AMA Analytical Services, Inc.
Focused On Results.

NVLAP TESTING
NVLAP Lab Code 101143-0
NY ELAP
Lab ID 10920

Analytical Report for:

Testing of Official Samples of Talc Containing Cosmetics for Asbestiform Fibers

Contract Number: 75F40119P10689

Assignment DFPG# 22-08, Batch No. 03302022 (Batch #3)
AMA COC No. 635810

US FDA
Office of Cosmetics & Colors
4300 River Road
College Park, MD 20740

AMA Analytical Services, Inc.

Focused On Results. **CERTIFICATE OF ANALYSIS**

Chain of Custody: 635810
Client: US Food & Drug Adminitration
Address: Office of Cosmetics & Colors
4300 River Road
College Park, MD 20740
Attention: John Gasper

Job Name: Assignment DFPG #22-08
Job Location: Batch 3 (No. 03302022)
Job Number: CLIN 1001
PO Number: 75F40119P10689

Date Submitted: 4/25/2022
Date Analyzed: 5/12/2022 - 6/2/2022
Report Date: 9/16/2022
Date Sampled: Not Provided
Person Submitting: Martha Schwartz
Revised:

SUMMARY OF ANALYSIS

AMA Sample ID	Client Sample ID	TEM LOD Using ASTM D5756 Mass Calculation	TEM LOQ Using ASTM D5756 Mass Calculation	% Chrysotile by TEM Using ASTM D5756 Mass Calculation	% Tremolite by TEM Using ASTM D5756 Mass Calculation	% Total Chrysotile & Tremolite by TEM Using ASTM D5756 Mass Calculation	% Asbestos by PLM	% Organics	% Acid Soluable	% Other	Comments
635810-1A	03302022-1	0.00000339%	0.00001358%	ND	ND	< 0.00001%	ND	6.66%	11.99%	81.35%	
635810-1B	03302022-1	0.00000336%	0.00001344%	ND	ND	< 0.00001%	ND	6.49%	13.28%	80.23%	
635810-1C	03302022-1	0.00000342%	0.00001367%	ND	ND	< 0.00001%	ND	6.80%	10.14%	83.05%	
635810-2A	03302022-2	0.00000427%	0.00001709%	ND	ND	< 0.00002%	ND	15.42%	17.36%	67.22%	
635810-2B	03302022-2	0.00000347%	0.00001389%	ND	ND	< 0.00001%	ND	15.57%	19.15%	65.28%	
635810-2C	03302022-2	0.00000257%	0.00001030%	ND	ND	< 0.00001%	ND	15.57%	15.60%	68.84%	
635810-3A	03302022-3	0.00000306%	0.00001224%	ND	ND	< 0.00001%	ND	7.05%	12.44%	80.52%	
635810-3B	03302022-3	0.00000351%	0.00001405%	ND	ND	< 0.00001%	ND	6.93%	12.01%	81.06%	
635810-3C	03302022-3	0.00000391%	0.00001565%	ND	ND	< 0.00002%	ND	6.83%	13.26%	79.91%	
635810-4A	03302022-4	0.00000313%	0.00001253%	ND	ND	< 0.00001%	ND	8.72%	11.51%	79.77%	
635810-4B	03302022-4	0.00000286%	0.00001145%	ND	ND	< 0.00001%	ND	8.74%	11.35%	79.91%	
635810-4C	03302022-4	0.00000278%	0.00001111%	ND	ND	< 0.00001%	ND	8.72%	10.18%	81.10%	
635810-5A	03302022-5	0.00000328%	0.00001312%	ND	ND	< 0.00001%	ND	7.69%	8.03%	84.28%	
635810-5B	03302022-5	0.00000265%	0.00001062%	ND	ND	< 0.00001%	ND	7.68%	8.21%	84.12%	
635810-5C	03302022-5	0.00000261%	0.00001043%	ND	ND	< 0.00001%	ND	7.75%	8.61%	83.64%	
635810-6A	03302022-6	0.00000271%	0.00001083%	ND	ND	< 0.00001%	ND	14.79%	9.86%	75.35%	
635810-6B	03302022-6	0.00000338%	0.00001352%	ND	ND	< 0.00001%	ND	14.70%	9.42%	75.88%	
635810-6C	03302022-6	0.00000282%	0.00001128%	ND	ND	< 0.00001%	ND	14.87%	9.47%	75.66%	
635810-7A	03302022-7	0.00000274%	0.00001096%	ND	ND	< 0.00001%	ND	6.56%	7.62%	85.82%	
635810-7B	03302022-7	0.00000331%	0.00001324%	ND	ND	< 0.00001%	ND	6.64%	7.94%	85.42%	
635810-7C	03302022-7	0.00000309%	0.00001236%	ND	ND	< 0.00001%	ND	6.55%	6.76%	86.69%	
635810-8A	03302022-8	0.00000323%	0.00001293%	ND	ND	< 0.00001%	ND	5.73%	7.17%	87.10%	
635810-8B	03302022-8	0.00000291%	0.00001165%	ND	ND	< 0.00001%	ND	5.76%	7.29%	86.95%	
635810-8C	03302022-8	0.00000372%	0.00001490%	ND	ND	< 0.00001%	ND	5.74%	9.91%	84.35%	
635810-9A	03302022-9	0.00000311%	0.00001243%	ND	ND	< 0.00001%	ND	20.50%	45.28%	34.22%	
635810-9B	03302022-9	0.00000303%	0.00001211%	ND	ND	< 0.00001%	ND	20.20%	45.99%	33.81%	
635810-9C	03302022-9	0.00000327%	0.00001310%	ND	ND	< 0.00001%	ND	20.29%	45.08%	34.63%	
635810-10A	03302022-10	0.00000470%	0.00001881%	ND	ND	< 0.00002%	ND	12.28%	11.30%	76.42%	
635810-10B	03302022-10	0.00000322%	0.00001289%	ND	ND	< 0.00001%	ND	12.37%	10.05%	77.58%	
635810-10C	03302022-10	0.00000308%	0.00001232%	ND	ND	< 0.00001%	ND	12.53%	9.01%	78.46%	
635810-11A	03302022-11	0.00000477%	0.00001908%	ND	ND	< 0.00002%	ND	17.18%	17.74%	65.07%	
635810-11B	03302022-11	0.00000398%	0.00001593%	ND	ND	< 0.00002%	ND	17.01%	19.27%	63.72%	
635810-11C	03302022-11	0.00000433%	0.00001733%	ND	ND	< 0.00002%	ND	17.06%	17.66%	65.29%	
635810-12A	03302022-12	0.00000153%	0.00000614%	ND	ND	< 0.00001%	ND	54.62%	5.30%	40.08%	results reported on a dry weight basis
635810-12B	03302022-12	0.00000108%	0.00000433%	ND	ND	< 0.00001%	ND	46.04%	4.52%	49.44%	results reported on a dry weight basis
635810-12C	03302022-12	0.00000121%	0.00000484%	ND	ND	< 0.00001%	ND	47.15%	6.45%	46.40%	results reported on a dry weight basis
635810-13A	03302022-13	0.00000110%	0.00000441%	ND	ND	< 0.00001%	ND	46.29%	1.91%	51.80%	results reported on a dry weight basis

AMA Analytical Services, Inc.

Focused On Results. **CERTIFICATE OF ANALYSIS**

Chain of Custody: 635810
Client: US Food & Drug Adminitration
Address: Office of Cosmetics & Colors
4300 River Road
College Park, MD 20740
Attention: John Gasper

Job Name: Assignment DFPG #22-08
Job Location: Batch 3 (No. 03302022)
Job Number: CLIN 1001
PO Number: 75F40119P10689

Date Submitted: 4/25/2022
Date Analyzed: 5/12/2022 - 6/2/2022
Report Date: 9/16/2022
Date Sampled: Not Provided
Person Submitting: Martha Schwartz
Revised:

SUMMARY OF ANALYSIS

AMA Sample ID	Client Sample ID	TEM LOD Using ASTM D5756 Mass Calculation	TEM LOQ Using ASTM D5756 Mass Calculation	% Chrysotile by TEM Using ASTM D5756 Mass Calculation	% Tremolite by TEM Using ASTM D5756 Mass Calculation	% Total Chrysotile & Tremolite by TEM Using ASTM D5756 Mass Calculation	% Asbestos by PLM	% Organics	% Acid Soluable	% Other	Comments
635810-13B	03302022-13	0.00000117%	0.00000468%	ND	ND	< 0.00001%	ND	47.20%	1.81%	50.99%	results reported on a dry weight basis
635810-13C	03302022-12	0.00000094%	0.00000375%	ND	ND	< 0.00001%	ND	46.35%	1.15%	52.49%	results reported on a dry weight basis

LOD = Limit of Detection **LOQ** = Limit of Quantification **ND** = Not Detected **PLM** = Polarized Light Microscopy **TEM** = Transmission Electron Microscopy

Analytical Method(s): PLM by Modified NY ELAP 198.6
TEM by Modified NY ELAP 198.4/ASTM D5756

Analyst(s): **PLM** (b) (6)
TEM (b) (6) Andreas Saldivar

Technical Director: Andreas Saldivar

All results are to be considered preliminary and subject to change unless signed by the Technical Director or Deputy

FDA Office of Cosmetics & Colors

Table of Contents

COC 635810

Record Changes Report

Date	Description
9/23/2022	1) p. 32, corrected small typo (removed extraneous "f") in first paragraph on page 2) p. 32, added preparation steps for liquid samples 3) p. 34, in calculations section, specified that for liquid samples, the value for W1 in gravimetric reduction percentages is the dry weight mass

Chain of Custody

AMA Analytical Services, Inc.
Focused On Results.
AIHA-LAP (#100470) NVLAP (#101143-0) NY ELAP (#10920)
4475 Forbes Blvd. • Lanham, MD 20706
(301) 459-2640 • (800) 346-0961 • Fax (301) 459-2643
www.amalab.com

(COC # Assigned upon arrival at lab.) **635810**

CHAIN OF CUSTODY

Asbestos in Talc/Cosmetics

Mailing/Billing Information:
Client Name: US Food & Drug Administration
Address: Office of Cosmetics and Colors
Address: 4300 River Road
Address: College Park, MD 20740
Phone #: _____ Fax #: _____

Submittal Information:
Job Name: Assignment DFPG #22-08
Job Location: Batch 3 (No. 03302022)
Job #: CLIN 1001 P.O. #: 75F40119P10689
Point of Contact: John Gasper Cell #: 240-402-1133
Collected by: _____ Cell #: _____

Reporting Info (Results provided as soon as technically feasible). If no TAT/Reporting Info is provided, AMA will assign defaults of 6-Weeks & email/fax to contacts of file.

TURN AROUND TIME (TAT):		REPORT TO:
After Hours (must be pre-scheduled)	**Normal Business Hours**	☑ Email: john.gasper@fda.hhs.gov
After Hours Service is not provided for Asbestos in Talc/Cosmetics Analysis	☐ 10-Day (2-Weeks) ☐ 3-4 Weeks ☐ 6+ Weeks Due Date: 5/31/2022 ☑ 4-6 Weeks	☑ Email CC 1: steven.wolfgang.fda.hhs.gov ☐ Email CC 2: _____ ☐ Verbals _____

Sample Type
☑ FDA Modified Procedures for PLM-ELAP 198.6 & TEM ELAP 198.4 13 (QTY)

Data Package Level [Select One]: ____Standard (Certificate of Analysis & Signed COC) ____Level I (Standard + QA/QC Summary) ____Level II (I + Bench Sheets) ☑ Level III (II + Case Narrative)

*If field data sheets are submitted, there is no need to complete bottom section

☑ All samples received in good condition unless otherwise noted.

Sample Information

Sample Number	No. of Aliquots to Prepare & Analyze	Sample Description (ie, color, container size, etc.) [samples must must be submitted blind such that AMA cannot determine the source of the material being submitted for analysis]	Comments/Instructions
Item #s 1 thru 13	3	11 '1-oz glass jars submitted in pink vacuum sealed plastic bags	
		and 12 (6/sample) 50-mL plastic centrifuge tubes in pink	
		vacuum sealed plastic bags with custody seals intact (sealed by	
		M. Schwartz 4/13/2022-4/19/2022)	
		See attached FDA COC for additional details.	

	Print Name	Sign Name	Date	Time	Shipping Information
Relinquised by:					☑ UPS ☐ In-Person ☐ Other ☐ FedEx ☐ Drop Box ☐ USPS ☐ Courier
Received by:	(b) (6)		4/25/2022	11:05	1Z4995A0390429360

FDA U.S. FOOD & DRUG ADMINISTRATION
OFFICE OF REGULATORY AFFAIRS

1DFC 6th Ave & Kipling St
Bldg 20, Door W-10
P.O. Box 25087
Denver, CO 80225-0087

April 19, 2022

AMA Analytical Services, Inc.
Attn: (b) (6)
4475 Forbes Blvd.
Lanham, MD 20706
Phone: 301-459-2640

Re: Samples for Asbestos Analysis, Batch #03302022

Dear (b) (6)

Enclosed in box are thirteen (13) commercial talc-containing cosmetic products, 11 solid and 2 liquid, being submitted for analysis for asbestiform fibers by transmission electron microscope (TEM) per FDA Assignment DFPG #22-08, Contract No. #75F40119P10689. Also included in box is one chain of custody form to be completed by recipient for tracking of sample batch at AMA. Please analyze samples as agreed.

The thirteen (13) samples in this shipment constitute Batch 3 (No. 03302022) of the 50 samples that will be submitted to AMA for analysis in 2022.

If there are any questions, please contact: John Gasper: 240-402-1133 john.gasper@fda.hhs.gov

Best regards,

Martha H. Schwartz

Martha H. Schwartz
Chemist

Chemistry Branch
Denver Laboratory
Office of Regulatory Affairs
U.S. Food and Drug Administration
T: 303-236-9653
martha.schwartz@fda.hhs.gov

Enclosure: Chain of custody

Batch No: ____03302022_____

Submitter: ___Martha H. Schwartz_____

Assignment No./ Contract No.:___DFPG #22-08 / #75F40119P10689_____

AMA COC No.: _____

Date Sealed: ___4/20/2021_____ Sample Type: ___Official Samples_____

Description of Evidence		
Item #	**Quantity**	**Description of Item** (Lab#, Lot #, Condition)
03302022-1	1	Approx. 5 g of prepared talc-containing cosmetic sample
03302022-2	1	
03302022-3	1	
03302022-4	1	
03302022-5	1	
03302022-6	1	
03302022-7	1	
03302022-8	1	
03302022-9	1	
03302022-10	1	
03302022-11	1	
03302022-12.1-12.6	6	50-mL centrifuge tubes containing ~30 mL of liquid air-brush makeup product
03302022-13.1-13.6	6	50-mL centrifuge tubes containing ~30 mL of liquid air-brush makeup product

Adapted from: Technical Working Group on Biological Evidence Preservation. *The Biological Evidence Preservation Handbook: Best Practices for Evidence Handlers*. U.S. Department of Commerce, National Institute of Standards and Technology. 2013.

Chain of Custody				
Item #	**Date**	**Released by** (Print Name)	**Released by** (Signature)	**Comments/Location**
1-13	4/20/22	Martha H. Schwartz	Martha H. Schwartz	ORS / DENL

Chain of Custody				
Item #	**Date/Time**	**Received by**	**Received by**	**Comments/Location**
1-13	4/25/2022	(b) (6)		ADUA

Final Disposal Authority

Authorization for Disposal

Item(s) #: _____ on this document is/are no longer needed as evidence and is/are authorized for disposal by (check appropriate disposal method)

☐ Return to Submitter ☐ Destruction

Name of Authorizing Official: _____ Date: _____

Signature: _____

Adapted from: Technical Working Group on Biological Evidence Preservation. *The Biological Evidence Preservation Handbook: Best Practices for Evidence Handlers*. U.S. Department of Commerce, National Institute of Standards and Technology. 2013.

Witness to Destruction of Evidence

Item(s) #: _____ on this document were destroyed by (Name) _____
in my presence on (date) _____.
Name of Witness to destruction: _____ Signature: _____Date: _____

Release to Lawful Owner

Item(s) #: _____ on this document was/were released by Evidence Custodian
_____ID#:_____ to
Name _____
Address: _____ City: _____State: _____
Zip Code: _____
Telephone Number: (_____) _____
Under penalty of law, I certify that I am the lawful owner of the above item(s).

Signature: _____ Date: _____

Copy of Government-issued photo identification is attached. ☐ Yes ☐ No

This form is to be retained as a permanent record by the Center for Food Safety and Applied Nutrition, Office of Cosmetics and Colors.

Adapted from: Technical Working Group on Biological Evidence Preservation. *The Biological Evidence Preservation Handbook: Best Practices for Evidence Handlers*. U.S. Department of Commerce, National Institute of Standards and Technology. 2013.

UPS CampusShip: View/Print Label

1. **Ensure there are no other shipping or tracking labels attached to your package.** Select the Print button on the print dialog box that appears. Note: If your browser does not support this function select Print from the File menu to print the label.

2. **Fold the printed label at the solid line below.** Place the label in a UPS Shipping Pouch. If you do not have a pouch, affix the folded label using clear plastic shipping tape over the entire label.

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   Customers with a Daily Pickup
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   Customers without a Daily Pickup
   Take your package to any location of The UPS Store®, UPS Access Point(TM) location, UPS Drop Box, UPS Customer Center, Staples® or Authorized Shipping Outlet near you. Items sent via UPS Return Services(SM) (including via Ground) are also accepted at Drop Boxes. To find the location nearest you, please visit the Resources area of CampusShip and select UPS Locations.
   Schedule a same day or future day Pickup to have a UPS driver pickup all your CampusShip packages.
   Hand the package to any UPS driver in your area.

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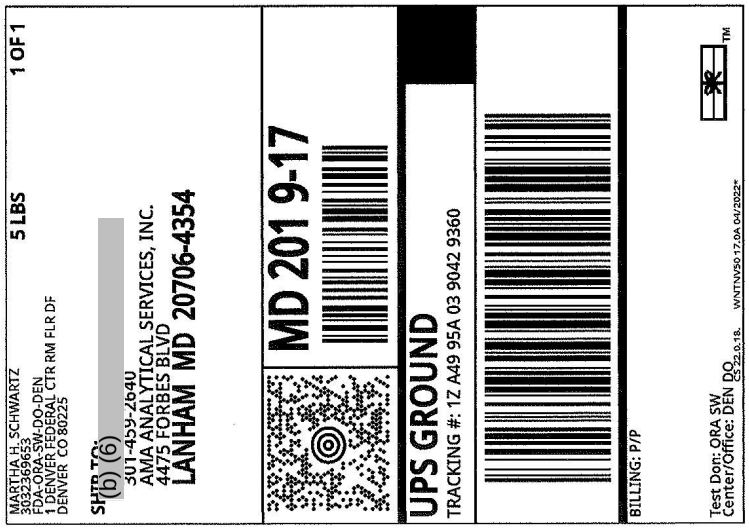

UPS Delivery Confirmation

Proof of Delivery

Dear Customer,

This notice serves as proof of delivery for the shipment listed below.

Tracking Number

1ZA4995A0390429360

Weight

5.00 LBS

Service

UPS Ground

Shipped / Billed On

04/20/2022

Delivered On

04/25/2022 11:05 A.M.

Delivered To

LANHAM, MD, US

Received By

(b) (6)

Left At

Reception

Thank you for giving us this opportunity to serve you. Details are only available for shipments delivered within the last 120 days. Please print for your records if you require this information after 120 days.

Sincerely,

UPS

Tracking results provided by UPS: 05/04/2022 5:36 P.M. EST

From: UPS
To: (b) (6)
Subject: UPS Status Notification, Tracking Number 1ZA4995A0390429360
Date: Wednesday, May 4, 2022 5:37:35 PM

Please see below for package information and current transit status.
Scheduled Delivery Date: Monday, 04/25/2022

UPS My Choice for home

Shipment Details

Tracking Detail

Your package is on time with a scheduled delivery date of 04/25/2022

Tracking Number:	1ZA4995A0390429360
Status:	Delivered
Scheduled Delivery:	04/25/2022
Shipped To:	LANHAM, MD, US
UPS Service:	UPS Ground
Number of Packages:	1
Weight:	5.0 LBS

Package Progress

Location	Date	Local Time	Description
LANHAM, MD, US	04/25/2022	11:05 AM	DELIVERED
Landover, MD, United States	04/25/2022	9:22 AM	Out For Delivery Today
Landover, MD, United States	04/23/2022	7:07 AM	Processing at UPS Facility
Landover, MD, United States	04/22/2022	7:59 PM	Arrived at Facility
Laurel, MD, United States	04/22/2022	7:25 PM	Departed from Facility

Laurel, MD, United States	04/22/2022	11:49 AM	Arrived at Facility
Harrisburg, PA, United States	04/22/2022	9:45 AM	Departed from Facility
Harrisburg, PA, United States	04/22/2022	9:16 AM	Arrived at Facility
Commerce City, CO, United States	04/21/2022	4:16 AM	Departed from Facility
Commerce City, CO, United States	04/20/2022	6:47 PM	Origin Scan
Commerce City, CO, United States	04/20/2022	3:35 PM	Pickup Scan
United States	04/20/2022	6:23 AM	Shipper created a label, UPS has not received the package yet.
Tracking results provided by UPS 05/04/2022 5:37 P.M. Eastern Time			

NOTICE: UPS authorizes you to use UPS tracking systems solely to track shipments tendered by or for you to UPS for delivery and for no other purpose. Any other use of UPS tracking systems and information is strictly prohibited.

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Case Narrative

Client Name:	FDA Office of Cosmetics & Colors	**Contact:**	John Gasper
Contract Number:	75F40119P10689	**Phone:**	(240) 402-1133
Job Name/Location:	Assignment DFPG# 22-08 Batch No. 03302022 (Batch #3)	**Email:**	john.gasper@fda.hhs.gov
AMA COC Number:	635810	**Date Received:**	April 25, 2022

AMA Sample No.	Client Sample No.	Sample Description	Analytical Method
635810-1A	03302022-1	Very pale pink colored, slightly clumpy powder with a matte appearance	Mod. PLM ELAP 198.6/TEM ELAP 198.4
635810-1B	03302022-1		Mod. PLM ELAP 198.6/TEM ELAP 198.4
635810-1C	03302022-1		Mod. PLM ELAP 198.6/TEM ELAP 198.4
635810-2A	03302022-2	Off-white colored, slightly clumpy powder with a matte appearance	Mod. PLM ELAP 198.6/TEM ELAP 198.4
635810-2B	03302022-2		Mod. PLM ELAP 198.6/TEM ELAP 198.4
635810-2C	03302022-2		Mod. PLM ELAP 198.6/TEM ELAP 198.4
635810-3A	03302022-3	Cream colored, slightly clumpy powder with a matte appearance	Mod. PLM ELAP 198.6/TEM ELAP 198.4
635810-3B	03302022-3		Mod. PLM ELAP 198.6/TEM ELAP 198.4
635810-3C	03302022-3		Mod. PLM ELAP 198.6/TEM ELAP 198.4
635810-4A	03302022-4	Pale tan colored, slightly clumpy powder with a matte appearance	Mod. PLM ELAP 198.6/TEM ELAP 198.4
635810-4B	03302022-4		Mod. PLM ELAP 198.6/TEM ELAP 198.4
635810-4C	03302022-4		Mod. PLM ELAP 198.6/TEM ELAP 198.4
635810-5A	03302022-5	Cream colored, slightly clumpy powder with a matte appearance	Mod. PLM ELAP 198.6/TEM ELAP 198.4

AMA Sample No.	Client Sample No.	Sample Description	Analytical Method
635810-5B	03302022-5		Mod. PLM ELAP 198.6/TEM ELAP 198.4
635810-5C	03302022-5		Mod. PLM ELAP 198.6/TEM ELAP 198.4
635810-6A	03302022-6	Lime green colored, slightly clumpy powder with a matte appearance	Mod. PLM ELAP 198.6/TEM ELAP 198.4
635810-6B	03302022-6		Mod. PLM ELAP 198.6/TEM ELAP 198.4
635810-6C	03302022-6		Mod. PLM ELAP 198.6/TEM ELAP 198.4
635810-7A	03302022-7	Off-white colored, fine powder with a matte appearance	Mod. PLM ELAP 198.6/TEM ELAP 198.4
635810-7B	03302022-7		Mod. PLM ELAP 198.6/TEM ELAP 198.4
635810-7C	03302022-7		Mod. PLM ELAP 198.6/TEM ELAP 198.4
635810-8A	03302022-8	Nude colored, slightly clumpy powder with a matte appearance	Mod. PLM ELAP 198.6/TEM ELAP 198.4
635810-8B	03302022-8		Mod. PLM ELAP 198.6/TEM ELAP 198.4
635810-8C	03302022-8		Mod. PLM ELAP 198.6/TEM ELAP 198.4
635810-9A	03302022-9	Pale yellow colored, fine powder with a matte appearance	Mod. PLM ELAP 198.6/TEM ELAP 198.4
635810-9B	03302022-9		Mod. PLM ELAP 198.6/TEM ELAP 198.4
635810-9C	03302022-9		Mod. PLM ELAP 198.6/TEM ELAP 198.4
635810-10A	03302022-10	Brown colored, slightly clumpy powder with a matte appearance	Mod. PLM ELAP 198.6/TEM ELAP 198.4
635810-10B	03302022-10		Mod. PLM ELAP 198.6/TEM ELAP 198.4
635810-10C	03302022-10		Mod. PLM ELAP 198.6/TEM ELAP 198.4
635810-11A	03302022-11	Dark burgundy colored, slightly clumpy powder with a pearlescent appearance	Mod. PLM ELAP 198.6/TEM ELAP 198.4
635810-11B	03302022-11		Mod. PLM ELAP 198.6/TEM ELAP 198.4

AMA Sample No.	Client Sample No.	Sample Description	Analytical Method
635810-11C	03302022-11		Mod. PLM ELAP 198.6/TEM ELAP 198.4
635810-12A	03302022-12.1 (PLM) 03302022-12.2 (TEM)	Tan colored, opaque liquid	Mod. PLM ELAP 198.6/TEM ELAP 198.4
635810-12B	03302022-12.3 (PLM) 03302022-12.4 (TEM)		Mod. PLM ELAP 198.6/TEM ELAP 198.4
635810-12C	03302022-12.5 (PLM) 03302022-12.6 (TEM)		Mod. PLM ELAP 198.6/TEM ELAP 198.4
635810-13A	03302022-13.1 (PLM) 03302022-13.2 (TEM)	Off-white colored, opaque liquid	Mod. PLM ELAP 198.6/TEM ELAP 198.4
635810-13B	03302022-13.3 (PLM) 03302022-13.4 (TEM)		Mod. PLM ELAP 198.6/TEM ELAP 198.4
635810-13C	03302022-13.5 (PLM) 03302022-13.6 (TEM)		Mod. PLM ELAP 198.6/TEM ELAP 198.4

Summary of Samples Received 1

Requested Analyses: PLM Analysis for asbestos fibers conducted by Modified NY ELAP Method 198.6 and TEM Analysis for asbestos fibers conducted by Modified NY ELAP Method 198.4

Sample Receipt Description

The samples were received at AMA Analytical Services, Inc. on April 25, 2022, at 11:05 via UPS Tracking No. 1ZA4995A0390429360 by (b) (6), who assigned them to Chain of Custody (COC) No. 635810. This COC number served as the internal laboratory job number for tracking purposes. The set consisted of eleven (11) powder samples submitted in ~1-oz glass jars, and two (2) liquid samples submitted in six (6) 50mL centrifuge tubes per sample. Each jar of powder was sealed with parafilm and individually packaged in a vacuum and custody sealed plastic bag. Each centrifuge tube was sealed with parafilm and individually packaged in a vacuum sealed plastic bag; each group of six (6) centrifuge tubes was custody sealed together in a larger vacuum sealed plastic bag. Conditions were checked upon receipt and all sample containers and custody seals were intact. The samples were entered into the AMA laboratory database on May 4, 2022 at 13:51 by Dana Hudson. The samples were logged in for analysis in triplicate and each sample aliquot was assigned a unique laboratory identification number as shown in the table above. After sample login, the set was transferred to AMA's lockbox for storage.

The following pictures document the condition of samples upon receipt at AMA:


(b) (6)


(b) (6)

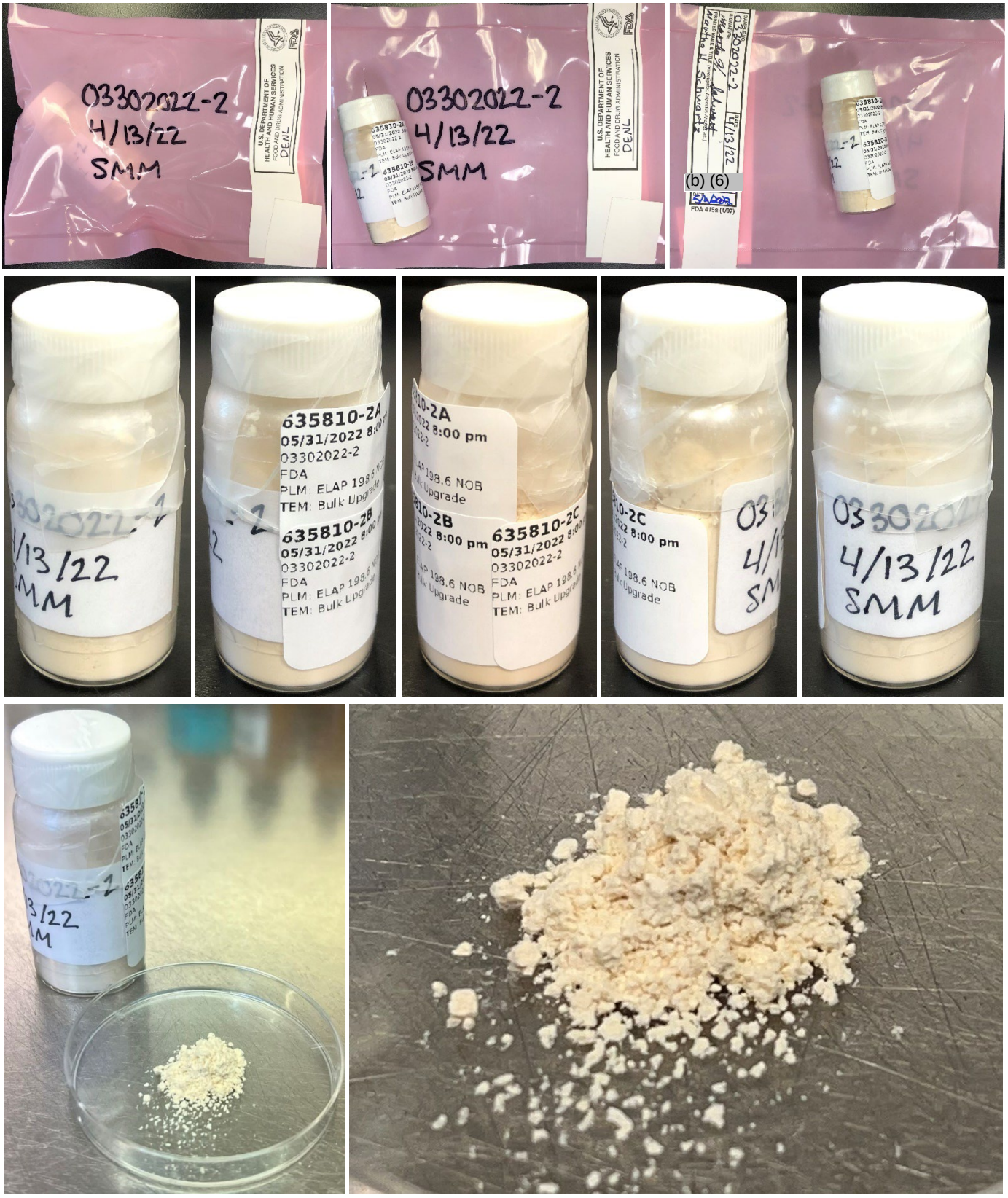

(b) (6)


4/18/22
SMM

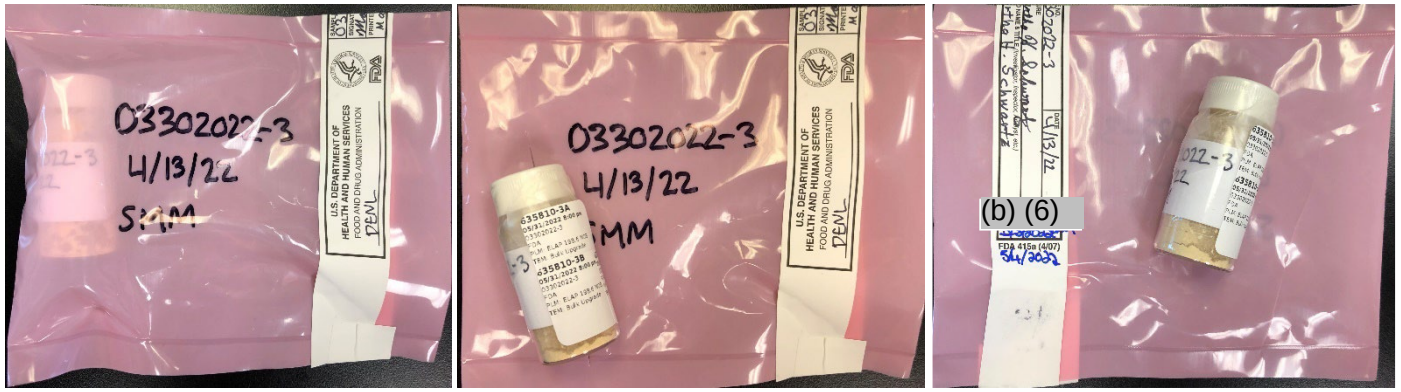

03302022-1
4/13/22
SMM
03302022-6
4/15/22
03302022-11
4/18/22
SMM
03302022-2
4/13/22
03302022-7
4/15/22
SMM
03302022-3
4/13/22
03302022-8
4/15/22
SMM
03302022-4
4/14/22
SMM
03302022-9
4/15/22
SMM
4/19/22
SMM
SWDS 12.1-12.6
03302022-5
4/14/22
SMM
03302022-10
4/18/22
SMM

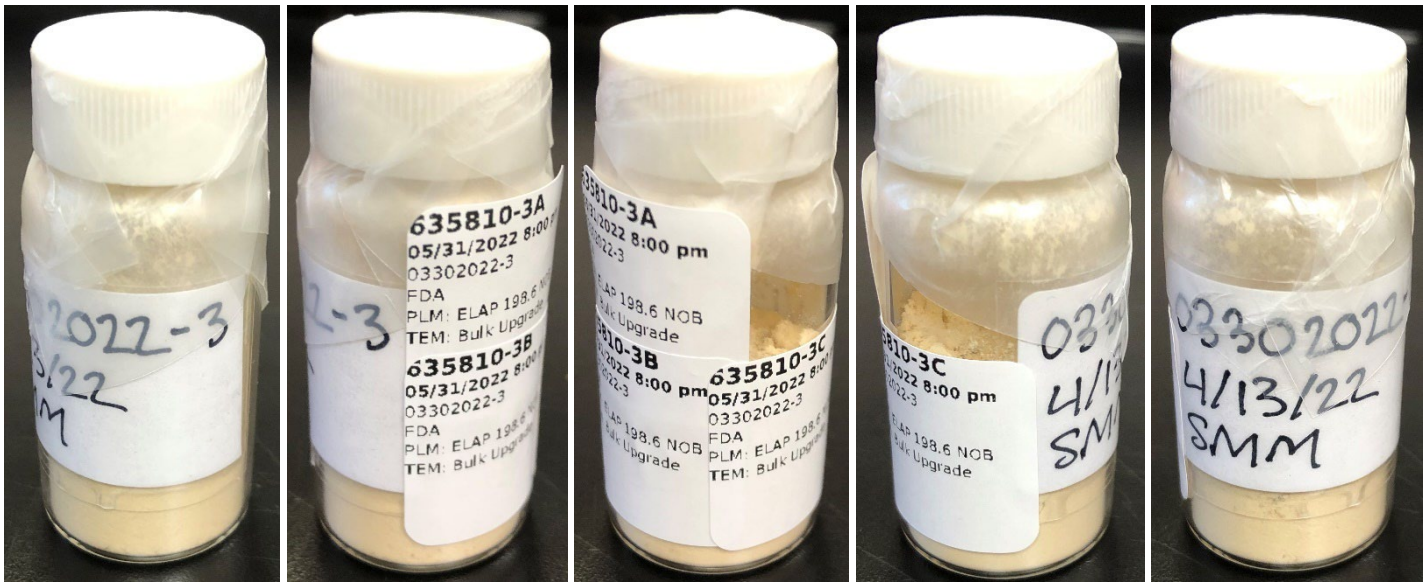
635810-1A, 1B, 1C/03302022-1

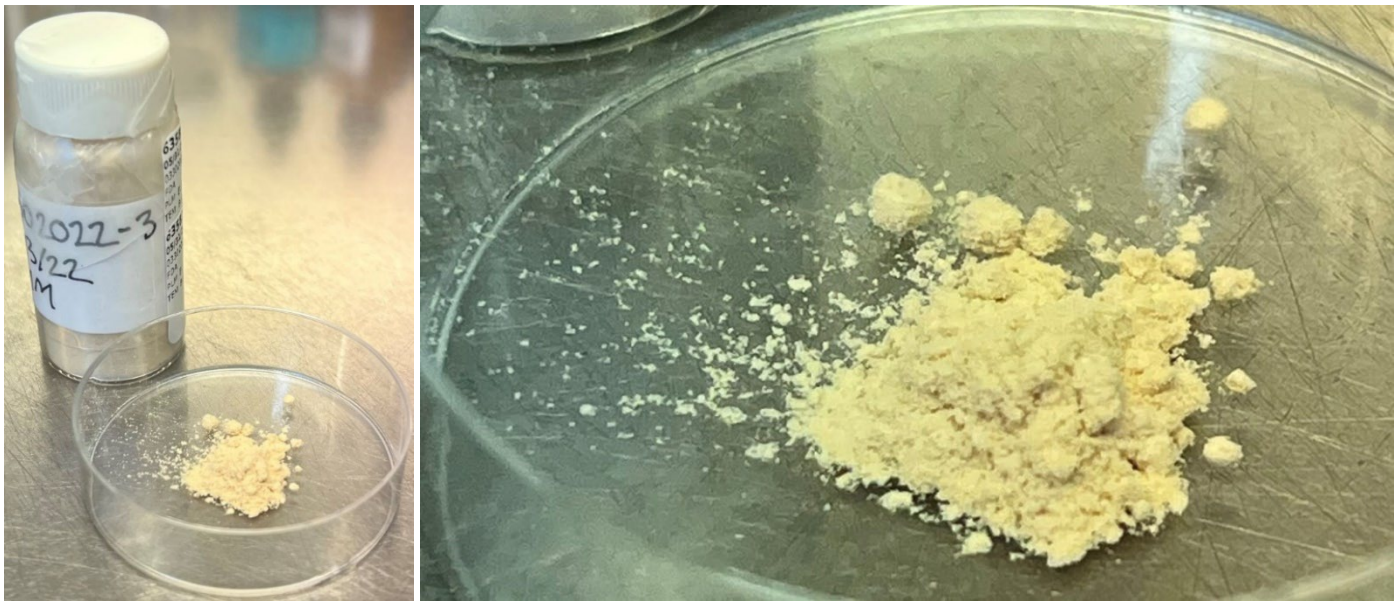
635810-2A, 2B, 2C/03302022-2



635810-3A, 3B, 3C/02212022-3







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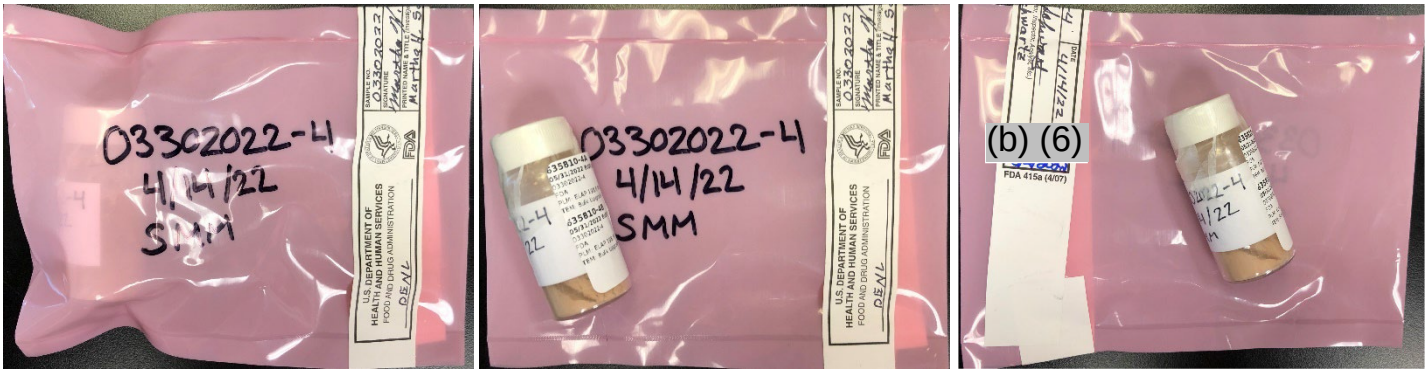

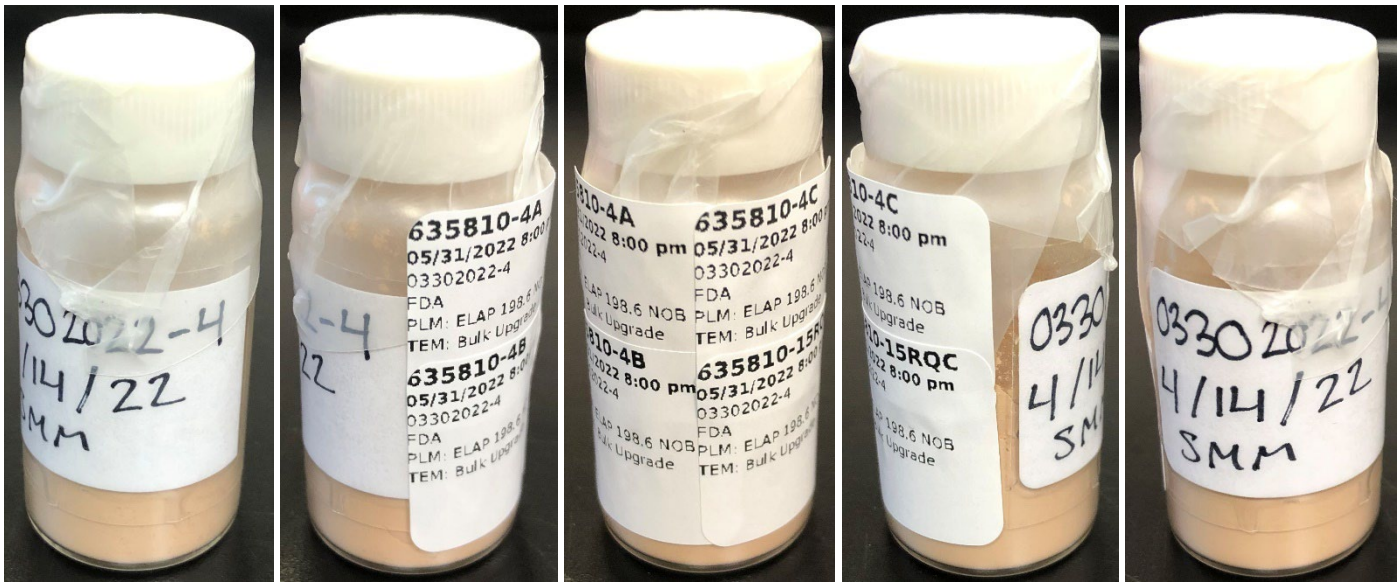

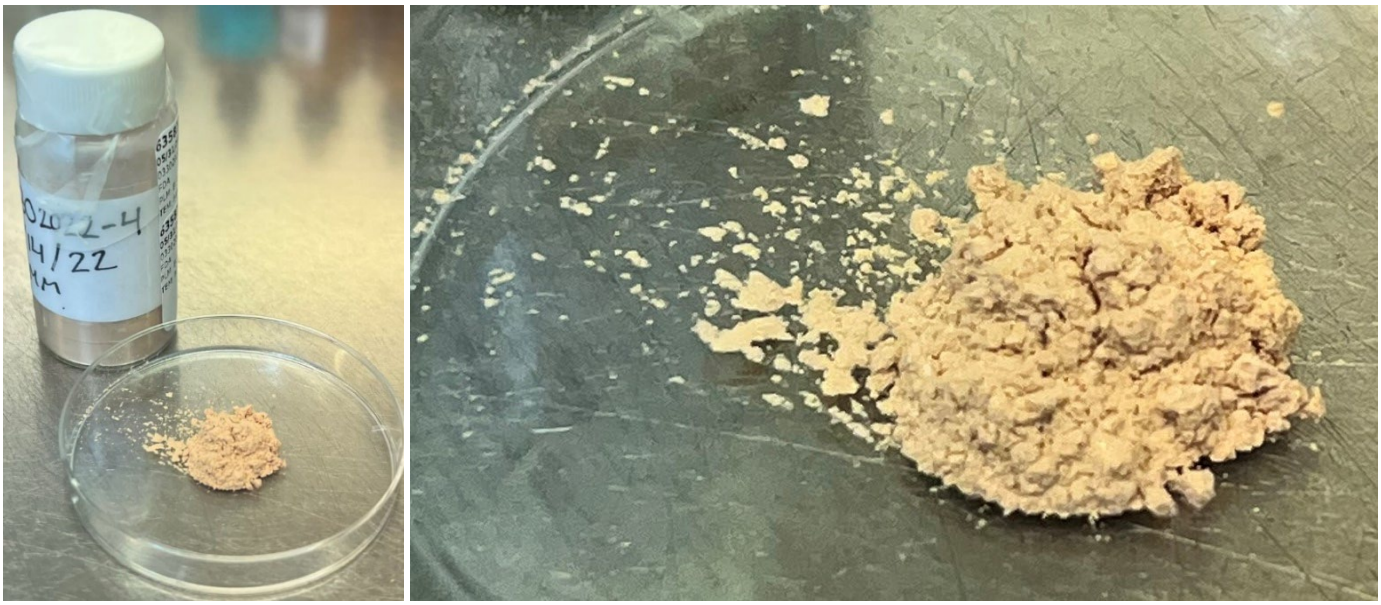

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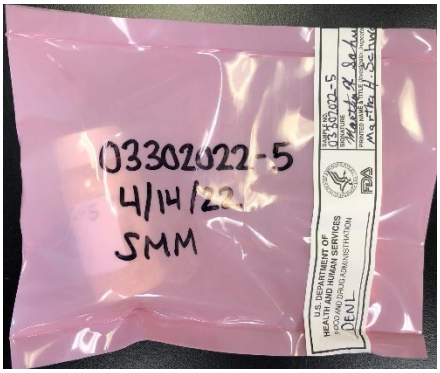

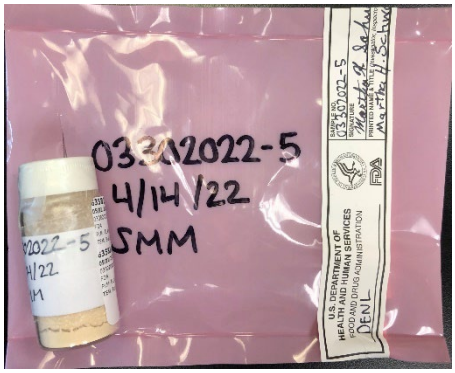

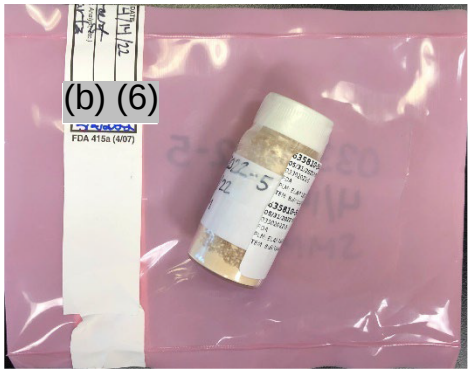

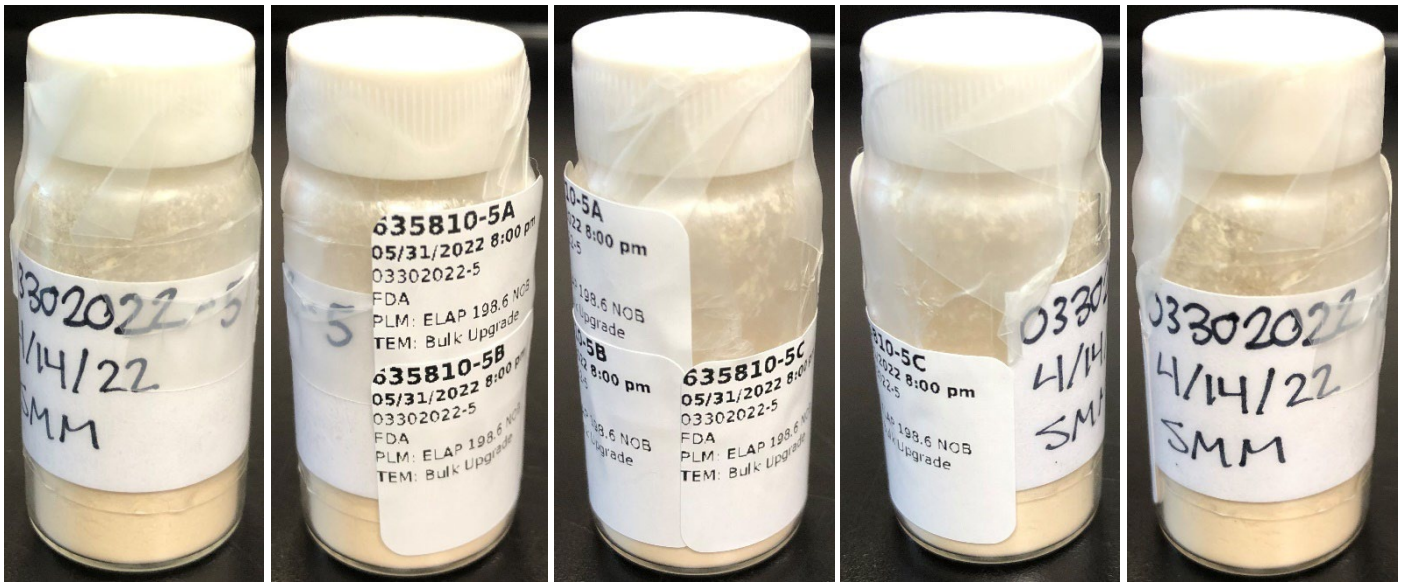

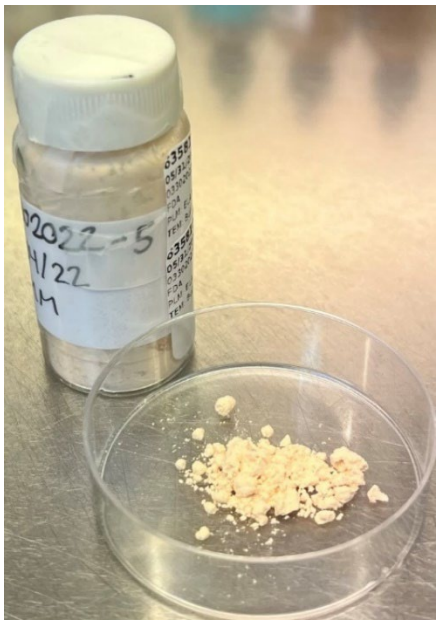

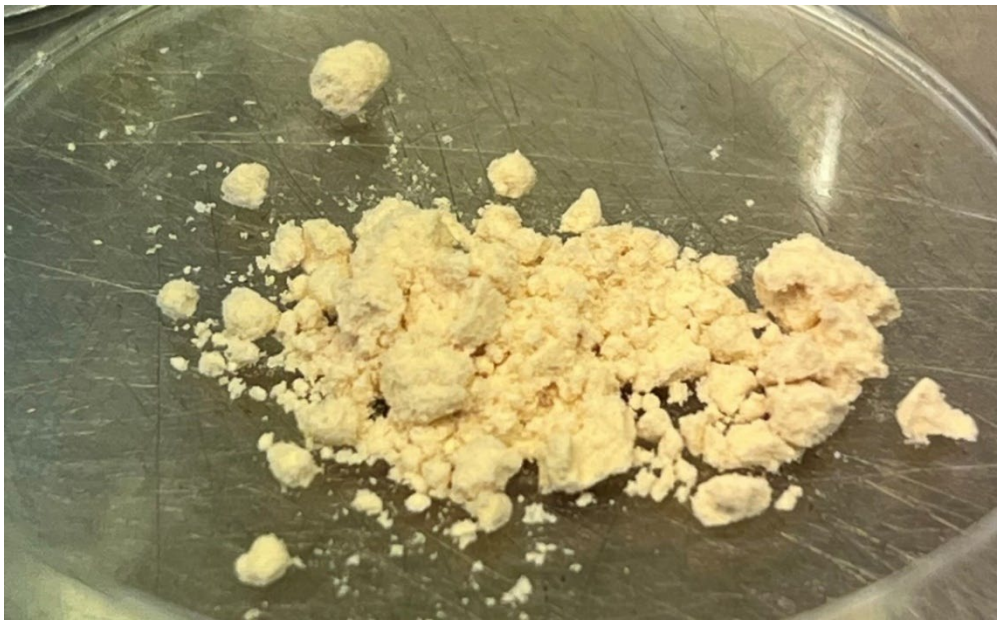

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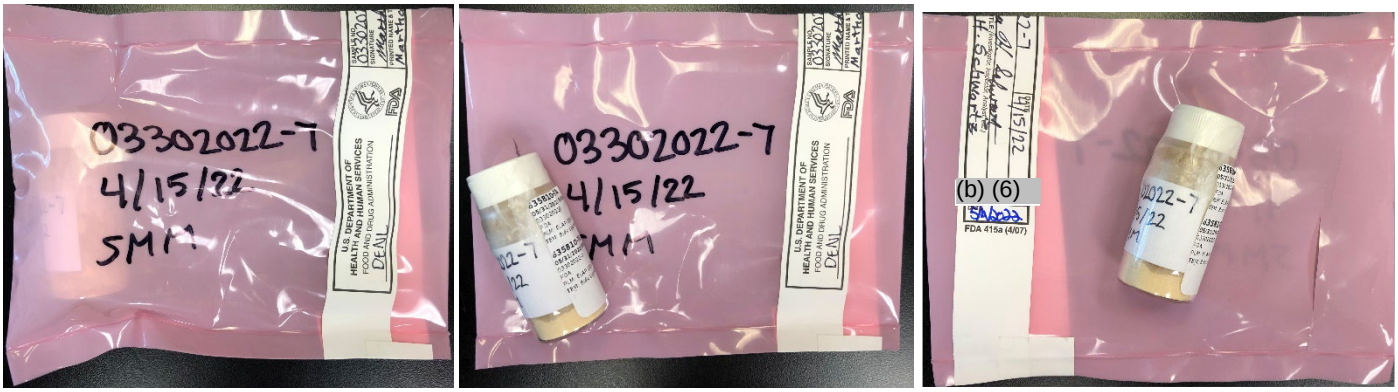
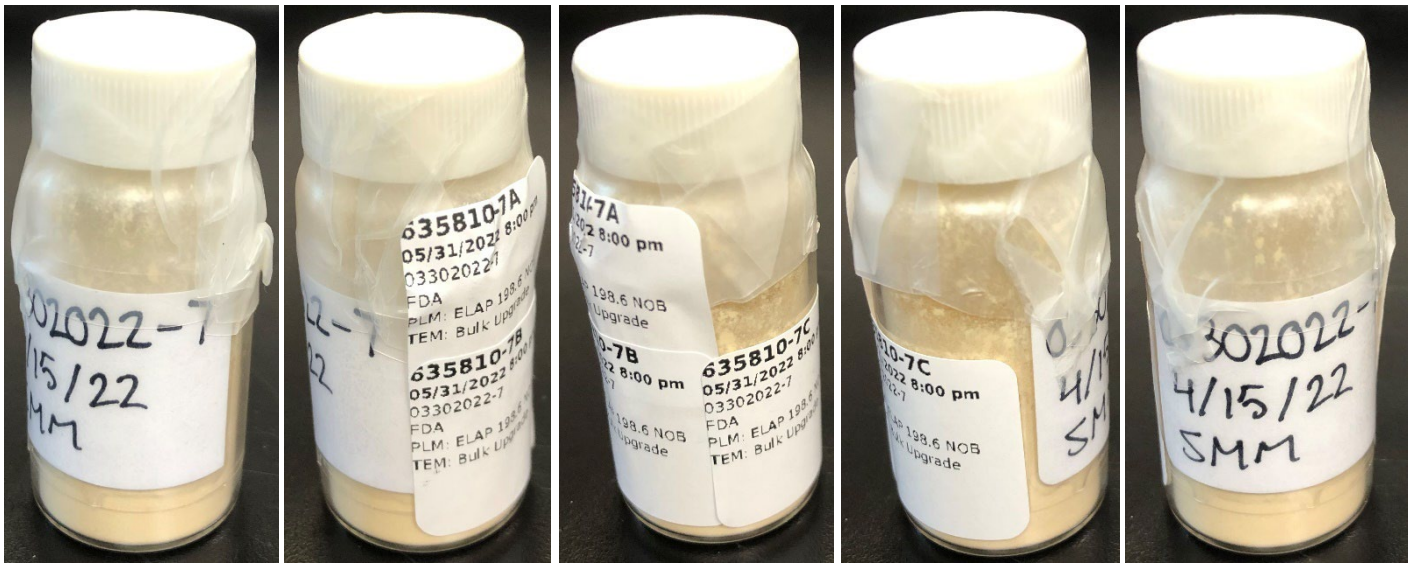
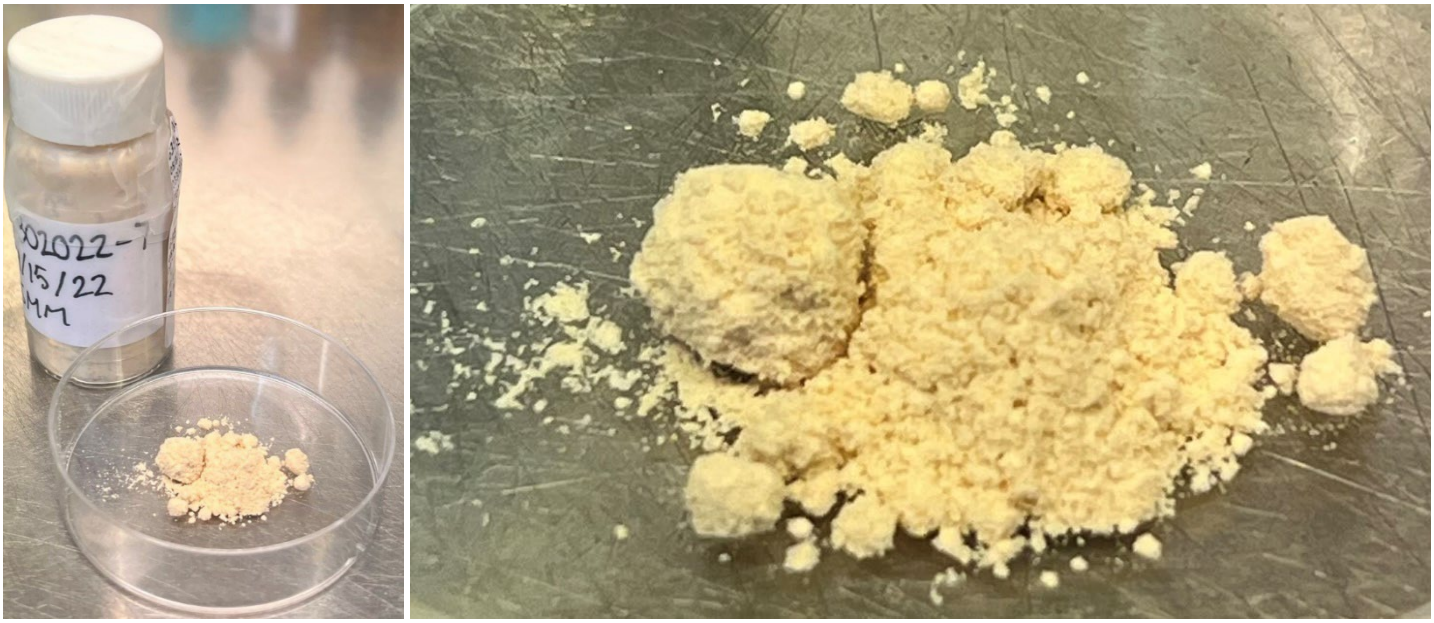
635810-7A, 7B, 7C/03302022-7







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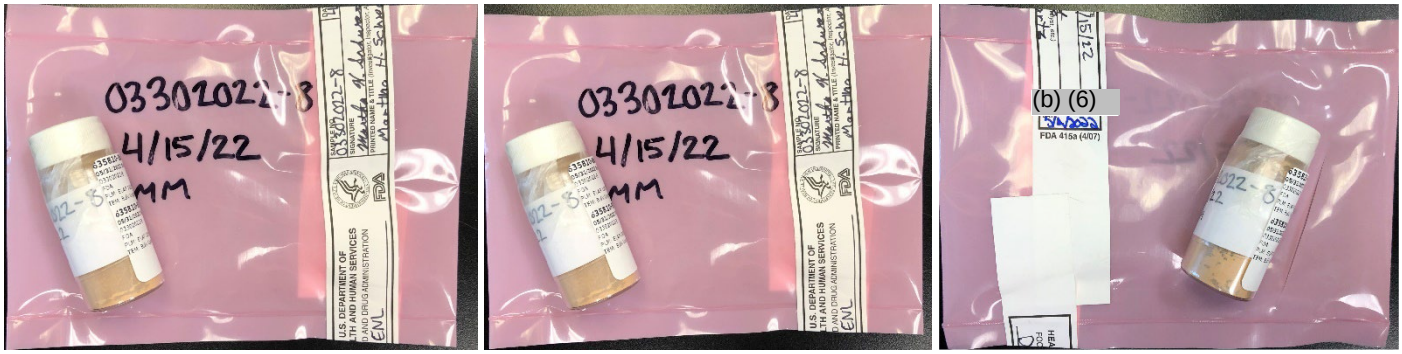

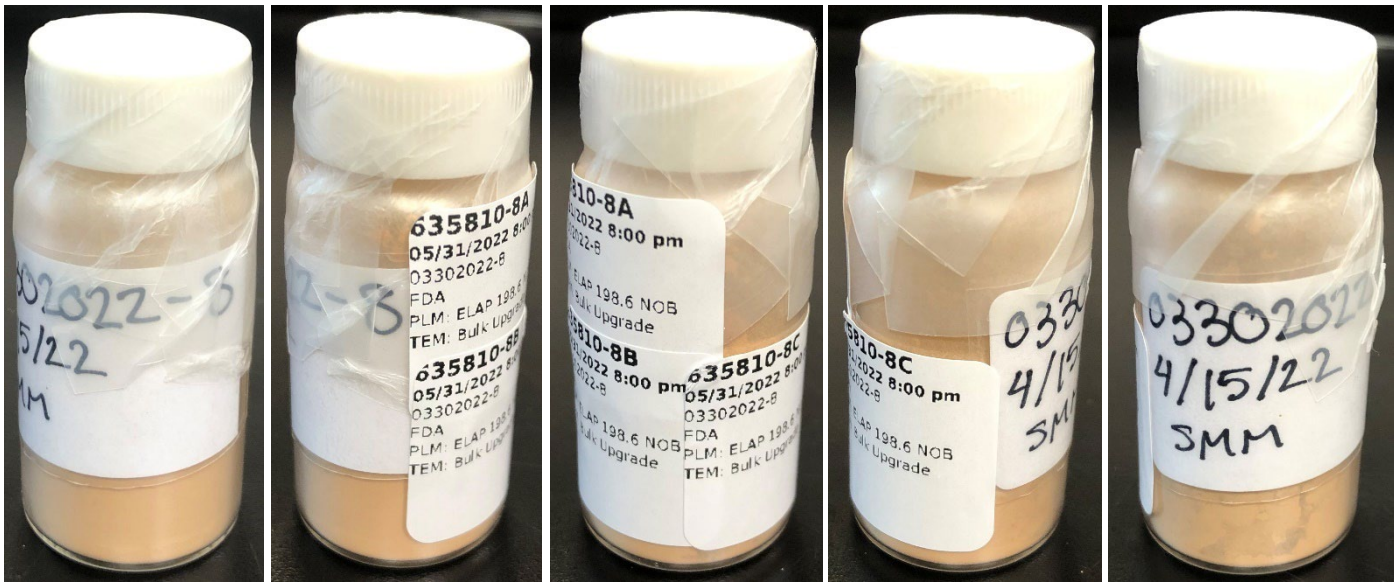

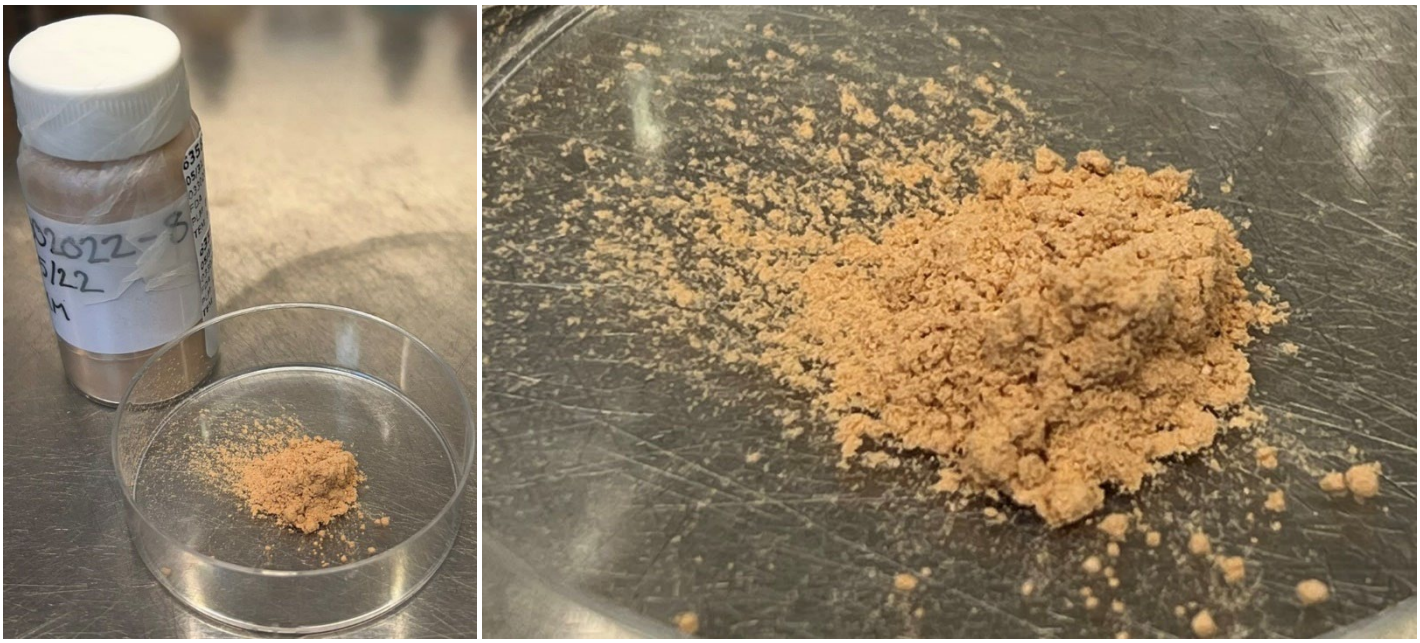

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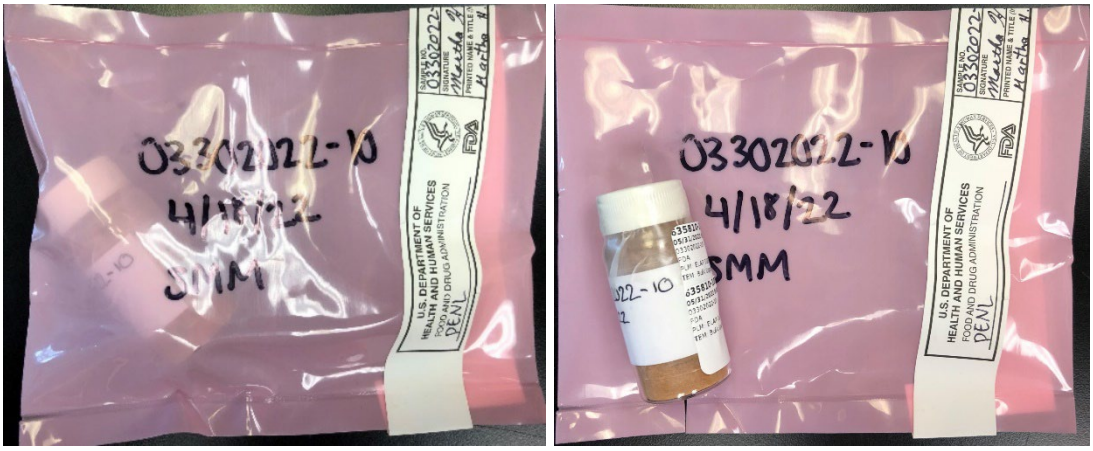
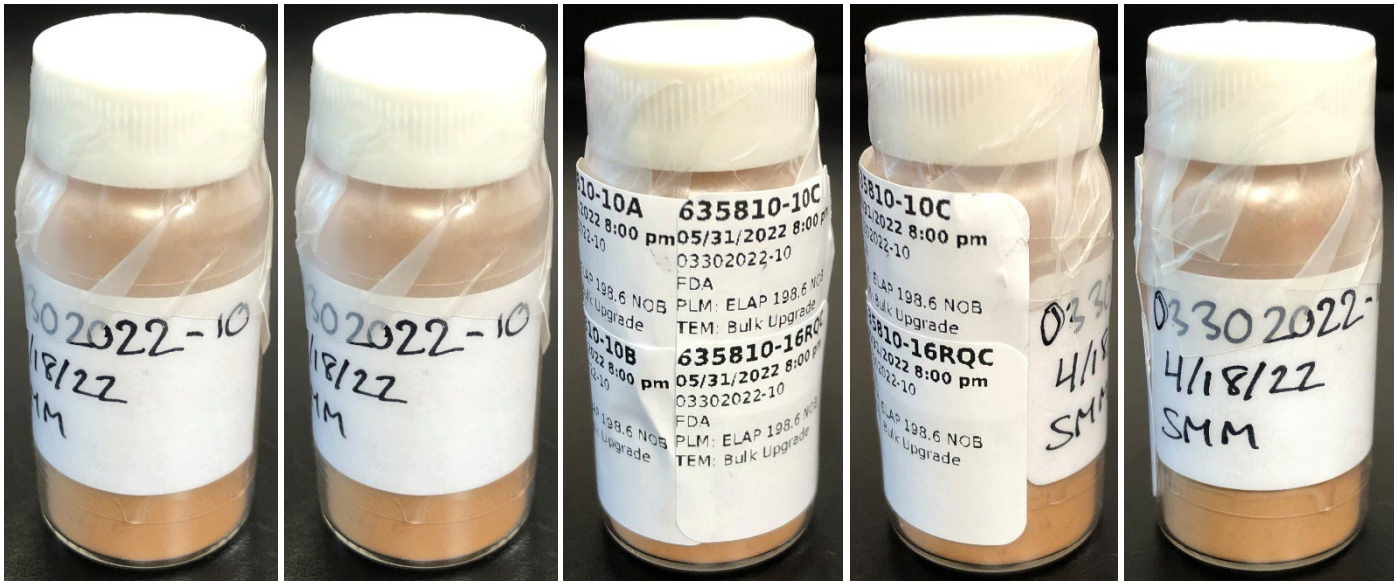
635810-10A, 10B, 10C/03302022-10





