

208800

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PLAINTIFF'S  
EXHIBIT  
**CAM-264**

*Shred*  
No. CC3

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## PROJECT COST RECORD

PROJECT TITLE: talc

MA 8802

SPONSOR: CYPRUS INDUSTRIAL MINERALS CO

PROJECT NO.: \_\_\_\_\_

ADDRESS: 555 S. Flower StDATE RECEIVED: 2 1 80Los Angeles, Calif 90071P.O. NO.: 36955

COMMITMENTS: \$ \_\_\_\_\_

Contact: cc: report to Lou MurinoTelephone No.: (213) 489-3700

## SUMMARY OF PROBLEM:

## Lab Notebook References:

No. \_\_\_\_\_ pp. \_\_\_\_\_ Initials \_\_\_\_\_

No. \_\_\_\_\_ pp. \_\_\_\_\_ Initials \_\_\_\_\_

No. \_\_\_\_\_ pp. \_\_\_\_\_ Initials \_\_\_\_\_

Photomicrographic record no. \_\_\_\_\_

original to: Joseph Blashka  
Crown Zellerbach  
Camas, WA 98607206-834-3021

## Sample disposal:

returned \_\_\_\_\_

filed (where) \_\_\_\_\_

discarded \_\_\_\_\_

## DIRECT COSTS

| Individual time (Exclusive of oper. time on inst. below) |      |       |                   | Travel    |          |             |      | Charge Summary                                         |    |
|----------------------------------------------------------|------|-------|-------------------|-----------|----------|-------------|------|--------------------------------------------------------|----|
| Date                                                     | Name | Hours | Charge            | Date      | Traveler | Destination | Cost |                                                        |    |
| 3-10-80                                                  | RE   |       | 300 <sup>00</sup> |           |          |             |      | Individuals                                            | \$ |
| 9-16-80                                                  | RME  | 4     |                   |           |          |             |      | Instrument                                             |    |
| 4-28-81                                                  | RME  | 4     |                   |           |          |             |      | Travel                                                 |    |
|                                                          |      |       |                   |           |          |             |      | Outside                                                |    |
|                                                          |      |       |                   |           |          |             |      | Other                                                  |    |
| Instrument time                                          |      |       |                   |           |          |             |      | Total Charge                                           | \$ |
|                                                          | Date | Hours | Charge            |           | Date     | Company     | Cost | OK for billing<br>Project Ldr _____<br>Group Ldr _____ |    |
| SEM                                                      |      |       |                   | Photo     |          |             |      |                                                        |    |
| TEM                                                      |      |       |                   | Photo     |          |             |      |                                                        |    |
| XRD                                                      |      |       |                   | Materials |          |             |      |                                                        |    |
| EMP                                                      |      |       |                   | Supplies  |          |             |      |                                                        |    |
| IMP                                                      |      |       |                   |           |          |             |      |                                                        |    |
| ESCA                                                     |      |       |                   |           |          |             |      |                                                        |    |
| EMMA                                                     |      |       |                   |           |          |             |      |                                                        |    |
| MOLE                                                     |      |       |                   |           |          |             |      |                                                        |    |

TOTAL CHARGE \$ 300 -

BILLED TO CLIENT \$ \_\_\_\_\_

INVOICE NO. (S) 6368/17 Mar 80-816 Sept<sup>80</sup> rept  
INV 7407 / \$450.30 Apr 81 / 29 Apr 81 rept  
INV 8612 → \$300 - 2PROJECT LEADER: RE

# Cyprus Industrial Minerals Company

555 South Flower Street  
Los Angeles, California 90071  
Telephone (213) 489-3700

MA 8802

## Purchase Order

Ship To:  
Acknowledgement Requested

26 May 81

### Vendor

McCrone Research Center  
2830 S. Michigan Avenue  
Chicago, IL 60616

(Attn: Mr. Rick Ellis)

Invoice in triplicate

To: Cyprus Industrial Minerals Company  
2435 Military Avenue  
W. Los Angeles, CA 90064

| Date             | Ship Via          |                                                                                                                              | Date Required | Terms |
|------------------|-------------------|------------------------------------------------------------------------------------------------------------------------------|---------------|-------|
| 3/23/81          |                   |                                                                                                                              | ASAP          |       |
| Quantity Ordered | Quantity Received | Description                                                                                                                  | Unit Price    | Total |
|                  |                   | Identify <del>fibers</del> fibers in Talc #1 by TEM/SAED. Attached micrographs illustrate the fibers observed in the sample. |               |       |

28876

Above order number must appear on all papers and packages relative to this order.

