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. 05022022 (Batch #4)
AMA COC No. 636607

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: 636607
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 4 (05022022)
Job Number: CLIN 1001
PO Number: 75F40119P10689

Date Submitted: 5/20/2022
Date Analyzed: 6/15/2022 - 6/29/2022
Report Date: 10/7/2022
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
636607-1A	05022022-1	0.00000304%	0.00001214%	ND	ND	< 0.00001%	ND	14.47%	13.05%	72.48%	
636607-1B	05022022-1	0.00000413%	0.00001652%	ND	ND	< 0.00002%	ND	14.49%	15.50%	70.01%	
636607-1C	05022022-1	0.00000353%	0.00001413%	ND	ND	< 0.00001%	ND	14.54%	15.29%	70.17%	
636607-2A	05022022-2	0.00000323%	0.00001293%	ND	ND	< 0.00001%	ND	8.59%	16.58%	74.83%	
636607-2B	05022022-2	0.00000323%	0.00001294%	ND	ND	< 0.00001%	ND	8.54%	16.07%	75.39%	
636607-2C	05022022-2	0.00000312%	0.00001248%	ND	ND	< 0.00001%	ND	8.67%	15.00%	76.32%	
636607-3A	05022022-3	0.00000294%	0.00001175%	ND	ND	< 0.00001%	ND	1.11%	12.48%	86.41%	
636607-3B	05022022-3	0.00000287%	0.00001150%	ND	ND	< 0.00001%	ND	0.99%	13.53%	85.47%	
636607-3C	05022022-3	0.00000255%	0.00001020%	ND	ND	< 0.00001%	ND	1.04%	13.00%	85.96%	
636607-4A	05022022-4	0.00000223%	0.00000893%	ND	ND	< 0.00001%	ND	16.98%	18.09%	64.93%	
636607-4A	05022022-4	0.00000241%	0.00000964%	ND	ND	< 0.00001%	ND	16.77%	16.48%	66.75%	
636607-4B	05022022-4	0.00000252%	0.00001006%	ND	ND	< 0.00001%	ND	16.79%	18.48%	64.73%	
636607-5A	05022022-5	0.00000406%	0.00001626%	ND	ND	< 0.00002%	ND	21.21%	17.26%	61.53%	
636607-5B	05022022-5	0.00000321%	0.00001285%	ND	ND	< 0.00001%	ND	21.22%	16.45%	62.33%	
636607-5C	05022022-5	0.00000452%	0.00001807%	ND	ND	< 0.00002%	ND	21.21%	17.59%	61.20%	
636607-6A	05022022-6	0.00000278%	0.00001111%	ND	ND	< 0.00001%	ND	29.86%	9.60%	60.54%	
636607-6B	05022022-6	0.00000229%	0.00000918%	ND	ND	< 0.00001%	ND	29.67%	10.08%	60.25%	
636607-6C	05022022-6	0.00000194%	0.00000778%	ND	ND	< 0.00001%	ND	29.81%	10.36%	59.83%	
636607-7A	05022022-7	0.00000278%	0.00001112%	ND	ND	< 0.00001%	ND	0.26%	12.83%	86.90%	
636607-7B	05022022-7	0.00000582%	0.00002326%	ND	ND	< 0.00002%	ND	0.32%	15.86%	83.82%	
636607-7C	05022022-7	0.00000357%	0.00001426%	ND	ND	< 0.00001%	ND	0.32%	11.32%	88.36%	
636607-8A	05022022-8	0.00000390%	0.00001561%	ND	ND	< 0.00002%	ND	14.13%	12.64%	73.23%	
636607-8B	05022022-8	0.00000318%	0.00001272%	ND	ND	< 0.00001%	ND	14.12%	14.72%	71.16%	
636607-8C	05022022-8	0.00000287%	0.00001148%	ND	ND	< 0.00001%	ND	14.12%	13.08%	72.80%	
636607-9A	05022022-9	0.00000270%	0.00001081%	ND	ND	< 0.00001%	ND	31.67%	16.46%	51.87%	
636607-9B	05022022-9	0.00000401%	0.00001602%	ND	ND	< 0.00002%	ND	31.73%	18.18%	50.09%	
636607-9C	05022022-9	0.00000277%	0.00001110%	ND	ND	< 0.00001%	ND	32.04%	15.75%	52.20%	
636607-10A	05022022-10	0.00000386%	0.00001543%	ND	ND	< 0.00002%	ND	16.76%	14.76%	68.48%	
636607-10B	05022022-10	0.00000335%	0.00001340%	ND	ND	< 0.00001%	ND	16.86%	16.54%	66.60%	
636607-10C	05022022-10	0.00000318%	0.00001272%	ND	ND	< 0.00001%	ND	16.89%	14.86%	68.25%	
636607-11A	05022022-11	0.00000283%	0.00001133%	ND	ND	< 0.00001%	ND	5.46%	13.67%	80.87%	
636607-11B	05022022-11	0.00000265%	0.00001062%	ND	ND	< 0.00001%	ND	5.42%	11.43%	83.14%	
636607-11C	05022022-11	0.00000309%	0.00001235%	ND	ND	< 0.00001%	ND	5.46%	13.14%	81.40%	
636607-12A	05022022-12	0.00000243%	0.00000971%	ND	ND	< 0.00001%	ND	25.18%	12.64%	62.18%	
636607-12B	05022022-12	0.00000324%	0.00001296%	ND	ND	< 0.00001%	ND	25.23%	11.53%	63.24%	
636607-12C	05022022-12	0.00000243%	0.00000973%	ND	ND	< 0.00001%	ND	25.36%	11.63%	63.01%	

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

AMA Analytical Services, Inc.

Focused On Results. **CERTIFICATE OF ANALYSIS**

Chain of Custody: 636607
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 4 (05022022)
Job Number: CLIN 1001
PO Number: 75F40119P10689

Date Submitted: 5/20/2022
Date Analyzed: 6/15/2022 - 6/29/2022
Report Date: 10/7/2022
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

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 636607

Record Changes Report

Date	Description

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.) **636607**

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 4 (No. 05022022)
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: 6/20/2022 ☑ 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 12 (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 12	3	12 '1-oz glass jars submitted in pink vacuum sealed plastic bags	
		with custody seals intact (sealed by M. Schwartz 5/2/2022-5/16/2022)	
		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)		5/20/2022	10:04	1Z2R3A600129933409

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

May 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 #05022022

Dear (b) (6)

Enclosed in box are twelve (12) commercial talc-containing cosmetic products, 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 twelve (12) samples in this shipment constitute the fourth and final batch of the 50 samples to be submitted to AMA for analysis in 2022, i.e., Batch 4 (No. 05022022).

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: 05022022

Submitter: Martha H. Schwartz

Assignment No./ Contract No.: DFPG #22-08 / #75F40119P10689

AMA COC No.:

Date Sealed: 5/18/2022 Sample Type: Official Samples

Description of Evidence		
Item #	**Quantity**	**Description of Item** (Lab#, Lot #, Condition)
05022022-1	1	Approx. 5 g of prepared talc-containing cosmetic sample
05022022-2	1	
05022022-3	1	
05022022-4	1	
05022022-5	1	
05022022-6	1	
05022022-7	1	
05022022-8	1	
05022022-9	1	
05022022-10	1	
05022022-11	1	
05022022-12	1	

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**
1-12	5/18/2022	Martha H. Schwartz	Martha H. Schwartz	ORA/DENL

Chain of Custody				
Item #	**Date/Time**	**Received by**	**Received by**	**Comments/Location**
1-12	5/18/2022	(b) (6)		AMA

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 Delivery Confirmation

DRU MORRISON
1-303-236-3065
FDA-ORA-LAB-COLORADO
6TH AVENUE & KIPLING STREET
DENVER CO 80225

2 LBS 1 OF 1

SHIP TO:
ATTN: (b) (6)
301-459-2640
AMA ANALYTICAL SERVICES, INC.
4475 FORBES BLVD.
LANHAM MD 20706-4354

MD 201 9-17

UPS NEXT DAY AIR 1
TRACKING #: 1Z 2R3 A60 01 2993 3409

BILLING: P/P

Test Don: ORA HQ
Center/Office: DEN DO
CS 22.8.00. WNTNV50 21.0A 05/2022*

Proof of Delivery

Dear Customer,

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

Tracking Number
1Z2R3A600129933409

Weight
2.00 LBS

Service

UPS Next Day Air®

Shipped / Billed On
05/19/2022

Delivered On

05/20/2022 10:04 A.M.

Delivered To
LANHAM, MD, US

Received By

AMA

Left At
Inside Delivery

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: 06/02/2022 10:14 A.M. EST

From: UPS
To: (b) (6)
Subject: UPS Status Notification, Tracking Number 1Z2R3A600129933409
Date: Thursday, June 2, 2022 10:15:53 AM

Please see below for package information and current transit status.

Scheduled Delivery Date: Friday, 05/20/2022

UPS My Choice for home

Shipment Details

Tracking Detail

Your package is on time with a scheduled delivery date of 05/20/2022

Tracking Number:	1Z2R3A600129933409
Status:	Delivered
Scheduled Delivery:	05/20/2022
Shipped To:	LANHAM, MD, US
UPS Service:	UPS Next Day Air®
Number of Packages:	1
Weight:	2.0 LBS

Package Progress

Location	Date	Local Time	Description
LANHAM, MD, US	05/20/2022	10:04 AM	DELIVERED
Landover, MD, United States	05/20/2022	9:22 AM	Out For Delivery Today
Landover, MD, United States	05/20/2022	7:29 AM	Loaded on Delivery Vehicle

Landover, MD, United States	05/20/2022	7:14 AM	Processing at UPS Facility
Landover, MD, United States	05/20/2022	6:53 AM	Processing at UPS Facility
Landover, MD, United States	05/20/2022	6:53 AM	Arrived at Facility
Linthicum, MD, United States	05/20/2022	6:13 AM	Departed from Facility
Linthicum, MD, United States	05/20/2022	5:33 AM	Arrived at Facility
Rockford, IL, United States	05/20/2022	2:58 AM	Departed from Facility
Rockford, IL, United States	05/20/2022	12:43 AM	Arrived at Facility
Commerce City, CO, United States	05/19/2022	9:43 PM	Departed from Facility
Commerce City, CO, United States	05/19/2022	7:53 PM	Origin Scan
Commerce City, CO, United States	05/19/2022	3:42 PM	Pickup Scan
United States	05/19/2022	1:50 PM	Shipper created a label, UPS has not received the package yet.

Tracking results provided by UPS 06/02/2022 10:15 A.M. Eastern Time

Download the UPS mobile app

Review the UPS Privacy Notice

For Questions, Visit Our Help and Support Center

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. 05022022 (Batch #4)	**Email:**	john.gasper@fda.hhs.gov
AMA COC Number:	636607	**Date Received:**	May 30, 2022

AMA Sample No.	Client Sample No.	Sample Description	Analytical Method
636607-1A	05022022-1	Pink colored, slightly clumpy powder with a pearlescent appearance	Mod. PLM ELAP 198.6/TEM ELAP 198.4
636607-1B	05022022-1		Mod. PLM ELAP 198.6/TEM ELAP 198.4
636607-1C	05022022-1		Mod. PLM ELAP 198.6/TEM ELAP 198.4
636607-2A	05022022-2	Brown colored, slightly clumpy powder with a matte appearance	Mod. PLM ELAP 198.6/TEM ELAP 198.4
636607-2B	05022022-2		Mod. PLM ELAP 198.6/TEM ELAP 198.4
636607-2C	05022022-2		Mod. PLM ELAP 198.6/TEM ELAP 198.4
636607-3A	05022022-3	White colored, fine powder with a matte appearance	Mod. PLM ELAP 198.6/TEM ELAP 198.4
636607-3B	05022022-3		Mod. PLM ELAP 198.6/TEM ELAP 198.4
636607-3C	05022022-3		Mod. PLM ELAP 198.6/TEM ELAP 198.4
636607-4A	05022022-4	Dark burgundy (brown) colored, slightly clumpy powder with a pearlescent appearance	Mod. PLM ELAP 198.6/TEM ELAP 198.4
636607-4B	05022022-4		Mod. PLM ELAP 198.6/TEM ELAP 198.4
636607-4C	05022022-4		Mod. PLM ELAP 198.6/TEM ELAP 198.4
636607-5A	05022022-5	Raspberry colored, slightly clumpy powder with a pearlescent appearance	Mod. PLM ELAP 198.6/TEM ELAP 198.4

AMA Sample No.	Client Sample No.	Sample Description	Analytical Method
636607-5B	05022022-5		Mod. PLM ELAP 198.6/TEM ELAP 198.4
636607-5C	05022022-5		Mod. PLM ELAP 198.6/TEM ELAP 198.4
636607-6A	05022022-6	Copper colored, fine powder with a matte appearance	Mod. PLM ELAP 198.6/TEM ELAP 198.4
636607-6B	05022022-6		Mod. PLM ELAP 198.6/TEM ELAP 198.4
636607-6C	05022022-6		Mod. PLM ELAP 198.6/TEM ELAP 198.4
636607-7A	05022022-7	White colored, fine powder with a matte appearance	Mod. PLM ELAP 198.6/TEM ELAP 198.4
636607-7B	05022022-7		Mod. PLM ELAP 198.6/TEM ELAP 198.4
636607-7C	05022022-7		Mod. PLM ELAP 198.6/TEM ELAP 198.4
636607-8A	05022022-8	Dark brown colored, slightly clumpy powder with a slight pearlescent appearance	Mod. PLM ELAP 198.6/TEM ELAP 198.4
636607-8B	05022022-8		Mod. PLM ELAP 198.6/TEM ELAP 198.4
636607-8C	05022022-8		Mod. PLM ELAP 198.6/TEM ELAP 198.4
636607-9A	05022022-9	Plum colored, slightly clumpy powder with a pearlescent appearance	Mod. PLM ELAP 198.6/TEM ELAP 198.4
636607-9B	05022022-9		Mod. PLM ELAP 198.6/TEM ELAP 198.4
636607-9C	05022022-9		Mod. PLM ELAP 198.6/TEM ELAP 198.4
636607-10A	05022022-10	Pale pink (with warm undertones) colored, fine powder with a pearlescent appearance	Mod. PLM ELAP 198.6/TEM ELAP 198.4
636607-10B	05022022-10		Mod. PLM ELAP 198.6/TEM ELAP 198.4
636607-10C	05022022-10		Mod. PLM ELAP 198.6/TEM ELAP 198.4
636607-11A	05022022-11	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
636607-11B	05022022-11		Mod. PLM ELAP 198.6/TEM ELAP 198.4
636607-11C	05022022-11		Mod. PLM ELAP 198.6/TEM ELAP 198.4
636607-12A	05022022-11	Dark rose (brick) colored, fine powder with a pearlescent appearance	Mod. PLM ELAP 198.6/TEM ELAP 198.4
636607-12B	05022022-12		Mod. PLM ELAP 198.6/TEM ELAP 198.4
636607-12C	05022022-12		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

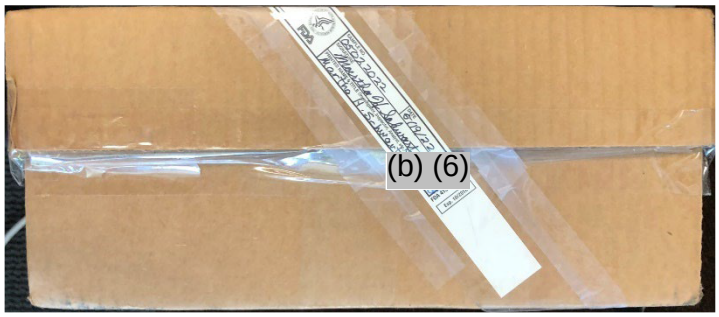
Sample Receipt Description

The samples were received at AMA Analytical Services, Inc. on May 20, 2022, at 10:04 via UPS Tracking No. 1Z2R3A600129933409 by (b) (6), who assigned them to Chain of Custody (COC) No. 636607. This COC number served as the internal laboratory job number for tracking purposes. The set consisted of twelve (12) powder samples submitted in ~1-oz glass jars and individually packaged in vacuum and custody sealed plastic bags; the jars for samples 05022022-1, 05022022-8, 05022022-10, and 05022022-11 were additionally sealed with parafilm. Conditions were checked upon receipt and all sample containers and custody seals were intact. The samples were entered into the AMA laboratory database on June 2, 2022, at 09:41 by (b) (6). 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:


2 LBS
1 OF 1
SHIP TO:
(b) (6)
AMA ANALYTICAL SERVICES, INC.
4475 FORBES BLVD.
LANHAM MD 20706-4354
MD 201 9-17
UPS NEXT DAY AIR
TRACKING #: 1Z 2R3 A60 01 2993 3409
1
BILLING: P/P
AMA ANALYTICAL SERVICES, INC.
4475 FORBES BLVD
LANHAM MD 20706
S: WHITE
116 – 1011
Visit ups.com for details on our privacy practices.


(b) (6)


(b) (6)

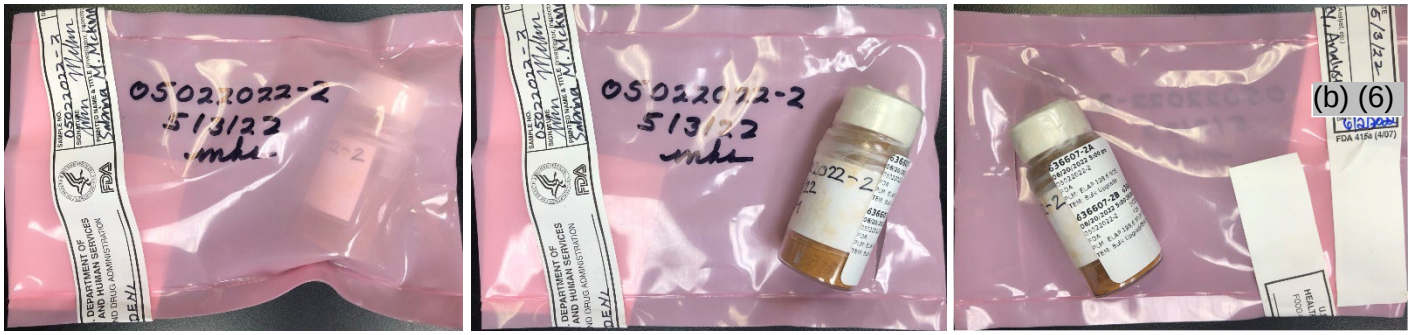

(b) (6)

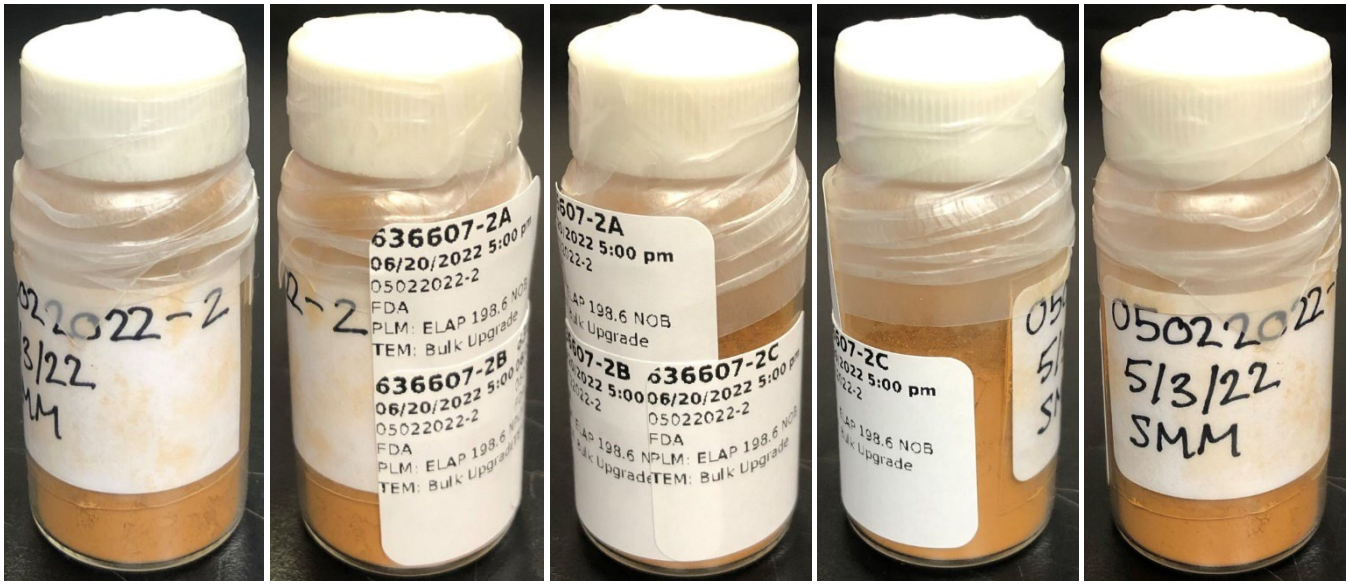

0502022-1
5/2/22
SMM

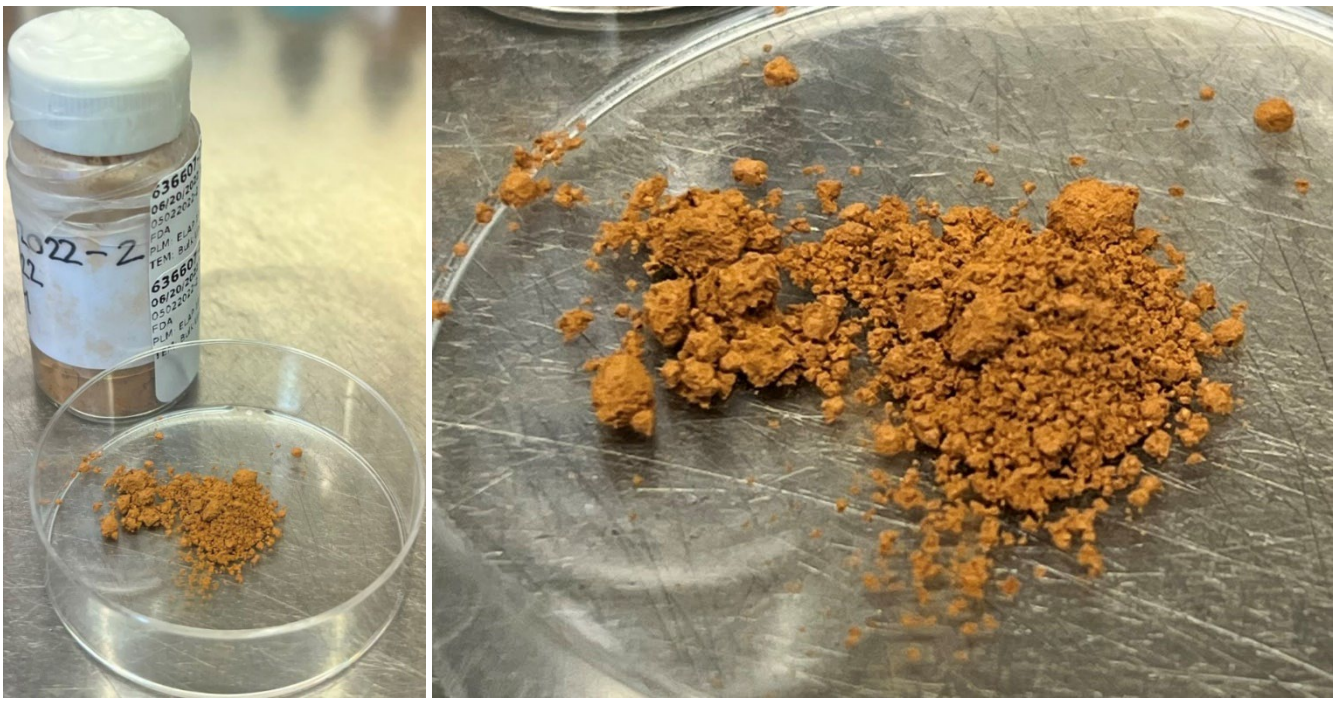

050222022-1
5/2/22
SMH
050222022-5
5/10/22
mdw
050222022-9
5/12/22
mdw
050222022-6
5/11/22
mdw
050222022-10
5/13/22
mdw
050222022-7
5/11/22
mdw
050222022-11
5/13/22
mdw
050222022-12
5/16/22
mdw