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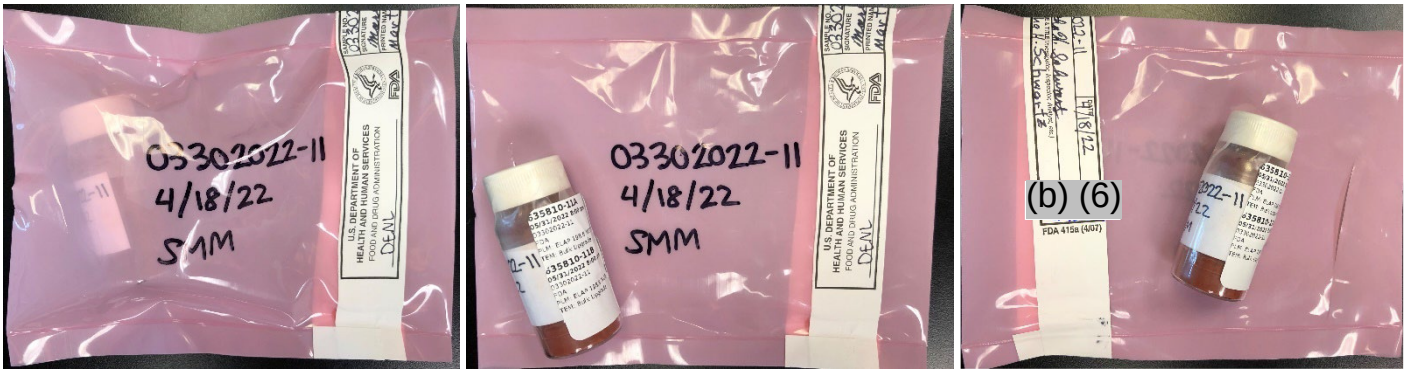

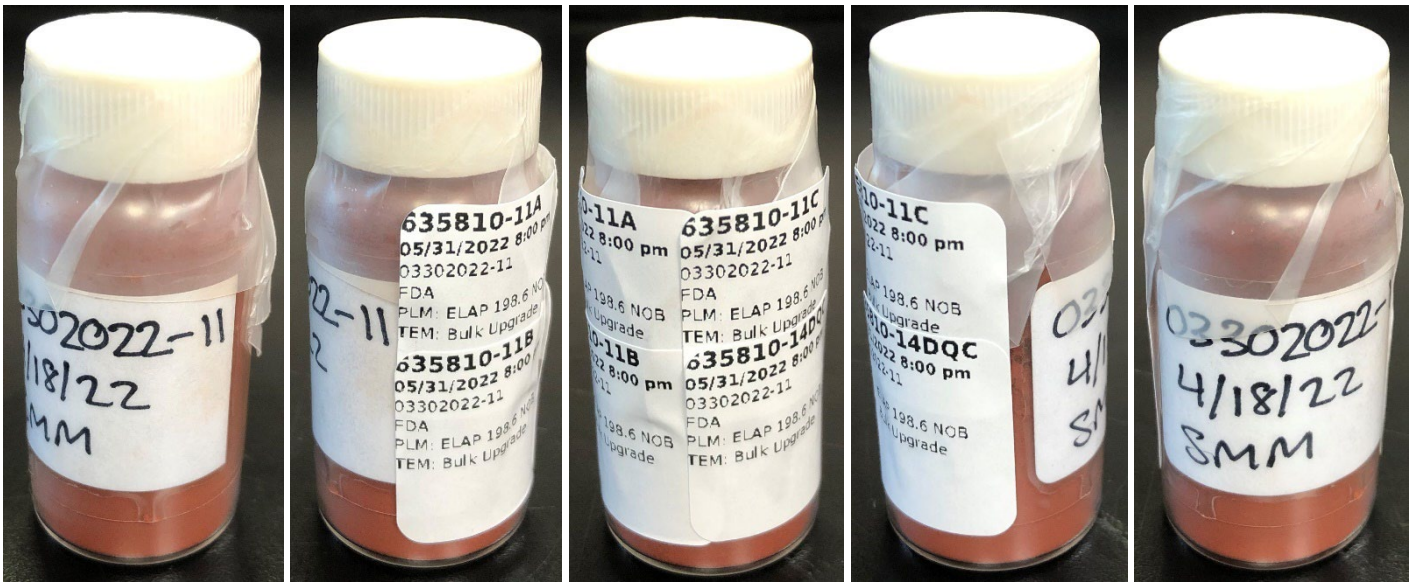

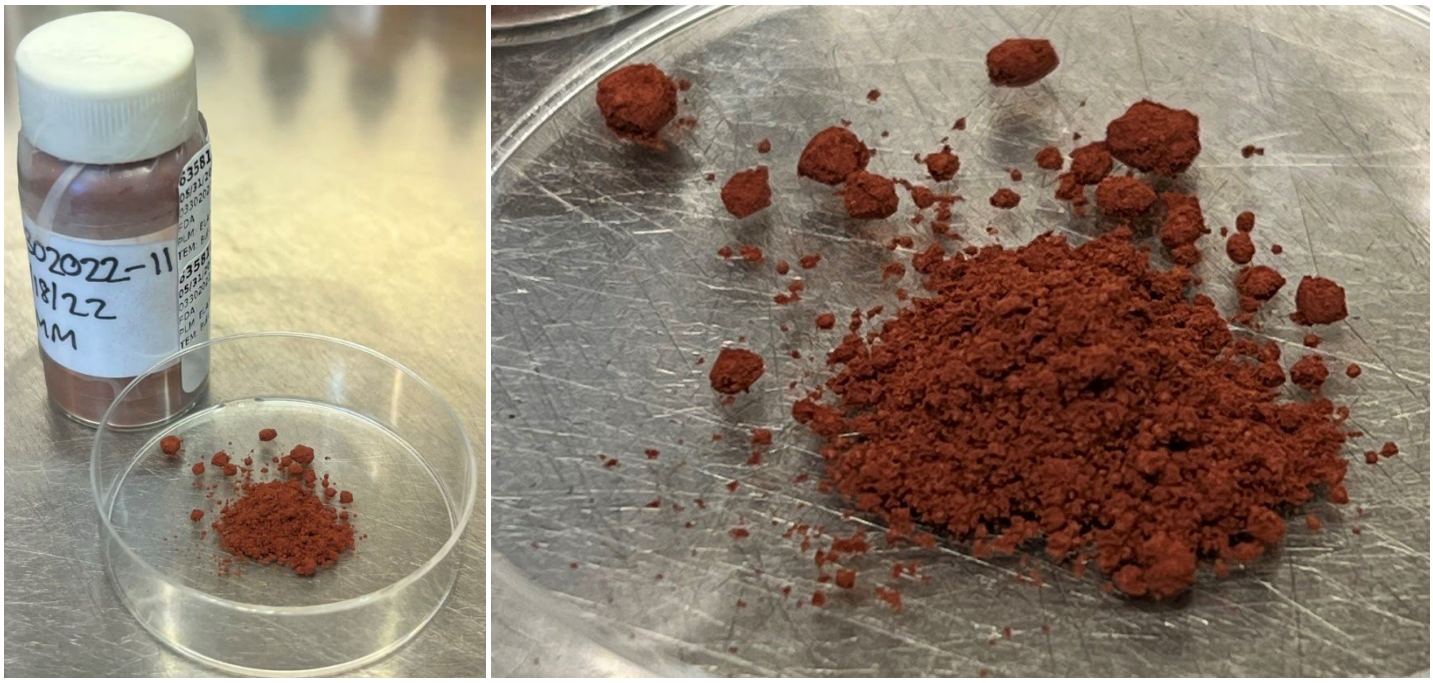

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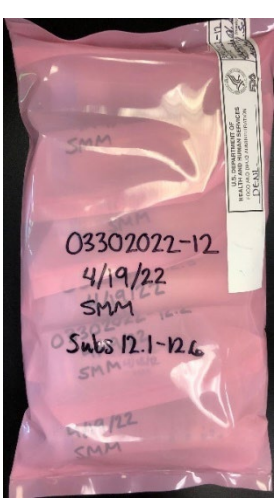
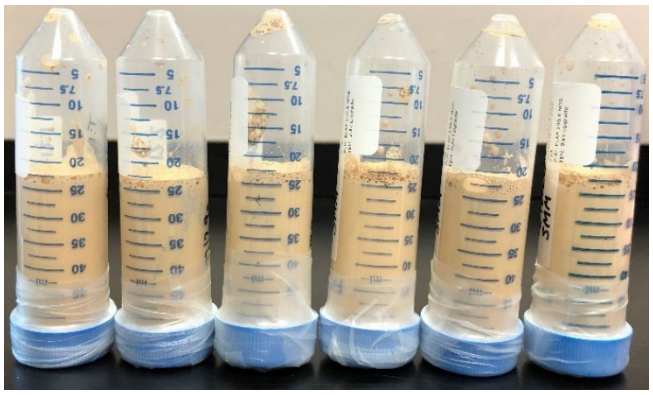
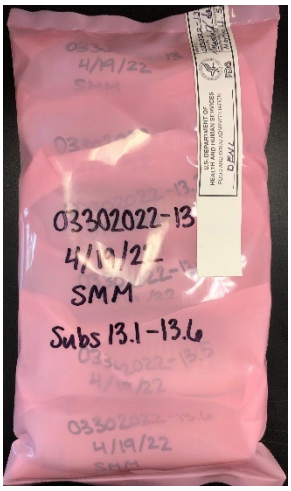
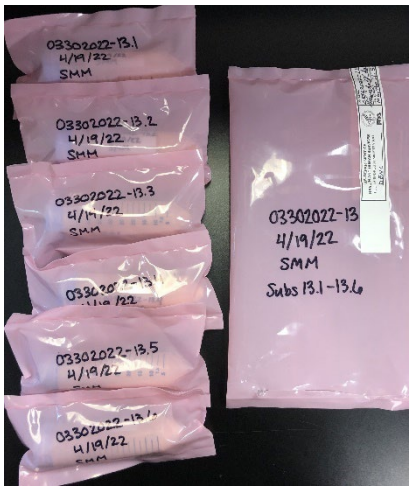
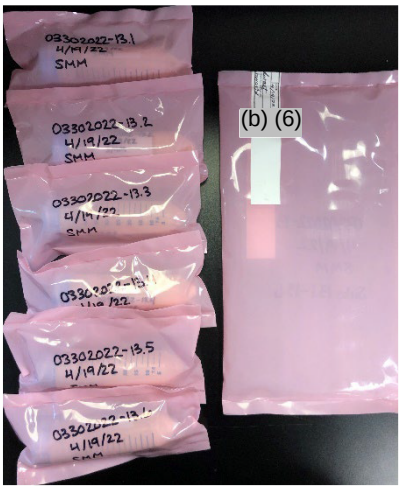


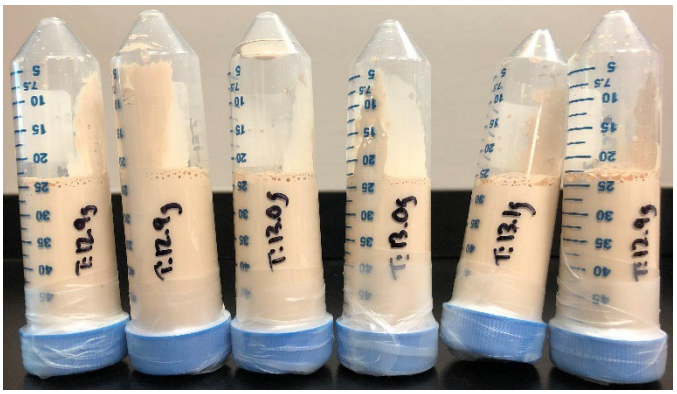


635810-13A, 13B, 13C/03302022-13









Sample Preparation

Samples were gravimetrically reduced and filtered by (b) (6) on: May 5, 2022, through May 9, 2022, for 635810-1A through 635810-3C and NB22-286/287; May 11, 2022, through May 13, 2022, for 635810-4A through 635810-6C, 635810-15RQC, and NB22-295/296; May 18, 2022, through May 20, 2022, for 635810-7A through 635810-11C, 635810-16RQC, and NB22-305/306; May 25, 2022, through May 27, 2022, for the TEM aliquots of 635810-12A through 635810-13C and NB22-314; May 31, 2022, through June 2, 2022, for the PLM aliquots of 635810-12A through 635810-13C and NB22-324; and June 1, 2022, through June 3, 2022, for 635810-14DQC and NB22-328/329. PLM slide preparations were made by (b) (6) on: May 6, 2022, for 635810-1A through 635810-3C and NB22-287; May 12, 2022, for 635810-4A through 635810-6C, 635810-15RQC, and NB22-296; May 19, 2022, for 635810-7A through 635810-11C, 635810-16RQC, and NB22-306; June 2, 2022, for 635810-12A through 635810-13C and NB22-324; and June 2, 2022, for 635810-14DQC and NB22-329. TEM grid preparations were made by: (b) (6) on May 11, 2022, 635810-1A through 635810-3C and NB22-286; (b) (6) on May 16, 2022, for 635810-4A through 635810-6C, 635810-15RQC, and NB22-295; (b) (6) on May 23, 2022, for 635810-7A through 635810-11C, 635810-16RQC, and NB22-305; (b) (6) on May 31, 2022, for 635810-12A through 635810-13C and NB22-314; and (b) (6) on June 3, 2022, for 635810-14DQC and NB22-328. Sample preparation for powder materials consisted of the following steps:

1) Label and weigh two 8mL glass vials for each sample in the set – one vial for the PLM preparation and one vial for the TEM preparation.
2) Weigh out 0.1 to 0.8-grams of material and place in the corresponding 8mL glass vial. Record weight.
3) Burn samples at 480° C for at least 12-hours.
4) Record Post-Ash weight.
5) Treat ashed sample with reagent grade hydrochloric acid.
6) Filter acid reduced material with a pre-weighed disposable filtration apparatus onto a 47mm 0.4µm PolyCarbonate filter.
7) Place disposable filtration apparatus with filter into drying oven for 3 hours and then record Post-Acid Reduced weight.
8) Make four PLM slide preparations from the PLM residue for each sample in 1.550 dispersion oil. Make additional preparations in 1.605, 1.625, 1.680 and 1.700 dispersion oil(s) as necessary for particle identification.
9) Weigh a portion of the material from the TEM residue and place it into the corresponding pre-weighed 100mL jar.
10) Fill the 100mL jar with deionized water
11) Sonicate the jar for ~5-minutes.
12) Filter 0.1mL to 2mL of the solution onto a 47mm 0.22µm MCE filter.
13) Dry the filter for ~10-minutes then collapse, carbon coat, and place on a 3 TEM grids.

Sample preparation for liquid materials consisted of the following steps:

1) Add an aliquot of liquid to a pre-weighed crucible.
2) Record wet weight.
3) Place crucible into drying for 12-20 hours.
4) Record dry weight.
5) Follow steps 3 through 13 above.

TEM grid preparations were examined prior to analysis and were rejected if they met the following criteria:

1) Less than 50% of the carbon coating was intact
2) The grid was too dark due to incomplete dissolution of the filter
3) Heavy particulate loading in excess of 25%
4) Light particulate loading below 10%
5) Uneven distribution of particulate

Problems Encountered During Preparation & Resolutions:
No problems were encountered during preparation. All gravimetric data was consistent among each group of aliquots and all TEM grid preparations were deemed acceptable for analysis.

PLM Analysis

Analysis was performed in accordance with NY ELAP 198.6 protocols. The analysis was conducted using an Olympus BH-2 polarized light microscope (PLM) equipped with a dispersion staining objective. All four slide preparations for each aliquot were examined; each slide preparation consisted of two (2) coverslips for a total of eight (8) coverslips. 400-point count was performed for those samples on which asbestos was observed. If no asbestos was detected on any of the slides, the percentage of fibrous components was determined by visual estimation. The results of this analysis are detailed below in the *Discussion and Interpretation of Analytical Findings* section for each individual sample.

Point Counting
If asbestos was observed on the slide preparations, the amount of asbestos was quantified using point count techniques. Point counting is form of quantifying PLM samples. One of the oculars of each PLM microscope is etched with a crosshair. When point counting, whatever is under the crosshair is counted as one point of whatever the material is. Four (4) slide preparations with a total of eight (8) coverslips are prepared for each sample. The microscope mechanical stage is used to randomly move the slide. After each movement, whatever is under the crosshair, provided the point is not empty, is counted. Fifty (50) non-empty points are counted on each of the eight (8) coverslips for a total of four hundred (400) points. The total asbestos points counted are divided by the total points counted to calculate the percentage.

Example:
11 points of asbestos were counted out of the 400 total points
Slide percentage = (11pts/400pts) * 100%
Slide percentage = 2.75%

This number is not the final asbestos percentage. To calculate the final percentage, this number must be corrected to account for the material lost during gravimetric reduction preparation. See the *Calculations* section below for additional details.

TEM Analysis

Analysis was performed in accordance with modified NY ELAP Method 198.4 protocols. The analysis was performed using JEOL JEM-100CX II transmission electron microscopes (TEM) equipped with Thermo Fisher NSS System 7 Energy Dispersive X-Ray Analyzers (EDXA), at magnifications of 19,000x. All TEM scopes are equipped with a Selective Area Electron Diffraction (SAED) setting that allows the operator to view the diffraction pattern of any mineral substance. Twenty (20) grid openings over two (2) grids were examined for each aliquot.

Modifications to the NY ELAP 198.4 Method were:

1) The residue was not placed in alcohol and prepared using the quick drop method. To obtain a more uniform preparation, the residue was placed in a jar and filled with 100mL of deionized water. The jar was sonicated, and a portion of the solution was filtered onto a 47mm 0.22µm MCE filter.
2) Any amphibole or chrysotile particle(s) observed were not quantified by visual estimation. The length and width of the observed particle(s) were measured, and the mass of each amphibole and chrysotile particle was calculated using the ASTM D5756 method.
3) All particles identified as amphibole were included with the counts/concentrations, regardless of size and aspect ratio.

The results of this analysis are detailed below in the *Discussion and Interpretation of Analytical Findings* section for each individual sample.

Calculations

TEM ASTM D5756 Mass:

$M = \pi/4\ L * W^2 * D * 10^{-12}$

Where: M: Mass
L: Length
W: Width
D: Density

Gravimetric Reduction Percentages:

Organic: ((W1 – W2) * 100/W1
Acid Soluble: ((W2 – W3) * 100/W1
Other* Percent: ((W3/W1) * 100) – Calculated Asbestos %
*Other is defined as the non-asbestos, inorganic, acid insoluble portion of the sample

Where: W1: Weight of sample prior to ashing/acid wash
W2: Weight of sample after ashing
W3: Weight of sample after acid treatment
For liquid samples, the value for W1 is the dry weight mass.

Asbestos Percent Calculation:

TEM

$$\frac{EFA(mm^2) * 100ml * MA(g) * RW(g)}{VF(ml) * IW(g) * AA(mm^2) * RJ(g)}$$

(The calculated TEM value is then multiplied by 100 to convert it to percent)

Where: EFA: Effective filter area
MA: Mass of asbestos
RW: Weight of residue
VF: Volume filtered
IW: Initial weight of the sample
AA: Area analyzed
RJ: Weight of residue placed into the jar

PLM

(ASB * W3)/W1

Where: W1: Weight of sample prior to ashing/acid wash
W3: Weight of sample after acid treatment
ASB: Calculated Point Count Result

Note: All reported concentrations were calculated using the gravimetric data from the TEM preparations.

Limit of Detection and Quantification

We used the mass of a 0.5 x 0.04-micron tremolite fiber as the basis for our calculations. Limit of detection (LOD) was defined as 1 fiber and limit of quantification (LOQ) was defined as 4 fibers.

Discussion and Interpretation of Analytical Findings

635810-1A, 1B, 1C/Client Sample: 03302022-1

PLM

All three aliquots of sample 03302022-1 were analyzed by (b) (6) on June 2, 2022. No asbestos or non-asbestos amphibole variants were observed during analysis. The results were calculated using the equations detailed in the *Calculations* section above.

635810-1A No Asbestos Detected
635810-1B No Asbestos Detected
635810-1C No Asbestos Detected

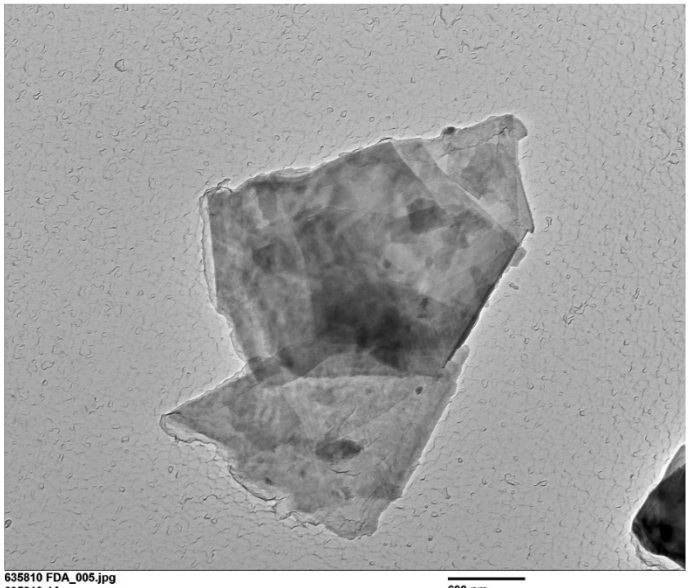
TEM

(b) (6) analyzed aliquots 1A and 1B on May 12, 2022, and aliquot 1C on May 16, 2022. The primary particles observed were talc and mica; silica spheres and silicon particles were also observed along with talc ribbons, and elongated talc particles. No asbestos or non-asbestos amphibole variants were observed during analysis. The results were calculated using the equations detailed in the *Calculations* section above.

635810-1A	No Asbestos Detected
635810-1B	No Asbestos Detected
635810-1C	No Asbestos Detected

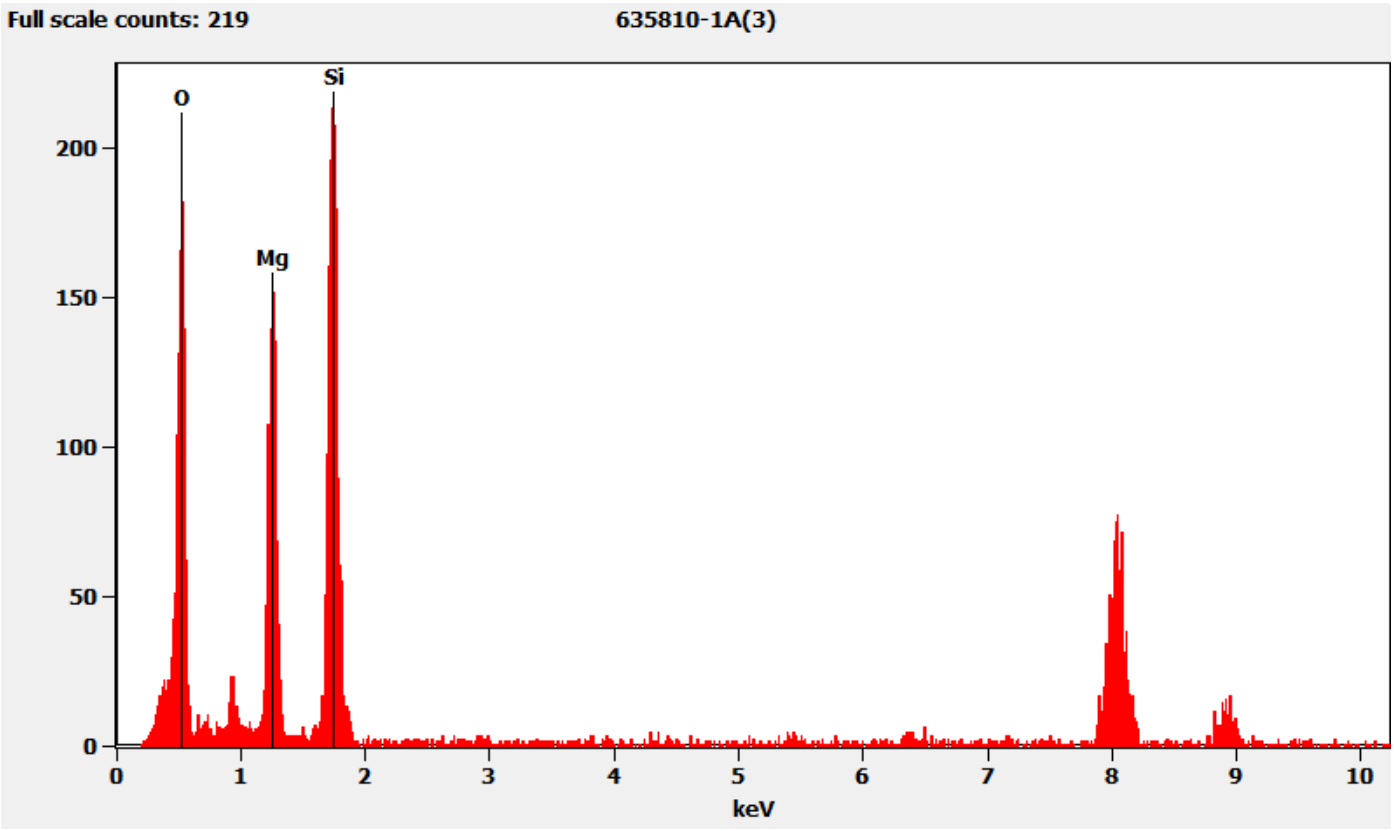
Below are pictures, diffraction patterns, and chemistry from some of the observed particles. The copper peaks in the chemistry spectra are from the TEM grid. The unidentified (and some identified) peaks in the chemistry spectra are zinc and carbon from the TEM specimen holder.

635810-1A, Talc Particle

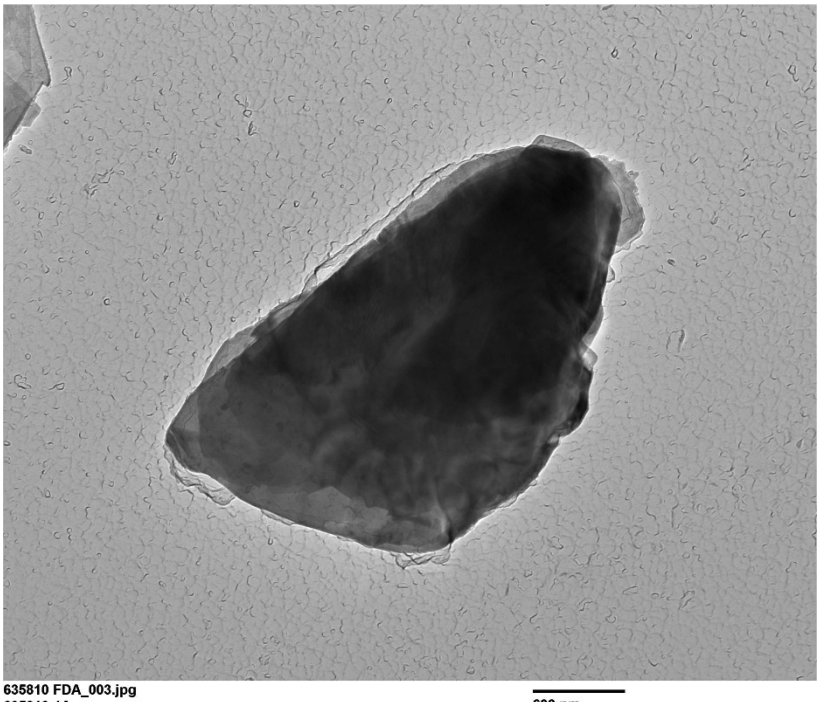


Hexagonal Diffraction Pattern from the Talc Particle Pictured Above

Chemistry from the Talc Particle Pictured Above



635810-1A, Mica Particle



635810 FDA_003.jpg
635810-1A
Mica Particle
Cal: 0.002145 µm/pix
10:12 5/12/2022
Microscopist (b) (6)
Camera: NANOSPRT5, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

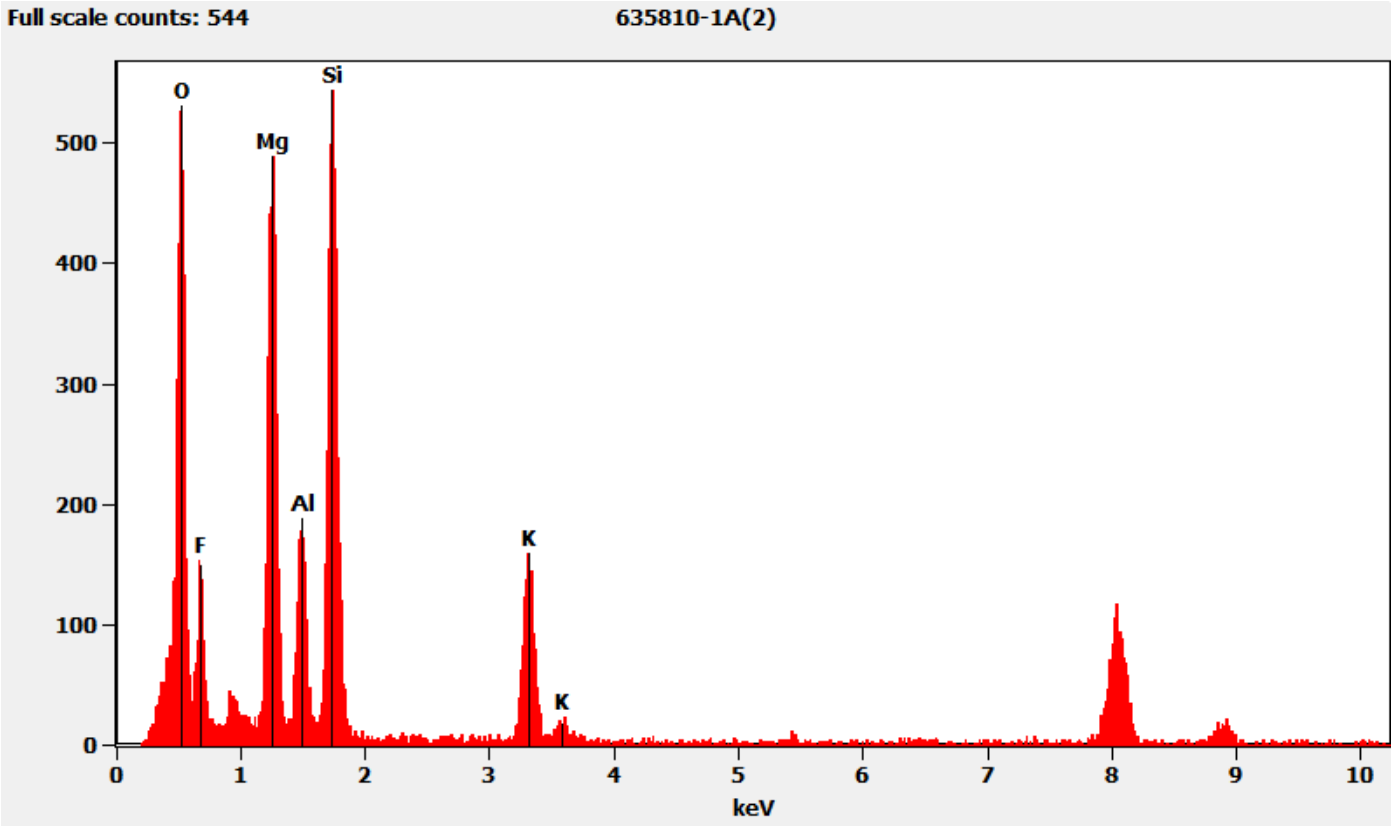
600 nm
HV=100kV
Direct Mag: 4800 x
AMA Analytical Services, Inc

Diffraction Pattern from the Mica Particle Pictured Above

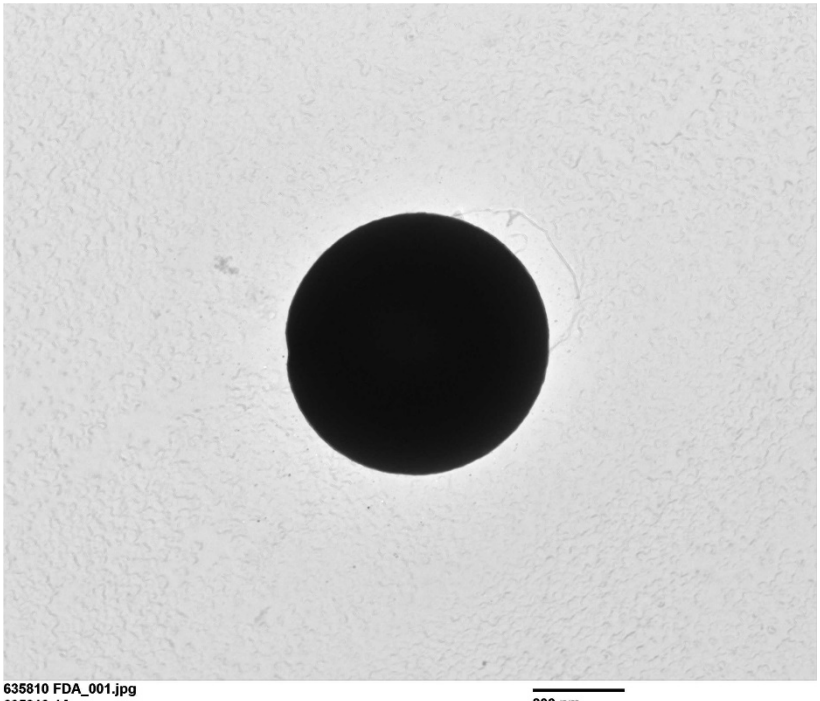
635810 FDA_002.jpg
635810-1A
Mica Particle
10:11 5/12/2022
Microscopist (b) (6)
Camera: NANOSPRT5, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

100 (1/Å)
HV=100kV
Cam Len: 0.2200 m
AMA Analytical Services, Inc

Chemistry from the Mica Particle Pictured Above



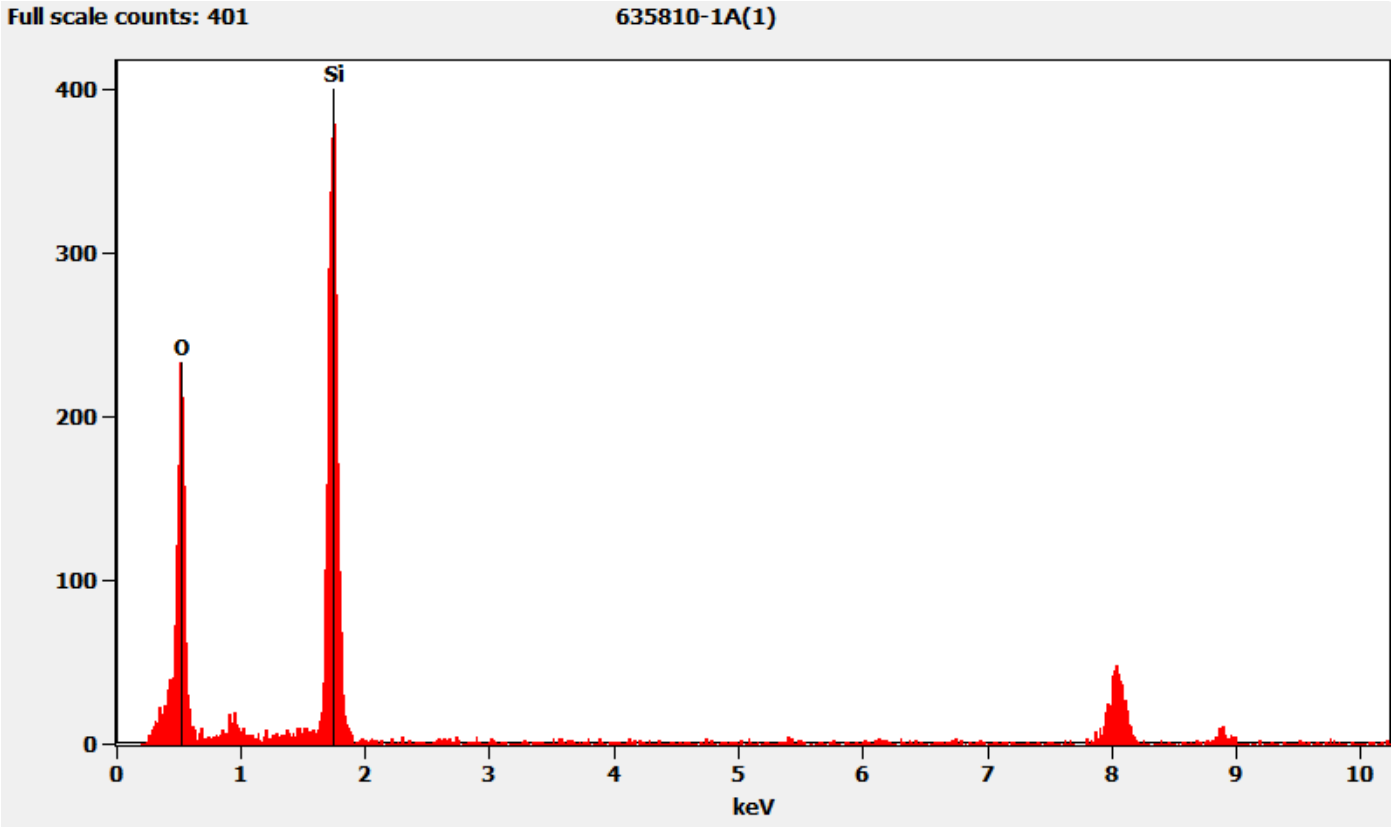
635810-1A, Silica Sphere



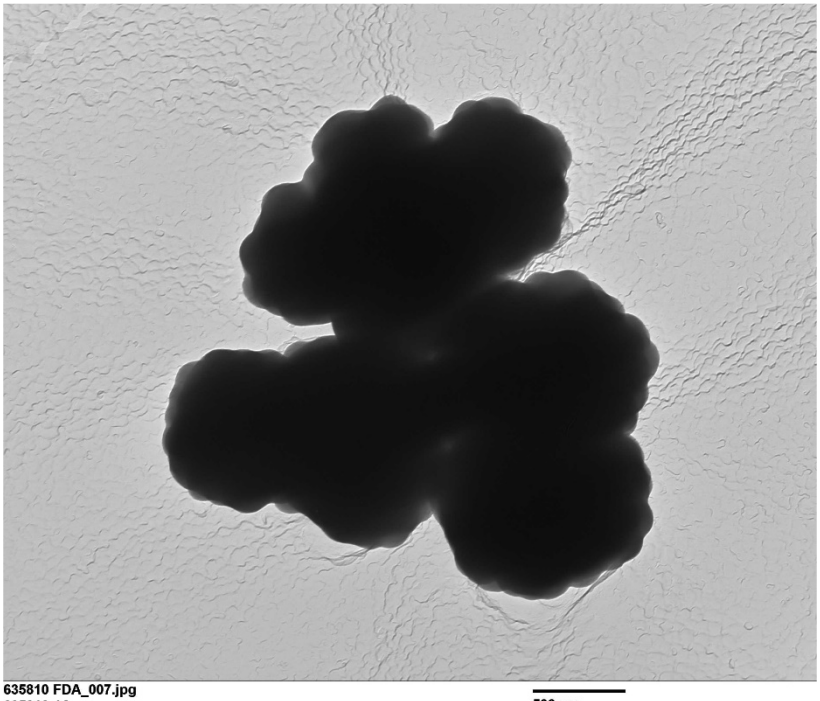
635810 FDA_001.jpg
635810-1A
Silica Sphere
Cal: 0.002860 µm/pix
10:07 5/12/2022
Microscopist: (b) (6)
Camera: NANOSPRTS, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

800 nm
HV=100kV
Direct Mag: 3600 x
AMA Analytical Services, Inc

Chemistry from the Silica Sphere Pictured Above



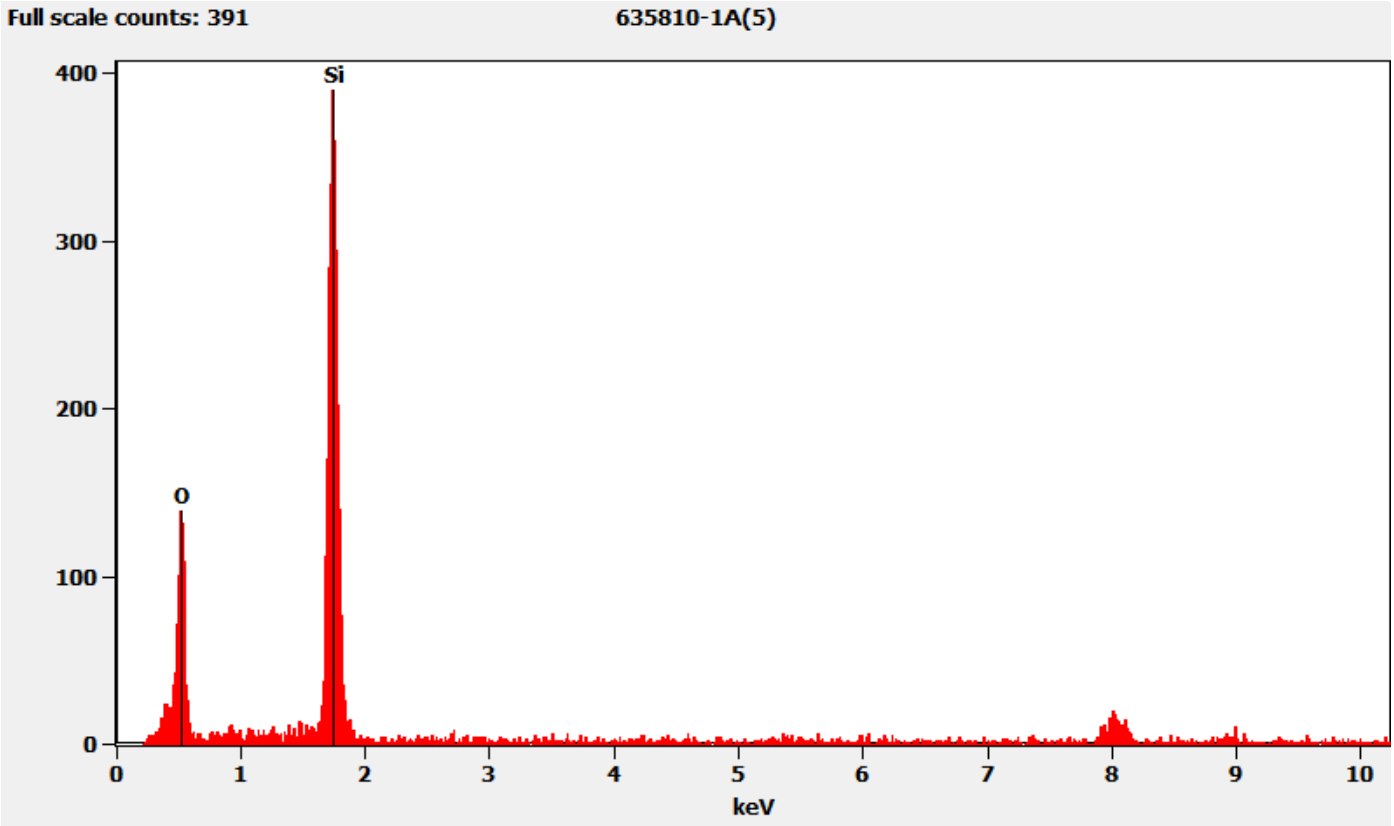
635810-1A, Silicon Particles



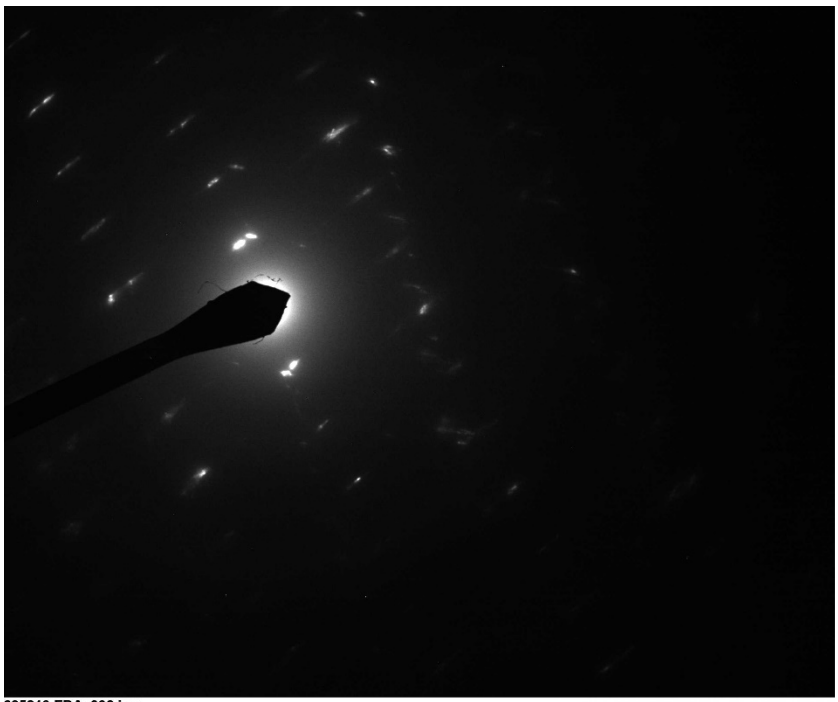
635810 FDA_007.jpg
635810-1A
Silica Particles
Cal: 0.001775 µm/pix
10:42 5/12/2022
Microscopist (b) (6)
Camera: NANOSPR15, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

500 nm
HV=100kV
Direct Mag: 5800 x
AMA Analytical Services, Inc

Chemistry from the Silicon Particle Pictured Above



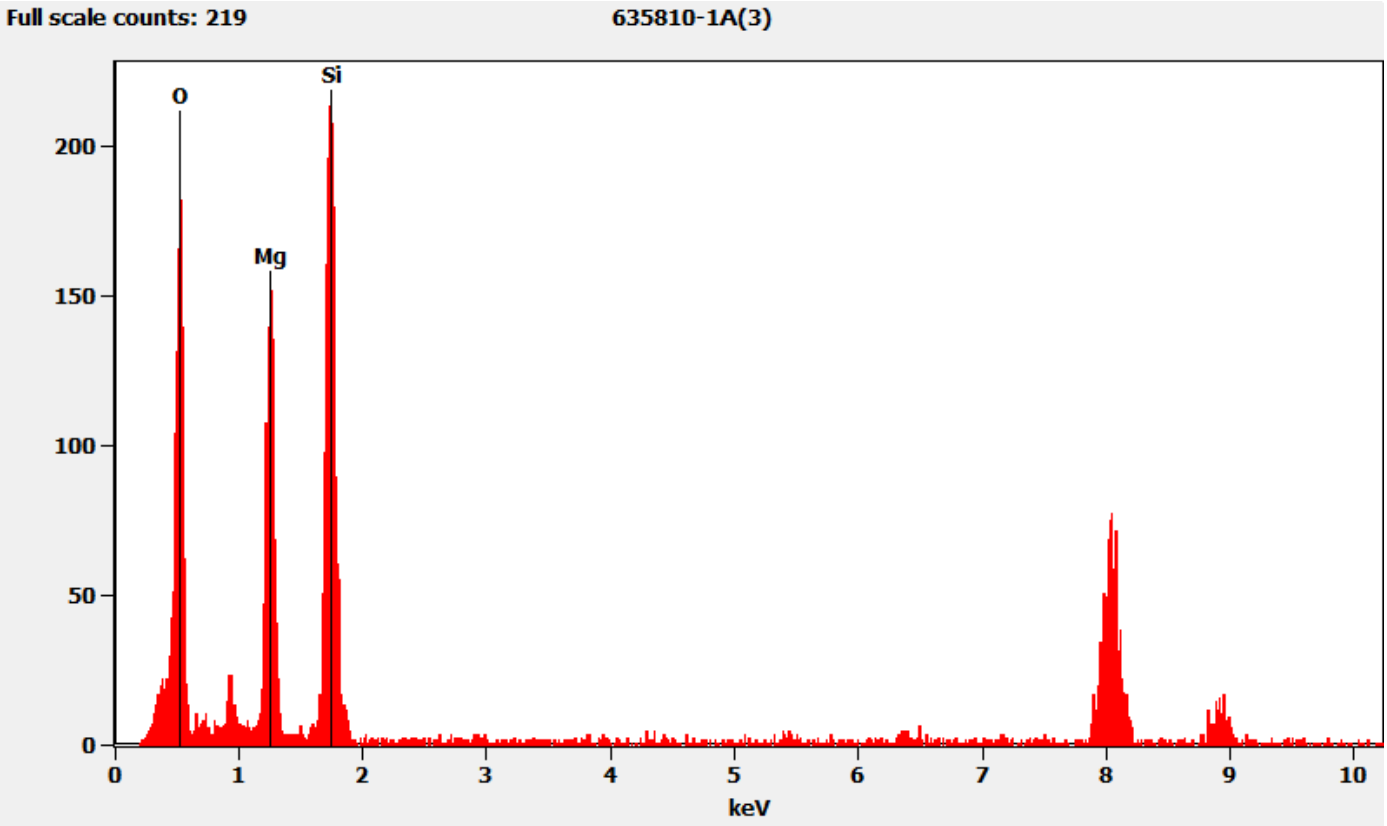
635810-1A, Talc Ribbon Diffraction Pattern



635810 FDA_006.jpg
635810-1A
Talc Ribbon
10:22 5/12/2022
Microscopist (b) (6)
Camera: NANOSPEED5, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

100 (1/Å)
HV=100kV
Cam Len: 0.2200 m
AMA Analytical Services, Inc

Chemistry from the Talc Ribbon Referenced Above



635810-1A, Elongated Talc Particle

635810 FDA_009.jpg
635810-1A
Talc Fiber
Cal: 0.002860 µm/pix
11:07 5/12/2022
Microscopist (b) (6)
Camera: NANOSPRT5, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

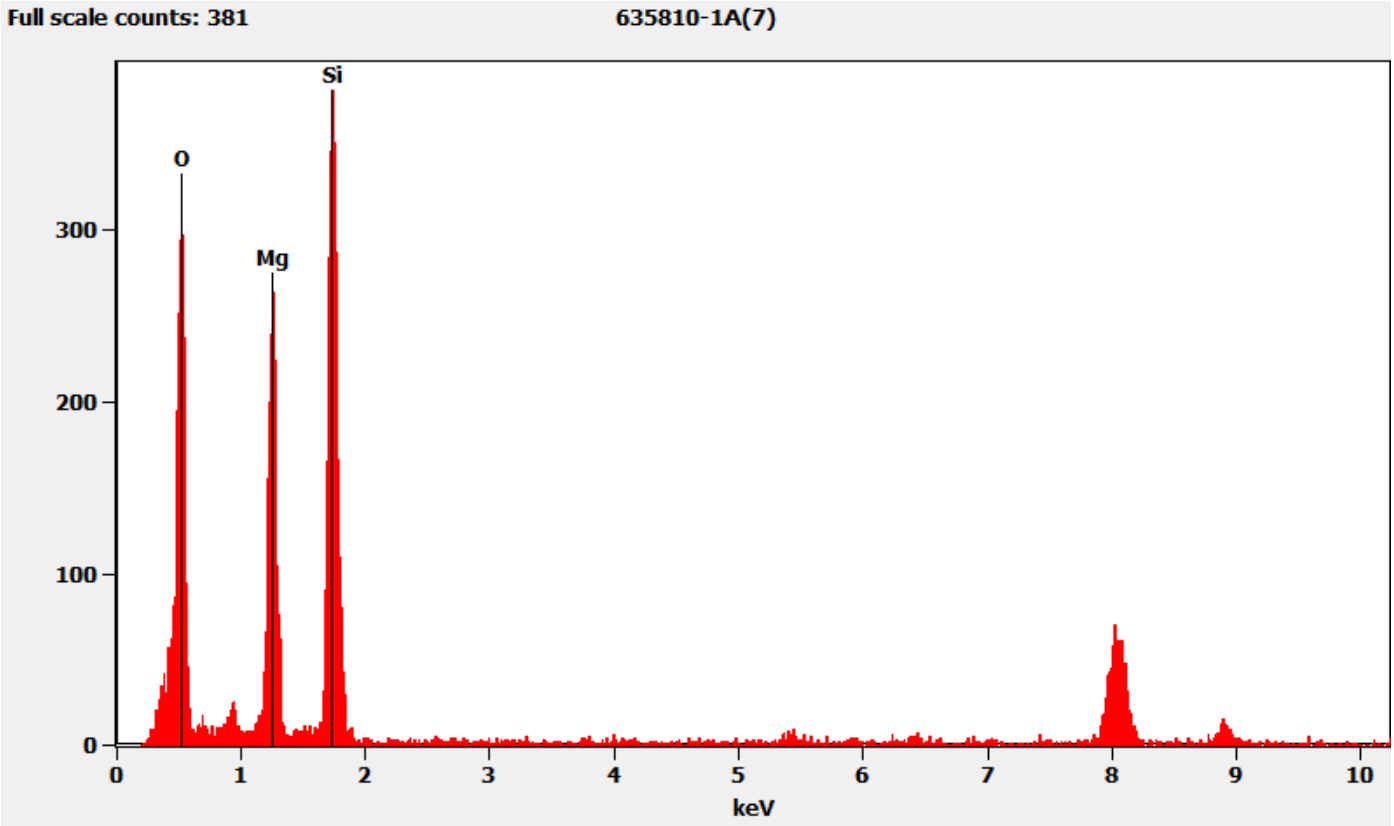
800 nm
HV=100kV
Direct Mag: 3600 x
AMA Analytical Services, Inc

Hexagonal Diffraction Pattern from the Elongated Talc Particle Pictured Above

635810 FDA_008.jpg
635810-1A
Talc Fiber
11:06 5/12/2022
Microscopist (b) (6)
Camera: NANOSPRT5, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

100 (1/Å)
HV=100kV
Cam Len: 0.2200 m
AMA Analytical Services, Inc

Chemistry from the Elongated Talc Particle Pictured Above



635810-2A, 2B, 2C/Client Sample: 03302022-2

PLM

All three aliquots of sample 03302022-2 were analyzed by (b) (6) on June 2, 2022. No asbestos or non-asbestos amphibole variants were observed during analysis. The results were calculated using the equations detailed in the *Calculations* section above.

635810-2A	No Asbestos Detected
635810-2B	No Asbestos Detected
635810-2C	No Asbestos Detected

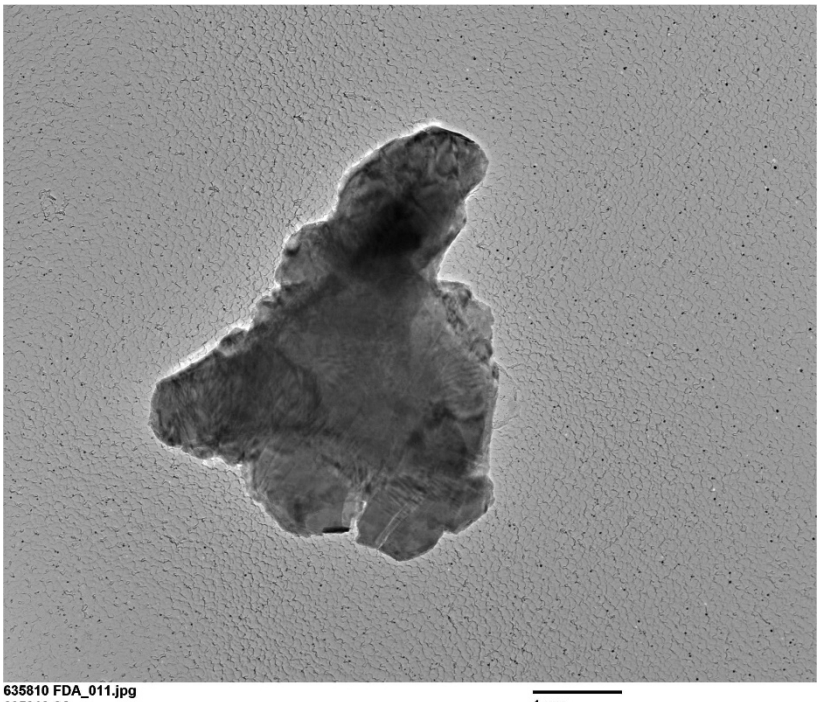
TEM

(b) (6) analyzed aliquots 2A and 2B on May 12, 2022, and aliquot 2C on May 16, 2022. The primary particles observed were mica and talc; elongated mica and talc particles were also observed. No asbestos or non-asbestos amphibole variants were observed during analysis. The results were calculated using the equations detailed in the *Calculations* section above.

635810-2A	No Asbestos Detected
635810-2B	No Asbestos Detected
635810-2C	No Asbestos Detected

Below are pictures, diffraction patterns, and chemistry from some of the observed particles. The copper peaks in the chemistry spectra are from the TEM grid. The unidentified (and some identified) peaks in the chemistry spectra are zinc and carbon from the TEM specimen holder.

635810-2A, Mica Particle



635810 FDA_011.jpg
635810-2A
Mica Particle
Cal: 0.003702 µm/pix
11:44 5/12/2022
Microscopis(b) (6)
Camera: NANOSPR15, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

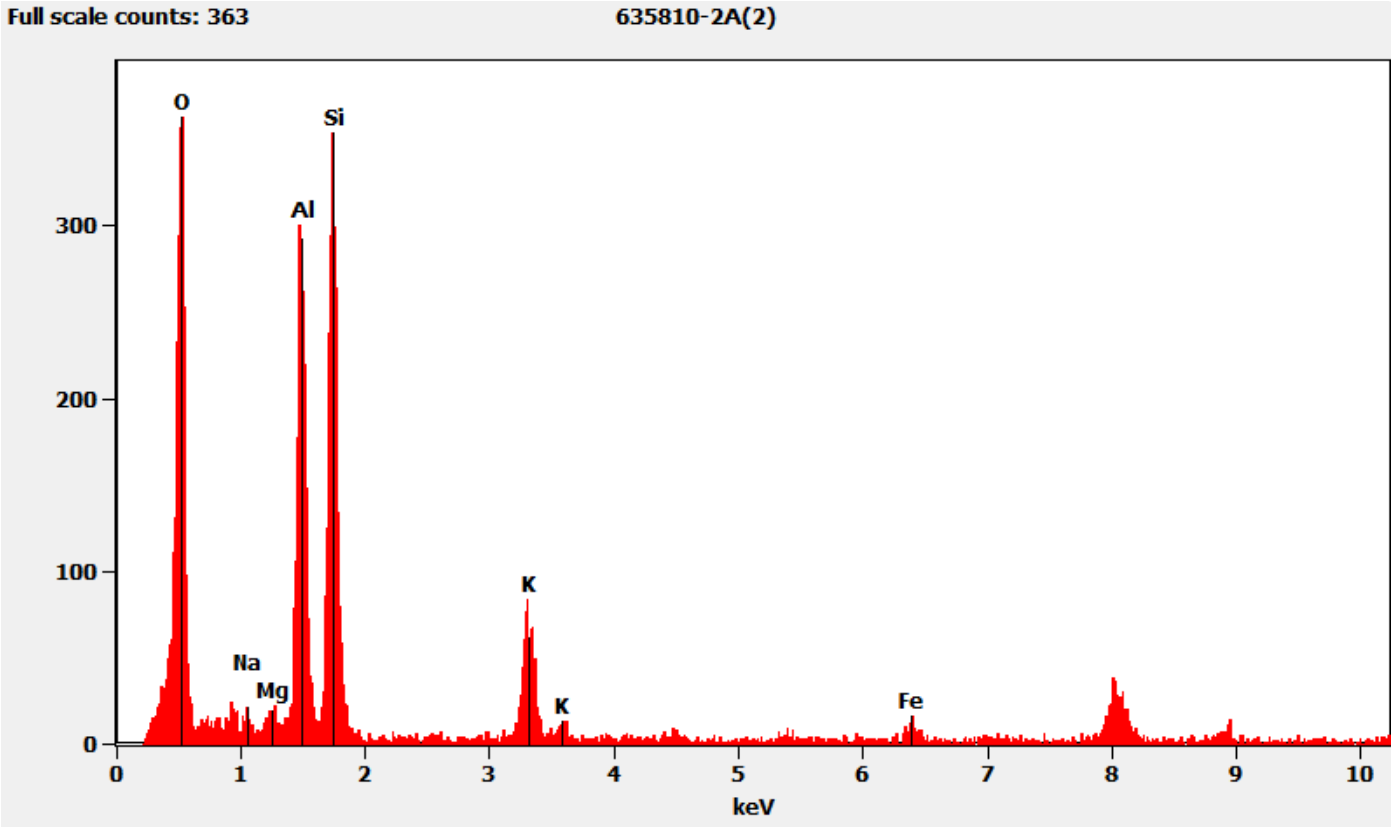
1 µm
HV=100kV
Direct Mag: 2900 x
AMA Analytical Services, Inc

Hexagonal Diffraction Pattern from the Mica Particle Pictured Above

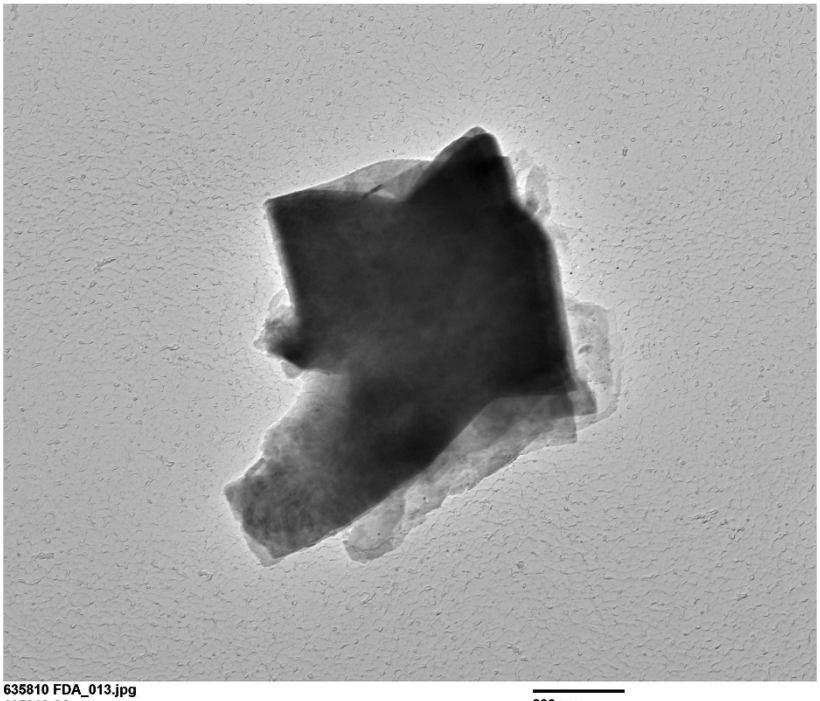
635810 FDA_010.jpg
635810-2A
Mica Particle
11:43 5/12/2022
Microscopis (b) (6)
Camera: NANOSPRT5, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

100 (1/Å)
HV=100kV
Cam Len: 0.2200 m
AMA Analytical Services, Inc

Chemistry from the Mica Particle Pictured Above



635810-2A, Talc Particle



635810 FDA_013.jpg
635810-2A
Talc Particle
Cal: 0.002860 µm/pix
11:49 5/12/2022
Microscopist (b) (6)
Camera: NANOSPRY5, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

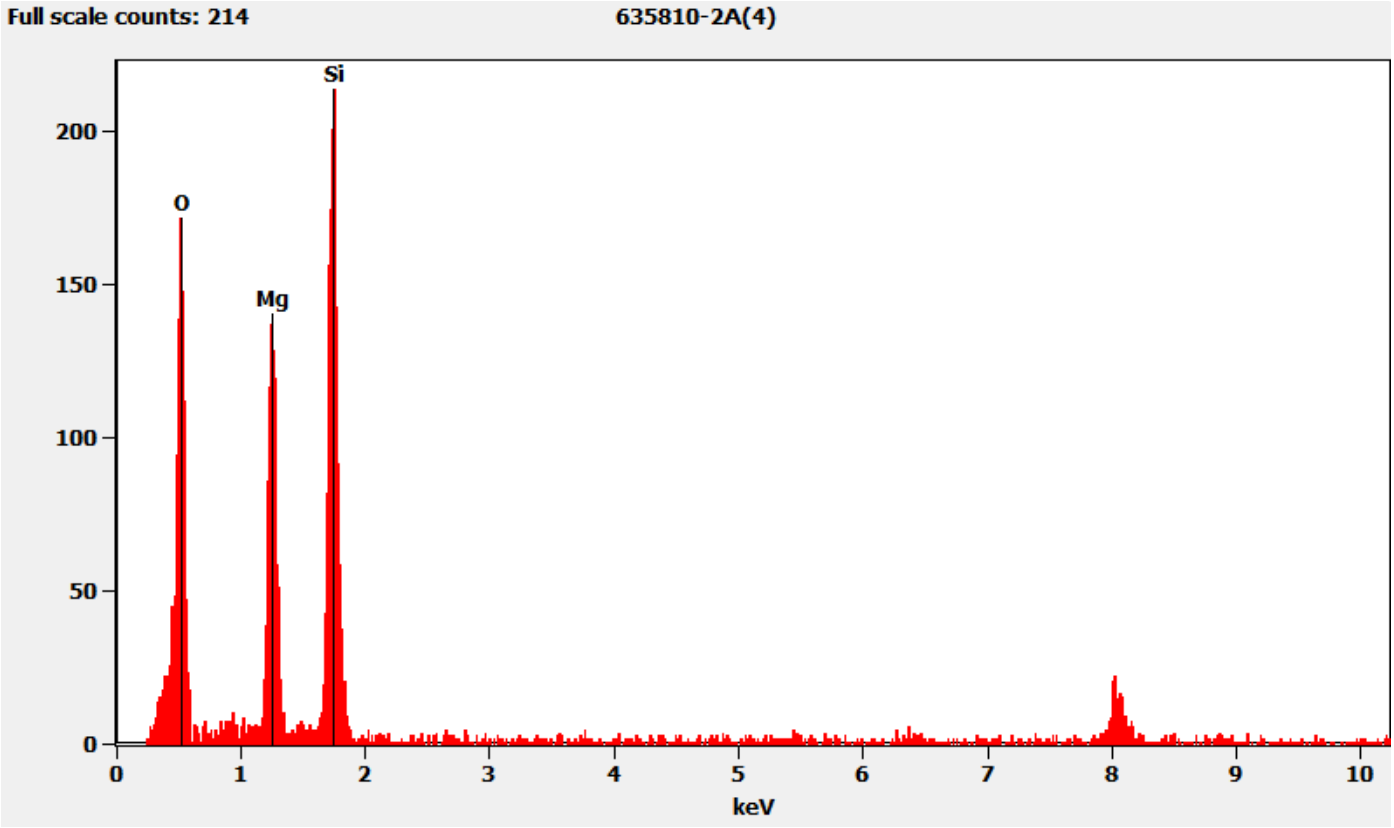
800 nm
HV=100kV
Direct Mag: 3600 x
AMA Analytical Services, Inc