*M. M. Kazazian* M. M. Kazazian  
Approved Tech. Services Mgr.

**CYPRUS**



walter c. mcrone associates, inc.

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

29 April 1981

Ms. Kazazian  
Cyprus Industrial Minerals Company  
2435 Military Avenue  
Los Angeles, CA 90071

Dear Ms. Kazazian:

I have completed my electron optical analysis of a sample of Talc #1 submitted under P.O. #28876.

The sample was analyzed by transmission electron microscopy and selected area electron diffraction. The fibers seen in the sample as per your photomicrographs were determined to be talc ribbons. They gave a non pseudo-hexagonal electron diffraction pattern because they were standing on edge. The normal basal reflections give the pseudo-hexagonal pattern.

Thank you for consulting McCrone Associates. Please contact me if you have any questions.

Sincerely,

Richard M. Ellis  
Research Microscopist

RME:jr  
Ref. MA 8802

213/473-9417

Maral

8802

# Cyprus Industrial Minerals Company

555 South Flower Street  
Los Angeles, California 90071  
Telephone (213) 489-3700

## Purchase Order

Ship To:  
Acknowledgement Requested

Cyprus Industrial Minerals  
2435 Military Avenue  
Los Angeles, CA 90064

attn: R. Horning

Invoice in triplicate

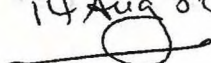
### Vendor

McCrone Research Co.  
2820 So. Michigan Avenue  
Chicago, IL 60616

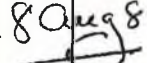
Attn: Mr. Rick Ellis

To:

same

rec'd  
14 Aug 80  


| Date             | Ship Via          |                                                                                                                        | Date Required | Terms  |
|------------------|-------------------|------------------------------------------------------------------------------------------------------------------------|---------------|--------|
| 8/13/80          |                   |                                                                                                                        | ASAP          | Net 30 |
| Quantity Ordered | Quantity Received | Description                                                                                                            | Unit Price    | Total  |
|                  |                   | TEM/SAED to identify fibrous mineral present. Also check for tremolite Talc Sample.<br><br>Approximate Cost - \$450.00 |               |        |

OK to do  
per DAB  
18 Aug 80  


28841

Above order number must appear  
on all papers and packages  
relative to this order.

  
Approved  
Ruthanne Horning

**CYPRUS**



walter c. m<sup>c</sup>crone associates, inc.

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

16 September 1980

Ms. Ruthanne Horning  
Cyprus Industrial Minerals Co.  
2435 Military Avenue  
Los Angeles, California 90064

Dear Ms. Horning:

I have completed my asbestos analysis of a talc sample submitted under purchase order #28841.

The sample was examined with the transmission electron microscope. The analysis utilized Selected Area Electron Diffraction (SAED) and Energy Dispersive X-ray Analysis (EDXRA). The sample contained no asbestiform minerals. The only particles with aspect ratios higher than 3:1 were talc ribbons.

Thank you for consulting McCrone Associates. Please contact me if you have any questions.

Sincerely,

Richard M. Ellis, Jr.  
Research Microscopist

RME:gb  
Ref: 8802

RECEIVED APR 25 1980

Cyprus Industrial Minerals Company

555 South Flower Street  
Los Angeles, California 90071  
Telephone 213) 489-3700

TWX 910) 321-5753

April 21, 1980

Mr. Donald Brook  
McCrone Associates, Inc.  
2820 South Michigan Avenue  
Chicago, Illinois 60616

Dear Mr. Brook:

Confirming our telephone conversation concerning the Continental Minerals phone call (Mr. George Jennings), attached is a copy of the information that was passed to our salespeople. In addition, I have attached a copy of our laboratory report #80-020 in which we agree with your findings.

Our marketing strategy is a simple one; whenever a customer has doubt concerning the mineral composition of a product we offer them the opportunity to send the sample in question to a qualified analytical lab for analysis at our expense. We feel McCrone Associates, Inc. is such a qualified organization.