636607-1A, 1B, 1C/05022022-1

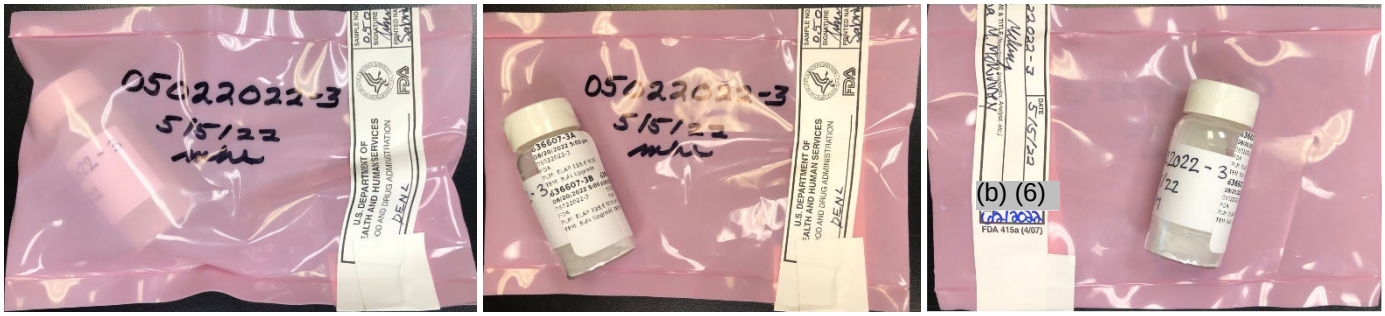
636607-2A, 2B, 2C/05022022-2

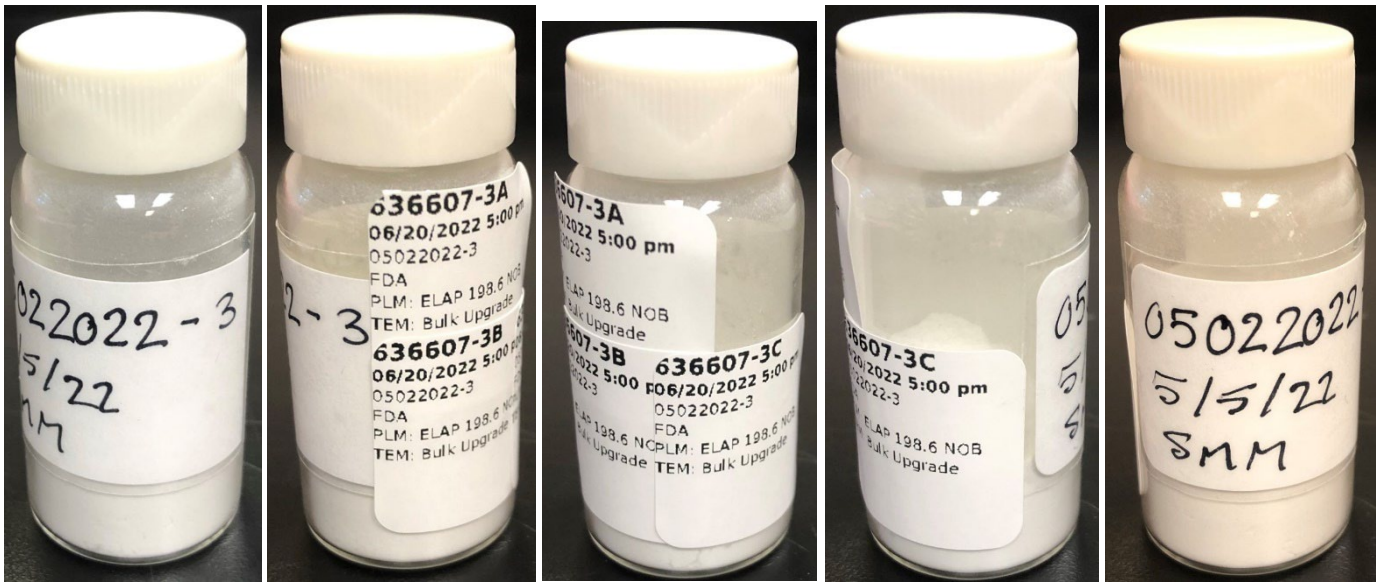




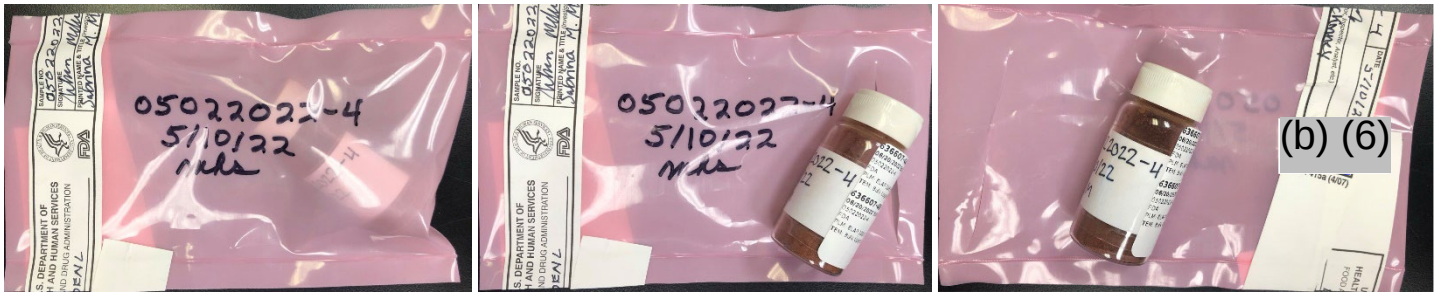


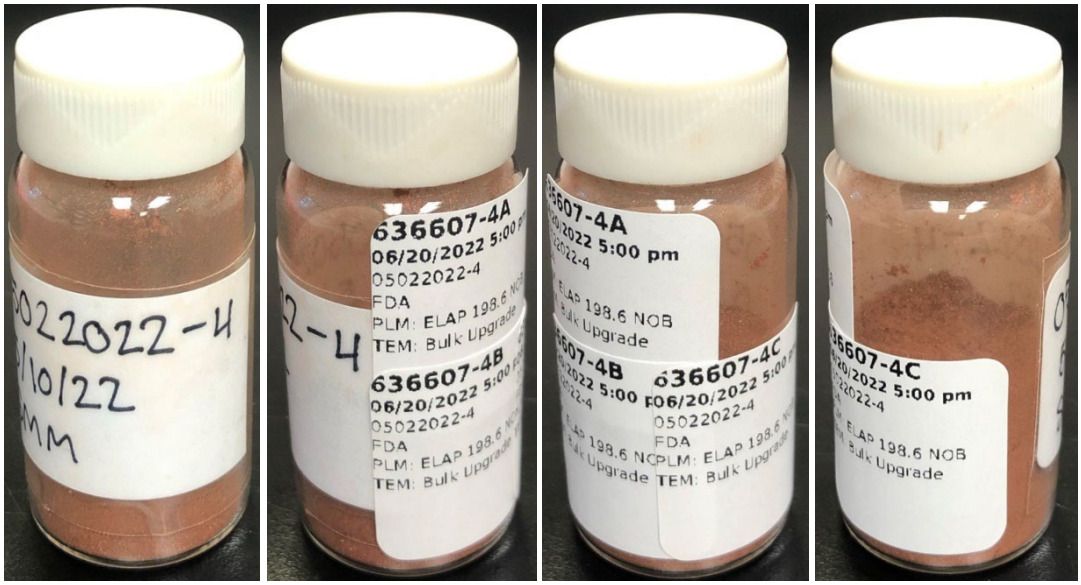
636607-3A, 3B, 3C/02212022-3

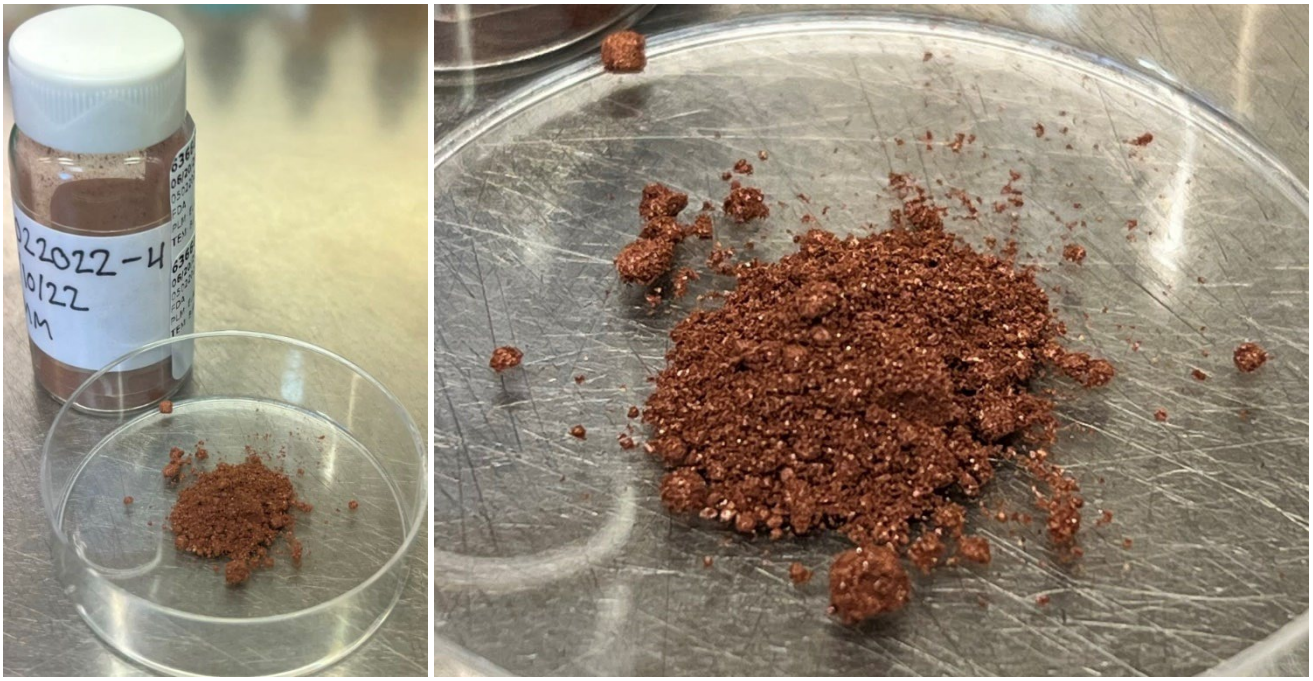




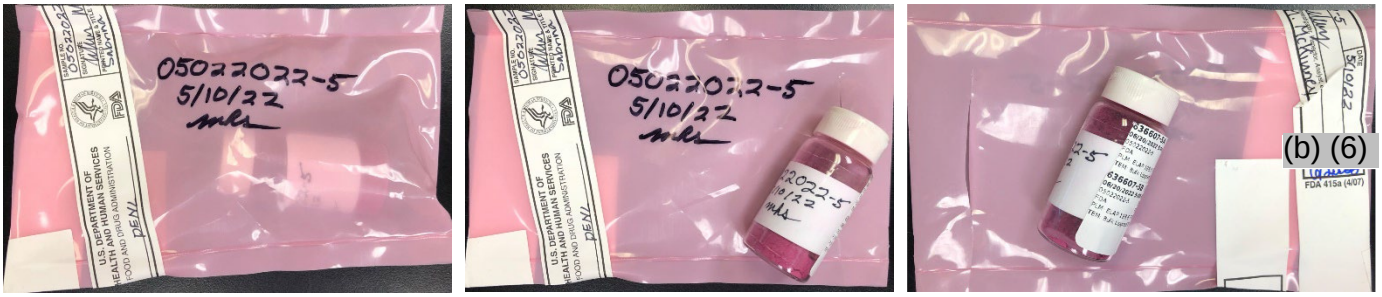
636607-4A, 4B, 4C/02212022-4



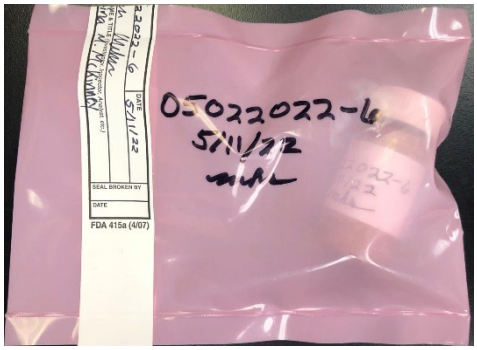




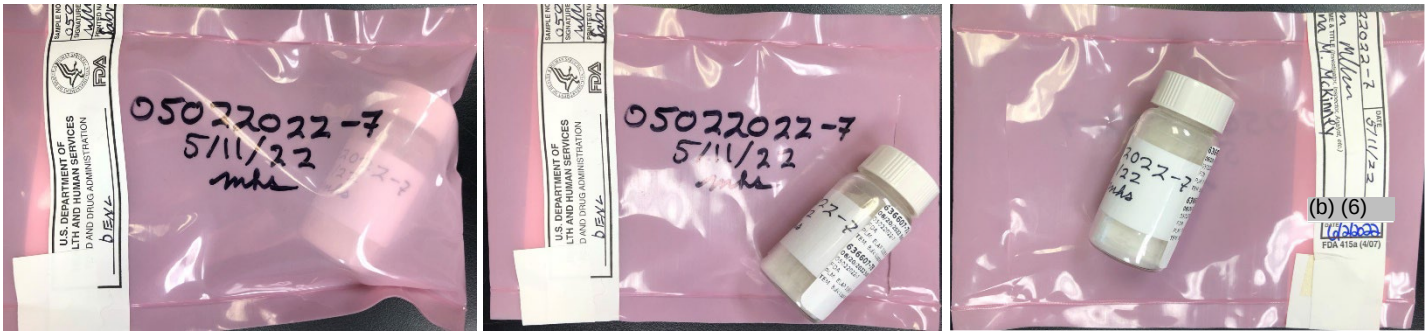
636607-5A, 5B, 5C/05022022-5

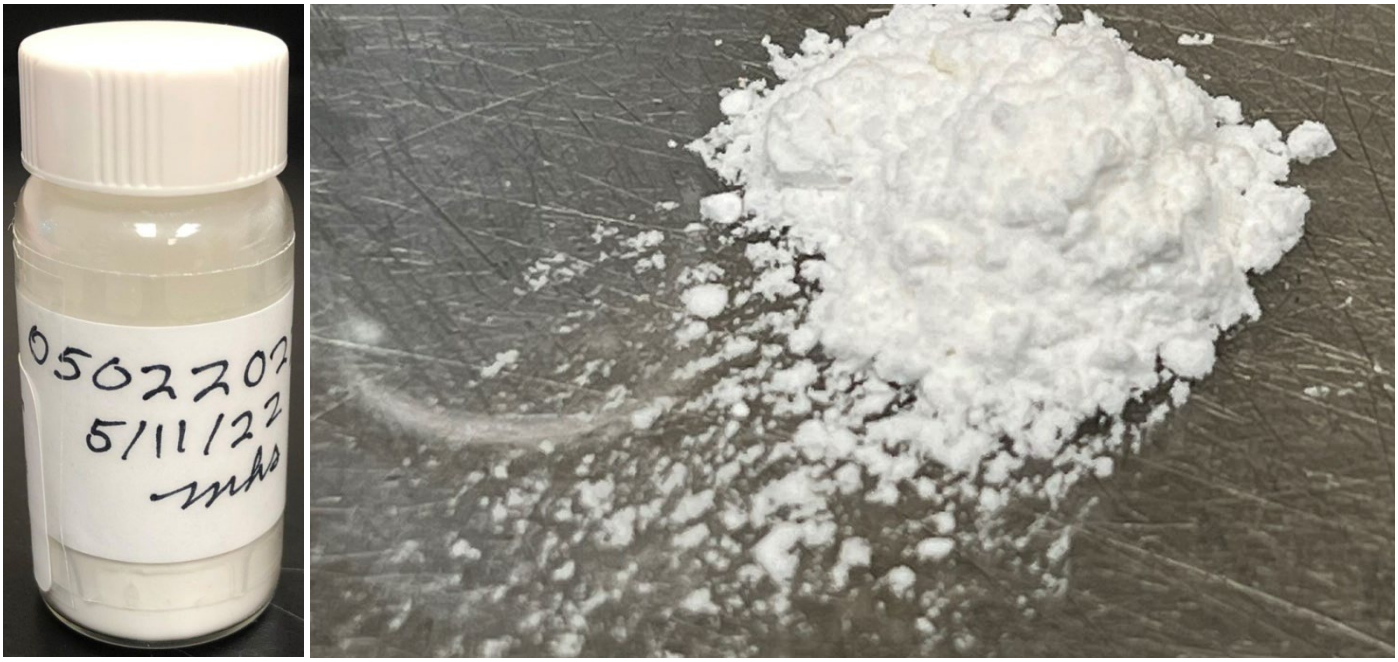


636607-6A, 6B, 6C/05022022-6

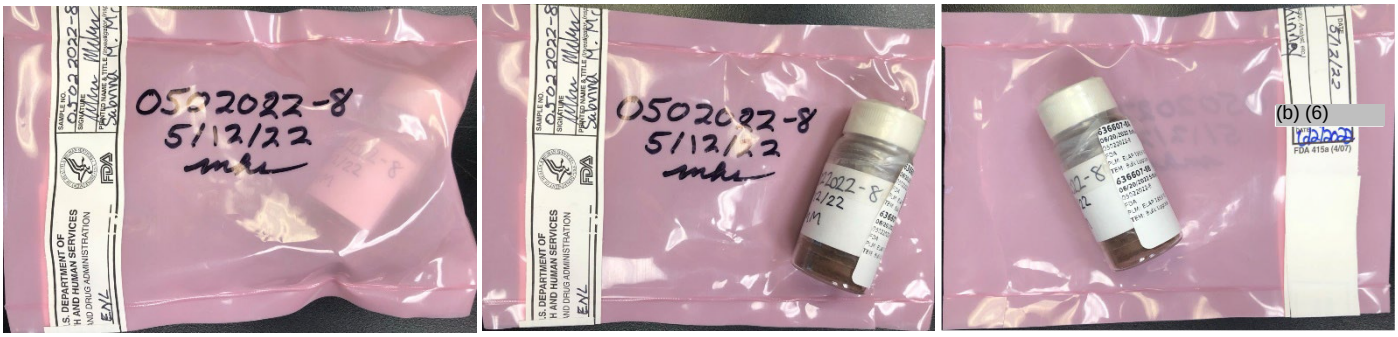


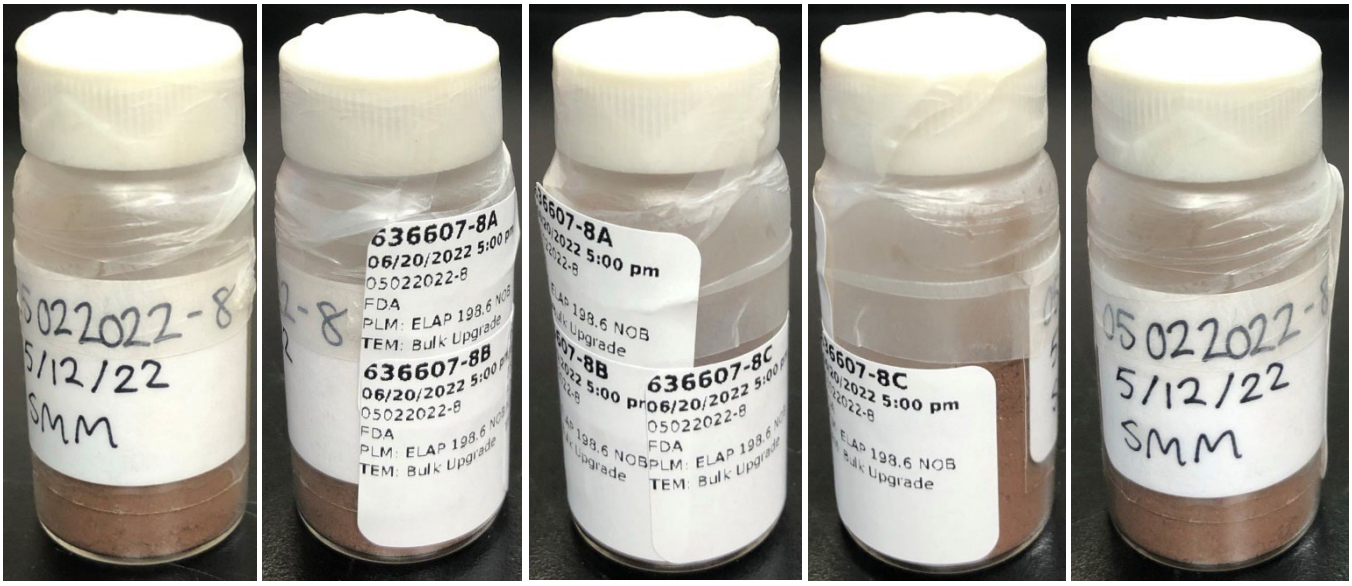
636607-7A, 7B, 7C/05022022-7

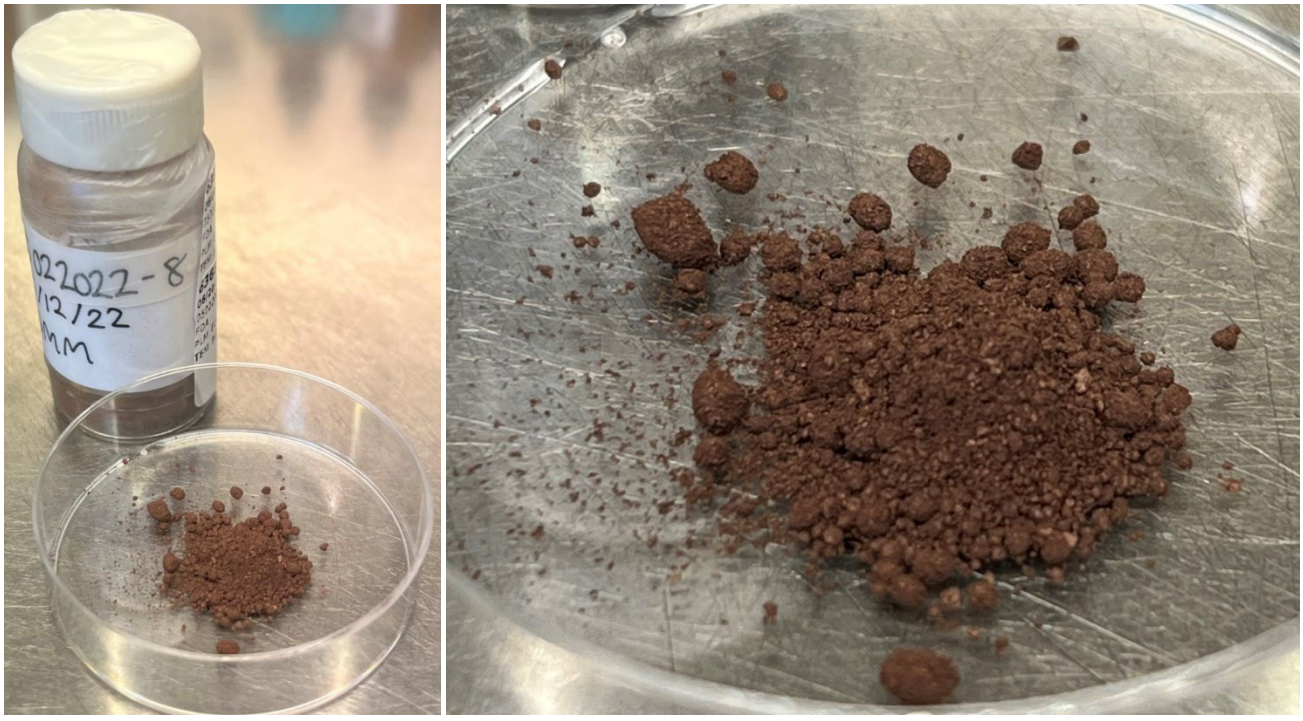




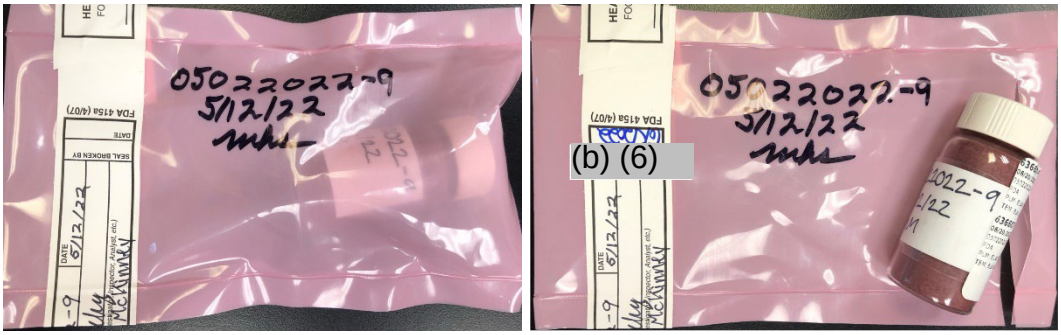
636607-8A, 8B, 8C/05022022-8

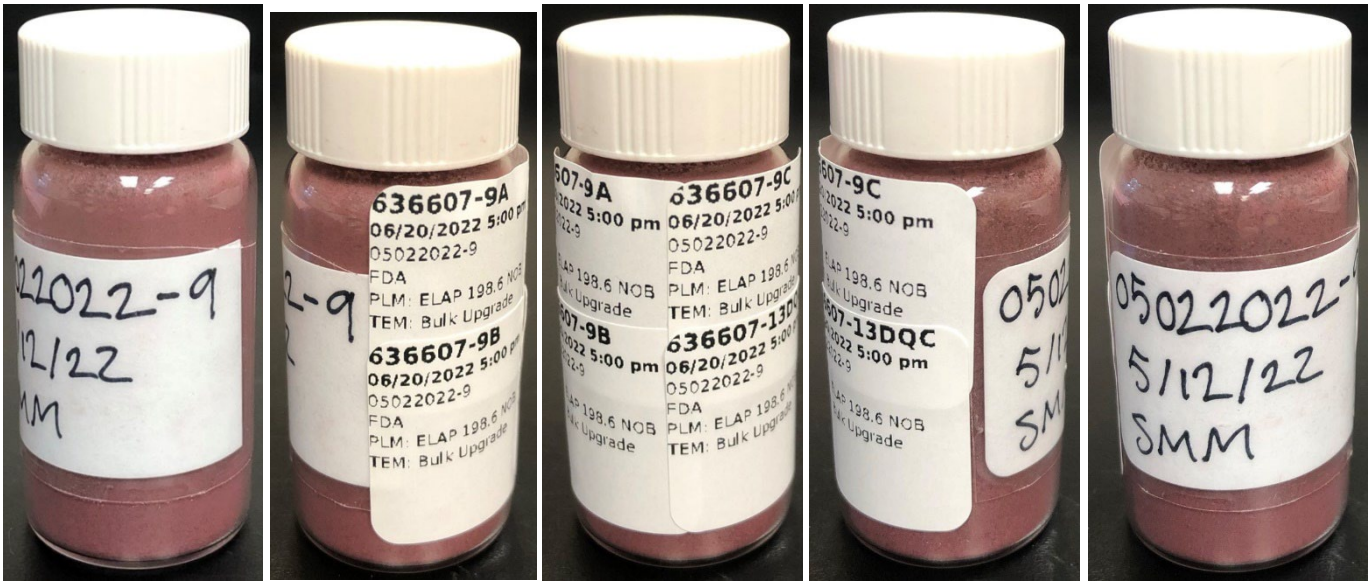




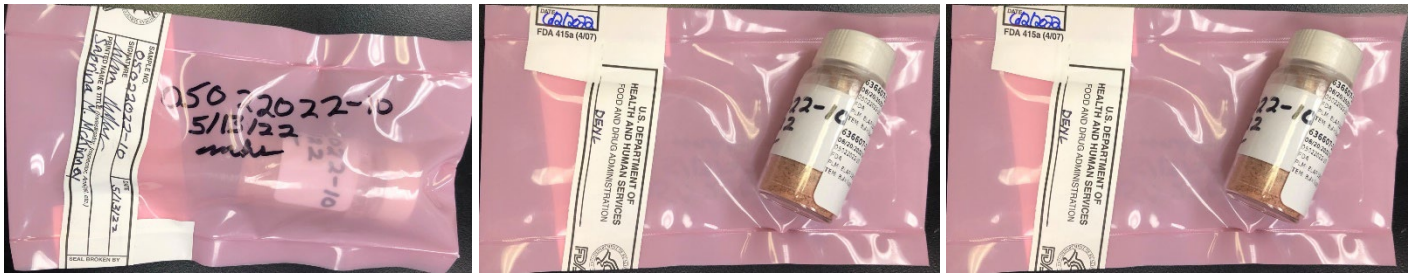


636607-9A, 9B, 9C/05022022-9

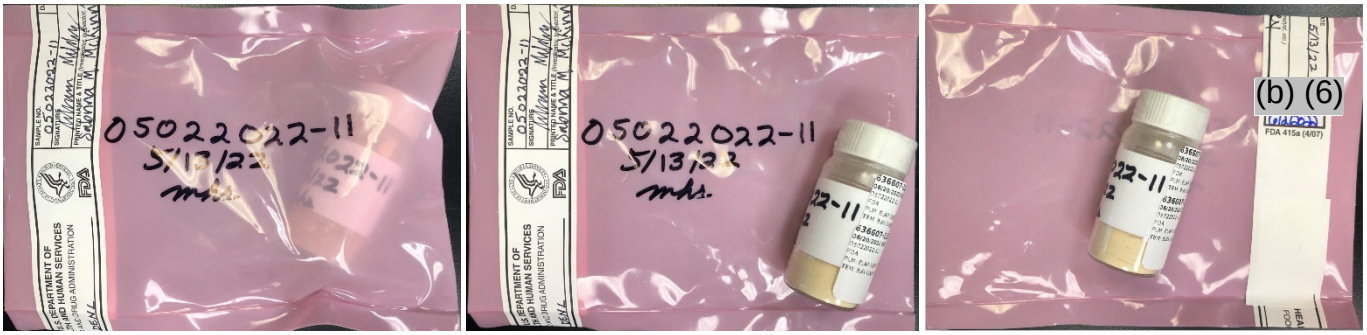


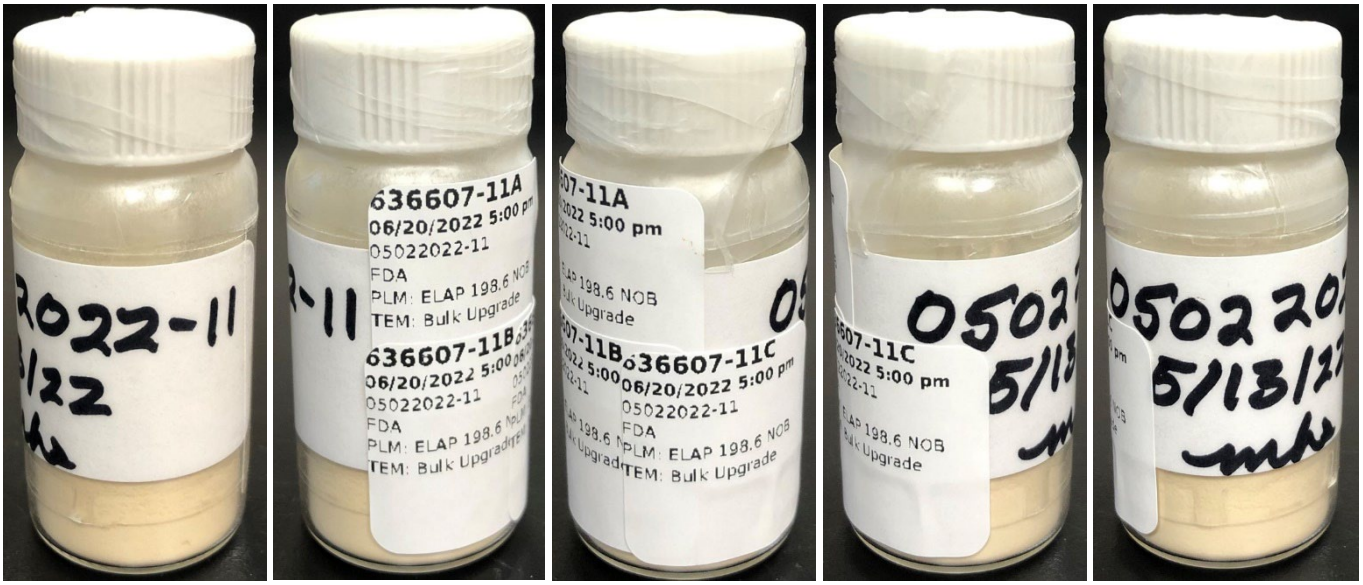


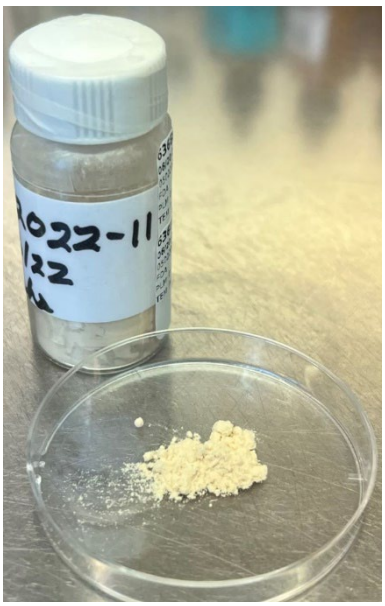
636607-10A, 10B, 10C/05022022-10

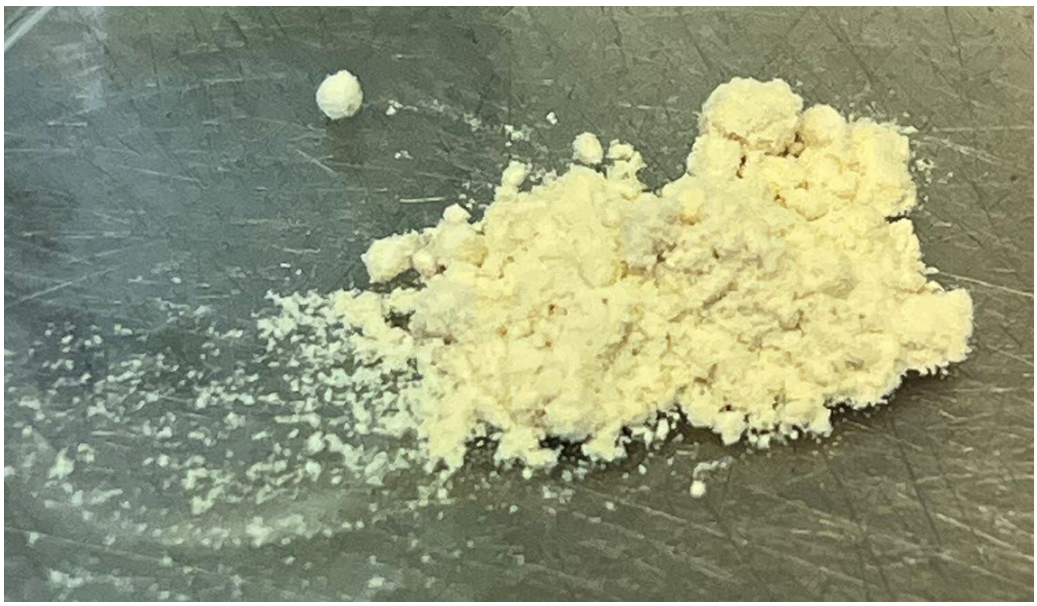


636607-11A, 11B, 11C/05022022-11

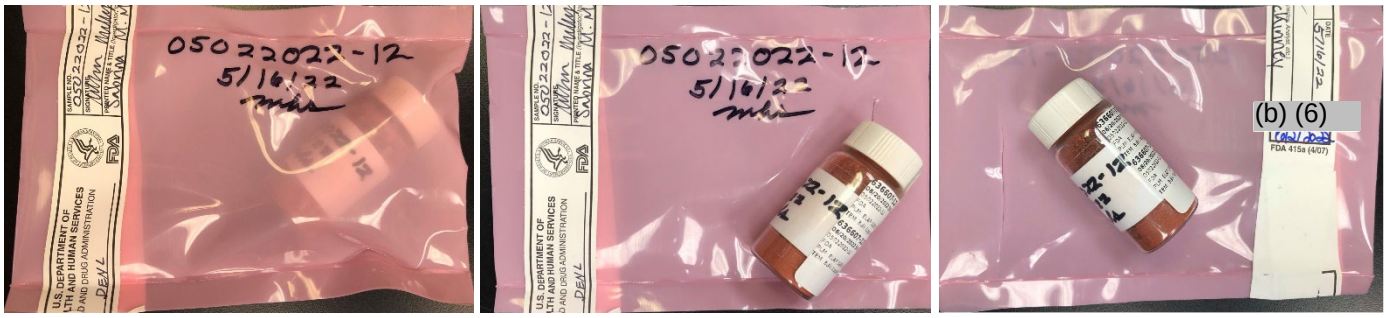


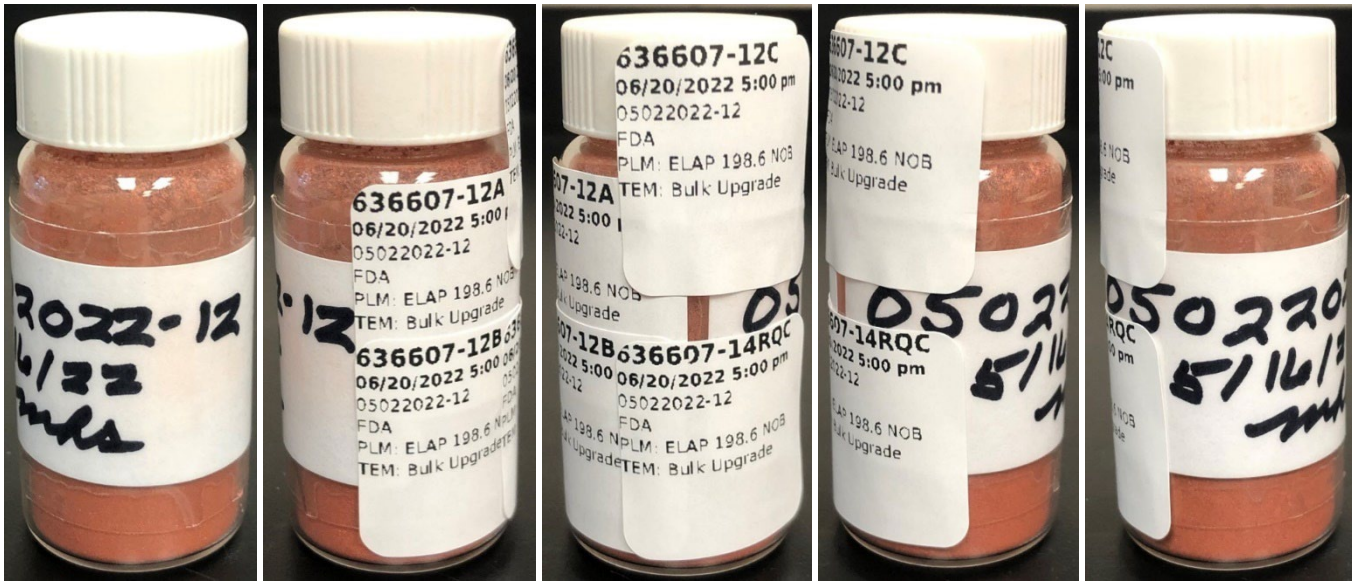






636607-12A, 12B, 12C/05022022-12





Sample Preparation

Samples were gravimetrically reduced and filtered by (b) (6) on: June 3, 2022, through June 8, 2022, for 636607-1A through 636607-4C and NB22-286/287; June 15, 2022, through June 17, 2022, for 636607-5A through 636607-8C, and NB22-333/334; June 21, 2022, through June 23, 2022, for 636607-9A through 636607-12C, 636607-13DQC, 636607-14RQC, and NB22-354/3544. PLM slide preparations were made by (b) (6) on: June 6, 2022, for 636607-1A through 636607-4C and NB22-334; June 16, 2022, for 636607-5A through 636607-8C, and NB22-344; June 22, 2022, for 636607-9A through 636607-12C, 636607-13DQC, 636607-14RQC, and NB22-355. TEM grid preparations were made by: (b) (6) on June 13, 2022 for 636607-1A through 636607-4C, and NB22-333; (b) (6) on June 21, 2022, for 636607-5A through 636607-8C, and NB22-343; (b) (6) on June 24, 2022, for 636607-9A through 636607-12C, 636607-13DQC, 636607-14RQC, and NB22-354. Sample preparation 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.

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

<u>Problems Encountered During Preparation & Resolutions:</u>
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

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

D: Density

Where: W1: Weight of sample prior to ashing/acid wash
W2: Weight of sample after ashing
W3: Weight of sample after acid treatment

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)

PLM

(ASB * W3)/W1

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

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

636607-1A, 1B, 1C/Client Sample: 05022022-1

PLM

All three aliquots of sample 05022022-1 were analyzed by (b) (6) on June 28, 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.

636607-1A	No Asbestos Detected
636607-1B	No Asbestos Detected
636607-1C	No Asbestos Detected

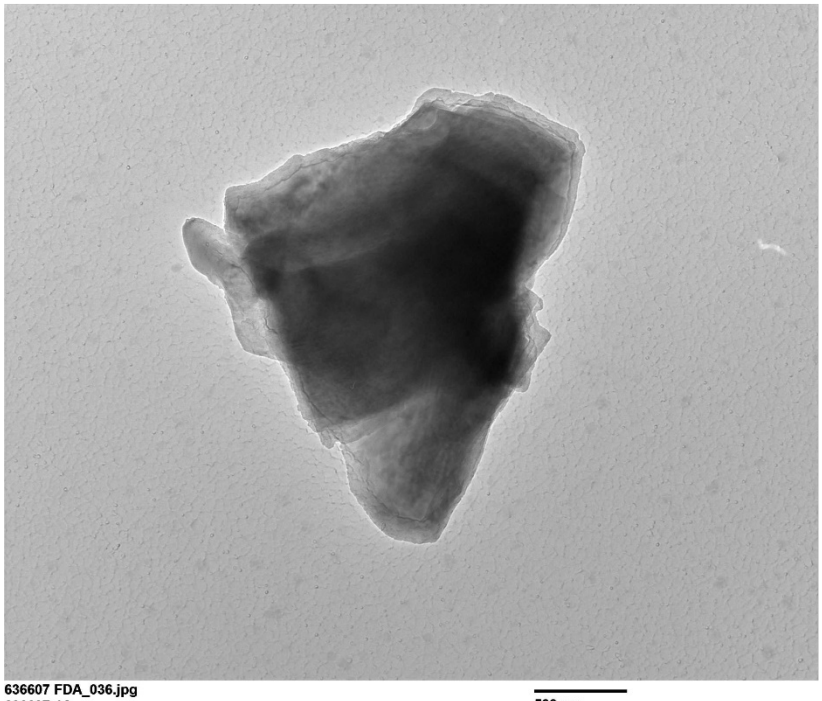
TEM

(b) (6) analyzed aliquot 1A on June 15, 2022, and aliquot 1C on June 21, 2022. Andreas Saldivar analyzed aliquot 1B on June 21, 2022. The primary particles observed were talc and mica; titanium particles were also observed along with talc ribbons, talc fibers, and calcium 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.

636607-1A	No Asbestos Detected
636607-1B	No Asbestos Detected
636607-1C	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.