Hexagonal Diffraction Pattern from the Talc Particle Pictured Above

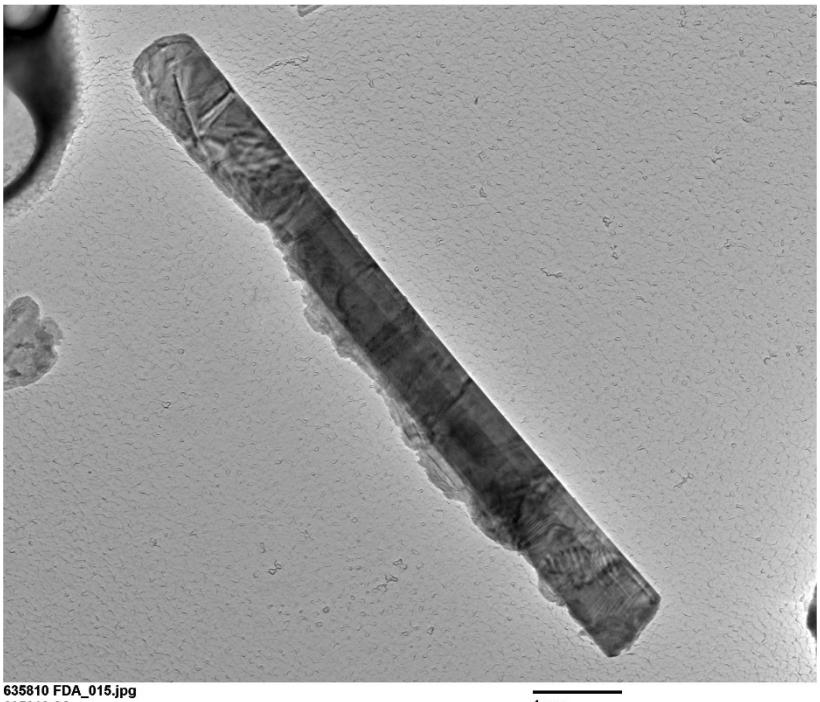
635810 FDA_012.jpg
635810-2A
Talc Particle
11:49 5/12/2022
Microscopist (b) (6)
Camera: NANOSPR 15, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

100 (1/Å)
HV=100kV
Cam Len: 0.2200 m
AMA Analytical Services, Inc

Chemistry from the Talc Particle Pictured Above



635810-2A, Elongated Mica Particle



635810 FDA_015.jpg
635810-2A
Elongated Mica Particle
Cal: 0.003702 µm/pix
12:34 5/12/2022
Microscopist (b) (6)
Camera: NANOSPRT5, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

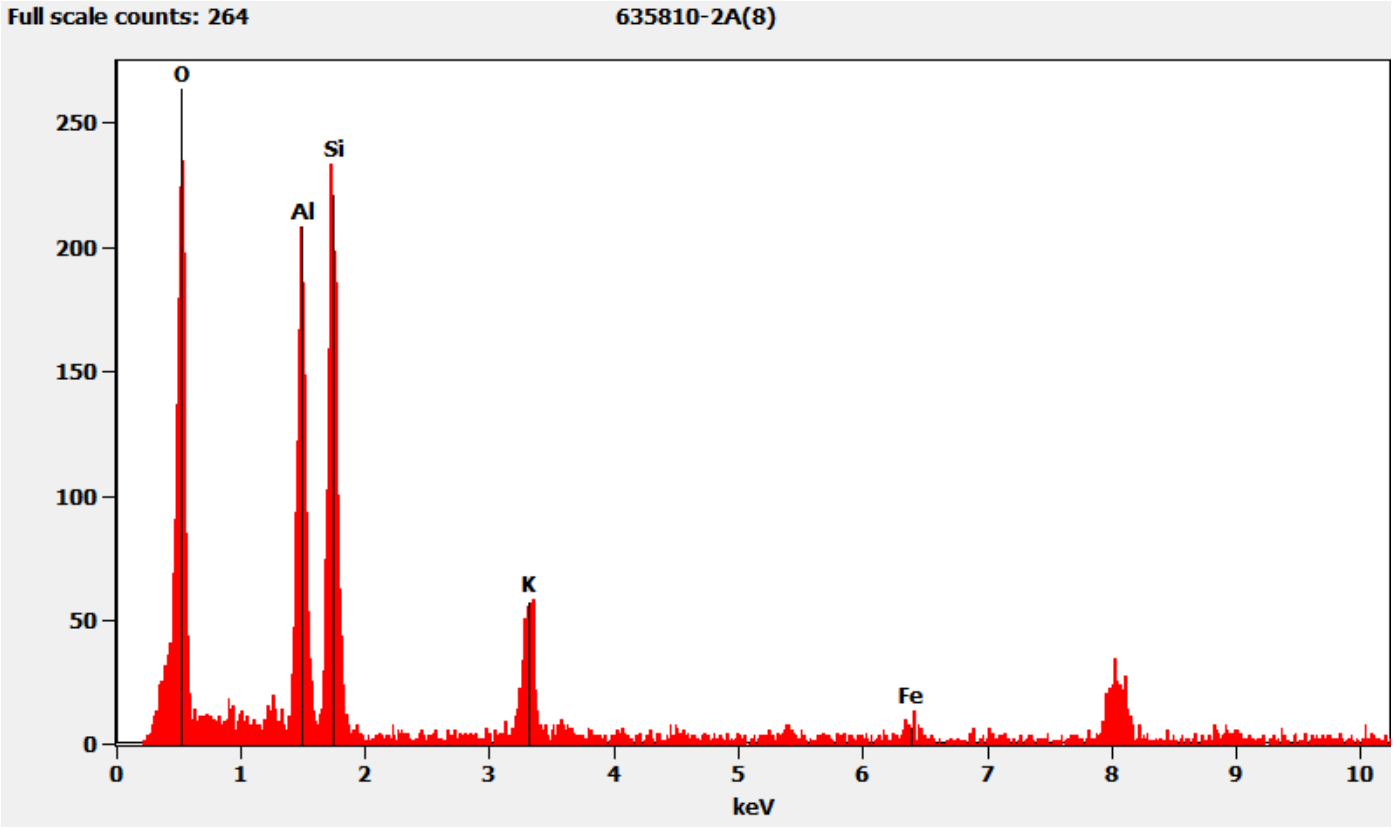
1 µm
HV=100kV
Direct Mag: 2900 x
AMA Analytical Services, Inc

Hexagonal Diffraction Pattern from the Elongated Mica Particle Pictured Above

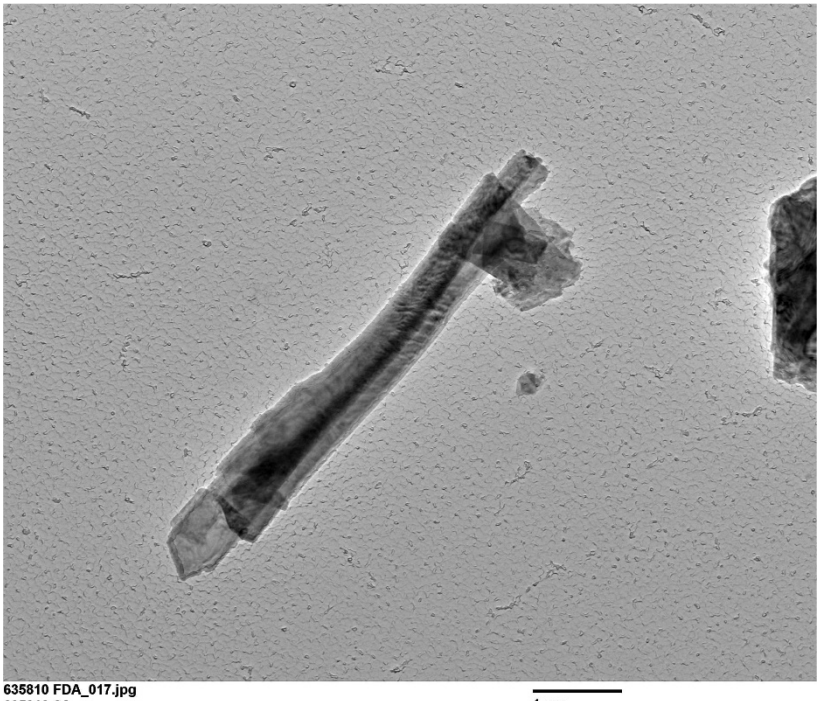
635810 FDA_014.jpg
635810-2A
Elongated Mica Particle
12:33 5/12/2022
Microscopist (b) (6)
Camera: NANOSPR15, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

100 (1/Å)
HV=100kV
Cam Len: 0.2200 m
AMA Analytical Services, Inc

Chemistry from the Elongated Mica Pictured Above



635810-2A, Elongated Talc Particle



635810 FDA_017.jpg
635810-2A
Elongated Talc Particle
Cal: 0.003702 µm/pix
12:39 5/12/2022
Microscopist: (b) (6)
Camera: NANOSPRT5, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

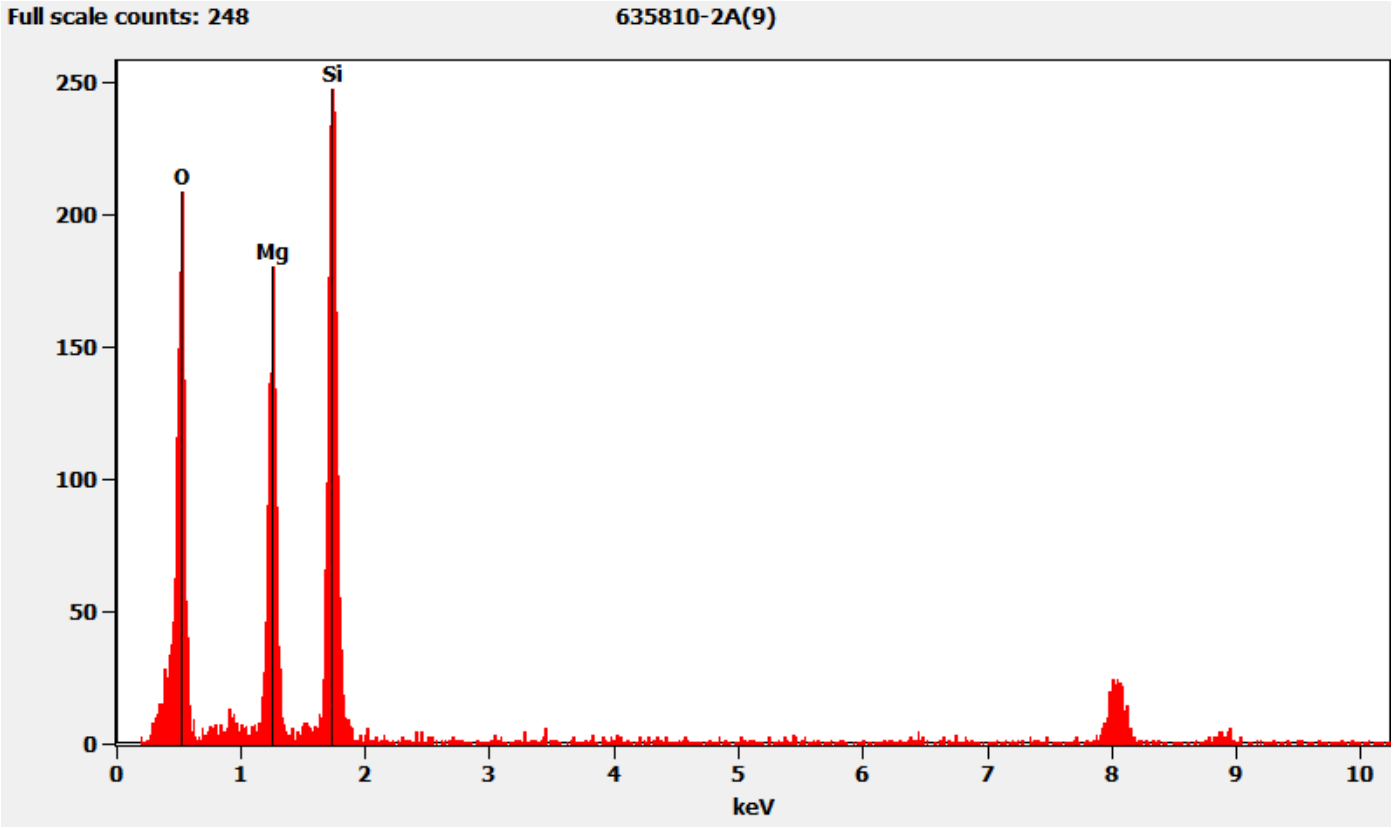
1 µm
HV=100kV
Direct Mag: 2900 x
AMA Analytical Services, Inc

Hexagonal Diffraction Pattern from the Elongated Talc Particle Pictured Above

635810 FDA_016.jpg
635810-2A
Elongated Talc Particle
12:37 5/12/2022
Microscopist: (b) (6)
Camera: NANOSPRI5, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

100 (1/Å)
HV=100kV
Cam Len: 0.2200 m
AMA Analytical Services, Inc

Chemistry from the Elongated Talc Particle Pictured Above



635810-3A, 3B, 3C/Client Sample: 03302022-3

PLM

All three aliquots of sample 03302022-3 were analyzed by (b) (6) on June 2, 2022. No asbestos or non-asbestos amphibole variants were observed during analysis. The results were calculated using the equations detailed in the *Calculations* section above.

635810-3A	No Asbestos Detected
635810-3B	No Asbestos Detected
635810-3C	No Asbestos Detected

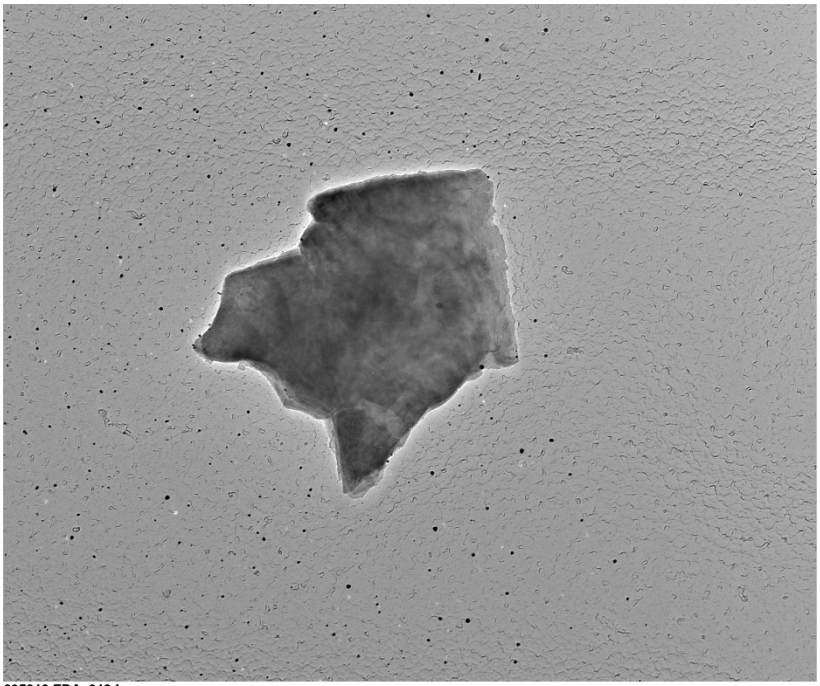
TEM

(b) (6) analyzed aliquot 3A on May 12, 2022, and aliquots 3B and 3C on May 13, 2022. The primary particle observed was talc; particles containing magnesium, aluminum and silicon were also observed along with talc ribbons/elongated talc particles. No asbestos or non-asbestos amphibole variants were observed during analysis. The results were calculated using the equations detailed in the *Calculations* section above.

635810-3A	No Asbestos Detected
635810-3B	No Asbestos Detected
635810-3C	No Asbestos Detected

Below are pictures, diffraction patterns, and chemistry from some of the observed particles. The copper peaks in the chemistry spectra are from the TEM grid. The unidentified (and some identified) peaks in the chemistry spectra are zinc and carbon from the TEM specimen holder.

635810-3A, Talc Particle

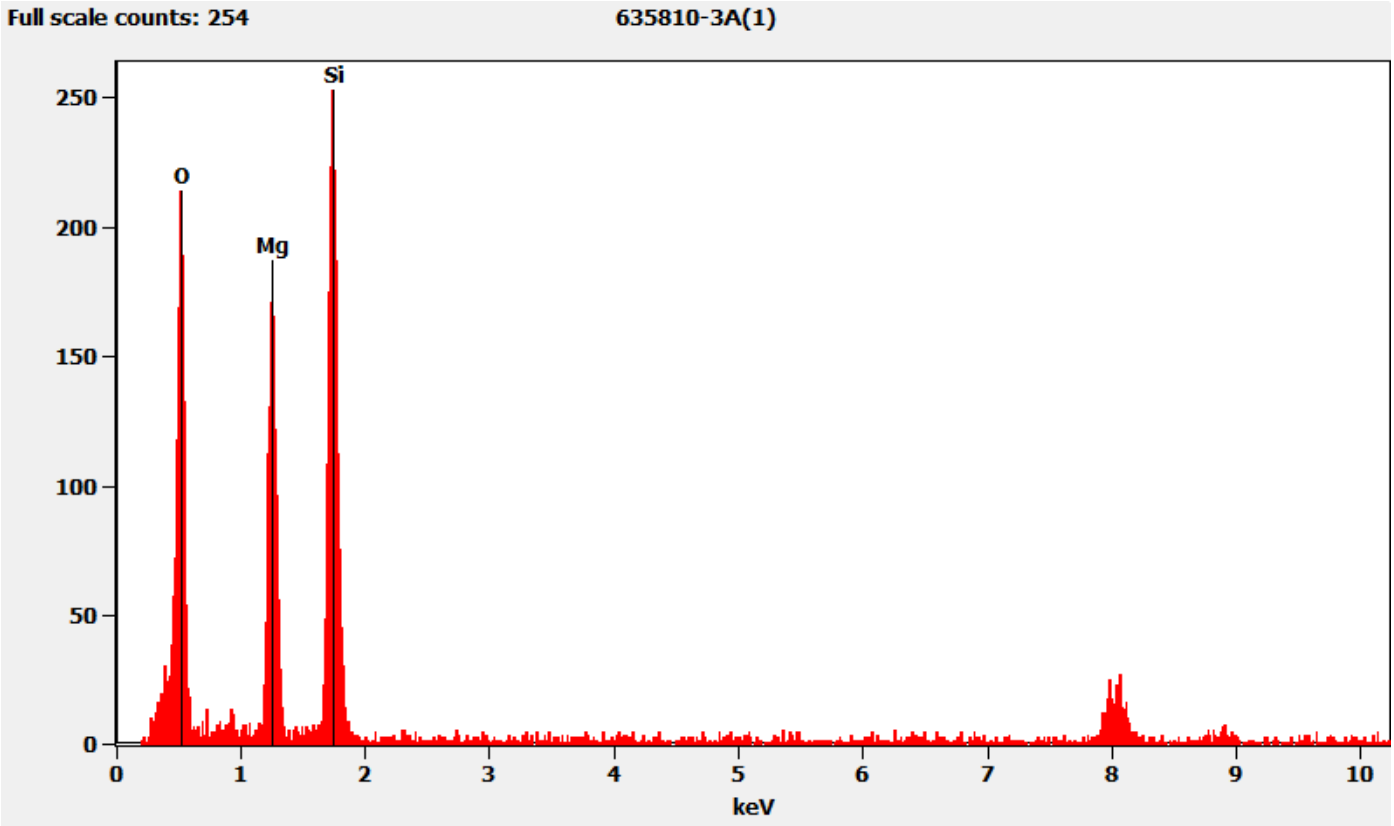


Hexagonal Diffraction Pattern from the Talc Particle Pictured Above

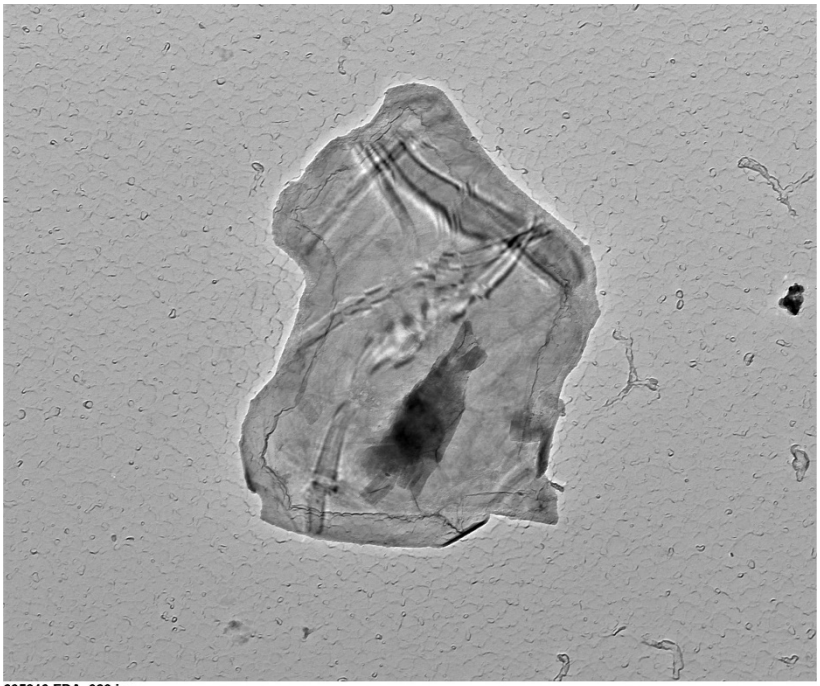
635810 FDA_018.jpg
635810-3A
Talc Particle
14:27 5/12/2022
Microscopist (b) (6)
Camera: NANOSPR15, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

100 (1/Å)
HV=100kV
Cam Len: 0.2200 m
AMA Analytical Services, Inc

Chemistry from the Talc Particle Pictured Above



635810-3A, Particle Containing Magnesium, Aluminum, and Silicon

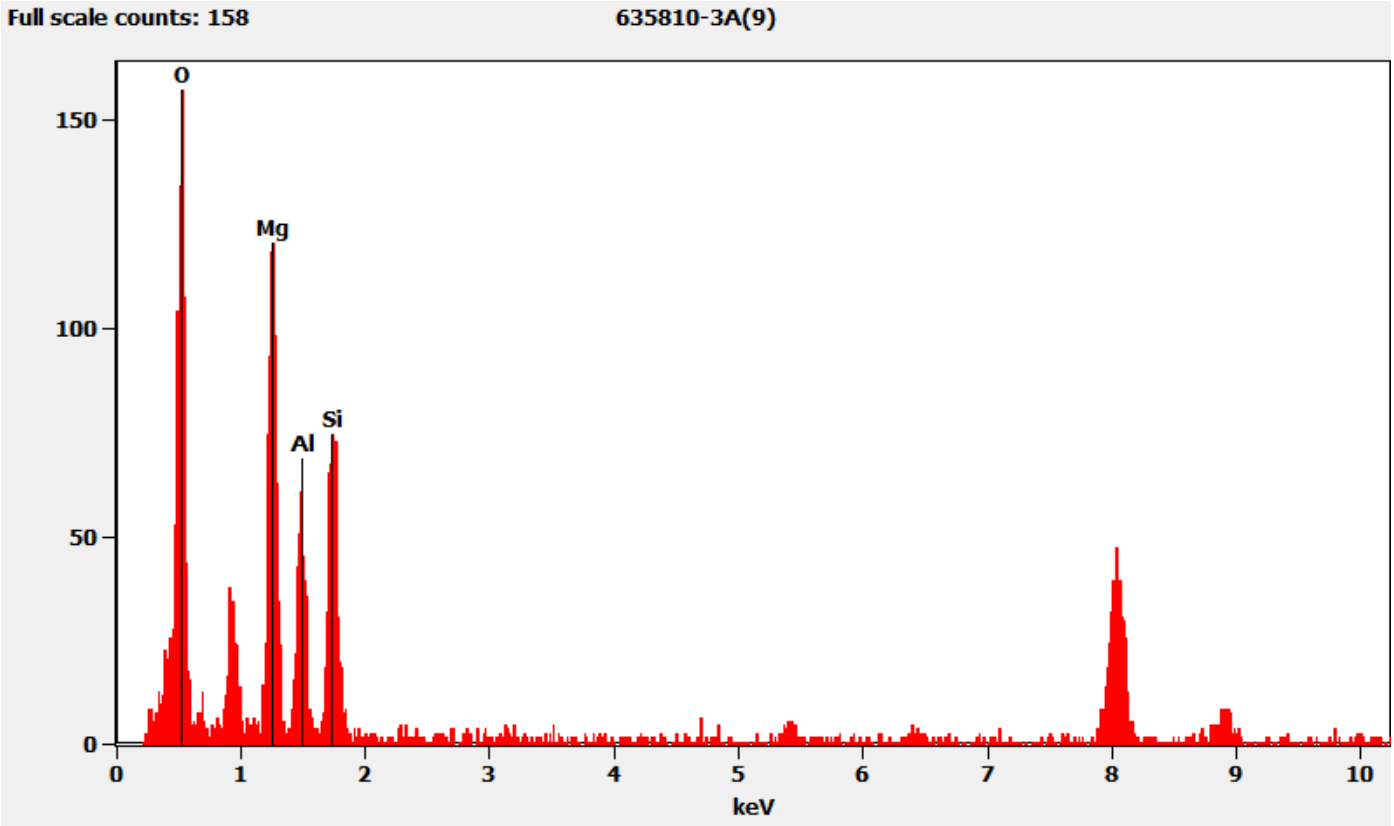


635810 FDA_023.jpg
635810-3A
Mg,Al,Si particle
Cal: 0.001775 µm/pix
14:41 5/12/2022
Microscopis (b) (6)
Camera: NANOSPRIS, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

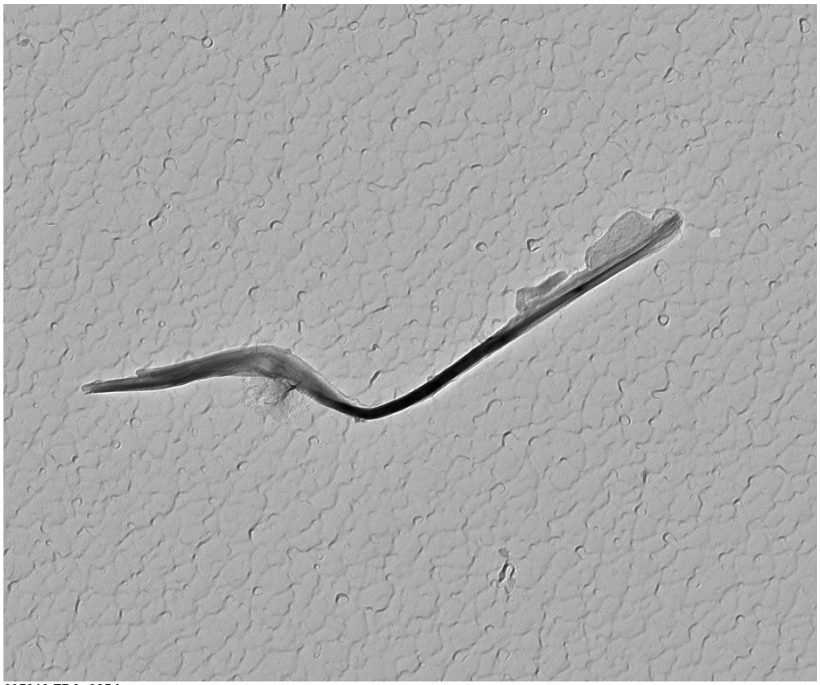
500 nm
HV=100kV
Direct Mag: 5800 x
AMA Analytical Services, Inc

Hexagonal Diffraction Pattern from the Particle Containing Magnesium, Aluminum, and Silicon Pictured Above

Chemistry from the Particle Containing Magnesium, Aluminum, and Silicon Pictured Above



635810-3A, Talc Ribbon



635810 FDA_025.jpg
635810-3A
Talc Ribbon
Cal: 0.001030 µm/pix
14:45 5/12/2022
Microscopist: (b) (6)
Camera: NANOSPRING, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

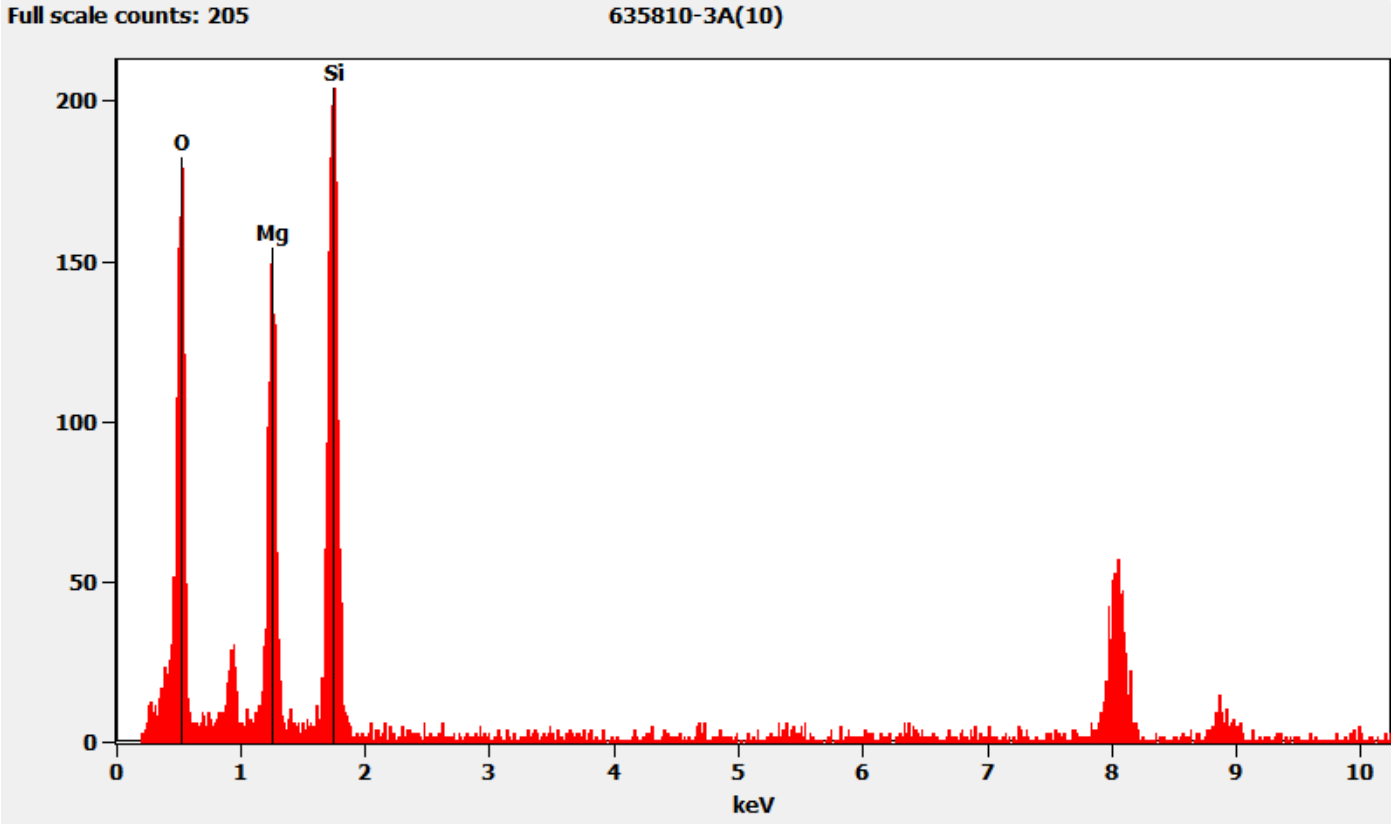
200 nm
HV=100kV
Direct Mag: 10000 x
AMA Analytical Services, Inc

Diffraction Pattern from the Talc Ribbon Pictured Above

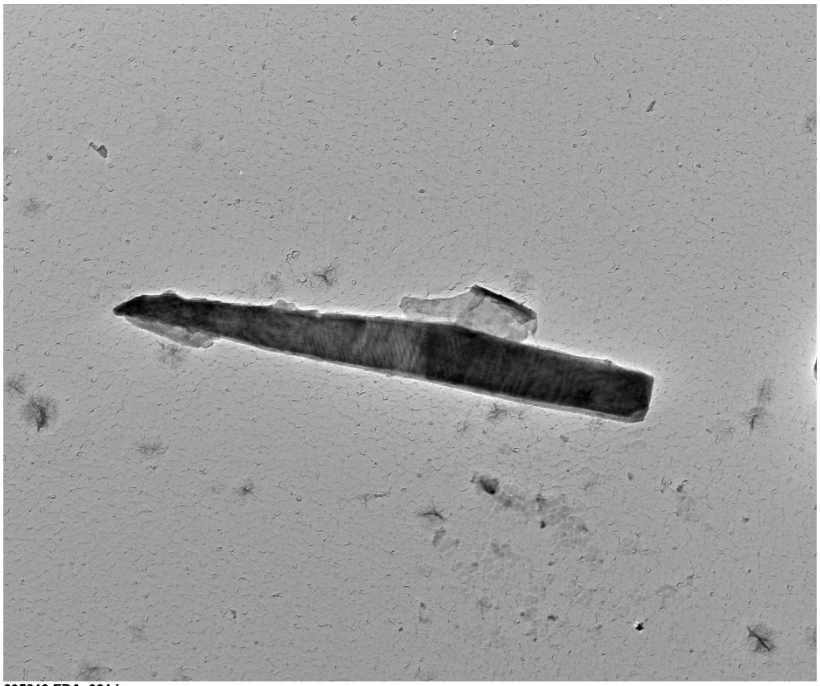
635810 FDA_024.jpg
635810-3A
Talc Ribbon
14:45 5/12/2022
Microscopist (b) (6)
Camera: NANOSPRT5, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

100 (1/Å)
HV=100kV
Cam Len: 0.2200 m
AMA Analytical Services, Inc

Chemistry from the Talc Ribbon Pictured Above



635810-3A, Elongated Talc Particle

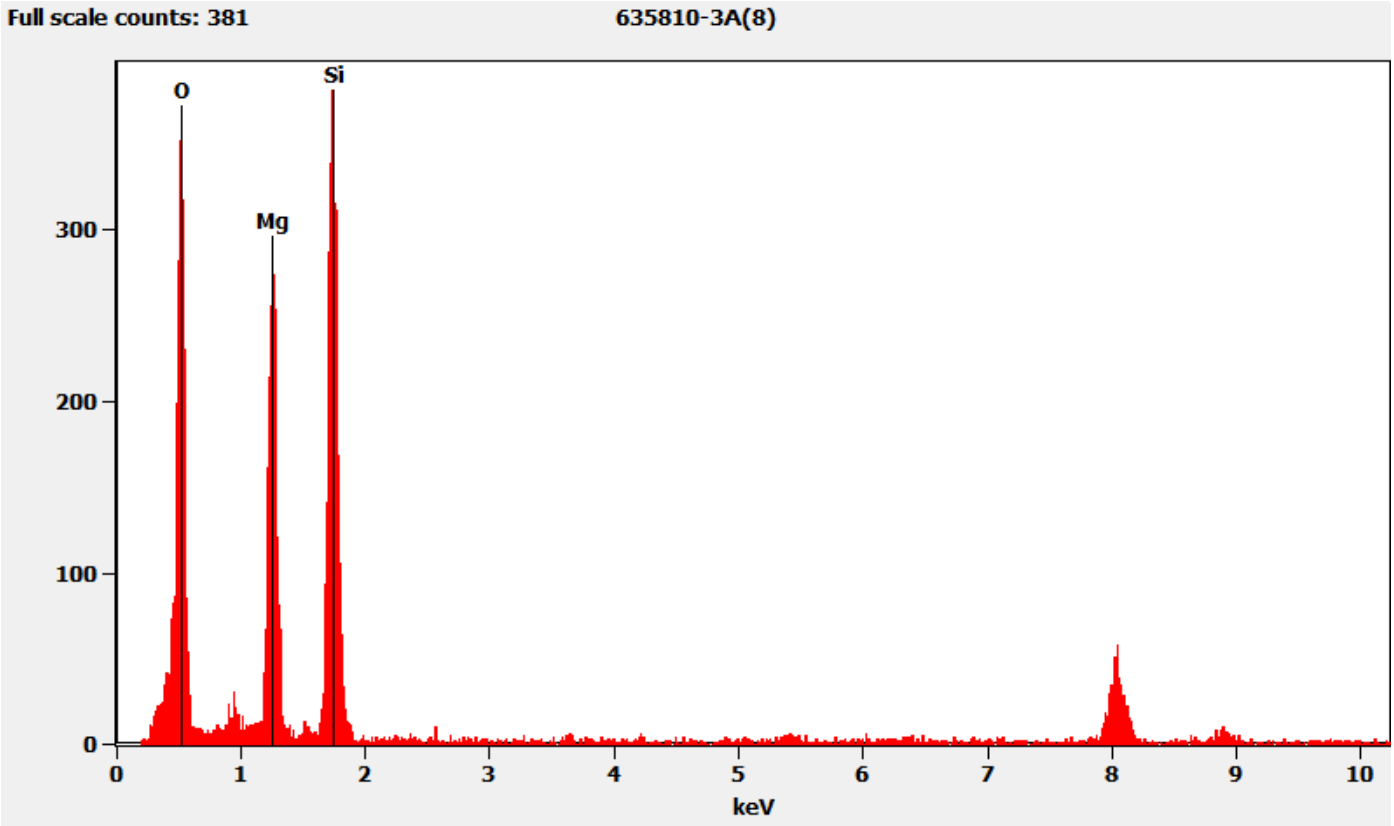


635810 FDA_021.jpg
635810-3A
Talc Fiber
Cal: 0.002860 µm/pix
14:36 5/12/2022
Microscopist: (b) (6)
Camera: NANO[illegible]5, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

800 nm
HV=100kV
Direct Mag: 3600 x
AMA Analytical Services, Inc

Hexagonal Diffraction Pattern from the Elongated Talc Particle Pictured Above

Chemistry from the Elongated Talc Particle Pictured Above



635810-4A, 4B, 4C/Client Sample: 03302022-4

PLM

All three aliquots of sample 03302022-4 were analyzed by (b) (6) on June 2, 2022. No asbestos or non-asbestos amphibole variants were observed during analysis. The results were calculated using the equations detailed in the *Calculations* section above.

635810-4A	No Asbestos Detected
635810-4B	No Asbestos Detected
635810-4C	No Asbestos Detected

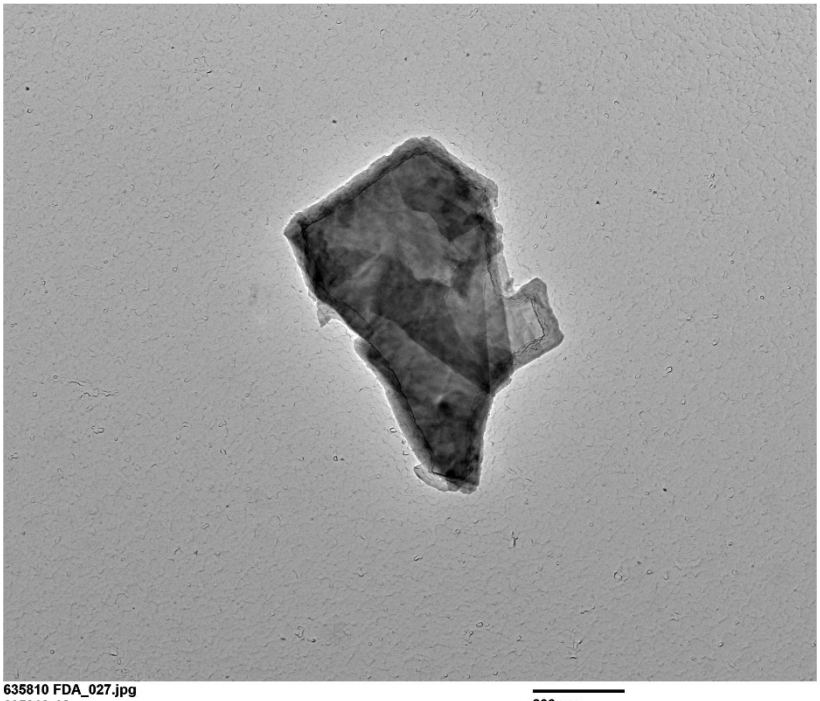
TEM

(b) (6) analyzed aliquot 4A on May 16, 2022, and aliquots 4B and 4C on May 18, 2022. The primary particle observed was talc; talc ribbons were also observed along with particles containing magnesium, aluminum, silicon, and iron, titanium particles, mica particles with titanium, iron particles, calcium particles, and elongated talc particles. No asbestos or non-asbestos amphibole variants were observed during analysis. The results were calculated using the equations detailed in the *Calculations* section above.

635810-4A	No Asbestos Detected
635810-4B	No Asbestos Detected
635810-4C	No Asbestos Detected

Below are pictures, diffraction patterns, and chemistry from some of the observed particles. The copper peaks in the chemistry spectra are from the TEM grid. The unidentified (and some identified) peaks in the chemistry spectra are zinc and carbon from the TEM specimen holder.

635810-4A, Talc Particle



635810 FDA_027.jpg
635810-4A
Talc Particle
Cal: 0.002860 µm/pix
15:59 5/16/2022
Microscopist (b) (6)
Camera: NANOSPRT5, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

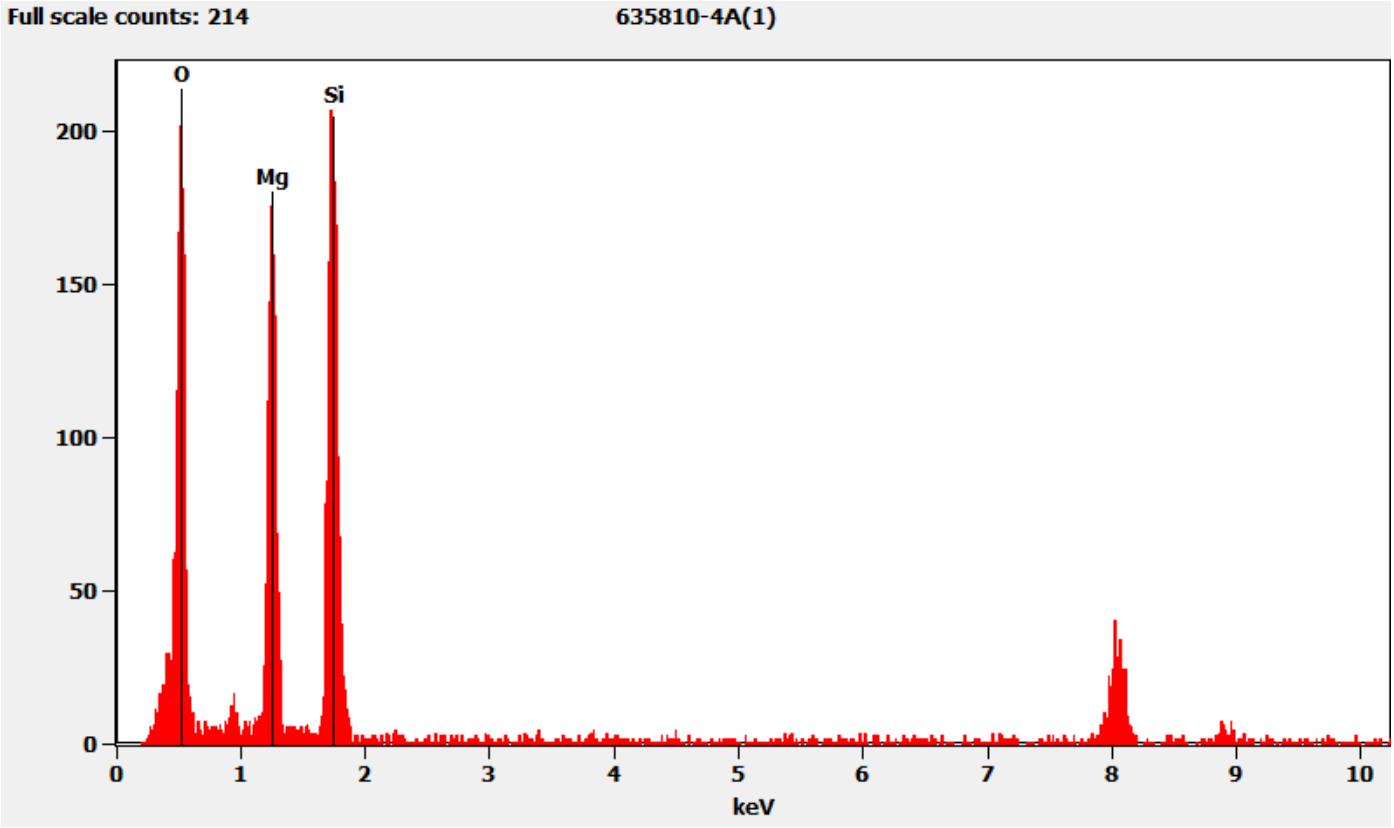
800 nm
HV=100kV
Direct Mag: 3600 x
AMA Analytical Services, Inc

Hexagonal Diffraction Pattern from the Talc Particle Pictured Above

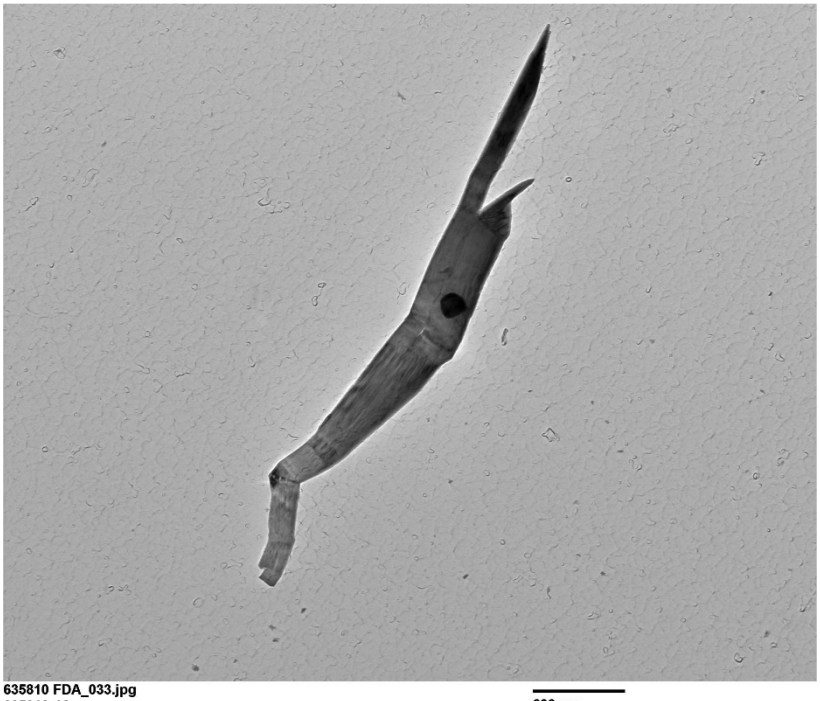
635810 FDA_026.jpg
635810-4A
Talc Particle
15:58 5/16/2022
Microscopist:(b) (6)
Camera: NANOSPRT5, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

100 (1/Å)
HV=100kV
Cam Len: 0.2200 m
AMA Analytical Services, Inc

Chemistry from the Talc Particle Pictured Above



635810-4A, Talc Ribbon



635810 FDA_033.jpg
635810-4A
Talc Ribbon
Cal: 0.002145 µm/pix
16:23 5/16/2022
Microscopist: (b) (6)
Camera: NANOSPRY5, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

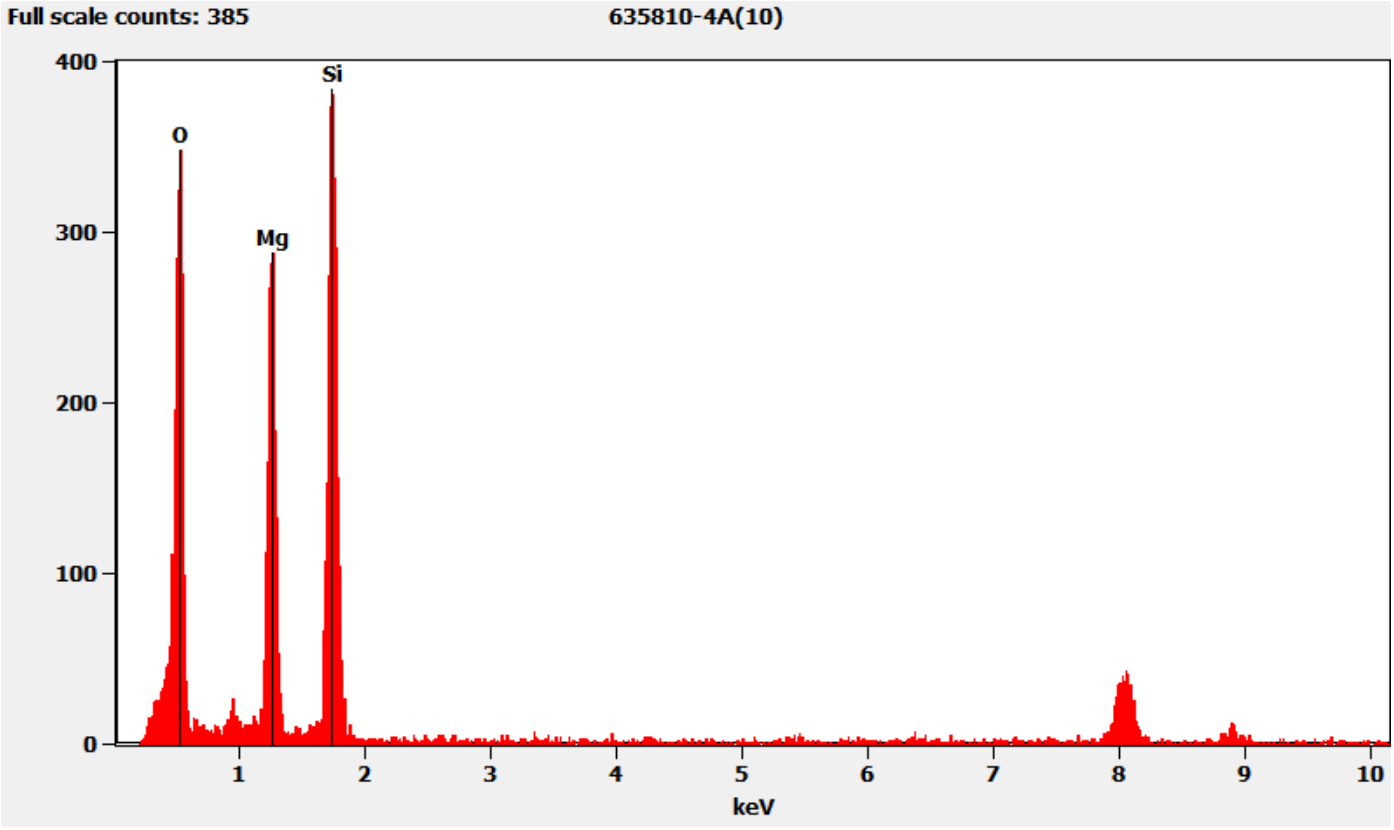
600 nm
HV=100kV
Direct Mag: 4800 x
AMA Analytical Services, Inc

Diffraction Pattern from the Talc Ribbon Pictured Above

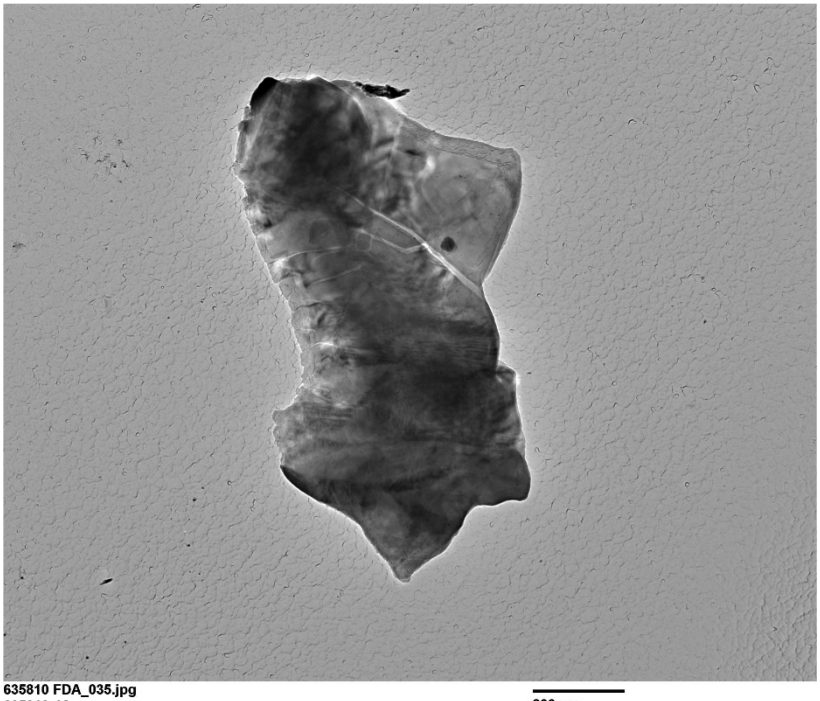
635810 FDA_032.jpg
635810-4A
Talc Ribbon
16:22 5/16/2022
Microscopist (b) (6)
Camera: NAN[illegible]5, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

100 (1/Å)
HV=100kV
Cam Len: 0.2200 m
AMA Analytical Services, Inc

Chemistry from the Talc Ribbon Pictured Above



635810-4A, Particle Containing Magnesium, Aluminum, Silicon, and Iron

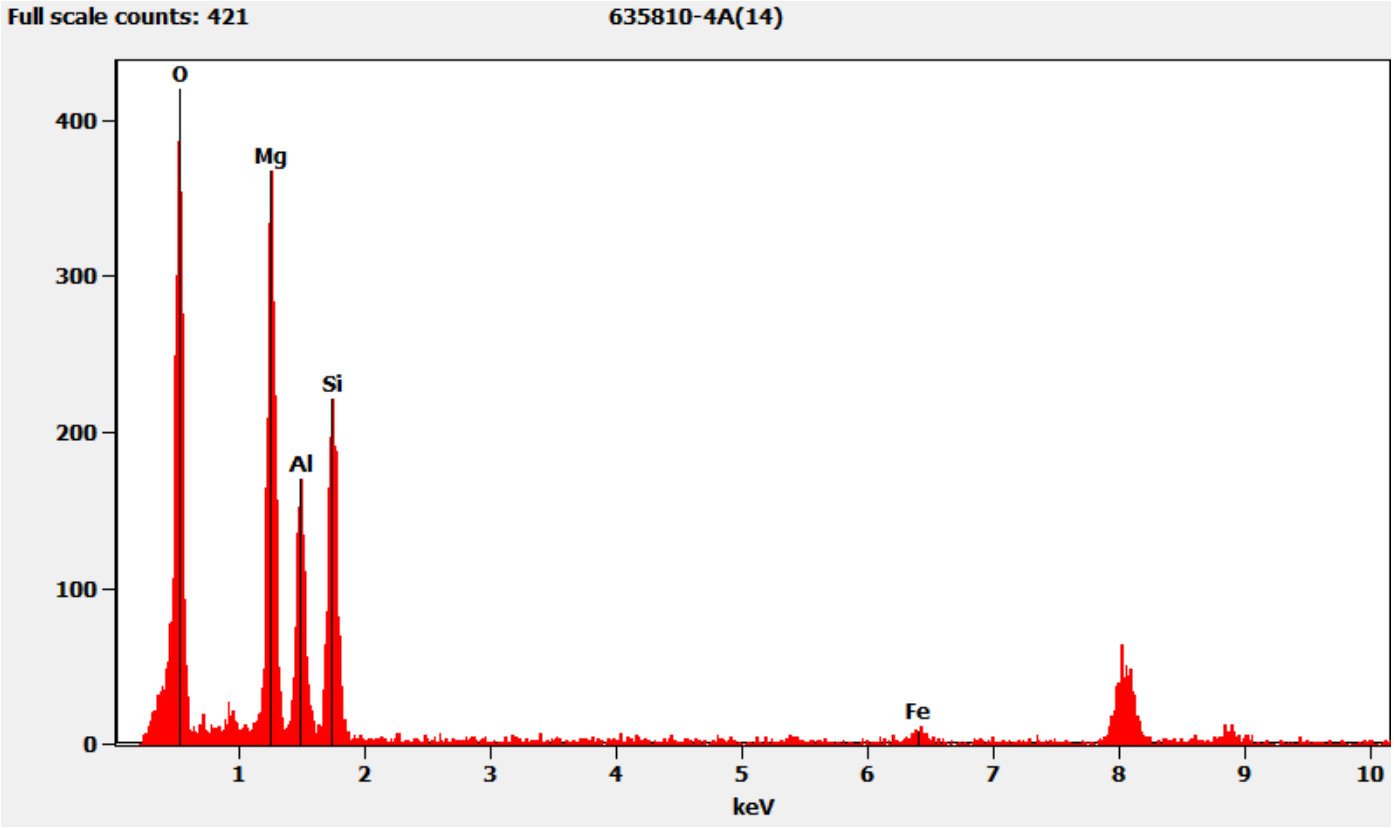


Hexagonal Diffraction Pattern from the Particle Containing Magnesium, Aluminum, Silicon, and Iron Pictured Above

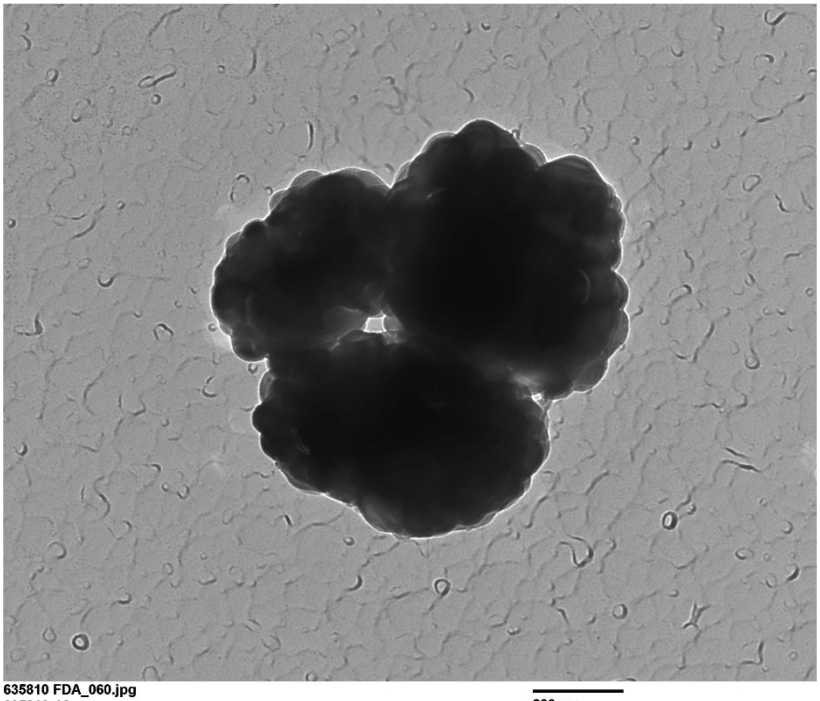
635810 FDA_034.jpg
635810-4A
Mg,Al,Si,Fe particle
16:55 5/16/2022
Microscopist (b) (6)
Camera: NANOSPRT5, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

100 (1/Å)
HV=100kV
Cam Len: 0.2200 m
AMA Analytical Services, Inc

Chemistry from the Particle containing Magnesium, Aluminum, Silicon, and Iron Pictured Above



635810-4C, Titanium Particles



635810 FDA_060.jpg
635810-4C
Ti Particles
Cal: 0.726816 nm/pix
17:13 5/18/2026
Microscopist: (b) (6)
Camera: NANOSPRT5, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

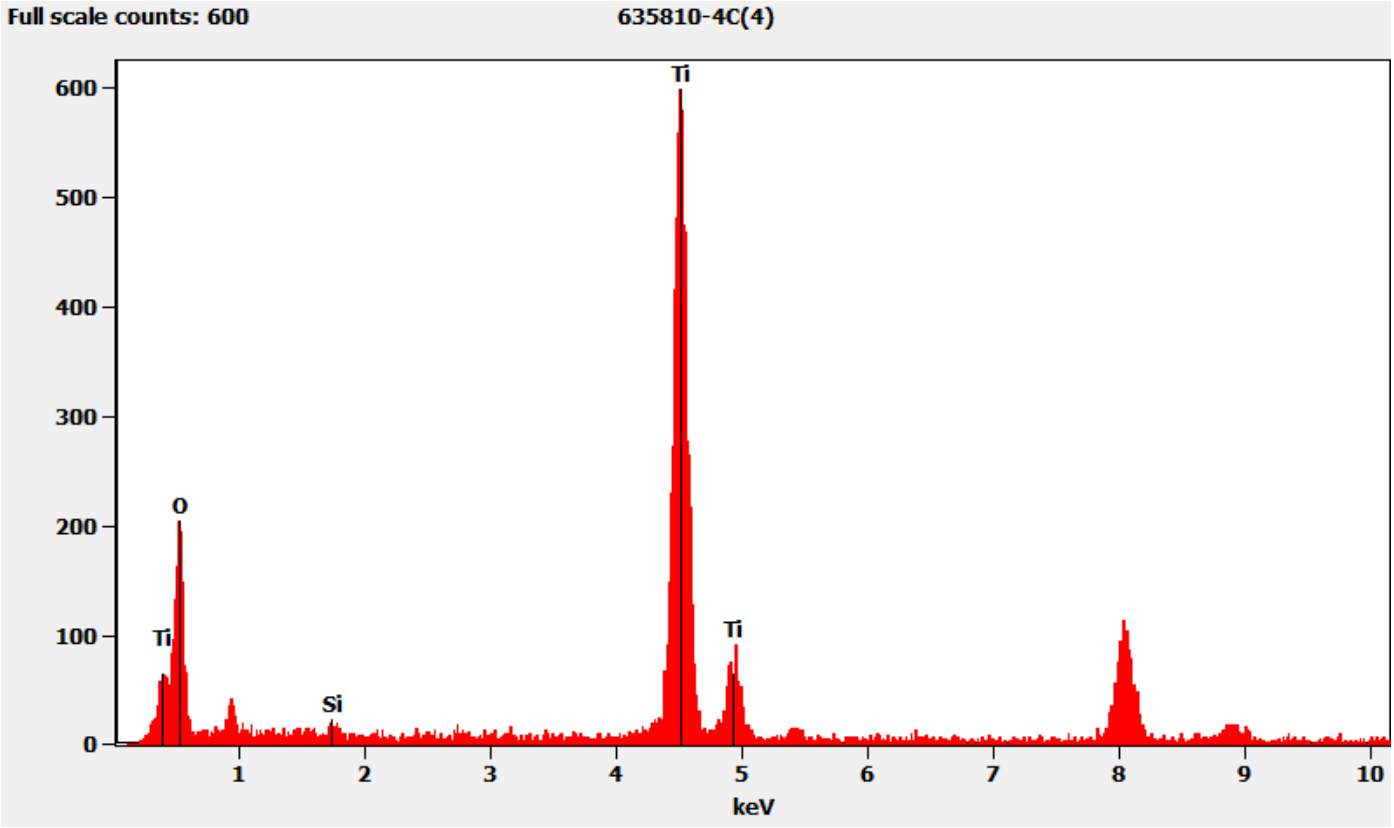
200 nm
HV=100kV
Direct Mag: 14000 x
AMA Analytical Services, Inc

Diffraction Pattern from the Titanium Particles Pictured Above

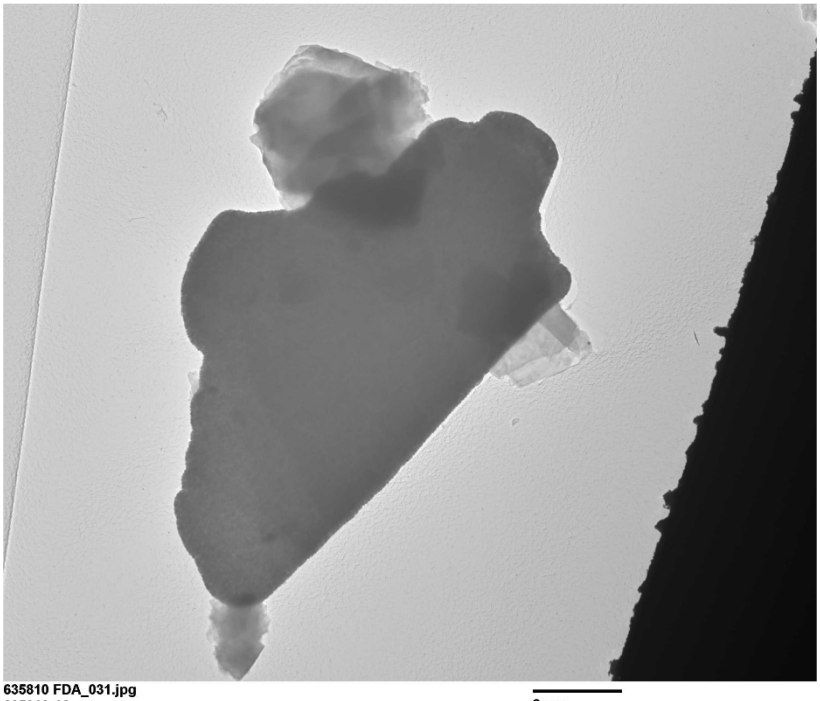
635810 FDA_059.jpg
635810-4C
Ti Particles
17:12 5/18/2022
Microscopis(b) (6)
Camera: NANOSPRIS, Exposure: 840 (ms) x 5 std. frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

100 (1/Å)
HV=100kV
Cam Len: 0.2200 m
AMA Analytical Services, Inc

Chemistry from the Titanium Particles Pictured Above



635810-4A, Mica Particle with Titanium



635810 FDA_031.jpg
635810-4A
Mica w/ Ti
Cal: 0.007355 µm/pix
16:19 5/16/2022
Microscopist (b) (6)
Camera: NANOSPRT5, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

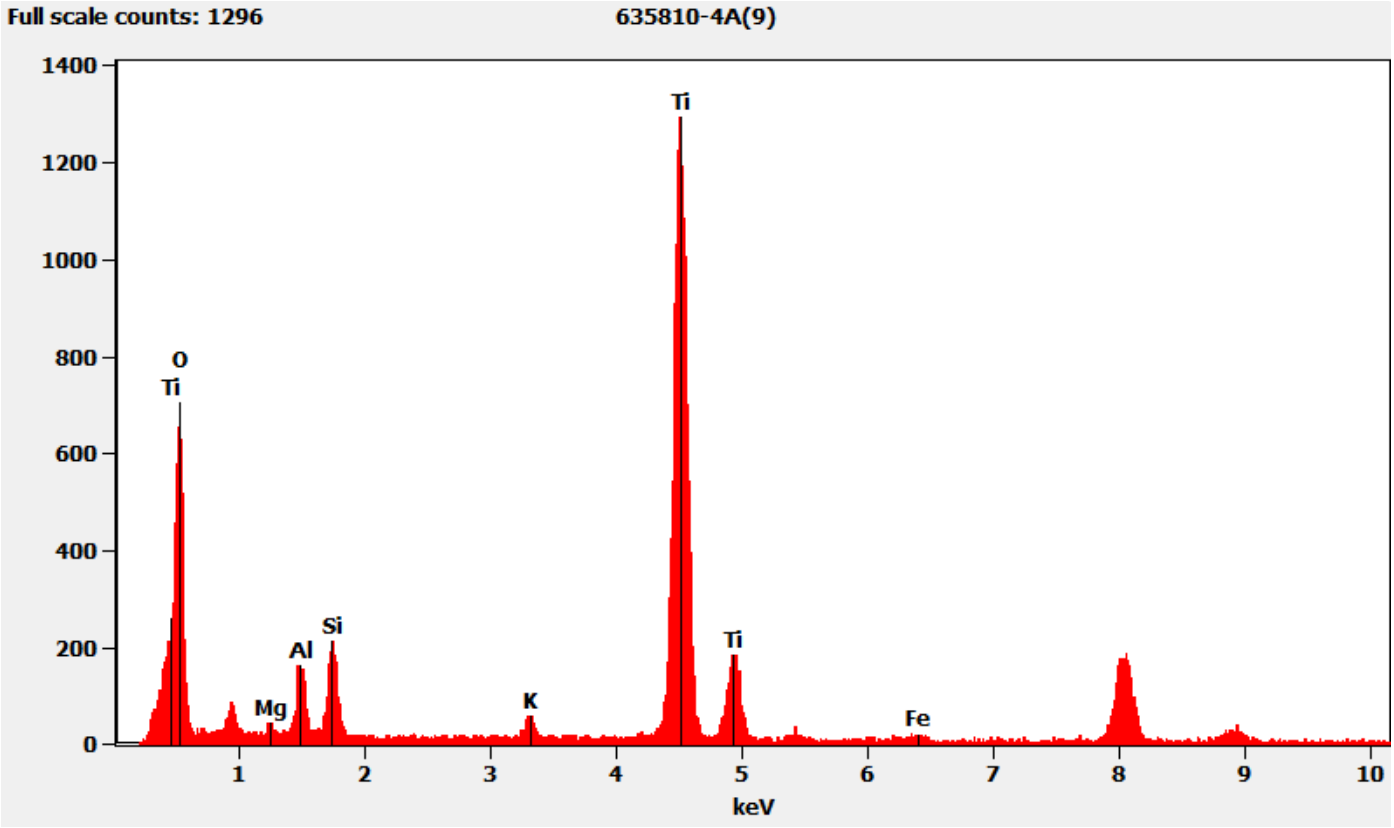
2 µm
HV=100kV
Direct Mag: 1400 x
AMA Analytical Services, Inc

