

STERILEX TALC is guaranteed in the sealed package to contain no more than 10 bacteria per gram and 10 molds per gram.

PRICES listed below are based on truckload shipments packed in lots of 50 lbs. in multi-layer paper bags, over wrapped in sealed polyethylene bags for air tightness and shipped in fiber drums or cartons for protection during shipment, f.o.b. Chicago, Illinois. Terms, net 30 days. Prices are are subject to change without notice.

<u>GRADE</u>	<u>PRICE PER LB.</u>
Sierra Supreme USP	\$0.281
Sierra Supreme 325	0.279
Sierra Supreme 200	0.271
Trinity Superfine	0.291
Trinity Super	0.291
Sierra Cloud	0.281
Sierra Snow	0.281
IS Silver Cosmetic	0.290
Cascade 200	0.285
Cascade 325	0.287
Mistron Star	0.289
QQ 1606 Italian	0.271
QQ 4601 Metro #1	0.271
QQ Lo Micron	0.275
QQ 123 USP	0.263
QQ 568 Regal USP	0.295
QQ 643	0.292
QQ 2450	0.265



The Bacteria Free Cosmetic Talc

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TYPICAL CHEMICAL ANALYSES & OTHER PHYSICAL DATA

	Percent Purity (1)	Acid Solubles (Maximum) (2)	Bulking in lbs./cu. ft.		Fineness % Minus 325 Mesh
			Loose (3)	Packed (4)	
Sierra Supreme USP	96 - 97	0.50	21 - 22	38 - 40	99.2 - 99.6
Sierra Supreme 325	95 - 97	1.5	21 - 22	38 - 40	99.2 - 99.6
Sierra Supreme 200	95 - 97	1.5	26 - 27	54 - 55	95.0 - 97.0
Trinity Superfine	95 - 97	2.0	23 - 24	45 - 46	99.2 - 99.6
Trinity Super	95 - 97	2.0	25 - 26	50 - 51	95.0 - 97.0
Sierra Cloud	92 - 96	6.0	27 - 28	50 - 51	99.2 - 99.6
Sierra Snow	92 - 93	6.0	28 - 29	51 - 53	99.2 - 99.6
IS Silver Cosmetic	92 - 93	6.0	28 - 29	51 - 53	99.2 - 99.6

- (1) Percent purity expressed as combined percentages of Silicon dioxide, Magnesium oxide and chemically combined water.
- (2) Method: Boil 1 gm talc with 50 ml n/10 H_2SO_4 for one minute. Titrate while hot with N/10 NaOH using phenolphthalein indicator. 50 minus NaOH titer multiplied by 0.281 equals percent acid soluble substance calculated as CaO .
- (3) Scott Volumeter bulking of the "fluffed" materials as lbs./ft.³.
- (4) Toilet Goods Association Specification No. 10, Method No. 12, reported as lbs. per cu. ft. For grams per millimeter divide by 62.43.



The Bacteria Free Cosmetic Talc

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TALC
QQ 4601 METRO #1

STERILEX TALC is guaranteed in the sealed package to contain no more than 10 bacteria per gram and 10 molds per gram.

PRICE: \$0.271 per lb. packed in lots of 50 lbs. in laminated paper bags, over wrapped in sealed polyethylene bags for airtightness and shipped in fiber drums or cartons for protection during shipment, f.o.b. Chicago, Illinois. Terms, net 30 days.

DATA

Color: White

Physical Constants: (typical)

Specific Gravity	2.88
Weight per solid gallon	23.99 lbs./gal.
One pound bulks	0.04168 gal./lb.
Loose Density	24.5 lbs./cu. ft. $\pm$ 1
Tapped Density	54.5 lbs./cu.ft.
Wet Screen Retention:	
325 Mesh	--
200 Mesh	1.5 - 2.0%
Dry Brightness:	
Green Filter	95
Oil Absorption:	
Rub-Out	--
pH Value	9.0 $\pm$.5
Hegman Fineness	--

Chemical Composition: (typical)

Silica	SiO ₂	60.0 - 61.0%
Aluminum Oxide	Al ₂ O ₃) -	0.25 - 0.4
Ferric Oxide	Fe ₂ O ₃)	
Calcium Oxide	CaO	.75 - 1.5
Magnesium Oxide	MgO	20.75 - 32.0

	T.G.A.	
	4601	Spec. No. 10
Loss on Ignition	3.23%	7.0% max.
Alkalis and Acid	Neutral	to Litmus
Carbonates	None	
Solubility		
H ₂ O	0.03%	0.2% max.
N/2HCl	4.44	6.0 max.