636607-1A, Talc Particle



636607 FDA_036.jpg
636607-1A
Talc Particle
Cal: 0.001775 µm/pix
17:11 6/15/2022
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

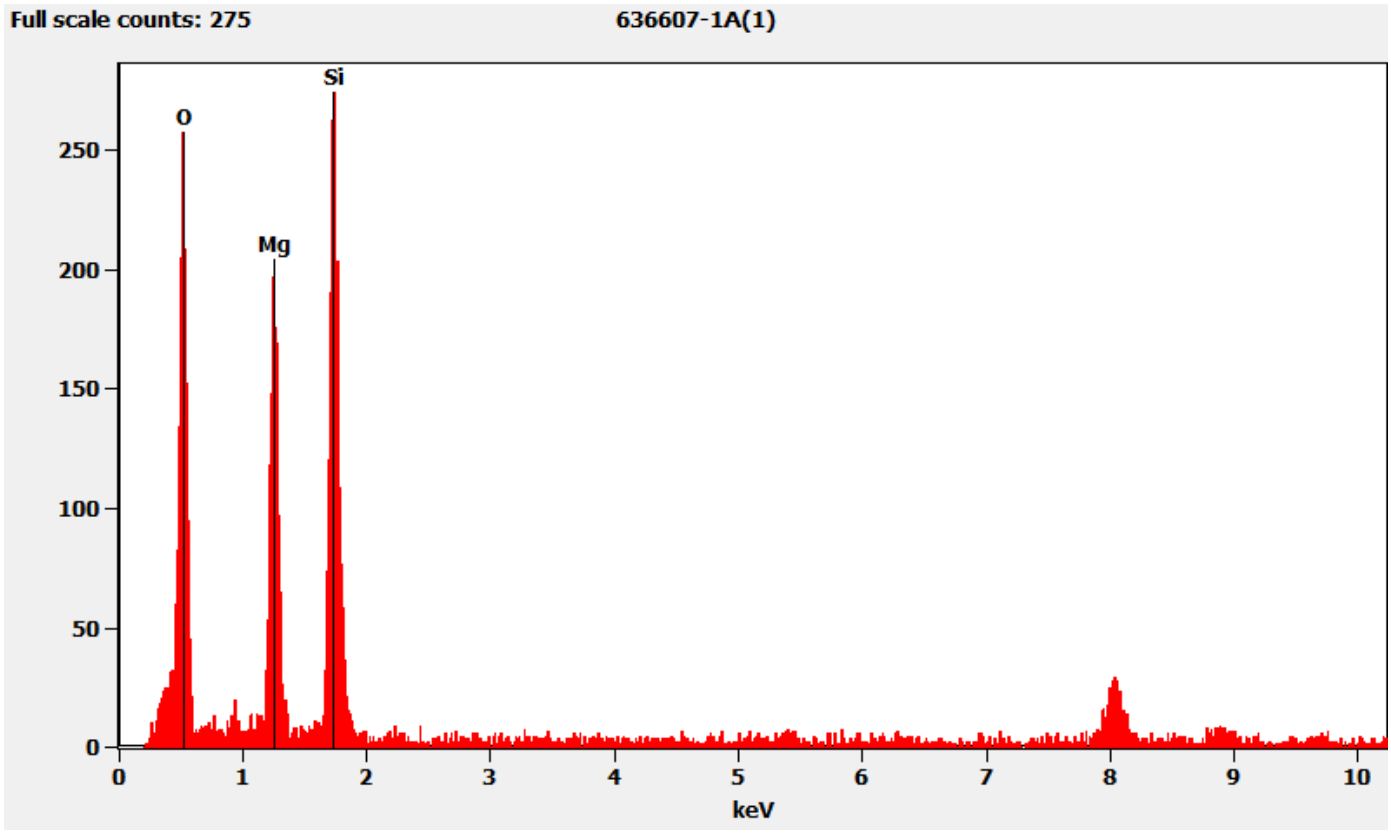
Hexagonal Diffraction Pattern from the Talc Particle Pictured Above

636607 FDA_034.jpg
636607-1A
Talc Particle
17:09 6/15/2022

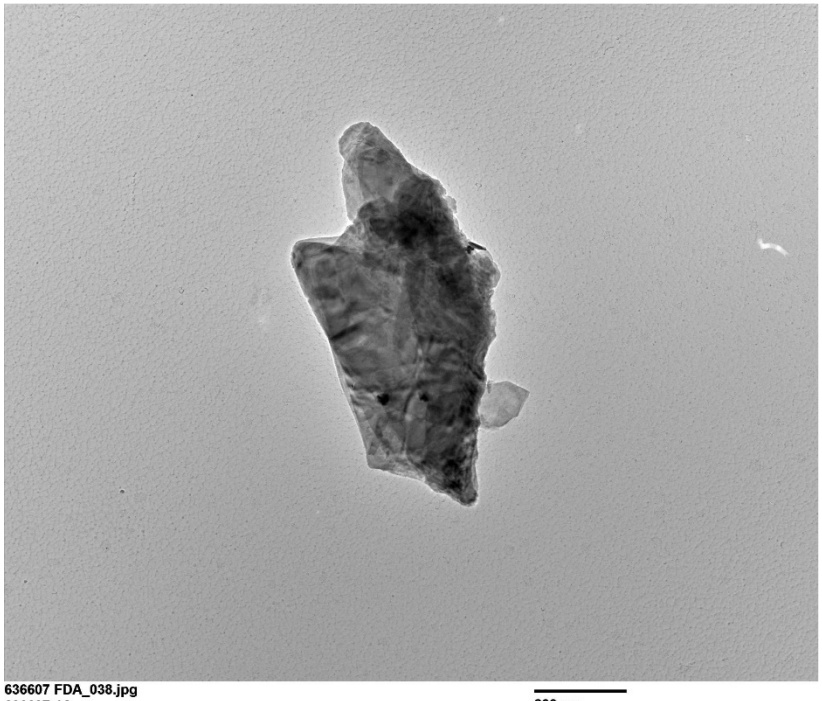
Camera: NANOSPRT5, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

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

Chemistry from the Talc Particle Pictured Above



636607-1A, Mica Particle



636607 FDA_038.jpg
636607-1A
Mica Particle
Cal: 0.002860 µm/pix
17:14 6/15/2022
Microscopist (b) (6)
Camera: NANOSPR75, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

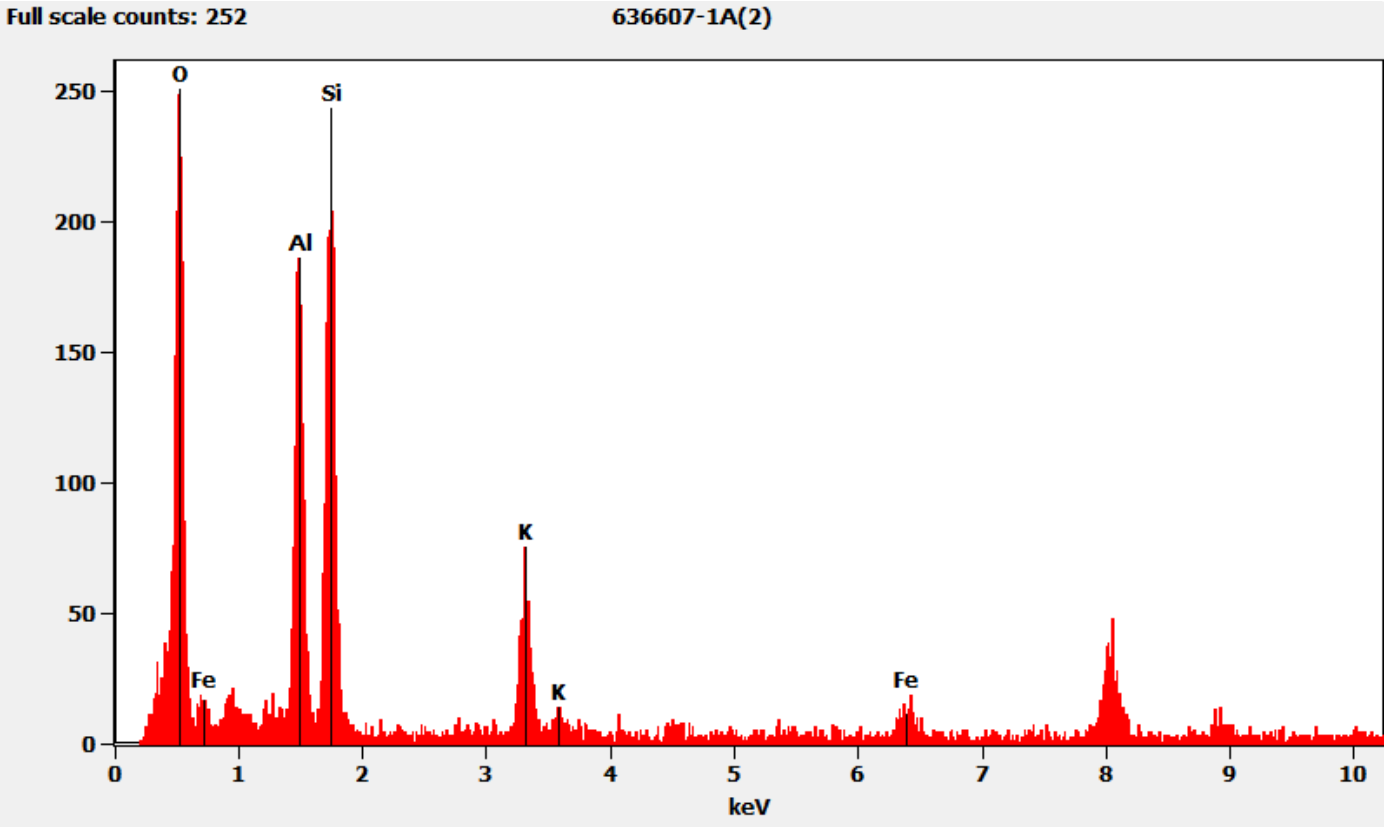
800 nm
HV=100kV
Direct Mag: 3600 x
AMA Analytical Services, Inc

Hexagonal Diffraction Pattern from the Mica Particle Pictured Above

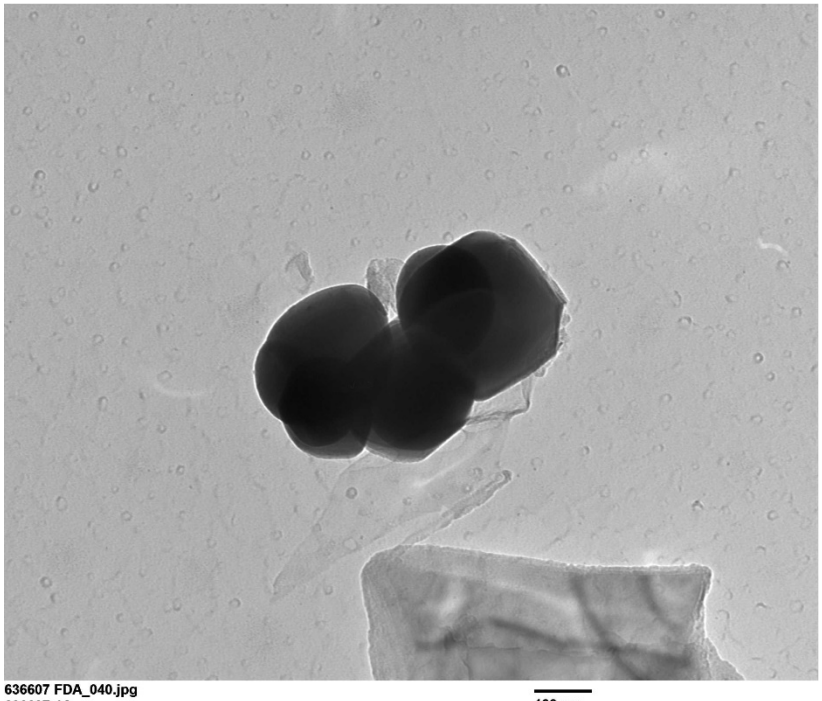
636607 FDA_037.jpg
636607-1A
Mica Particle
17:13 6/15/2022
Microscopist (b) (6)
Camera: NANOSPRi5, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

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

Chemistry from the Mica Particle Pictured Above



636607-1A, Titanium Particles



636607 FDA_040.jpg
636607-1A
Ti Particles
Cal: 0.571351 nm/pix
17:22 6/15/2[illegible]
Microscopi[illegible] (b) (6)
Camera: NANOSPRTS, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

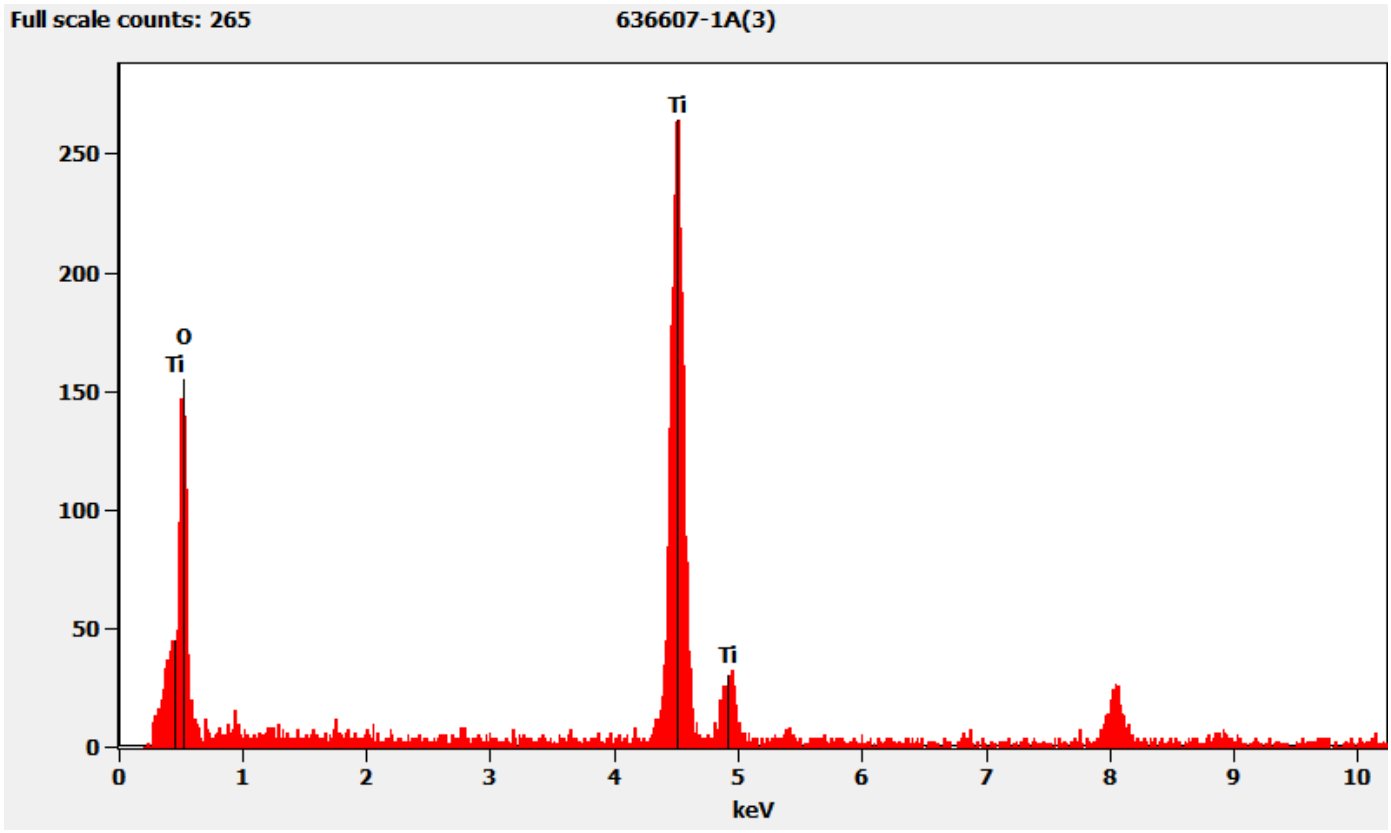
100 nm
HV=100kV
Direct Mag: 19000 x
AMA Analytical Services, Inc

Diffraction Pattern from the Titanium Particles Pictured Above

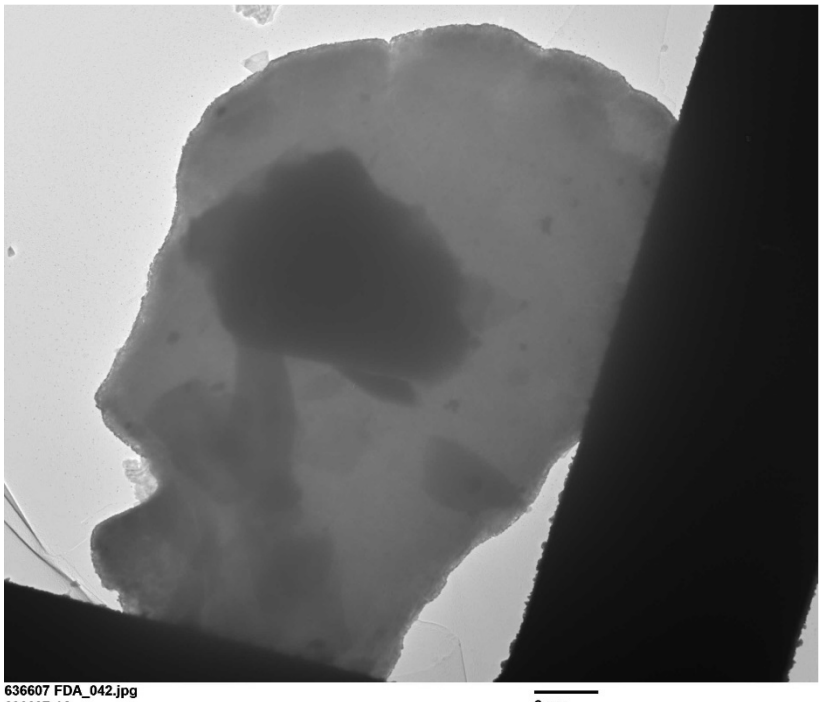
636607 FDA_039.jpg
636607-1A
Ti Particles
17:21 6/15/2022
Microscopist (b) (6)
Camera: NANOSPR15, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

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

Chemistry from the Titanium Particles Pictured Above



636607-1A, Mica Particle with Titanium

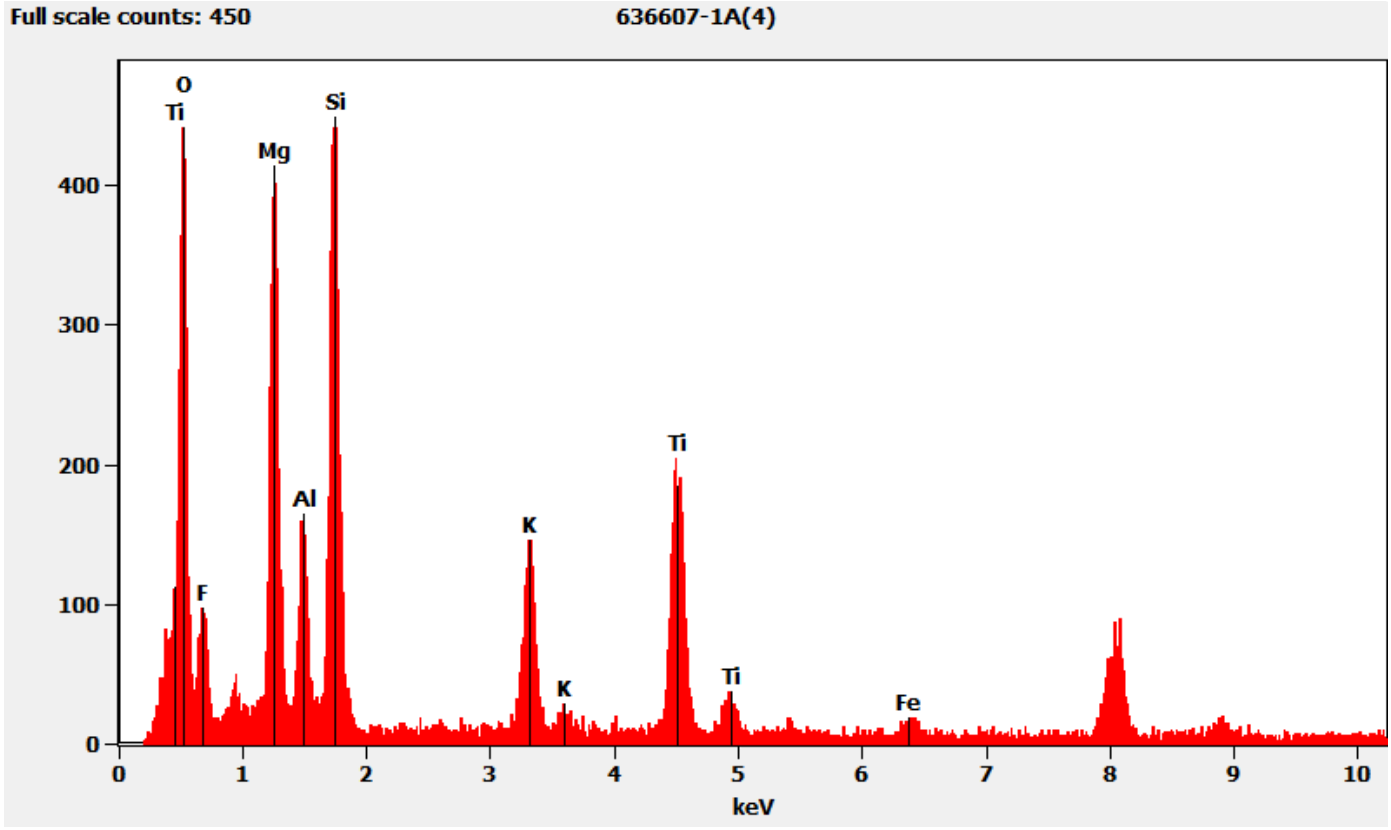


Diffraction Pattern from the Mica Particle with Titanium Pictured Above

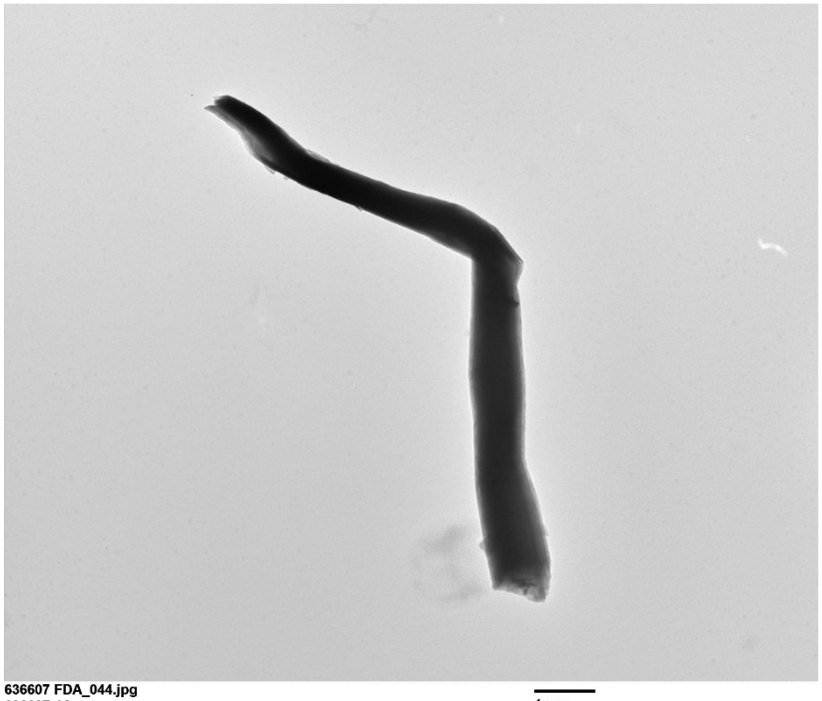
636607 FDA_041.jpg
636607-1A
Mica w/Ti
17:25 6/15/2022
Microscopist (b) (6)
Camera: NAN[illegible]75, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

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

Chemistry from the Mica Particle with Titanium Pictured Above



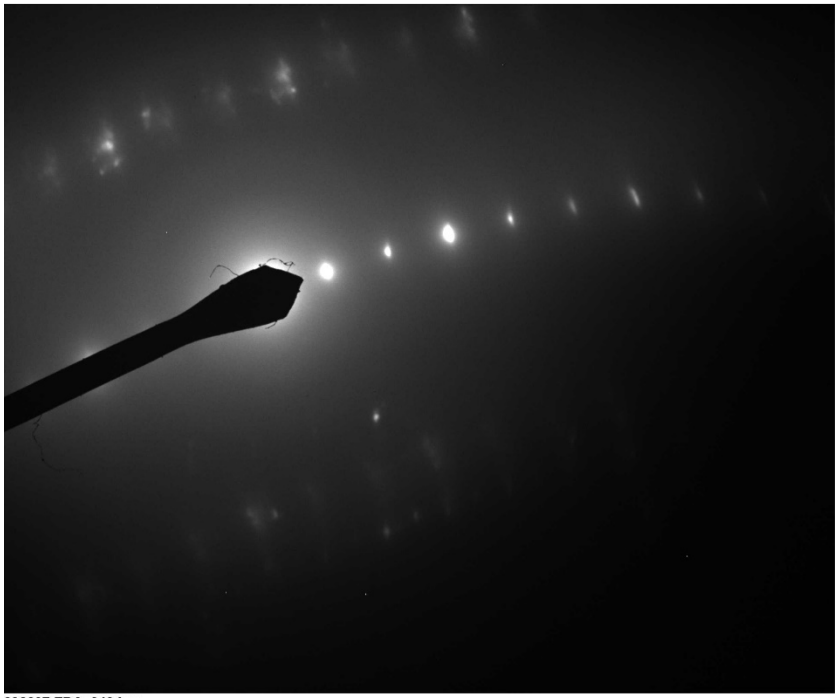
636607-1A, Talc Ribbon



636607 FDA_044.jpg
636607-1A
Talc Ribbon
Cal: 0.005419 µm/pix
17:54 6/15/2022
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

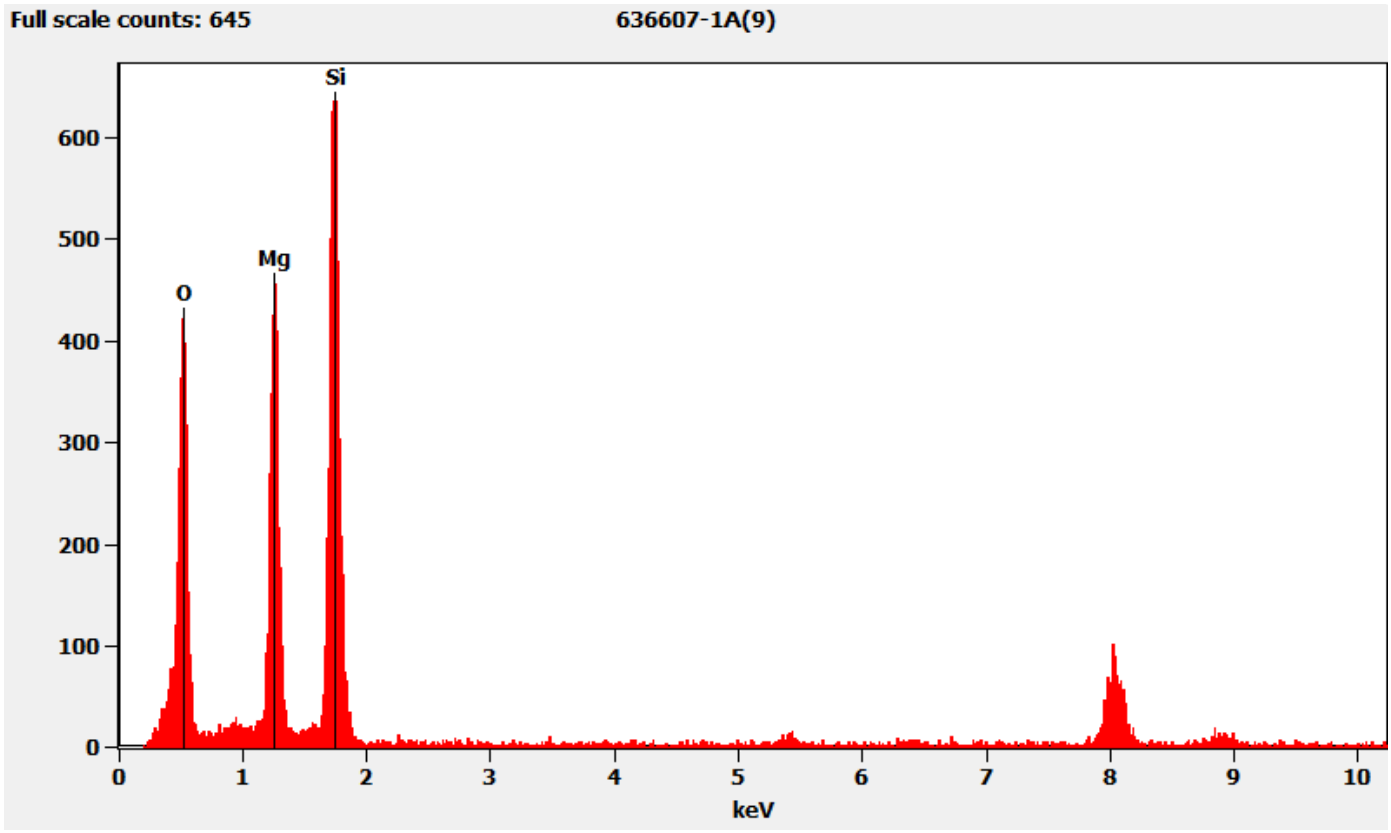
Diffraction Pattern from the Talc Ribbon Pictured Above



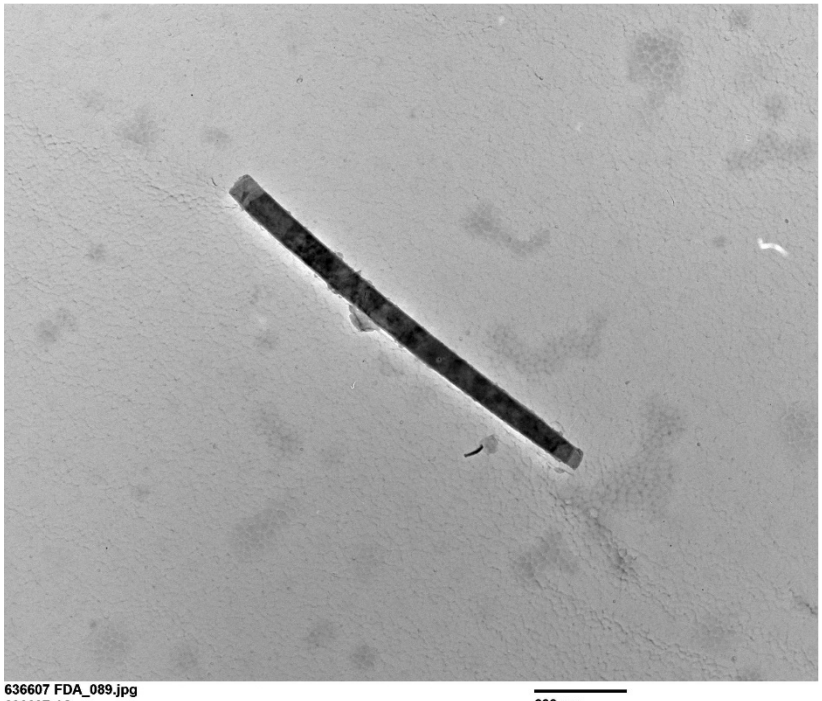
636607 FDA_043.jpg
636607-1A
Talc Ribbon
17:53 6/15/2022
Microscopist (b) (6)
Camera: NANOSPRY5, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

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

Chemistry from the Talc Ribbon Referenced Above



636607-1C, Talc Fiber



636607 FDA_089.jpg
636607-1C
Talc Fiber
Cal: 0.002145 µm/pix
11:40 6/23/2022
Microscopist (b) (6)
Camera: NANOSPRT5, Exposure: 840 (ms) x 5 std. frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

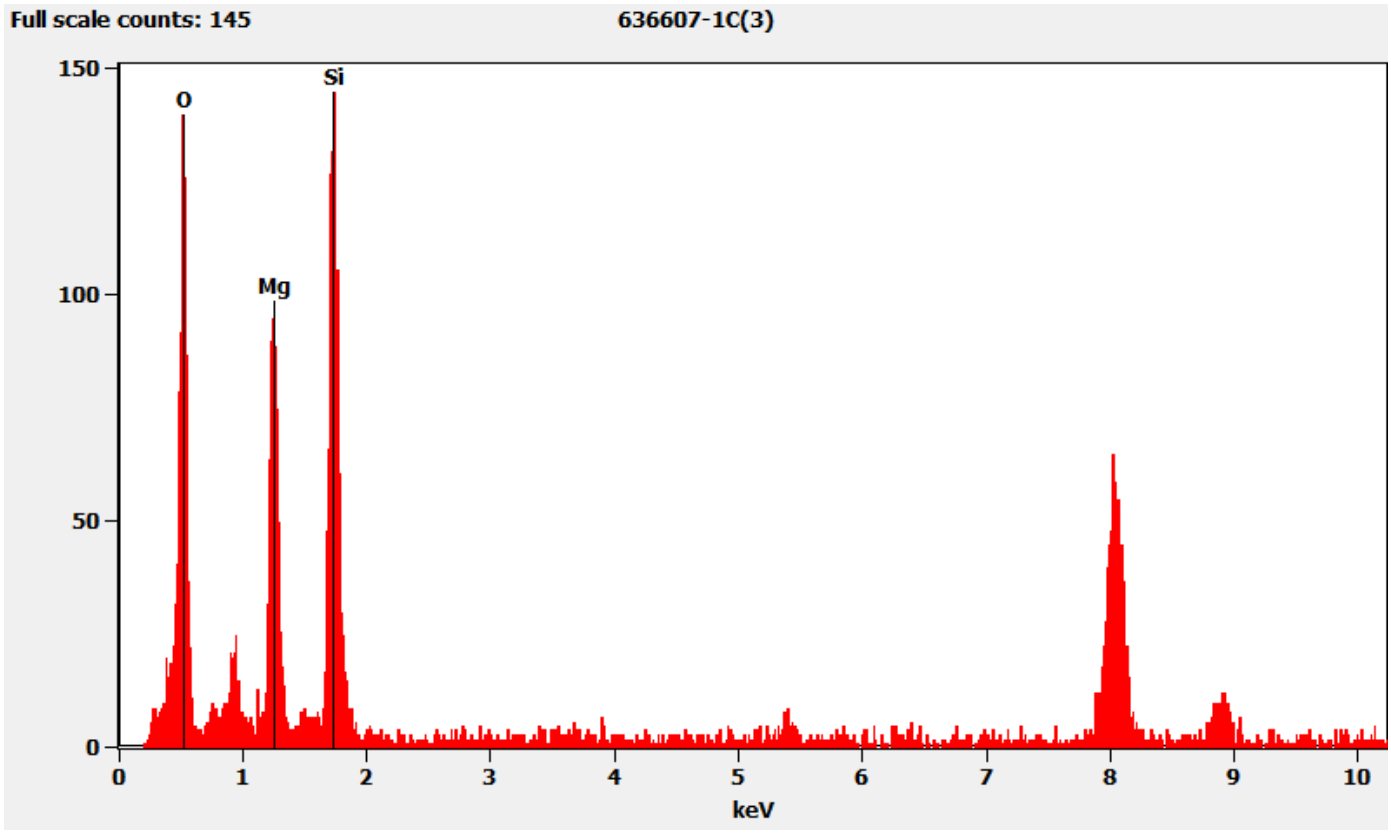
600 nm
HV=100kV
Direct Mag: 4800 x
AMA Analytical Services, Inc

Hexagonal Diffraction Pattern from the Talc Fiber Pictured Above

636607 FDA_088.jpg
636607-1C
Talc Fiber
11:37 6/23/2022
Microscopist (b) (6)
Camera: NANOSPRY5, 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 Talc Fiber Pictured Above



636607-2A, 2B, 2C/Client Sample: 05022022-2

PLM

All three aliquots of sample 05022022-2 were analyzed by (b) (6) on June 28, 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.