Diffraction Pattern from the Mica Particle with Titanium Pictured Above

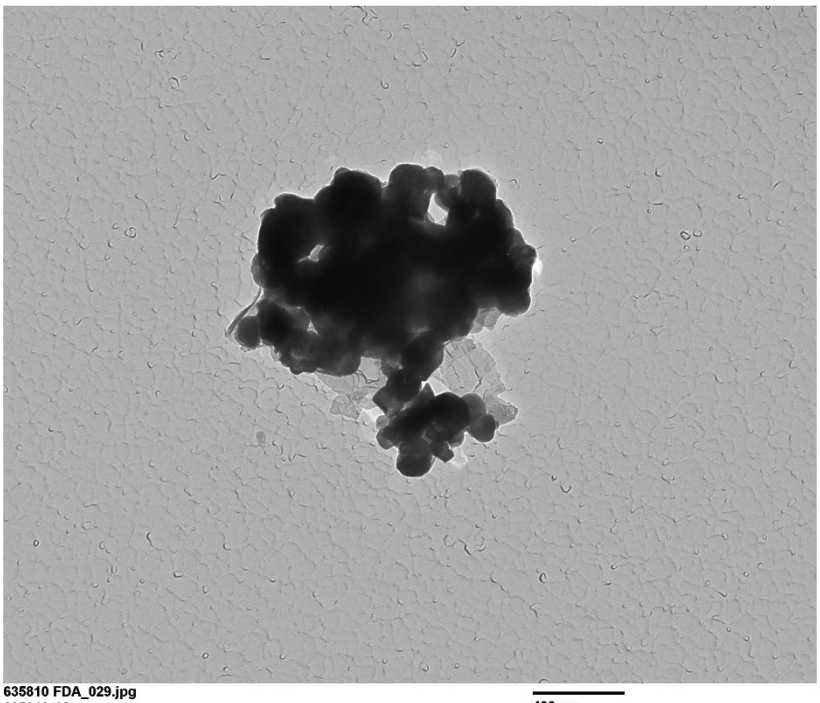
635810 FDA_030.jpg
635810-4A
Mica w/ Ti
16:18 5/16/2022
Microscopist (b) (6)
Camera: NANOSPRT5, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

100 (1/Å)
HV=100kV
Cam Len: 0.2200 m
AMA Analytical Services, Inc

Chemistry from the Mica Particle with Titanium Particle Pictured Above



635810-4A, Iron Particle



635810 FDA_029.jpg
635810-4A
Fe Particles
Cal: 0.001430 µm/pix
16:07 5/16/2023
Microscopist (b) (6)
Camera: NANO[illegible]5, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

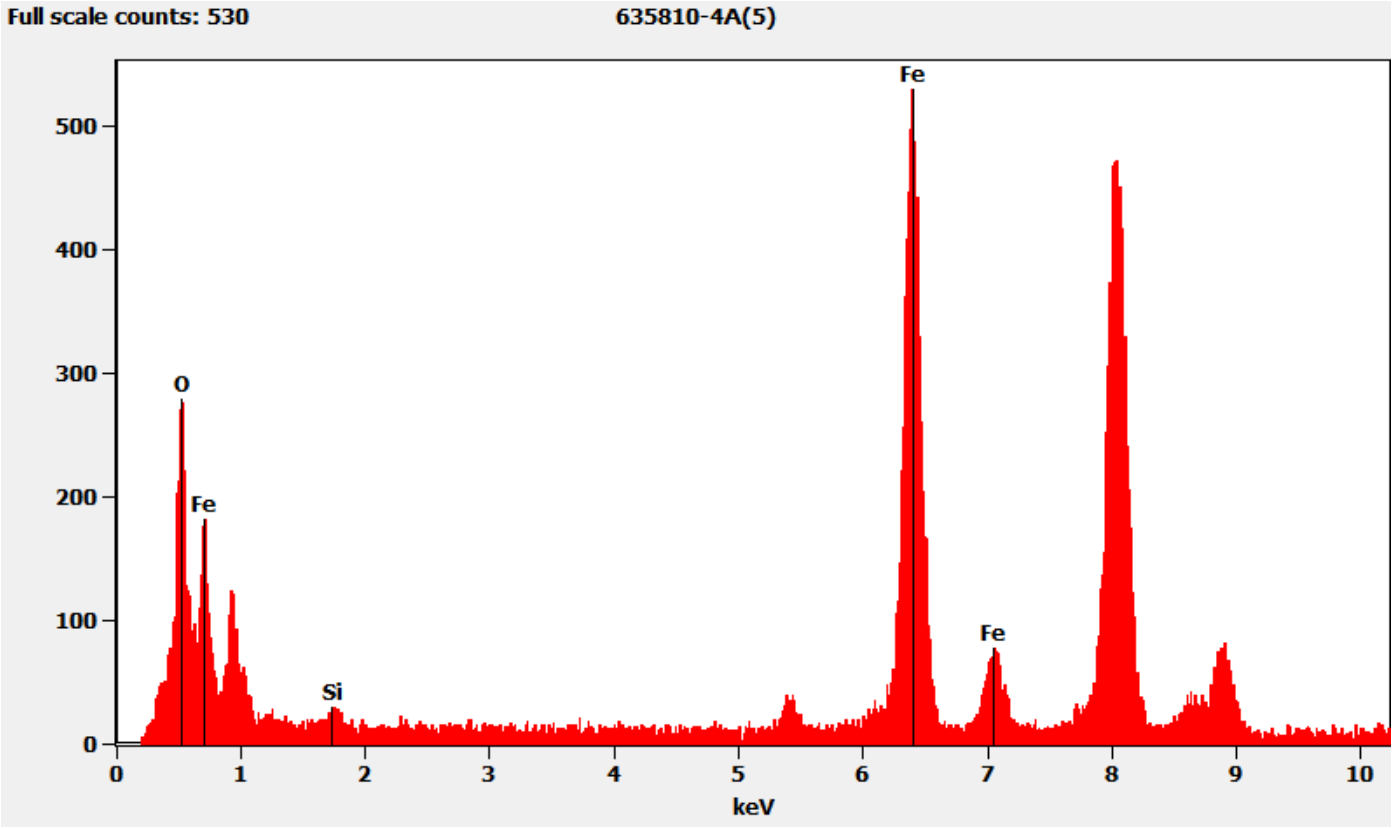
400 nm
HV=100kV
Direct Mag: 7200 x
AMA Analytical Services, Inc

Diffraction Pattern from the Iron Particle Pictured Above

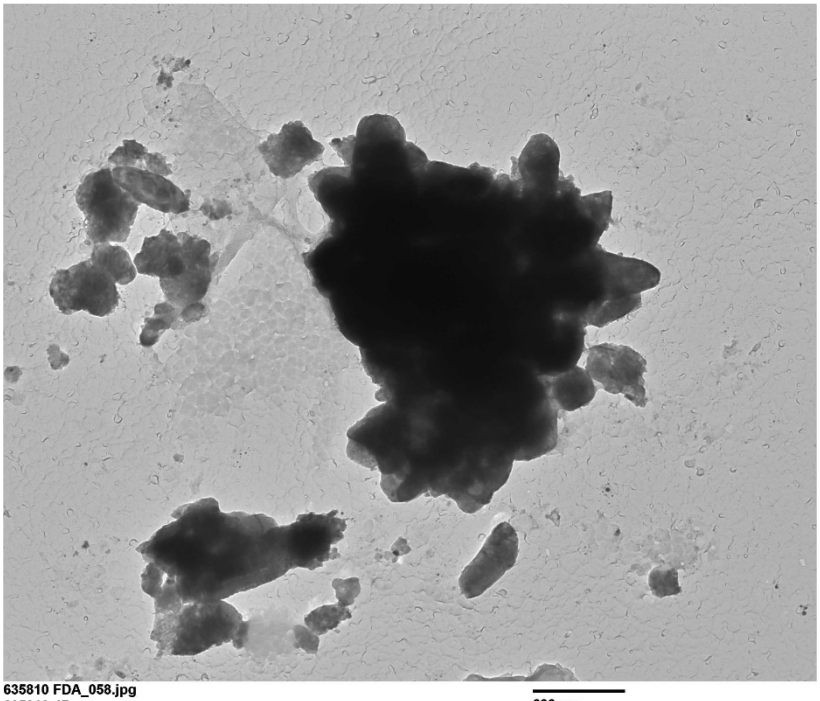
635810 FDA_028.jpg
635810-4A
Fe Particles
16:06 5/16/2022
Microscopist (b) (6)
Camera: NA[illegible]5, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

100 (1/Å)
HV=100kV
Cam Len: 0.2200 m
AMA Analytical Services, Inc

Chemistry from the Iron Particle Pictured Above



635810-4B, Calcium Particle



635810 FDA_058.jpg
635810-4B
Ca Particles
Cal: 0.002145 µm/pix
11:57 5/18/2022
Microscopist: (b) (6)
Camera: NANOSPRT5, Exposure: 840 (ms) x 5 std. frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

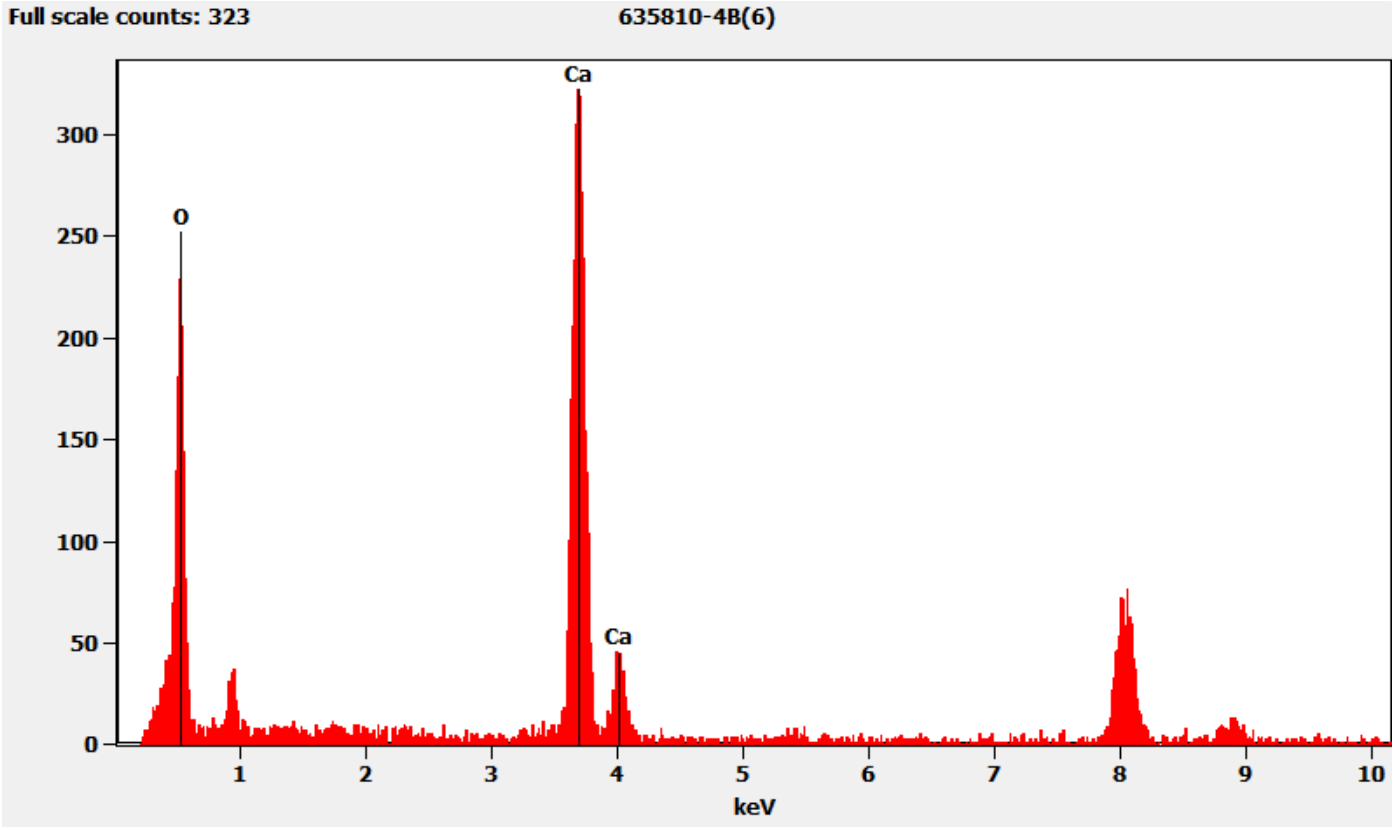
600 nm
HV=100kV
Direct Mag: 4800 x
AMA Analytical Services, Inc

Diffraction Pattern from the Calcium Particle Pictured Above

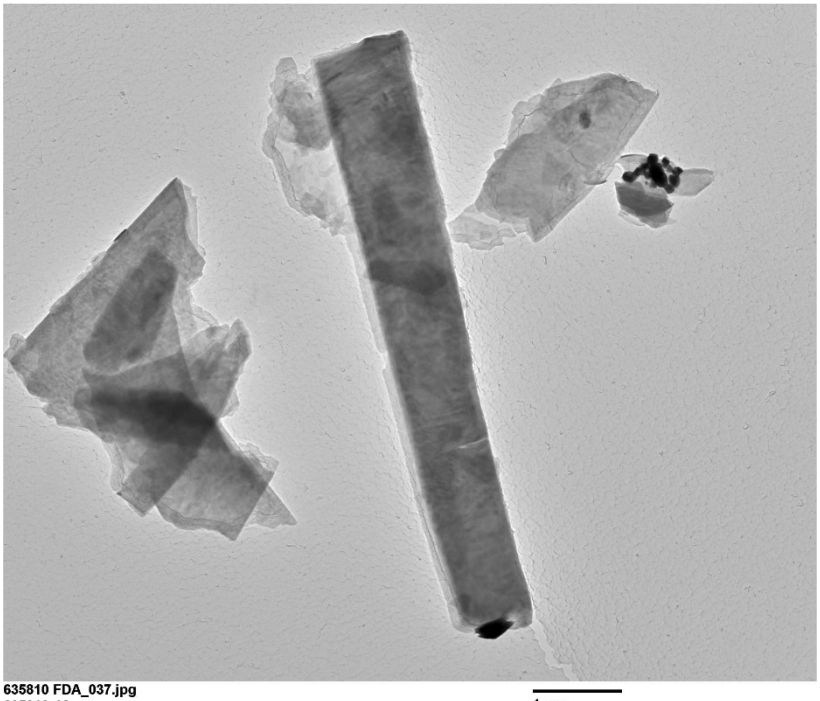
635810 FDA_057.jpg
635810-4B
Ca Particles
11:56 5/18/2022
Microscopist: (b) (6)
Camera: NANOSPRIN, Exposure: 840 (ms) x 5 std. frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

100 (1/Å)
HV=100kV
Cam Len: 0.2200 m
AMA Analytical Services, Inc

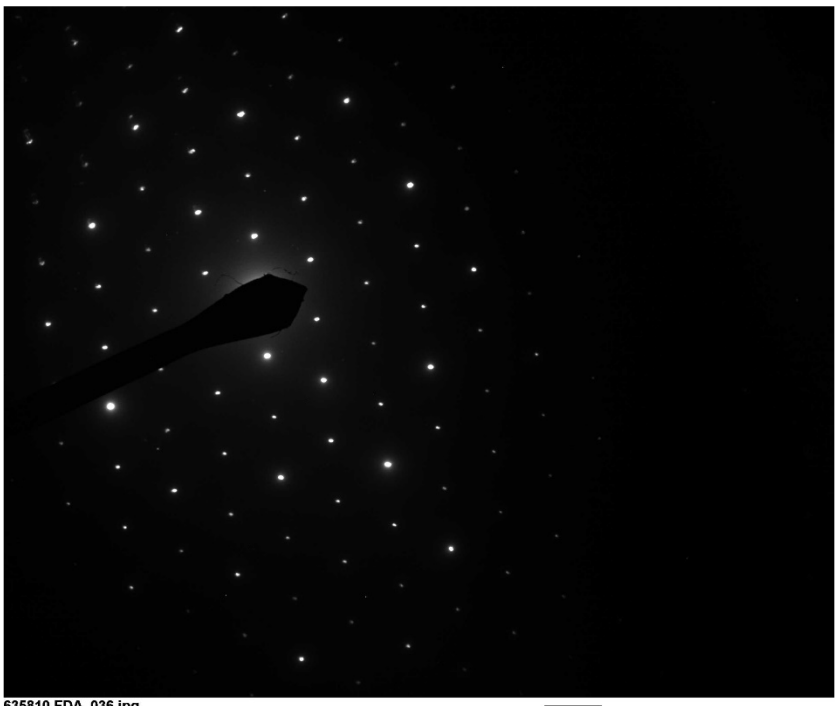
Chemistry from the Calcium Particle Pictured Above



635810-4A, Elongated Talc Particle



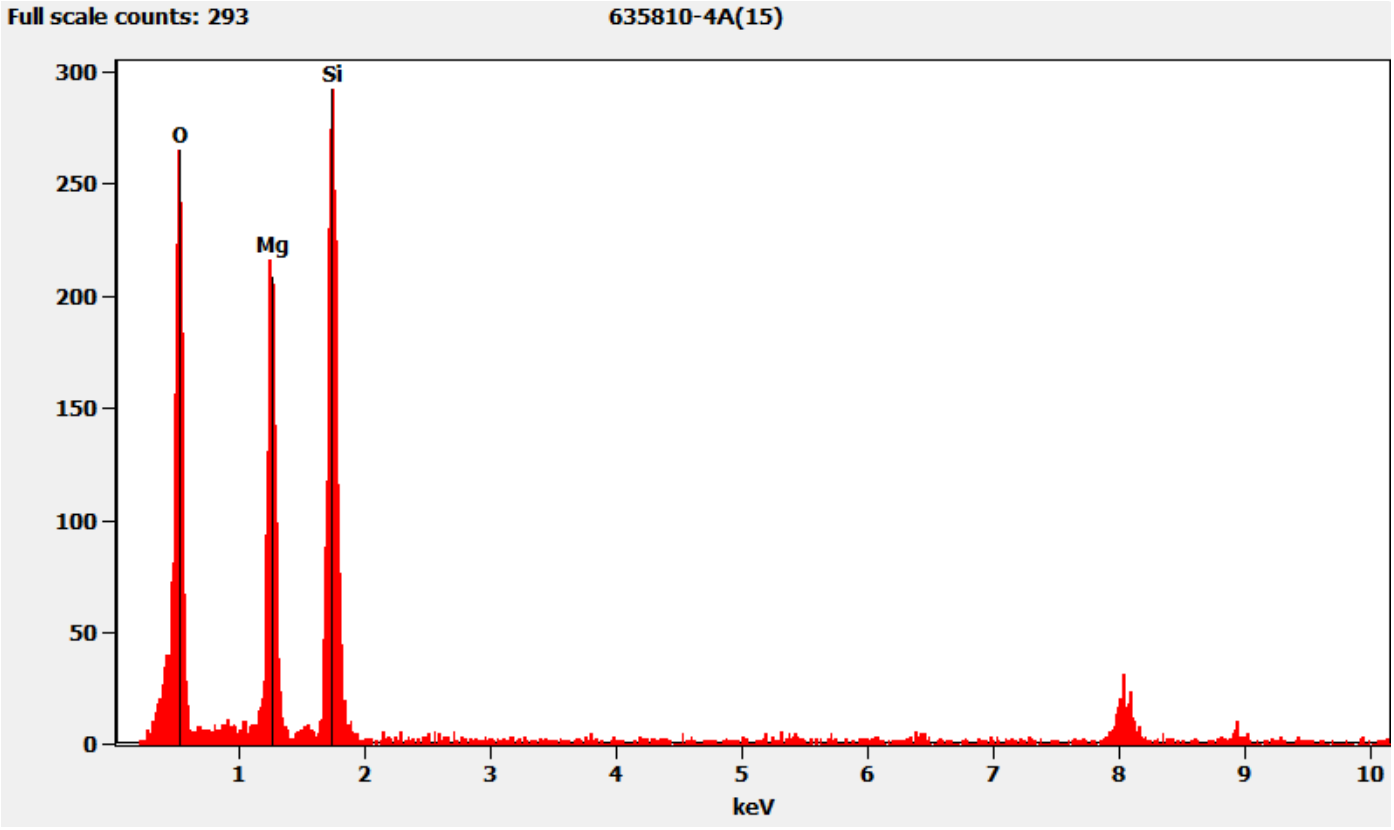
Hexagonal Diffraction Pattern from the Elongated Talc Particle Pictured Above



635810 FDA_036.jpg
635810-4A
Talc Fiber
17:03 5/16/2022
Microscopist: (b) (6)
Camera: NANOSPRT5, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

100 (1/Å)
HV=100kV
Cam Len: 0.2200 m
AMA Analytical Services, Inc

Chemistry from the Elongated Talc Particle Pictured Above



635810-5A, 5B, 5C/Client Sample: 03302022-5

PLM

All three aliquots of sample 03302022-5 were analyzed by (b) (6) on June 2, 2022. No asbestos or non-asbestos amphibole variants were observed during analysis. The results were calculated using the equations detailed in the *Calculations* section above.

635810-5A	No Asbestos Detected
635810-5B	No Asbestos Detected
635810-5C	No Asbestos Detected

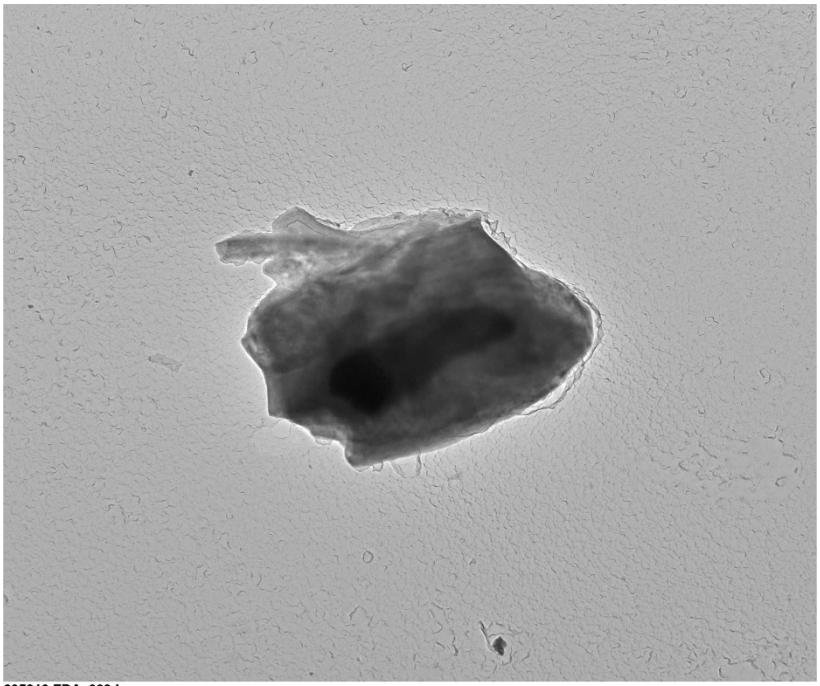
TEM

(b) (6) analyzed aliquot 5A on May 16, 2022, and aliquots 5B and 5C on May 18, 2022. The primary particle observed was talc; silica spheres and talc ribbons were also observed along with particles containing magnesium, aluminum, and silicon, and elongated talc particles. No asbestos or non-asbestos amphibole variants were observed during analysis. The results were calculated using the equations detailed in the *Calculations* section above.

635810-5A	No Asbestos Detected
635810-5B	No Asbestos Detected
635810-5C	No Asbestos Detected

Below are pictures, diffraction patterns, and chemistry from some of the observed particles. The copper peaks in the chemistry spectra are from the TEM grid. The unidentified (and some identified) peaks in the chemistry spectra are zinc and carbon from the TEM specimen holder.

635810-5A, Talc Particle

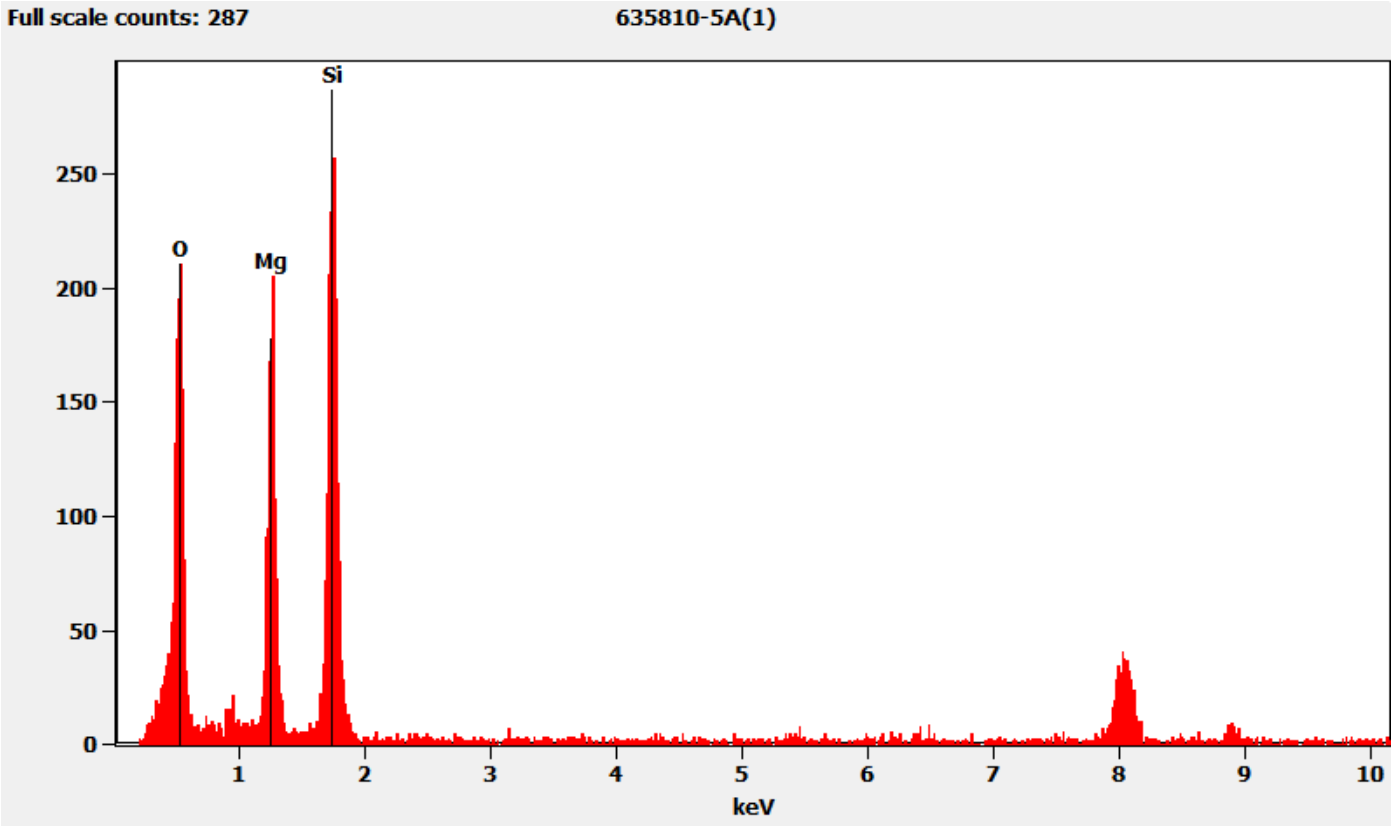


Hexagonal Diffraction Pattern from the Talc Particle Pictured Above

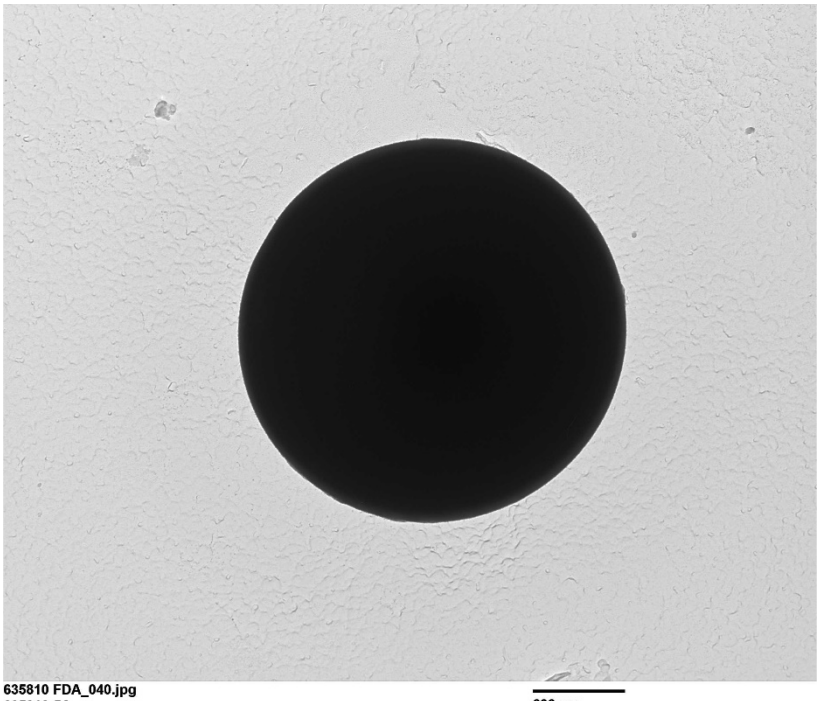
635810 FDA_038.jpg
635810-5A
Talc Particle
18:56 5/16/2022
Microscopist (b) (6)
Camera: NANO... ...5, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

100 (1/Å)
HV=100kV
Cam Len: 0.2200 m
AMA Analytical Services, Inc

Chemistry from the Talc Particle Pictured Above



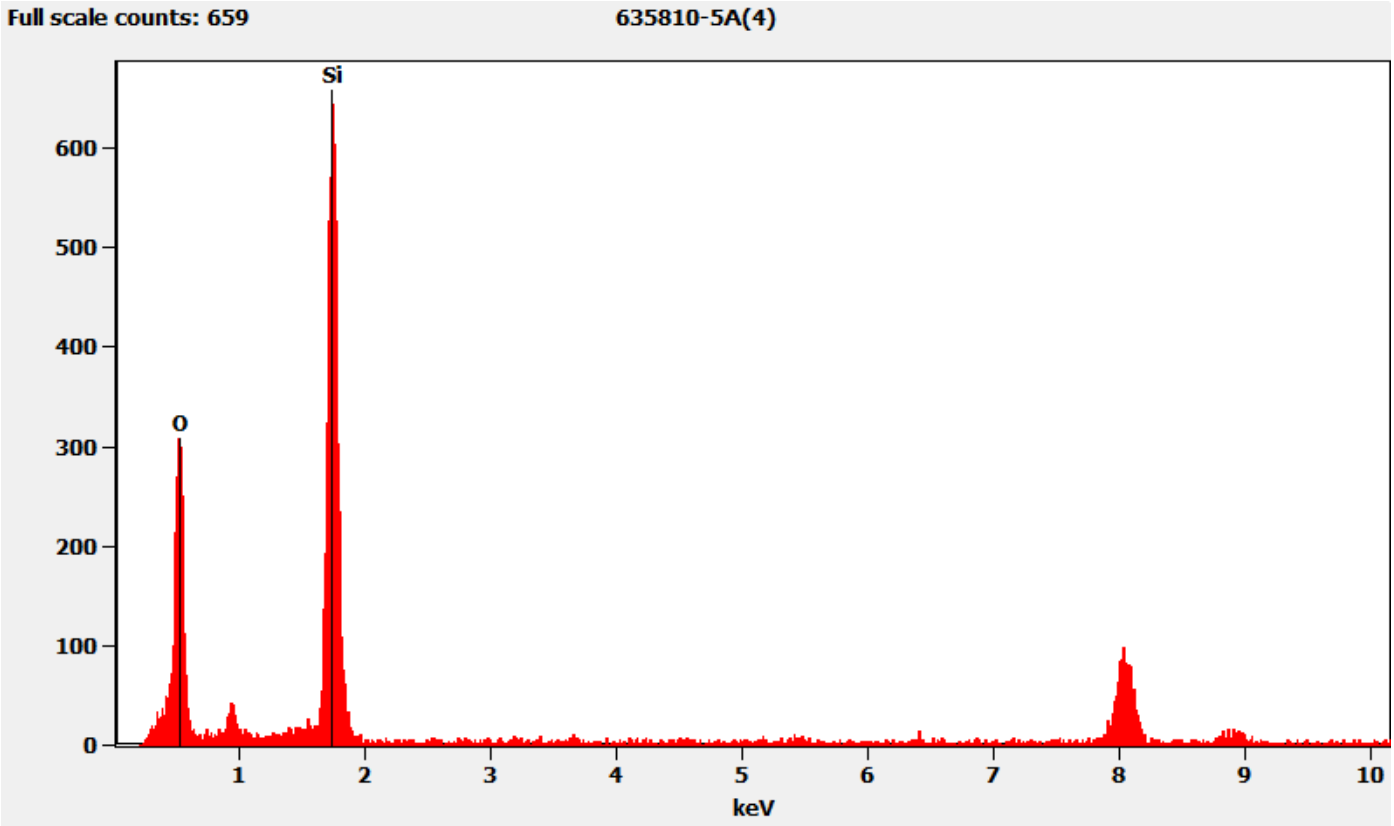
635810-5A, Silica Sphere



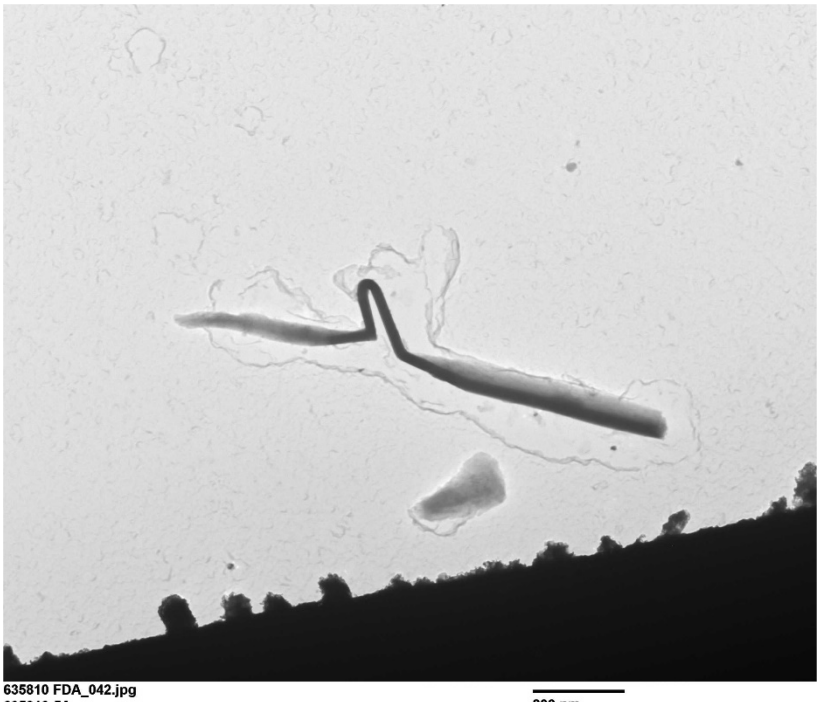
635810 FDA_040.jpg
635810-5A
Silica Sphere
Cal: 0.002145 µm/pix
19:01 5/16/2022
Microscopis(b) (6)
Camera: NANOSPR I5, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

600 nm
HV=100kV
Direct Mag: 4800 x
AMA Analytical Services, Inc

Chemistry from the Silica Sphere Pictured Above



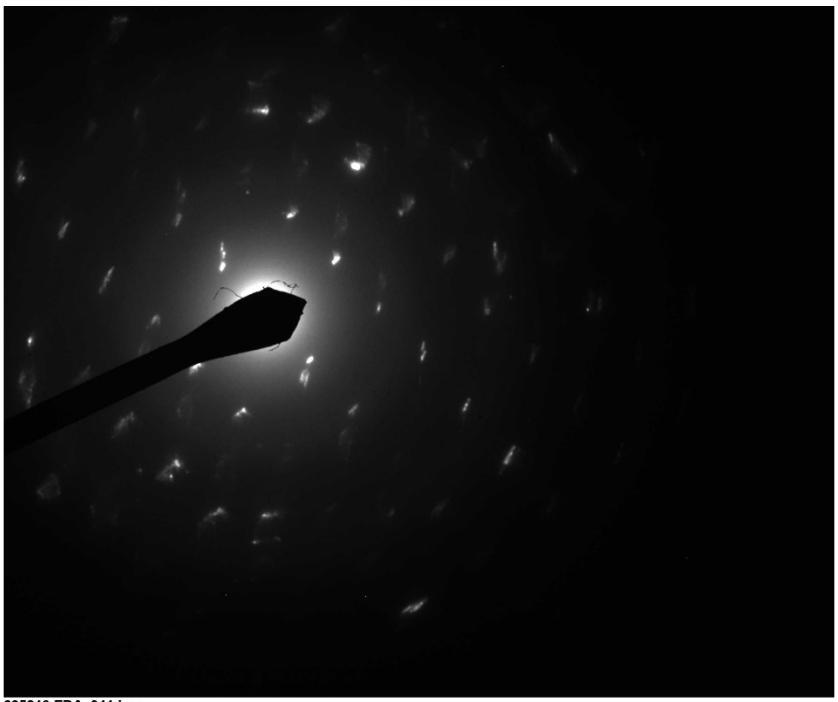
635810-5A, Talc Ribbon



635810 FDA_042.jpg
635810-5A
Talc Ribbon
Cal: 0.002860 µm/pix
19:05 5/16/2022
Microscopist: (b) (6)
Camera: NANOSPRT5, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

800 nm
HV=100kV
Direct Mag: 3600 x
AMA Analytical Services, Inc

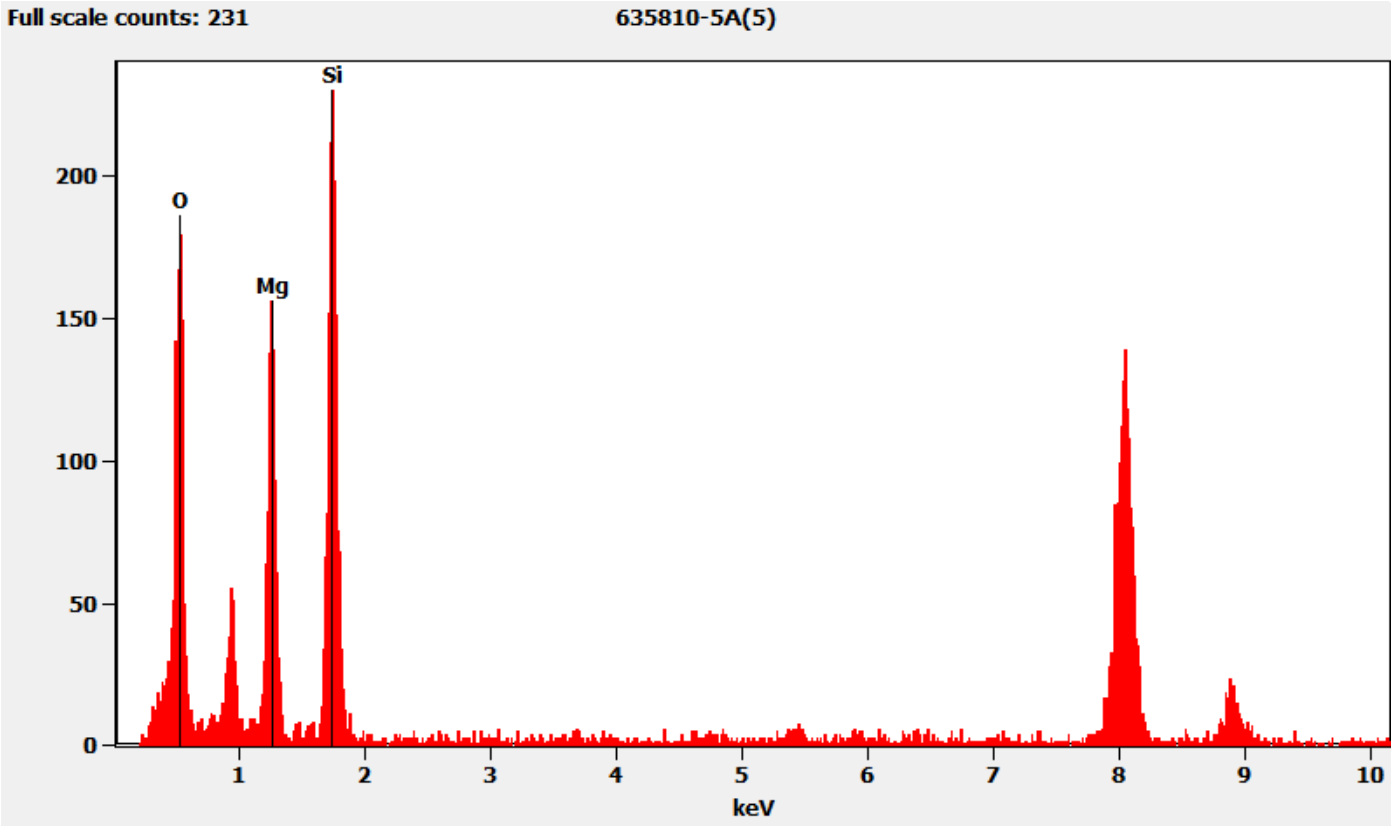
Diffraction Pattern from the Talc Ribbon Pictured Above



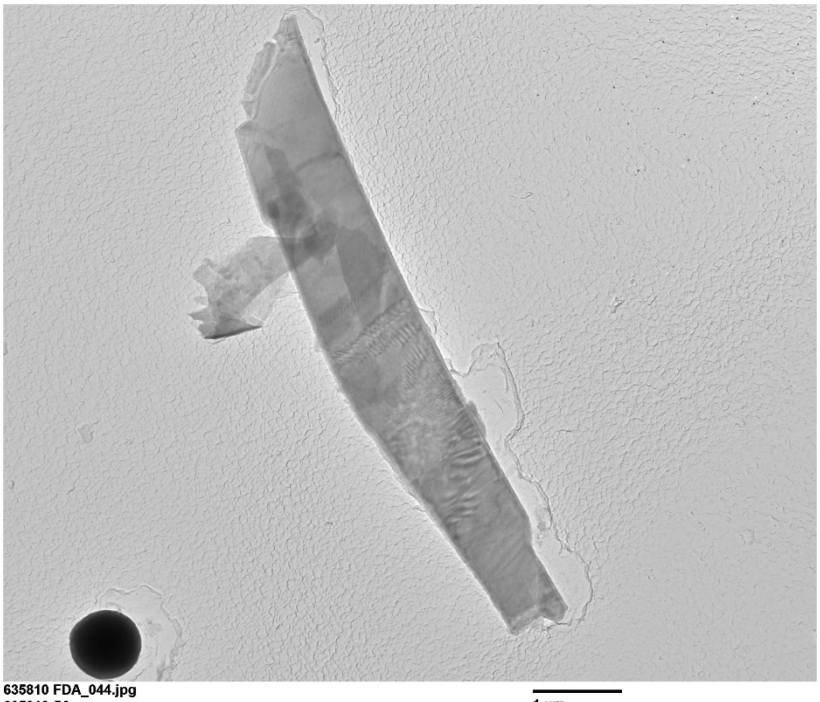
635810 FDA_041.jpg
635810-5A
Talc Ribbon
19:04 5/16/2022
Microscopis (b) (6)
Camera: NANOSPRT5, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

100 (1/Å)
HV=100kV
Cam Len: 0.2200 m
AMA Analytical Services, Inc

Chemistry from the Talc Ribbon Pictured Above



635810-5A, Elongated Particle Containing Magnesium, Aluminum, and Silicon



635810 FDA_044.jpg
635810-5A
Mg,Al,Si particle
Cal: 0.003702 µm/pix
19:38 5/16/2022
Microscopist: (b) (6)
Camera: NANOSPRT5, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

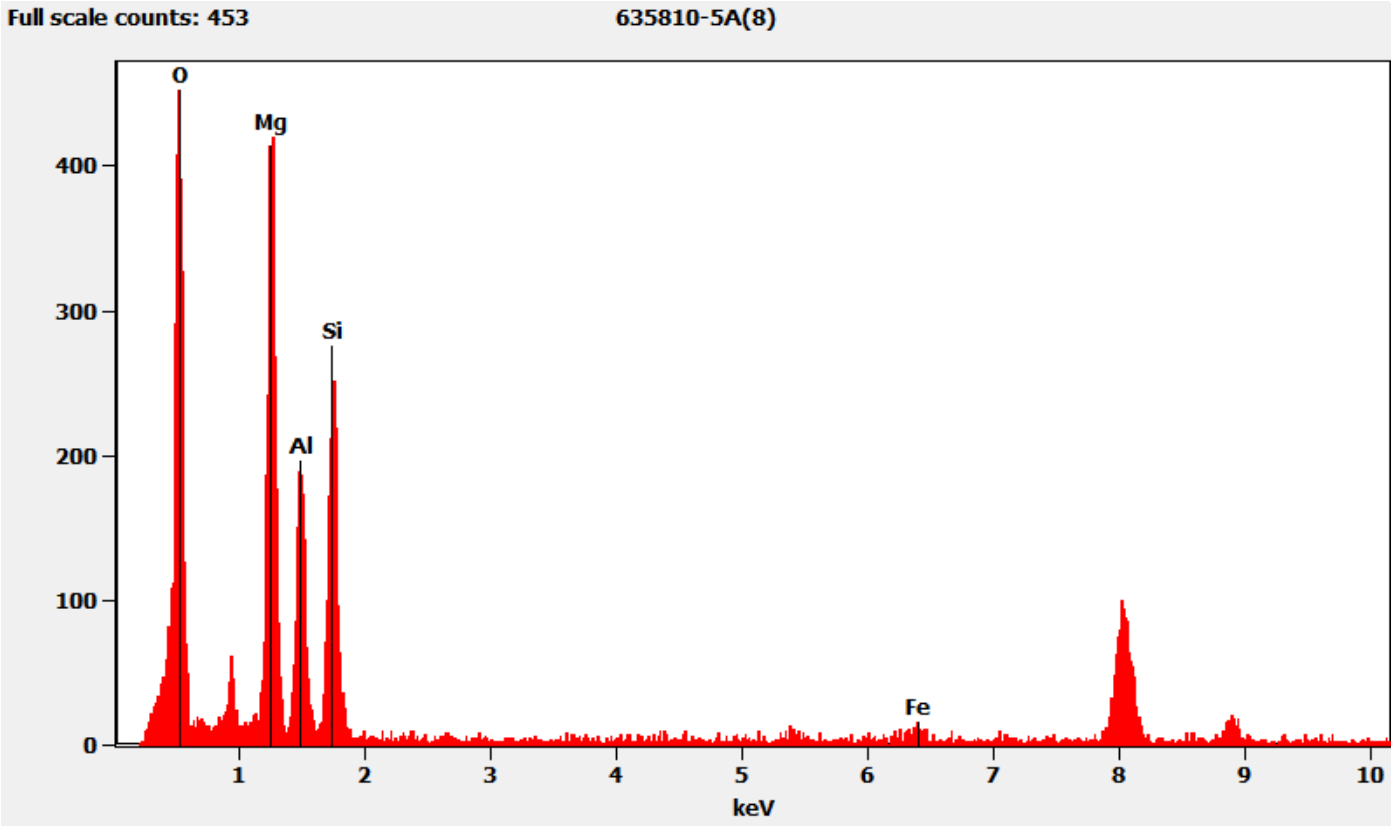
1 µm
HV=100kV
Direct Mag: 2900 x
AMA Analytical Services, Inc

Hexagonal Diffraction Pattern from the Elongated Particle Containing Magnesium, Aluminum, and Silicon Pictured Above

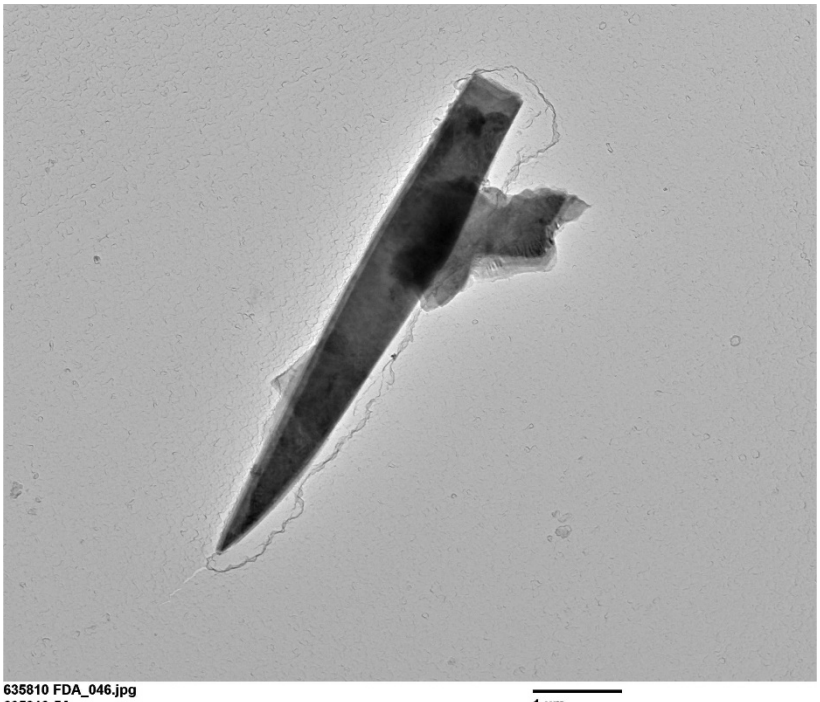
635810 FDA_043.jpg
635810-5A
Mg,Al,Si particle
19:37 5/16/2022
Microscopist: (b) (6)
Camera: NANOSPRT5, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

100 (1/Å)
HV=100kV
Cam Len: 0.2200 m
AMA Analytical Services, Inc

Chemistry from the Elongated Particle Containing Magnesium, Aluminum, and Silicon Pictured Above



635810-5A, Elongated Talc Particle



635810 FDA_046.jpg
635810-5A
Talc Fiber
Cal: 0.003702 µm/pix
19:50 5/16/2022
Microscopist: (b) (6)
Camera: NAN[redacted]5, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

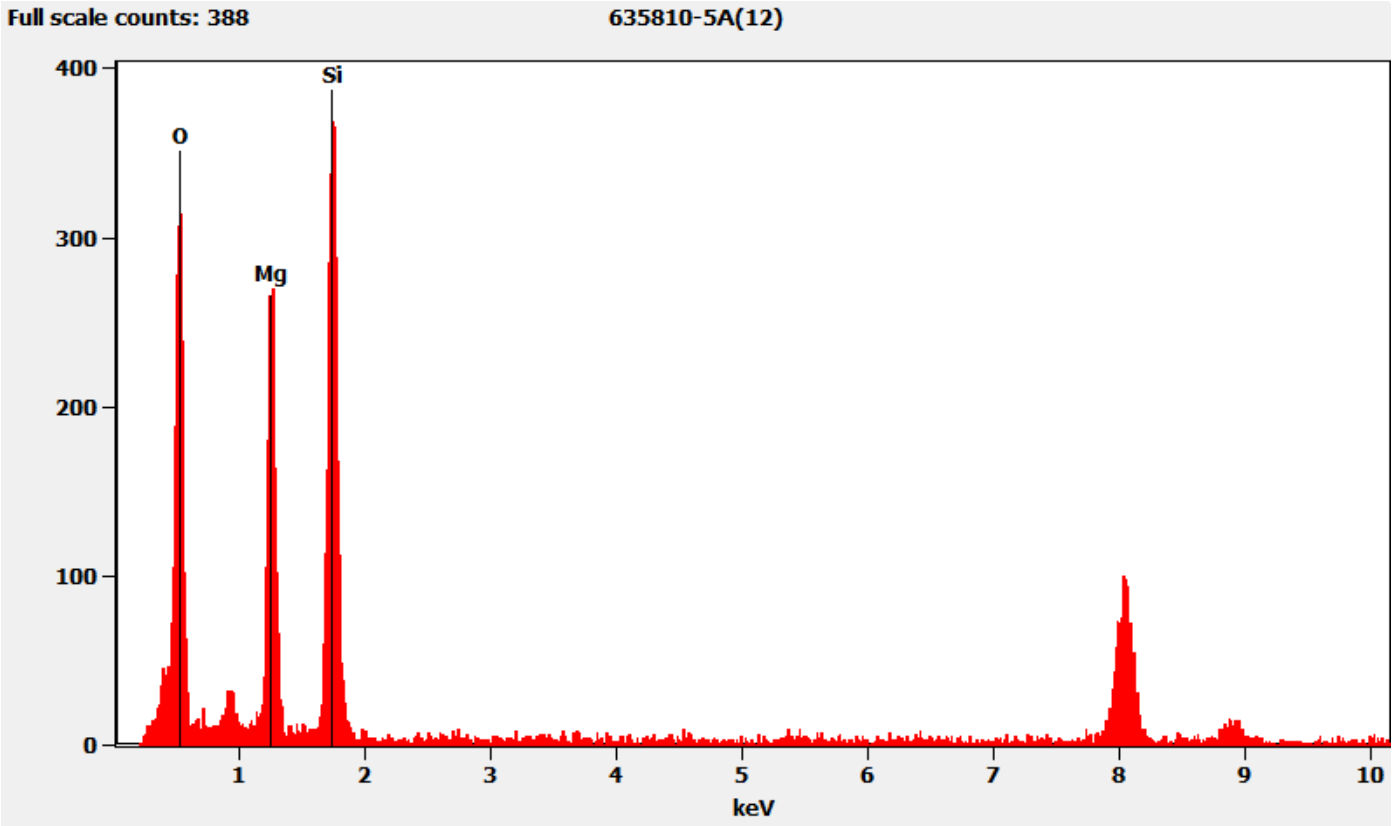
1 µm
HV=100kV
Direct Mag: 2900 x
AMA Analytical Services, Inc

Hexagonal Diffraction Pattern from the Elongated Talc Particle Pictured Above

635810 FDA_045.jpg
635810-5A
Talc Fiber
19:49 5/16/2022
Microscopist: (b) (6)
Camera: NAN[redacted], Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

100 (1/Å)
HV=100kV
Cam Len: 0.2200 m
AMA Analytical Services, Inc

Chemistry from the Elongated Talc Particle Pictured Above



635810-6A, 6B, 6C/Client Sample: 03302022-6

PLM

All three aliquots of sample 03302022-6 were analyzed by (b) (6) on June 2, 2022. No asbestos or non-asbestos amphibole variants were observed during analysis. The results were calculated using the equations detailed in the *Calculations* section above.

635810-6A	No Asbestos Detected
635810-6B	No Asbestos Detected
635810-6C	No Asbestos Detected

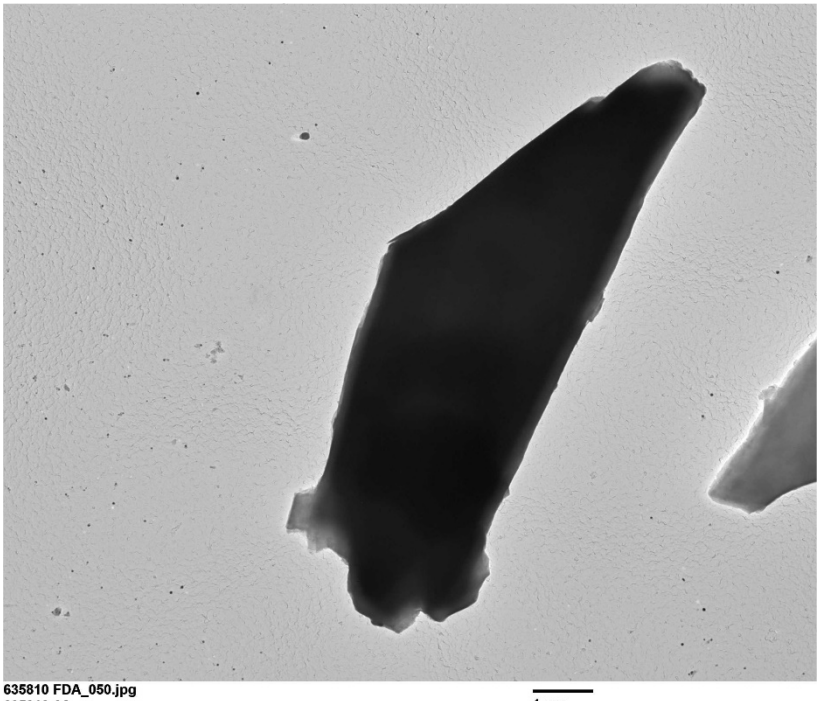
TEM

(b) (6) analyzed aliquot 6A on May 18, 2022, and aliquots 6B and 6C on May 19, 2022. The primary particle observed was talc; chromium particles and talc ribbons were also observed along with mica particles and elongated talc particles. No asbestos or non-asbestos amphibole variants were observed during analysis. The results were calculated using the equations detailed in the *Calculations* section above.

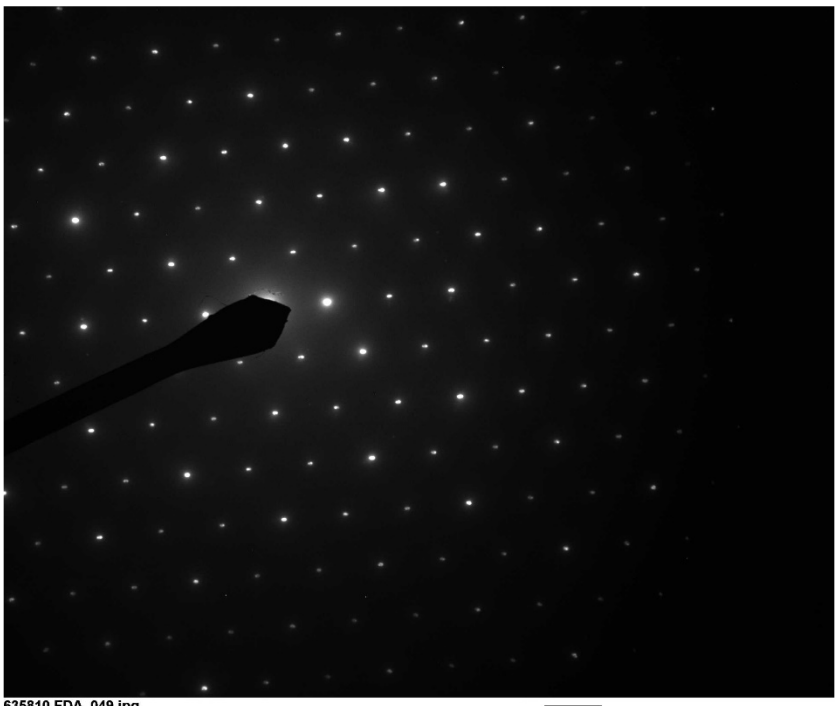
635810-6A	No Asbestos Detected
635810-6B	No Asbestos Detected
635810-6C	No Asbestos Detected

Below are pictures, diffraction patterns, and chemistry from some of the observed particles. The copper peaks in the chemistry spectra are from the TEM grid. The unidentified (and some identified) peaks in the chemistry spectra are zinc and carbon from the TEM specimen holder.

635810-6A, Talc Particle



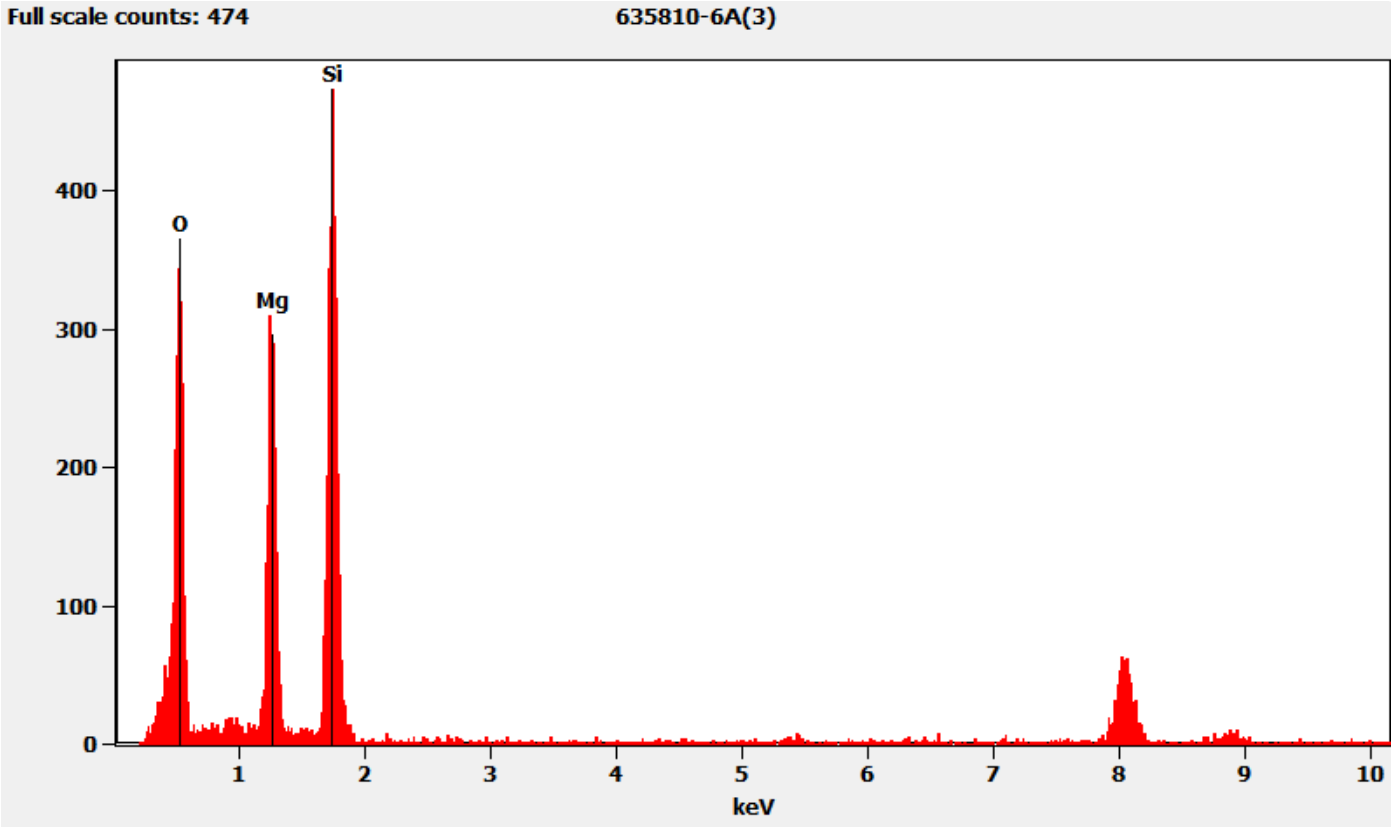
Hexagonal Diffraction Pattern from the Talc Particle Pictured Above



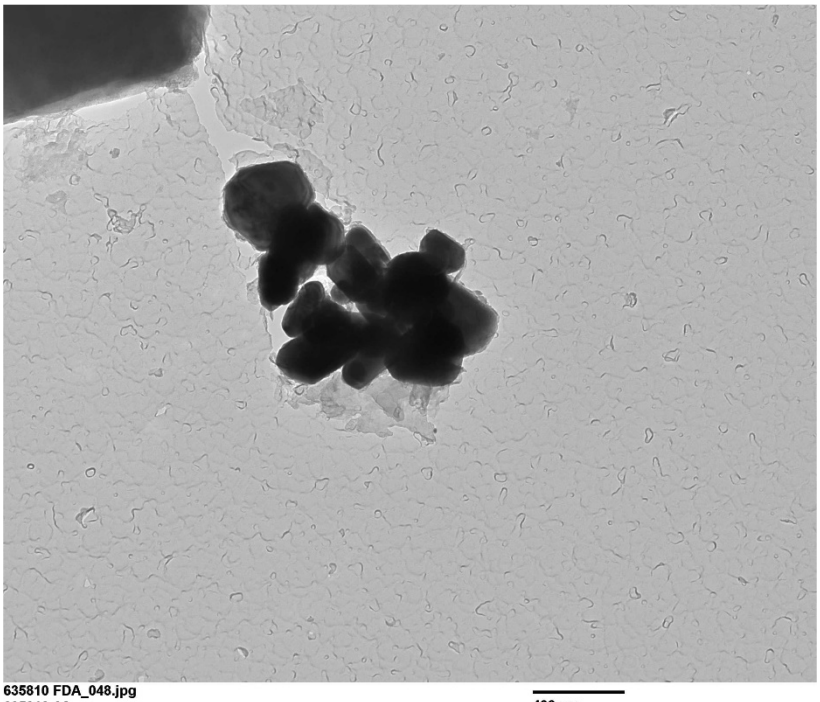
635810 FDA_049.jpg
635810-6A
Talc Particle
10:45 5/18/2022
Microscopist (b) (6)
Camera: NANOSPRING, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

100 (1/Å)
HV=100kV
Cam Len: 0.2200 m
AMA Analytical Services, Inc

Chemistry from the Talc Particle Pictured Above



635810-6A, Chromium Particle



635810 FDA_048.jpg
635810-6A
Cr Particles
Cal: 0.001430 µm/pix
10:41 5/18/2022
Microscopist (b) (6)
Camera: NANOSPRIS, Exposure: 840 (ms) x 5 std. frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

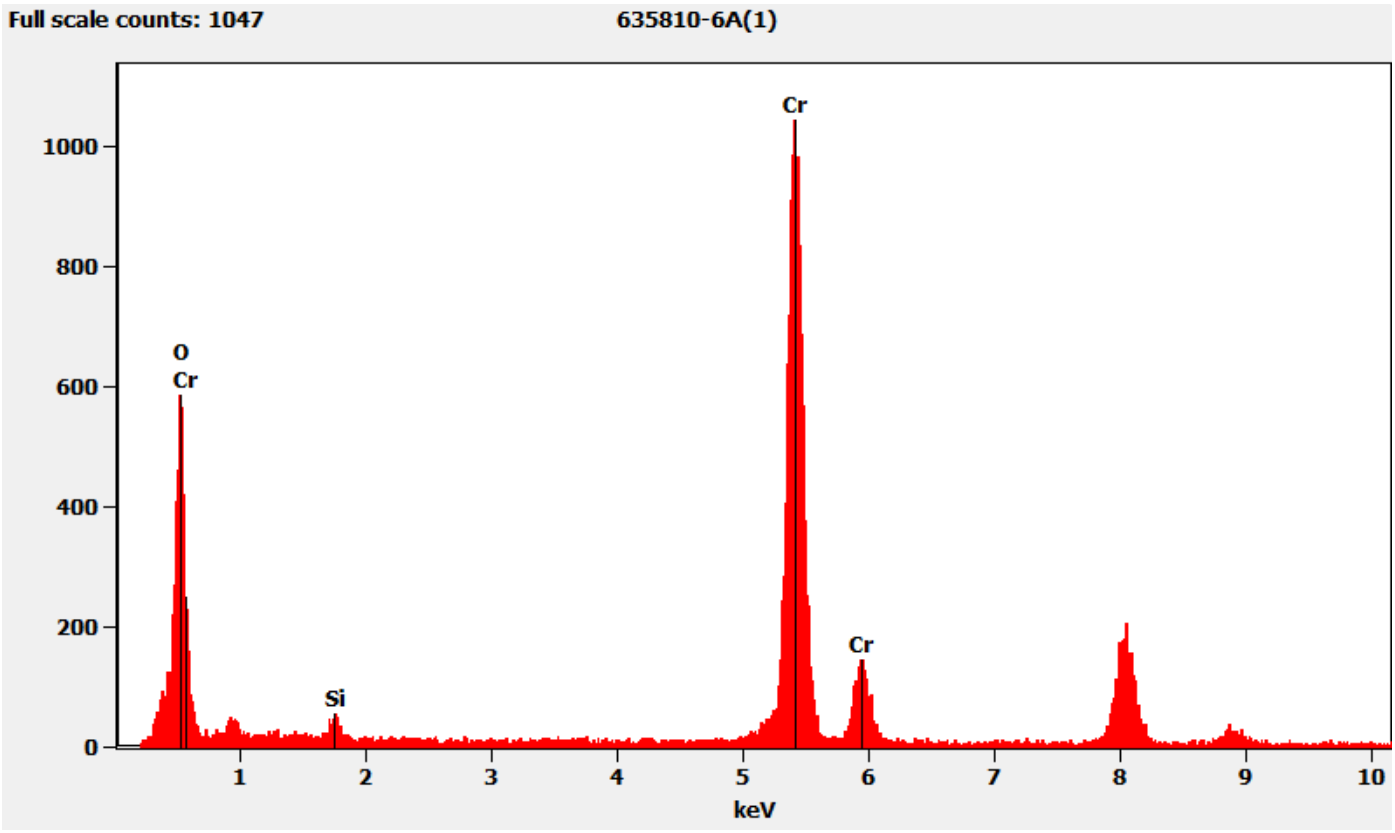
400 nm
HV=100kV
Direct Mag: 7200 x
AMA Analytical Services, Inc