Sincerely,

*Louis D. murino*

Louis D. Murino (aq)  
Vice President  
Marketing, Talc Division

LDM:tag

Attachments: Lab Report #80-020  
McCrone Letter dated 3/18/80

**CYPRUS**

CYPR-MA08802-0009



# walter c. mcrone associates, inc.

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

*file*  
Mr. Joseph Blashka  
Crown Zellerbach  
Camas, Washington 98607

Dear Mr. Blashka:

We have completed our examination by transmission electron microscopy and selected area electron diffraction of the talc sample C-Z, Camas which you submitted for determination of asbestos content.

The sample was prepared by suspending a small portion of the powder in ethanol and ultrasonerating, to break up any aggregates. A small drop of the suspension was then placed on a previously carbon coated transmission electron microscope grid and allowed to dry. This grid was then examined in the transmission electron microscope.

During this examination particles with a fibrous morphology, that is an aspect ratio greater than 3:1, were examined by selected area electron diffraction to determine their crystallography. Based on this selected area electron diffraction it was determined that a proportion of the sample consisted of a fibrous amphibole, tentatively identified as tremolite, and that this proportion was less than 10%.

It should be pointed out that fibrous tremolite is defined in the Federal Register as asbestos, and that for the purposes of this definition a fiber is defined as a particle having an aspect ratio greater than 3:1, that is a length to width ratio of greater than 3:1. The tremolite particles observed in your sample, therefore, would be classed under existing OSHA regulations as asbestos.

Thank you for consulting McCrone Associates. If you have any questions concerning this report please contact us.

Yours sincerely,

Richard M. Ellis, Jr.  
Research Microscopist

RME:gb  
Ref: MA 8802  
cc: Lou Murino  
Gordon Gill

RECEIVED

MAR 25 1980

CYPR-MA8802-0040

MARKETING DEPT.

*① CMM  
Rep. Mops  
Talc Sales 3/24/80*

*Gentlemen: - As you can see, McCrone thinks tremolite is  
asbestos. - This was a sample of Continental  
Minerals Cyclosorb that was sent for  
analysis by C-Z. This would reflect the  
18 March 1980  
so called "free of asbestos"  
certification Continental is  
telling its customers regarding  
their California talcs (the  
old J-M Grantham product)  
JMM 3/25/80*



walter c. mccrone associates, inc.

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

18 March 1980

Mr. Joseph Blashka  
Crown Zellerbach  
Camas, Washington 98607

Dear Mr. Blashka:

At the request of Mr. Gordon Gill of Cyprus Minerals I am submitting a revised version of my report of 11 March 1980 which will clarify the position with regard to the fibrous tremolite detected in your talc sample, C-Z, Camas.

Yours sincerely,

*R. M. Ellis Jr.*

Richard M. Ellis, Jr.  
Research Microscopist

RME:gb  
Ref: MA 8802  
cc: Lou Murino  
Gordon Gill

**RECEIVED**

**MAR 25 1980**

**MARKETING DEPT.**

CYPR-MA08802-0011

Cyprus Industrial  
Minerals Company

555 South Flower Street  
Los Angeles, California 90071



*Jan info —*  
*From for project file —*

Mr. Donald Brook  
President  
McCrone Associates, Inc.  
2820 South Michigan Avenue  
Chicago, Illinois 60616

**CYPRUS**

# Laboratory Report

Cyprus Industrial Minerals Company

555 South Flower Street  
Los Angeles, California 90071  
Telephone 213) 489-3700

Report No: 80-020

References:

Key: Cyclosorb

Date of Report: 1/24/80

Date of Work Request / By: 1/22/80 CRM

Copies: HTM, MFW, GJG CRM,  
LDM, GDL, MMK, CJP,  
LEF, FILE

Reported By: C.J. Parmentier/M.M. Kazazian

Approved By: G. J. Gill

Classification:

Status: Complete as requested.

Subject: A competitive talc sample labeled as, "Cyclosorb".

Objective: Characterize the talc sample labeled as "Cyclosorb".  
"Crown Z" is considering buying this product.

## TEST/RESULTS

|                          |                          |
|--------------------------|--------------------------|
| GEB                      | 80.2                     |
| 325 mesh                 | 99.99%                   |
| Acid solubles (as CaO)   | 2.67%                    |
| Hegman                   | 6.0                      |
| Water soluble substances | .05%                     |
| Water soluble iron       | none                     |
| Tap Density (Numinco)    | 31.6 lbs/ft <sup>3</sup> |

Scanning Electron Microscope (SEM) study of "Cyclosorb" talc sample, revealed the presence of fibrous minerals. The fiber particle population density was estimated to be about 5%, however, weight percent from XRD indicated 3% Tremolite. Microscopic study revealed that the majority of the fibers present were asbestiform. Transmission Electron Microscope (TEM/SAED) confirmed the presence of asbestiform.