636607-2A	No Asbestos Detected
636607-2B	No Asbestos Detected
636607-2C	No Asbestos Detected

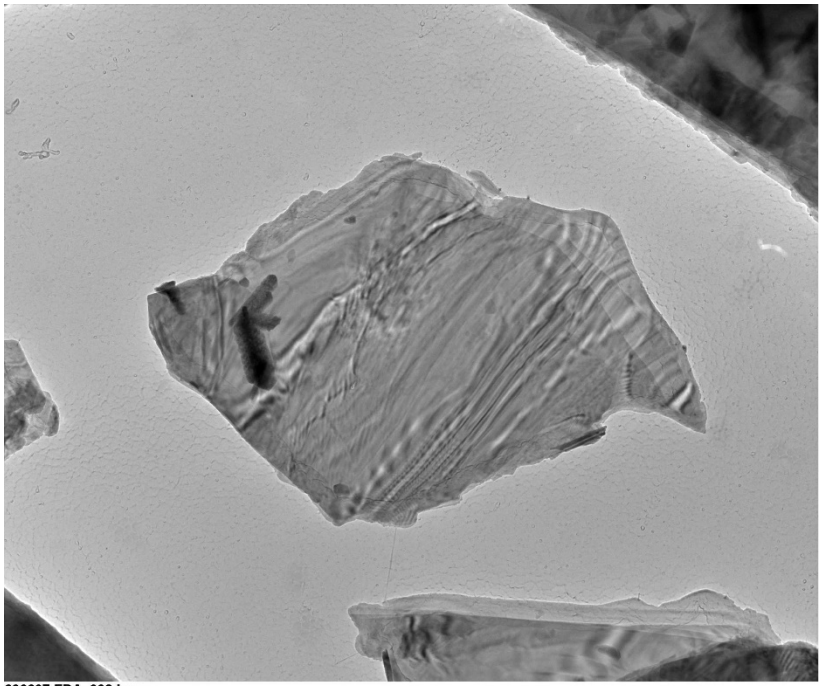
TEM

(b) (6) analyzed aliquot 2A on June 13, 2022, aliquot 2B on June 16, 2022, and aliquot 2C on June 23, 2022. The primary particles observed were mica and iron; talc particles and silica spheres were also observed along with silicon particles, titanium fibers, 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.

636607-2A	No Asbestos Detected
636607-2B	No Asbestos Detected
636607-2C	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.

636607-2A, Mica Particle

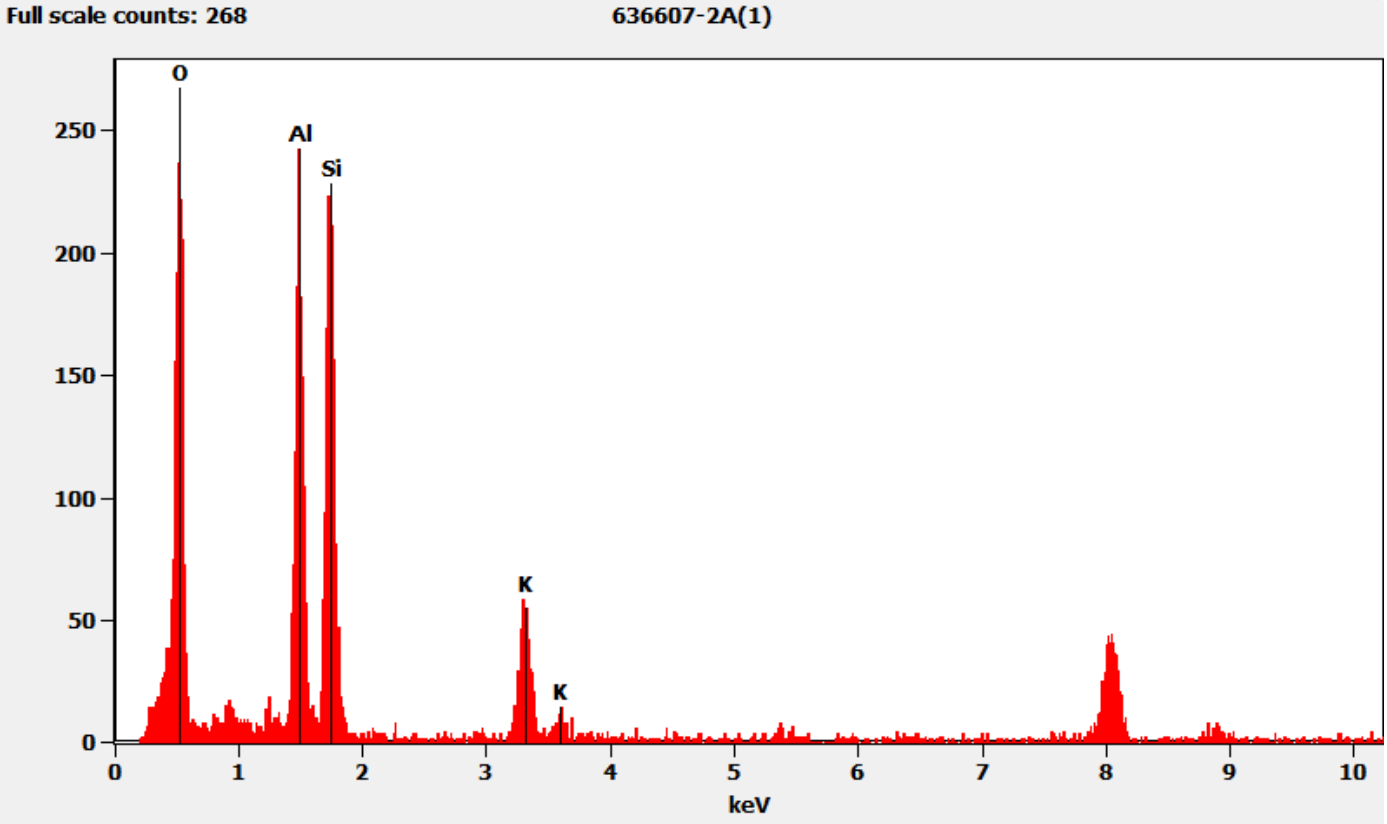


Hexagonal Diffraction Pattern from the Mica Particle Pictured Above

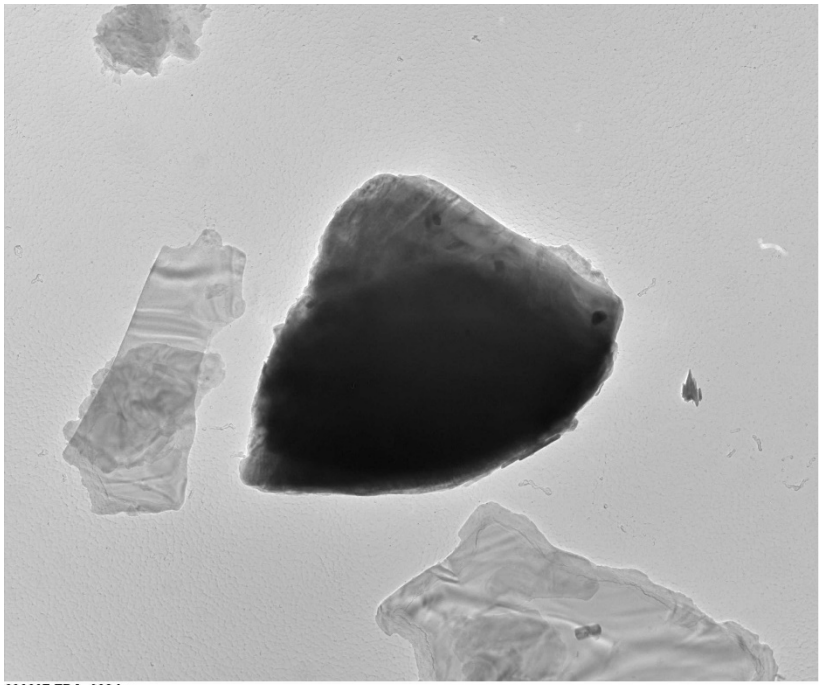
636607 FDA_001.jpg
636607-2A
Mica Particle
19:18 6/13/2022
Microscopist (b) (6)
Camera: NANOSPRIS, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

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

Chemistry from the Mica Particle Pictured Above



636607-2A, Mica Particle

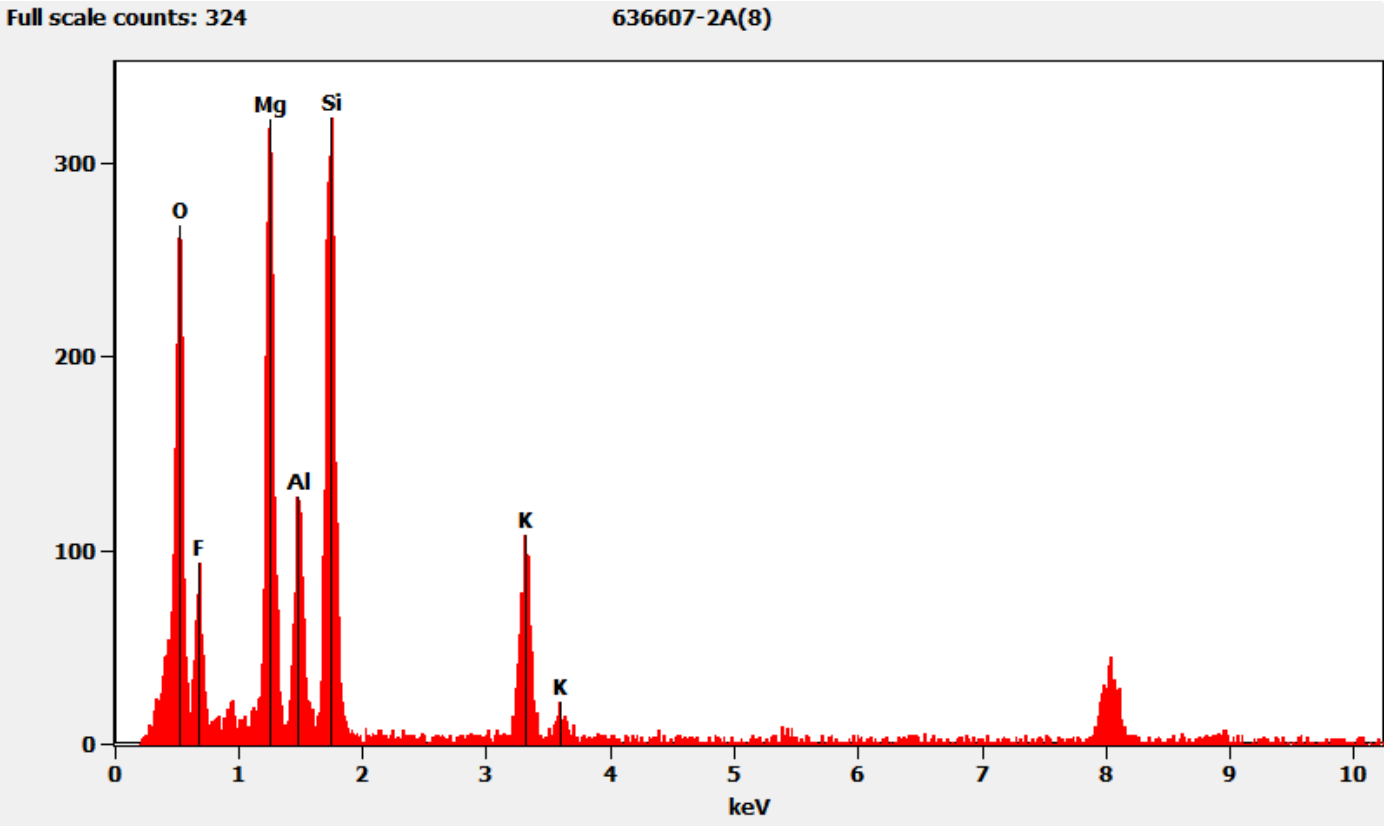


Hexagonal Diffraction Pattern from the Mica Particle Pictured Above

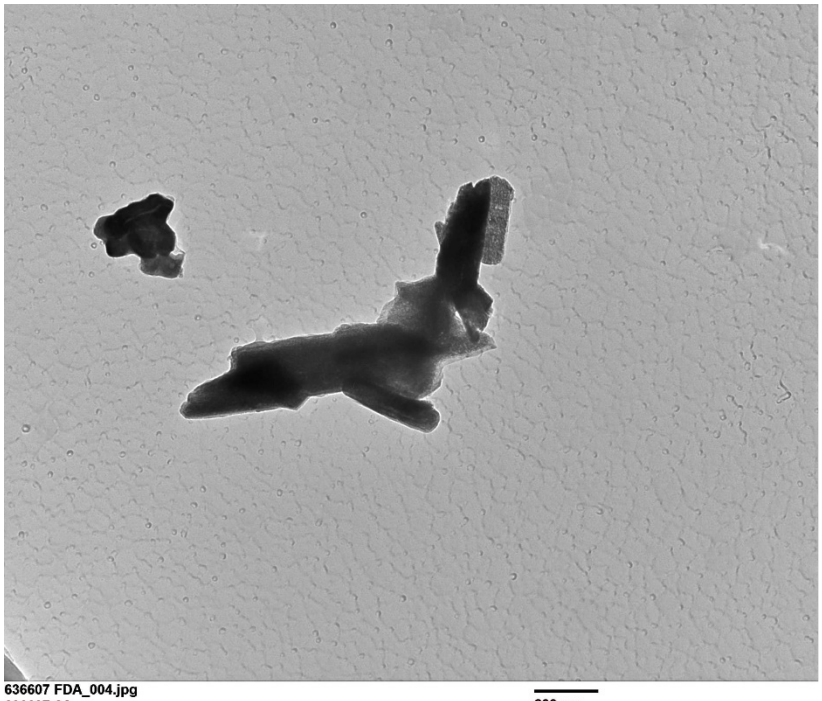
636607 FDA_007.jpg
636607-2A
Mica particle
19:31 6/13/2022
Microscopist (b) (6)
Camera: NANOSPR15, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

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

Chemistry from the Mica Particle Pictured Above



636607-2A, Iron Particles

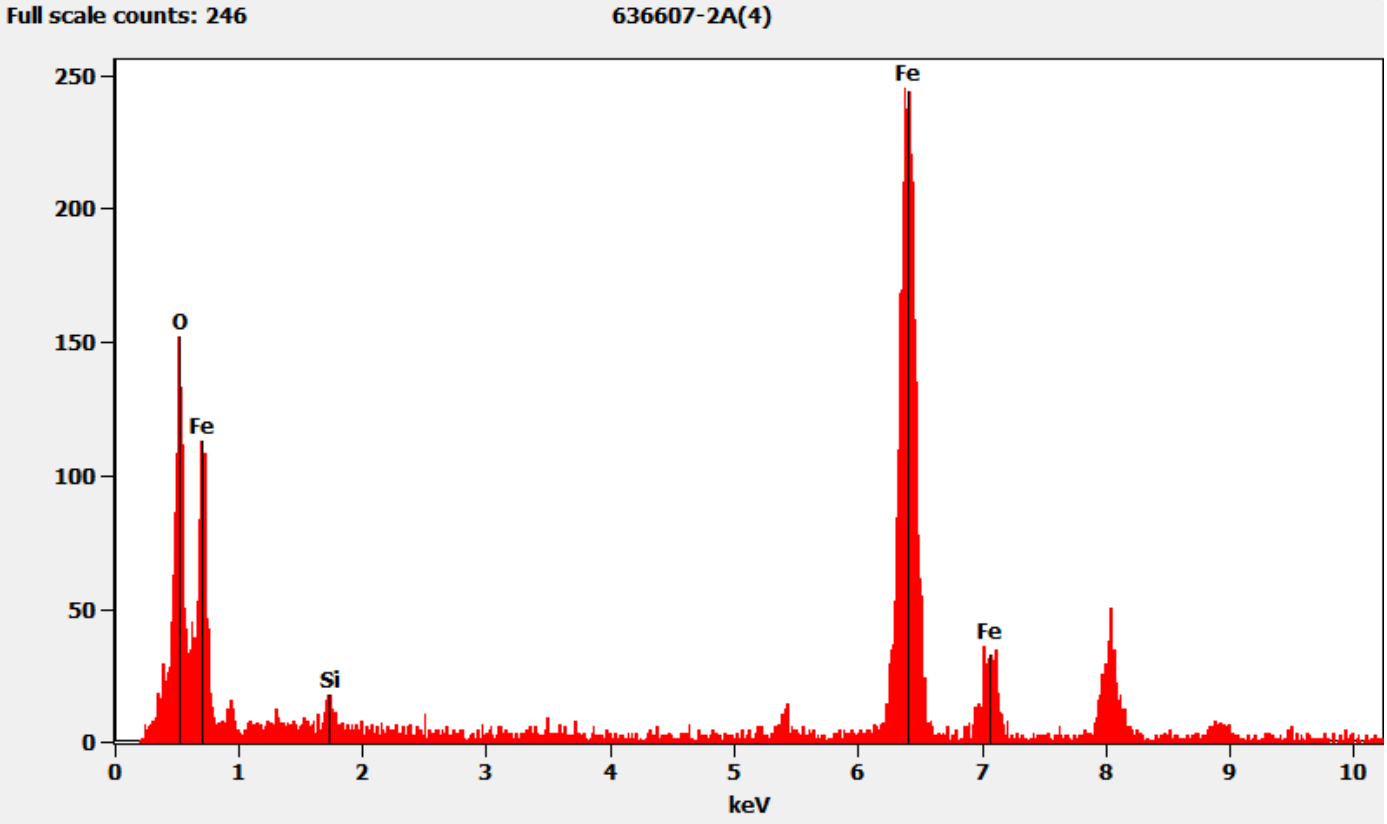


Diffraction Pattern from the Iron Particles Pictured Above

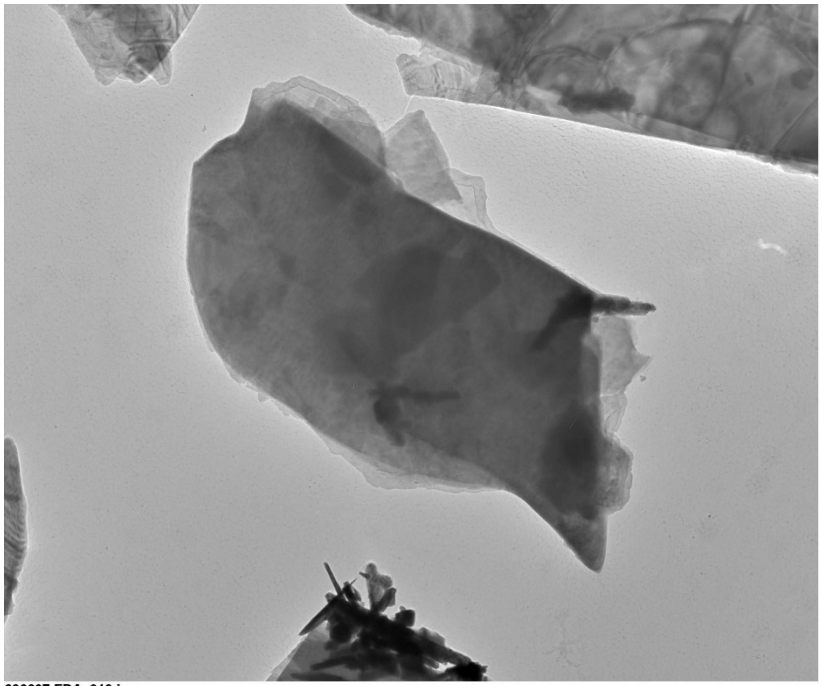
636607 FDA_003.jpg
636607-2A
Iron particles
19:23 6/13/2022
Microscopist (b) (6)
Camera: NAN[illegible]5, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

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

Chemistry from the Iron Particles Pictured Above



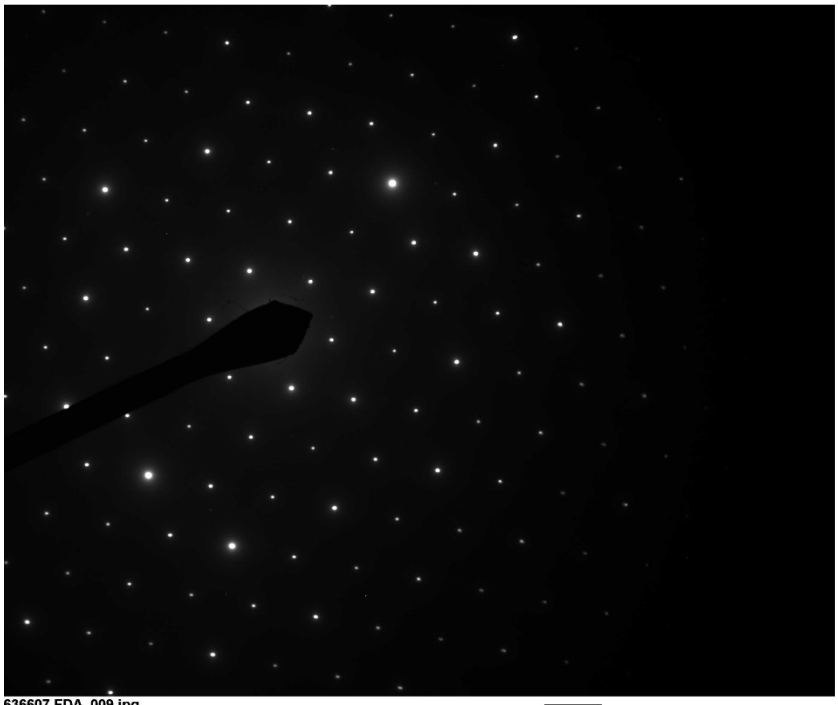
636607-2A, Talc Particle



636607 FDA_010.jpg
636607-2A
Talc particle
Cal: 0.002860 µm/pix
19:36 6/13/2022
Microscopist: (b) (6)
Camera: NANOSPRIS, 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

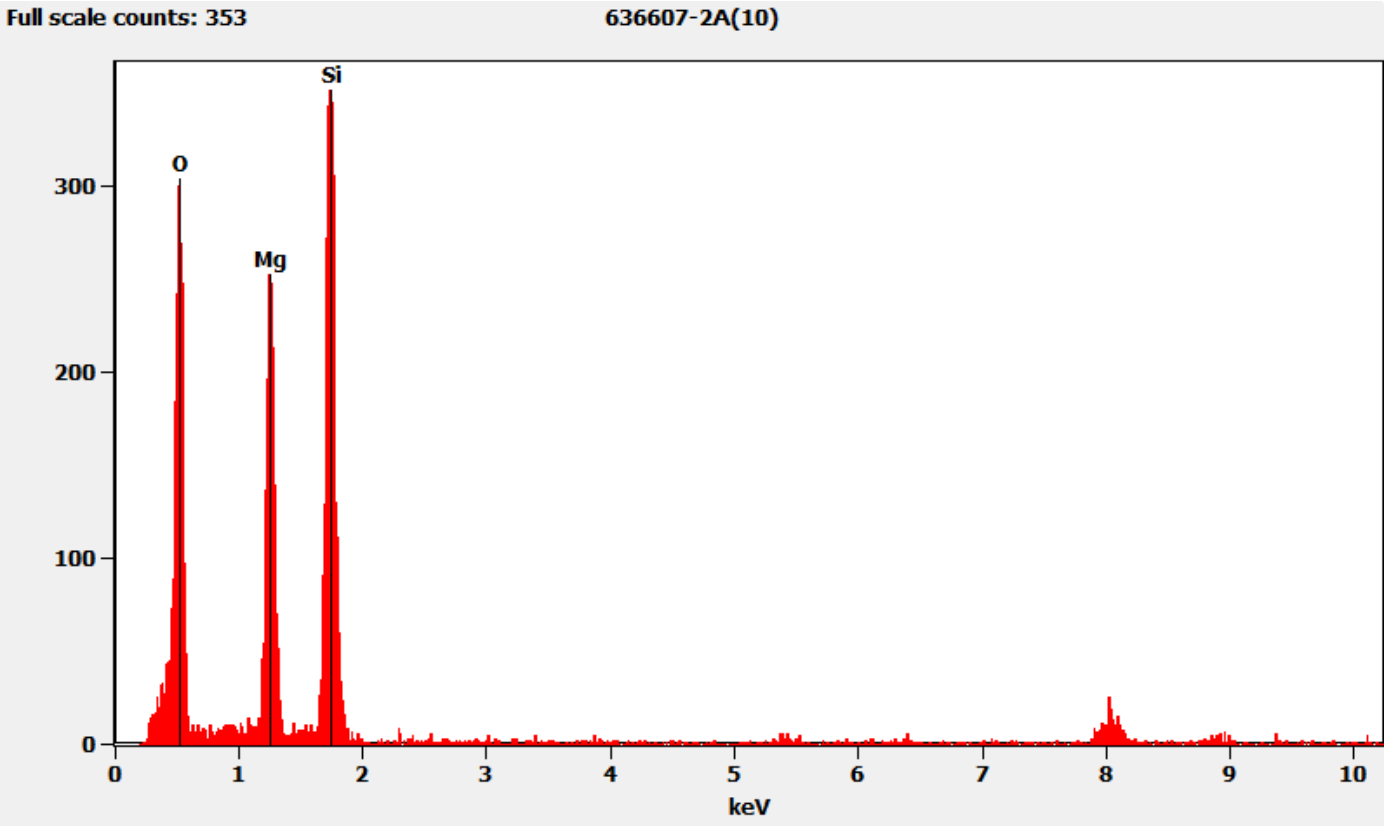
Hexagonal Diffraction Pattern from the Talc Particle Pictured Above



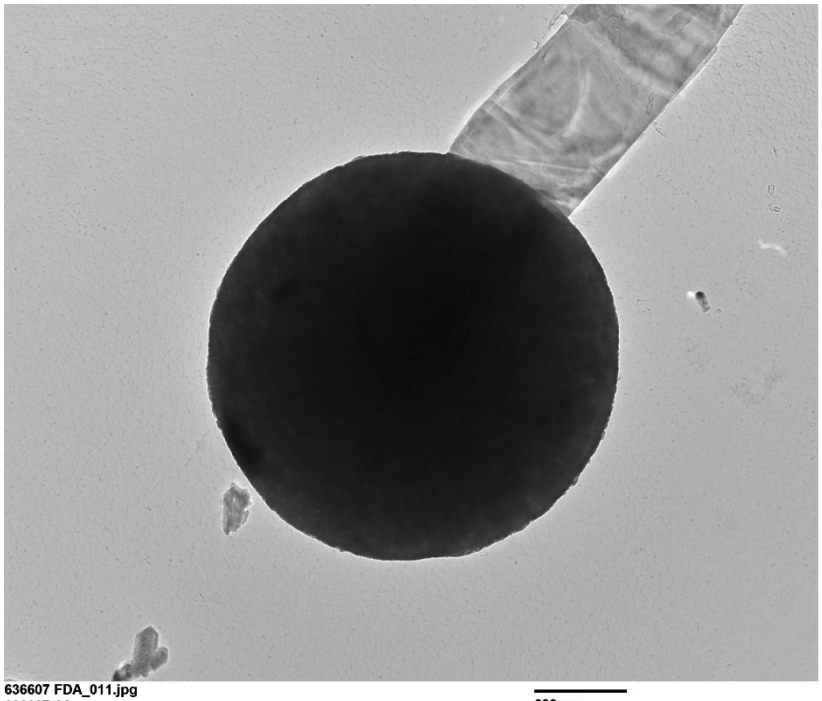
636607 FDA_009.jpg
636607-2A
Talc particle
19:35 6/13/2022
Microscopist (b) (6)
Camera: NANOSPRT5, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

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

Chemistry from the Talc Pictured Above



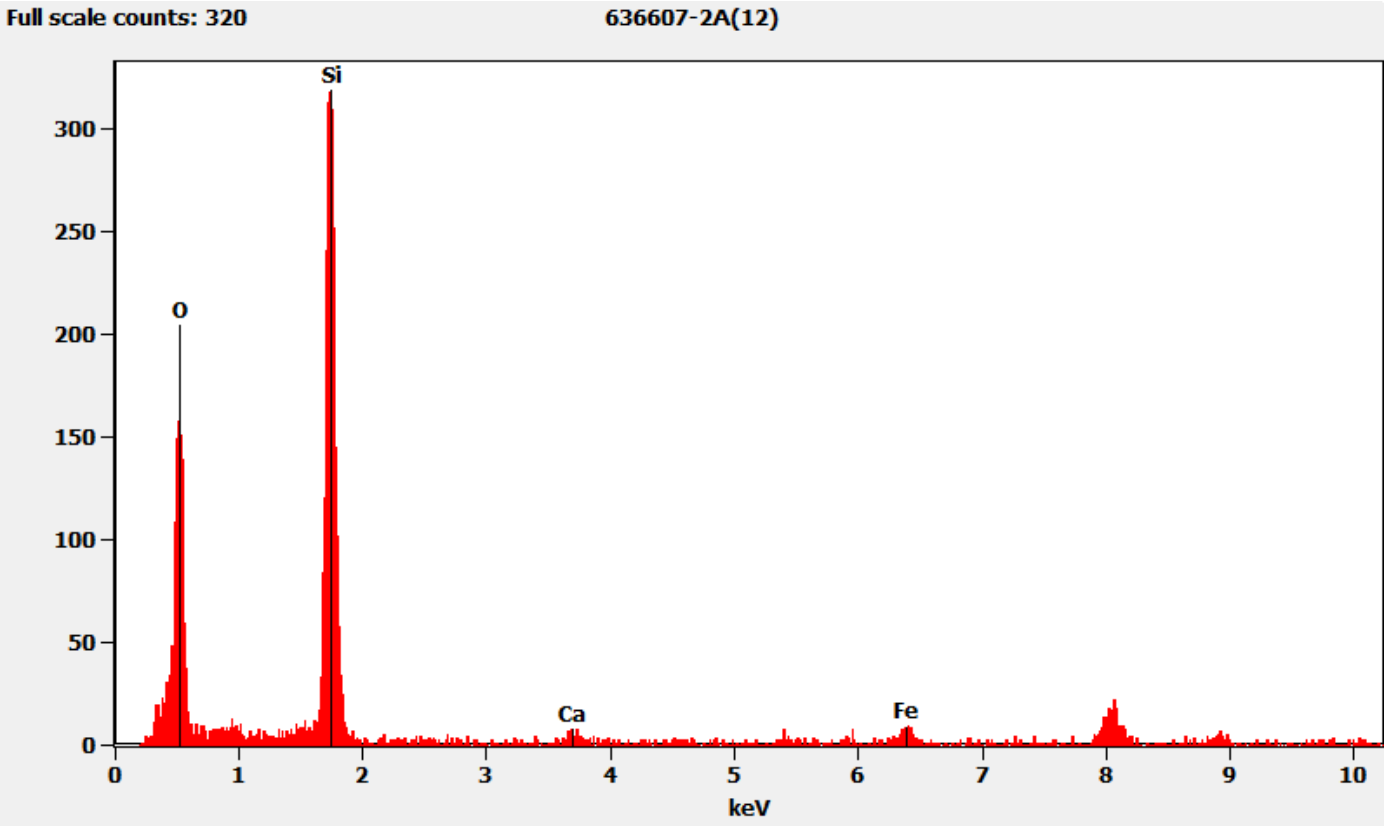
636607-2A, Silica Sphere



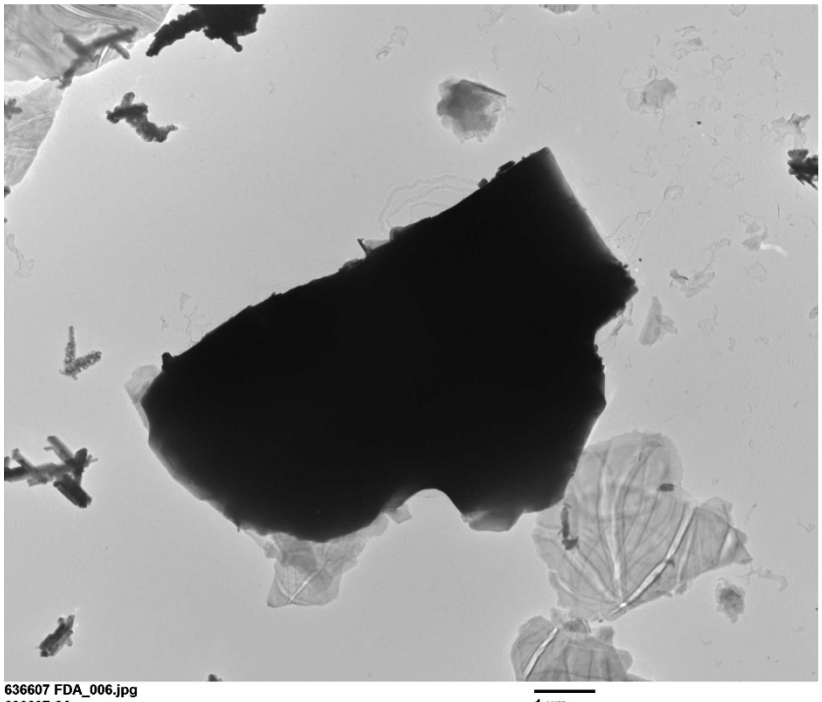
636607 FDA_011.jpg
636607-2A
Silica Sphere
Cal: 0.002145 µm/pix
19:41 6/13/2022
Microscopist (b) (6)
Camera: NANOSPRT5, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

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

Chemistry from the Silica Sphere Pictured Above



636607-2A, Silicon Particle



636607 FDA_006.jpg
636607-2A
Silica particle
Cal: 0.005419 µm/pix
19:28 6/13/2022
Microscopist: (b) (6)
Camera: NANOSPRT5, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