Diffraction Pattern from the Chromium Particle Pictured Above

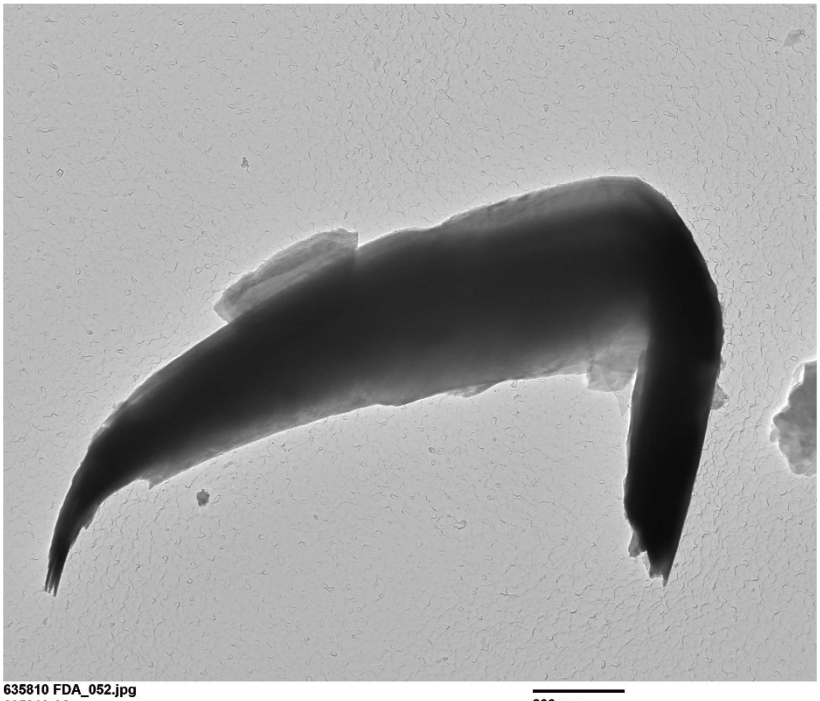
635810 FDA_047.jpg
635810-6A
Cr Particles
10:40 5/18/2022
Microscopist (b) (6)
Camera: NANOSPRING, Exposure: 840 (ms) x 5 std. frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

100 (1/Å)
HV=100kV
Cam Len: 0.2200 m
AMA Analytical Services, Inc

Chemistry from the Chromium Particle Pictured Above



635810-6A, Talc Ribbon



635810 FDA_052.jpg
635810-6A
Talc Ribbon
Cal: 0.002860 µm/pix
10:58 5/18/2026
Microscopist (b) (6)
Camera: NANOSPRT5, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

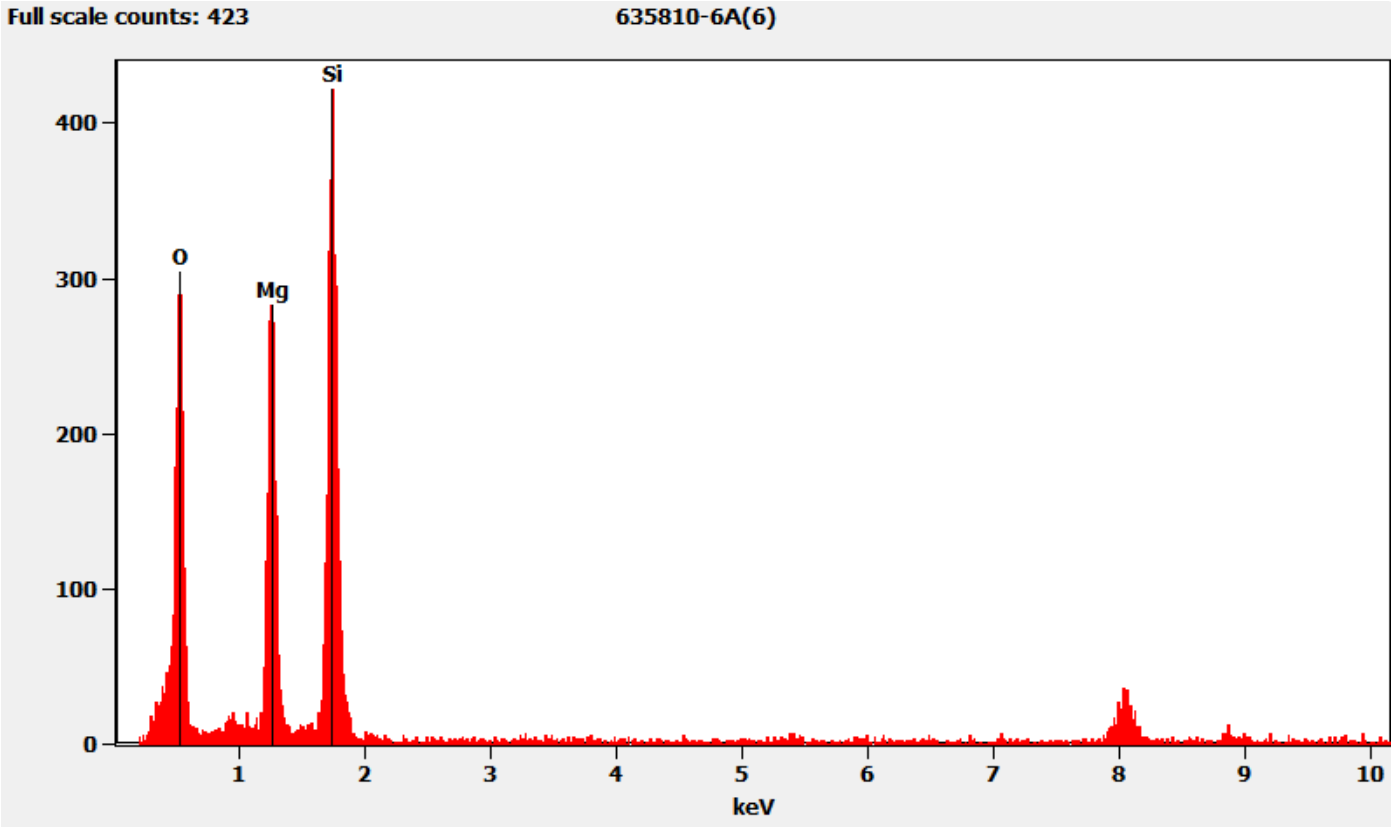
800 nm
HV=100kV
Direct Mag: 3600 x
AMA Analytical Services, Inc

Diffraction Pattern from the Talc Ribbon Pictured Above

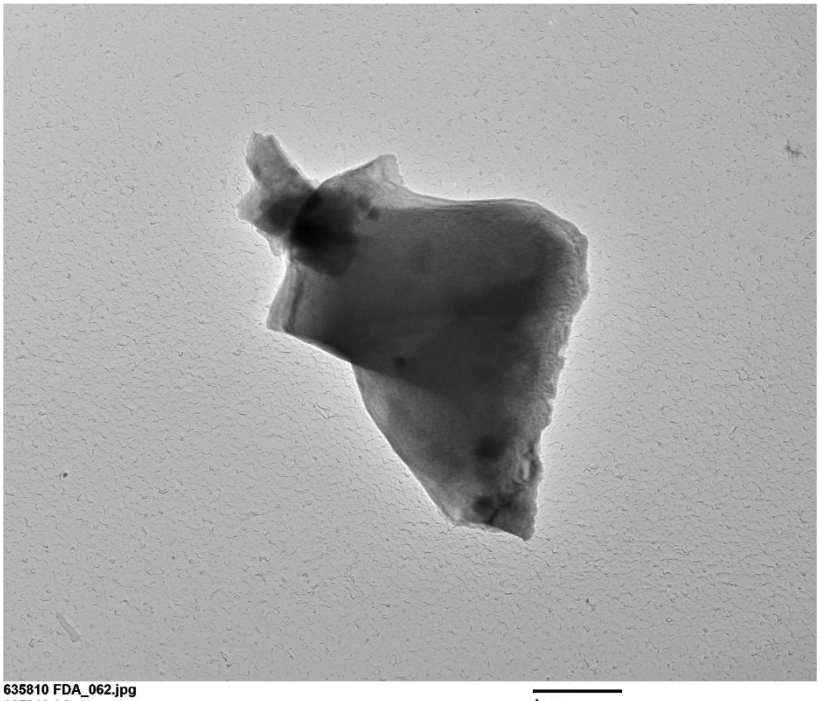
635810 FDA_051.jpg
635810-6A
Talc Ribbon
10:57 5/18/2022
Microscopist (b) (6)
Camera: NANOSPRT5, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

100 (1/Å)
HV=100kV
Cam Len: 0.2200 m
AMA Analytical Services, Inc

Chemistry from the Talc Ribbon Pictured Above



635810-6C, Mica Particle

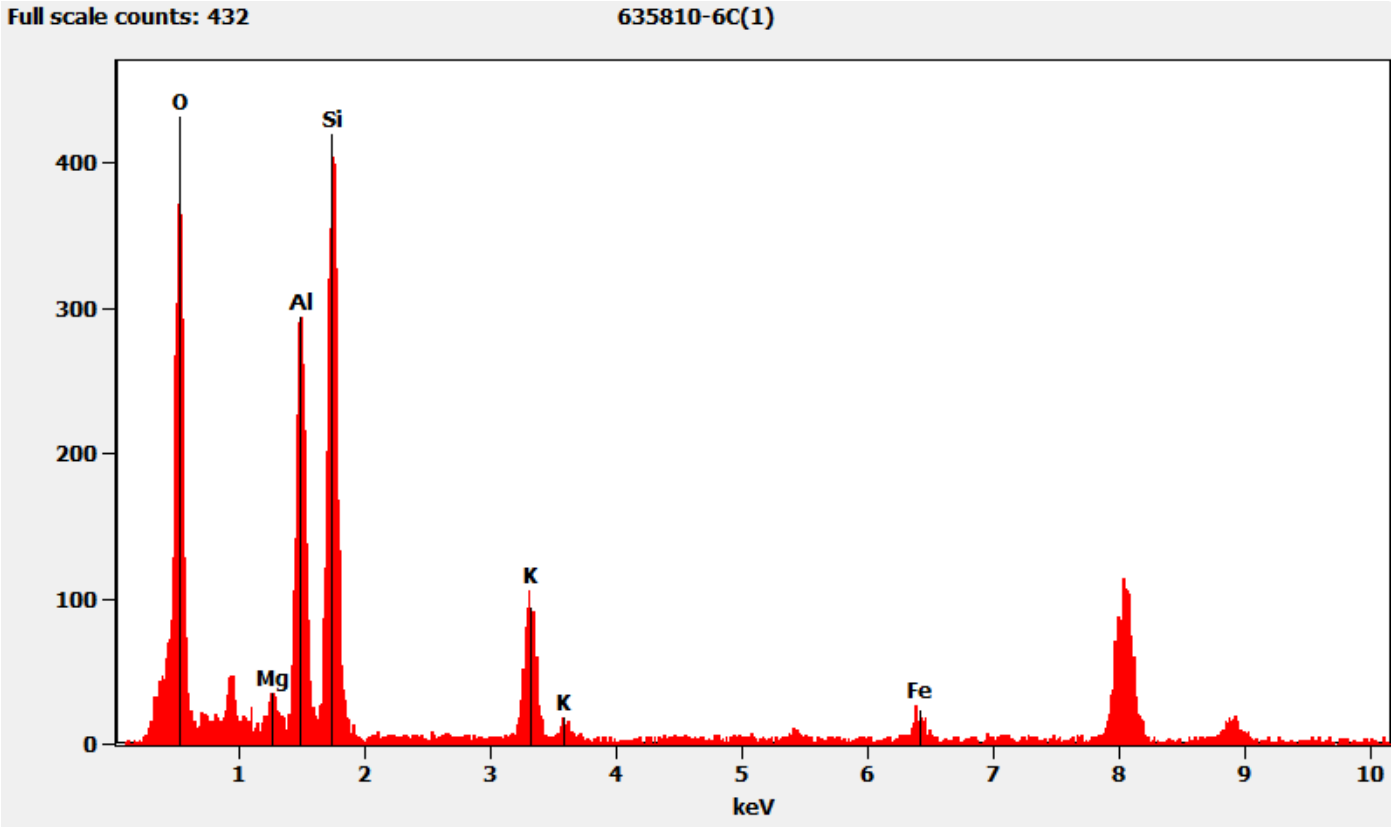


Hexagonal Diffraction Pattern from the Mica Particle Pictured Above

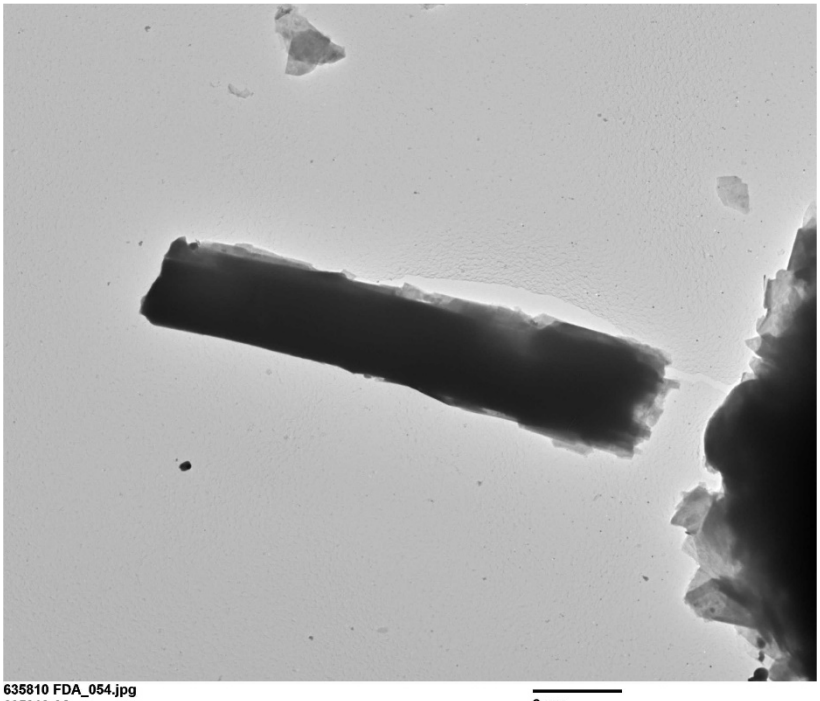
635810 FDA_061.jpg
635810-6C
Mica Particle
15:46 5/19/2022
Microscopist (b) (6)
Camera: NANOSPR[illegible]5, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

100 (1/Å)
HV=100kV
Cam Len: 0.2200 m
AMA Analytical Services, Inc

Chemistry from the Mica Particle Pictured Above



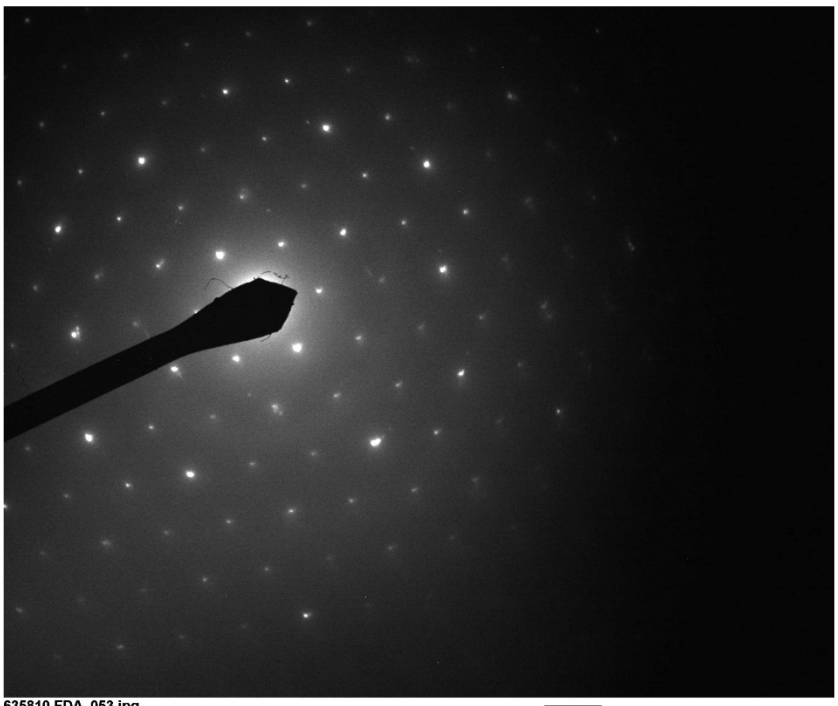
635810-6A, Elongated Talc Particle



635810 FDA_054.jpg
635810-6A
Talc Fiber
Cal: 0.007355 µm/pix
11:33 5/18/2022
Microscopist (b) (6)
Camera: NANOSPRT5, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

2 µm
HV=100kV
Direct Mag: 1400 x
AMA Analytical Services, Inc

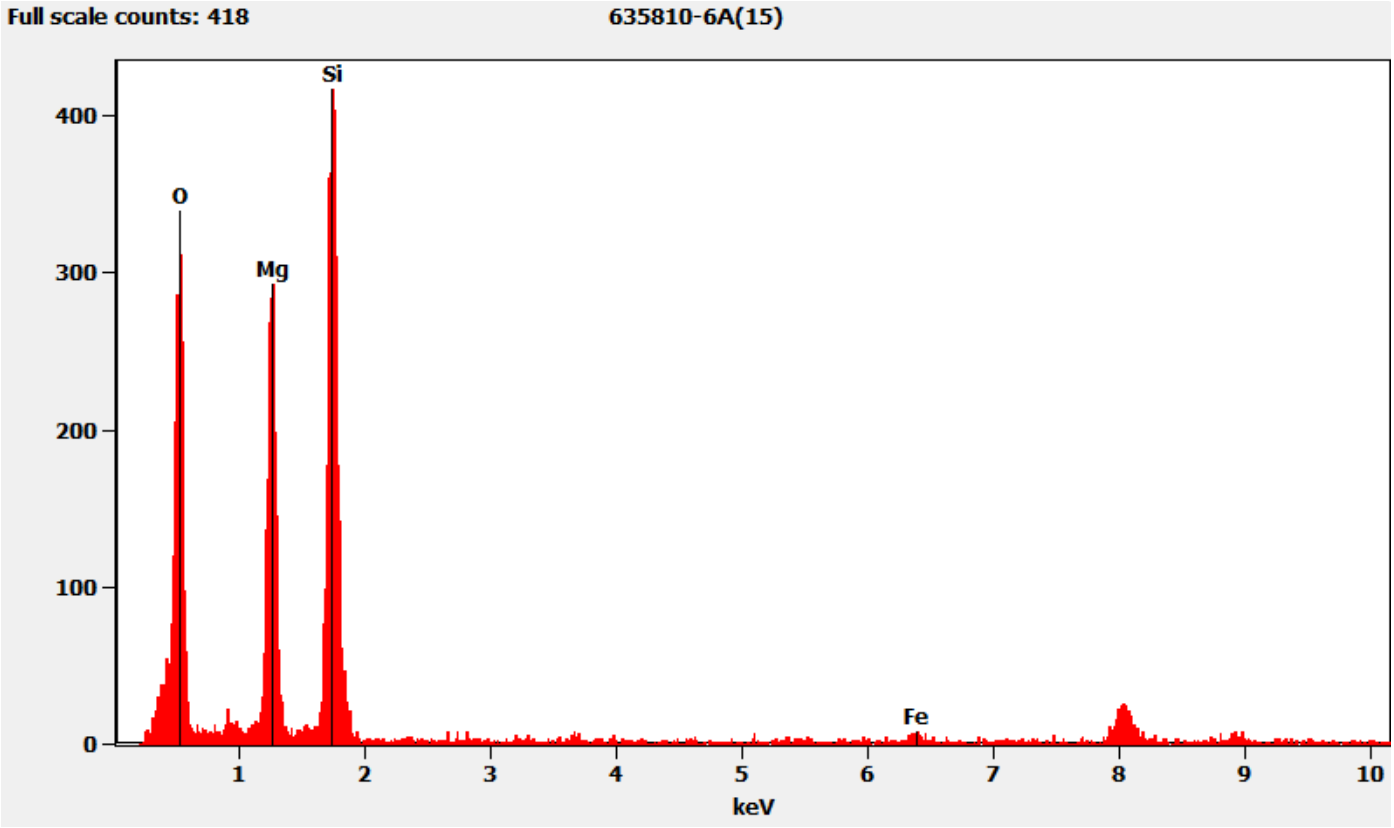
Hexagonal Diffraction Pattern from the Elongated Talc Particle Pictured Above



635810 FDA_053.jpg
635810-6A
Talc Fiber
11:32 5/18/20(b) (6)
Microscopis
Camera: NAN[illegible], Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

100 (1/Å)
HV=100kV
Cam Len: 0.2200 m
AMA Analytical Services, Inc

Chemistry from the Elongated Talc Pictured Above



635810-7A, 7B, 7C/Client Sample: 03302022-7

PLM

All three aliquots of sample 03302022-7 were analyzed by (b) (6) on June 2, 2022. No asbestos or non-asbestos amphibole variants were observed during analysis. The results were calculated using the equations detailed in the *Calculations* section above.

635810-7A	No Asbestos Detected
635810-7B	No Asbestos Detected
635810-7C	No Asbestos Detected

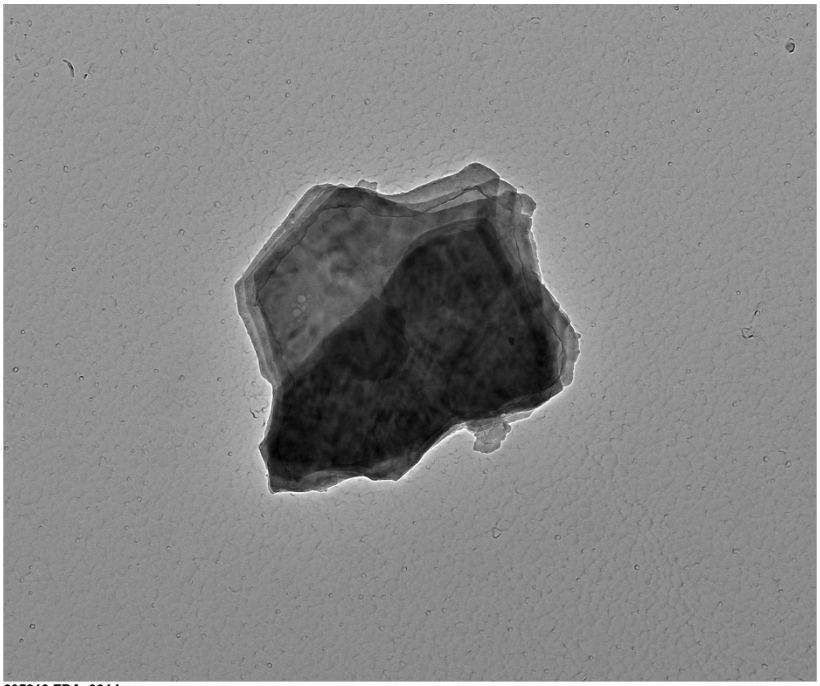
TEM

(b) (6) analyzed aliquots 7A and 7C on May 24, 2022, and aliquot 7B on May 23, 2022. The primary particle observed was talc; particles containing magnesium, aluminum, and silicon were also observed along with talc ribbons and elongated talc particles. No asbestos or non-asbestos amphibole variants were observed during analysis. The results were calculated using the equations detailed in the *Calculations* section above.

635810-7A	No Asbestos Detected
635810-7B	No Asbestos Detected
635810-7C	No Asbestos Detected

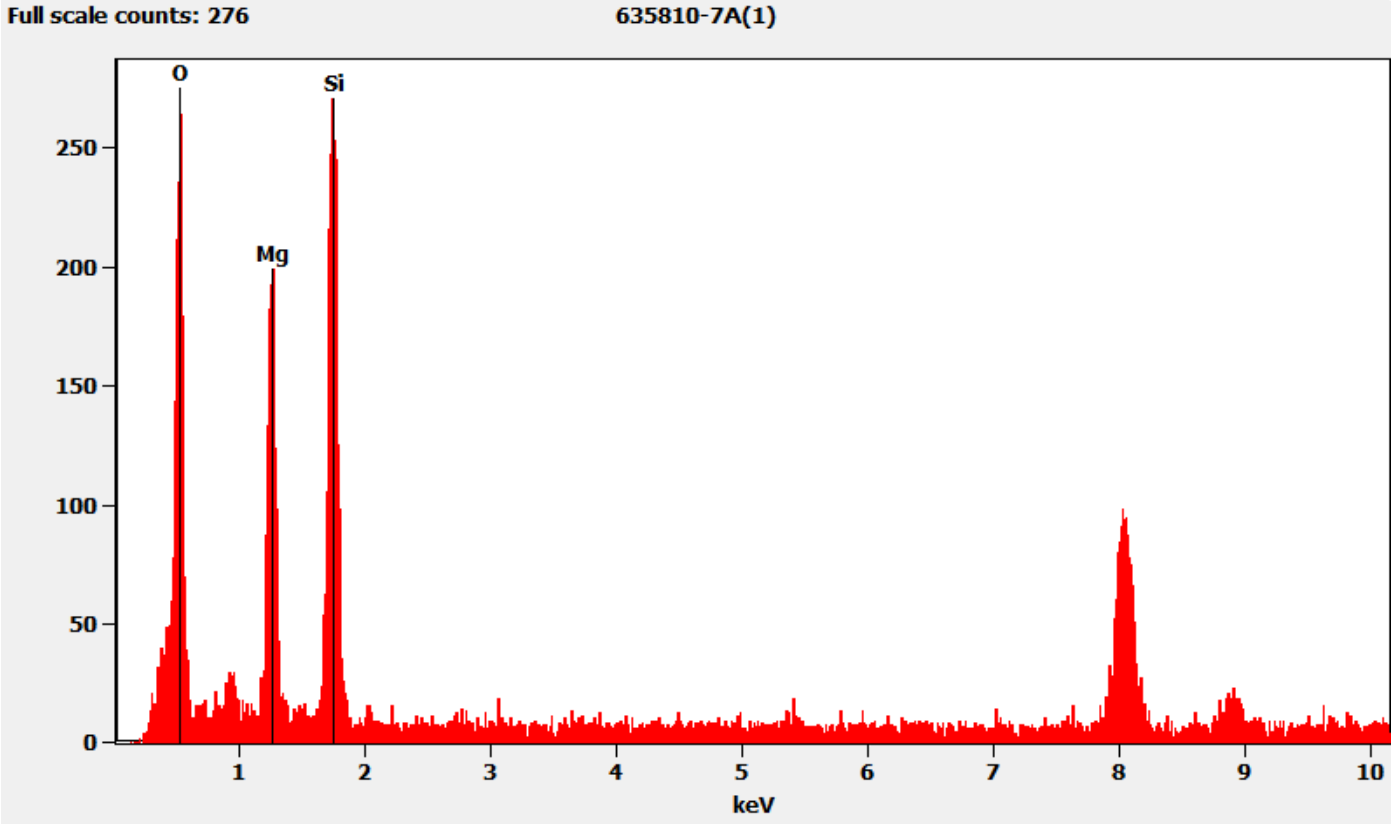
Below are pictures, diffraction patterns, and chemistry from some of the observed particles. The copper peaks in the chemistry spectra are from the TEM grid. The unidentified (and some identified) peaks in the chemistry spectra are zinc and carbon from the TEM specimen holder.

635810-7A, Talc Particle

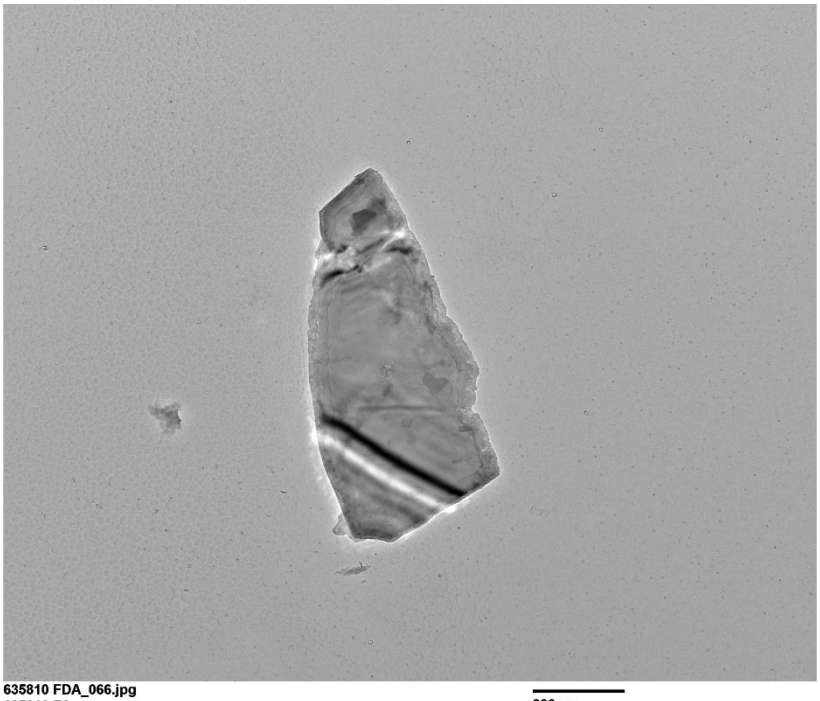


Hexagonal Diffraction Pattern from the Talc Particle Pictured Above

Chemistry from the Talc Particle Pictured Above

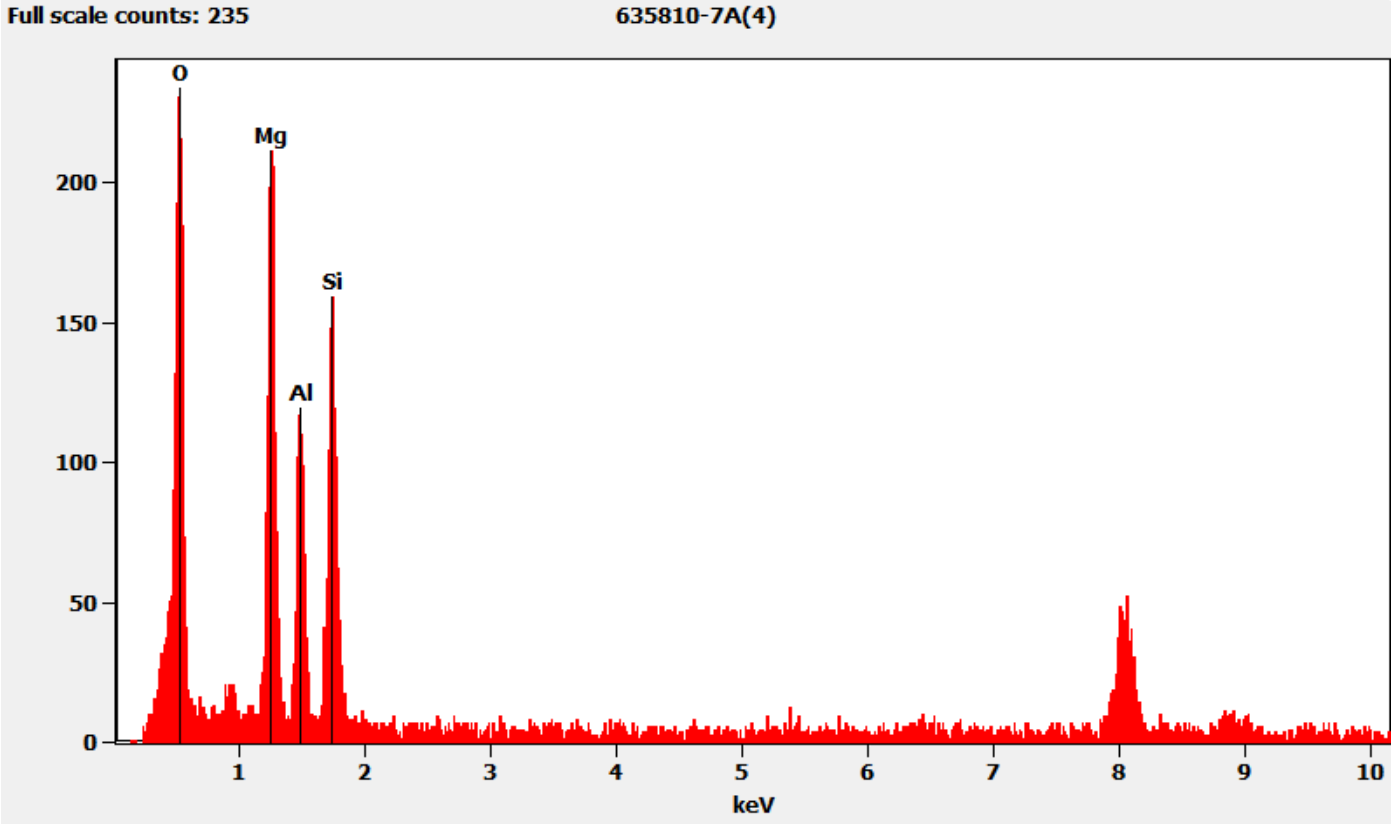


635810-7A, Particle Containing Magnesium, Aluminum, and Silicon

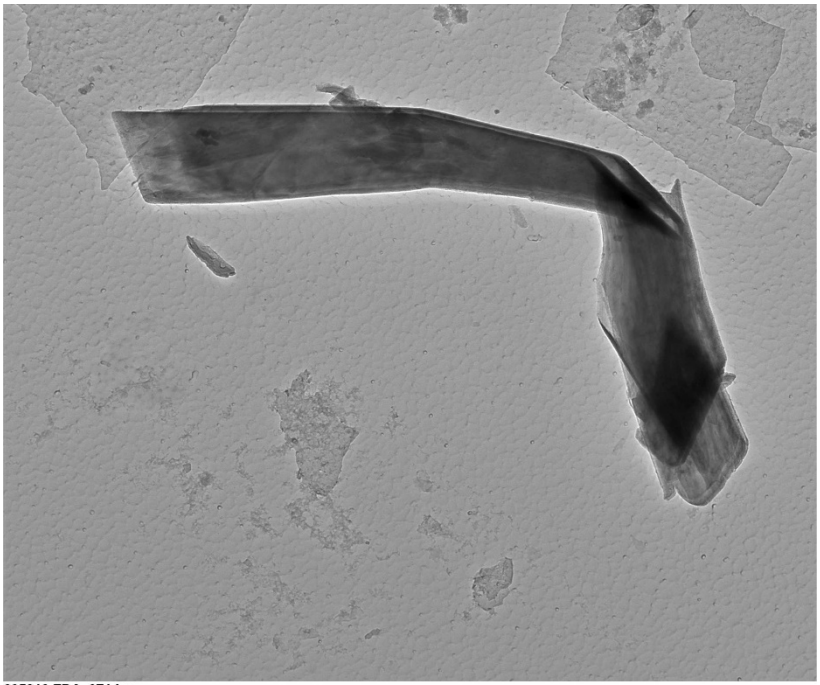


Hexagonal Diffraction Pattern from the Particle Containing Magnesium, Aluminum, and Silicon Pictured Above

Chemistry from the Particle Containing Magnesium, Aluminum, and Silicon Pictured Above



635810-7A, Talc Ribbon

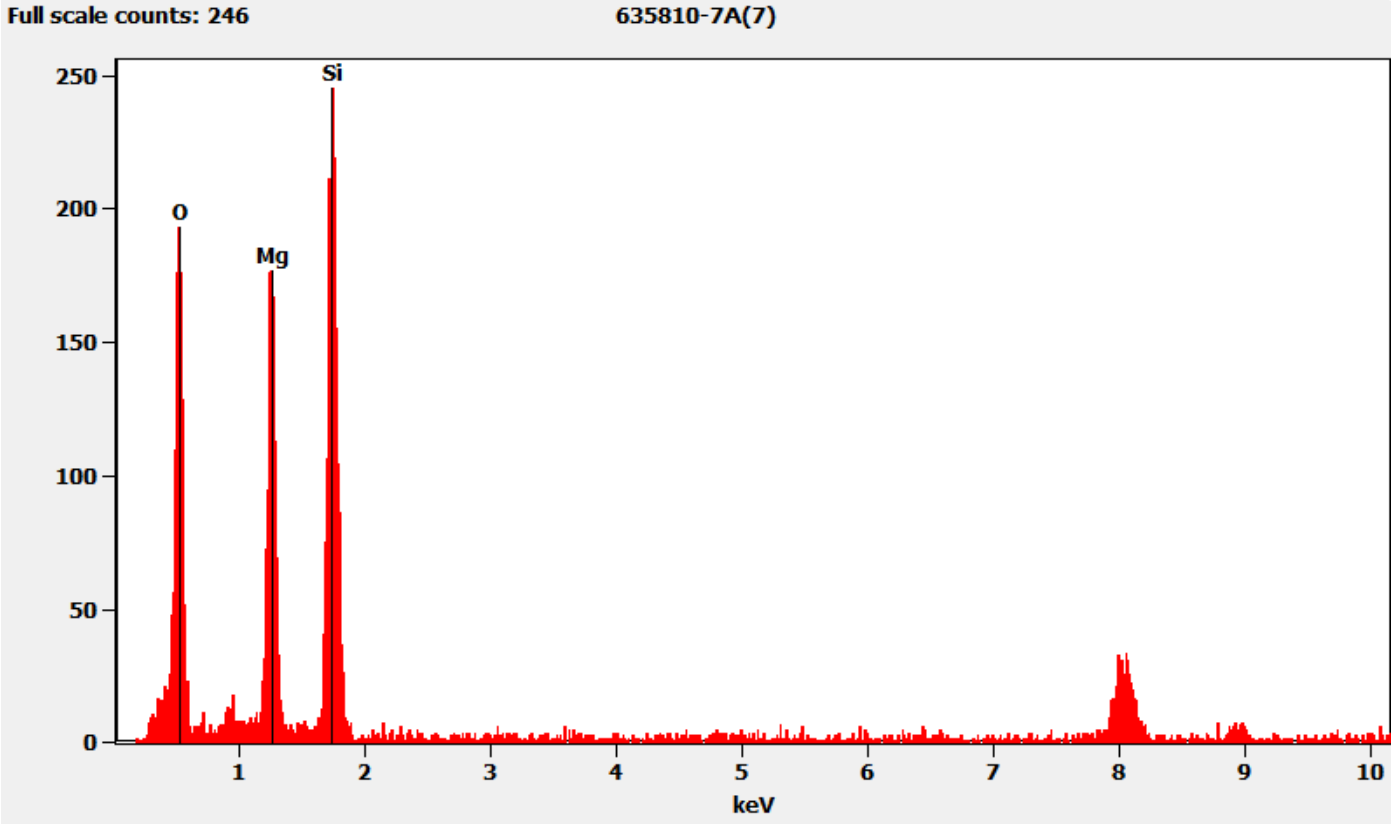


635810 FDA_071.jpg
635810-7A
Talc Ribbon
Cal: 0.001775 µm/pix
12:07 5/24/2022
Microscopist: (b) (6)
Camera: NAN[illegible]T5, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

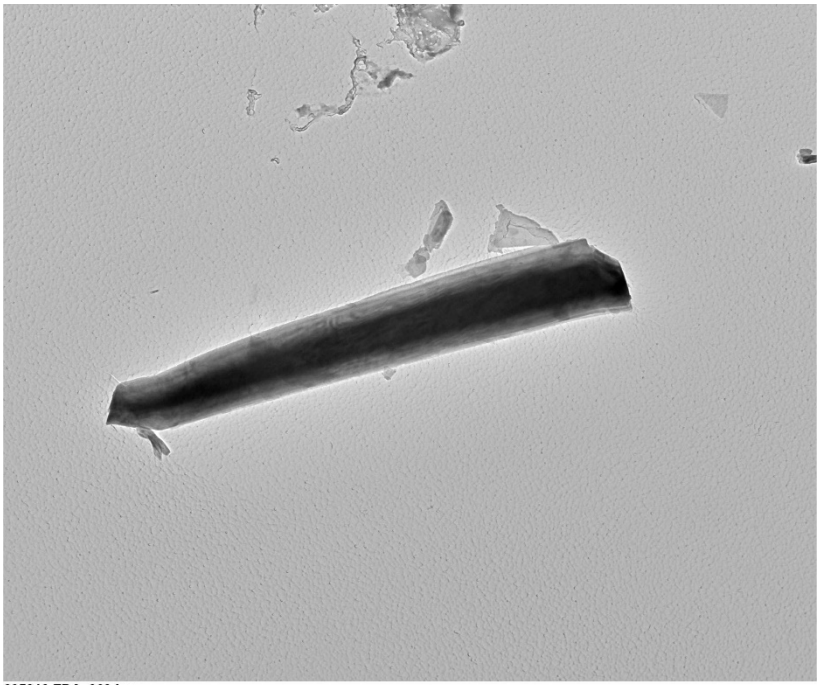
500 nm
HV=100kV
Direct Mag: 5800 x
AMA Analytical Services, Inc

Diffraction Pattern from the Talc Ribbon Pictured Above

Chemistry from the Talc Ribbon Pictured Above



635810-7A, Elongated Talc Particle



635810 FDA_069.jpg
635810-7A
Talc Fiber
Cal: 0.003702 µm/pix
10:31 5/24/20(b) (6)
Microscopist
Camera: NANOSPR15, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

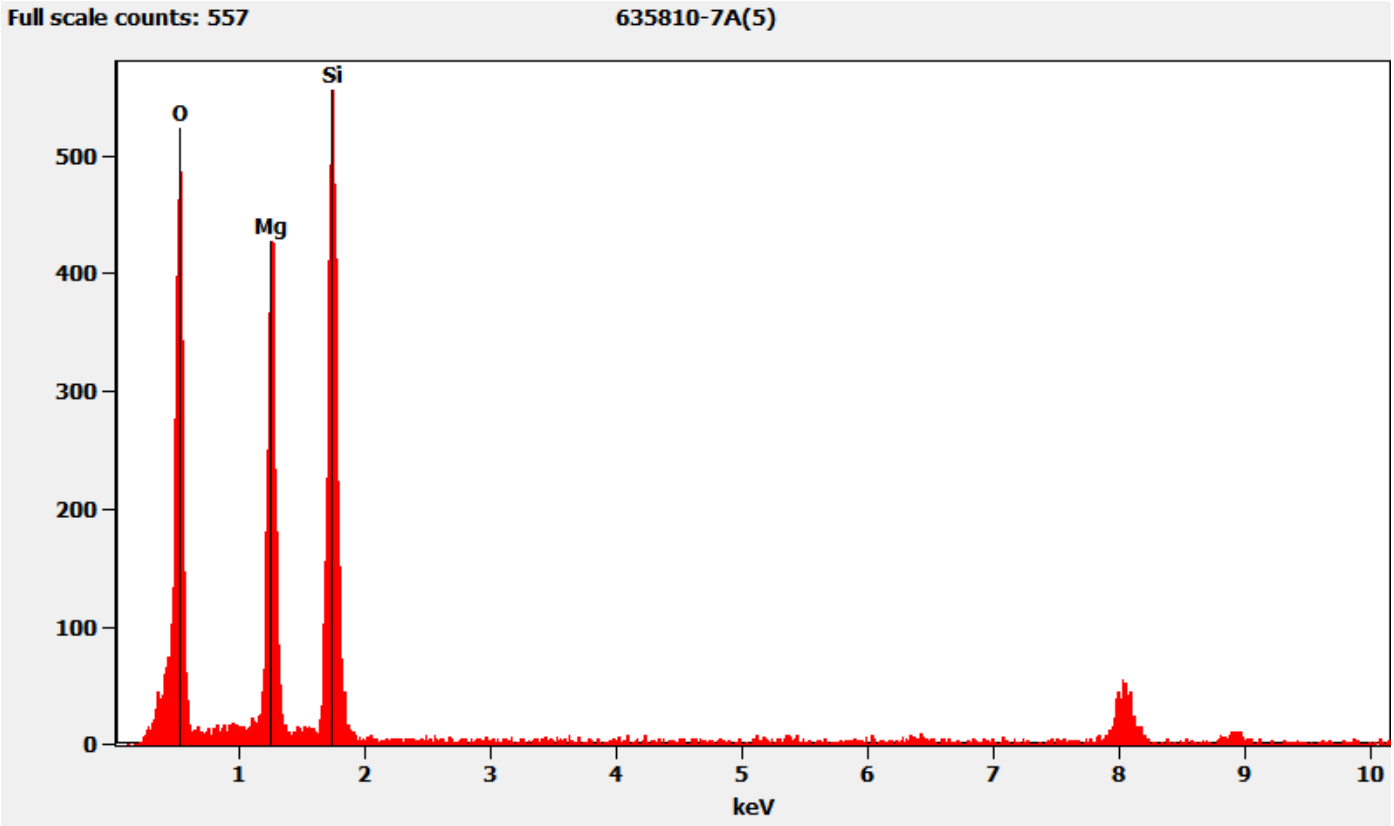
1 µm
HV=100kV
Direct Mag: 2900 x
AMA Analytical Services, Inc

Hexagonal Diffraction Pattern from the Elongated Talc Particle Pictured Above

635810 FDA_067.jpg
635810-7A
Talc Fiber
10:28 5/24/2022
Microscopist: (b) (6)
Camera: NANOSPR15, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

100 (1/Å)
HV=100kV
Cam Len: 0.2200 m
AMA Analytical Services, Inc

Chemistry from the Elongated Talc Particle Pictured Above



635810-8A, 8B, 8C/Client Sample: 03302022-8

PLM

All three aliquots of sample 03302022-8 were analyzed by (b) (6) on June 2, 2022. No asbestos or non-asbestos amphibole variants were observed during analysis. The results were calculated using the equations detailed in the *Calculations* section above.

635810-8A	No Asbestos Detected
635810-8B	No Asbestos Detected
635810-8C	No Asbestos Detected

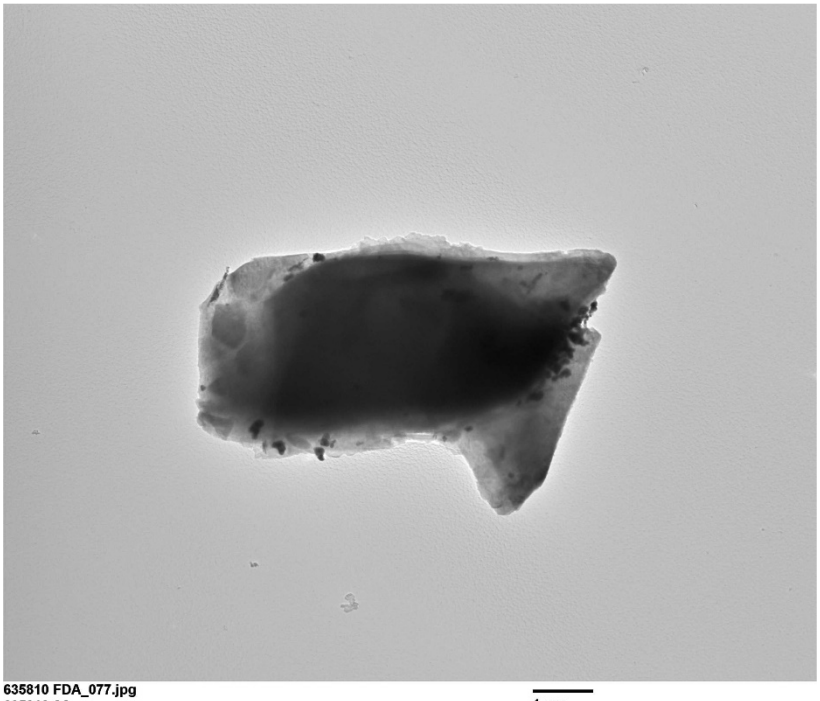
TEM

(b) (6) analyzed aliquots 8A and 8B on May 24, 2022. Andreas Saldivar analyzed aliquot 8C on May 25, 2022. The primary particles observed were talc, mica, and titanium; iron particles a were also observed along with talc ribbons and particles containing magnesium, aluminum, silicon, and iron. No asbestos or non-asbestos amphibole variants were observed during analysis. The results were calculated using the equations detailed in the *Calculations* section above.

635810-8A	No Asbestos Detected
635810-8B	No Asbestos Detected
635810-8C	No Asbestos Detected

Below are pictures, diffraction patterns, and chemistry from some of the observed particles. The copper peaks in the chemistry spectra are from the TEM grid. The unidentified (and some identified) peaks in the chemistry spectra are zinc and carbon from the TEM specimen holder.

635810-8A, Talc Particle



635810 FDA_077.jpg
635810-8A
Talc Particle
Cal: 0.005419 µm/pix
12:31 5/24/2022
Microscopist (b) (6)
Camera: NANOSPR15, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

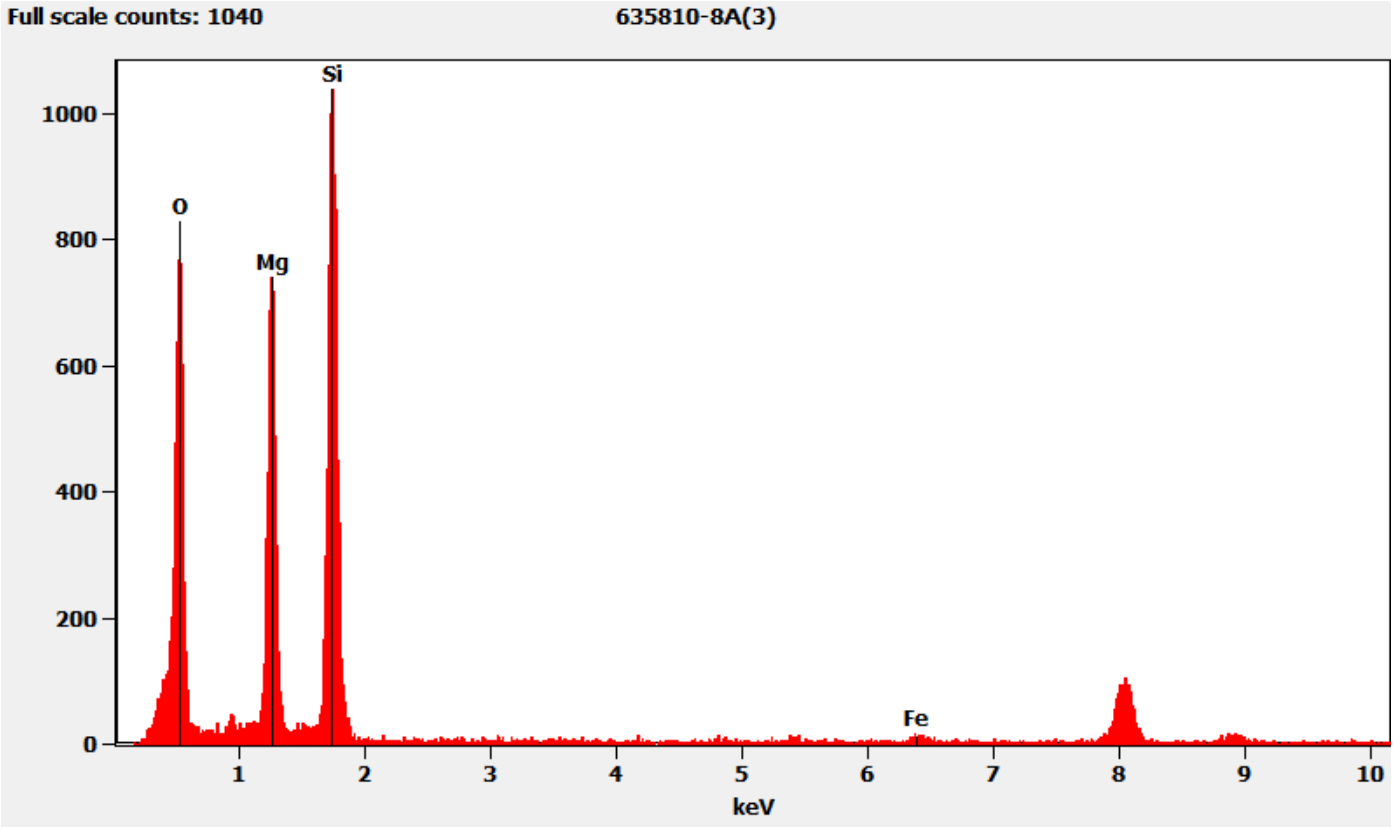
1 µm
HV=100kV
Direct Mag: 1900 x
AMA Analytical Services, Inc

Hexagonal Diffraction Pattern from the Talc Particle Pictured Above

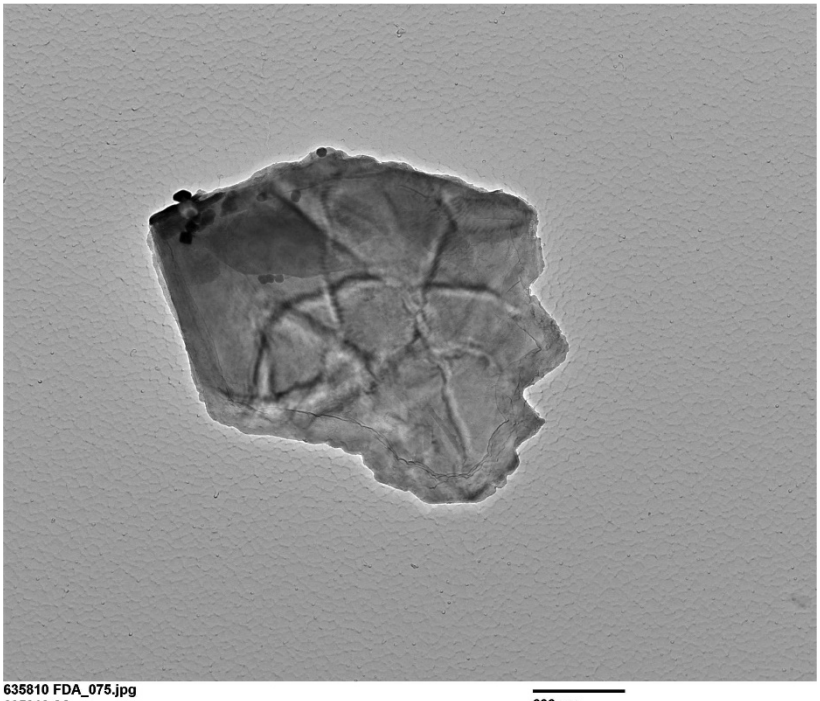
635810 FDA_076.jpg
635810-8A
Talc Particle
12:30 5/24/2022
Microscopist (b) (6)
Camera: NAI 5, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

100 (1/Å)
HV=100kV
Cam Len: 0.2200 m
AMA Analytical Services, Inc

Chemistry from the Talc Particle Pictured Above



635810-8A, Mica Particle



635810 FDA_075.jpg
635810-8A
Mica Particle
Cal: 0.002145 µm/pix
12:25 5/24/2022
Microscopis(b) (6)
Camera: NA[illegible]75, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

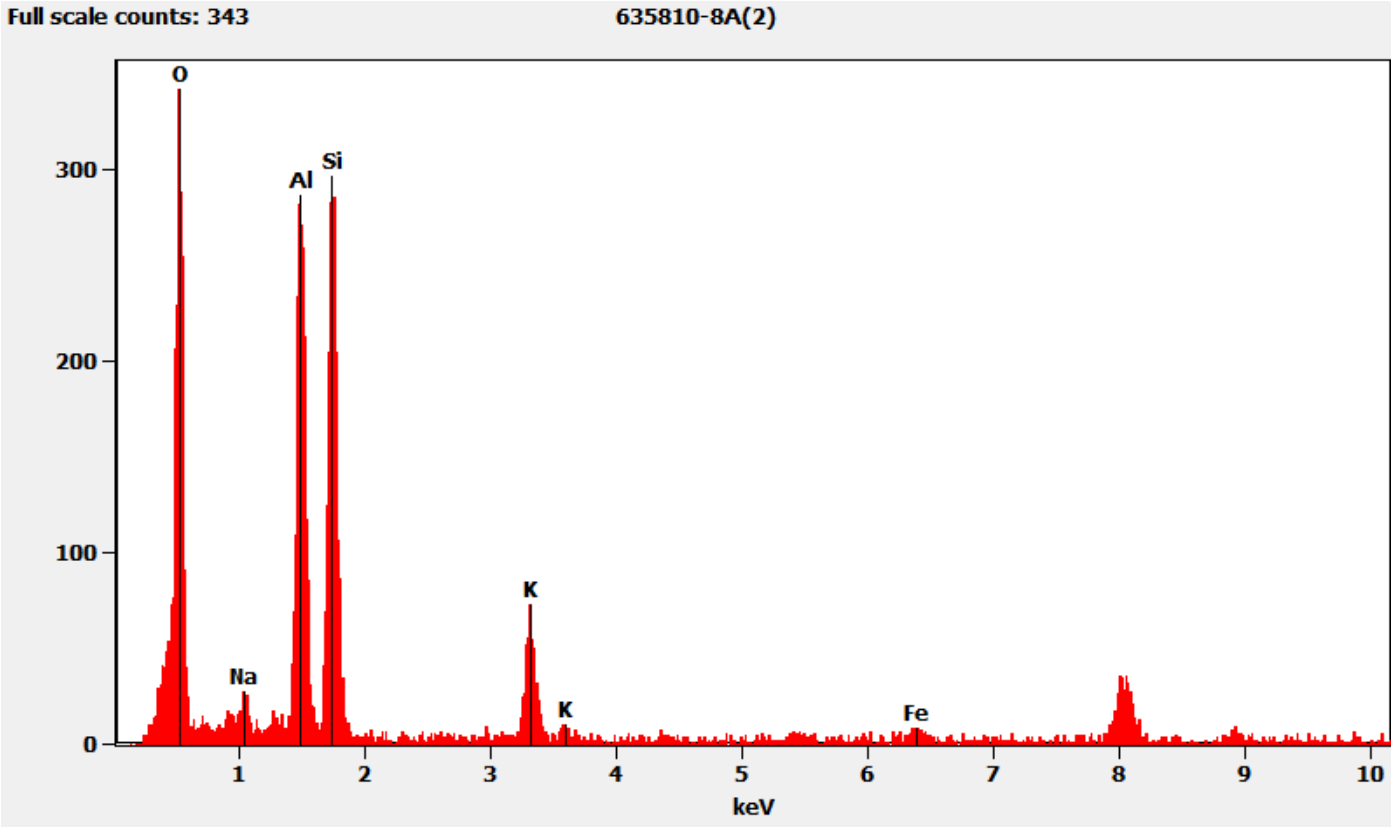
600 nm
HV=100kV
Direct Mag: 4800 x
AMA Analytical Services, Inc

Hexagonal Diffraction Pattern from the Mica Particle Pictured Above

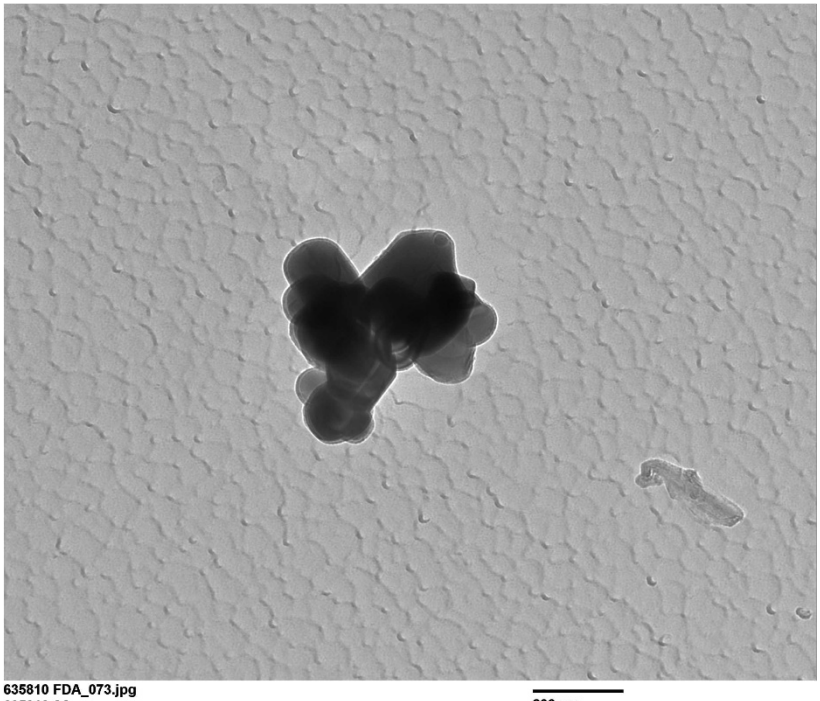
635810 FDA_074.jpg
635810-8A
Mica Particle
12:24 5/24/2022
Microscopist (b) (6)
Camera: NANOSPRT5, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

100 (1/Å)
HV=100kV
Cam Len: 0.2200 m
AMA Analytical Services, Inc

Chemistry from the Mica Particle Pictured Above



635810-8A, Titanium Particles



635810 FDA_073.jpg
635810-8A
Ti Particles
Cal: 0.726816 nm/pix
12:22 5/24/2022
Microscopist: (b) (6)
Camera: NANOSPRT5, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

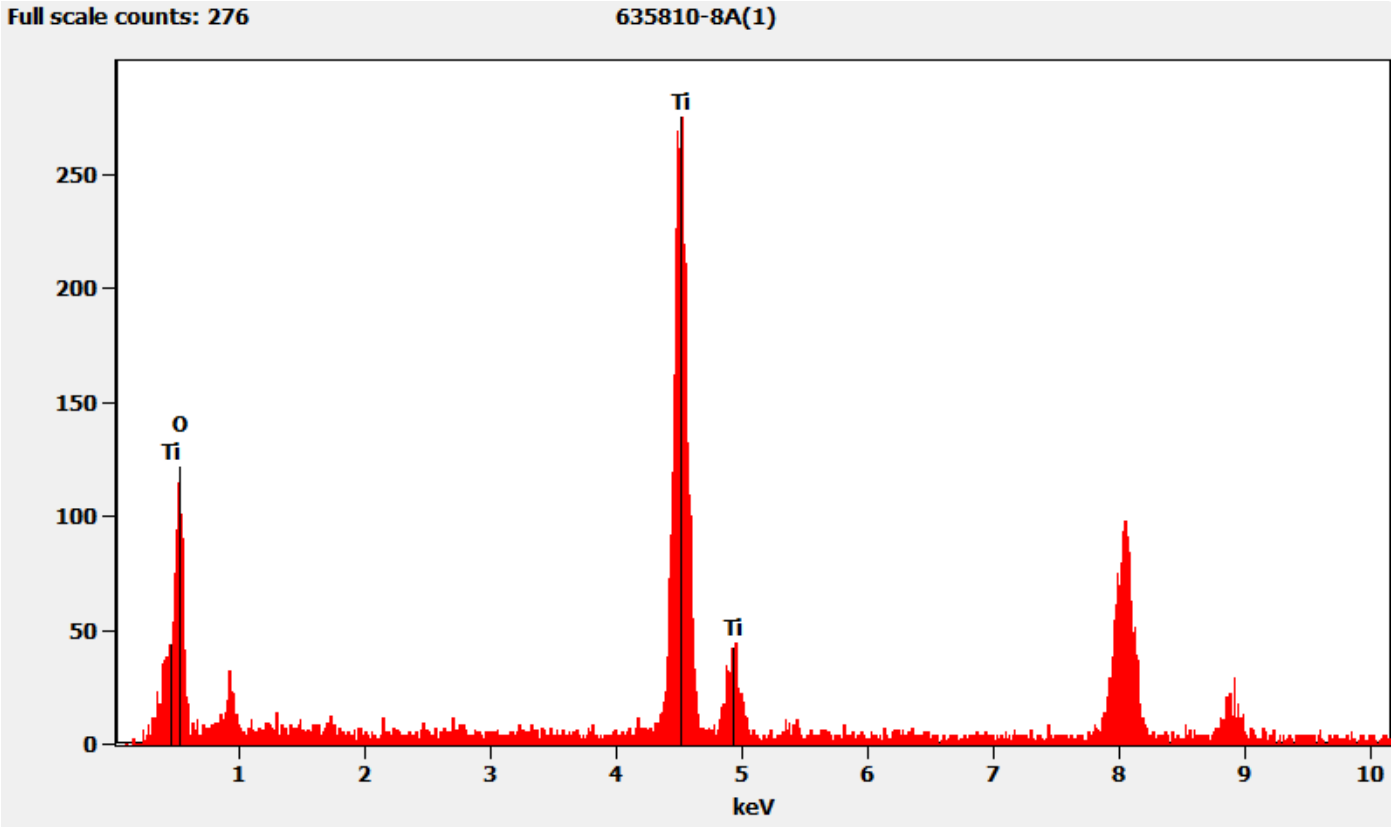
200 nm
HV=100kV
Direct Mag: 14000 x
AMA Analytical Services, Inc

Diffraction Pattern from the Titanium Particles Pictured Above

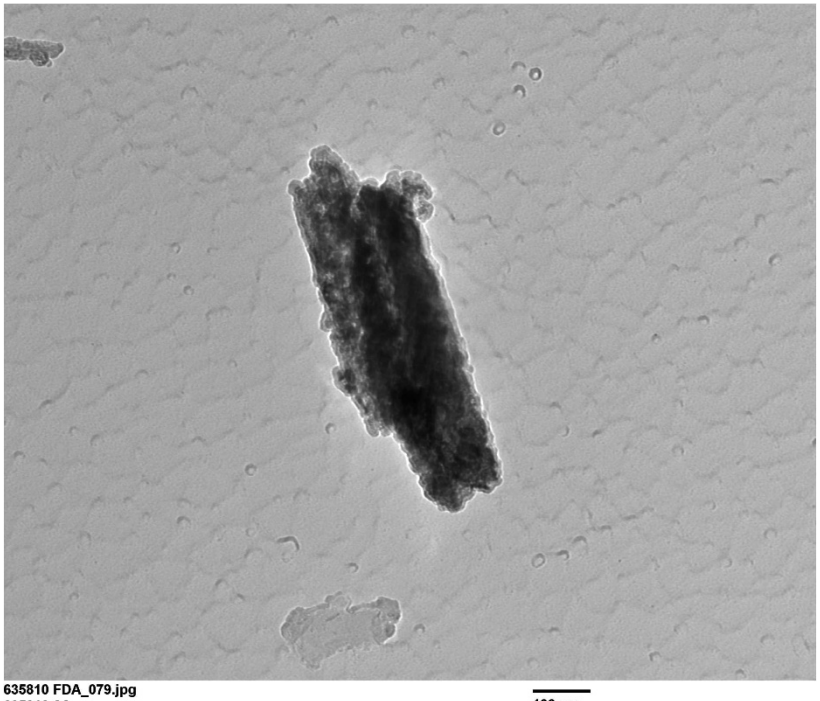
635810 FDA_072.jpg
635810-8A
Ti Particles
12:20 5/24/2022
Microscopist (b) (6)
Camera: NANOSPRT5, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

100 (1/Å)
HV=100kV
Cam Len: 0.2200 m
AMA Analytical Services, Inc

Chemistry from the Titanium Particle Pictured Above



635810-8A, Iron Particle

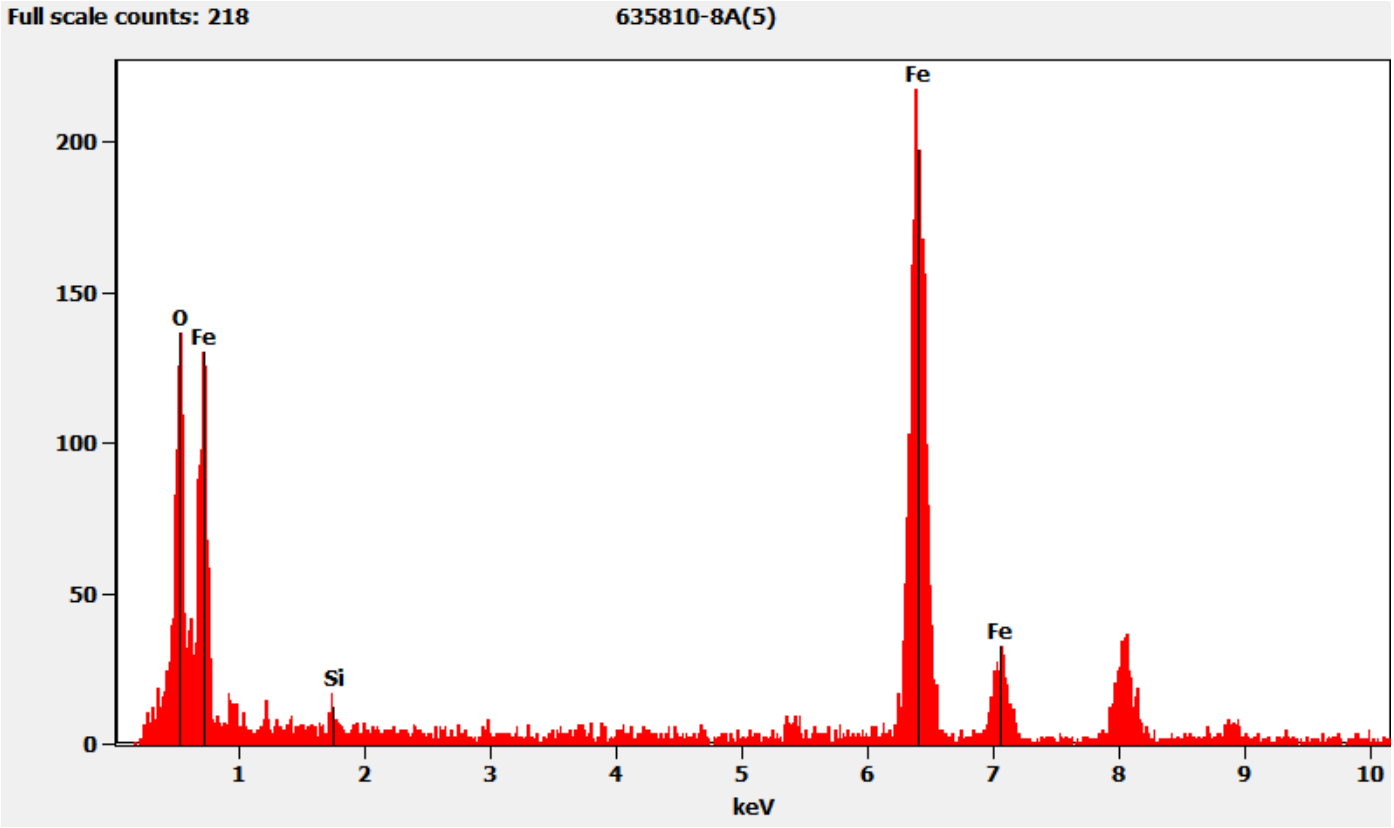


Diffraction Pattern from the Iron Particle Pictured Above

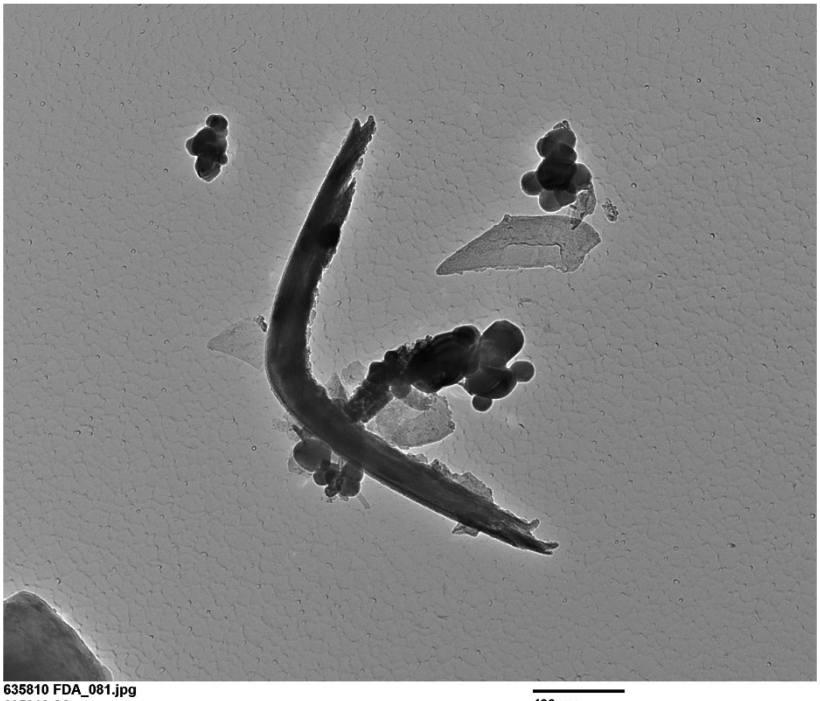
635810 FDA_078.jpg
635810-8A
Fe particle
12:37 5/24/2022
Microscopist (b) (6)
Camera: NANOSPRT5, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