CYPR-MA08802-0013

CYPRIS

Lab Report: 80-020  
Cyclosorb

M. M. Kazazain/C.J. Parmentie  
January 24, 1980

Tremolite fibers. Some polygorsgite fibers were also observed.

ILLUSTRATION OF MICROGRAPHS

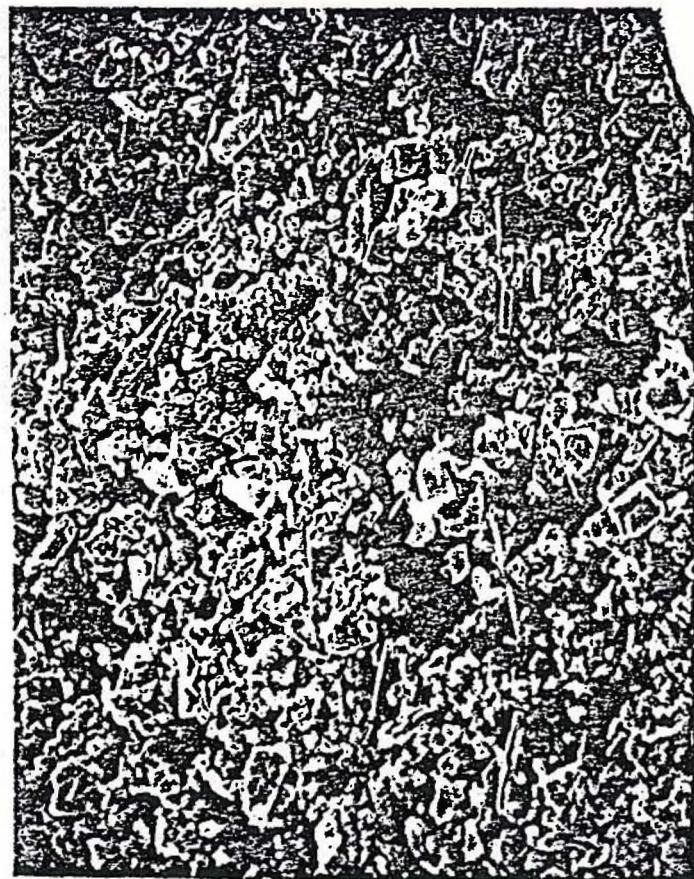
Micrographs "A" and "B" are representative area micrographs of "Cyclosorb" sample, illustrating fibrous minerals.

Micrograph "C" is a higher magnification of the fiber observed in micrograph "B" (yellow arrow).

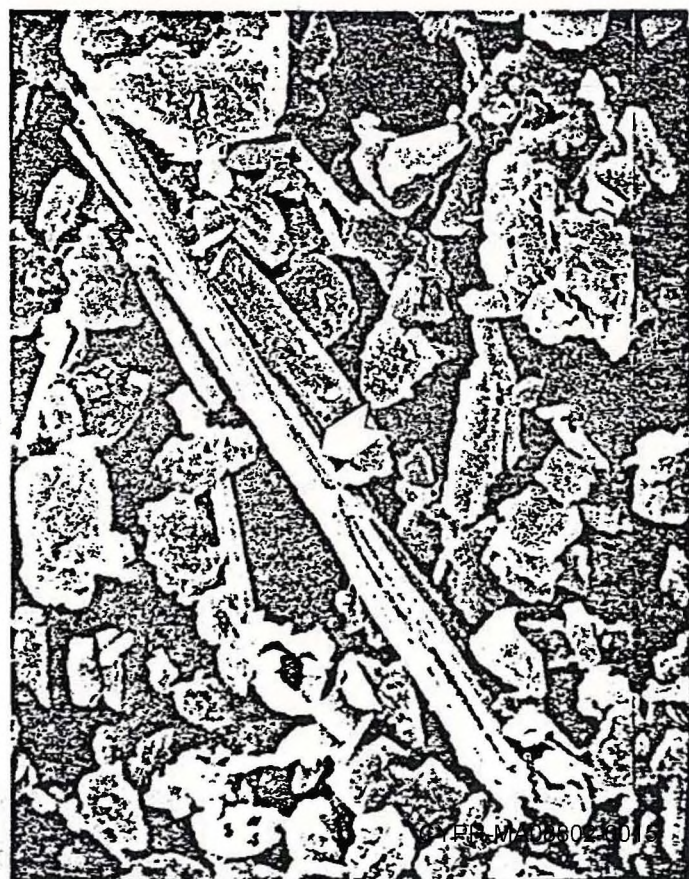
Micrograph "D" illustrates the morphology of the fibers at high magnification revealed by the (pink arrows).