The Bacteria Free Cosmetic Talc

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TALC
QQ LO MICRON

STERILEX TALC is guaranteed in the sealed package to contain no more than 10 bacteria per gram and 10 molds per gram.

PRICE: \$0.275 per lb. packed in lots of 50 lbs. in laminated paper bags, over wrapped in sealed polyethylene bags for airtightness and shipped in fiber drums or cartons for protection during shipment, f.o.b. Chicago, Illinois. Terms, net 30 days.

DATA

Color: White
Brightness: 91 - 93
Description: #1 Talc Lo Micron, ground from the finest talc available, has excellent slip.

Physical Constants: (typical)

Tapped Bulk:

20 grams - 500 times 39 c.c.
Apparent Density 32 lbs./cu.ft.

Loose Bulk:

20 grams 111.1 c.c.
Apparent Density 11.2 lbs./cu.ft.

Specific Gravity

2.77

True Density

23.07 lbs./gal.
.0434 gal./lb.

Reflectance:

Green Stim. Filter 91 - 93

Oil Absorption:

(Rub-Out) 47

Sieve Fineness:

Thru 325 mesh 100%

Hegman Fineness

5 - 5.5

pH

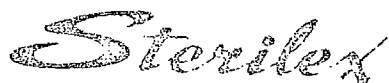
9.0 - 10.0

Slip

Excellent

Chemical Composition: (typical)

Silica	SiO ₂	58.0 - 62.0%
Magnesium Oxide	MgO	31.5 - 32.5%
Calcium Oxide	CaO	1.0 - 6.7%
Aluminum Oxide	Al ₂ O ₃	0.7 - 0.8%
Ferric Oxide	Fe ₂ O ₃	0.6 - 1.0%
Loss on Ignition		2.0 - 8.0%



The Bacteria Free Cosmetic Talc

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TALC
QQ 643

STERILEX TALC is guaranteed in the sealed package to contain no more than 10 bacteria per gram and 10 molds per gram

PRICE: \$0.292 per lb. packed in lots of 50 lbs. in laminated paper bags, over wrapped in sealed polyethylene bags for airtightness and shipped in fiber drums or cartons for protection during shipment, f.o.b. Chicago, Illinois. Terms, net 30 days.

DATA

Source: North Carolina
Color: White
Brightness: 86
Description: #643 Talc is one of the few true talcs produced in the world
Uses: Cosmetics, rouge, pharmaceuticals

Physical Constants: (Typical)

Tapped Bulk:	
20 grams - 500 times	20.5 c.c.
Apparent Density	60.2 lbs./cu.ft.
Loose Bulk:	
20 grams	48.8 c.c.
Apparent Density	25.6 lbs./cu.ft.
Specific Gravity	2.69
True Density	22.41 lbs./gal.
Reflectance:	
Green Stim Filter	86
Oil Absorption (rub-out)	43.2
Sieve Fineness:	
Thru 200 mesh	99.28%
Thru 325 mesh	93.56
pH	9.17
Slip	Excellent
Hegman Fineness	1

Chemical Composition: (Typical)

Silica	SiO ₂	48.0 - 54.0%
Magnesium Oxide	MgO	31.5 - 32.5
Calcium Oxide	CaO	1.5 - 3.0
Aluminum Oxide	Al ₂ O ₃	5.0 - 7.5
Ferric Oxide	Fe ₂ O ₃	1.0 - 2.0
Loss on Ignition		7.0 - 8.0

Acid Soluble Iron	< 0.22	0.75 max.
Soluble Calcium as CaO	1.19	1.5 max.
Pb (Lead)	8 ppm	20 ppm max.
As (Arsenic)	0 ppm	2 ppm max.



The Bacteria Free Cosmetic Talc

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TALC
QQ 123 USP

STERILEX TALC is guaranteed in the sealed package to contain no more than 10 bacteria per gram and 10 molds per gram.

PRICE: \$0.263 per lb. packed in lots of 50 lbs. in laminated paper bags, over wrapped in sealed polyethylene bags for airtightness and shipped in fiber drums or cartons for protection during shipment, f.o.b. Chicago, Illinois. Terms. net 30 days.