100 (1/Å)
HV=100kV
Cam Len: 0.2200 m
AMA Analytical Services, Inc

Chemistry from the Iron Particle Pictured Above



635810-8A, Talc Ribbon

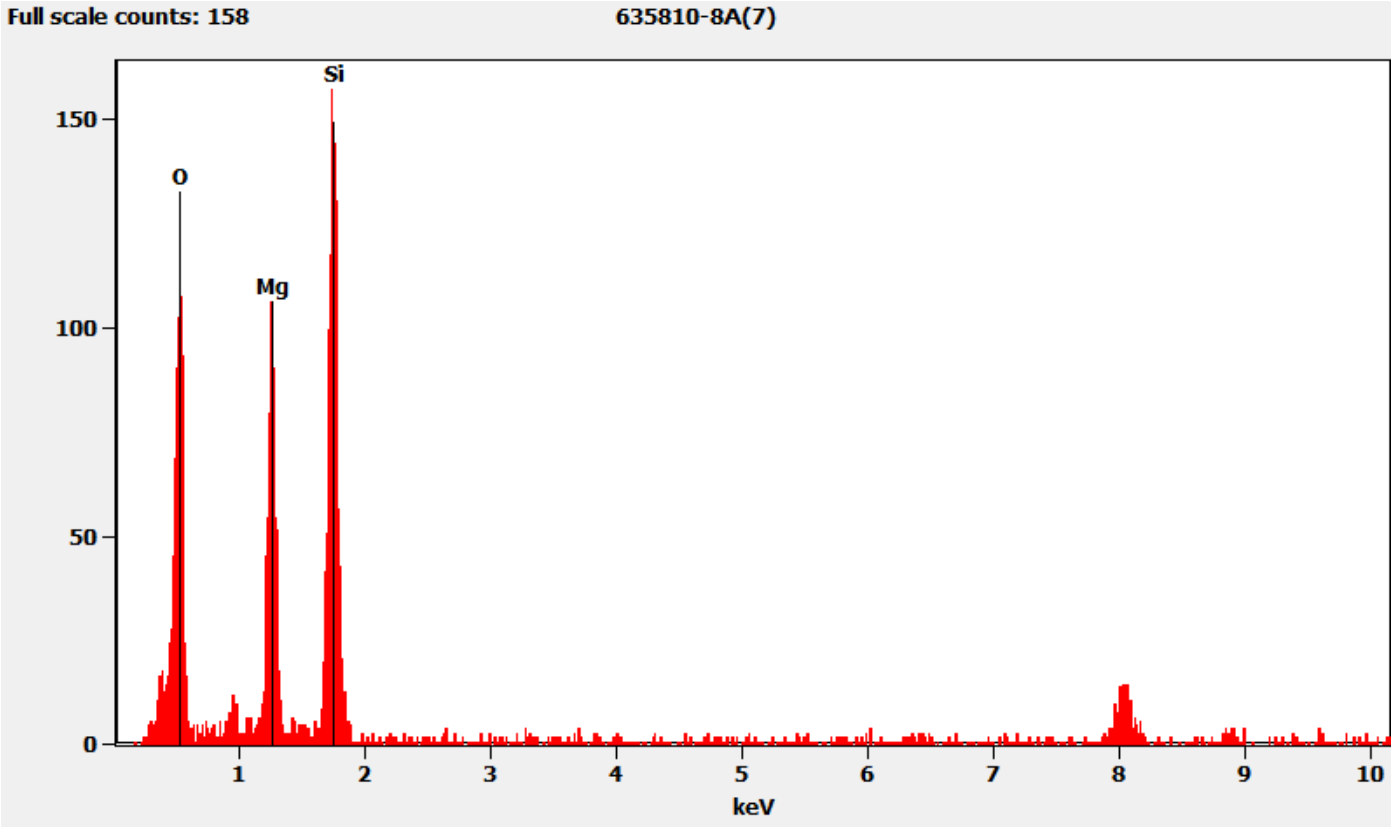


Diffraction Pattern from the Talc Ribbon Pictured Above

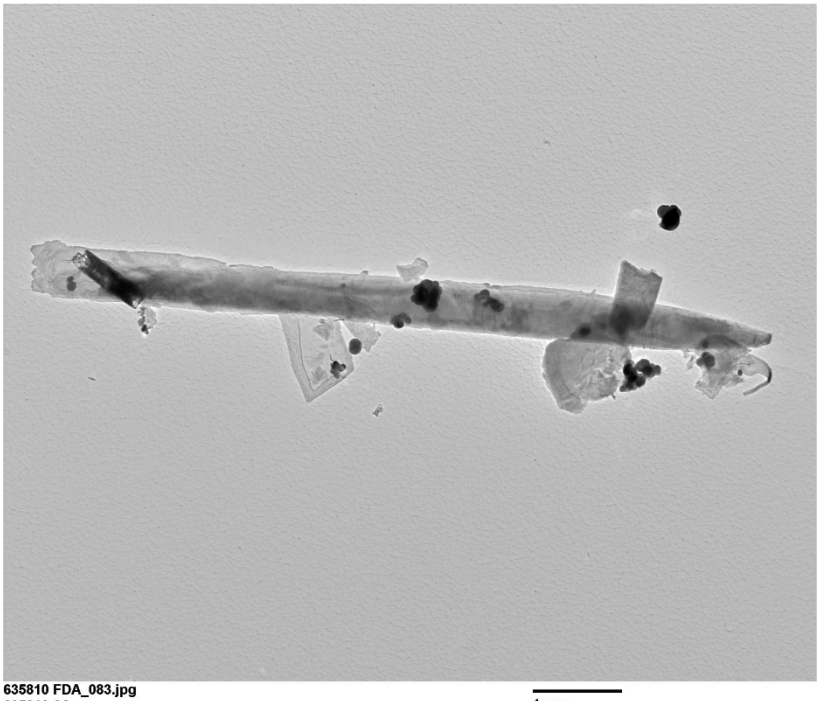
635810 FDA_080.jpg
635810-8A
Talc Ribbon
12:55 5/24/2022
Microscopist (b) (6)
Camera: NAN[illegible], Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

100 (1/Å)
HV=100kV
Cam Len: 0.2200 m
AMA Analytical Services, Inc

Chemistry from the Talc Ribbon Pictured Above



635810-8A, Particle Containing Magnesium, Aluminum, Silicon, and Iron

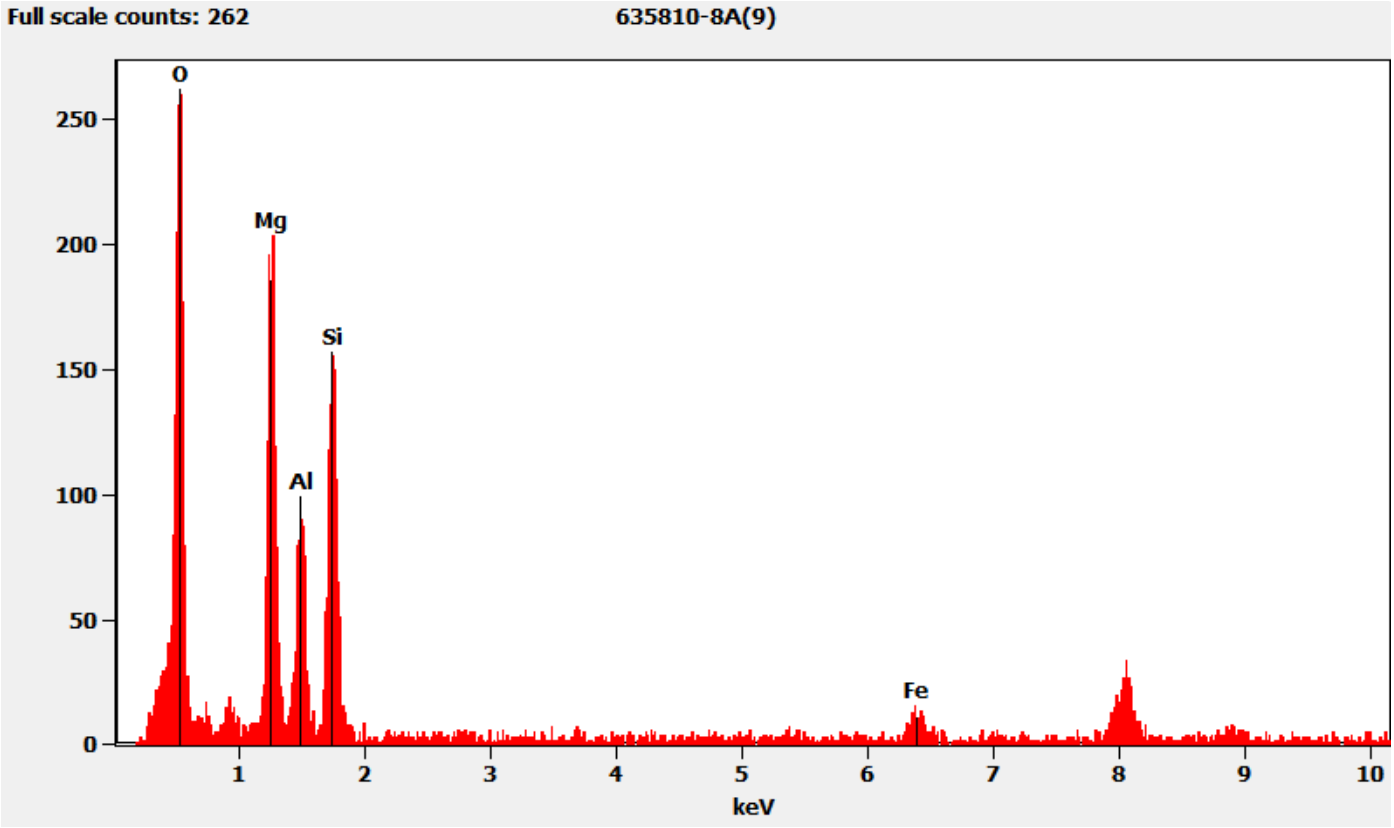


Diffraction Pattern from the Particle Containing Magnesium, Aluminum, Silicon, and Iron Pictured Above

635810 FDA_082.jpg
635810-8A
Mg,Al,Si,Fe Particle
13:06 5/24/2022
Microscopist: (b) (6)
Camera: NAN , Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

100 (1/Å)
HV=100kV
Cam Len: 0.2200 m
AMA Analytical Services, Inc

Chemistry from the Particle Containing Magnesium, Aluminum, Silicon, and Iron Pictured Above



635810-9A, 9B, 9C/Client Sample: 03302022-9

PLM

All three aliquots of sample 03302022-9 were analyzed by (b) (6) on June 2, 2022. No asbestos or non-asbestos amphibole variants were observed during analysis. The results were calculated using the equations detailed in the *Calculations* section above.

635810-9A	No Asbestos Detected
635810-9B	No Asbestos Detected
635810-9C	No Asbestos Detected

TEM

(b) (6) analyzed aliquot 9A on May 24, 2022, through May 25, 2022, aliquot 9B on May 25, 2022, and aliquot 9C on May 26, 2022. The primary particles observed were mica and particles containing aluminum and silicon; talc particles were also observed along with particles containing magnesium, aluminum, silicon, and iron, particles containing sodium, aluminum, and silicon, and silicon particles. No asbestos or non-asbestos amphibole variants were observed during analysis. The results were calculated using the equations detailed in the *Calculations* section above.

635810-9A	No Asbestos Detected
635810-9B	No Asbestos Detected
635810-9C	No Asbestos Detected

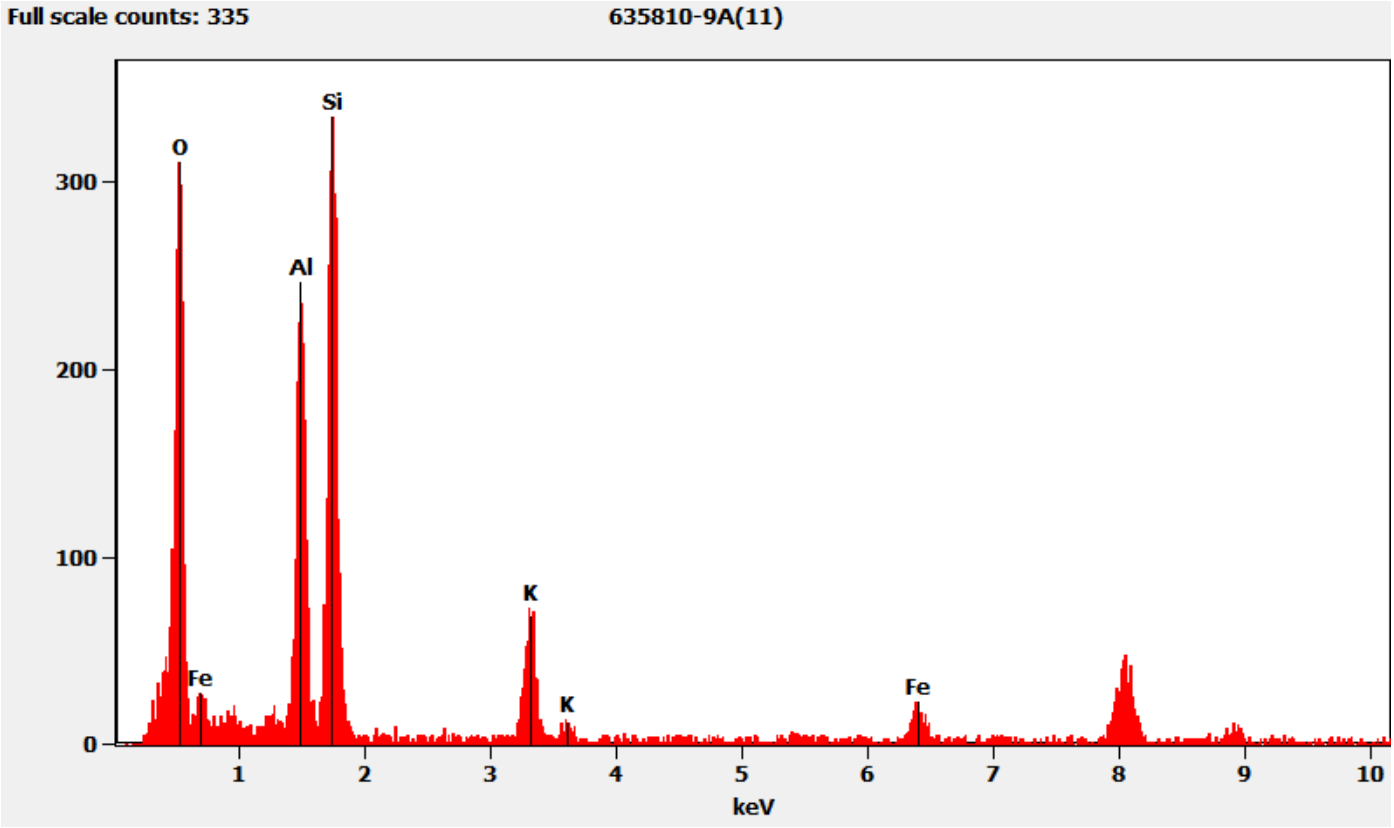
Below are pictures, diffraction patterns, and chemistry from some of the observed particles. The copper peaks in the chemistry spectra are from the TEM grid. The unidentified (and some identified) peaks in the chemistry spectra are zinc and carbon from the TEM specimen holder.

635810-9A Hexagonal Diffraction a Mica Particle

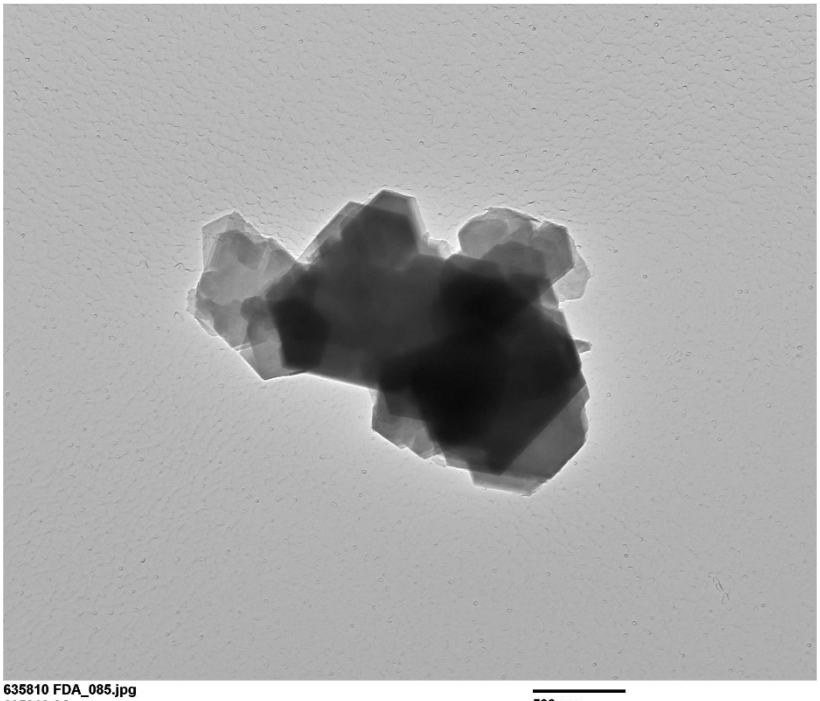
635810 FDA_090.jpg
635810-9A
Mica Particle
14:59 5/24/2022
Microscopist (b) (6)
Camera: NANOSPRT5, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

100 (1/Å)
HV=100kV
Cam Len: 0.2200 m
AMA Analytical Services, Inc

Chemistry from the Mica Particle Referenced Above



635810-9A, Particle Containing Aluminum and Silicon

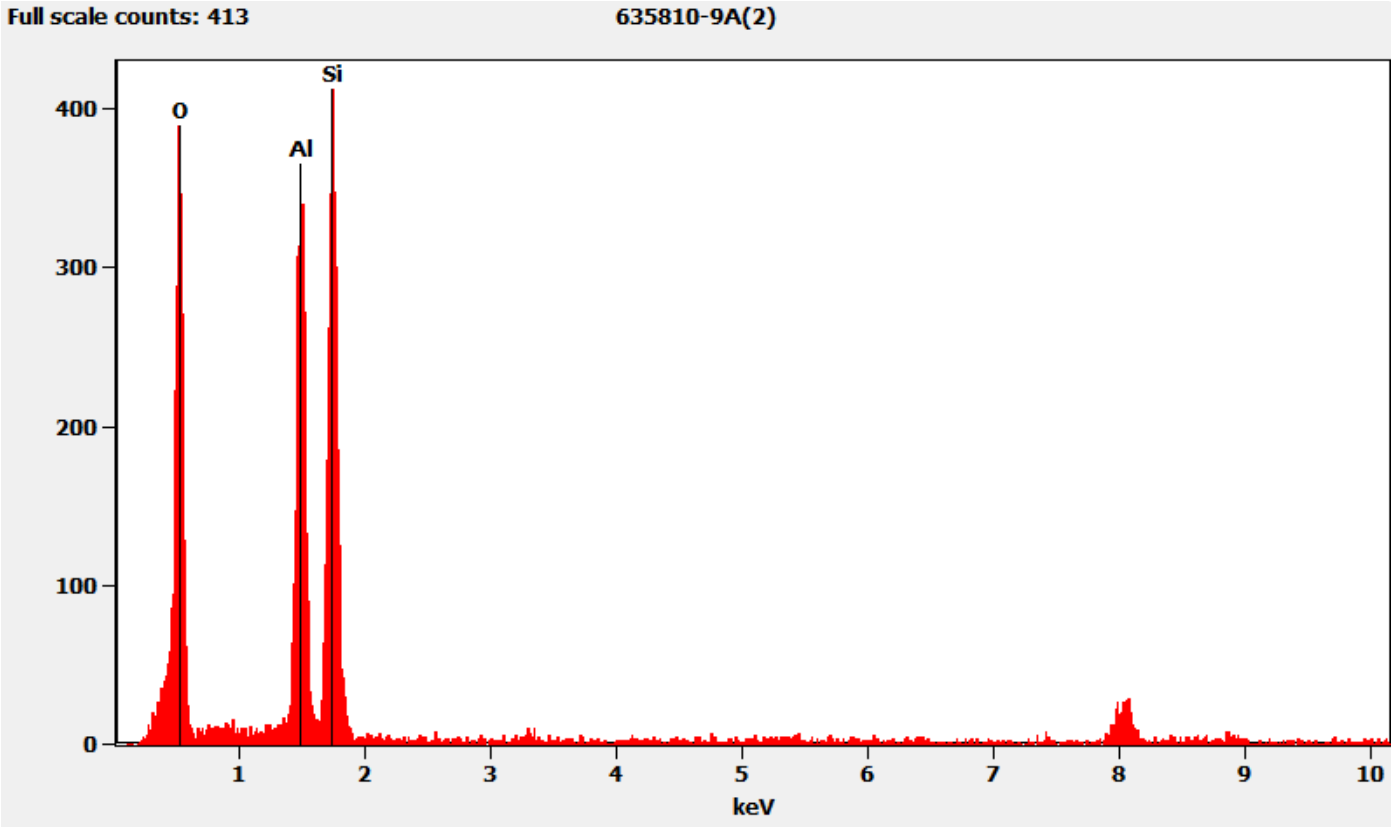


Diffraction Pattern from the Particle Containing Aluminum and Silicon Pictured Above

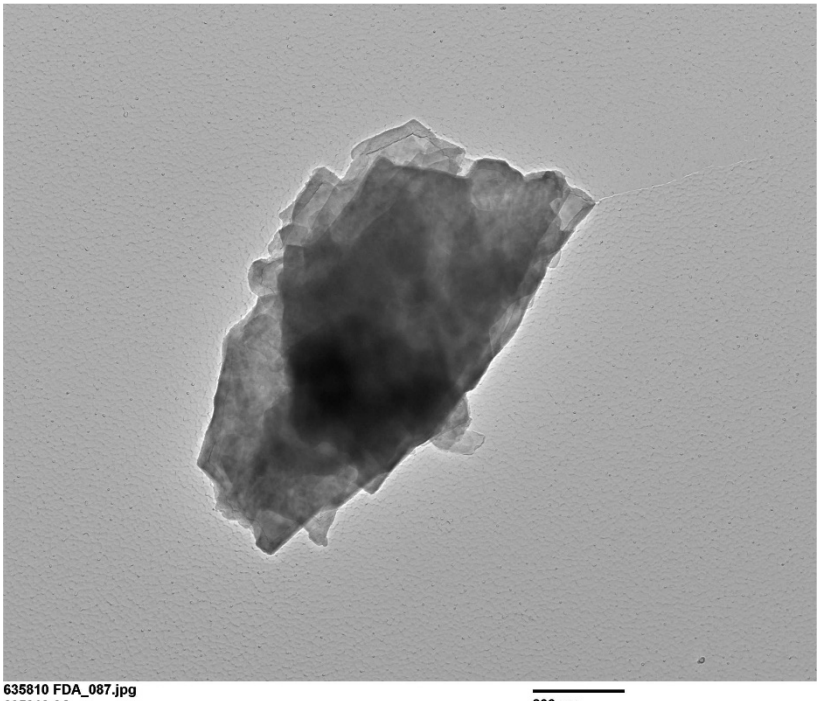
635810 FDA_084.jpg
635810-9A
Al,Si particle
14:31 5/24/2022
Microscopist (b) (6)
Camera: NAI , Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

100 (1/Å)
HV=100kV
Cam Len: 0.2200 m
AMA Analytical Services, Inc

Chemistry from the Particle Containing Aluminum and Silicon Pictured Above



635810-9A, Talc Particle



635810 FDA_087.jpg
635810-9A
Talc Particle
Cal: 0.002860 µm/pix
14:39 5/24/2006
Microscopist: (b) (6)
Camera: NANOSPRT5, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

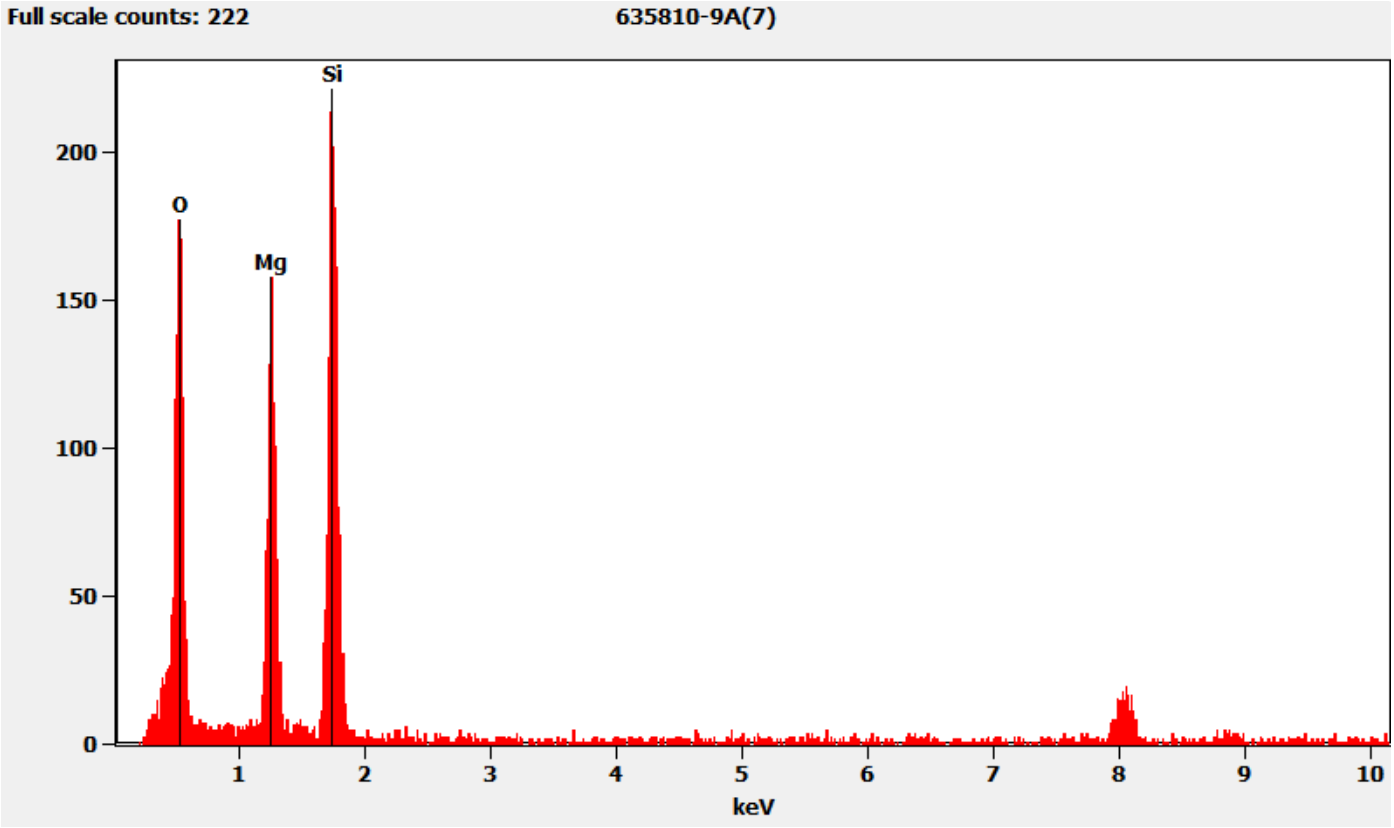
800 nm
HV=100kV
Direct Mag: 3600 x
AMA Analytical Services, Inc

Hexagonal Diffraction Pattern from the Talc Particle Pictured Above

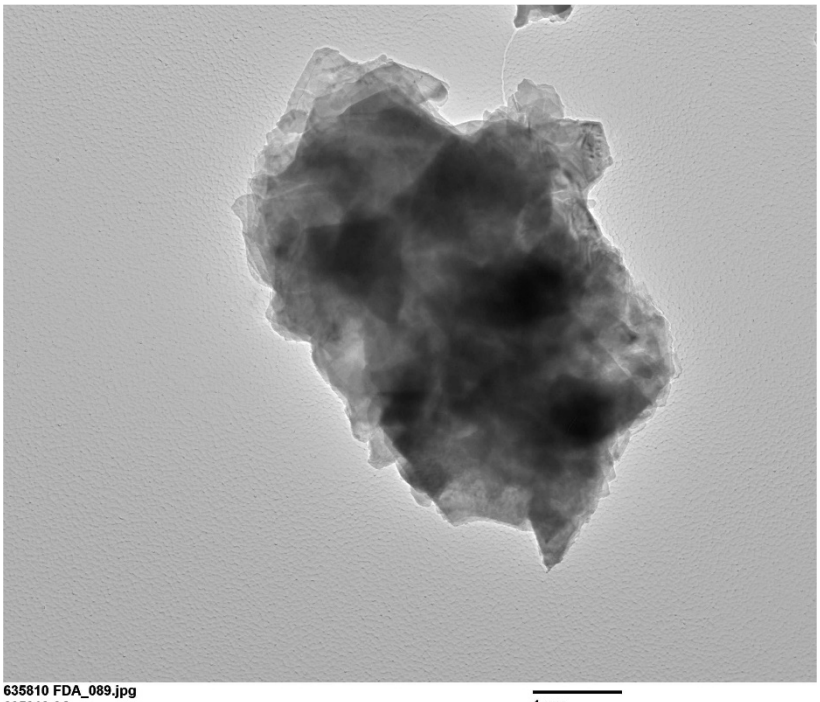
635810 FDA_086.jpg
635810-9A
Talc Particle
14:38 5/24/2022
Microscopis(b) (6)
Camera: NANOSPR15, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

100 (1/Å)
HV=100kV
Cam Len: 0.2200 m
AMA Analytical Services, Inc

Chemistry from the Talc Particle pictured above



35810-9A, Particle Containing Magnesium, Aluminum, Silicon, and Iron

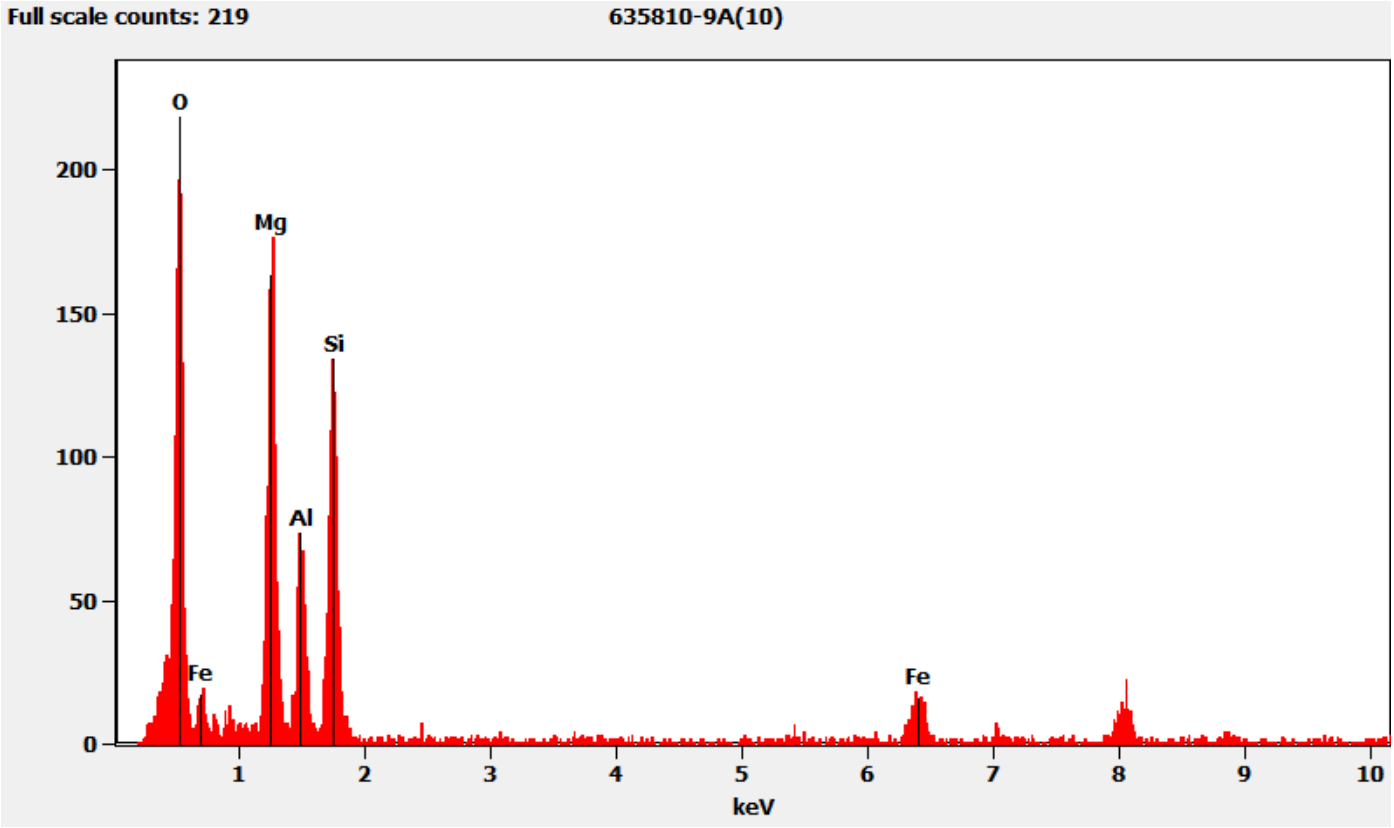


Diffraction Pattern from the Particle Containing Magnesium, Aluminum, Silicon, and Iron Pictured Above

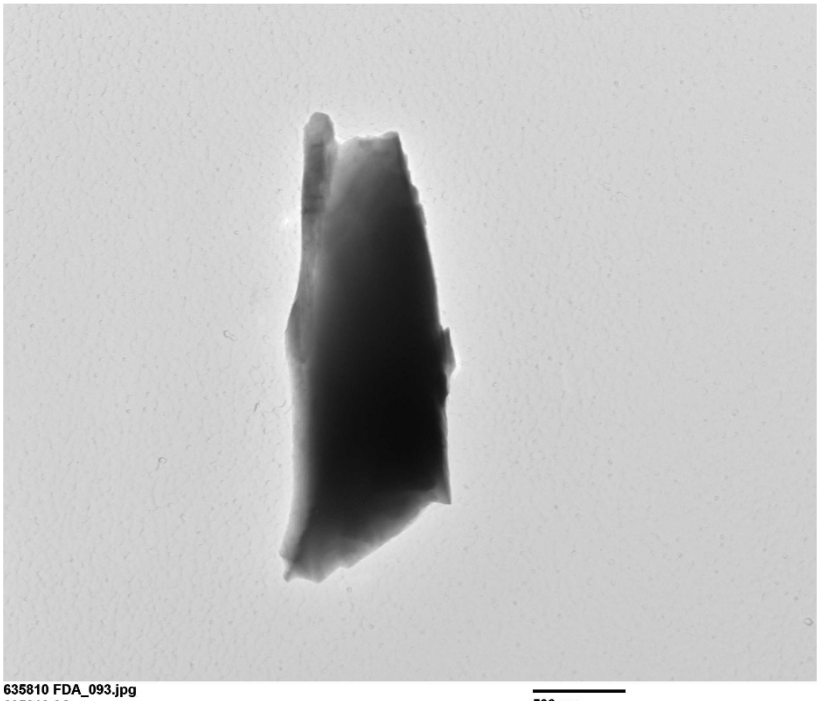
635810 FDA_088.jpg
635810-9A
Mg,Al,Si,Fe Particle
14:47 5/24/2022
Microscopist (b) (6)
Camera: NANOSPRS, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

100 (1/Å)
HV=100kV
Cam Len: 0.2200 m
AMA Analytical Services, Inc

Chemistry from the Particle Containing Magnesium, Aluminum, Silicon, and Iron Pictured Above



35810-9A, Particle Containing Sodium, Aluminum, and Silicon

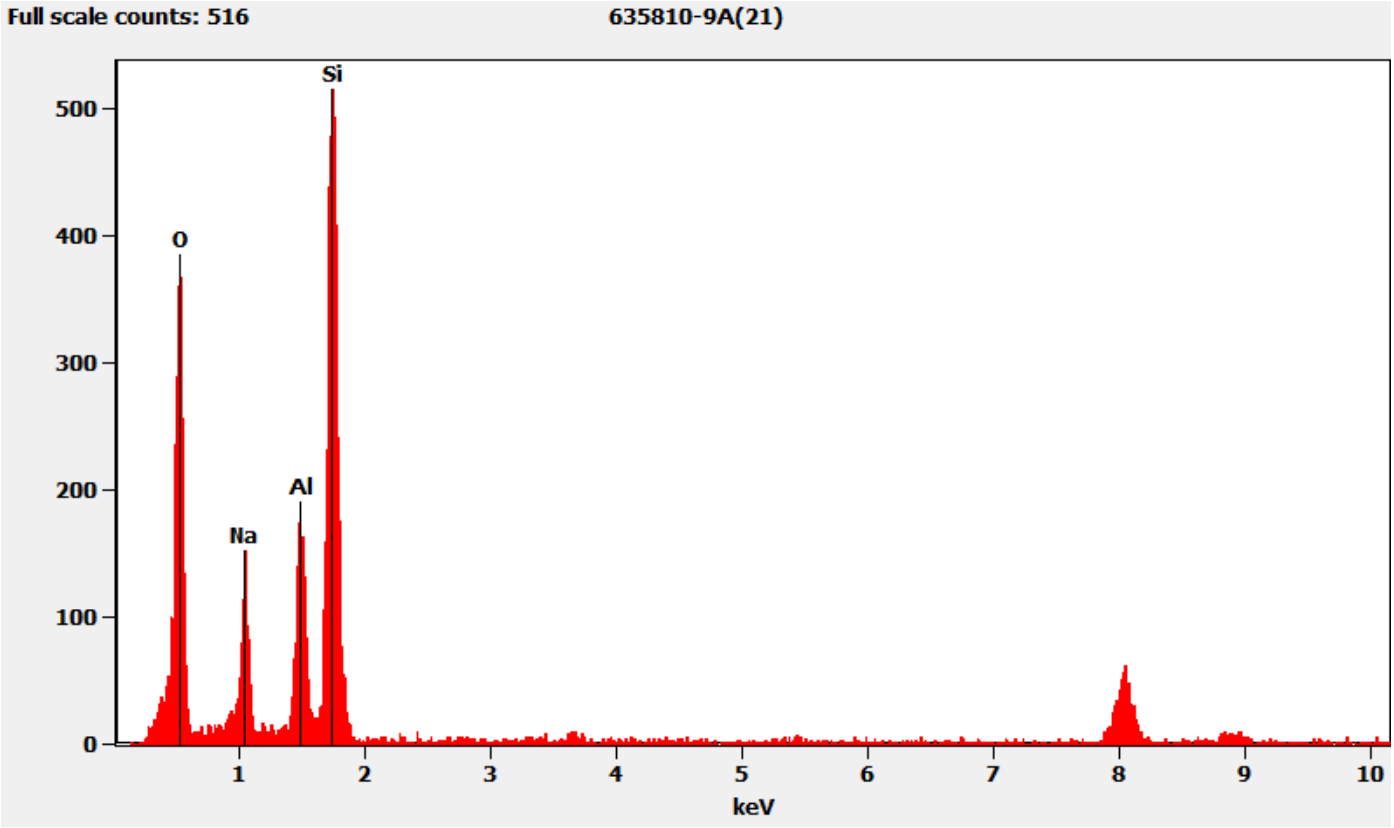


Diffraction Pattern from the Particle Containing Sodium, Aluminum, and Silicon Pictured Above

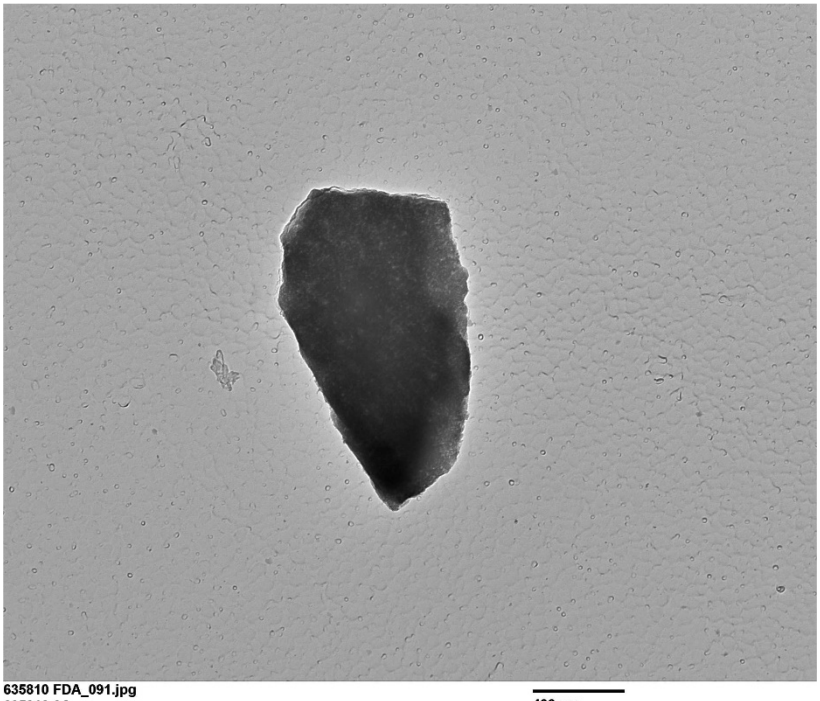
635810 FDA_092.jpg
635810-9A
Na,Al,Si particle
11:21 5/25/2012
Microscopist (b) (6)
Camera: NANOSPRT5, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

100 (1/Å)
HV=100kV
Cam Len: 0.2200 m
AMA Analytical Services, Inc

Chemistry from the Particle Containing Sodium, Aluminum, and Silicon Pictured Above



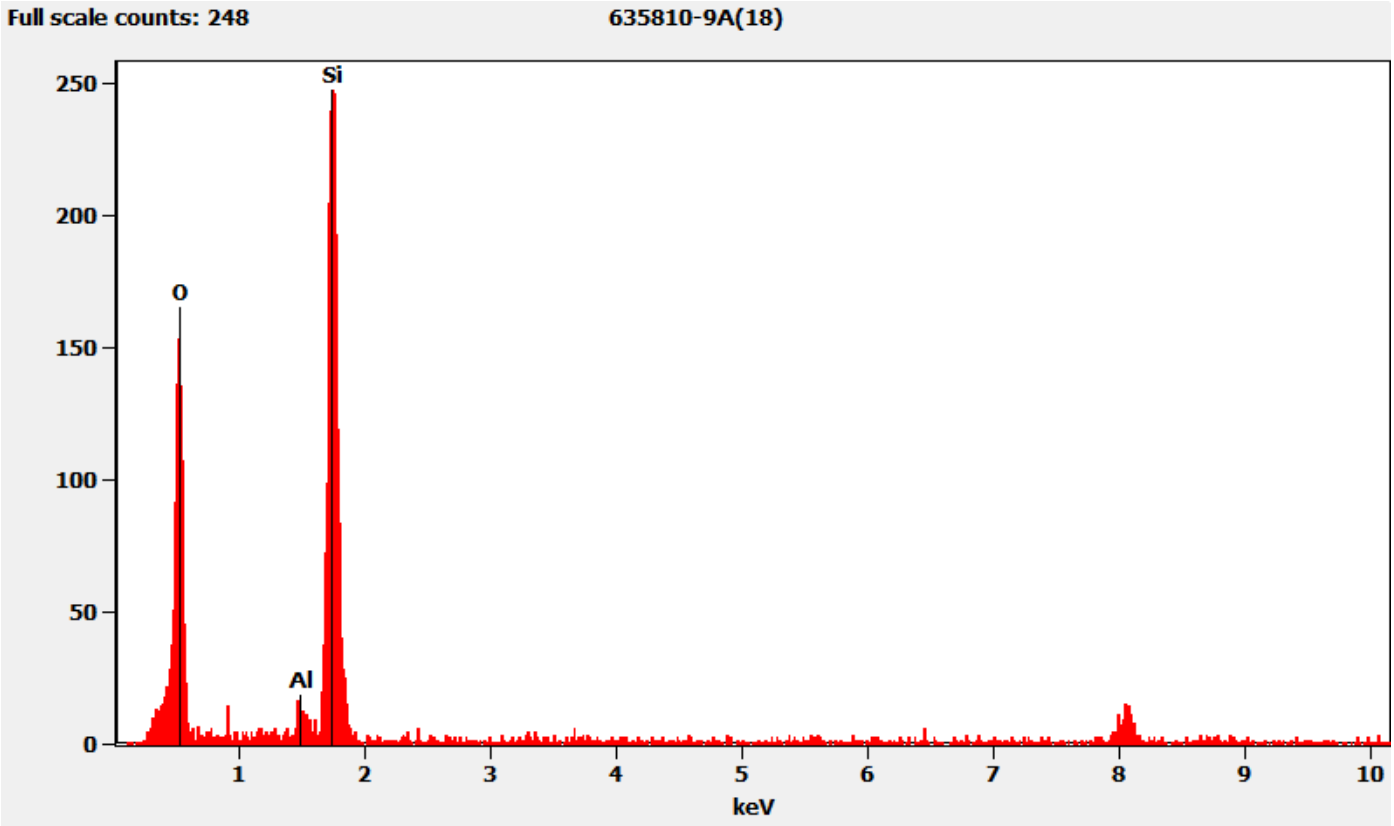
635810-9A, Silicon Particle



635810 FDA_091.jpg
635810-9A
Silica Particle
Cal: 0.001430 µm/pix
11:15 5/25/2022
Microscopist: (b) (6)
Camera: NAN 5, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

400 nm
HV=100kV
Direct Mag: 7200 x
AMA Analytical Services, Inc

Chemistry from the Silicon Particle pictured above



635810-10A, 10B, 10C/Client Sample: 03302022-10

PLM

All three aliquots of sample 03302022-10 were analyzed by (b) (6) on June 2, 2022. No asbestos or non-asbestos amphibole variants were observed during analysis. The results were calculated using the equations detailed in the *Calculations* section above.

635810-10A	No Asbestos Detected
635810-10B	No Asbestos Detected
635810-10C	No Asbestos Detected

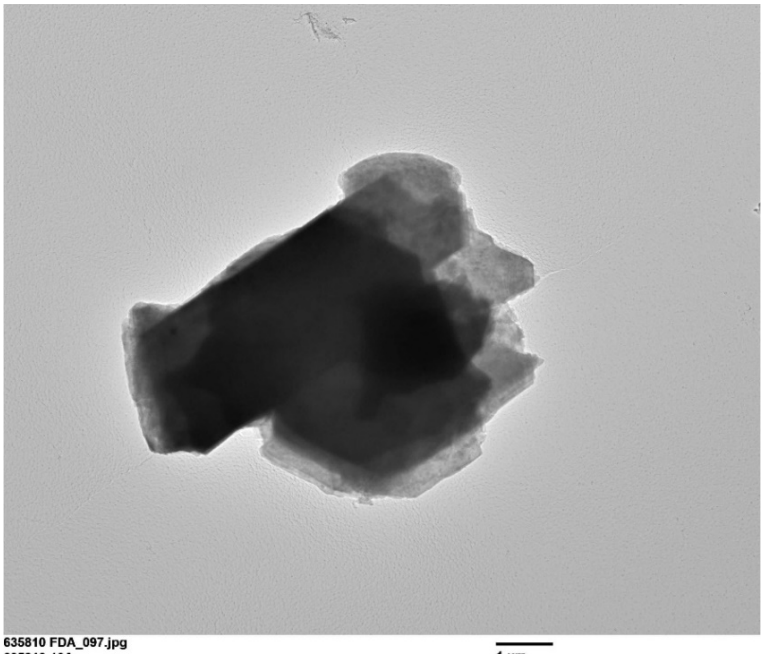
TEM

(b) (6) analyzed aliquot 10A on May 25, 2022. Andreas Saldivar analyzed aliquots 10B and 10C on May 31, 2022. The primary particle observed was talc; mica particles with titanium and silicon particles were also observed along with particles containing magnesium, aluminum, silicon, and iron, calcium particles, iron particles, particles containing nitrogen, oxygen, silicon, phosphorus, sulfur, and calcium, talc ribbons, and elongated talc particles. No asbestos or non-asbestos amphibole variants were observed during analysis. The results were calculated using the equations detailed in the *Calculations* section above.

635810-10A	No Asbestos Detected
635810-10B	No Asbestos Detected
635810-10C	No Asbestos Detected

Below are pictures, diffraction patterns, and chemistry from some of the observed particles. The copper peaks in the chemistry spectra are from the TEM grid. The unidentified (and some identified) peaks in the chemistry spectra are zinc and carbon from the TEM specimen holder

635810-10A, Talc Particle

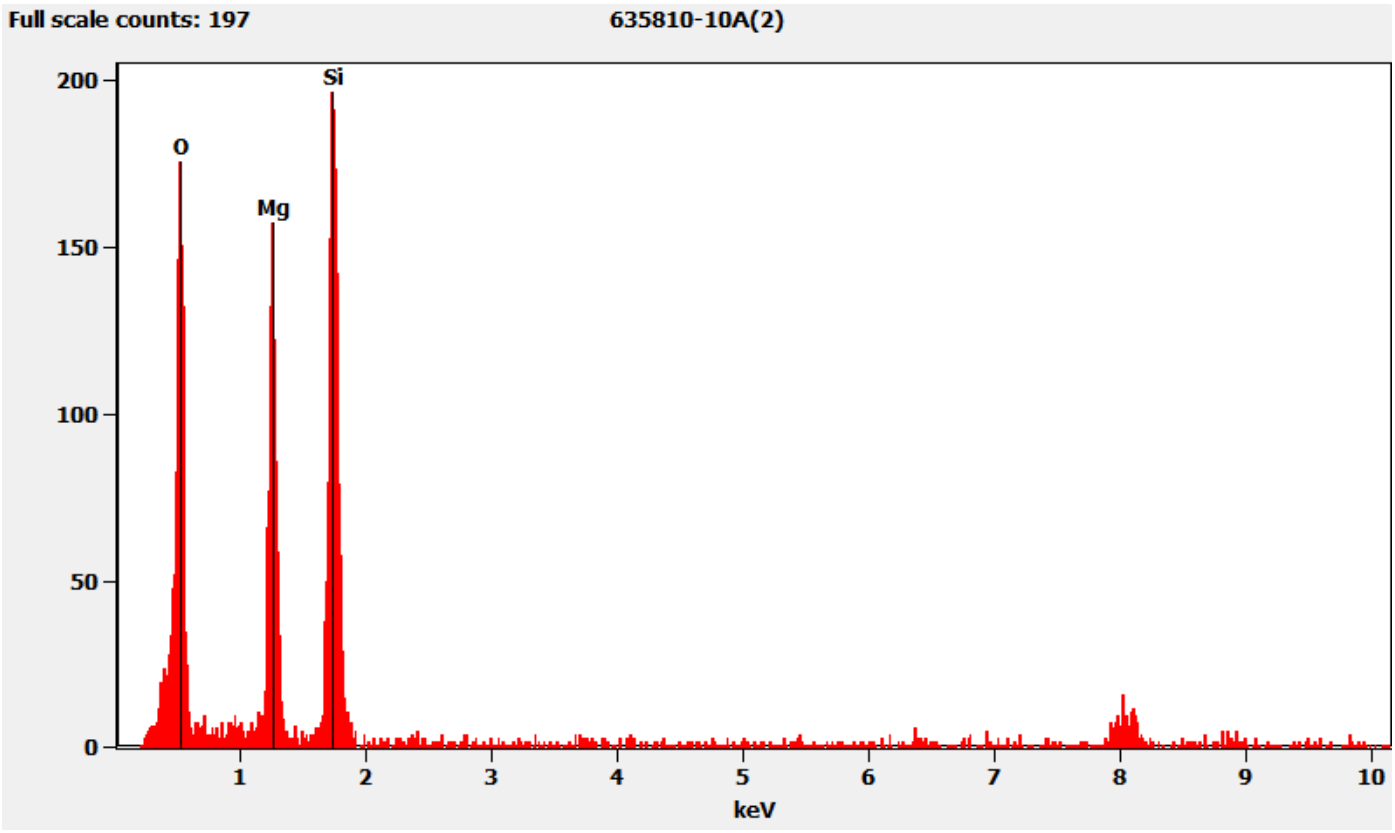


Hexagonal Diffraction Pattern from the Talc Particle Pictured Above

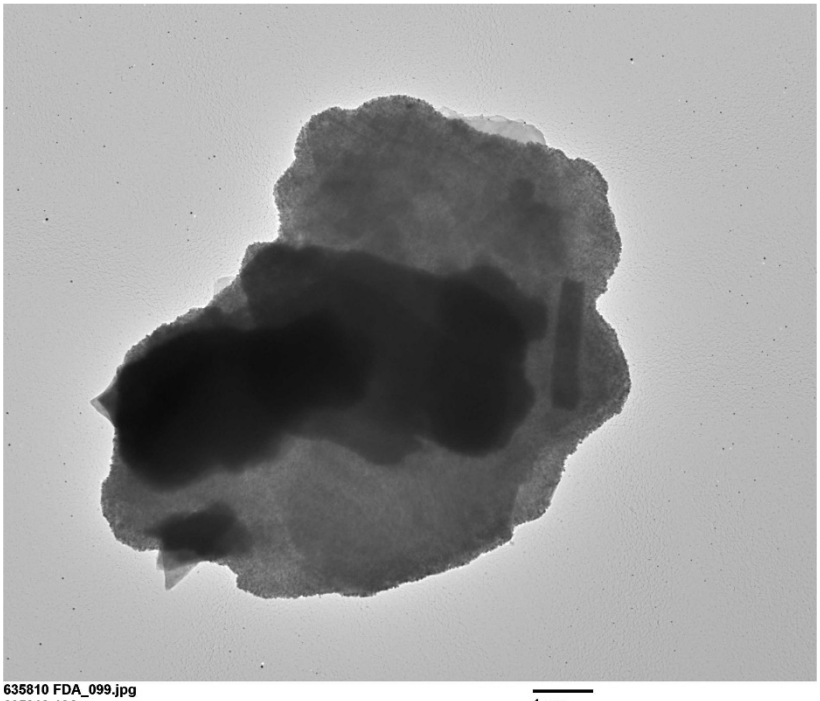
635810 FDA_096.jpg
635810-10A
Talc Particle
11:45 5/25/2022
Microscopist (b) (6)
Camera: NAN[illegible]5, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

100 (1/Å)
HV=100kV
Cam Len: 0.2200 m
AMA Analytical Services, Inc

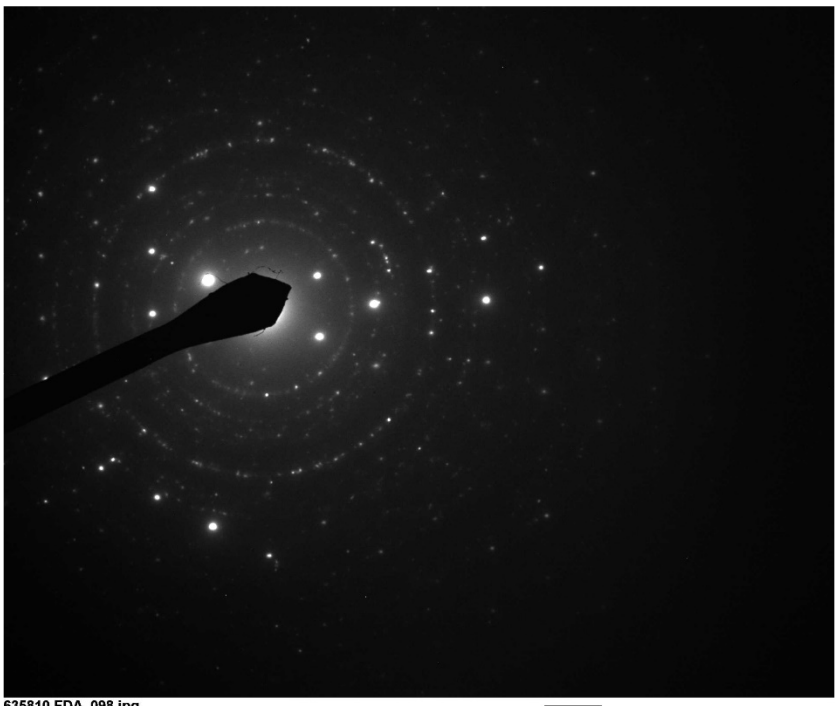
Chemistry from the Talc Particle Pictured Above



635810-10A, Mica Particle with Titanium



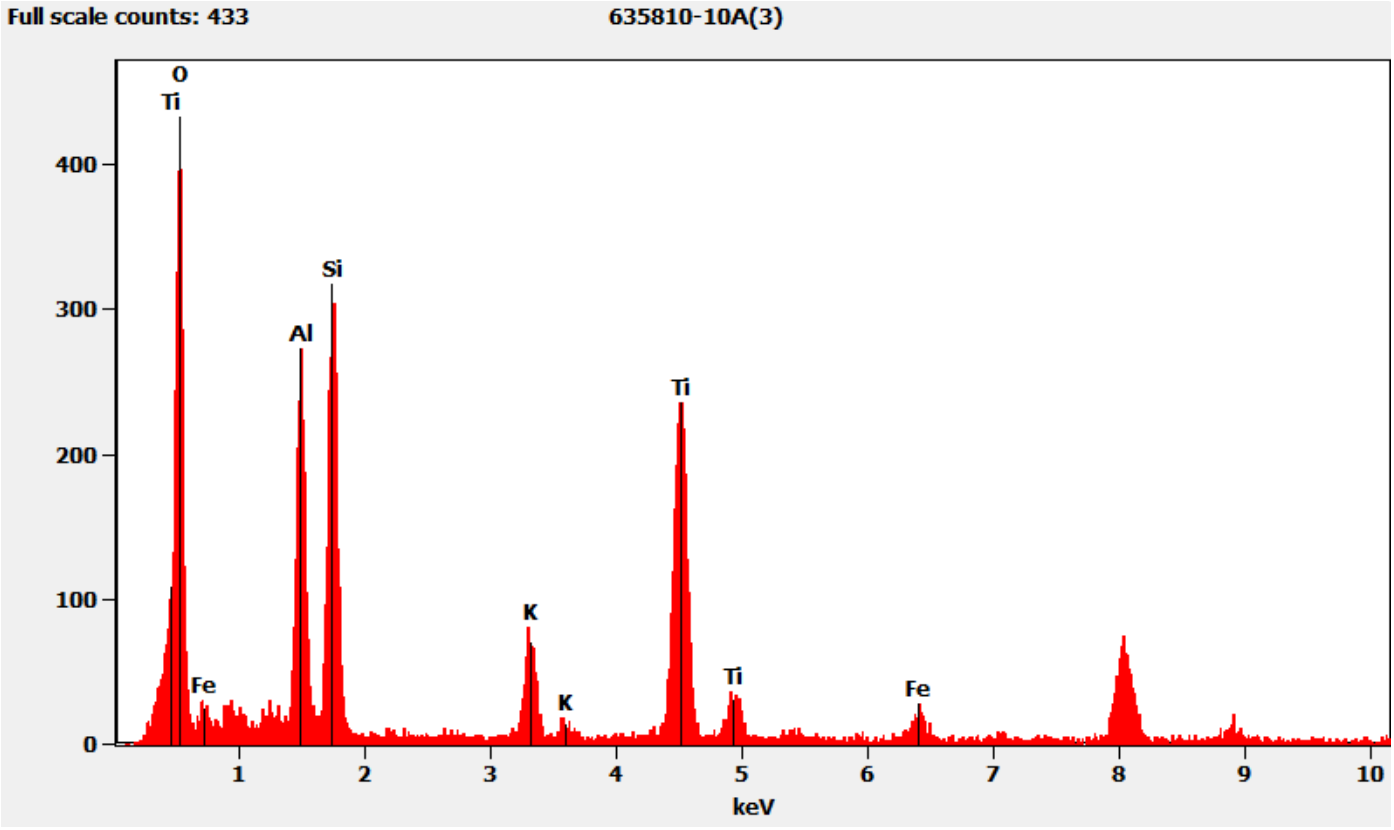
Diffraction Pattern from the Mica Particle with Titanium Pictured Above



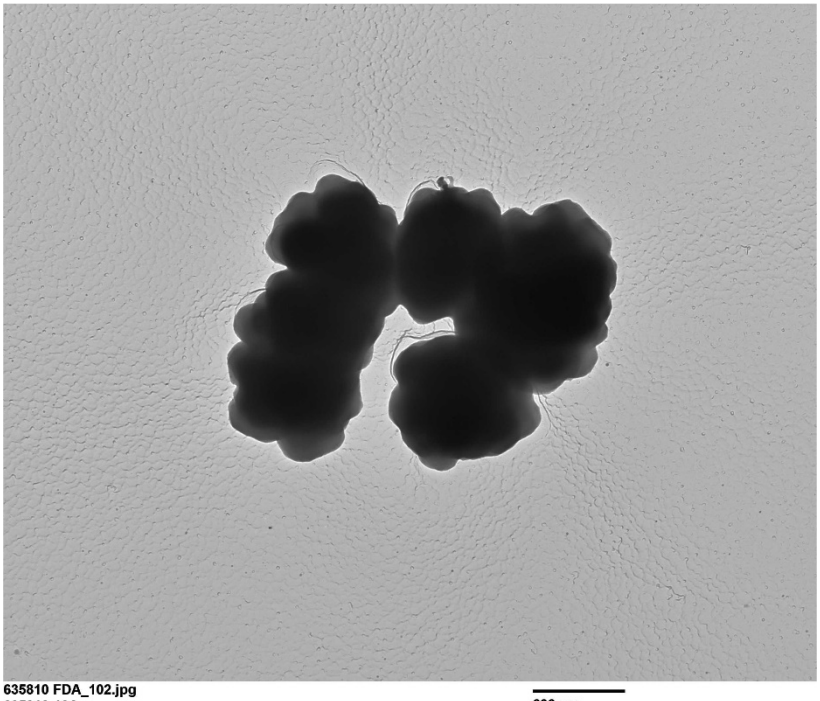
635810 FDA_098.jpg
635810-10A
Mica w/Ti
11:49 5/25/2022
Microscopist (b) (6)
Camera: NANOSPRT5, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

100 (1/Å)
HV=100kV
Cam Len: 0.2200 m
AMA Analytical Services, Inc

Chemistry from the Mica Particle with Titanium Pictured Above



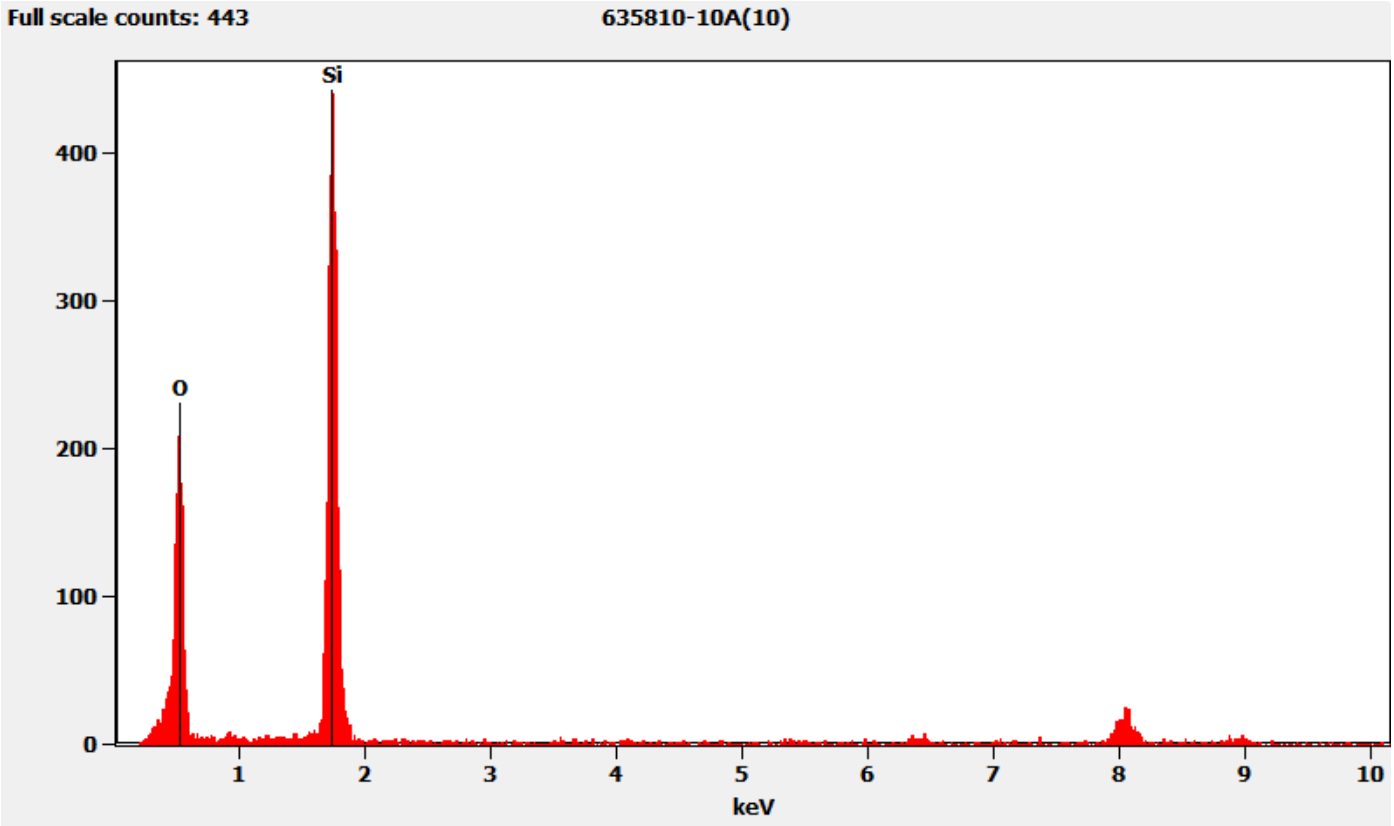
635810-10B, Silicon Particles



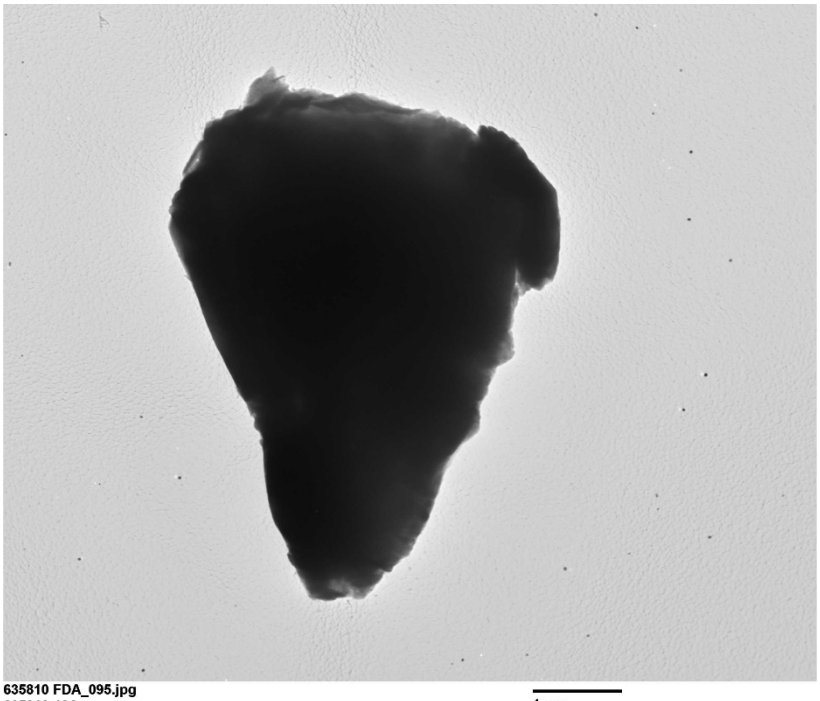
635810 FDA_102.jpg
635810-10A
Silica particles
Cal: 0.002145 µm/pix
12:35 5/25/2022
Microscopist (b) (6)
Camera: NANOSPR15, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