\*See attached CRC report for XRD, PSD, and SA.

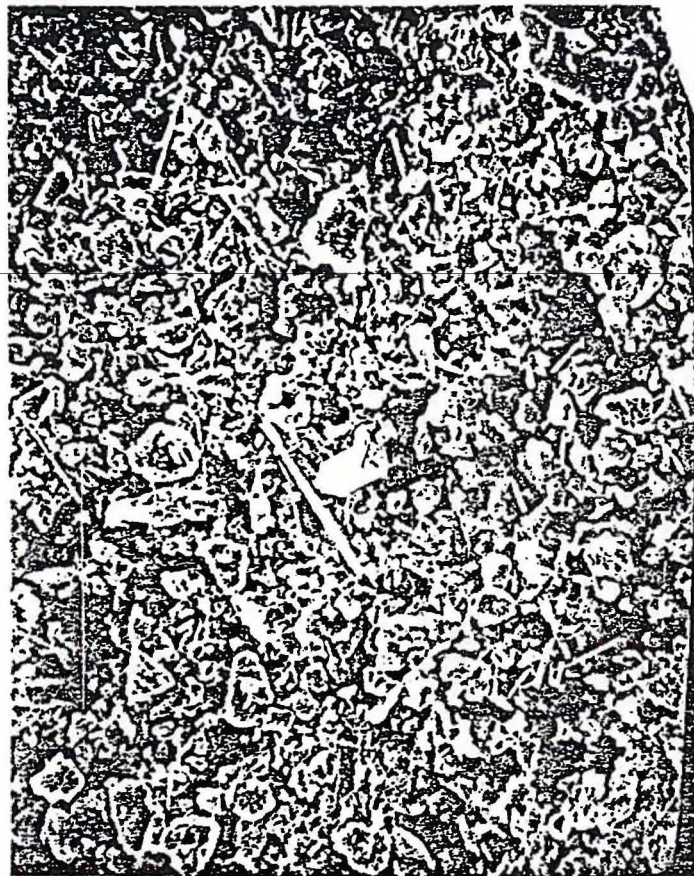
MMK:cw  
enc.



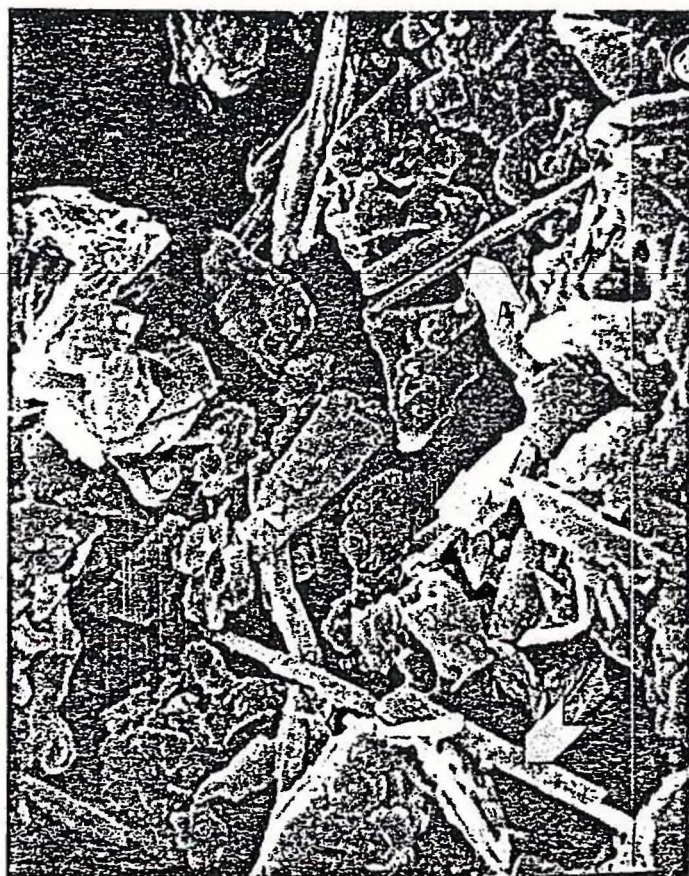
Cyclosorb Proj. # 80-020 SEM x 550 @ 30° 1.22.80