DATA

Source: Alabama
Color: White

Physical Constants: (typical)

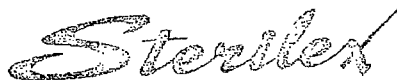
Specific Gravity	2.79
Weight per solid gallon	23.6 lbs./gal.
One pound bulks	0.0426 gal./lb.
Loose Density	28 $\pm$ 2 lbs./cu.ft.
Tapped Density	69 $\pm$ 1 lb./cu.ft.
Wet screen retention:	
325 mesh	--
200 mesh	1.5% max.
Dry Brightness:	
Green Filter	90 - 92
Oil Absorption:	
Rub-Out	32 $\pm$ 1
pH Value	8.0 $\pm$.5
Hegman	--

Chemical Composition: (typical)

Silica	SiO ₂	60.0 - 63.0%
Magnesium Oxide	MgO	31.0 - 34.0 %
Calcium Oxide	CaO	0.03 - 0.06 %
Aluminum Oxide	Al ₂ O ₃	0.30 - 0.50 %
Ferric Oxide	Fe ₂ O ₃	0.50 - 0.60 %
Loss on Ignition		Less than 1 %

U.S.P. Tests

		<u>U.S.P.</u> <u>Limits</u>
Loss on Ignition	< 1.00%	5.0 %
Acid-soluble substances	0.13%	2.0 %
Water-soluble substances	0.02%	0.1 %
Water-soluble iron	None	None



The Bacteria Free Cosmetic Talc

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TALC
QQ 568 REGAL USP

STERILEX TALC is guaranteed in the sealed package to contain no more than 10 bacteria per gram and 10 molds per gram.

PRICE: \$0.295 per lb. packed in lots of 50 lbs. in laminated paper bags, over wrapped in sealed polyethylene bags for airtightness and shipped in fiber drums or cartons for protection during shipment, f.o.b. Chicago, Illinois. Terms, net 30 days.

DATA

Source: North Carolina, processed Alpine, Alabama
Color: White
Description: #568 Regal Talc USP is a smooth, silky talc with excellent slip. Especially processed after mining to meet rigid USP specification controls. The controlled pH identifies this talc and its treatment as unusual in mineral pigments.

Physical Constants:

Color	Blue White
Reflectance:	
Photovolt Green Stim. Filter	89 $\pm$ 1
Loose Bulk (lbs./cu.ft.)	24.5 - 26.5
Sieve Fineness:	
-200 mesh	98% $\pm$ 1
-325 mesh	93% $\pm$ 1
pH	7.0 - 8.0
Slip	Excellent

Chemical Constants:

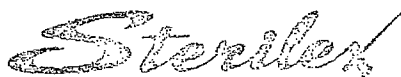
Silica	SiO ₂	58.0 - 61.0%
Aluminum Oxide	Al ₂ O ₃)	3.0 - 5.0
Ferric Oxide	Fe ₂ O ₃)	
Calcium Oxide	CaO	0.1 - 1.0
Magnesium Oxide	MgO	30.0 - 35.0
Loss on Ignition		1.0 - 1.25

USP Tests:

Loss on Ignition	1.0 - 1.25
Acid-soluble substances	0.5 - 1.0
Reaction & Soluble substances	0.01 - 0.05

U.S.P.

Limits
5.0% max.



The Bacteria Free Cosmetic Talc

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TALC
QQ 2450

STERILEX TALC is guaranteed in the sealed package to contain no more than 10 bacteria per gram and 10 molds per gram.

PRICE: \$0.265 per lb. packed in lots of 50 lbs. in laminated paper bags, over wrapped in sealed polyethylene bags for air-tightness and shipped in fiber drums or cartons for protection during shipment, f.o.b. Chicago, Illinois. Terms, net 30 days.

DATA

Typical Physical Properties:

Dry brightness	89 min.
S.A. $\text{Cm}^2/\text{Gm.}$	--
Specific Gravity	2.69
Tapped Density, lbs./cu.ft.	59.4
Apparent Density, lbs./cu.ft.	25 - 28
Lbs./solid gallon	22.41
One pound bulks, gallons	0.0446
Oil Absorption	21.6
Particle Shape	--
Specific Resistance	--
Hegman Fineness	--
Thru 200 mesh, %	99% min.
Thru 325 mesh, %	--

Typical Chemical Analysis:

SiO_2	48.0 - 54.0%
CaO	1.5 - 3.0
Al_2O_3	5.0 - 7.5
MgO	31.5 - 32.5
Na_2O	--
Fe_2O_3	1.0 - 2.0
SO_4	--
CO_2	--
Cu	--
Mn	--
Acid solubles as CaO	--
Moisture	--
Loss on ignition	8.0% max.
H_2O Soluble	--
pH	8.0 - 8.5
Acid insoluble	--



The Bacteria Free Cosmetic Talc:

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TALC
QQ 1606 ITALIAN

STERILEX TALC is guaranteed in the sealed package to contain no more than 10 bacteria per gram and 10 molds per gram.