600 nm
HV=100kV
Direct Mag: 4800 x
AMA Analytical Services, Inc

Chemistry from the Silicon Particles Pictured Above

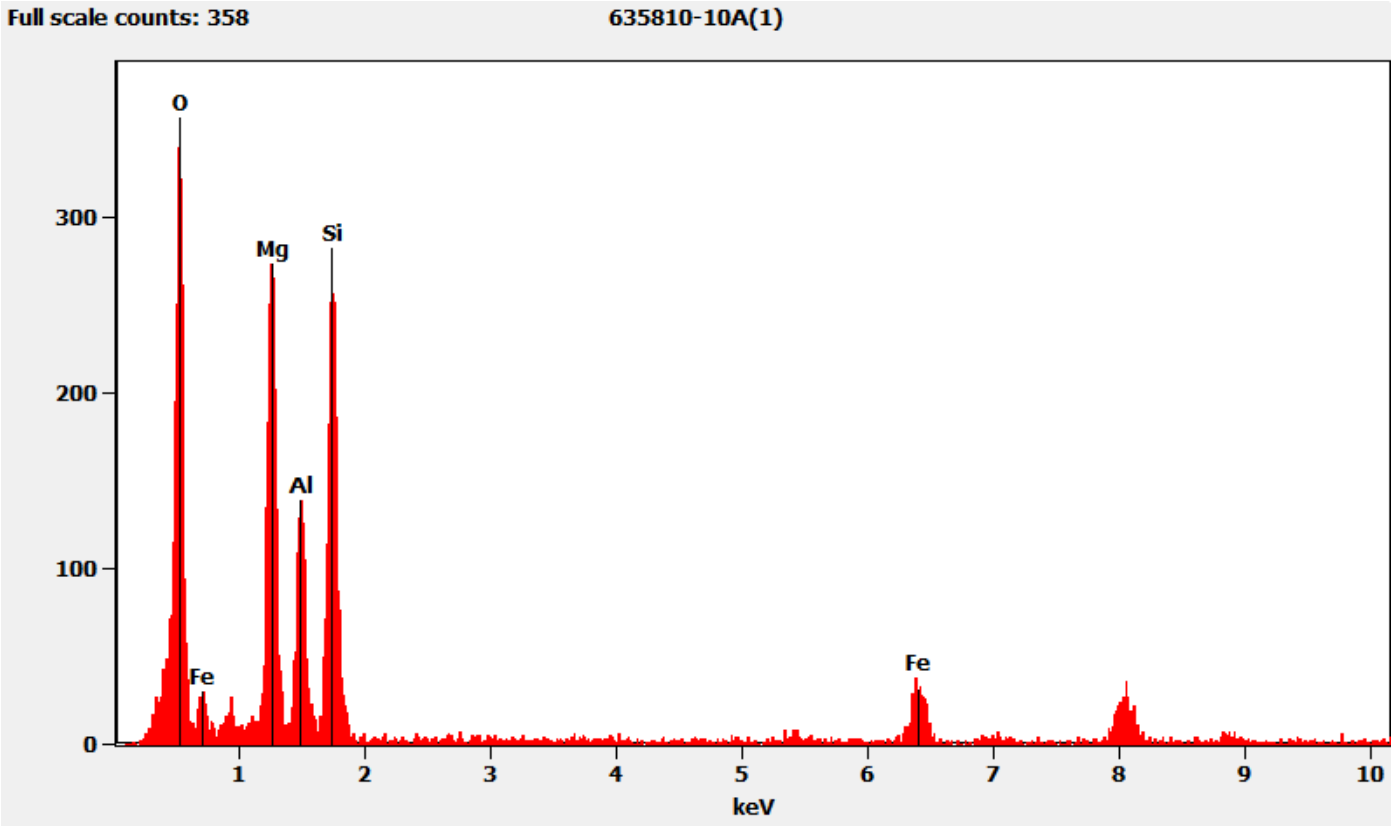


635810-10A, Particle Containing Magnesium, Aluminum, Silicon, and Iron

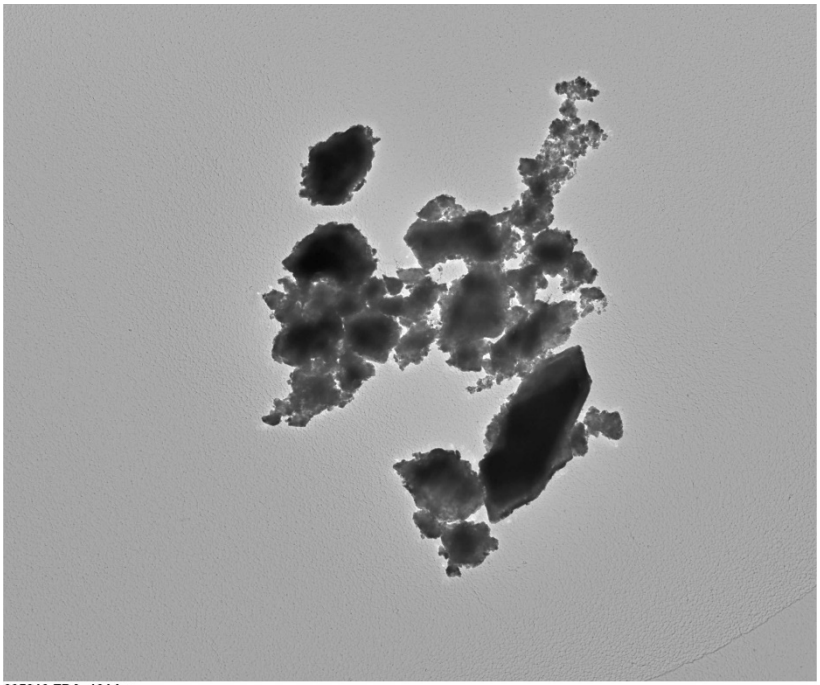


*Diffraction Pattern from the Particle C*ontaining Magnesium, Aluminum, Silicon, and Iron *Pictured Above*

Chemistry from the Particle Containing Magnesium, Aluminum, Silicon, and Iron Pictured Above



635810-10A, Calcium Particles

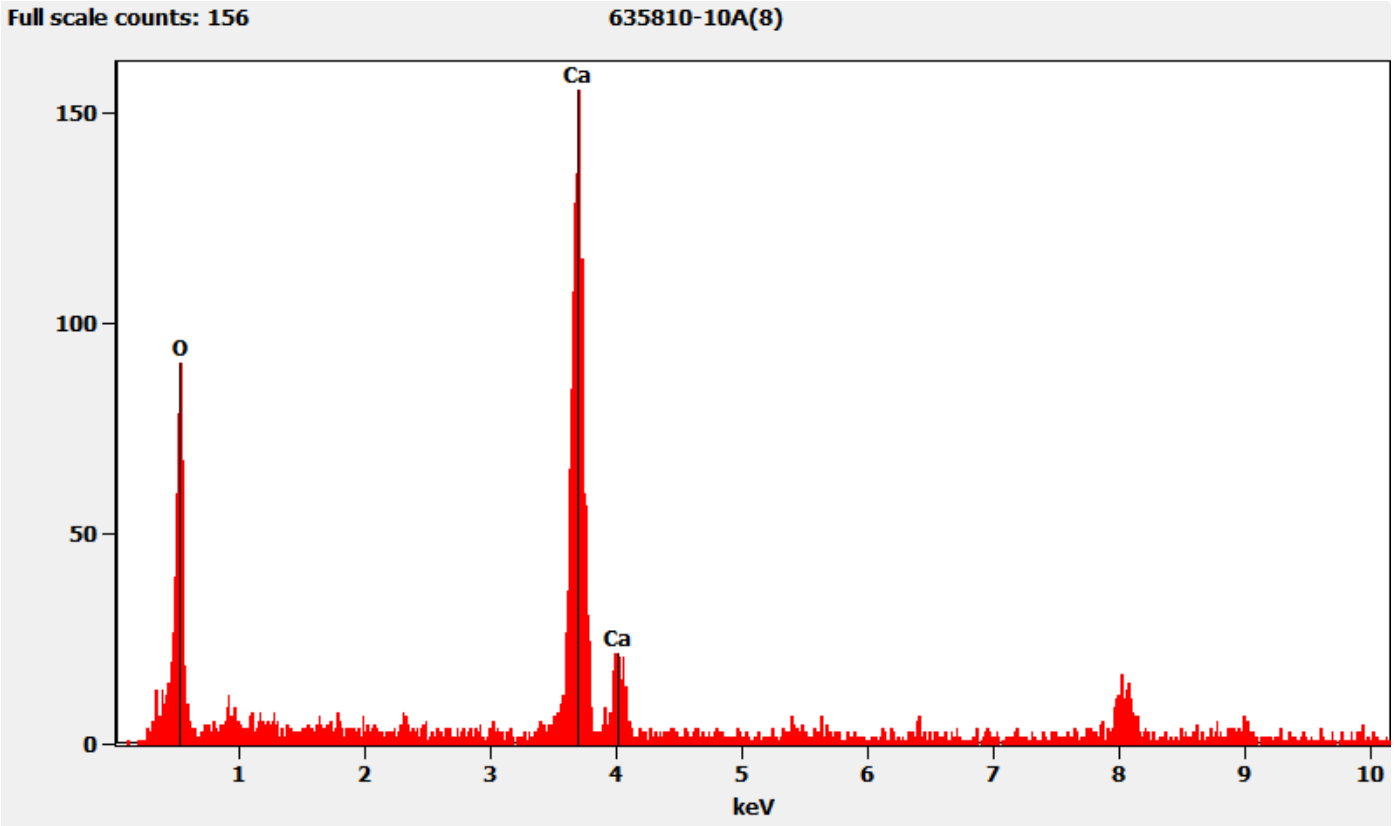


Diffraction Pattern from the Calcium Particles Pictured Above

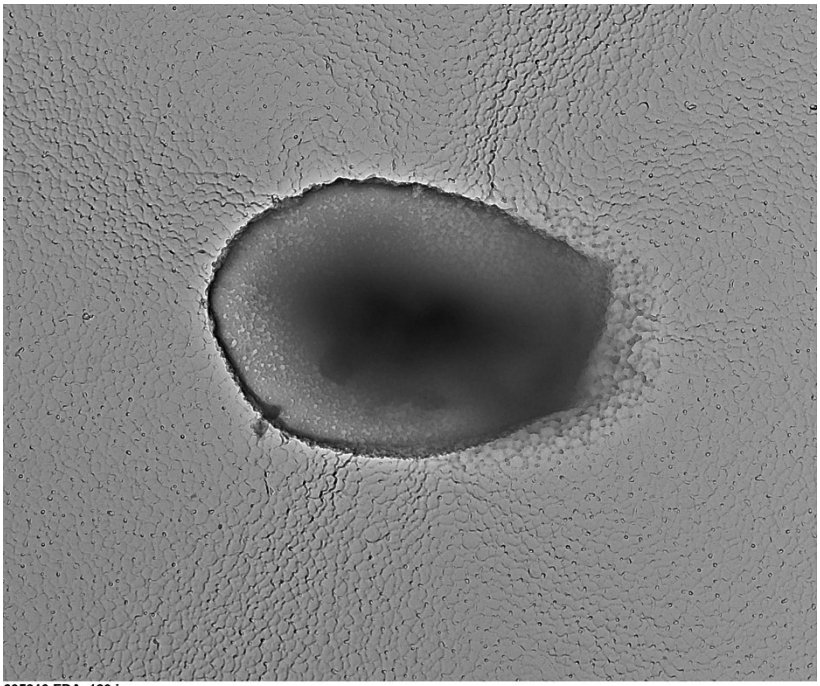
635810 FDA_100.jpg
635810-10A
Ca particle
12:12 5/25/2022
Microscopist (b) (6)
Camera: NAN 5, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

100 (1/Å)
HV=100kV
Cam Len: 0.2200 m
AMA Analytical Services, Inc

Chemistry from the Calcium Particles Pictured Above



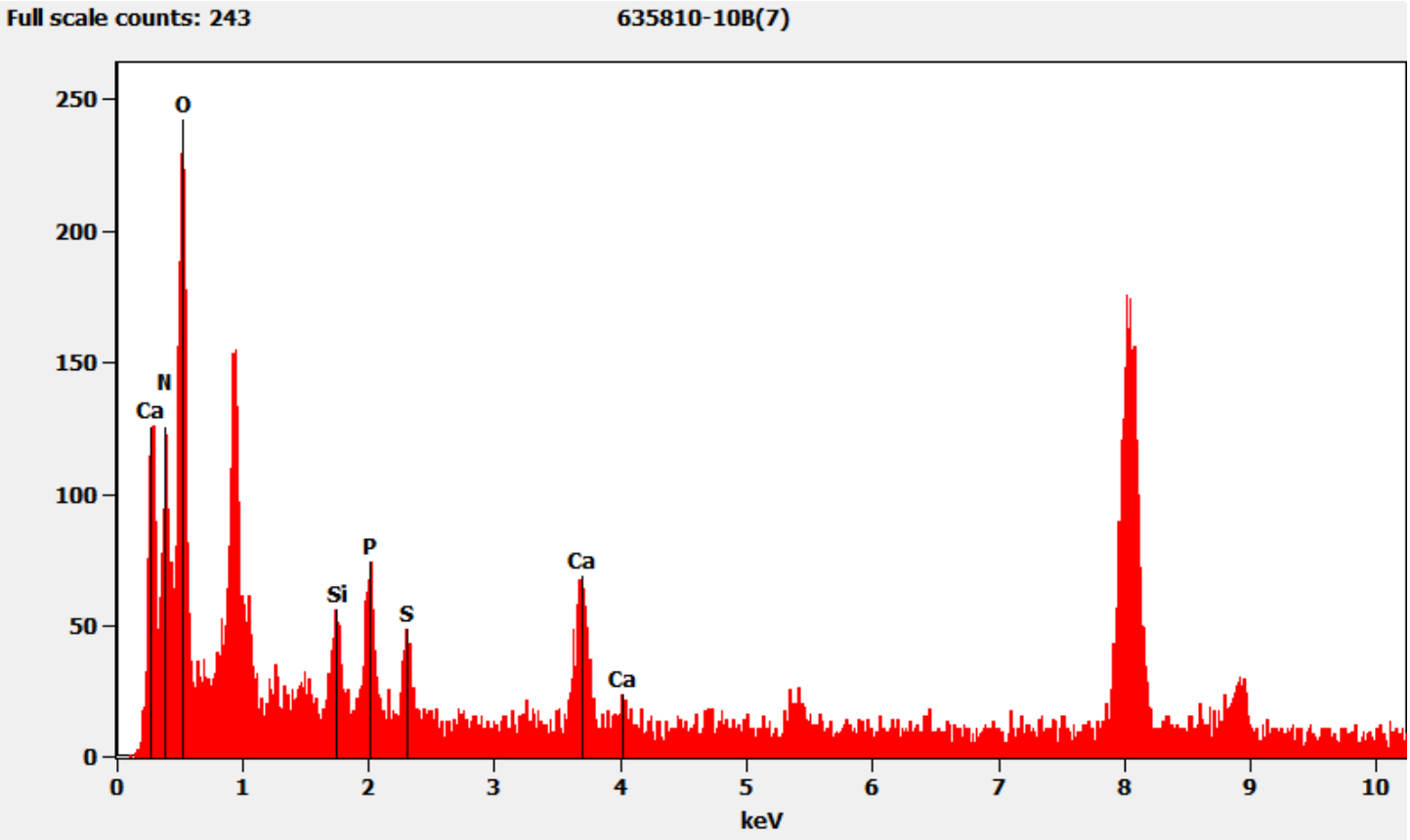
635810-10B, Particle Containing Nitrogen, Oxygen, Silicon, Phosphorus, Sulfur, and Calcium



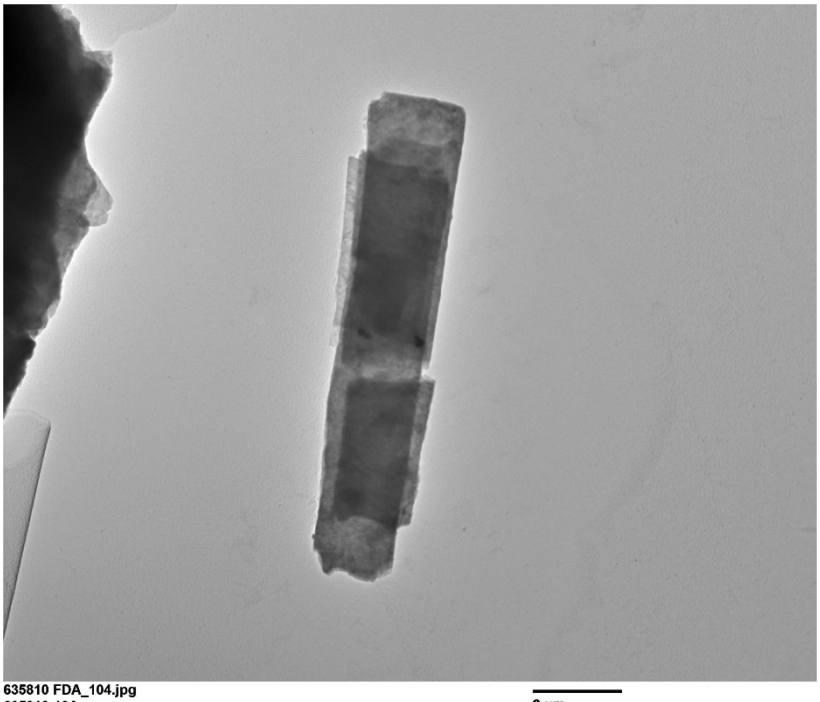
635810 FDA_120.jpg
635810-10B
P, Ca, S, Si particle
Cal: 0.001775 µm/pix
11:32 5/31/2022
Microscopist: Andreas Saldivar
Camera: NANOSPRT5, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

500 nm
HV=100kV
Direct Mag: 5800 x
AMA Analytical Services, Inc

Chemistry from the Particle Containing Nitrogen, Oxygen, Silicon, Phosphorus, Sulfur, and Calcium *Pictured Above*



635810-10A, Elongated Talc Particle



635810 FDA_104.jpg
635810-10A
Talc Fiber
Cal: 0.007355 µm/pix
12:55 5/25/2022
Microscopist (b) (6)
Camera: NA[illegible]T5, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

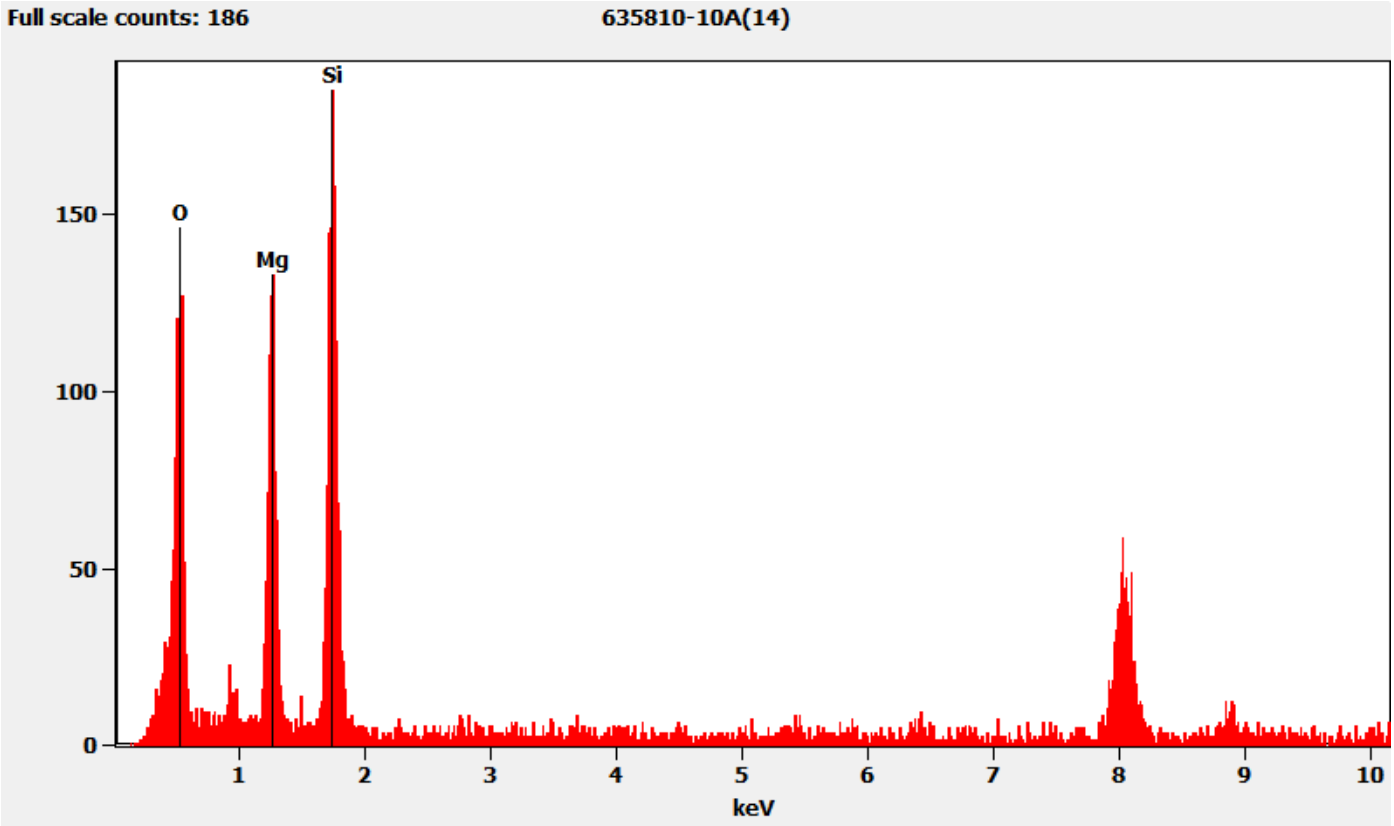
2 µm
HV=100kV
Direct Mag: 1400 x
AMA Analytical Services, Inc

Hexagonal Diffraction Pattern from the Elongated Talc Particle Pictured Above

635810 FDA_103.jpg
635810-10A
Talc Fiber
12:54 5/25/2022
Microscopist (b) (6)
Camera: NA[illegible]5, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

100 (1/Å)
HV=100kV
Cam Len: 0.2200 m
AMA Analytical Services, Inc

Chemistry from the Elongated Talc Particle Pictured Above



635810-11A, 11B, 11C/Client Sample: 03302022-11

PLM

All three aliquots of sample 03302022-11 were analyzed by (b) (6) on June 2, 2022. No asbestos or non-asbestos amphibole variants were observed during analysis. The results were calculated using the equations detailed in the *Calculations* section above.

635810-11A	No Asbestos Detected
635810-11B	No Asbestos Detected
635810-11C	No Asbestos Detected

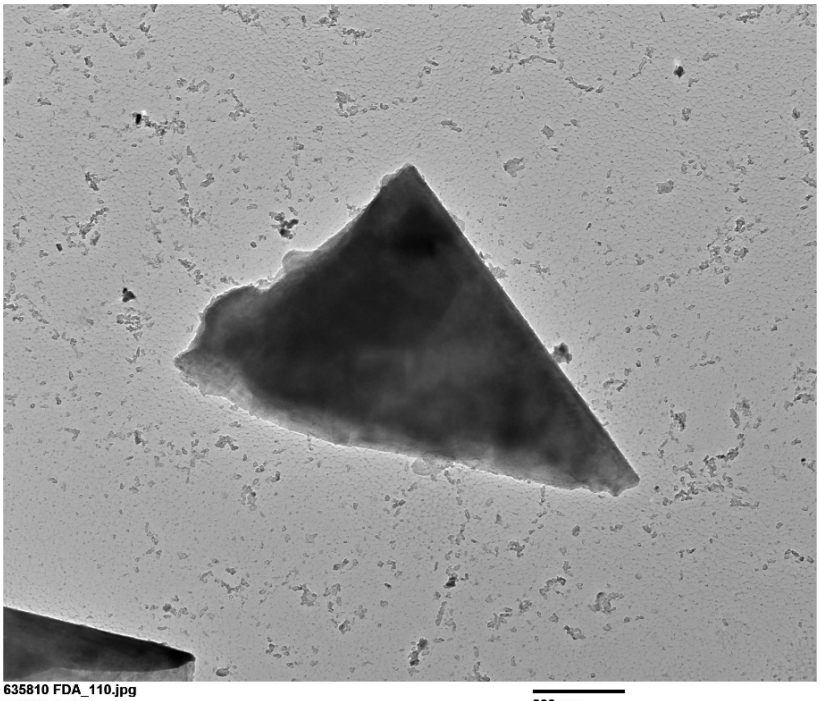
TEM

(b) (6) analyzed aliquot 11A on May 25, 2022, and aliquots 11B and 11C on May 26, 2022. The primary particles observed were talc, mica, and iron; silicon particles were also observed along with particles containing sodium, aluminum, and silicon, titanium particles, talc ribbons, and elongated talc particles. No asbestos or non-asbestos amphibole variants were observed during analysis. The results were calculated using the equations detailed in the *Calculations* section above.

635810-11A	No Asbestos Detected
635810-11B	No Asbestos Detected
635810-11C	No Asbestos Detected

Below are pictures, diffraction patterns, and chemistry from some of the observed particles. The copper peaks in the chemistry spectra are from the TEM grid. The unidentified (and some identified) peaks in the chemistry spectra are zinc and carbon from the TEM specimen holder

635810-11A, Talc Particle

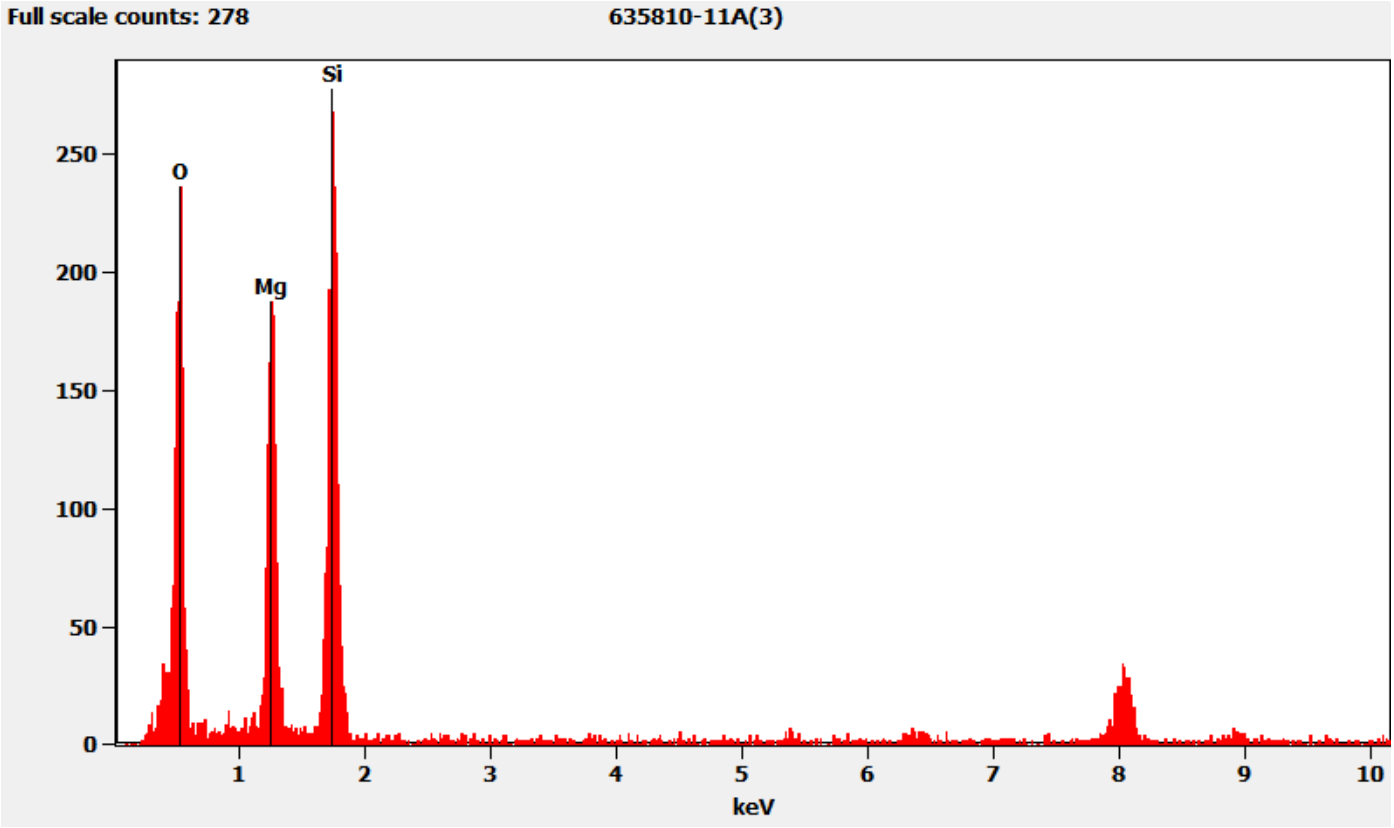


Hexagonal Diffraction Pattern from the Talc Particle Pictured Above

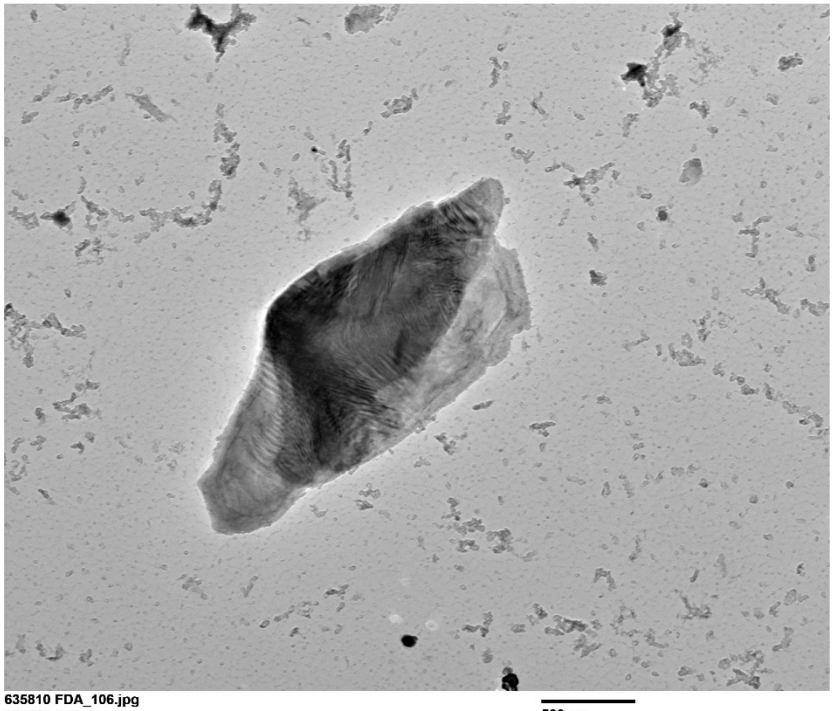
635810 FDA_109.jpg
635810-11A
Talc Particle
14:39 5/25/2022
Microscopist (b) (6)
Camera: NANOSPRT5, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

100 (1/Å)
HV=100kV
Cam Len: 0.2200 m
AMA Analytical Services, Inc

Chemistry from the Talc Particle Pictured Above



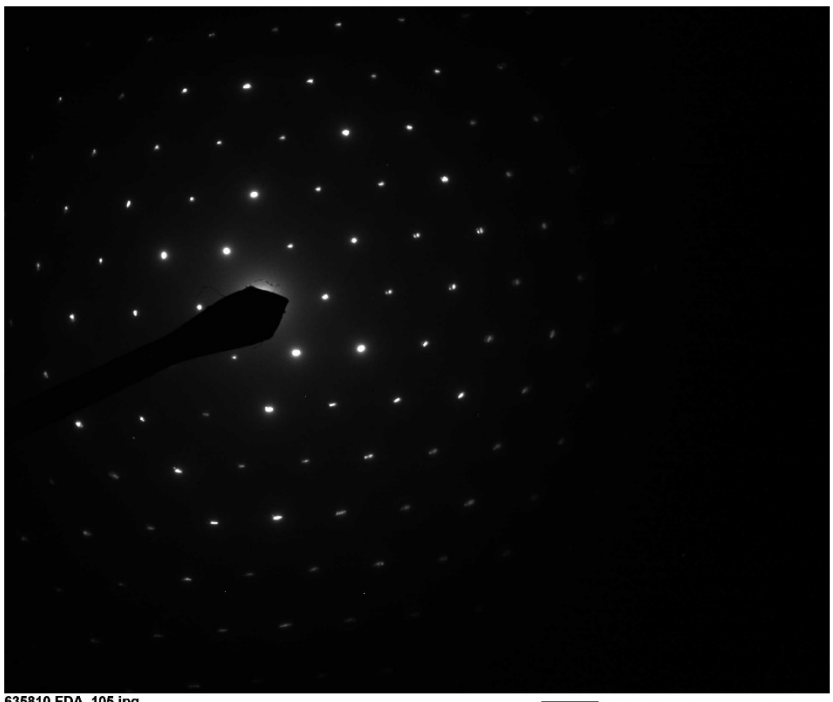
635810-11A, Mica Particle



635810 FDA_106.jpg
635810-11A
Mica Particle
Cal: 0.001775 µm/pix
14:36 5/25/2022
Microscopist: (b) (6)
Camera: NANOSPR15, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

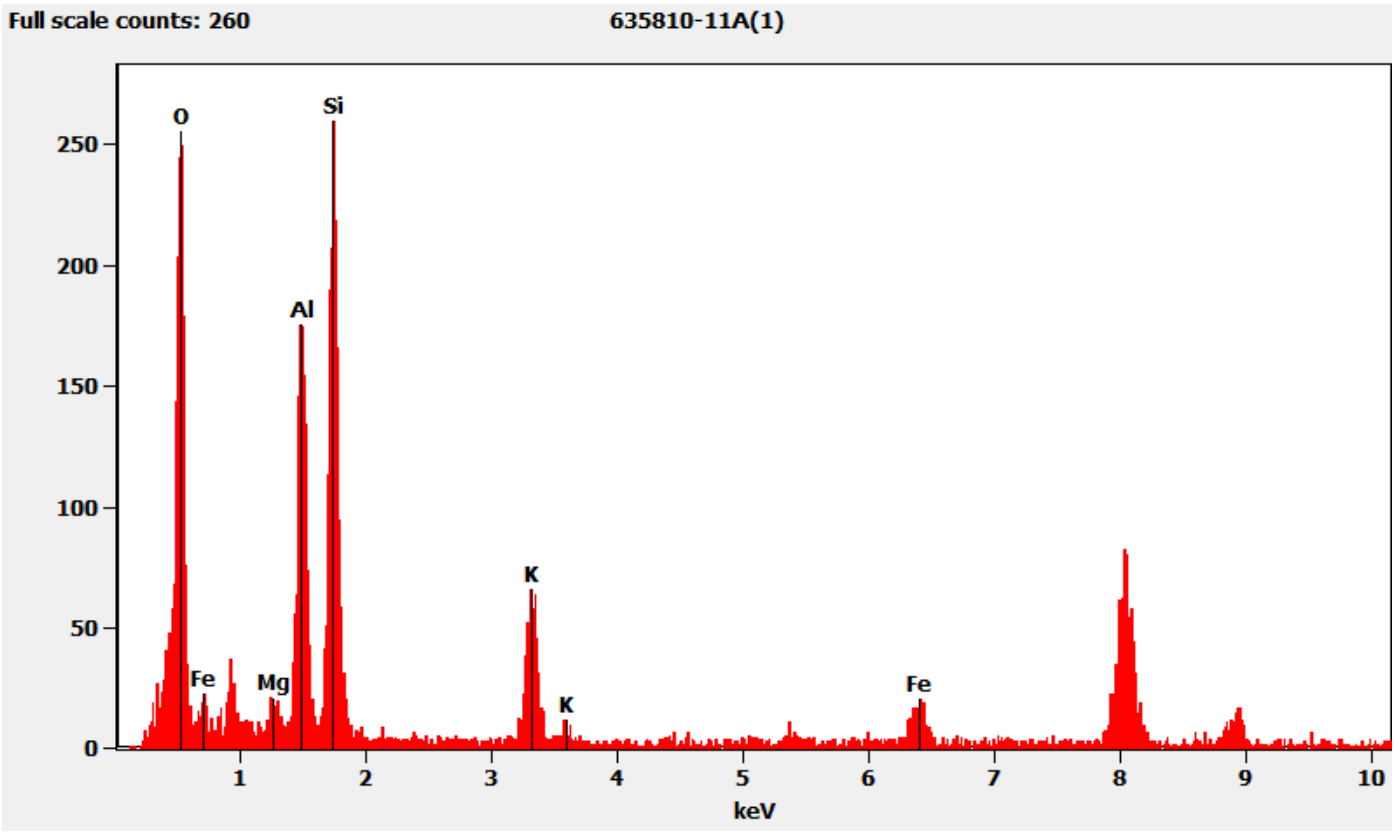
500 nm
HV=100kV
Direct Mag: 5800 x
AMA Analytical Services, Inc

Hexagonal Diffraction Pattern from the Mica Particle Pictured Above

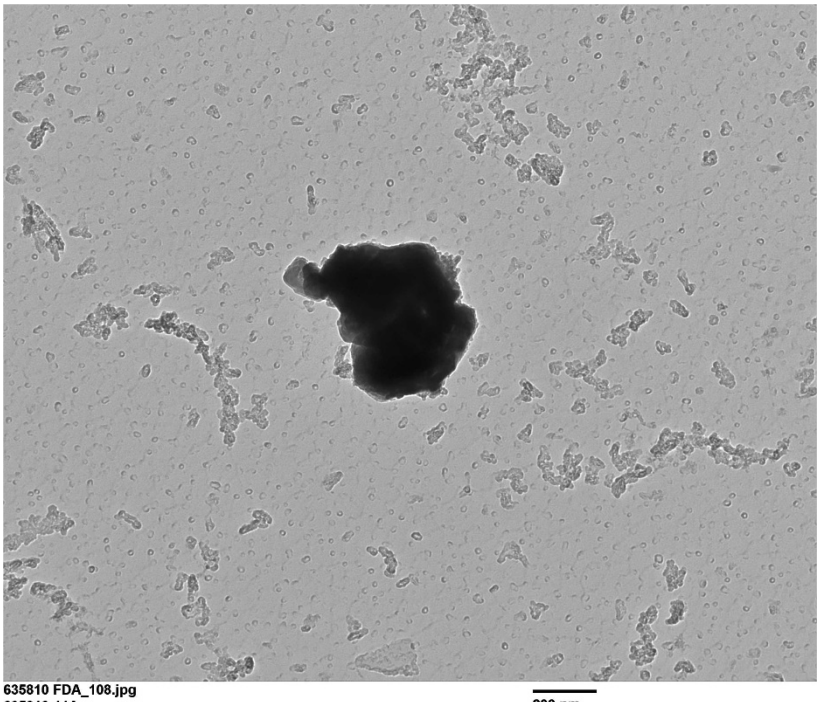


(b) (6)

Chemistry from the Mica Particle Pictured Above



635810-11A, Iron Particle



635810 FDA_108.jpg
635810-11A
Fe Particle
Cal: 0.001030 µm/pix
14:37 5/25/2022
Microscopist: (b) (6)
Camera: NANOSPRT5, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

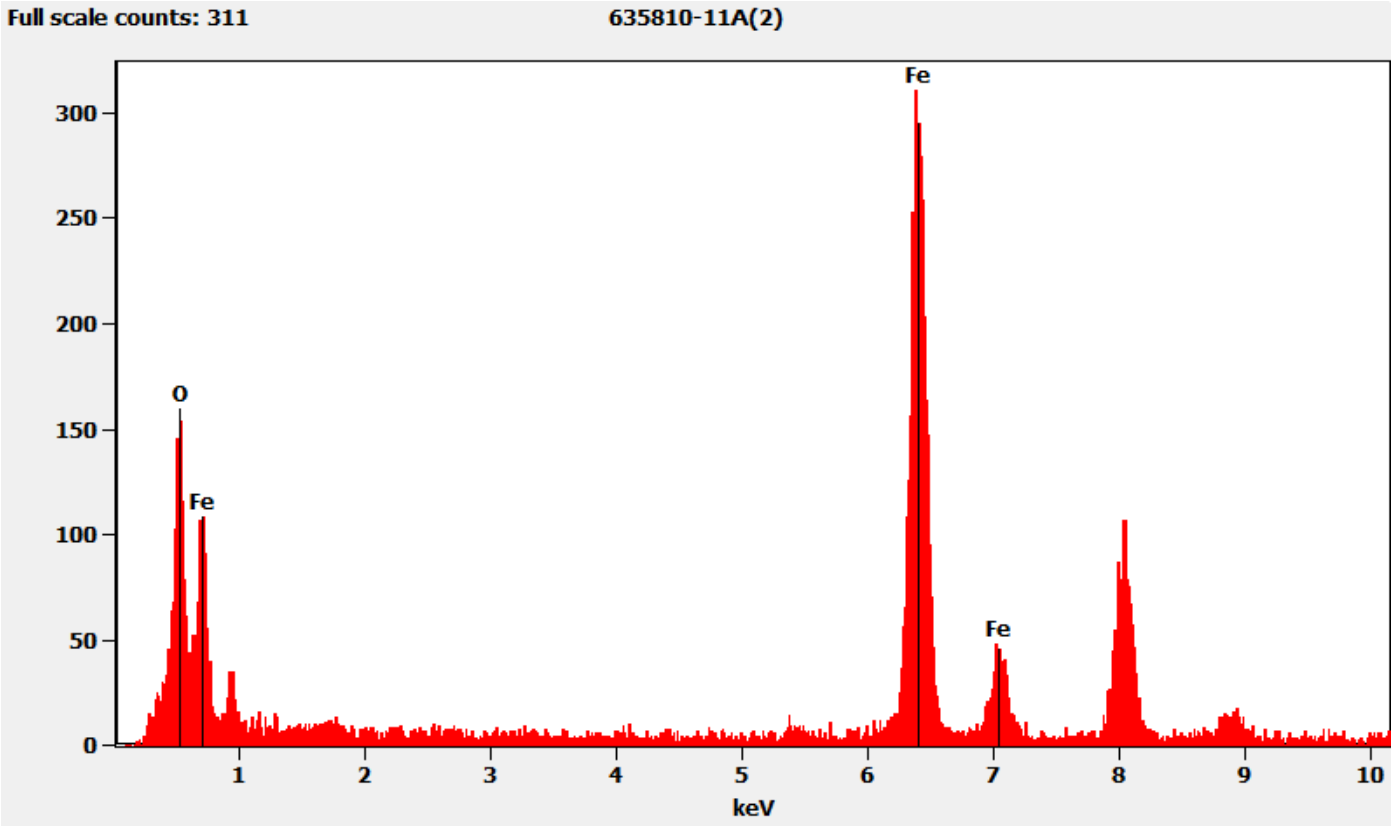
200 nm
HV=100kV
Direct Mag: 10000 x
AMA Analytical Services, Inc

Diffraction Pattern from the Iron Particle Pictured Above

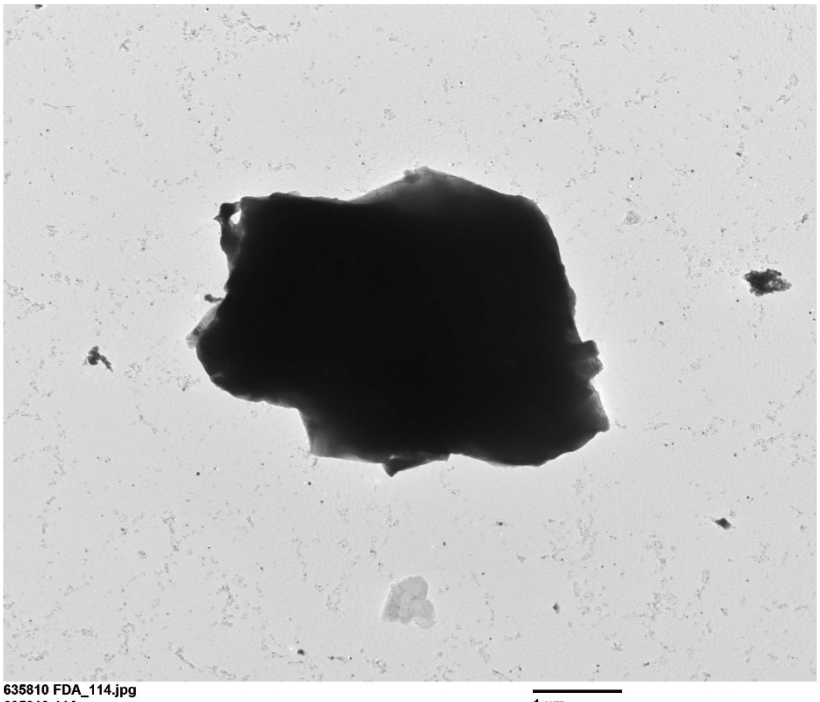
635810 FDA_107.jpg
635810-11A
Fe Particle
14:36 5/25/2022
Microscopist: (b) (6)
Camera: NANOSPRT5, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

100 (1/Å)
HV=100kV
Cam Len: 0.2200 m
AMA Analytical Services, Inc

Chemistry from the Iron Particle Pictured Above



635810-11A, Silicon Particle



635810 FDA_114.jpg
635810-11A
Silica particle
Cal: 0.003702 µm/pix
16:51 5/25/2022
Microscopist (b) (6)
Camera: NAN[redacted]T5, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

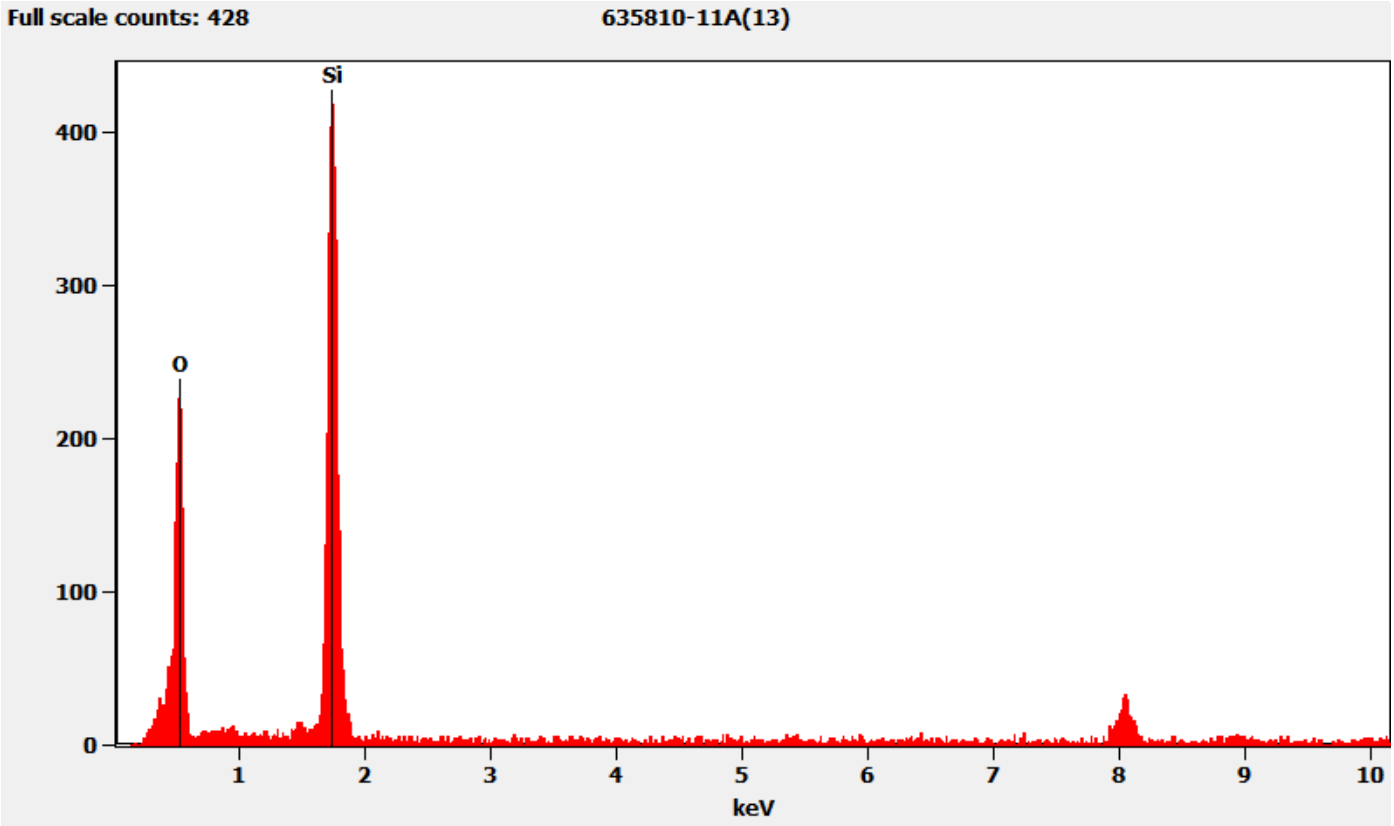
1 µm
HV=100kV
Direct Mag: 2900 x
AMA Analytical Services, Inc

Diffraction Pattern from the Silicon Particle Pictured Above

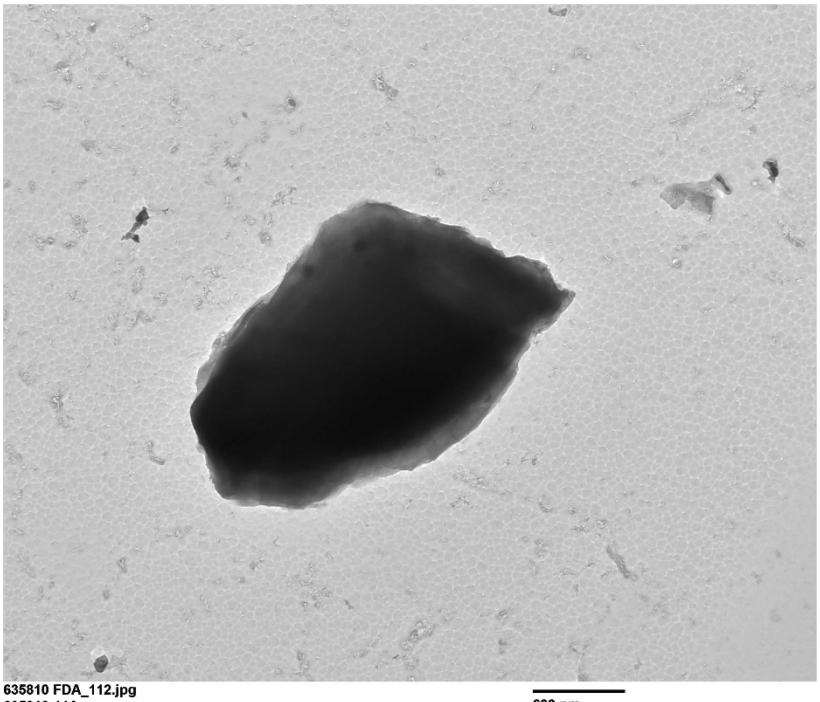
635810 FDA_113.jpg
635810-11A
Silica particle
16:50 5/25/2022
Microscopist (b) (6)
Camera: NAN[redacted]5, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

100 (1/Å)
HV=100kV
Cam Len: 0.2200 m
AMA Analytical Services, Inc

Chemistry from the Silicon Particle Pictured Above



*635810-11A, Particle Containing S*odium, Aluminum, and Silicon



635810 FDA_112.jpg
635810-11A
Na,Al,Si Particle
Cal: 0.002145 µm/pix
14:45 5/25/2022
Microscopist: (b) (6)
Camera: NANOSPRT5, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

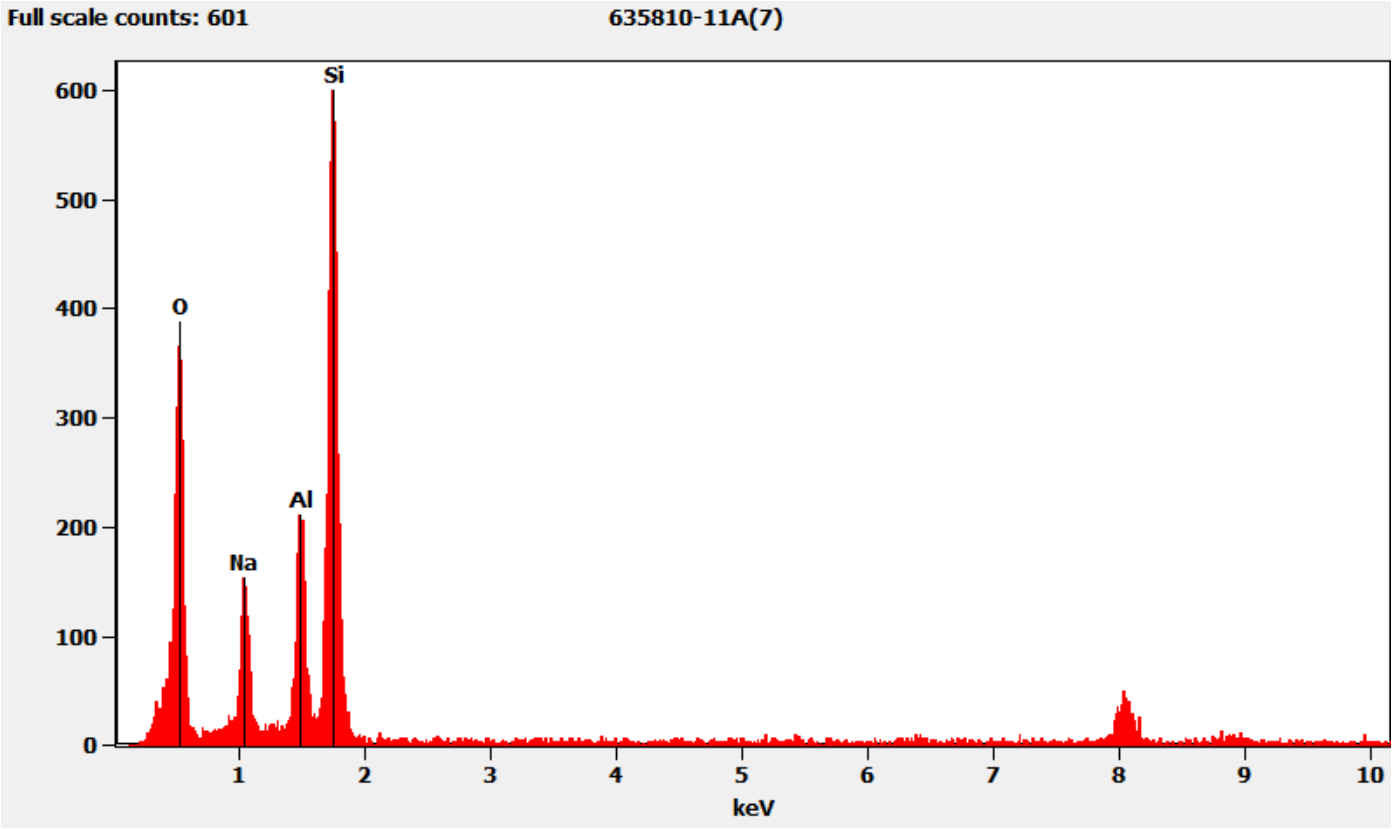
600 nm
HV=100kV
Direct Mag: 4800 x
AMA Analytical Services, Inc

*Diffraction Pattern from the Particle Containing S*odium, Aluminum, and Silicon *Pictured Above*

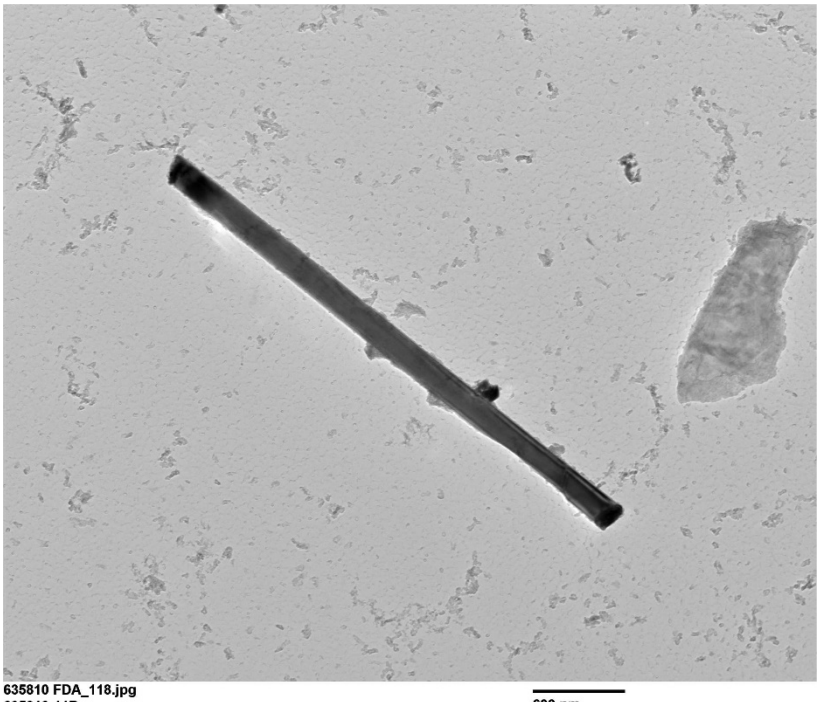
635810 FDA_111.jpg
635810-11A
Na,Al,Si Particle
14:44 5/25/2022
Microscopist: (b) (6)
Camera: NANOSPRT5, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

100 (1/Å)
HV=100kV
Cam Len: 0.2200 m
AMA Analytical Services, Inc

*Chemistry from the Particle Containing S*odium, Aluminum, and Silicon *Pictured Above*



635810-11B, Elongated Titanium Particle



635810 FDA_118.jpg
635810-11B
Ti Fiber
Cal: 0.002145 µm/pix
15:42 5/26/2022
Microscopist: (b) (6)
Camera: NANOSPRT5, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

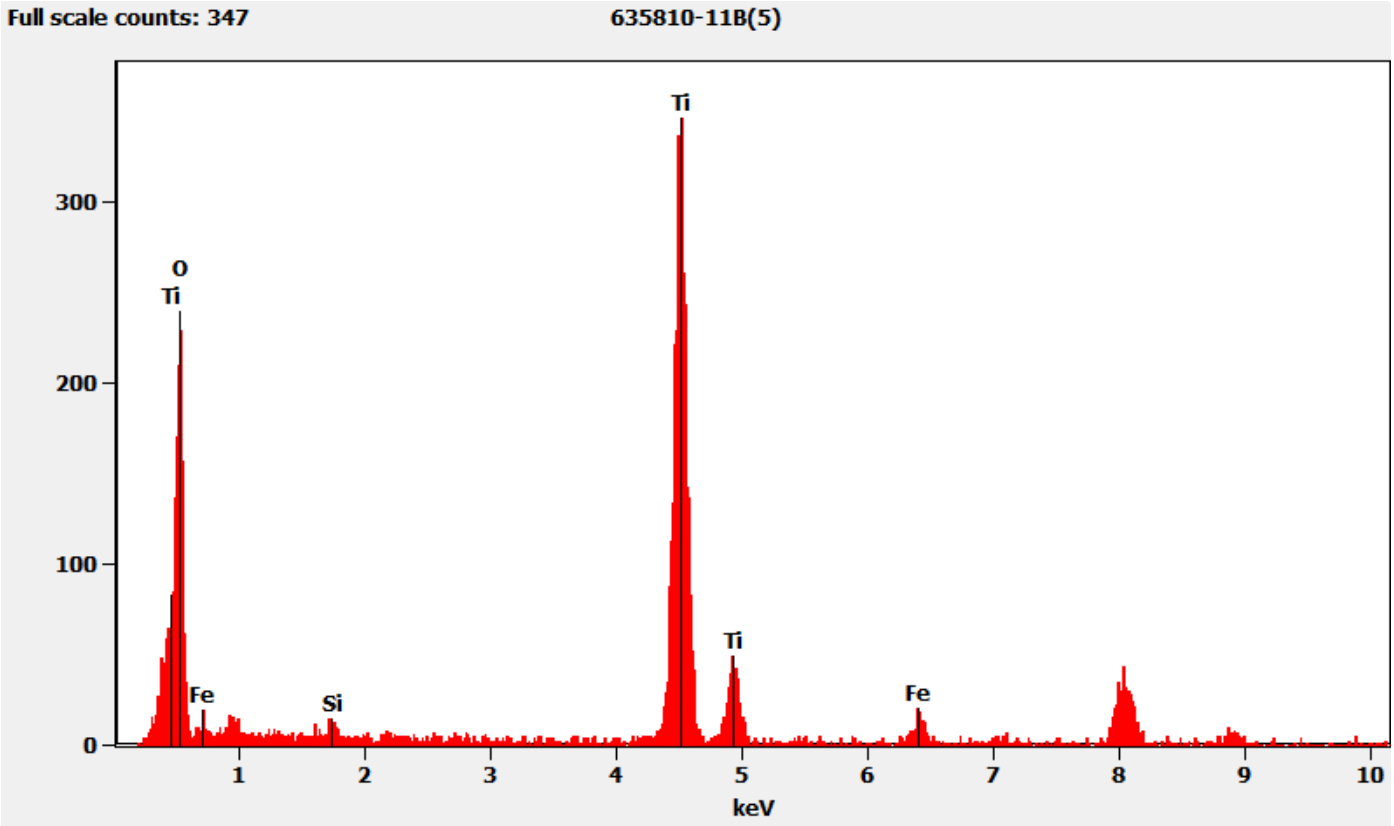
600 nm
HV=100kV
Direct Mag: 4800 x
AMA Analytical Services, Inc

Diffraction Pattern from the Elongated Titanium Particle Pictured Above

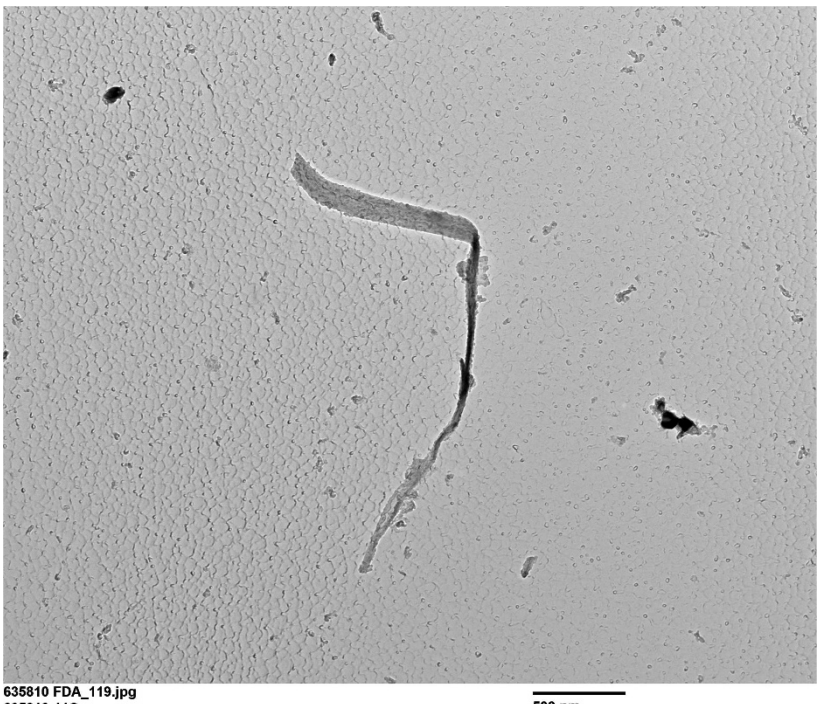
635810 FDA_117.jpg
635810-11B
Ti Fiber
15:40 5/26/2022
Microscopist: (b) (6)
Camera: NANOSPRT5, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

100 (1/Å)
HV=100kV
Cam Len: 0.2200 m
AMA Analytical Services, Inc

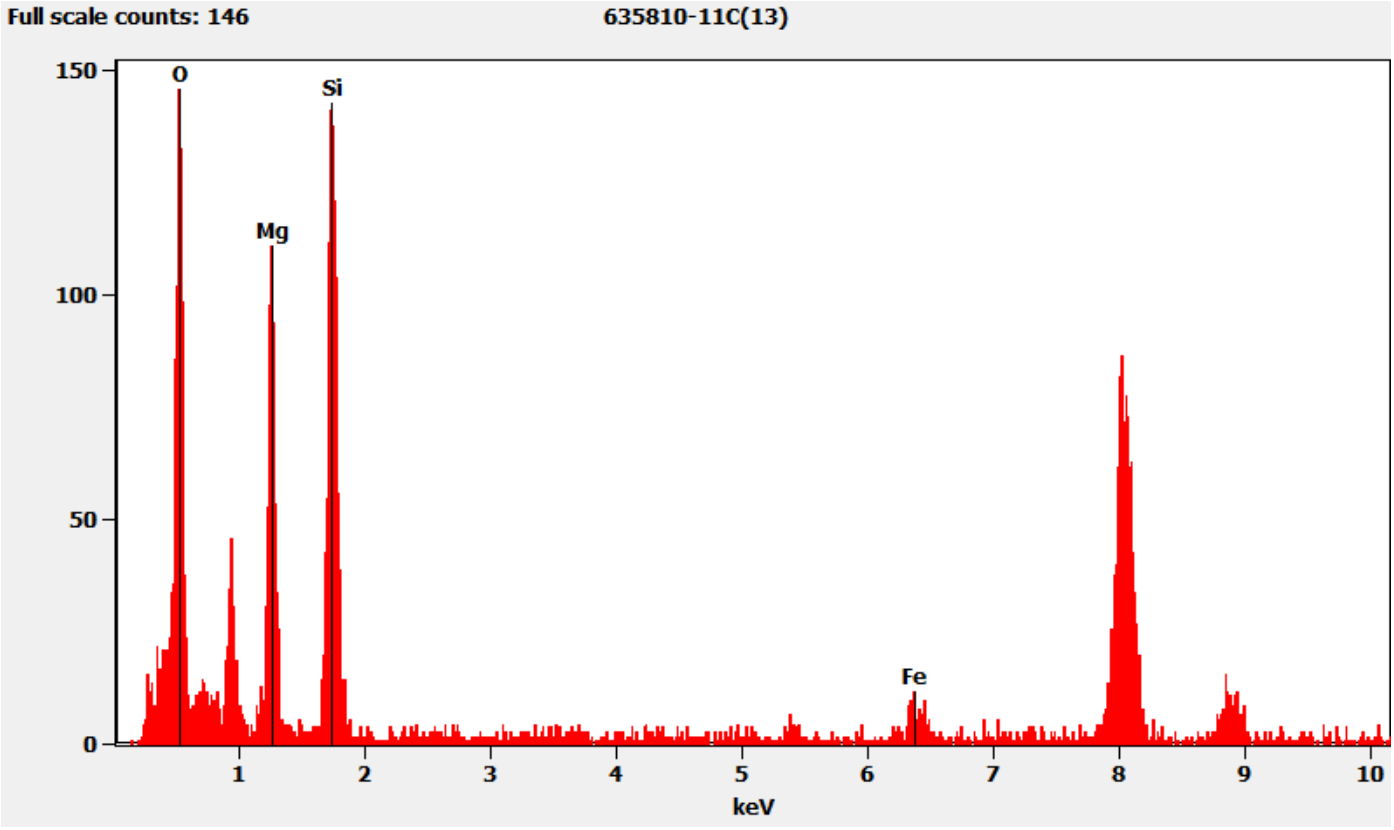
Chemistry from the Elongated Titanium Particle Pictured Above



635810-11C, Talc Ribbon



Chemistry from the Talc Ribbon Pictured Above



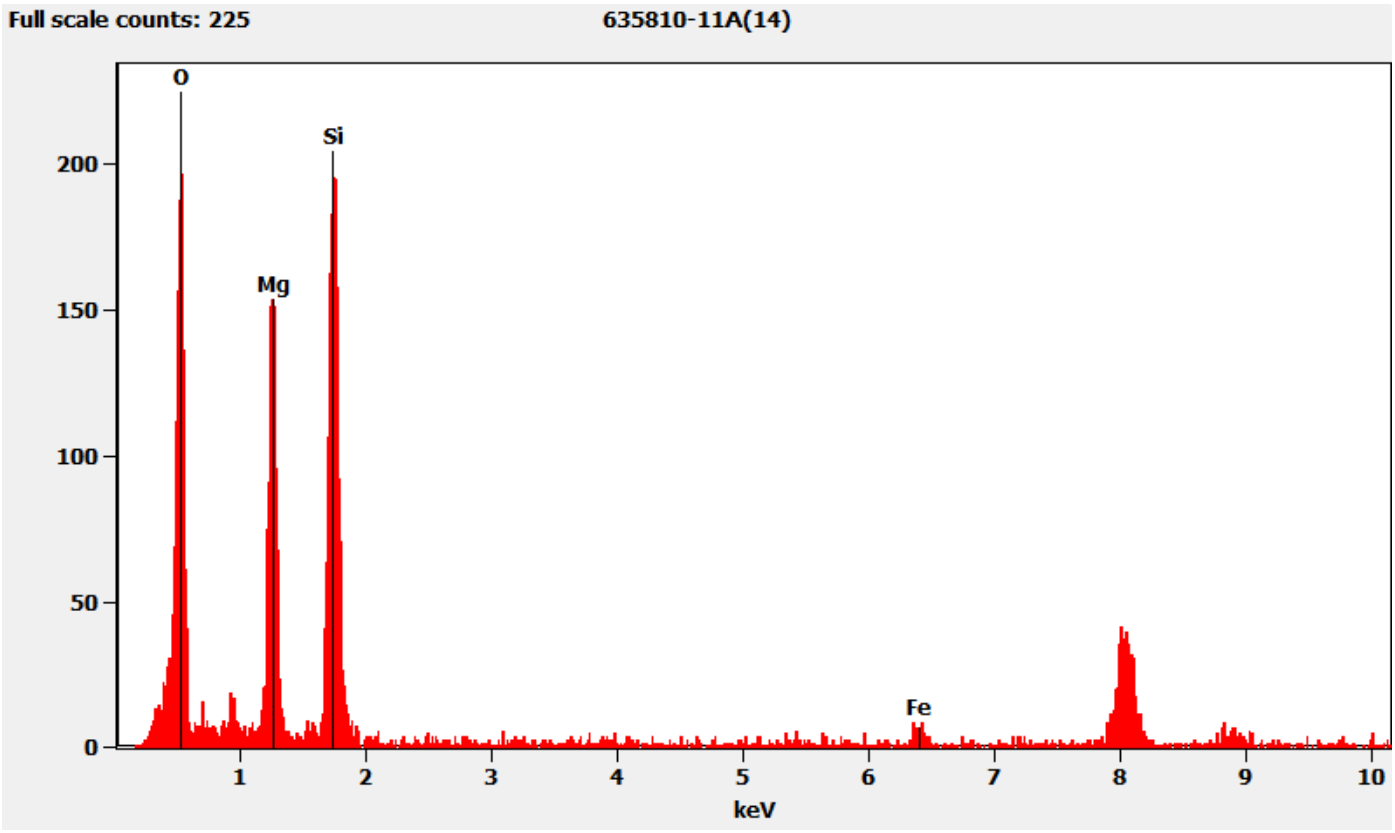
635810-11A, Elongated Talc Particle

Hexagonal Diffraction Pattern from the Elongated Talc Particle Pictured Above

635810 FDA_115.jpg
635810-11A
Talc Fiber
16:58 5/25/2022
Microscopist (b) (6)
Camera: NANO[illegible], Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

100 (1/Å)
HV=100kV
Cam Len: 0.2200 m
AMA Analytical Services, Inc

Chemistry from the Elongated Talc Particle Pictured Above



635810-12A, 12B, 12C/03302022-12.1, 12.3, 12.5 (PLM) & 12.2, 12.4, 12.6 (TEM)

PLM

Aliquots 03302022-12.1, 12.3, and 12.3 were analyzed by (b) (6) on June 2, 2022. No asbestos or non-asbestos amphibole variants were observed during analysis. The results were calculated using the equations detailed in the *Calculations* section above.