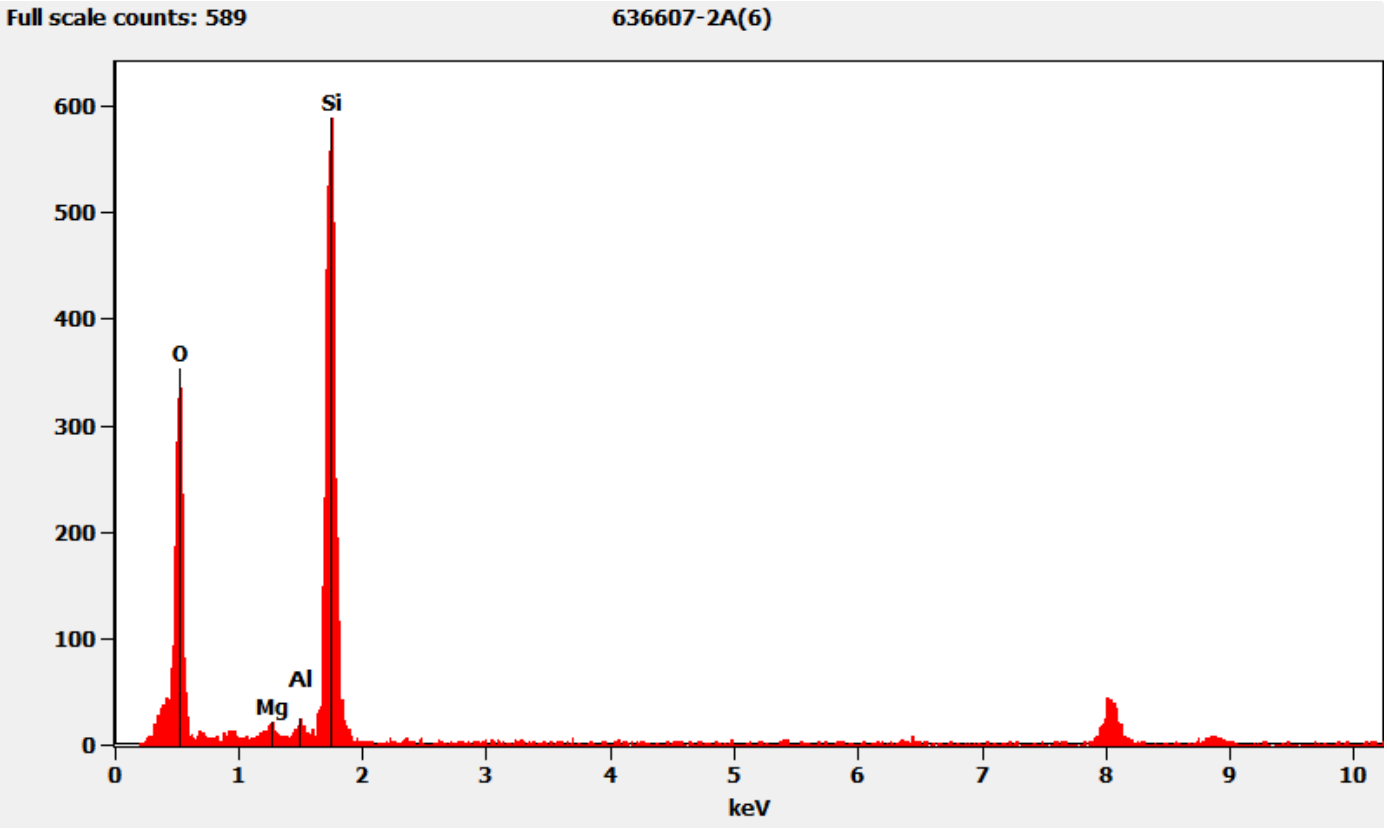
1 µm
HV=100kV
Direct Mag: 1900 x
AMA Analytical Services, Inc

Diffraction Pattern from the Silicon Particle Pictured Above

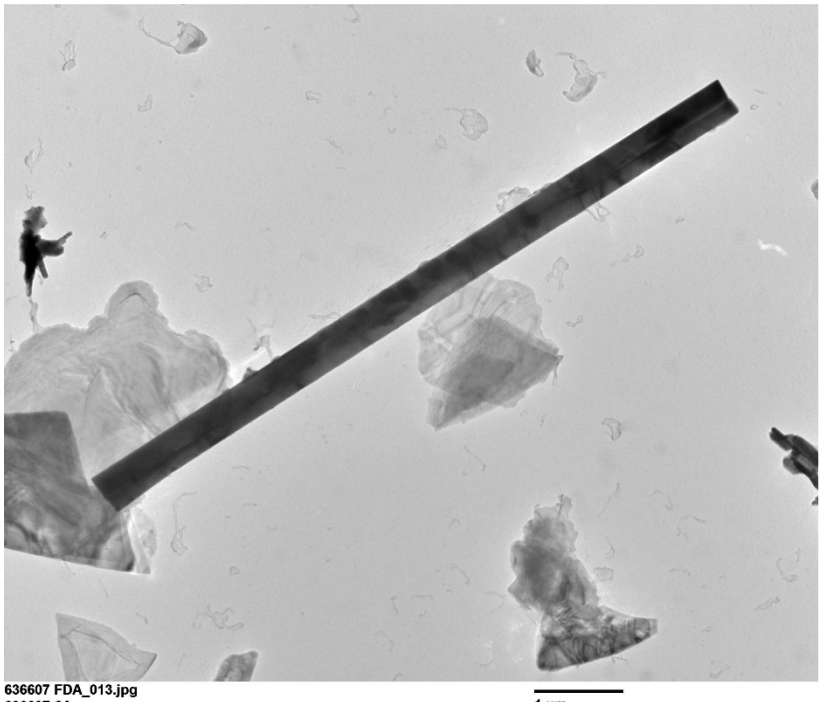
636607 FDA_005.jpg
636607-2A
Silica particle
19:27 6/13/2022
Microscopist: (b) (6)
Camera: NANOSPRT5, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

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

Chemistry from the Silicon Particle Pictured Above



636607-2A, Titanium Fiber



636607 FDA_013.jpg
636607-2A
Ti Fiber
Cal: 0.003702 µm/pix
19:46 6/13/2022
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

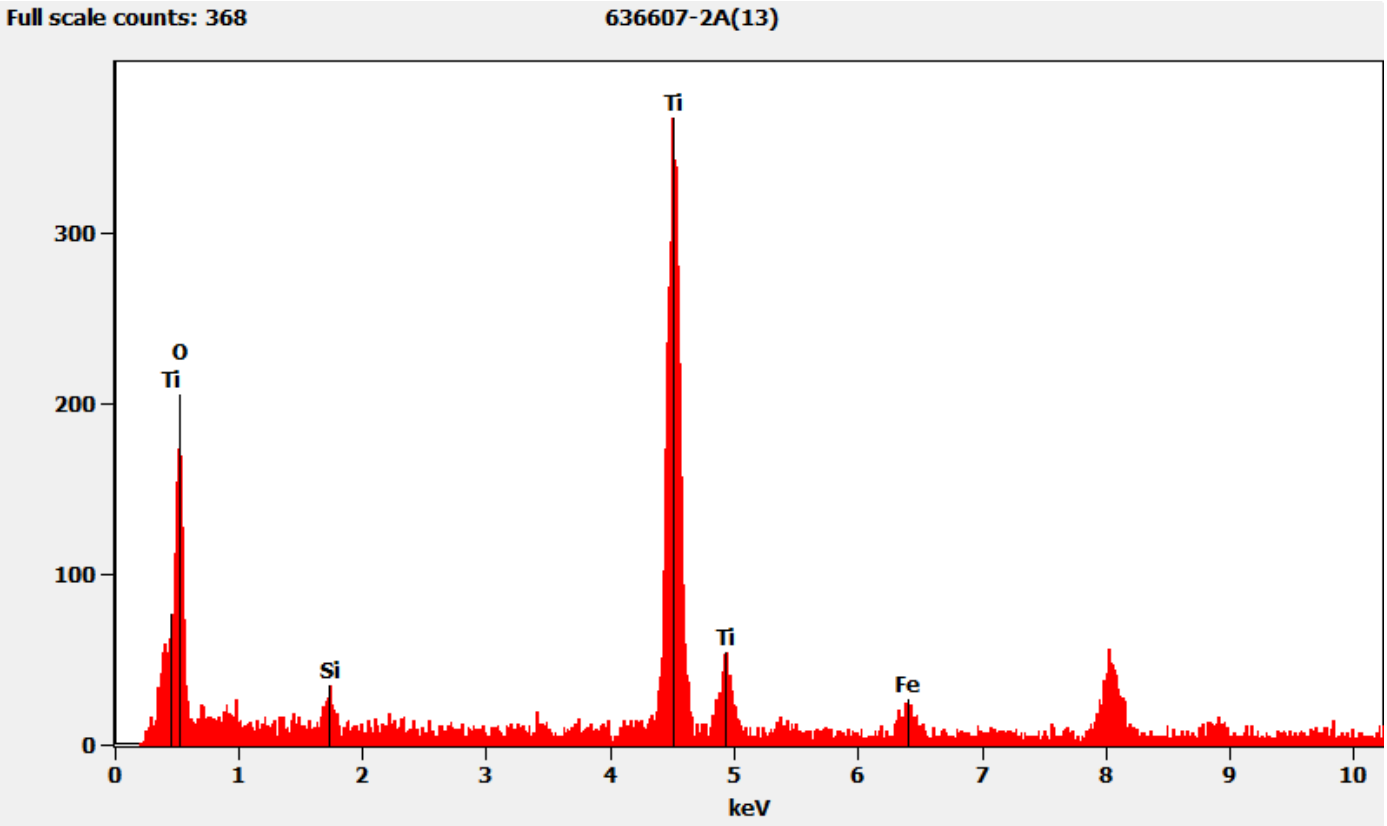
1 µm
HV=100kV
Direct Mag: 2900 x
AMA Analytical Services, Inc

Diffraction Pattern from the Titanium Fiber Pictured Above

636607 FDA_012.jpg
636607-2A
Ti Fiber
19:45 6/13/2022
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 Titanium Fiber Pictured Above



636607-2C, Talc Ribbon

636607 FDA_091.jpg
636607-2C
Talc Ribbon
Cal: 0.003702 µm/pix
12:32 6/23/2022
Microscopist: (b) (6)
Camera: NANOSPRT5, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

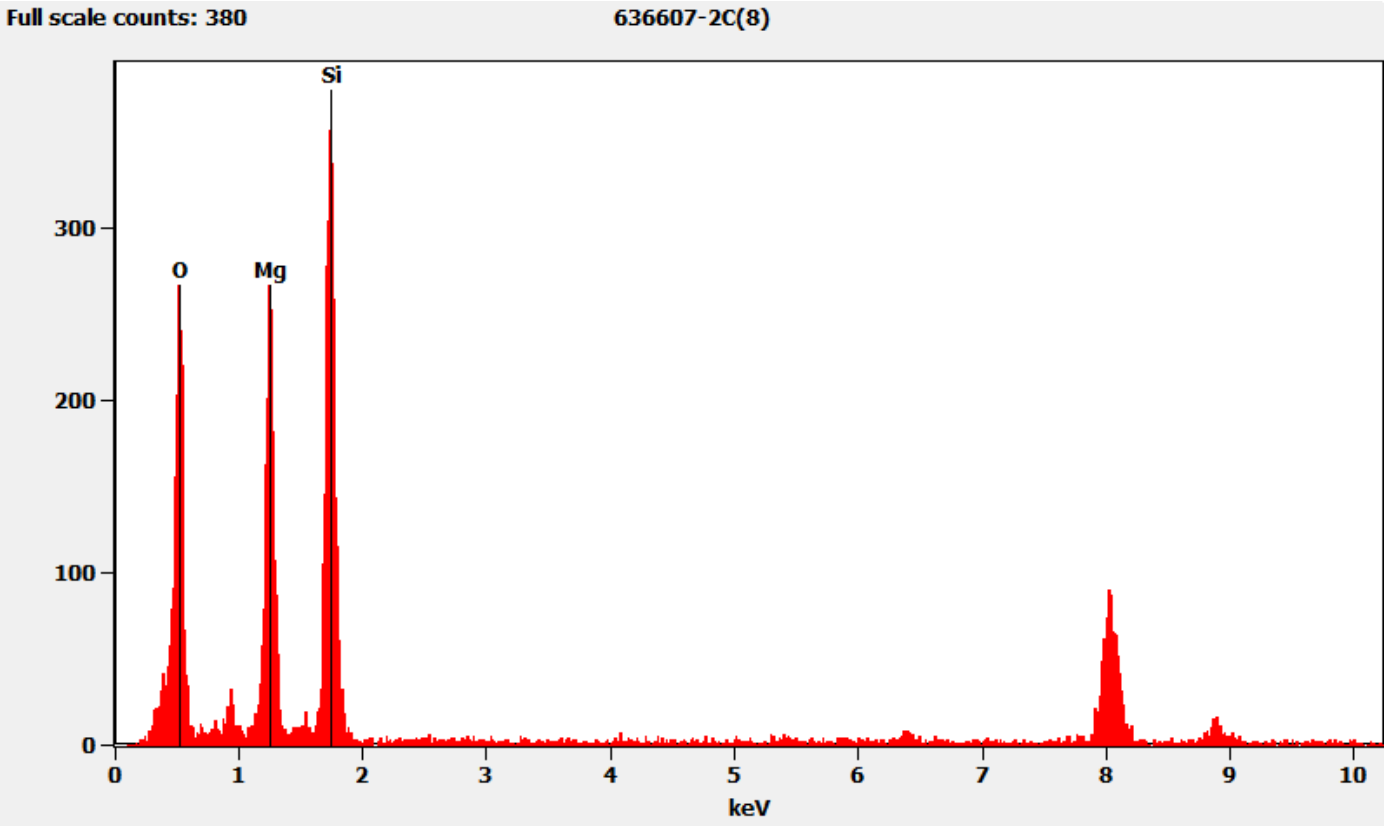
1 µm
HV=100kV
Direct Mag: 2900 x
AMA Analytical Services, Inc

Diffraction Pattern from the Talc Ribbon Pictured Above

636607 FDA_090.jpg
636607-2C
Talc Ribbon
12:31 6/23/2022
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



636607-3A, 3B, 3C/Client Sample: 05022022-3

PLM

All three aliquots of sample 05022022-3 were analyzed by (b) (6) on June 28, 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.

636607-3A	No Asbestos Detected
636607-3B	No Asbestos Detected
636607-3C	No Asbestos Detected

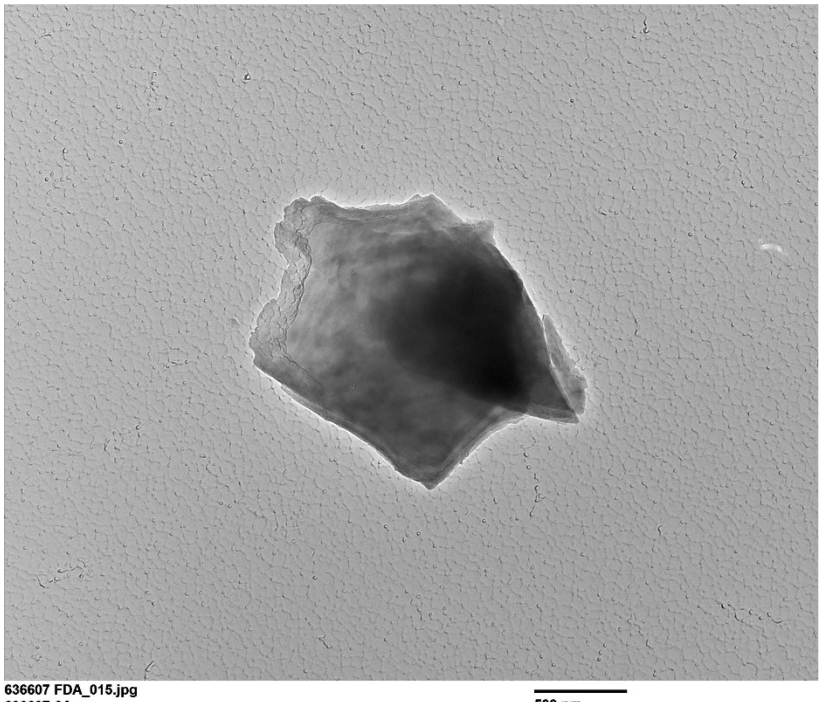
TEM

(b) (6) analyzed aliquot 3A on June 14, 2022, aliquot 3B on June 16, 2022, and aliquot 3C on June 23, 2022. The primary particle observed was talc; particles containing magnesium, aluminum and silicon were also observed along with particles containing phosphorus and calcium, talc ribbons, and talc fibers. No asbestos or non-asbestos amphibole variants were observed during analysis. The results were calculated using the equations detailed in the *Calculations* section above.

636607-3A	No Asbestos Detected
636607-3B	No Asbestos Detected
636607-3C	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.

636607-3A, Talc Particle

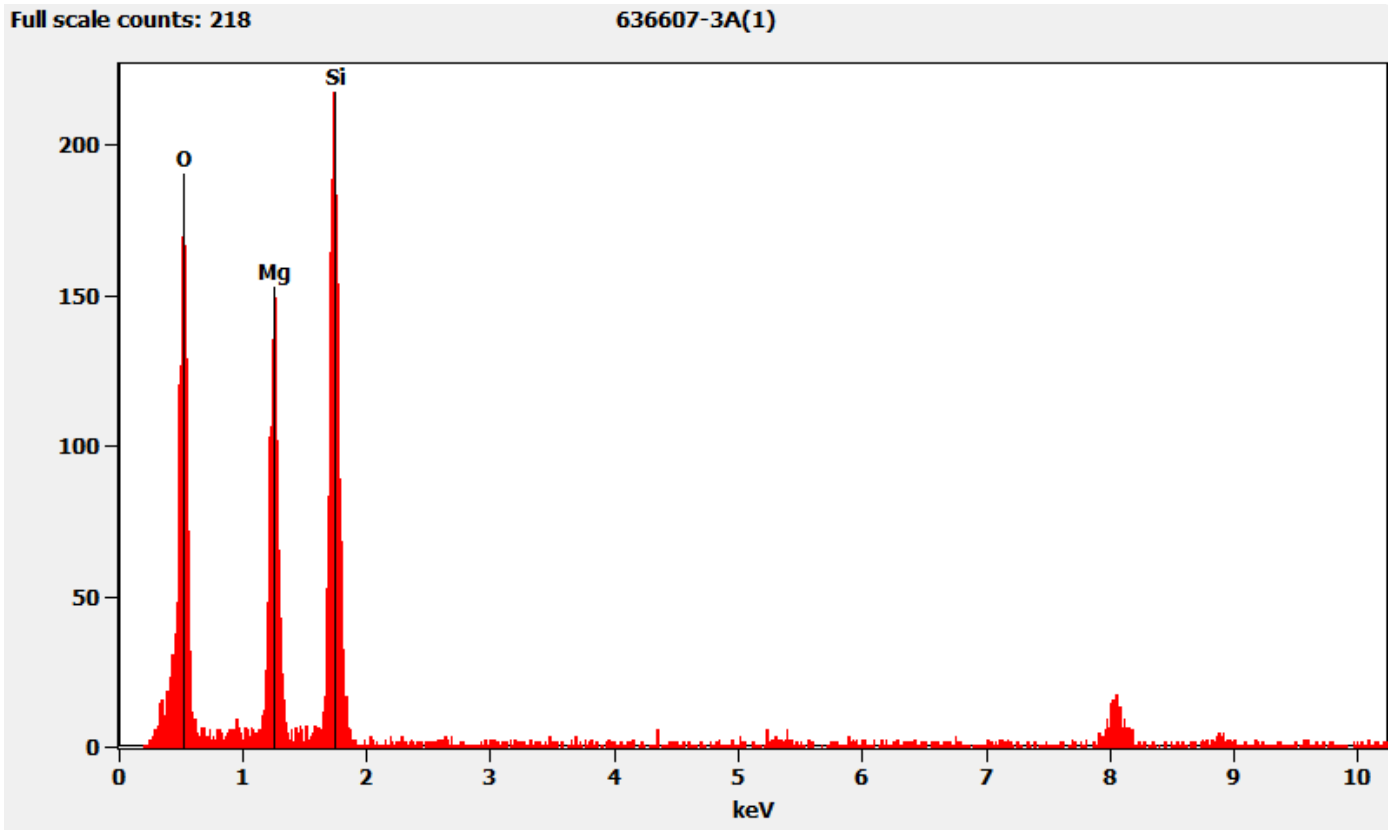


Hexagonal Diffraction Pattern from the Talc Particle Pictured Above

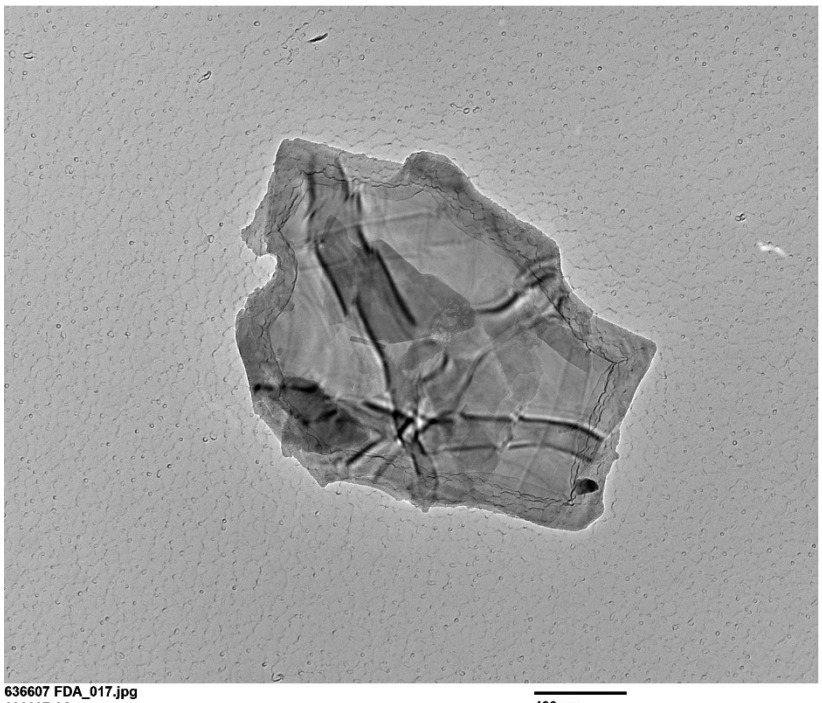
636607 FDA_014.jpg
636607-3A
Talc Particle
10:12 6/14/2022
Microscopist: (b) (6)
Camera: NA[illegible]75, Exposure: 840 (ms) x 5 std. frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

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

Chemistry from the Talc Particle Pictured Above



636607-3A, Particle Containing Magnesium, Aluminum, and Silicon

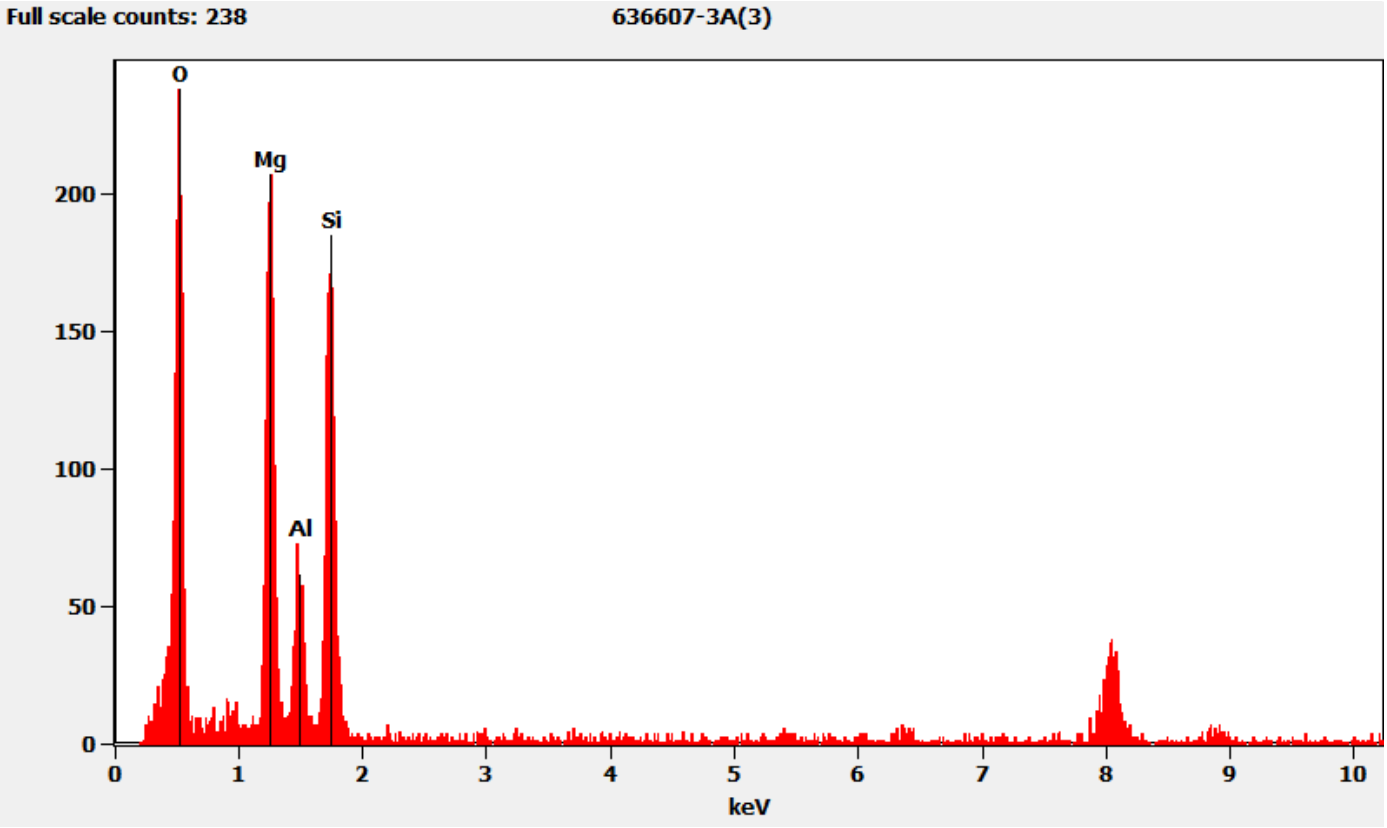


Hexagonal Diffraction Pattern from the Particle Containing Magnesium, Aluminum, and Silicon Pictured Above

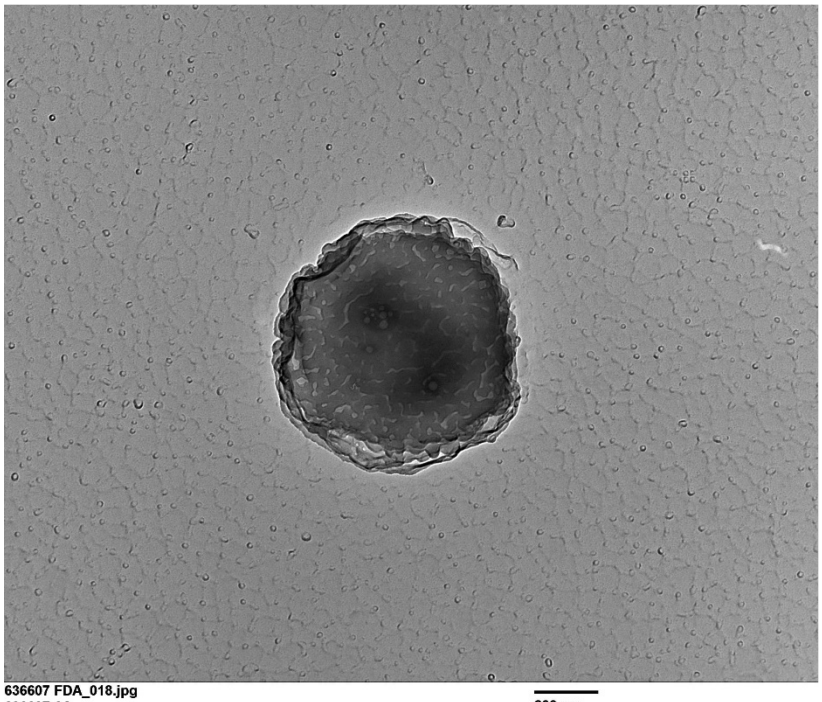
636607 FDA_016.jpg
636607-3A
Mg,Al,Si particle
10:17 6/14/2022
Microscopis (b) (6)
Camera: NANOSPRT5, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

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

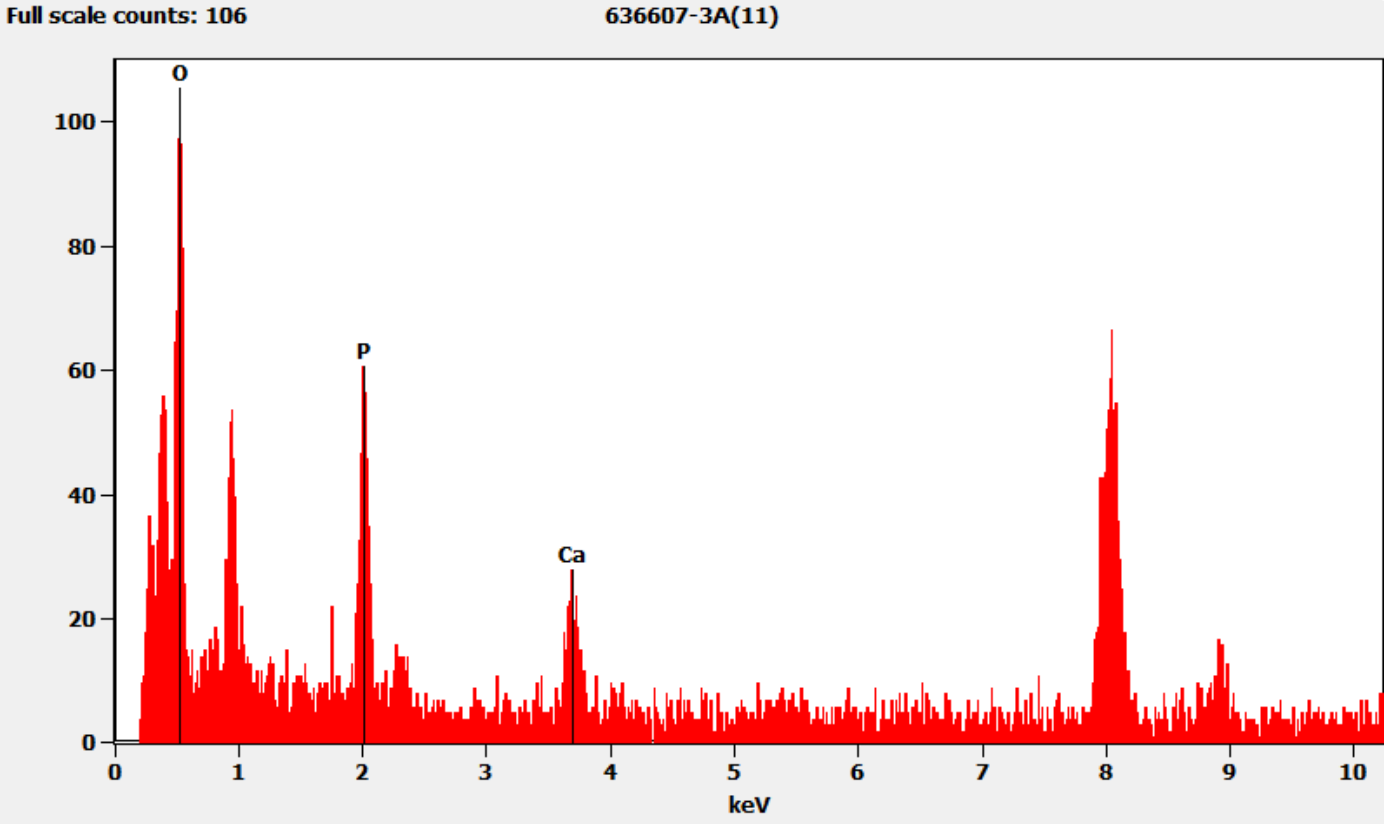
Chemistry from the Particle Containing Magnesium, Aluminum, and Silicon Pictured Above



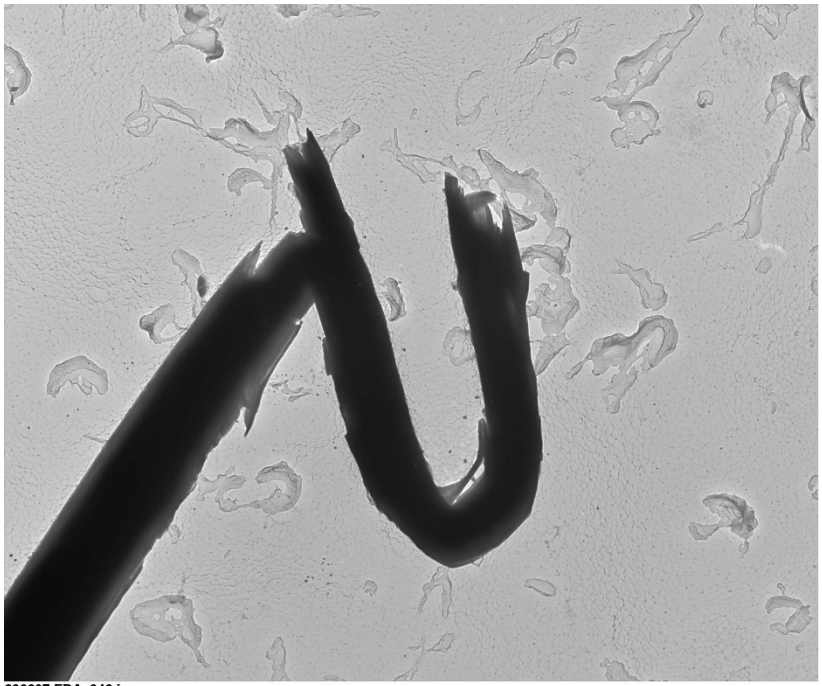
636607-3A, Particle Containing Phosphorus and Calcium



Chemistry from the Particle Containing Phosphorus and Calcium Pictured Above



636607-3C, Talc Ribbon



636607 FDA_046.jpg
636607-3C
Talc Ribbon
Cal: 0.002860 µm/pix
14:37 6/17/20(b) (6)
Microscopis
Camera: NA 5, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