Cyclosorb Proj. # 80-020 SEM x 2400 @ 30° 1.22.80



Cyclosorb, Proj. # 80-020 SEM x 550 @ 30° 1.22.80



Cyclosorb Proj. # 80-020 SEM x 5500 @ 30° 1.22.80

# Laboratory Report

Cyprus Research Company

2435 Military Avenue  
West Los Angeles, California  
Telephone 213) 478-0462

Filing No. 80-0023-CIMT-LA

References: 80 007 80-020

Key: Cyclosorb

Date of Report: 1/24/80

Date of Work Request / By: 1/22/80

Copies: M.KAZAZIAN, ✓ R.C. CLOUD,  
P. COLVILLE, FILE

Reported By: R.C.CLOUD/P. COLVILLE

Approved By: L.E. FERREIRA *LF*

Classification:

Status: COMPLETE

Subject: Cyclosorb

Objective: XRD, PSD, SA

## Results

### X-ray diffraction analysis:

|           |       |
|-----------|-------|
| Talc      | >80 % |
| Mica      | <10 % |
| Calcite   | ~5 %  |
| Dolomite  | ~2 %  |
| Tremolite | 3.1 % |

Surface area = 4.5 m<sup>2</sup>/g

See attached curve for particle size distribution

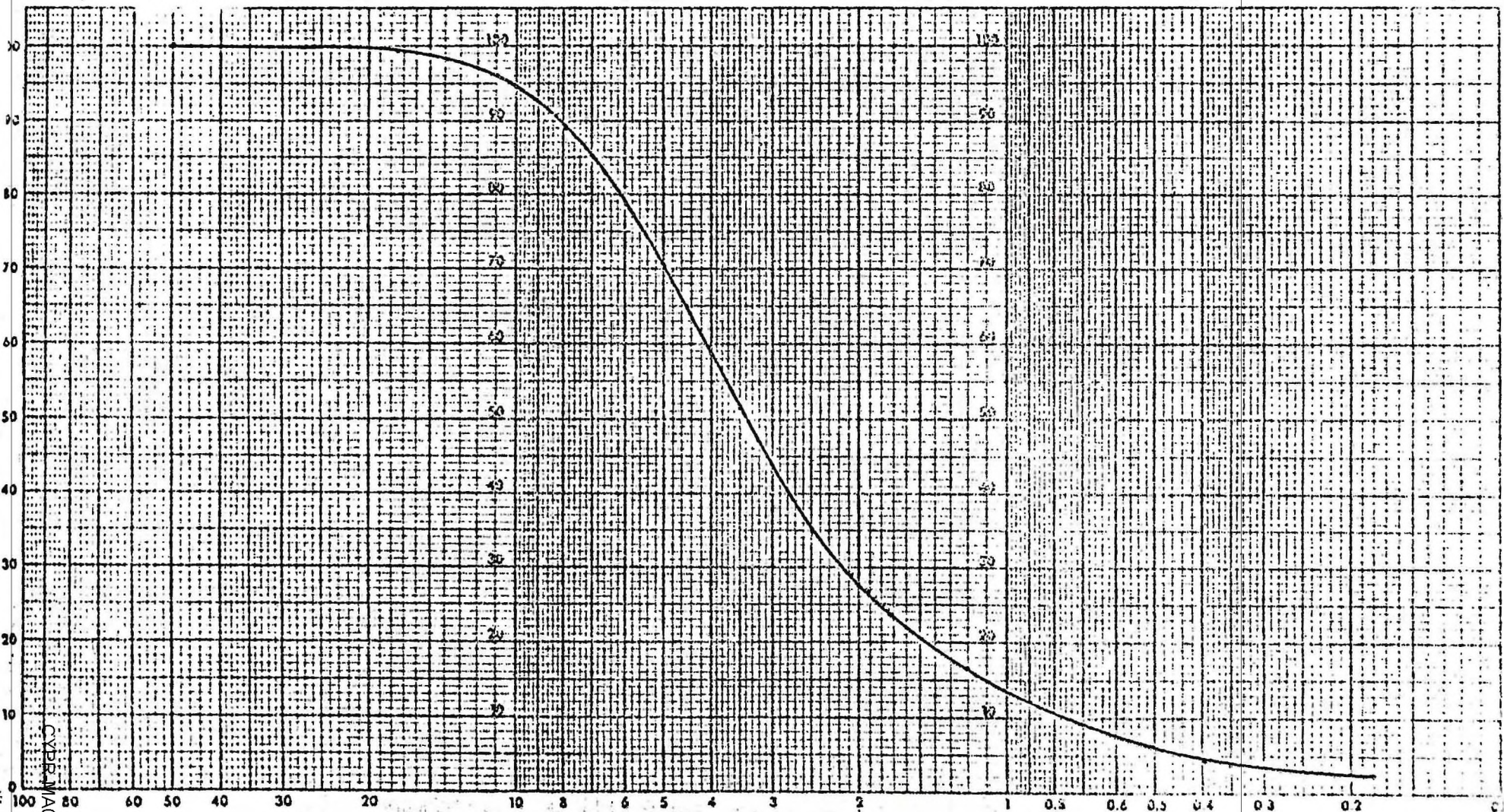
*P. Colville. R.C. Cloud*  
P. COLVILLE/R.C. CLOUD  
PC/RCC/bb