635810-12A	No Asbestos Detected
635810-12B	No Asbestos Detected
635810-12C	No Asbestos Detected

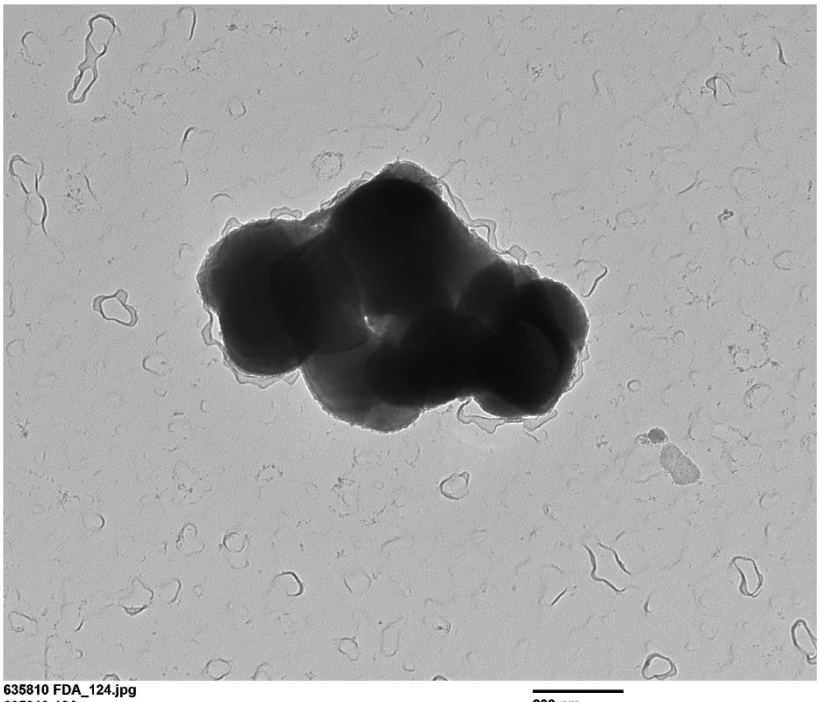
TEM

(b) (6) analyzed aliquot 12A (12.2) on May 31, 2022. Andreas Saldivar analyzed aliquots 12B (12.4) and 12C (12.6) on May 31, 2022. The primary particles observed were titanium and particles containing silicon and iron; talc particles were also observed along with particles containing sodium, aluminum, and silicon. No asbestos or non-asbestos amphibole variants were observed during analysis. The results were calculated using the equations detailed in the *Calculations* section above.

635810-12A	No Asbestos Detected
635810-12B	No Asbestos Detected
635810-12C	No Asbestos Detected

Below are pictures, diffraction patterns, and chemistry from some of the observed particles. The copper peaks in the chemistry spectra are from the TEM grid. The unidentified (and some identified) peaks in the chemistry spectra are zinc and carbon from the TEM specimen holder

635810-12A, Titanium Particle



635810 FDA_124.jpg
635810-12A
Ti particle
Cal: 0.726816 nm/pix
13:54 5/31/2022
Microscopist: (b) (6)
Camera: NANOSPRT5, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

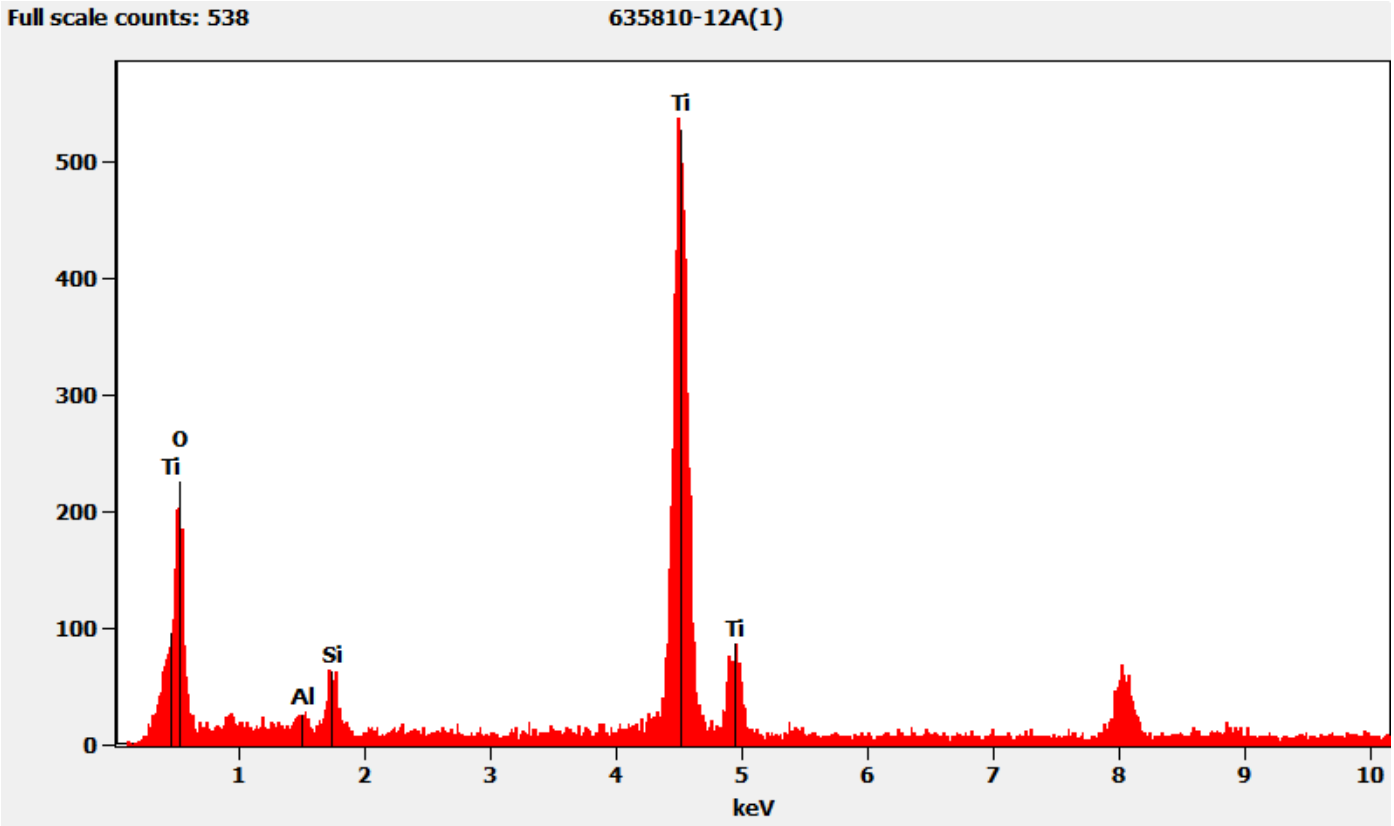
200 nm
HV=100kV
Direct Mag: 14000 x
AMA Analytical Services, Inc

Diffraction Pattern from the Titanium Particle Pictured Above

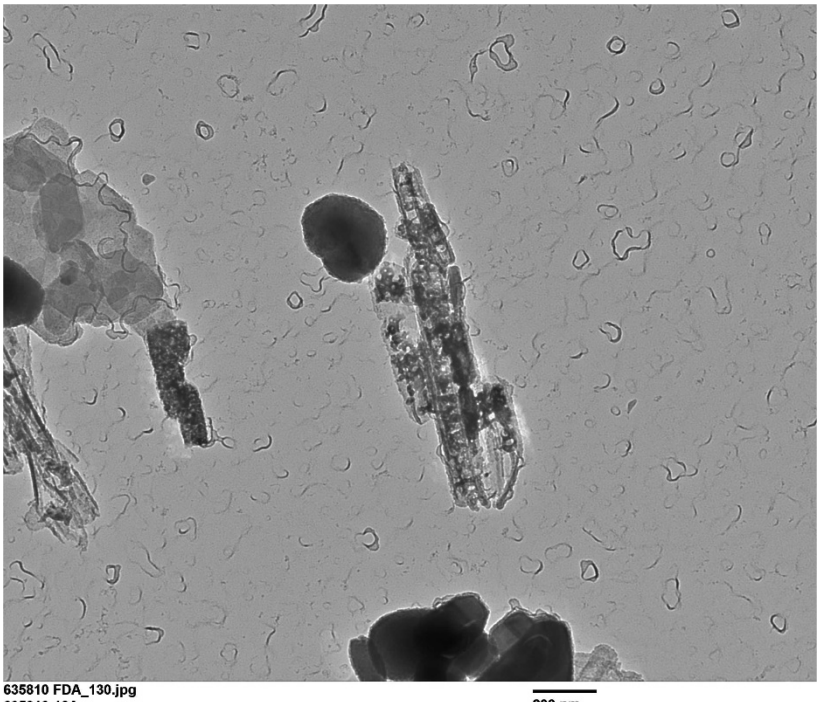
635810 FDA_123.jpg
635810-12A
Ti particle
13:53 5/31/2022
Microscopist: (b) (6)
Camera: NANOSPRT5, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

100 (1/Å)
HV=100kV
Cam Len: 0.2200 m
AMA Analytical Services, Inc

Chemistry from the Titanium Particle Pictured Above



635810-12A, Particle Containing Silicon and Iron



635810 FDA_130.jpg
635810-12A
Si, Fe Particle
Cal: 0.001030 µm/pix
14:07 5/31/2022
Microscopist: (b) (6)
Camera: NANOSPRTS, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

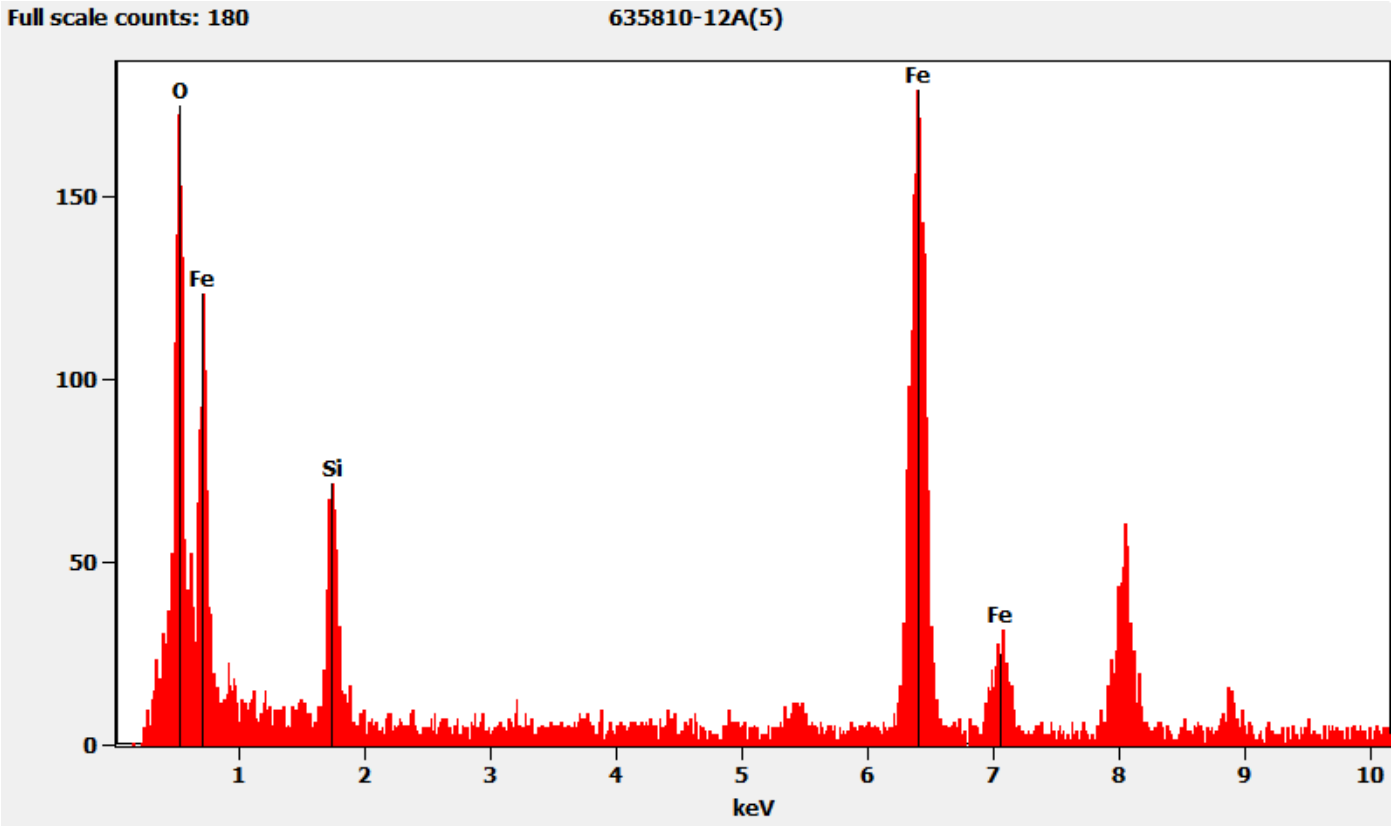
200 nm
HV=100kV
Direct Mag: 10000 x
AMA Analytical Services, Inc

Diffraction Pattern from the Particle Containing Silicon and Iron Pictured Above

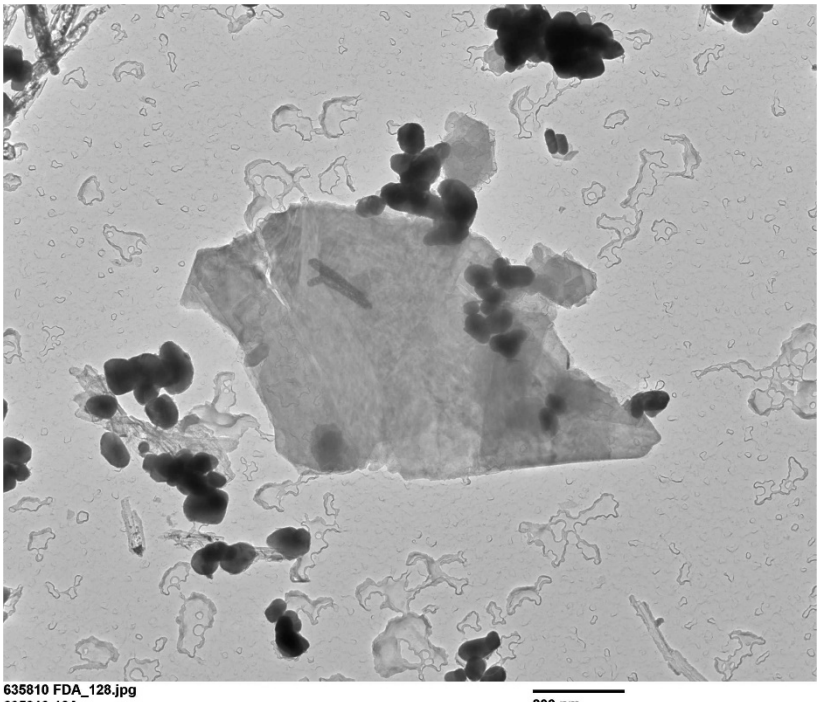
635810 FDA_129.jpg
635810-12A
Si, Fe Particle
14:06 5/31/2022
Microscopist: (b) (6)
Camera: NANOSPRTS, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

100 (1/Å)
HV=100kV
Cam Len: 0.2200 m
AMA Analytical Services, Inc

Chemistry from the Particle Containing Silicon and Iron Pictured Above



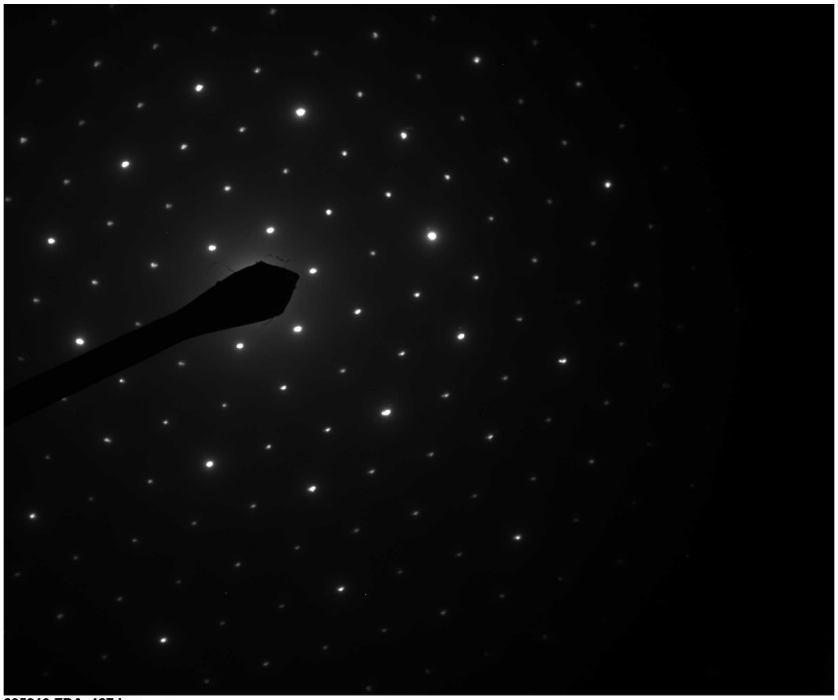
635810-12A, Talc Particle



635810 FDA_128.jpg
635810-12A
Talc Particle
Cal: 0.002860 µm/pix
14:05 5/31/2022
Microscopist: (b) (6)
Camera: NANOSPRT5, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

800 nm
HV=100kV
Direct Mag: 3600 x
AMA Analytical Services, Inc

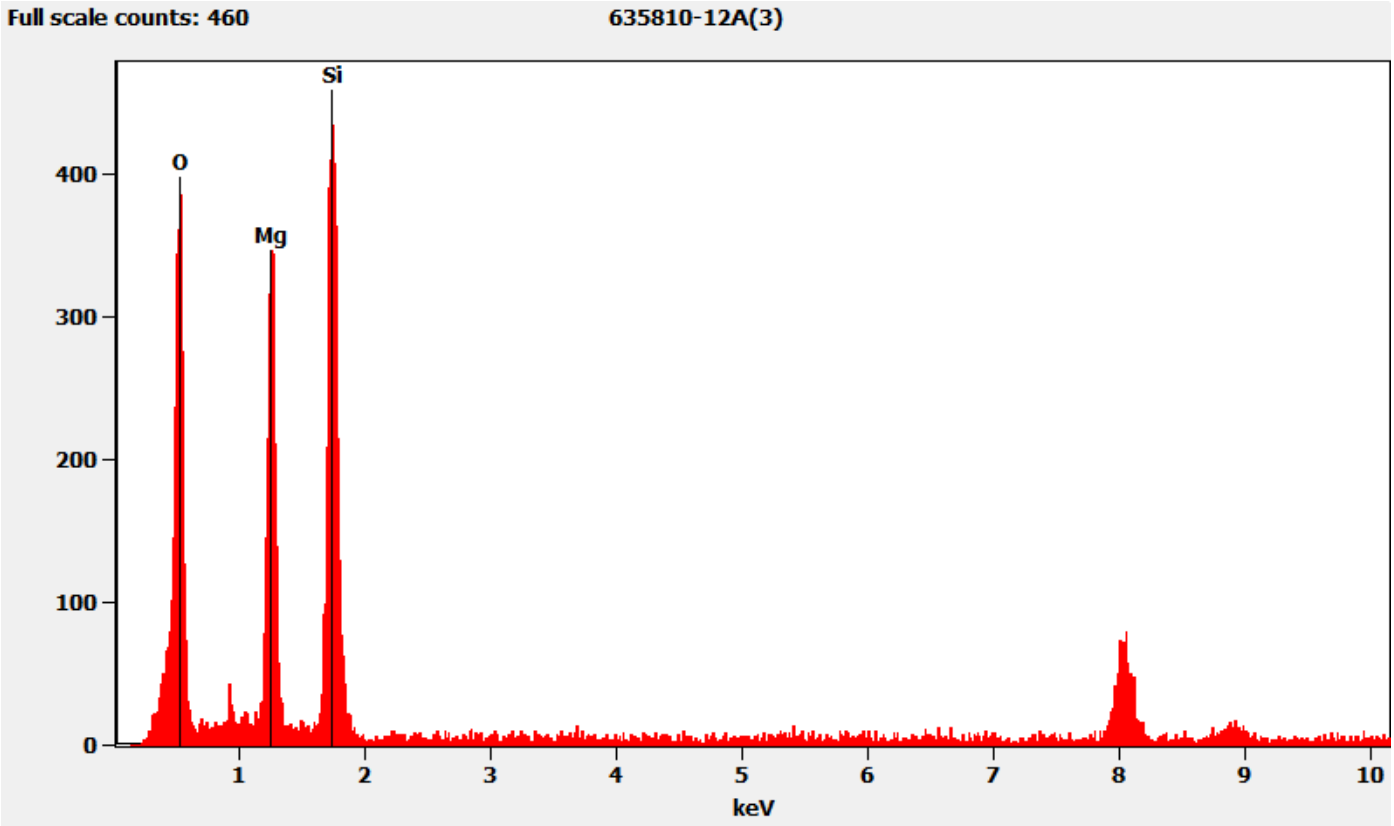
Hexagonal Diffraction Pattern from the Talc Particle Pictured Above



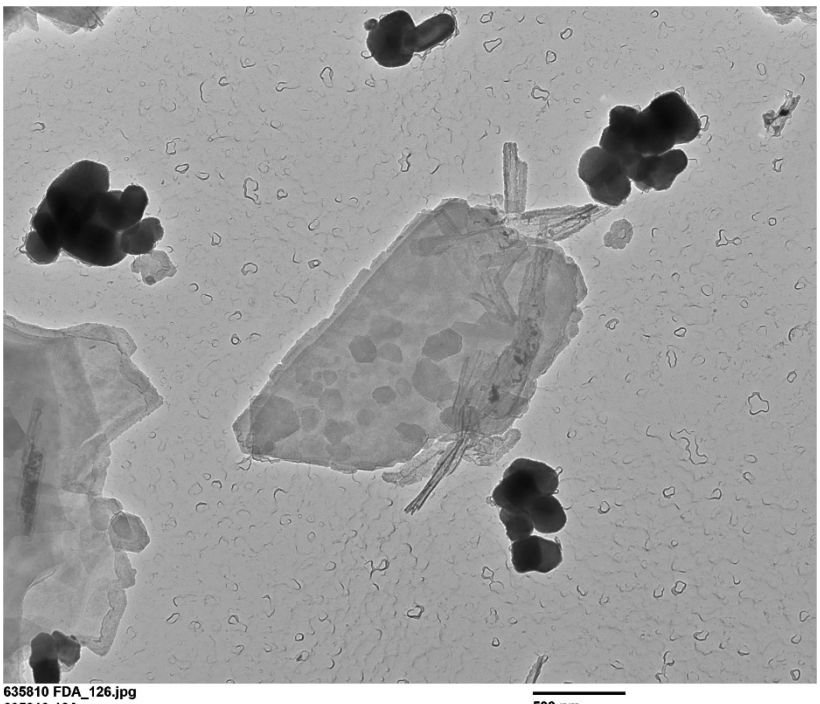
635810 FDA_127.jpg
635810-12A
Talc Particle
14:01 5/31/2022
Microscopist: (b) (6)
Camera: NANOSPRT5, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

100 (1/Å)
HV=100kV
Cam Len: 0.2200 m
AMA Analytical Services, Inc

Chemistry from the Talc Particle Pictured Above



635810-12A, Particle Containing Sodium, Aluminum, and Silicon



635810 FDA_126.jpg
635810-12A
Na,Al,Si particle
Cal: 0.001775 µm/pix
13:59 5/31/2022
Microscopist: (b) (6)
Camera: NANOSPRT5, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

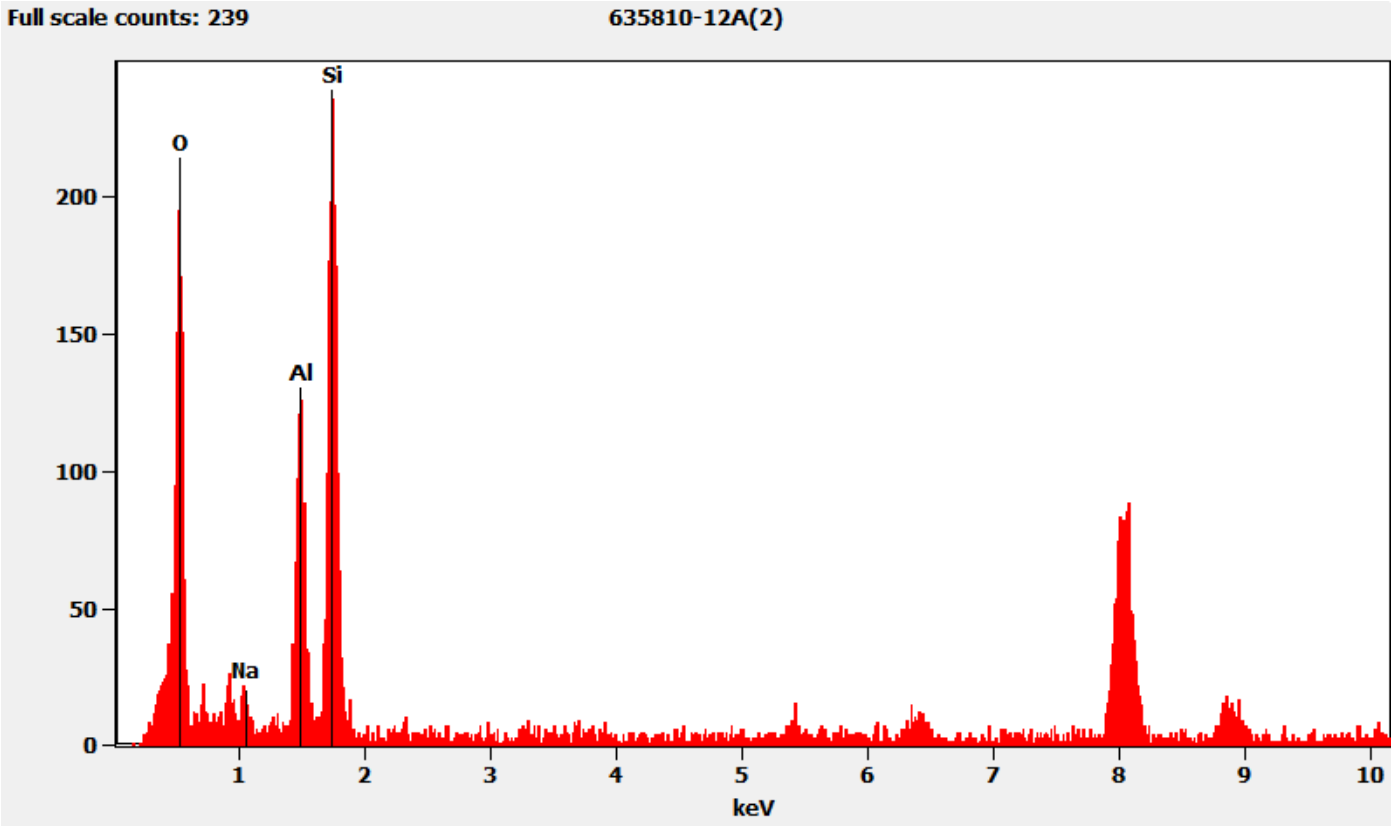
500 nm
HV=100kV
Direct Mag: 5800 x
AMA Analytical Services, Inc

Diffraction Pattern from the Particle Containing Sodium, Aluminum, and Silicon Pictured Above

635810 FDA_125.jpg
635810-12A
Na,Al,Si particle
13:58 5/31/2022
Microscopist: (b) (6)
Camera: NANOSPRT5, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

100 (1/Å)
HV=100kV
Cam Len: 0.2200 m
AMA Analytical Services, Inc

Chemistry from the Particle Containing Sodium, Aluminum, and Silicon Pictured Above



635810-13A, 13B, 13B/03302022-13.1, 13.3, 13.5 (PLM) & 13.2, 13.4, 13.6 (TEM)

PLM

Aliquots 03302022-13.1, 13.3, and 13.3 were analyzed by (b) (6) on June 2, 2022. No asbestos or non-asbestos amphibole variants were observed during analysis. The results were calculated using the equations detailed in the *Calculations* section above.

635810-13A	No Asbestos Detected
635810-13B	No Asbestos Detected
635810-13C	No Asbestos Detected

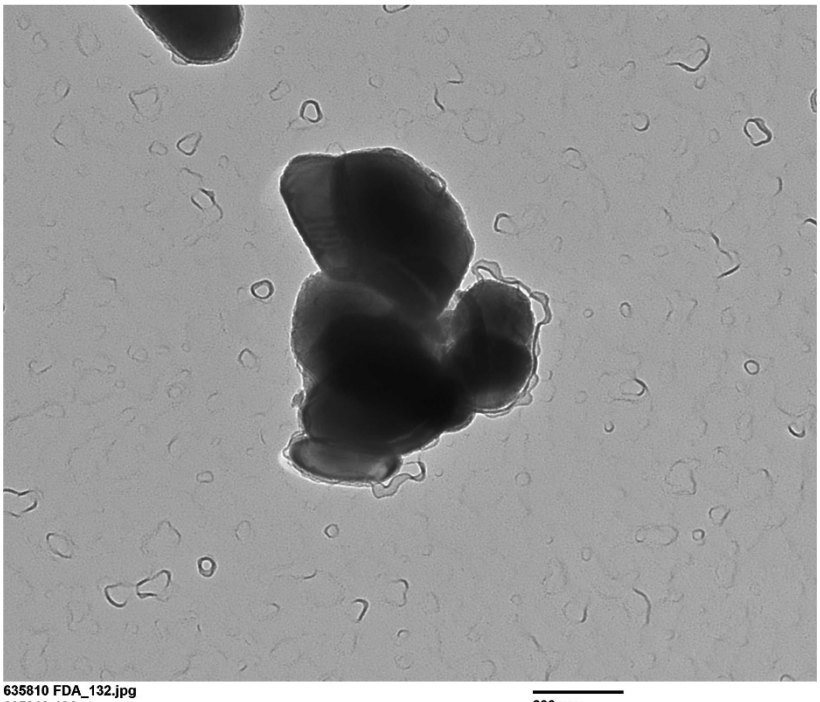
TEM

(b) (6) analyzed aliquots 13A (13.2), 13B (13.4), and 13C (13.6) on May 31, 2022. The primary particles observed were titanium and particles containing silicon and iron; talc particles were also observed along with particles containing aluminum and silicon, and talc ribbons. No asbestos or non-asbestos amphibole variants were observed during analysis. The results were calculated using the equations detailed in the *Calculations* section above.

635810-13A	No Asbestos Detected
635810-13B	No Asbestos Detected
635810-13C	No Asbestos Detected

Below are pictures, diffraction patterns, and chemistry from some of the observed particles. The copper peaks in the chemistry spectra are from the TEM grid. The unidentified (and some identified) peaks in the chemistry spectra are zinc and carbon from the TEM specimen holder

635810-13A, Titanium Particles



635810 FDA_132.jpg
635810-13A
Ti particles
Cal: 0.726816 nm/pix
15:25 5/31/2022
Microscopist: (b) (6)
Camera: NANOSPR15, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

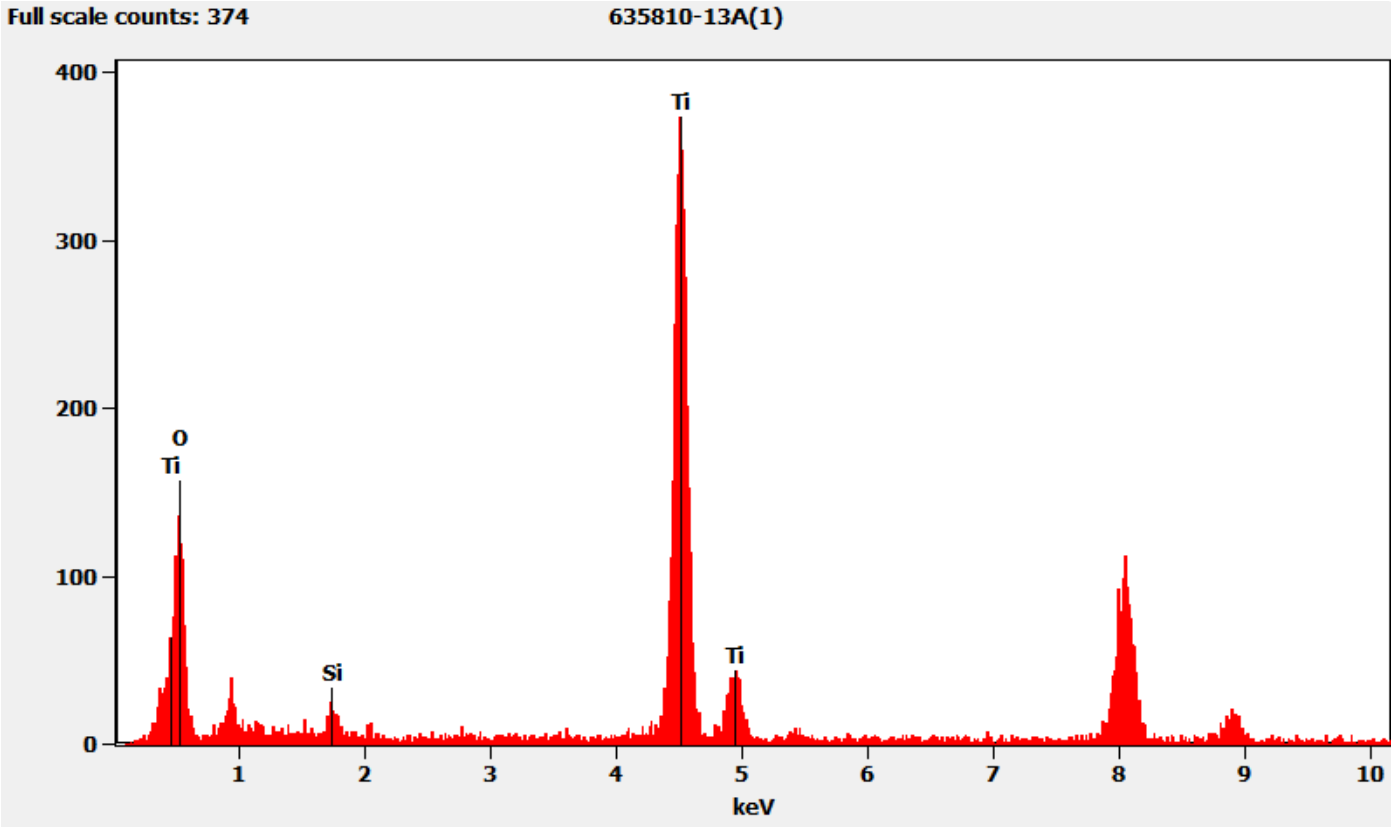
200 nm
HV=100kV
Direct Mag: 14000 x
AMA Analytical Services, Inc

Diffraction Pattern from the Titanium Particles Pictured Above

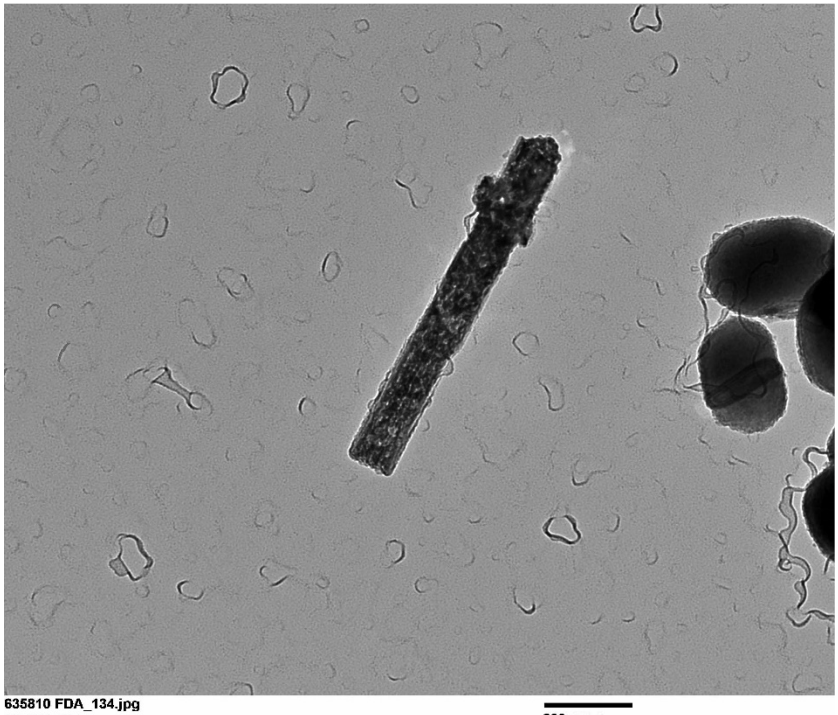
635810 FDA_131.jpg
635810-13A
Ti particles
15:24 5/31/2022
Microscopis (b) (6)
Camera: NAI[illegible], Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

100 (1/Å)
HV=100kV
Cam Len: 0.2200 m
AMA Analytical Services, Inc

Chemistry from the Titanium Particles Pictured Above



635810-13A, Elongated Particle Containing Silicon and Iron

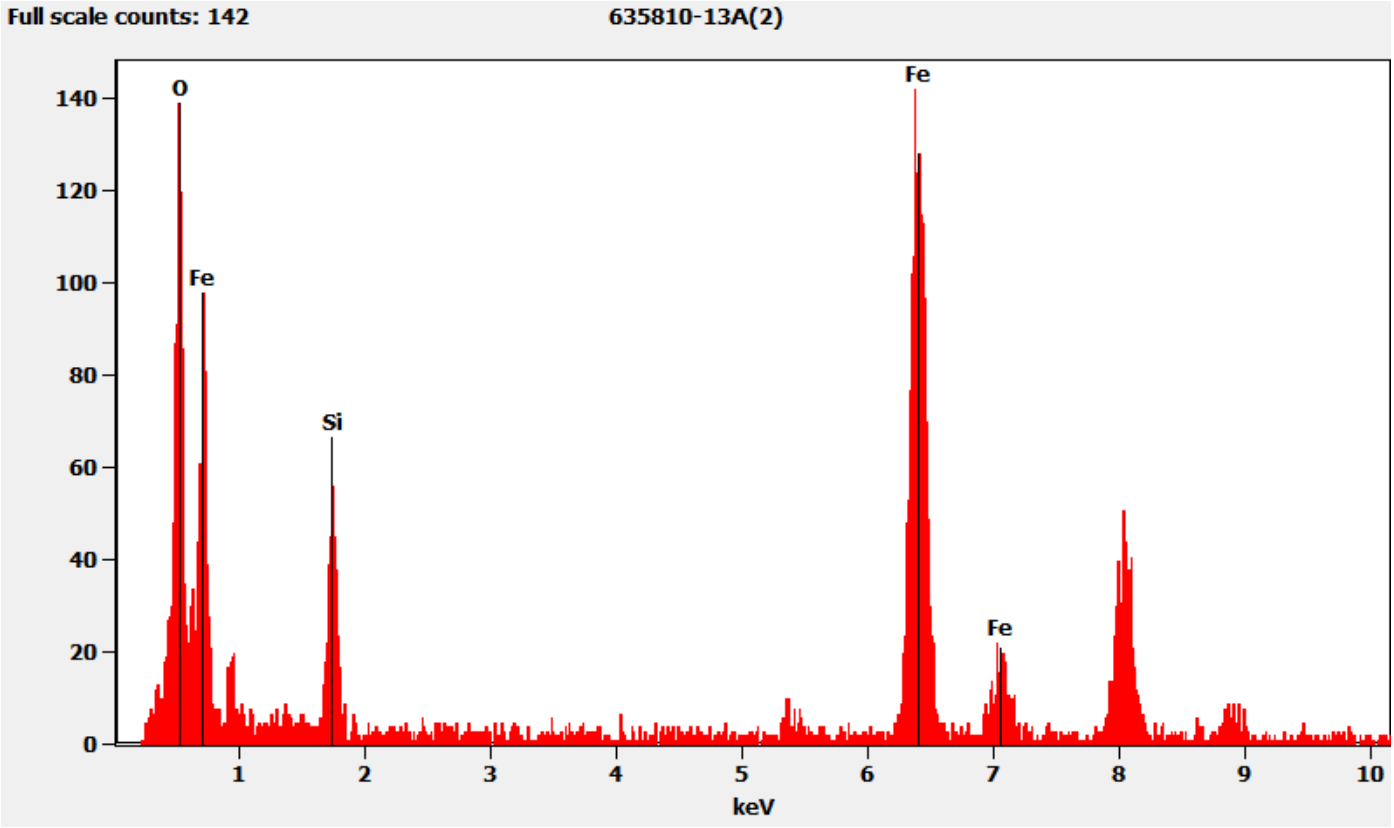


Diffraction Pattern from the Elongated Particle Containing Silicon and Iron Pictured Above

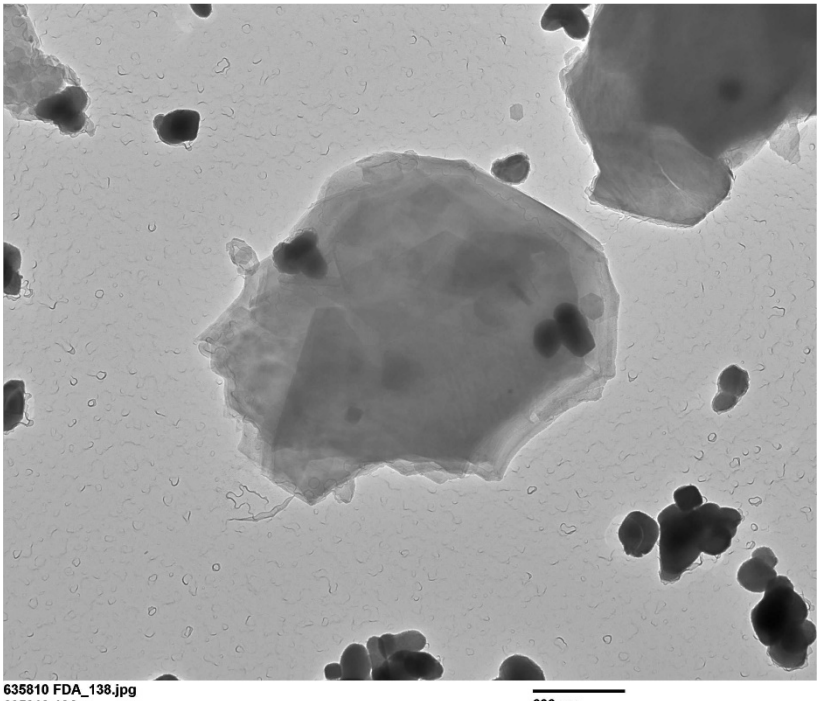
635810 FDA_133.jpg
635810-13A
Fe particles
15:27 5/31/20(b) (6)
Microscopist
Camera: NANOSPRT5, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

100 (1/Å)
HV=100kV
Cam Len: 0.2200 m
AMA Analytical Services, Inc

Chemistry from the Elongated Particle Containing Silicon and Iron Pictured Above



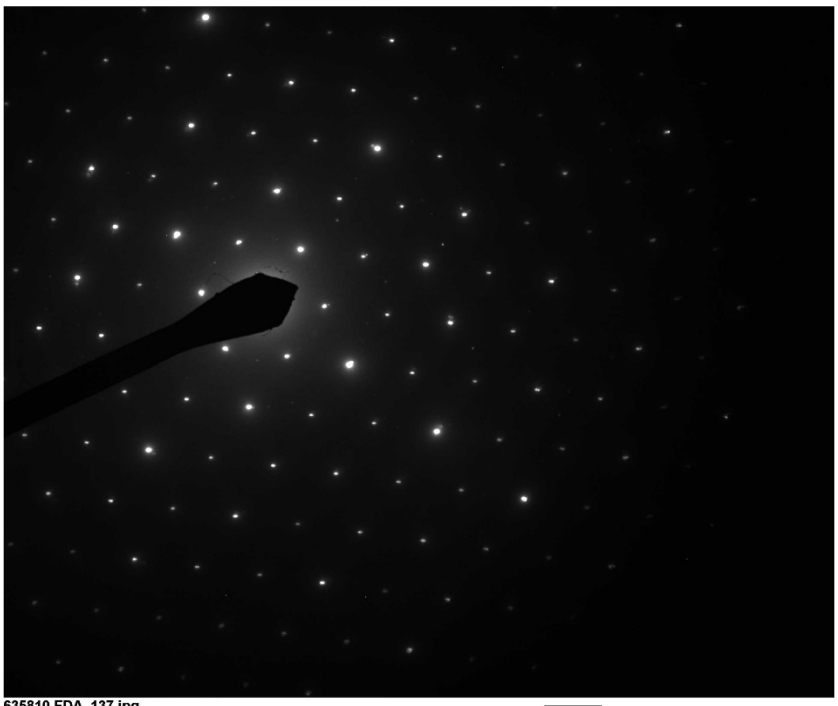
635810-13A, Talc Particle



635810 FDA_138.jpg
635810-13A
Talc Particle
Cal: 0.002145 µm/pix
16:03 5/31/2022
Microscopis(b) (6)
Camera: NANOSPR15, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

600 nm
HV=100kV
Direct Mag: 4800 x
AMA Analytical Services, Inc

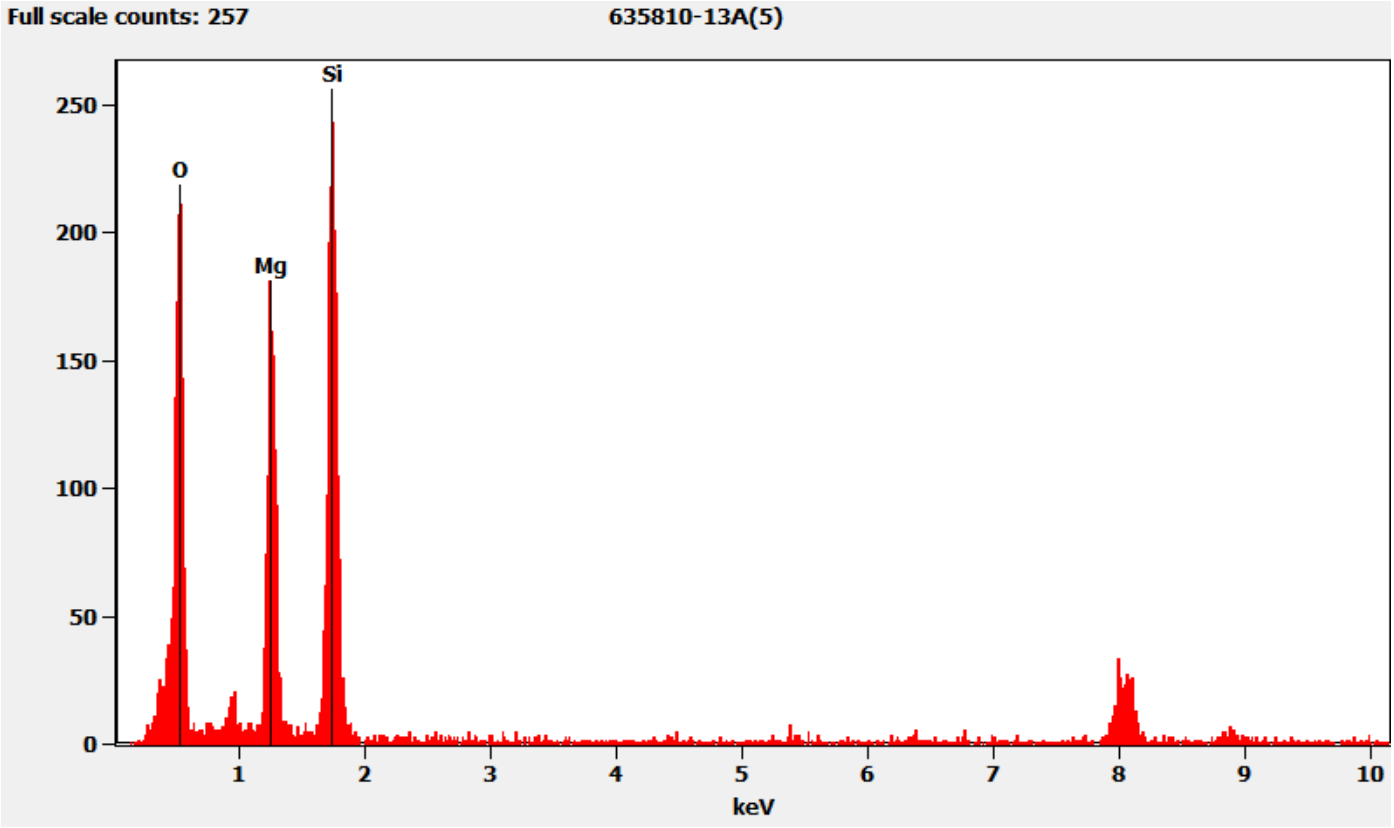
Hexagonal Diffraction Pattern from the Talc Particle Pictured Above



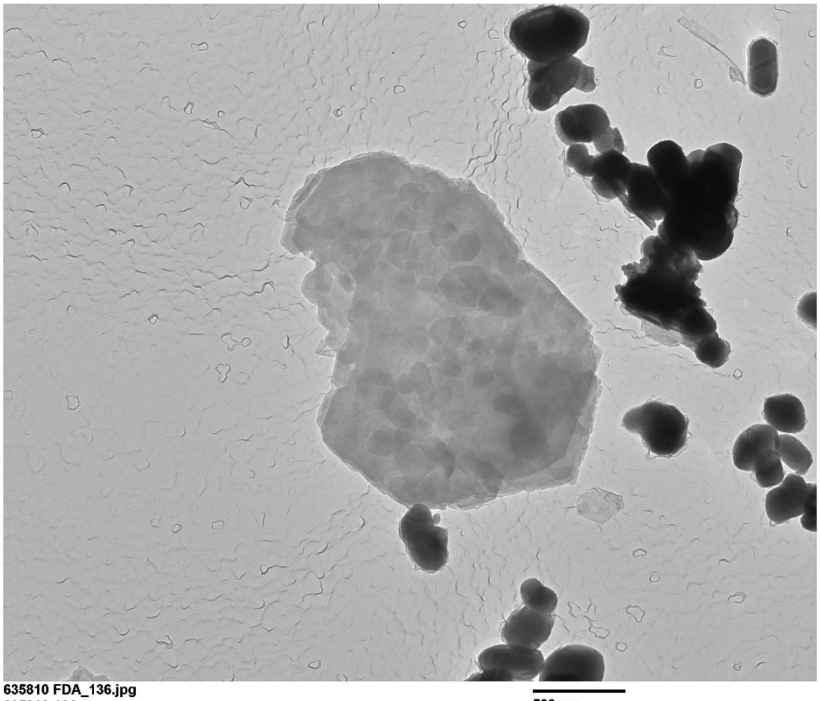
635810 FDA_137.jpg
635810-13A
Talc Particle
16:02 5/31/2022
Microscopist: (b) (6)
Camera: NANOSPRAY5, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

100 (1/Å)
HV=100kV
Cam Len: 0.2200 m
AMA Analytical Services, Inc

Chemistry from the Talc Particle Pictured Above



635810-13A, Particle Containing Aluminum and Silicon

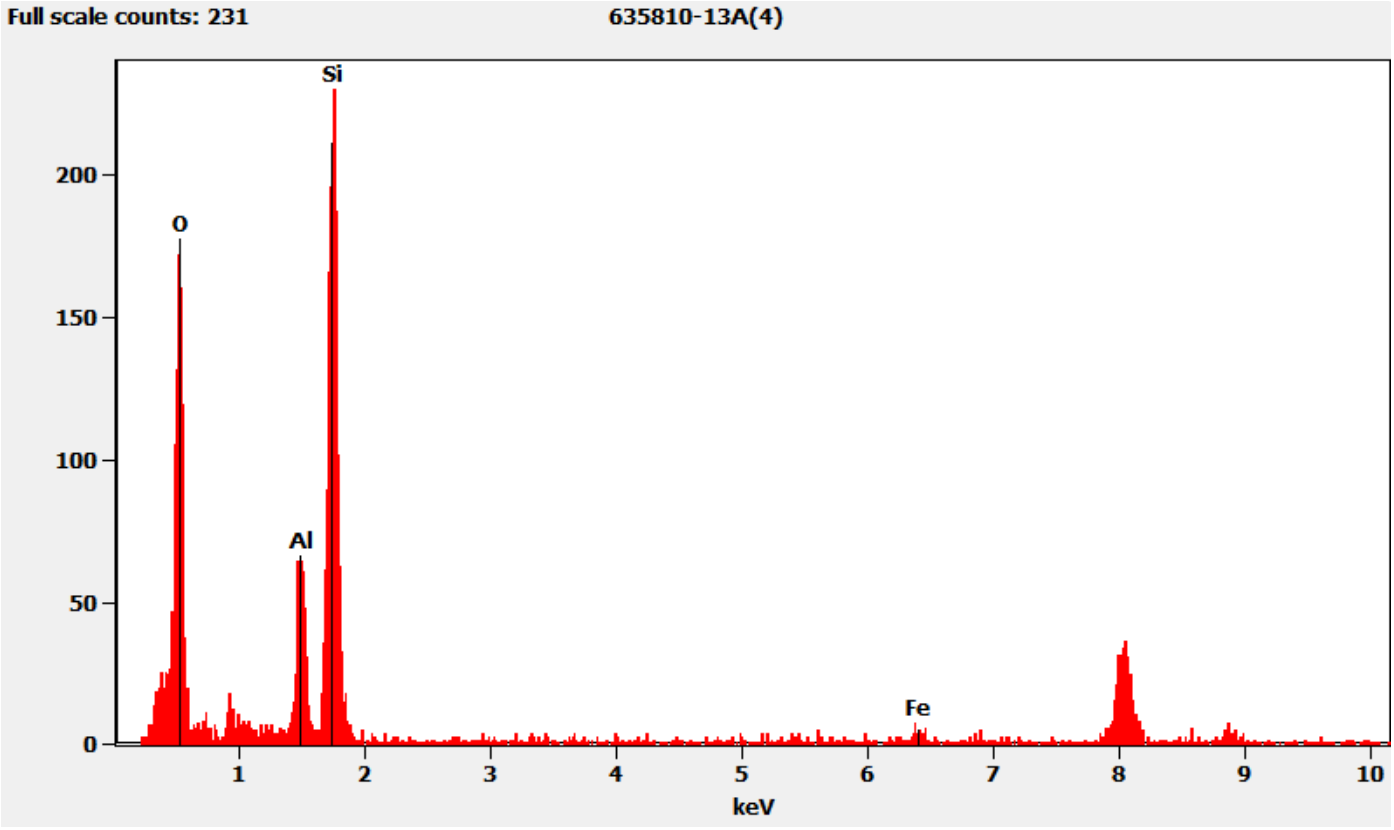


Diffraction Pattern from the Particle Containing Aluminum and Silicon Pictured Above

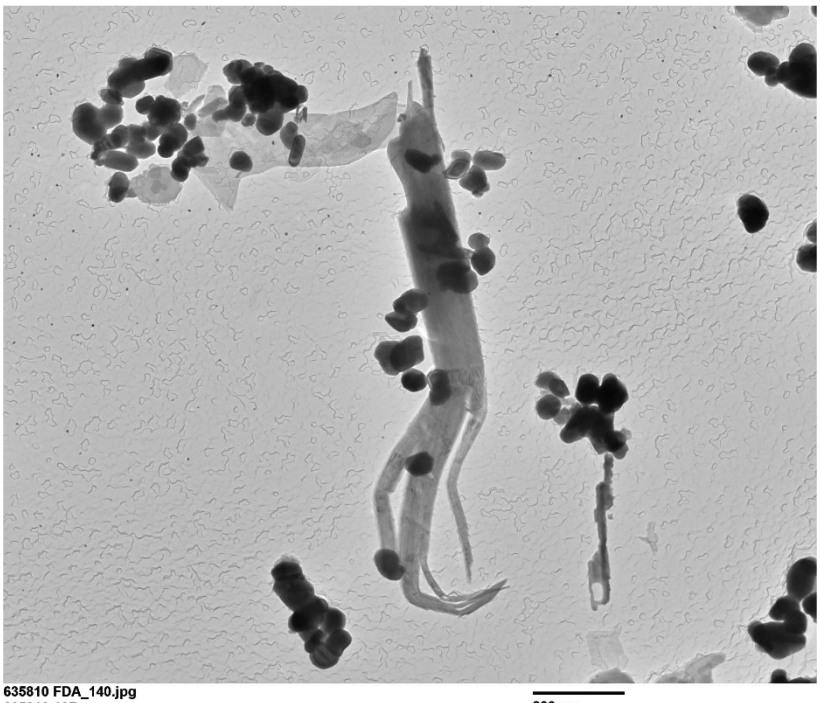
635810 FDA_135.jpg
635810-13A
Al,Si particle
15:59 5/31/2022
Microscopis(b) (6)
Camera: NA[illegible]5, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

100 (1/Å)
HV=100kV
Cam Len: 0.2200 m
AMA Analytical Services, Inc

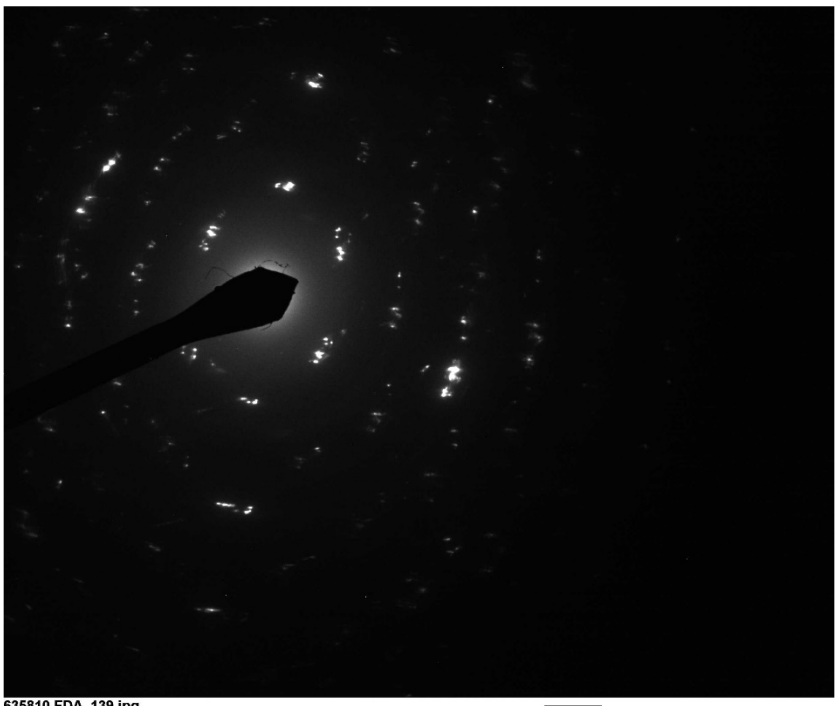
Chemistry from the Particle Containing Aluminum and Silicon Pictured Above



635810-13B, Talc Ribbon



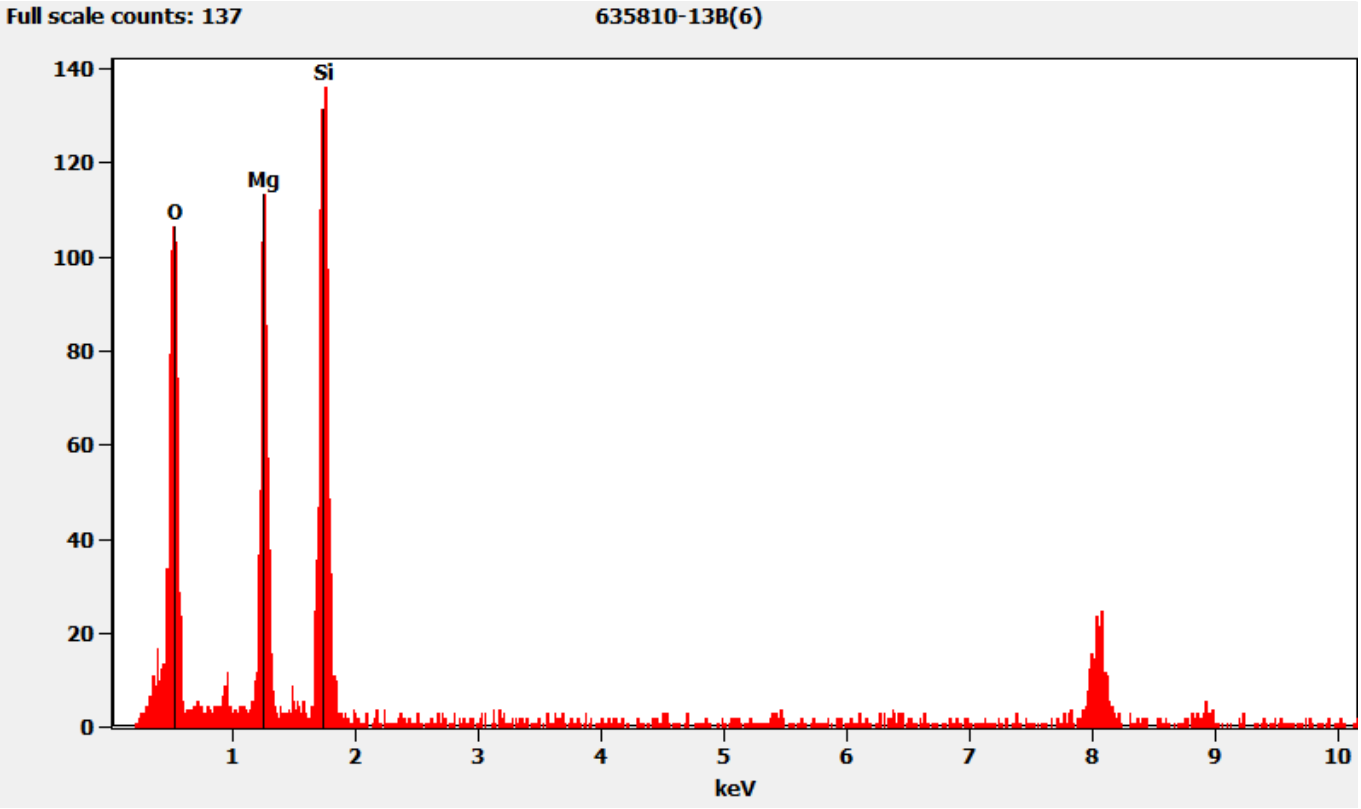
Diffraction Pattern from the Talc Ribbon Pictured Above



635810 FDA_139.jpg
635810-13B
Talc Ribbon
16:49 5/31/2022
Microscopis (b) (6)
Camera: NANOSPRT5, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

100 (1/Å)
HV=100kV
Cam Len: 0.2200 m
AMA Analytical Services, Inc

Chemistry from the Talc Ribbon Pictured Above



QC Discussion

Microscope alignment and calibration for both the PLM and TEM scopes, and EDXA unit calibration were performed on each day of analysis as specified by method requirements and standard laboratory operating procedures. The analytical balance used for gravimetric reduction is verified weekly at three (3) tare levels using three NIST-traceable weights – 10.0-g, 0.1-g, 0.5-g – and on each day of operation using the 0.1-g and 0.5-g weights tared with an 8-mL glass vial. The muffle furnace is verified monthly at a temperature of 480°C. All equipment was functioning within normal operating parameters

Matrix blank samples were prepared at rate of 10% or greater alongside the client samples with each series of samples that were put into the muffle furnace together. The matrix blank samples were prepared using Sigma-Aldrich Talc Powder 18654 (Cas No. 14807-96-6; EC No. 238-877-9, Lot 82330). Analysis of the matrix blank samples was only required if asbestos, or the non-asbestos versions of the regulated minerals, was found on the associated client samples unless otherwise noted. Matrix blank sample numbers NB22-286/287, NB22-296, NB22-305/306, NB22-314, NB22-324, and NB22-328/329 were not analyzed since no asbestos was observed on the associated client samples. Although it was not required, (b) (6) analyzed the matrix blank sample number NB22-295 on May 17, 2022; no asbestos was observed on this sample.

A talc reference control sample was randomly selected from our library of TEM grid preparations made from Sigma-Aldrich Talc Powder, <10 micron (Product No. 643604-500G; Batch No. 10830AJ) spiked with various levels of Chrysotile ranging from 0.4%-10%. One (1) reference control sample, sample number 635810-RB1, was analyzed with this set. It was analyzed by (b) (6) on May 10, 2022, and found to be within acceptable limits.

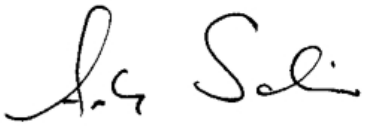
Filtration blank samples were prepared alongside the client samples with each use of the filtration apparatus. Analysis of these samples was only required on those blanks associated with a client sample on which asbestos, or the non-asbestos versions of the regulated minerals, was found unless otherwise noted. Filtration blank sample numbers DI-Blank-01 through DI-Blank-14 were not analyzed since no asbestos was observed on the associated client samples.

TEM grid preparation (EB) blank samples were prepared with each batch of carbon coated filters. AMA policy is to analyze these blank samples whenever asbestos, or the non-asbestos versions of the regulated minerals, is detected on an associated client sample or when the laboratory blank identification number ends in a "0" or "5." Since no asbestos was observed on any of the client samples, only EB Blank IDs 58400, 58425, and 58465 were analyzed. (b) (6) analyzed these samples on August 8, 2022. No asbestos was detected on the TEM grid preparation blank samples.

Our laboratory information management system (LIMS) randomly selected sample 635810-11A/03302022-11 for additional duplicate QC analysis. Independent preparations were made for the PLM and TEM portions of analysis. The duplicate QC analysis was performed by (b) (6) on June 2, 2022, for PLM and by (b) (6) on September 14, 2022, for TEM. The QC results were consistent with the original findings.

Our laboratory information management system (LIMS) randomly selected samples 635810-4A/03302022-4 and 635810-4A/03302022-10 for additional replicate QC analysis. Independent preparations were made for the PLM and TEM portions of analysis. The replicate QC analysis was performed by (b) (6) on June 2, 2022, for PLM and by Andreas Saldivar on September 16, 2022, for TEM. The QC results were consistent with the original findings.

I certify that all information contained in this report pertaining to laboratory events, procedures, and protocols is true to the best of my knowledge and accurately describes the handling of this project by AMA Analytical Services, Inc., and its personnel.



9/23/2022

Andreas Saldivar Date
President