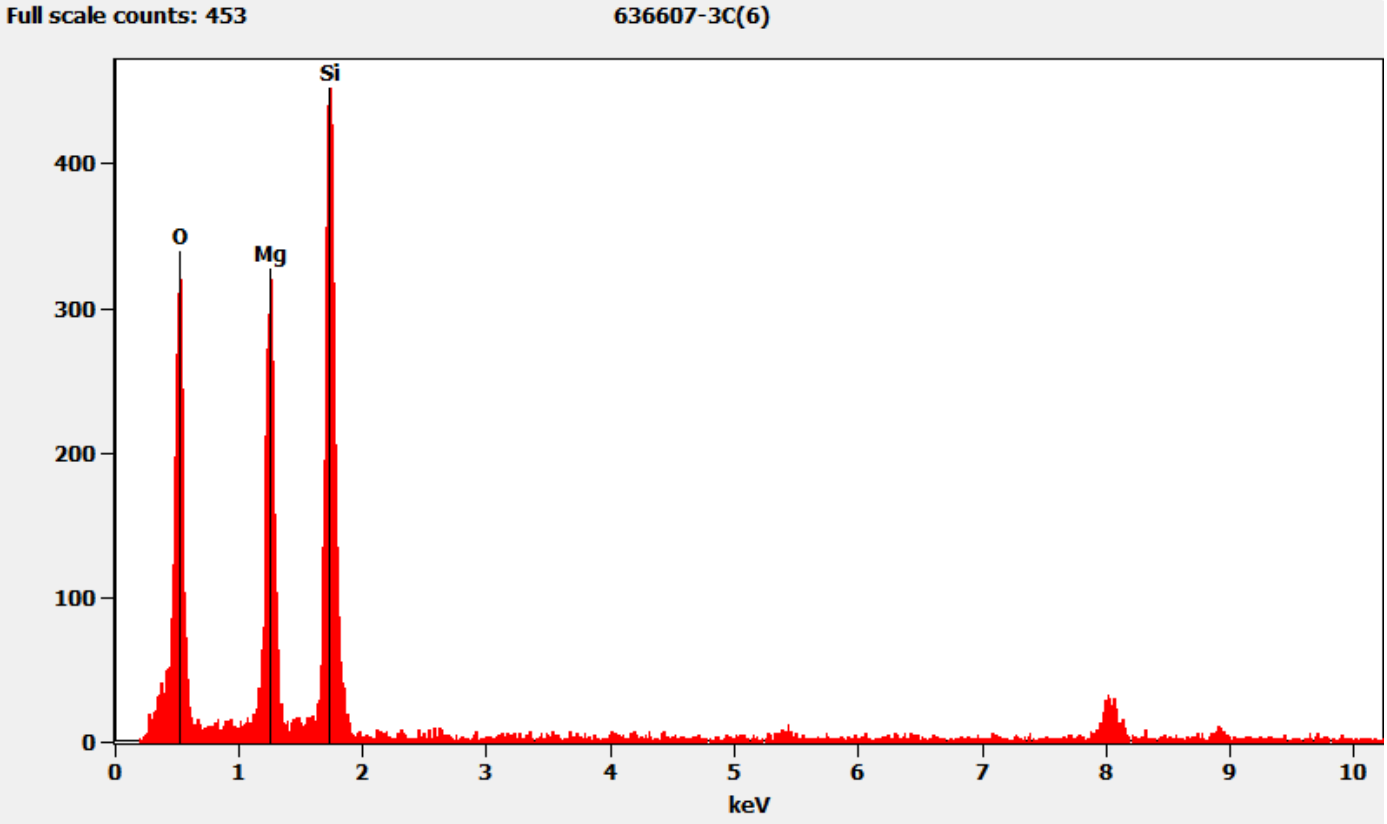
800 nm
HV=100kV
Direct Mag: 3600 x
AMA Analytical Services, Inc

Diffraction Pattern from the Talc Ribbon Pictured Above

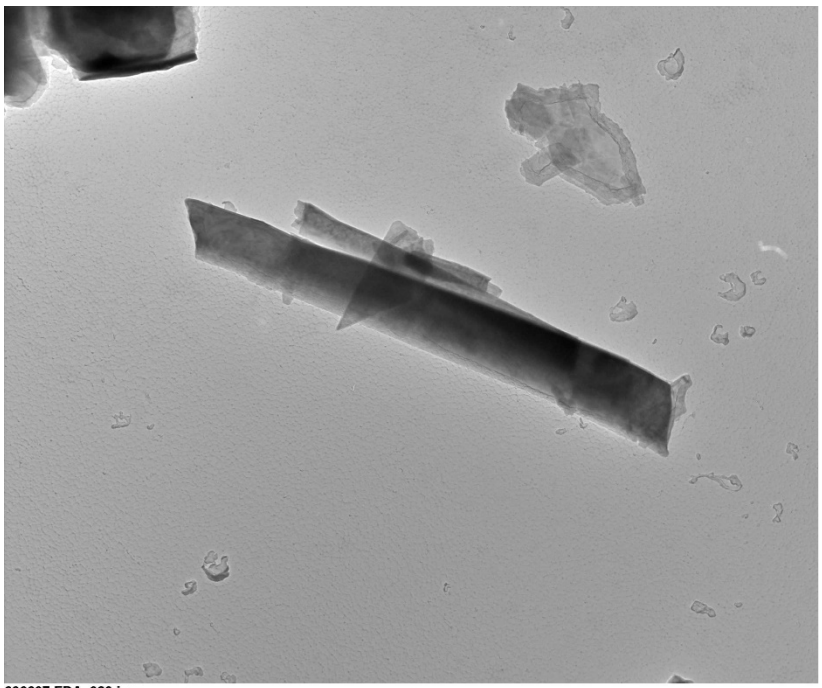
636607 FDA_045.jpg
636607-3C
Talc Ribbon
14:36 6/17/2026
Microscopist (b) (6)
Camera: NANOSPEED75, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

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

Chemistry from the Talc Ribbon Pictured Above



636607-3A, Talc Fiber



636607 FDA_020.jpg
636607-3A
Talc Fiber
Cal: 0.003702 µm/pix
11:11 6/14/2022
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

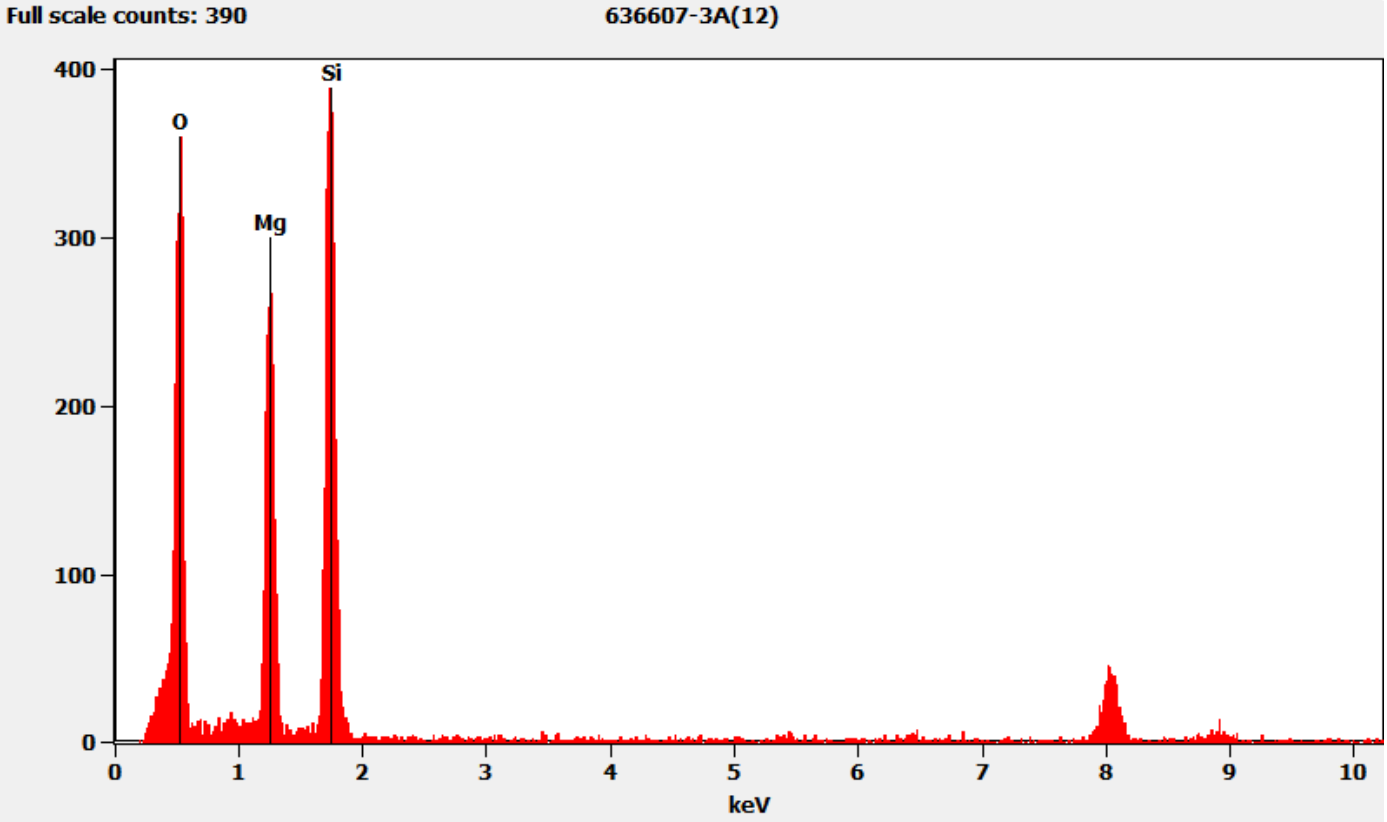
1 µm
HV=100kV
Direct Mag: 2900 x
AMA Analytical Services, Inc

Hexagonal Diffraction Pattern from the Talc Fiber Pictured Above

636607 FDA_019.jpg
636607-3A
Talc Fiber
11:10 6/14/2016
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 Fiber Pictured Above



636607-4A, 4B, 4C/Client Sample: 05022022-4

PLM

All three aliquots of sample 05022022-4 were analyzed by (b) (6) on June 28, 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.

636607-4A	No Asbestos Detected
636607-4B	No Asbestos Detected
636607-4C	No Asbestos Detected

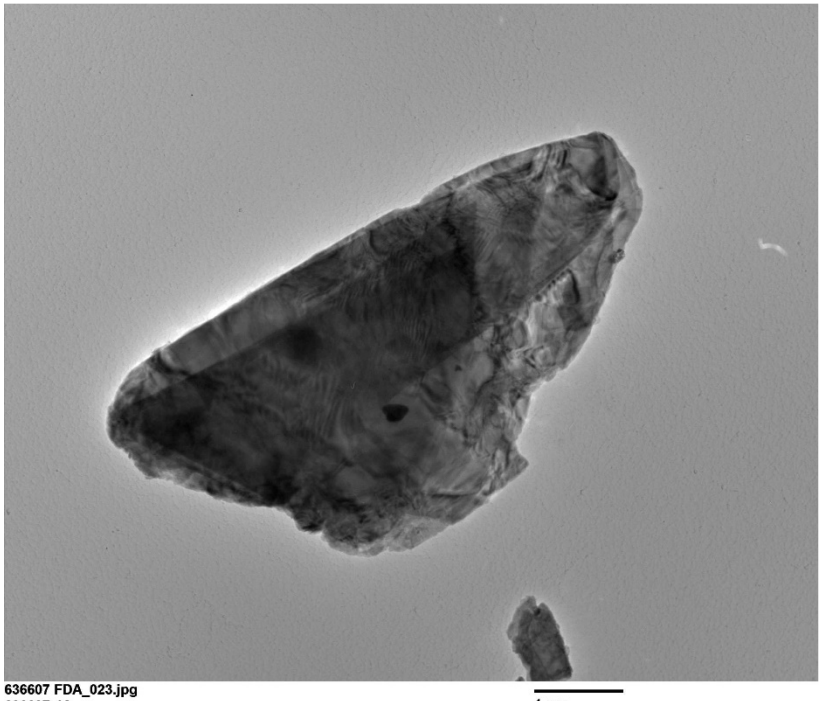
TEM

(b) (6) analyzed aliquot 4A on June 14, 2022, and aliquot 4B on June 17, 2022. Andreas Saldivar analyzed aliquot 4C on June 21, 2022. The primary particles observed were talc and mica; titanium particles and silica spheres were also observed along with silicon particles, iron particles, talc ribbons, and talc fibers. No asbestos or non-asbestos amphibole variants were observed during analysis. The results were calculated using the equations detailed in the *Calculations* section above.

636607-4A	No Asbestos Detected
636607-4B	No Asbestos Detected
636607-4C	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.

636607-4A, Mica Particle



636607 FDA_023.jpg
636607-4A
Mica Particle
Cal: 0.003702 µm/pix
11:29 6/14/2022
Microscopist: (b) (6)
Camera: NANOSPRT5, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

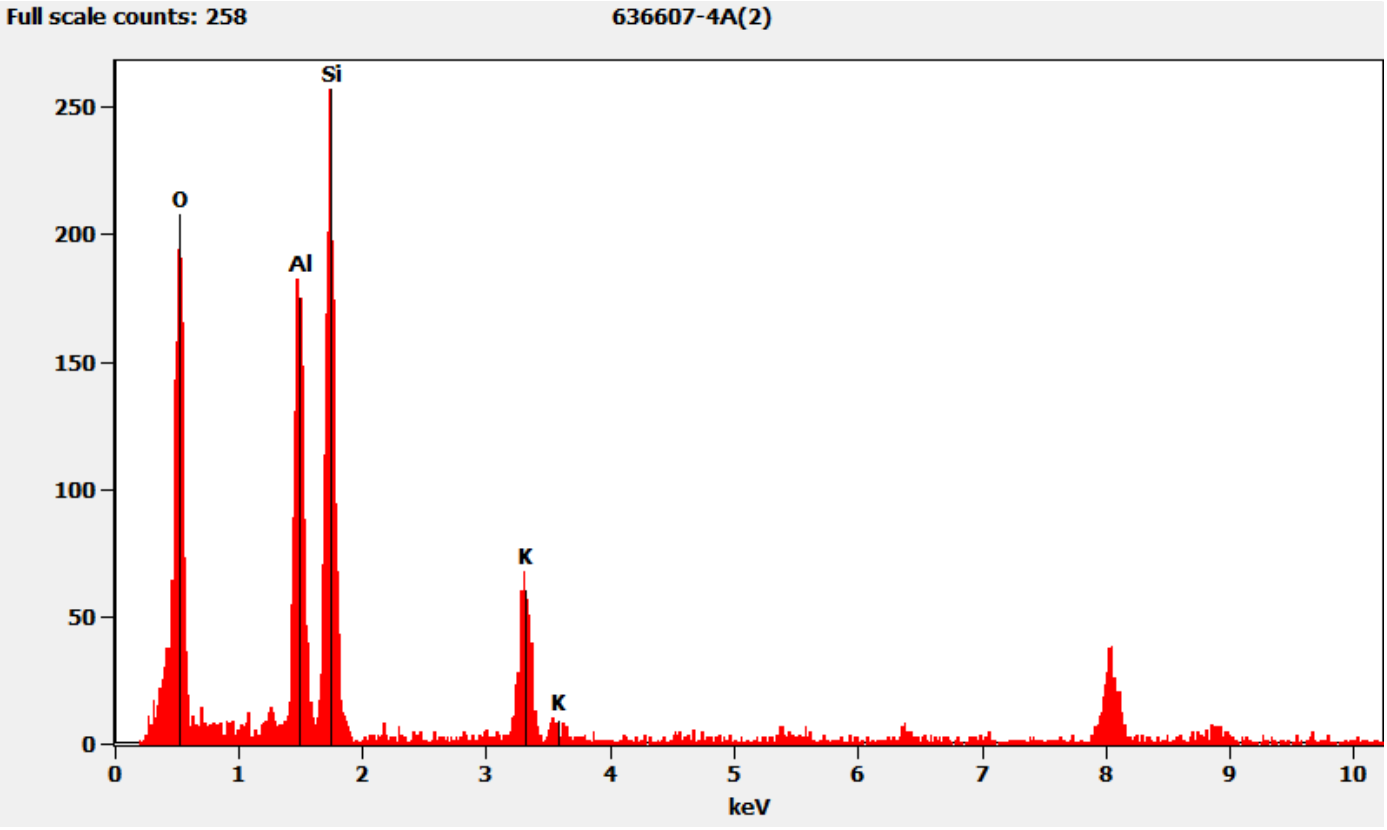
1 µm
HV=100kV
Direct Mag: 2900 x
AMA Analytical Services, Inc

Hexagonal Diffraction Pattern from the Mica Particle Pictured Above

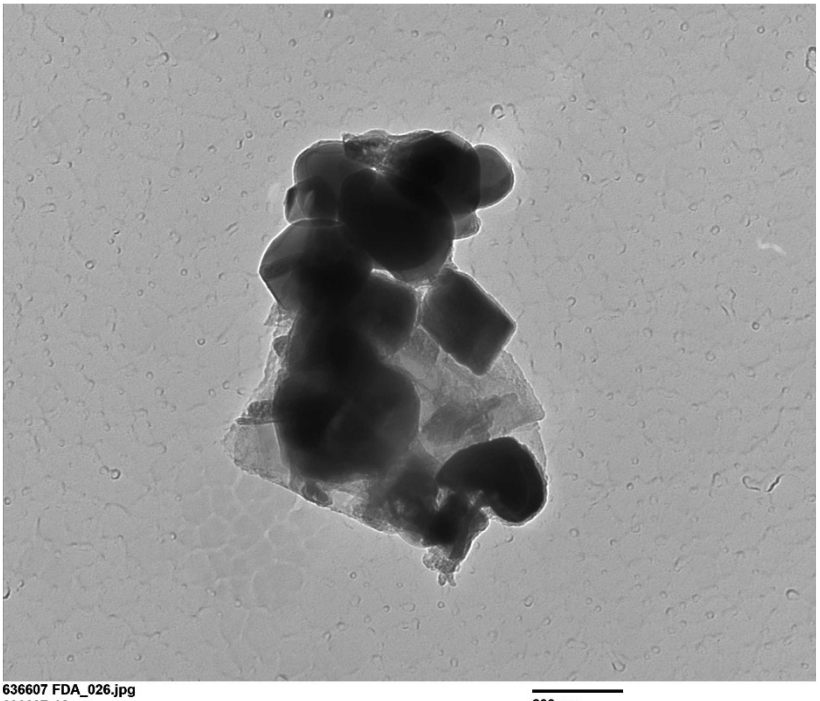
636607 FDA_022.jpg
636607-4A
Mica Particle
11:28 6/14/2022
Microscopis (b) (6)
Camera: NANOSPRT5, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

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

Chemistry from the Mica Particle Pictured Above



636607-4A, Titanium Particle



636607 FDA_026.jpg
636607-4A
Ti particles
Cal: 0.726816 nm/pix
11:39 6/14/2022
Microscopist: (b) (6)
Camera: NANOSPRT5, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

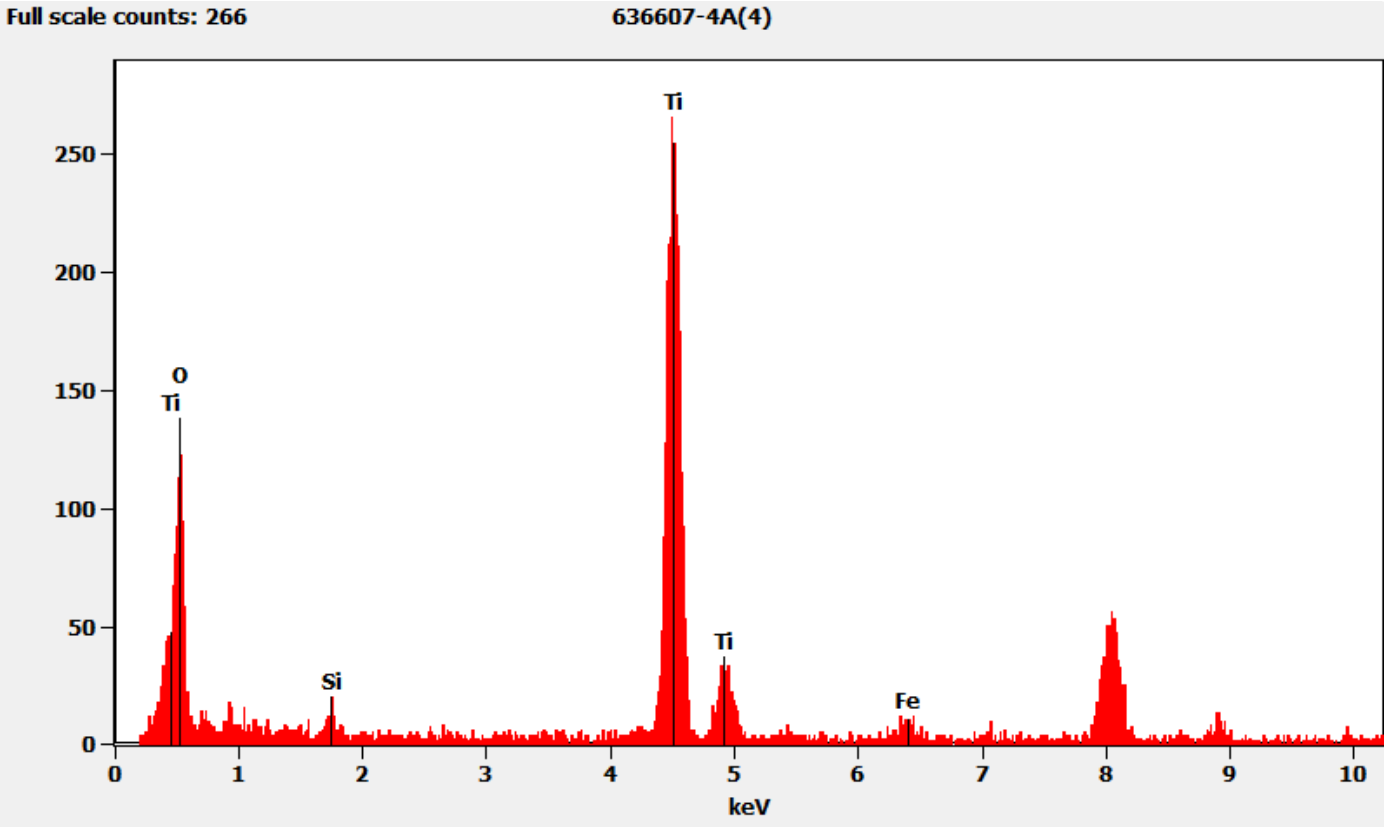
200 nm
HV=100kV
Direct Mag: 14000 x
AMA Analytical Services, Inc

Diffraction Pattern from the Titanium Particle Pictured Above

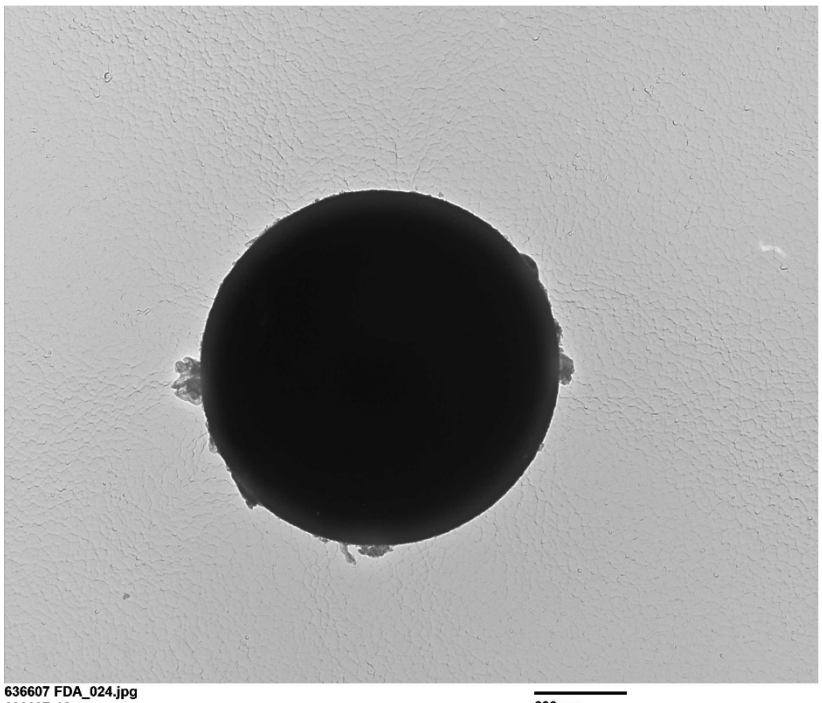
636607 FDA_025.jpg
636607-4A
Ti particles
11:38 6/14/2022
Microscopist: (b) (6)
Camera: NANOSPRI5, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

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

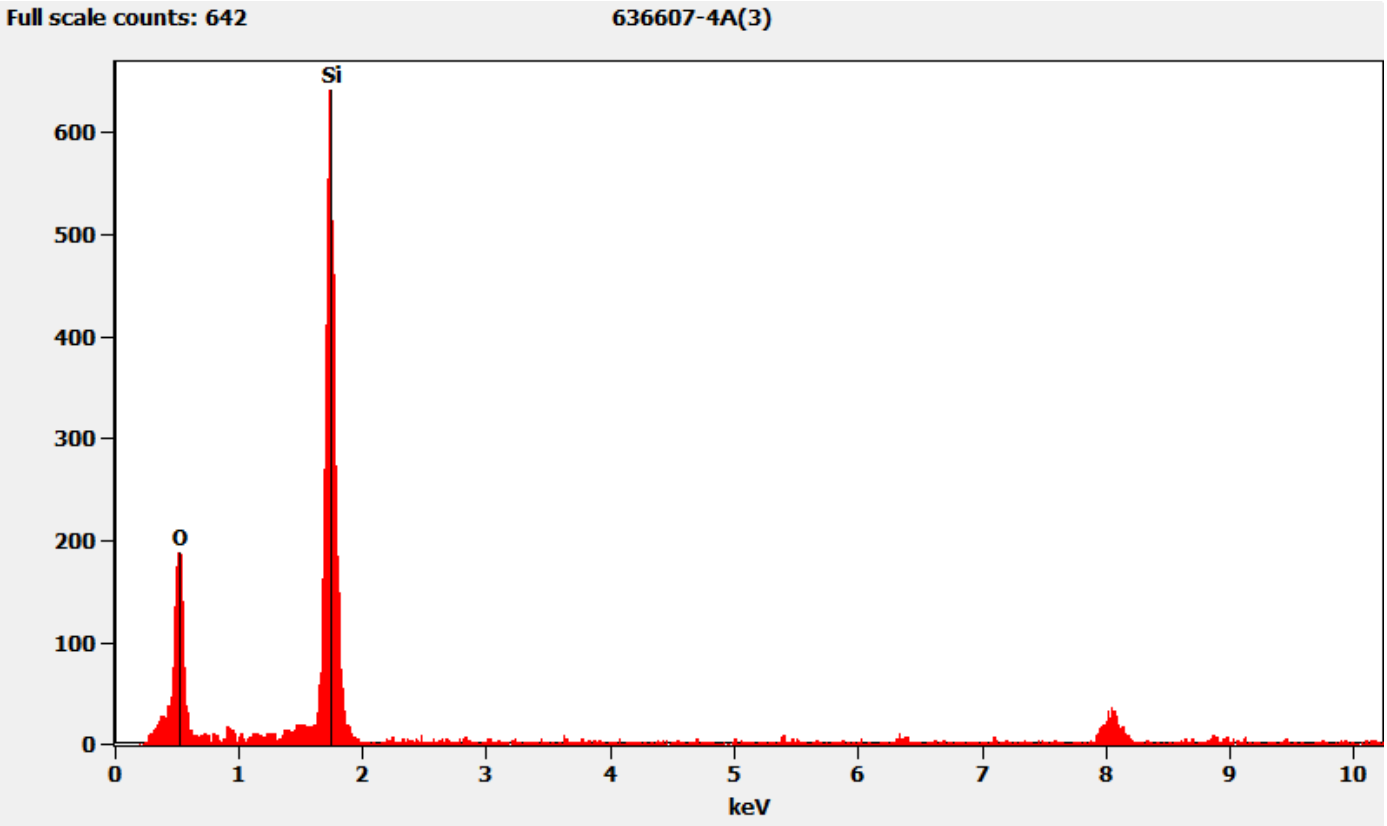
Chemistry from the Titanium Particle Pictured Above



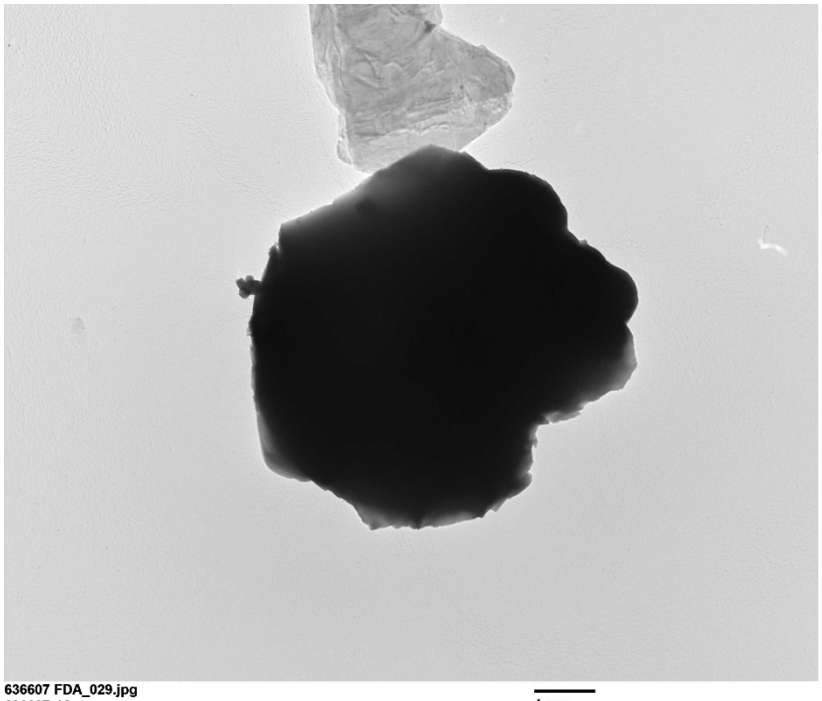
636607-4A, Silica Sphere



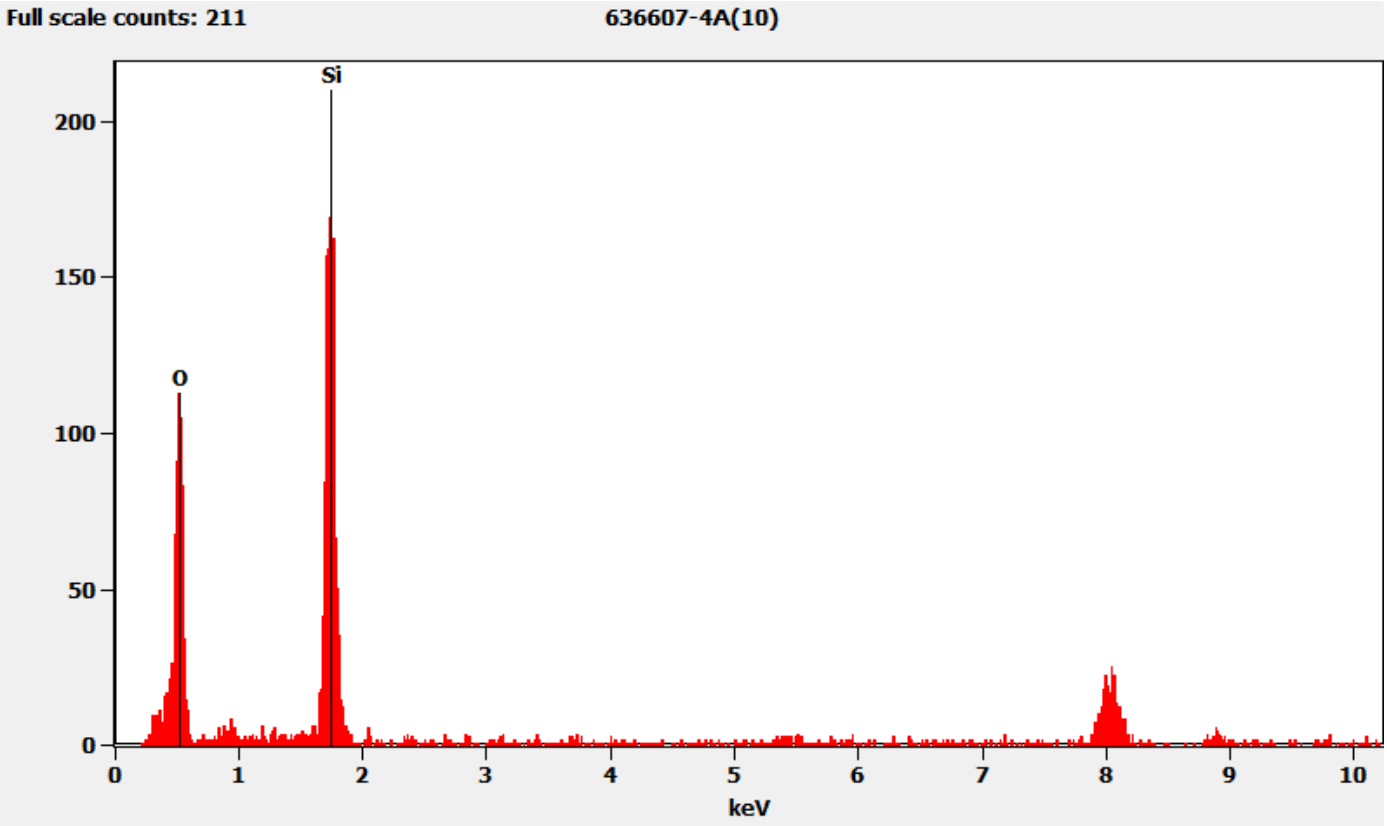
Chemistry from the Silica Sphere Pictured Above



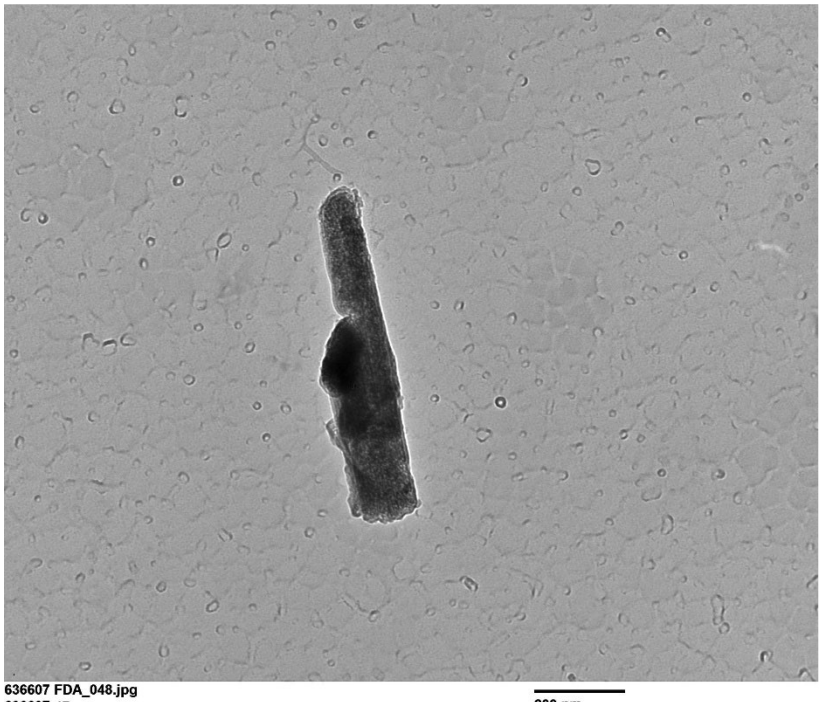
636607-4A, Silicon Particle



Chemistry from the Silicon Particle Pictured Above



636607-4B, Elongated Iron Particle



636607 FDA_048.jpg
636607-4B
Iron Particle
Cal: 0.726816 nm/pix
15:48 6/17/2022
Microscopist: (b) (6)
Camera: NANOSPRI5, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