# PARTICLE SIZE DISTRIBUTION

SAMPLE IDENTIFICATION Cyclosorb 80 T 007  
 Density 2.75 g/cc LIQUID H<sub>2</sub>O Density        g/cc Viscosity        cp  
 Preparation       

DATE 1/24/80  
 BY R.C. CLOUD  
 TEMPERATURE 32 °C  
 RATE 124 START DIA. 50 μm

80-0023



EQUIVALENT SPHERICAL DIAMETER, μm

CYBER-M 00802-001



walter c. mccrone associates, inc.

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

18 March 1980

Mr. Joseph Blashka  
Crown Zellerbach  
Camas, Washington 98607

Dear Mr. Blashka:

At the request of Mr. Gordon Gill of Cyprus Minerals I am submitting a revised version of my report of 11 March 1980 which will clarify the position with regard to the fibrous tremolite detected in your talc sample, C-Z, Camas.

Yours sincerely,

Richard M. Ellis, Jr.  
Research Microscopist

RME:gb  
Ref: MA 8802  
cc: Lou Murino  
Gordon Gill



walter c. mccrone associates, inc.

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

11 March 1980

Mr. Joseph Blashka  
Crown Zellerbach  
Camas, Washington 98607

Dear Mr. Blashka:

I have completed my asbestos analysis of talc sample C-Z, Camas. The sample was examined using transmission electron microscopy (TEM) and selected area electron diffraction (SAED). The sample was found to contain amphibole fibers, probably tremolite. The amount is less than 10%.

Thank you for consulting McCrone Associates. Please call us if you require further information.

Sincerely yours,

Richard M. Ellis, Jr.  
Research Microscopist

RME:gb  
Ref: MA 8802  
cc: Mr. Lou Murino  
Cyprus Industrial Minerals

# Cyprus Industrial Minerals Company

555 South Flower Street  
Los Angeles, California 90071  
Telephone (213) 489-3700

## Purchase Order

Ship To:  
Acknowledgement Requested

Rec'd  
30 Jan 80

### Vendor

Walter C. McCrone Associates Inc.  
2820 S. Michigan Avenue  
Chicago, IL 60616

Invoice in triplicate

To: Cyprus Industrial Minerals  
555 S. Flower St.  
Los Angeles, CA 90071  
Attn: International Dept.

| Date             | Ship Via          |                                                                                                                                                                                                                                                                                                                              | Date Required | Terms |
|------------------|-------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|-------|
| 1-11-80          |                   |                                                                                                                                                                                                                                                                                                                              |               |       |
| Quantity Ordered | Quantity Received | Description                                                                                                                                                                                                                                                                                                                  | Unit Price    | Total |
| 1                |                   | Talc sample C-Z, Camas. Determination for asbestiform content with special attention to fibrous tremolite.<br><br>Report results directly to:<br><br>Mr. Joseph Blashka<br>Crown Zellerbach<br>Camas, WA 98607<br><br>cc results: Mr. Lou Murino<br>Cyprus Industrial Minerals<br>555 S. Flower St.<br>Los Angeles, CA 90071 |               |       |

36955

Above order number must appear  
on all papers and packages  
relative to this order.

INV 636818

*L. Murino* 8862/RE  
Approved

# CYPRUS