Price: \$0.271 per lb. packed in lots of 50 lbs. in laminated paper bags, over wrapped in sealed polyethylene bags for airtightness and shipped in fiber drums or cartons for protection during shipment, f.o.b. Chicago, Illinois. Terms, net 30 days.

DATA

Source: Italy
Color: White
Brightness: 90
Description: #1606 Talc is ground from ore that mineralogically approaches a true talc.
Uses: Face Powder, pharmaceuticals, rouge.

Physical Constants: (Typical)

Tapped Bulk:		
20 grams - 500 times		23 c.c.
Apparent Density		54.4 lbs./cu.ft.
Loose Bulk:		
20 grams		48.0 c.c.
Apparent Density		26.1 lbs./cu.ft.
Specific Gravity		2.68
True Density		22.32 lbs./gal.
		.0448 gal./lb.
Reflectance:		
Green Stim. Filter		90
Oil Absorption (Rub-Out)		31
Sieve Fineness		
Thru 200 mesh		99.98%
Thru 325 mesh		95.19%
pH		8.51
Slip		Excellent

Chemical Composition: (Typical)

Silica	SiO ₂	60.21%
Magnesium Oxide	MgO	31.17
Ferric Oxide	Fe ₂ O ₃	1.12
Aluminum Oxide	Al ₂ O ₃	1.49
Calcium Oxide	CaO	0.52
Loss on Ignition		5.68

Sterilex

The Bacteria Free Cosmetic Talc

A Product of Ganima Process Company, Inc.

160 Broadway, New York, N.Y. 10038 • (212) 233-8570

COSMETIC TALCS

(Typical Data)

5/25/69

		CASCADE 200	CASCADE 325	MISTRON STAR
CHEMICAL ANALYSIS (Percent)	SiO ₂	62.0	62.0	62.0
	Al ₂ O ₃	.33	.33	.33
	Fe ₂ O ₃	.54	.54	.54
	CaO	.21	.21	.21
	MgO	32.9	32.9	32.9
	K ₂ O	<.004	<.004	<.004
	L. O. I.			
	CO ₂	.25	.25	.25
	H ₂ O	5.00	5.00	5.00
	% Acid Solubles (as CaO)	0.2 - 0.5	0.2 - 0.5	0.2 - 0.5
PARTICLE SIZE IN MICRONS	% thru 200 (74 u)	99.5/99.7	100	100
	% thru 325 (44 u)	96/97	99.6/99.8	99.99
	% minus 30 u	85	98	100
	% minus 20 u	72	91	100
	% minus 10 u	51	67	96
	% minus 5 u	33	39	85
	% minus 3 u	21	24	63
	% minus 2 u	14	17	49
	% minus 1 u	7	8	23
	% minus 0.5 u	3.5	4	8
OIL ABSORPTION	% minus 0.2 u	1	1.5	1.3
	Spatula Rub-Out (lbs/100 lbs)	25 - 27	27 - 30	38 - 44
	Gardner-Coleman (lbs/100 lbs)	37 - 42	42 - 49	68 - 75
	(ml/20 gm)	8 - 9	9 - 11	14 - 16
	G. E. Brightness	84 - 86	86 - 88	89 - 92
TRI STIMULUS COLOR	Amber 606 mu	89 - 92	91 - 92	92 - 94
	Green 541 mu	87 - 90	89 - 91	90 - 93
	Blue 457 mu	83 - 86	86 - 88	88 - 91
	% Yellowness	6 - 8	5.2 - 5.8	2.7 - 4.5
	Specific Gravity	2.75	2.75	2.75
SURFACE AREA	Weight per solid gal - lbs	22.91	22.91	22.91
	One Pound bulks - gal	0.04365	0.04365	0.04365
	Refractive Index	1.59	1.59	1.59
	Moisture %	0.1 - 0.3	0.1 - 0.3	0.1 - 0.3
	m ² /gm BET - N ₂ Adsorption	10 - 12	11 - 13	16 - 18
AVG. DIAMETER	(at 50% finer)	9.5	7.3	2.0
SURFACE MEAN DIAMETER	(in Microns - Fisher Sub-Sieve)	1.98	1.58	.56
	pH (1:5 Dilution)	9.0 - 9.5	9.0 - 9.5	9.0 - 9.5
PARTICLE SHAPE	P - platy / A - acicular	P	P	P
BULKING (Apparent Density)	Loose (Scott Vol.) lbs/ft ³	21 - 23	17 - 19	7 - 8
	Packed (Numinco) lbs/ft ³	50 - 55	43 - 48	16 - 22
	TGA (50 Taps)	41 - 44	30 - 34	14 - 17
T. G. A.	PbO (20ppm max) soluble	3ppm	3ppm	3ppm
	As ₂ O ₃ (20ppm max) soluble	2ppm	2ppm	2ppm