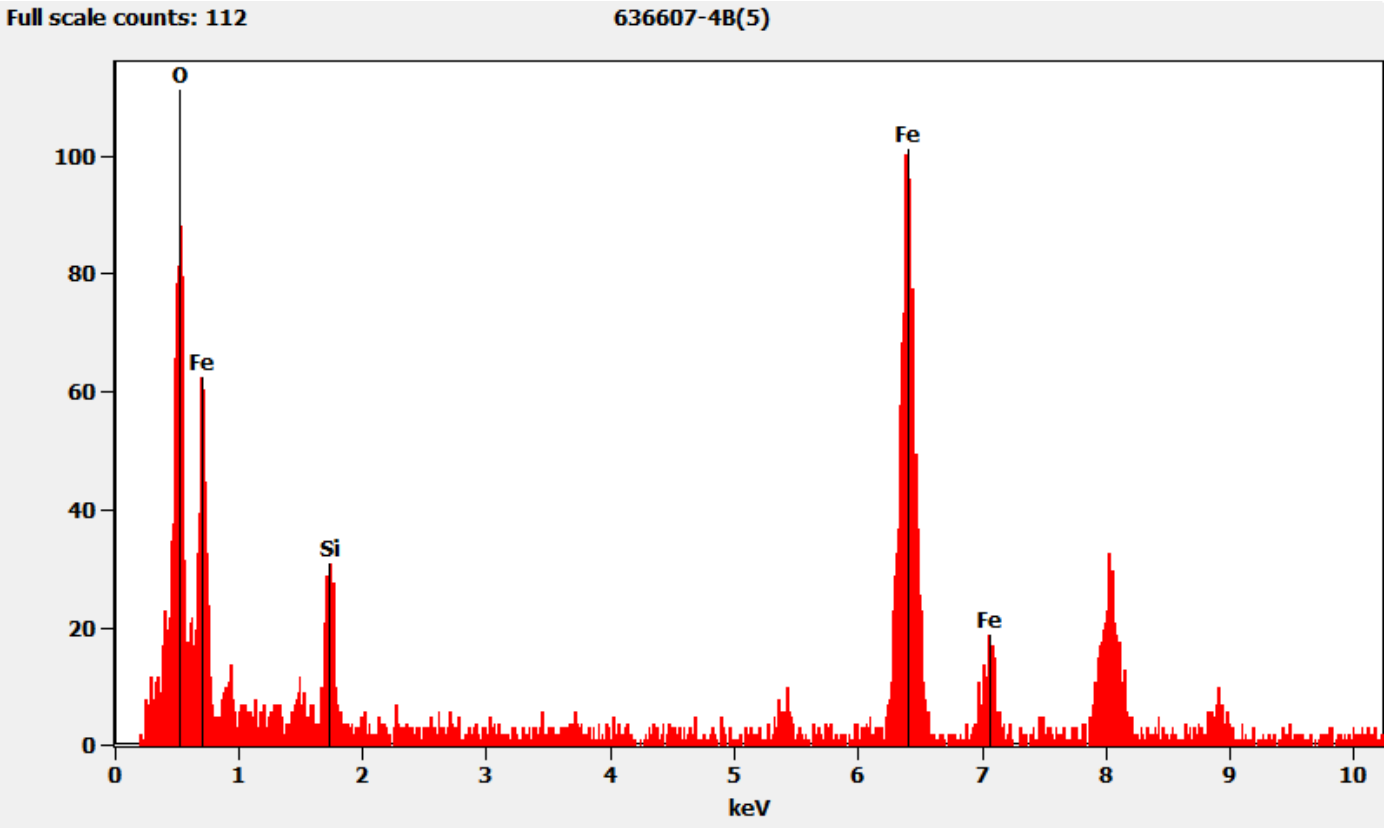
200 nm
HV=100kV
Direct Mag: 14000 x
AMA Analytical Services, Inc

Diffraction Pattern from the Elongated Iron Particle Pictured Above

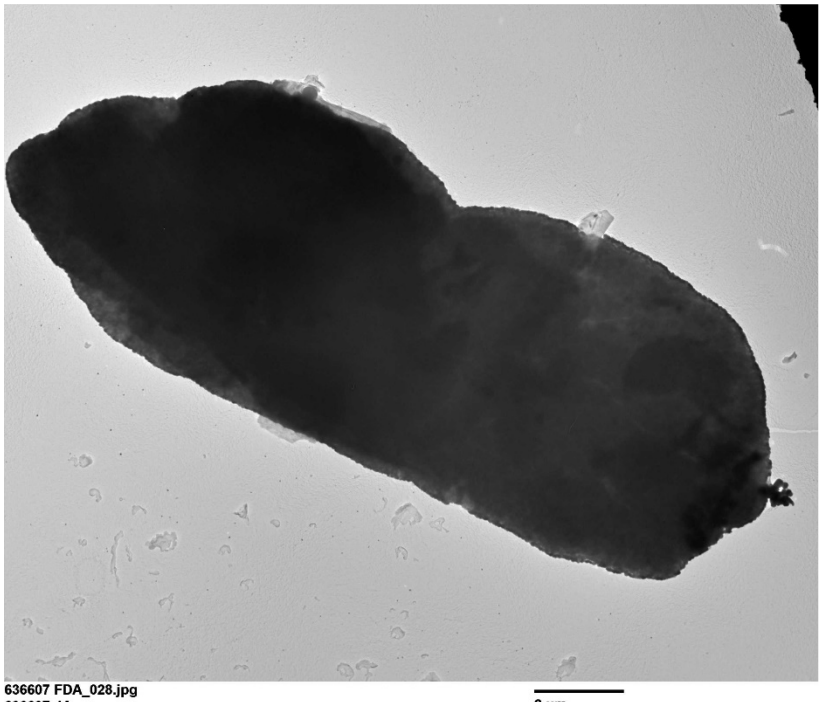
636607 FDA_047.jpg
636607-4B
Iron Particle
15:48 6/17/2022
Microscopist: (b) (6)
Camera: NANOSPRI5, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

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

Chemistry from the Iron Particles Pictured Above



636607-4A, Mica Particle with Titanium and Iron



636607 FDA_028.jpg
636607-4A
Mica w/ Ti and Fe
Cal: 0.007355 µm/pix
11:48 6/14/2022
Microscopist: (b) (6)
Camera: NANOSPRT5, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

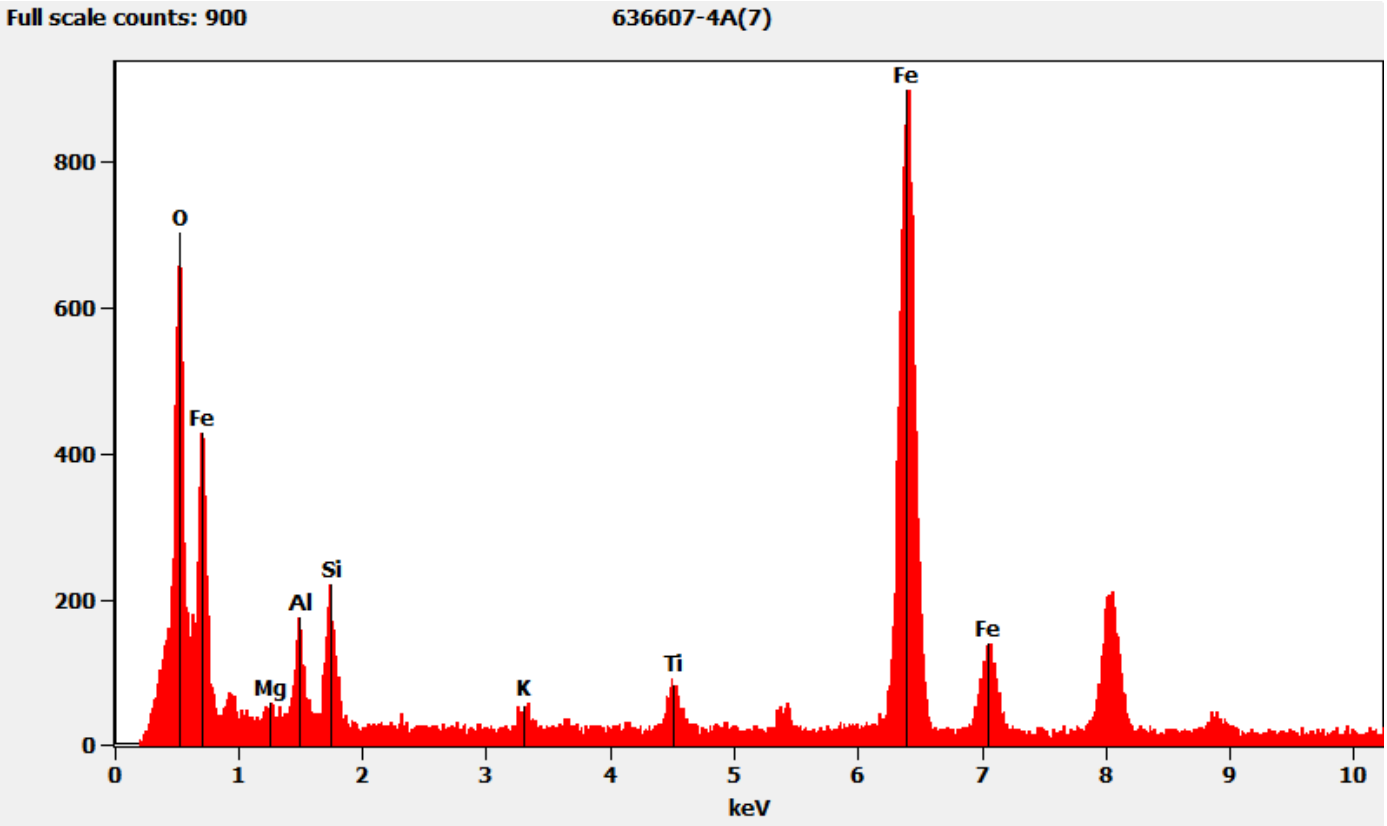
2 µm
HV=100kV
Direct Mag: 1400 x
AMA Analytical Services, Inc

Diffraction Pattern from the Mica Particle with Titanium and Iron Pictured Above

636607 FDA_027.jpg
636607-4A
Mica w/ Ti and Fe
11:47 6/14/2022
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 and Iron Pictured Above

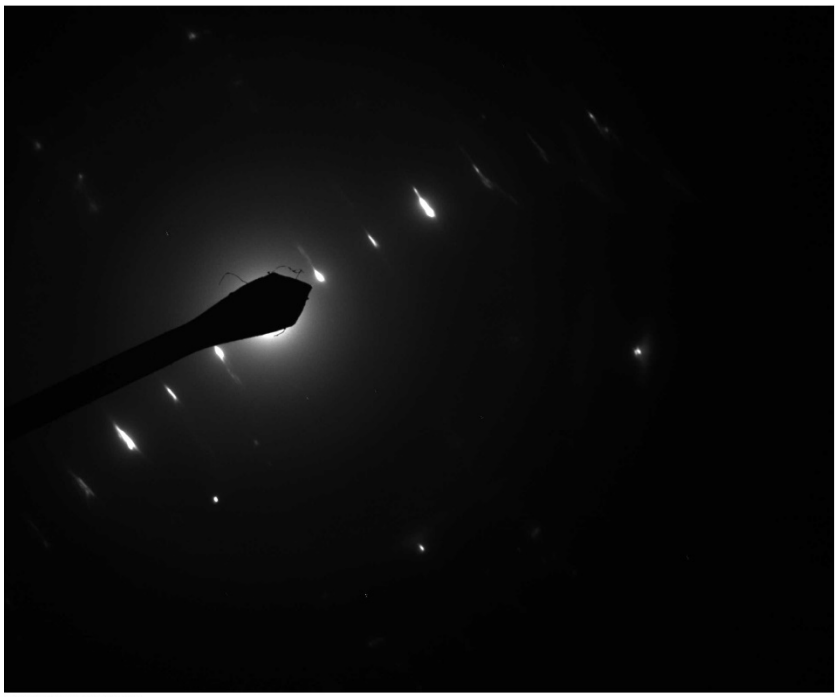


636607-4A, Talc Ribbon

636607 FDA_031.jpg
636607-4A
Talc Ribbon
Cal: 0.002145 µm/pix
12:25 6/14/2022
Microscopist: (b) (6)
Camera: NANOSPRS, 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

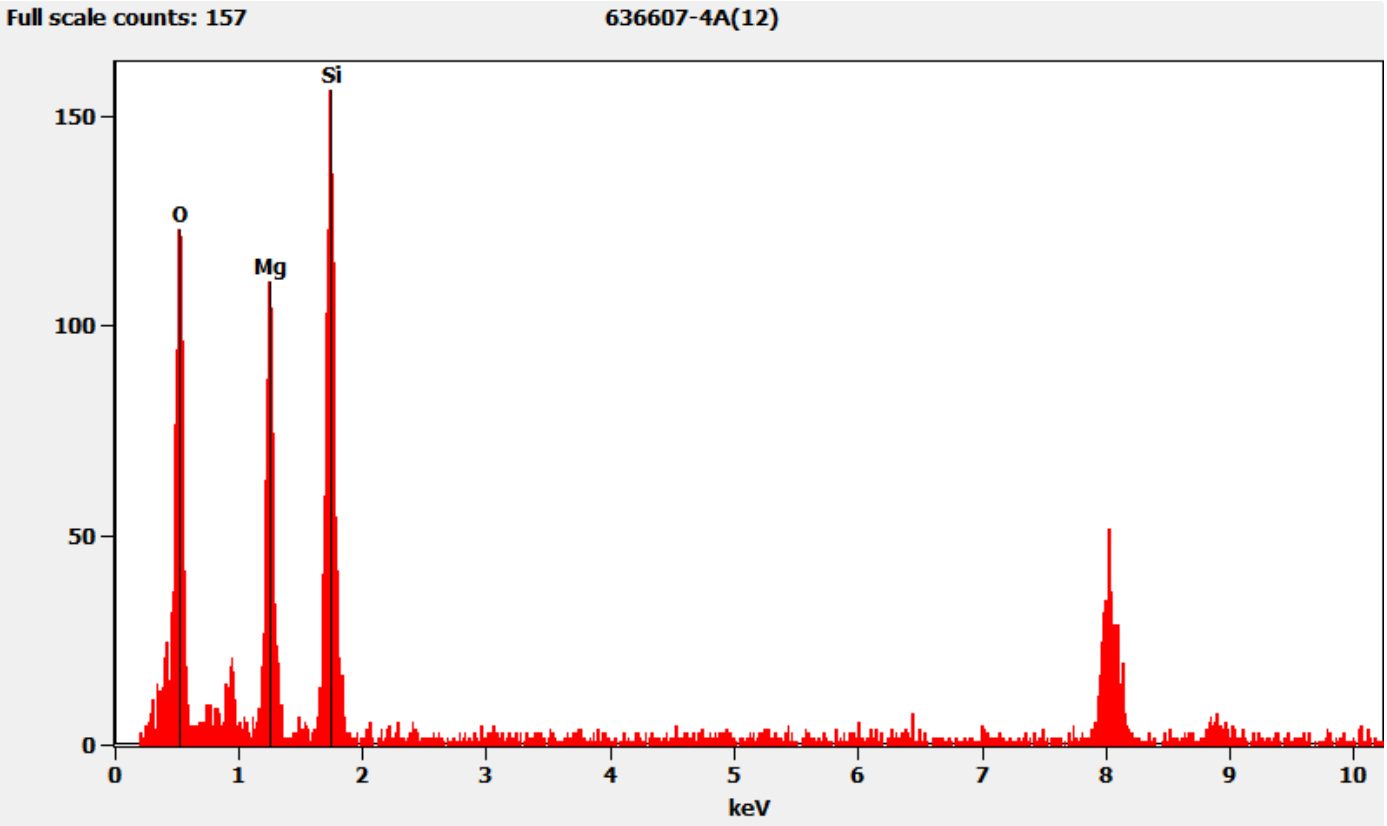
Diffraction Pattern from the Talc Ribbon Pictured Above



636607 FDA_030.jpg
636607-4A
Talc Ribbon
12:24 6/14/2022
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 Talc Ribbon Pictured Above

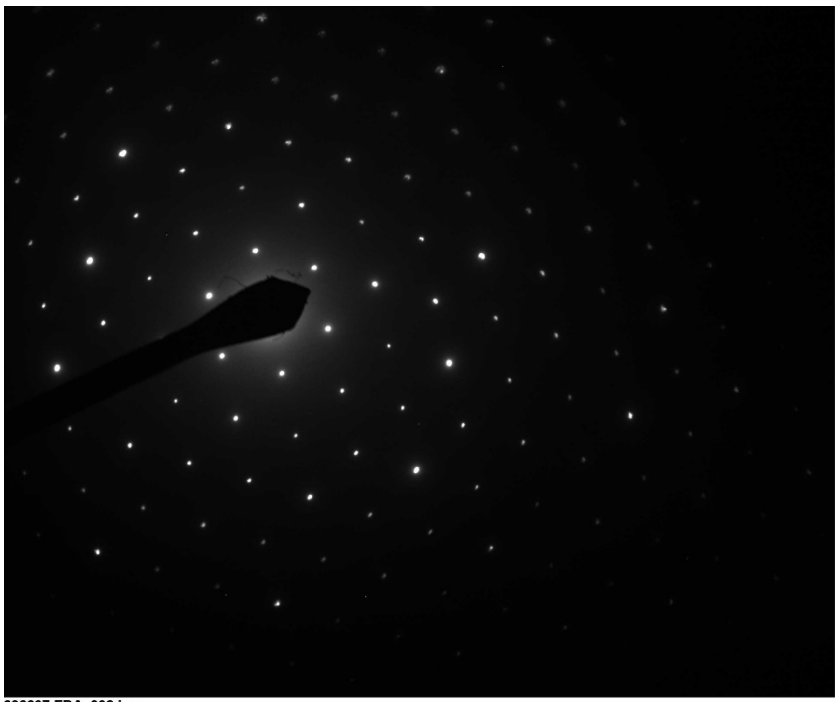


636607-4A, Talc Fiber

636607 FDA_033.jpg
636607-4A
Talc Fiber
Cal: 0.003702 µm/pix
12:33 6/14/2022
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

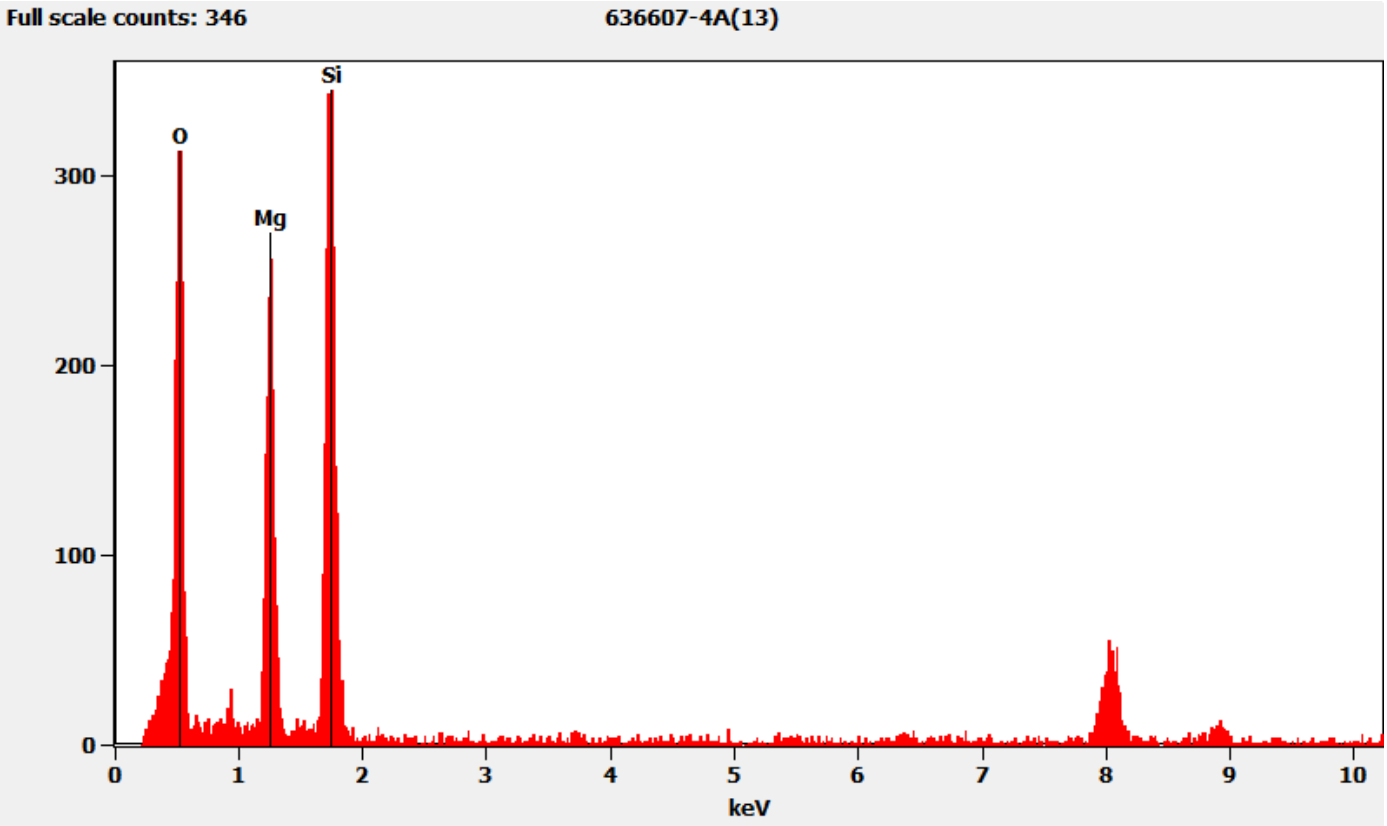
Hexagonal Diffraction Pattern from the Talc Fiber Pictured Above



636607 FDA_032.jpg
636607-4A
Talc Fiber
12:33 6/14/2022
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 Fiber Pictured Above



636607-5A, 5B, 5C/Client Sample: 05022022-5

PLM

All three aliquots of sample 05022022-5 were analyzed by (b) (6) on June 28, 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.

636607-5A	No Asbestos Detected
636607-5B	No Asbestos Detected
636607-5C	No Asbestos Detected

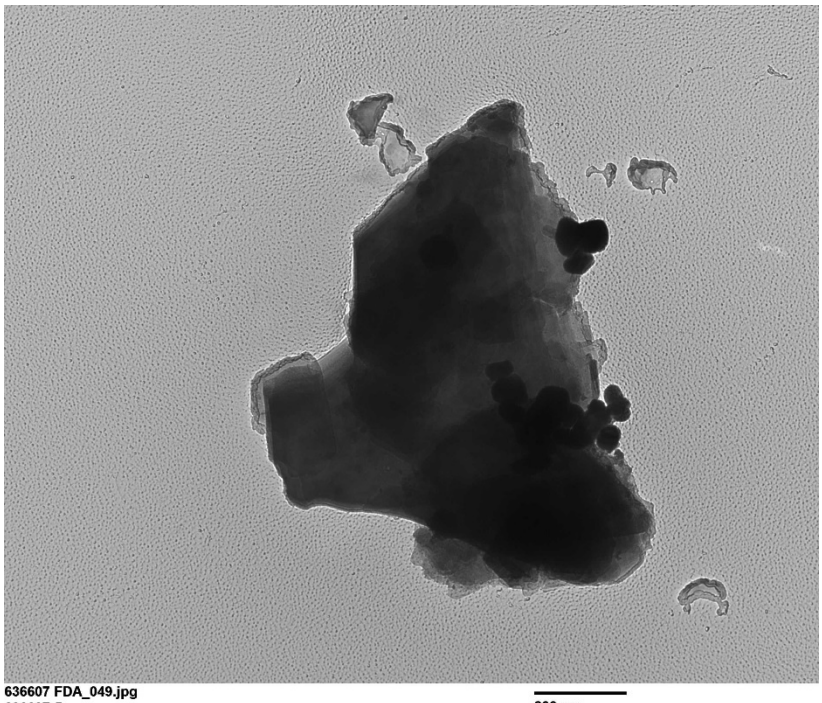
TEM

Andreas Saldivar analyzed aliquot 5A on June 21, 2022, and aliquots 5B and 5C on June 22, 2022. The primary particles observed were talc and mica; titanium particles were also observed along with silica spheres, talc ribbons, and talc fibers. No asbestos or non-asbestos amphibole variants were observed during analysis. The results were calculated using the equations detailed in the *Calculations* section above.

636607-5A	No Asbestos Detected
636607-5B	No Asbestos Detected
636607-5C	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.

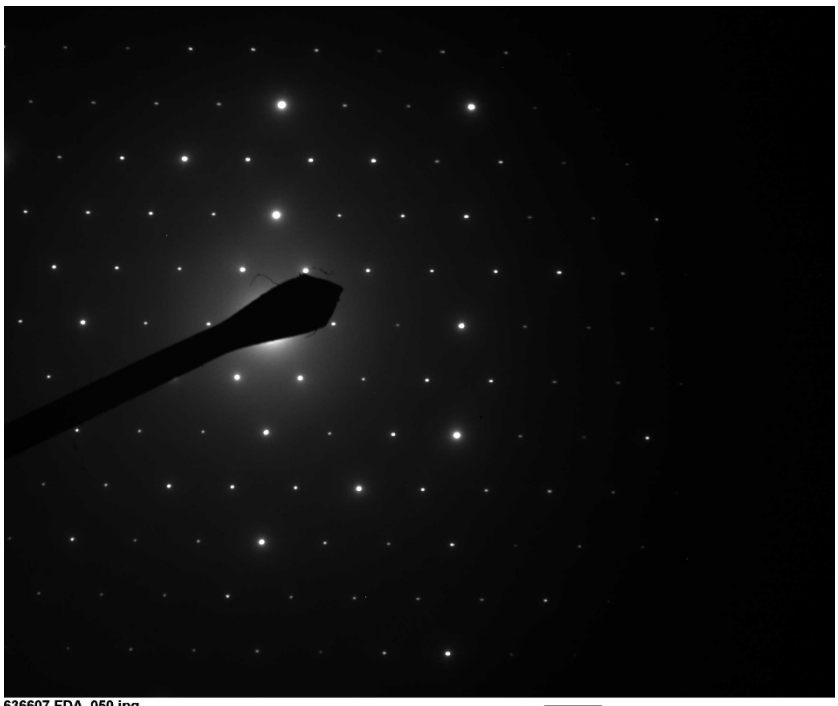
636607-5A, Talc Particle



636607 FDA_049.jpg
636607-5a
Talc particle
Cal: 0.002860 µm/pix
15:12 6/21/2022
Microscopist: Andreas Saldivar
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

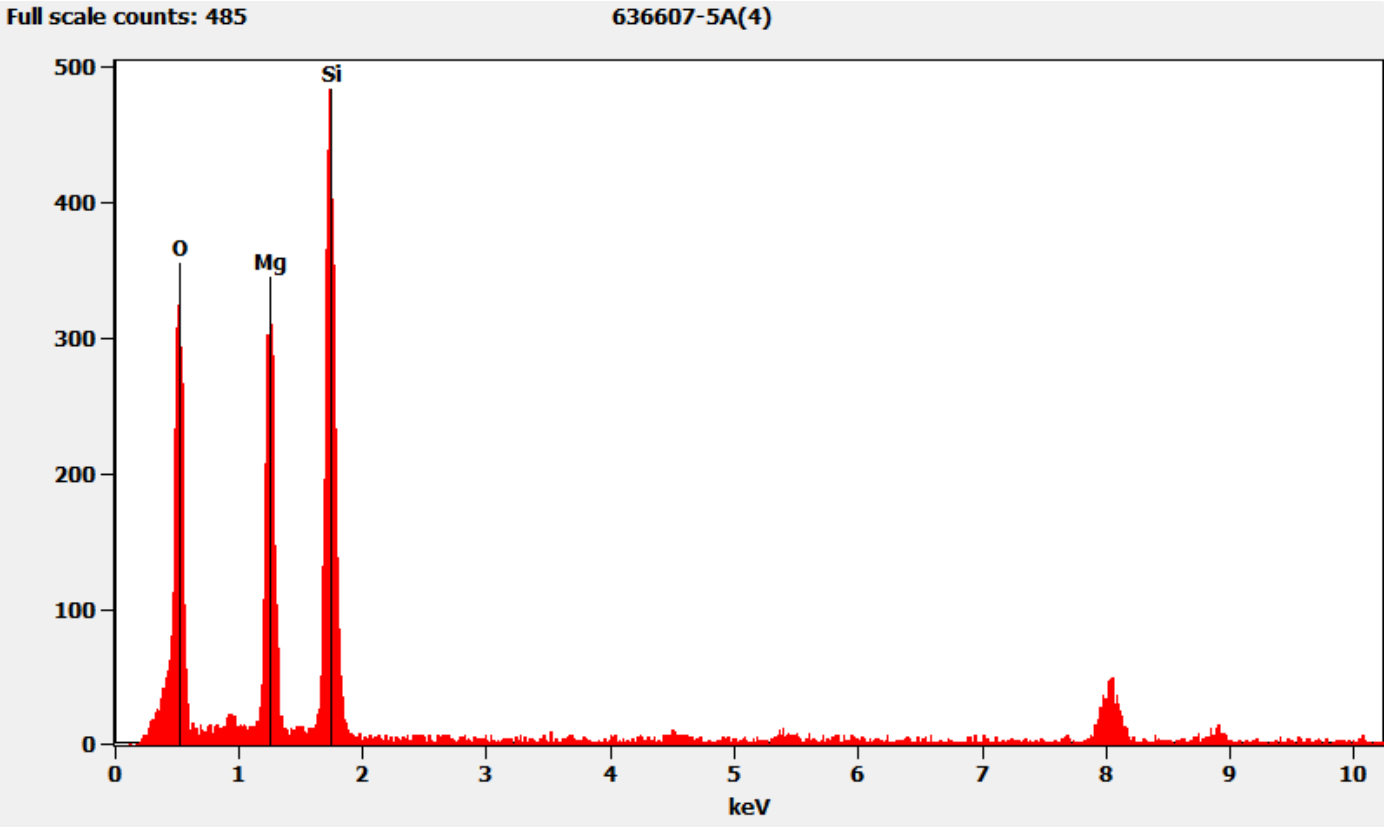
Hexagonal Diffraction Pattern from the Talc Particle Pictured Above



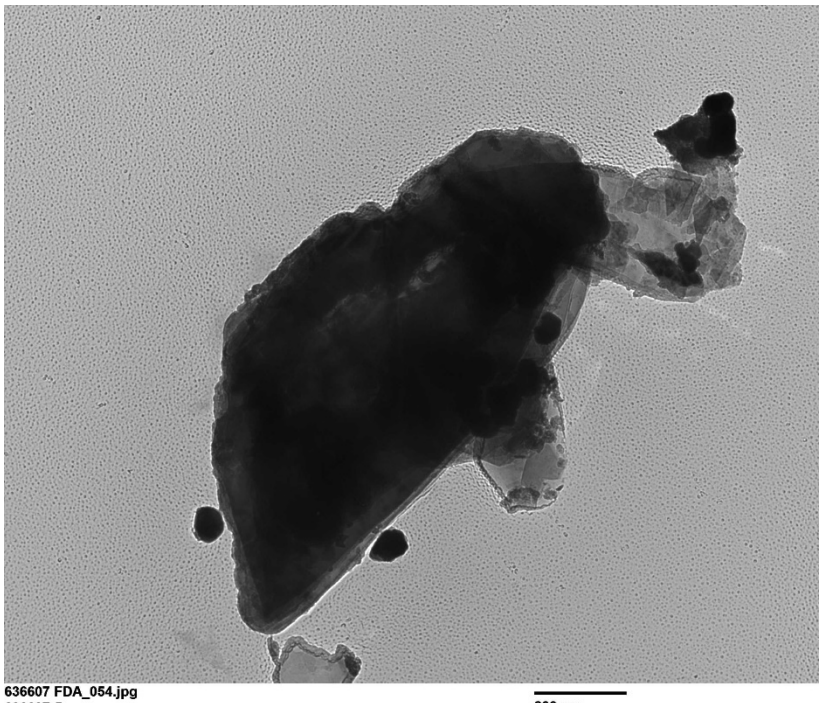
636607 FDA_050.jpg
636607-5a
Talc diffraction pattern
15:15 6/21/2022
Microscopist: Andreas Saldivar
Camera: NANOSPRT5, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

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

Chemistry from the Talc Particle Pictured Above



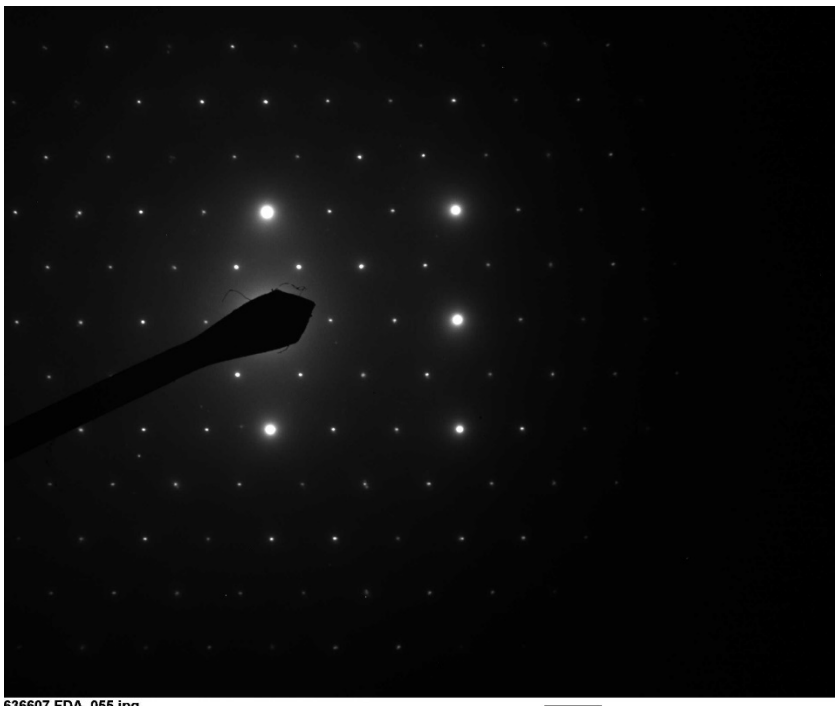
636607-5A, Mica Particle



636607 FDA_054.jpg
636607-5a
Mica
Cal: 0.002860 µm/pix
15:29 6/21/2022
Microscopist: Andreas Saldivar
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