December 2, 1964

For All Salesmen & Agents

INTER-OFFICE CORRESPONDENCE

We now have a supply of the following sheets found also in the new Reckitt's booklet Colours for Industry: Ultramarine Blue RS-1, 2, 3, 4, 5, 6, 8, 9, 10, Ultramarine Violet RS-11, RS-12 (Slightly redder than RS-11 and formerly called Ultramarine Rose), RS-13 (Water repellent Ultramarine Blue for lithographic ink and similar in shade to RS-5), RS-18 (Highly water repellent and similar in shade to RS-5), AR2000 and 2001 (Acid resistant Ultramarine Blue particularly of interest for roofing granules).

All our data books for paint and rubber will contain the above sheets plus: Ultramarine in Paint, Ultramarine for Printing Inks, Ultramarine for Plastics and Micronized Ultramarine.

Also any of these data sheets may be requisitioned separately or collated, by the salesmen to be handed by them to the customer, or included with correspondence.

Please notice that we do not stock all the grades listed but of course we are always willing to get them with required.

Very truly yours,

K. W. Ericson

KWE:mm

Image Analysis

YTD 11/30/80

	1	2	3	4	5	6	7
			1978	1979	1980		
1	Agasco Corp		88800	124460	106000		1
2	Alcoa		8934010	8302205	6526545		2
3	American Alloid		1942150	1925500	1892000		3
4	American Cyanamid		659400	621100	802300		4
5	British Alumin		461913	348552	368654		5
6	Canada Allic		4056360	1120410	787790		6
7	C.E. Minerals		567050	633150	551350		7
8	Clark Colors		610763	822704	779894		8
9	Cyprus		9757050	9887033	9522867		9
10	Mallock Corp		1393900	475550	878400		10
11	Eastern Magnesia (442)		371200	373050	89350		11
12	Enco Chem (Chem. Ind)		169650	243050	163800		12
13	English China Clay		713845	928785	444310		13
14	English Muc.		198750	194900	102050		14
15	Horden Company		597465	667500	525400		15
16	Franklin Minerals		707550	712700	527150		16
17	Hummer Ind (ZEIF)		6000	2000	3700		17
18	Georgia Kaolin		131050	130000	132800		18
19	Georgia Talc		3619650	2633250	3782800		19
20	Hammondt & Delaprie		468020	365885	355290		20
21	Hercules (Chem. Ind)		-	-	4000		21
22	J.M. Huber		1740800	3103650	8416150		22
23	Il Shien		692604	882420	896562		23
24	Ill. Minerals		3419780	3232050	2693800		24
25	Hiack		7362552	7716533	6809067		25
26	Monanto		43190	40600	46335		26
27	N.D. Industries		512350	802200	1083850		27
28	Org. & Chem Corp (Chem. Ind)		210900	168300	248275		28
29	Kenn. Glass Sand		5233200	5744150	4542670		29
30	P. Fizer		2080175	1927850	2164300		30
31	Pioneer Talc		1942900	37802210	57323165		31
32	Productos de Zinc		56300	100750	68800		32
33	Reckitts Colors		4808206	4692311	3909020		33
34	Siles de Luzenac		379350	548825	449465		34
35	Spithur Talc (104 Baytex)		-	40535	176055		35
36	Standard Mag		46250	836100	549450		36
37	Tenneco		266640	464500	279025		37
38	Thompson Neumann		35461770	1609550	922200		38
39	Troval		842096	659536	514708		39
40							40

	1	2	3	4	5	6	7	
			1978	1979	1980			
1	U.S. Gypsum	552200	563700	556600				1
2	R.T. Vanderbilt	1751000	134750	739150				2
3	Omya, Inc	45950	78550	62050				3
4	Vermont Ind	1132894	10723899	7316300				4
5	* Warner Corp (Salem)	2258800	2264844	1673938				5
6	Warner Corp (Salem)	2781250	1966100	1391000				6
7	WCTD Blinds	1750740	1479013	1655208				7
8								8
9		137988153	119242650 -	132242739				9
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