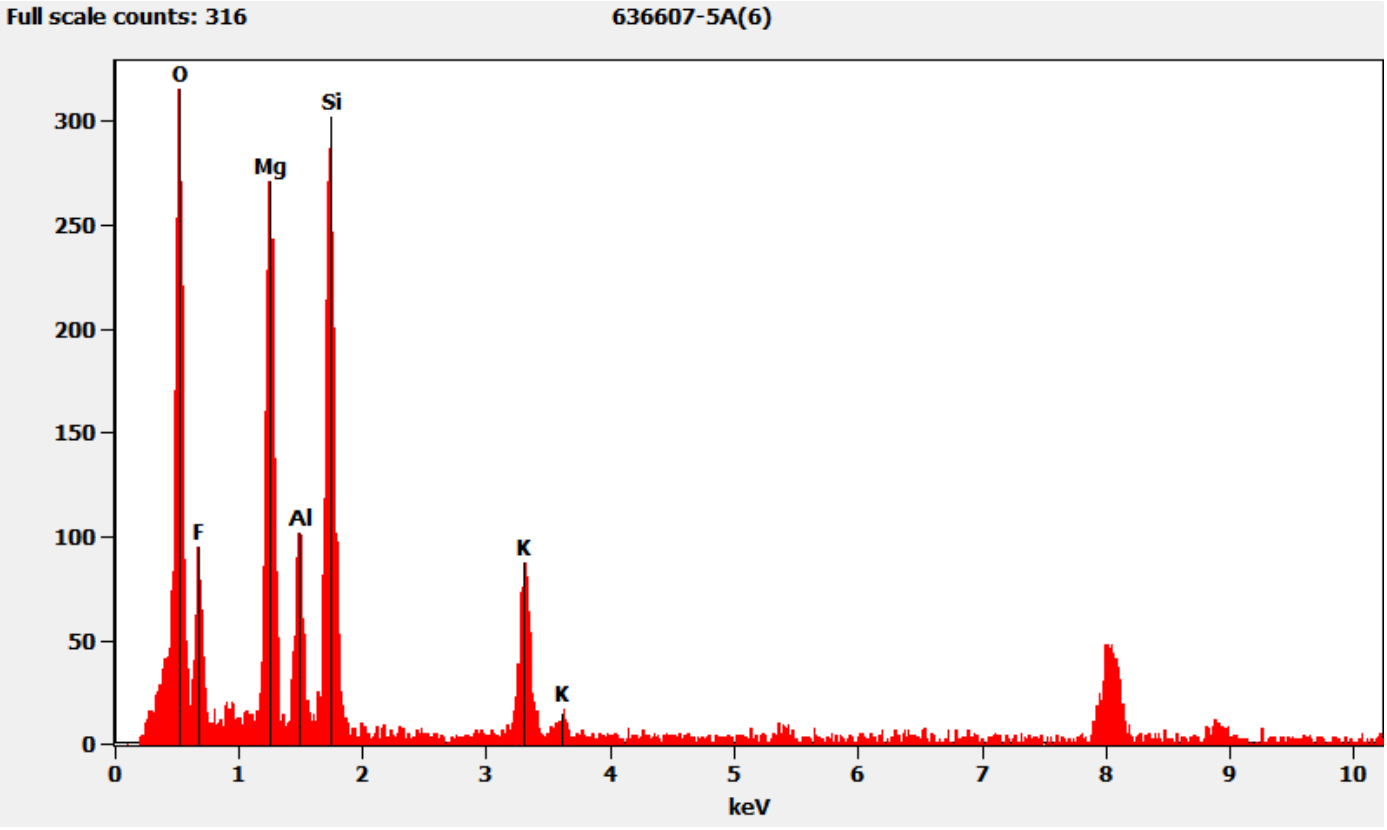
Hexagonal Diffraction Pattern from the Mica Particle Pictured Above



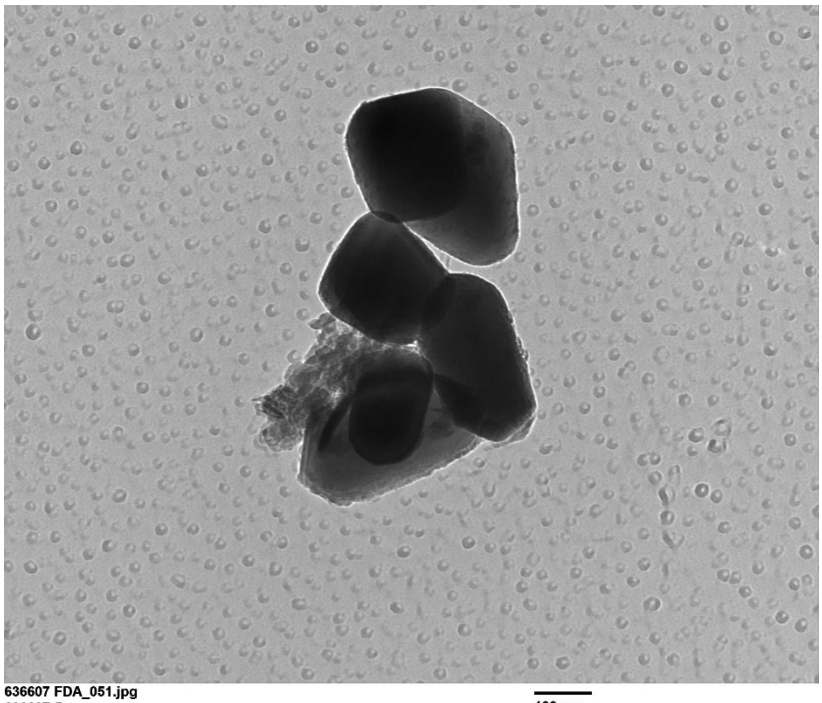
636607 FDA_055.jpg
636607-5a
Mica diffraction
15:31 6/21/2022
Microscopist: Andreas Saldivar
Camera: NANOSPRT5, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

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

Chemistry from the Mica Particle Pictured Above



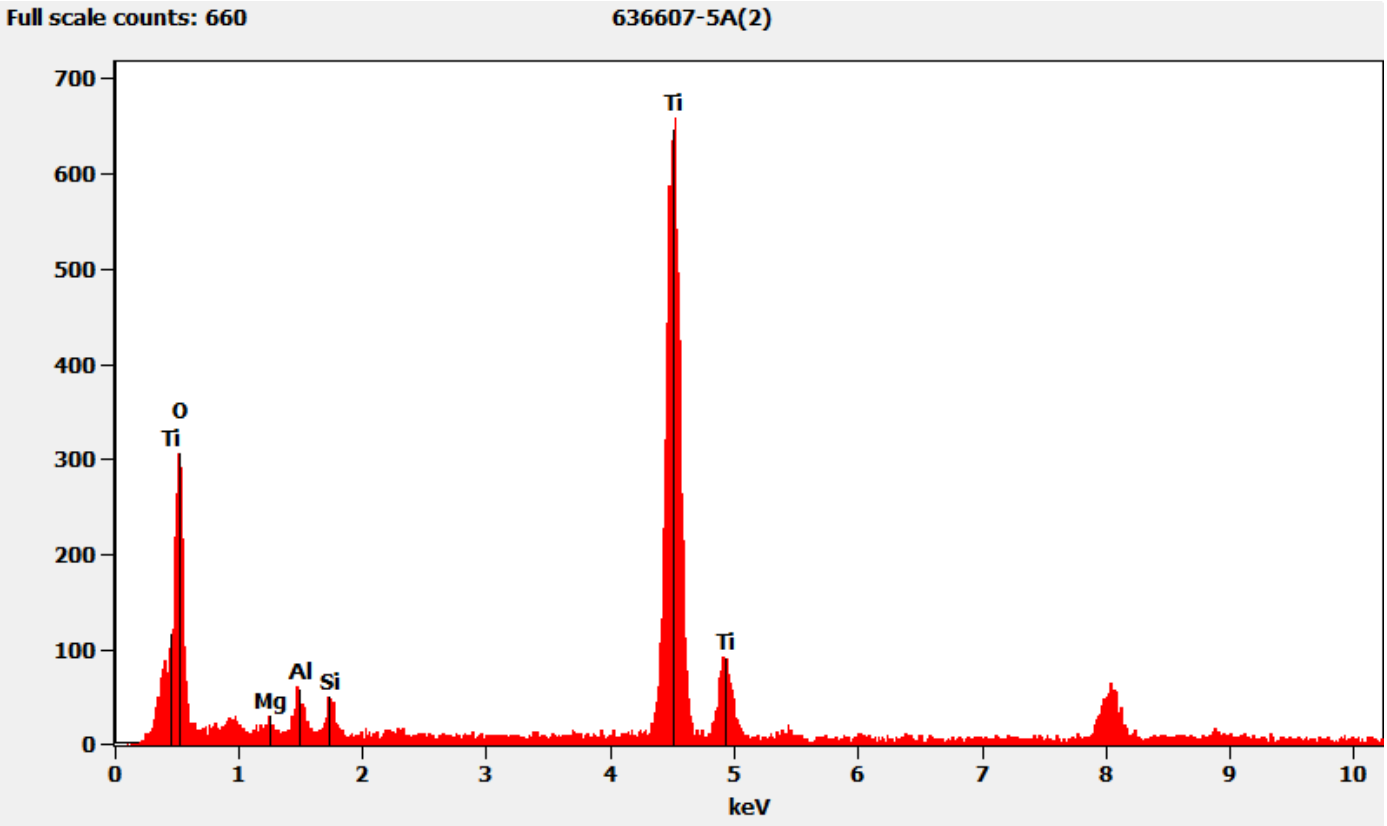
636607-5A, Titanium Particles



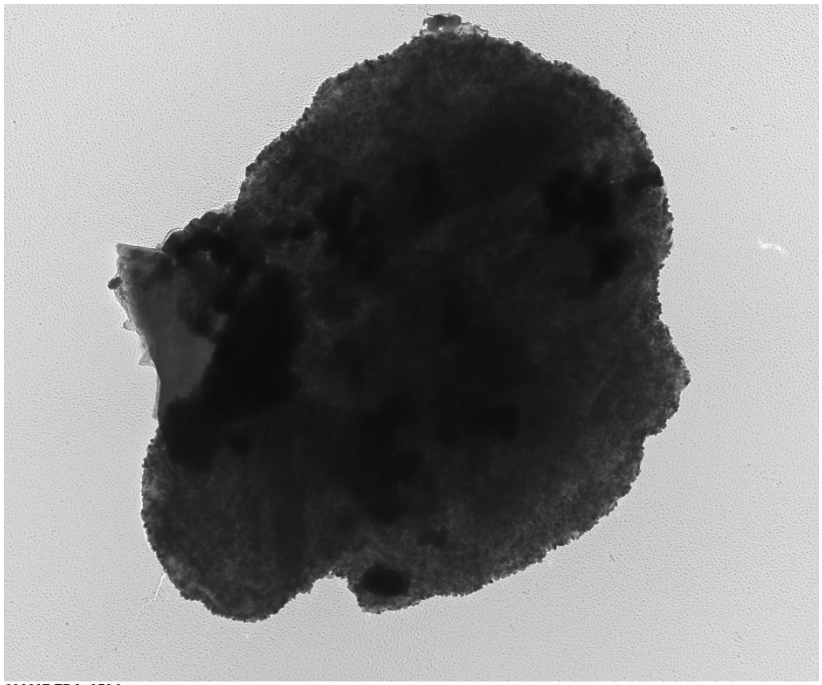
636607 FDA_051.jpg
636607-5a
Titanium particles
Cal: 0.571351 nm/pix
15:17 6/21/2022
Microscopist: Andreas Saldivar
Camera: NANOSPRT5, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

100 nm
HV=100kV
Direct Mag: 19000 x
AMA Analytical Services, Inc

Chemistry from the Titanium Particles Pictured Above



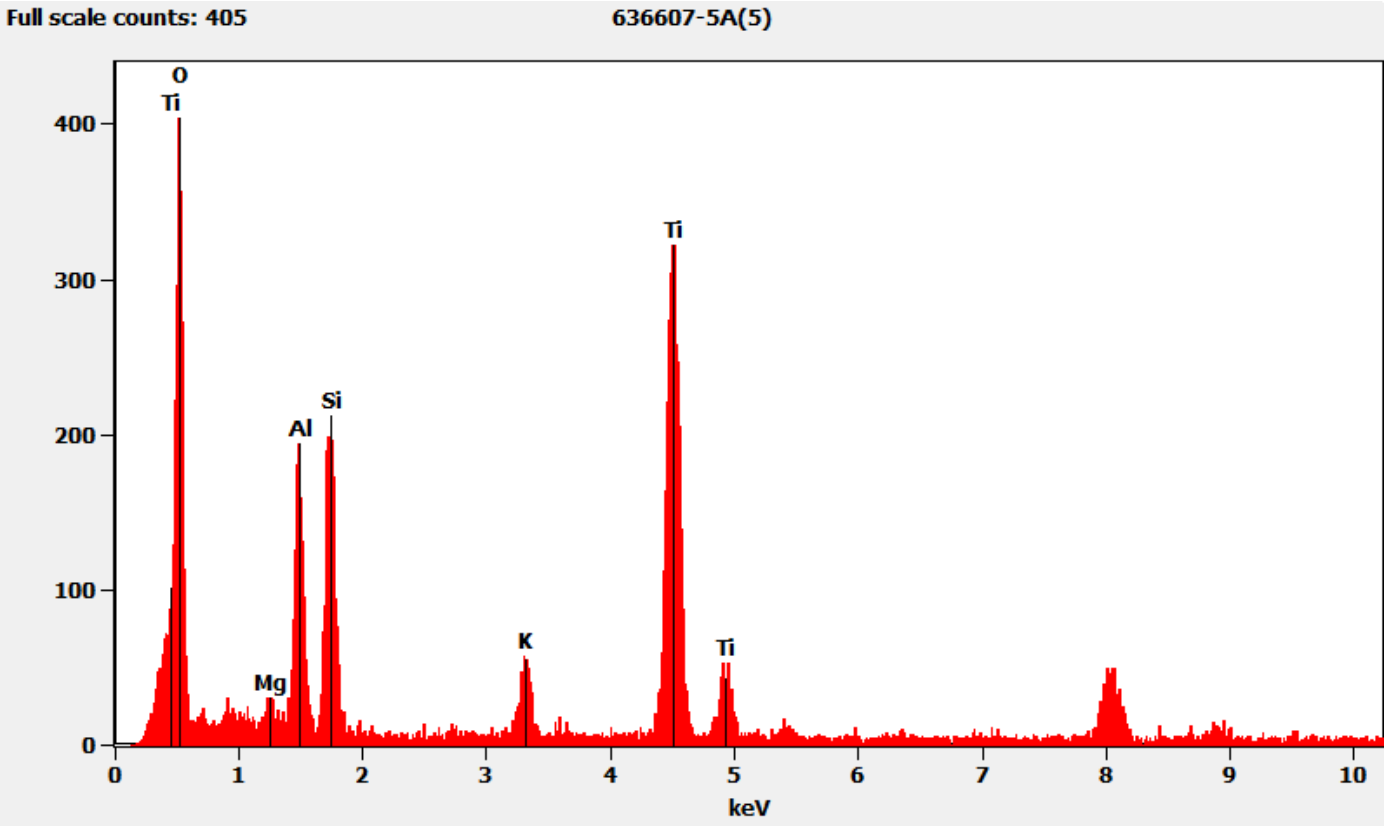
636607-5A, Mica Particle with Titanium



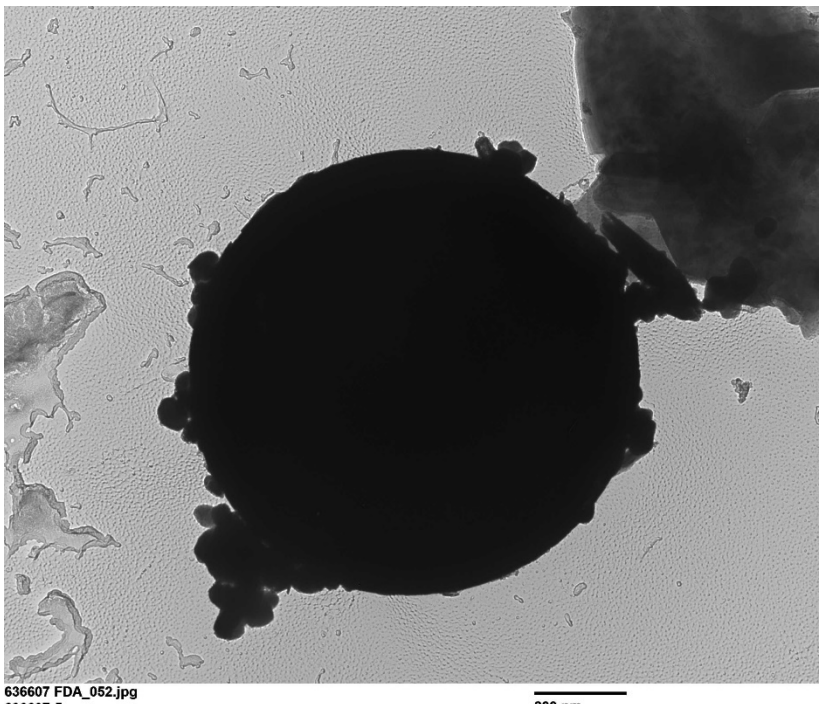
636607 FDA_053.jpg
636607-5a
Titanium mica mix
Cal: 0.003702 µm/pix
15:25 6/21/2022
Microscopist: Andreas Saldivar
Camera: NANOSPRT5, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

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

Chemistry from the Mica Particle with Titanium Pictured Above



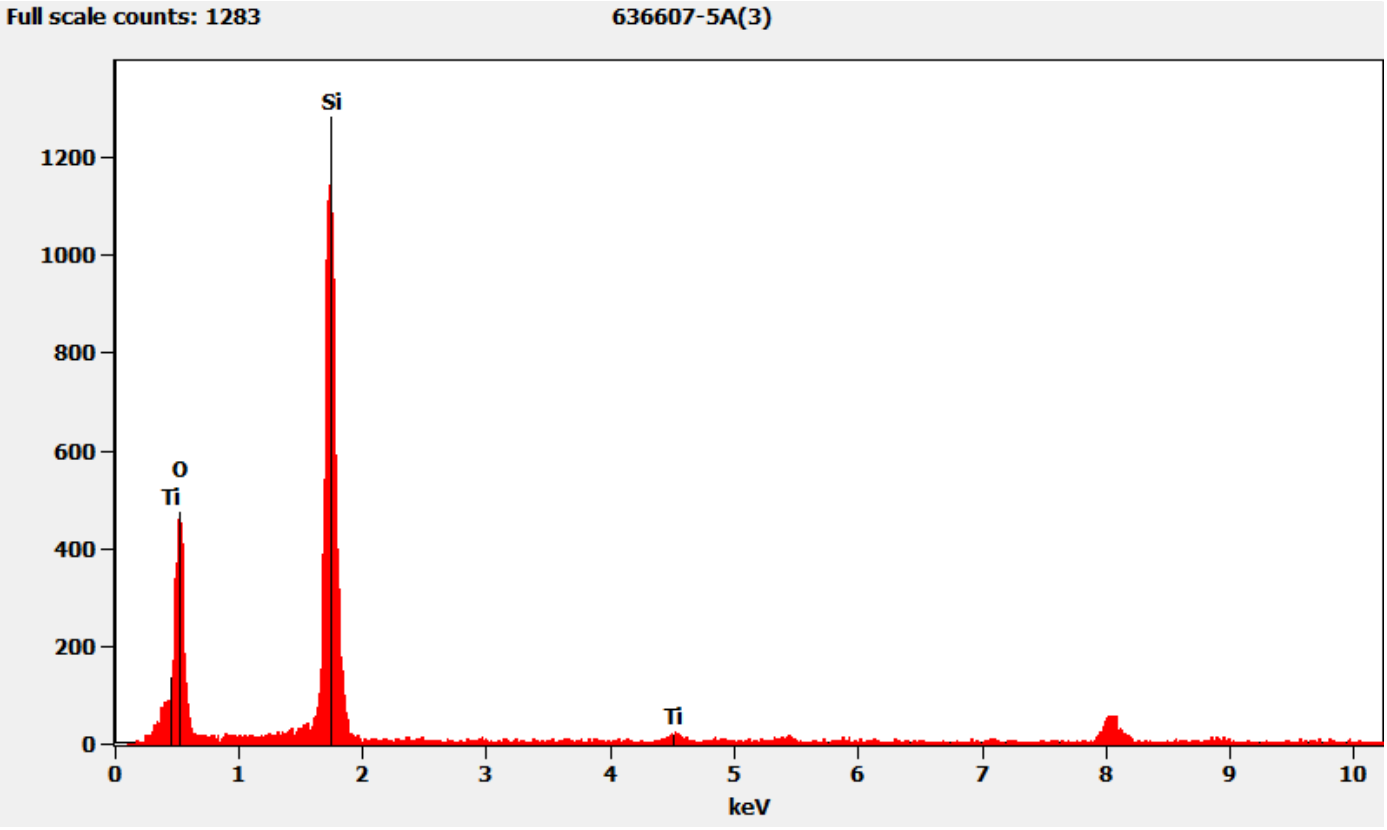
636607-5A, Silica Sphere



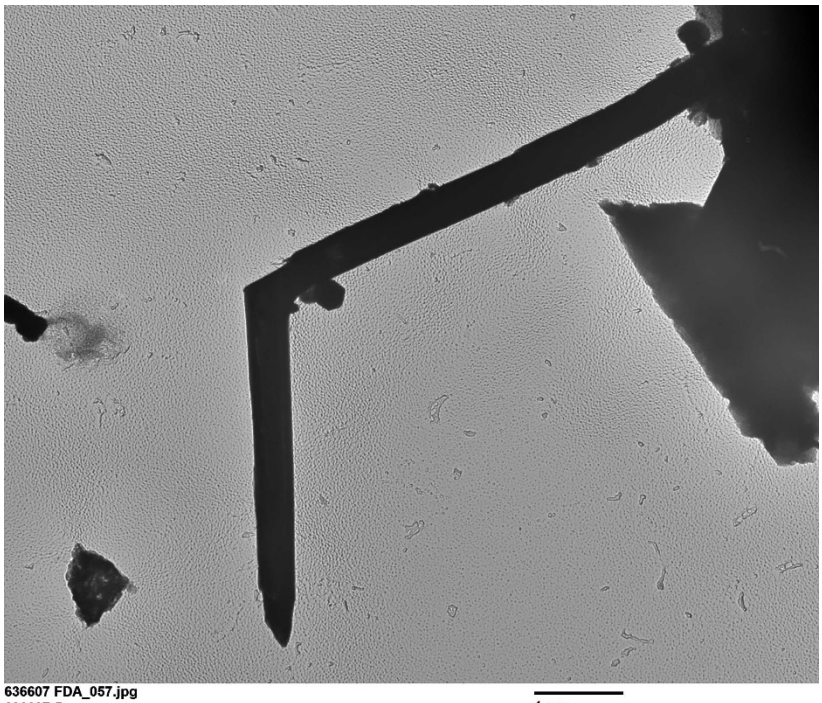
636607 FDA_052.jpg
636607-5a
Si Sphere
Cal: 0.002860 µm/pix
15:19 6/21/2022
Microscopist: Andreas Saldivar
Camera: NANOSPRT5, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

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

Chemistry from the Silica Sphere Pictured Above



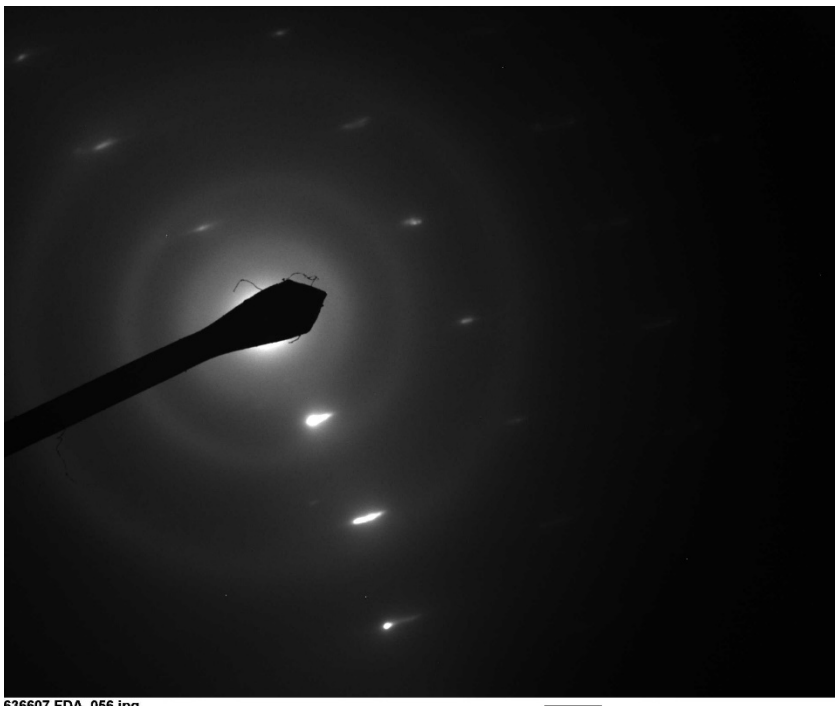
636607-5A, Talc Ribbon



636607 FDA_057.jpg
636607-5a
Talc ribbon
Cal: 0.003702 µm/pix
16:05 6/21/2022
Microscopist: Andreas Saldivar
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

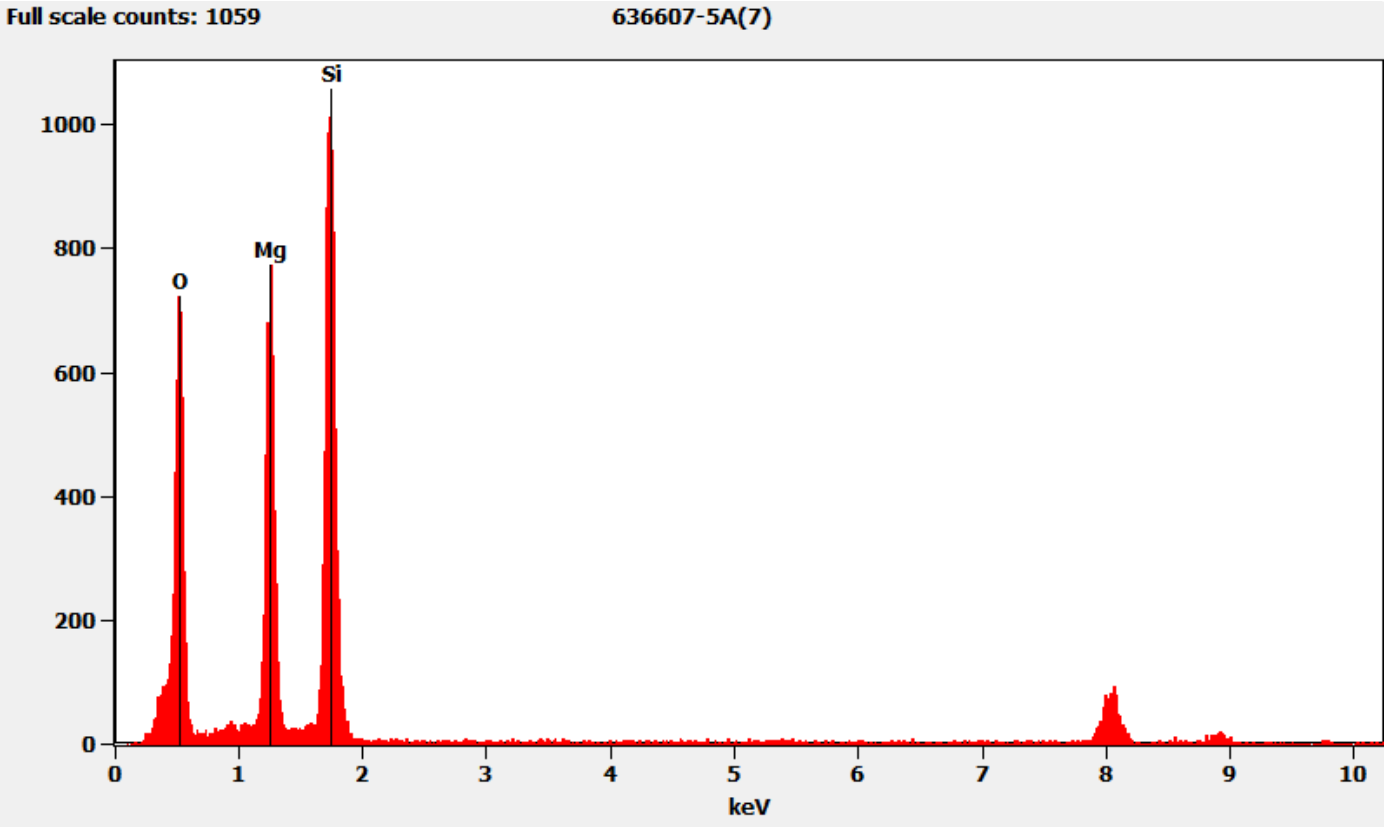
Diffraction Pattern from the Talc Ribbon Pictured Above



636607 FDA_056.jpg
636607-5a
Talc ribbon diffraction
16:03 6/21/2022
Microscopist: Andreas Saldivar
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



636607-6A, 6B, 6C/Client Sample: 05022022-6

PLM

All three aliquots of sample 05022022-6 were analyzed by (b) (6) on June 28, 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.

636607-6A	No Asbestos Detected
636607-6B	No Asbestos Detected
636607-6C	No Asbestos Detected

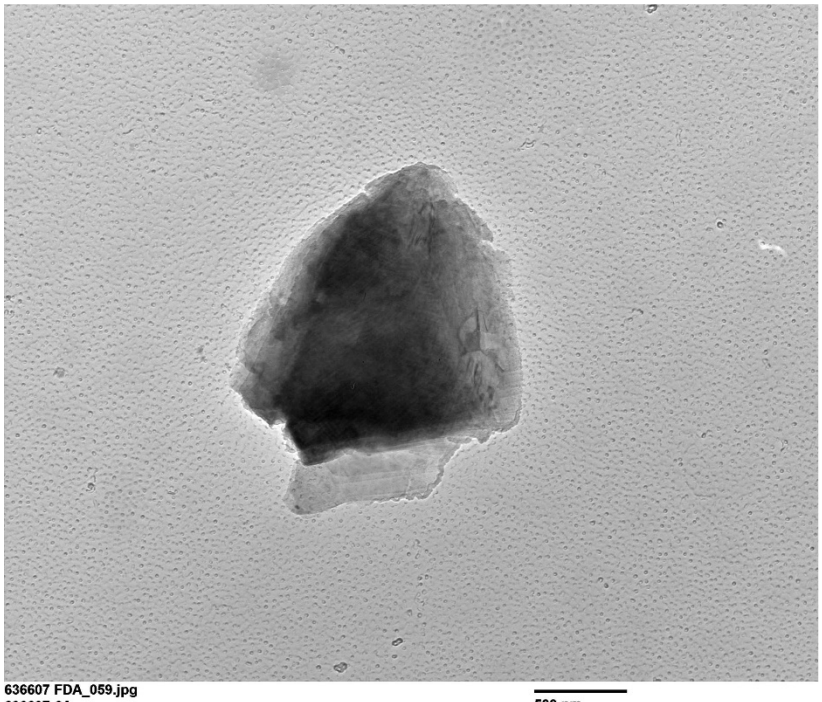
TEM

(b) (6) analyzed aliquot 6A on June 22, 2022, and aliquot 6C on June 23, 2022. Andreas Saldivar analyzed aliquot 6B on June 22, 2022. The primary particles observed were talc and mica; silica spheres and silicon particles were also observed along with titanium particles and particles containing zinc, silicon, chromium, 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.

636607-6A	No Asbestos Detected
636607-6B	No Asbestos Detected
636607-6C	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.

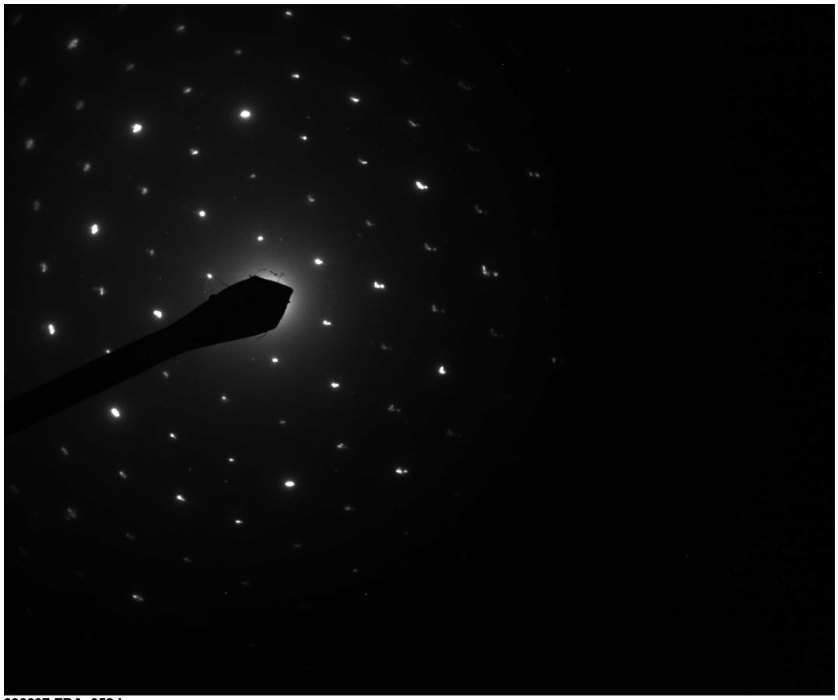
636607-6A, Talc Particle



636607 FDA_059.jpg
636607-6A
Talc Particle
Cal: 0.001775 µm/pix
11:49 6/22/2022
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

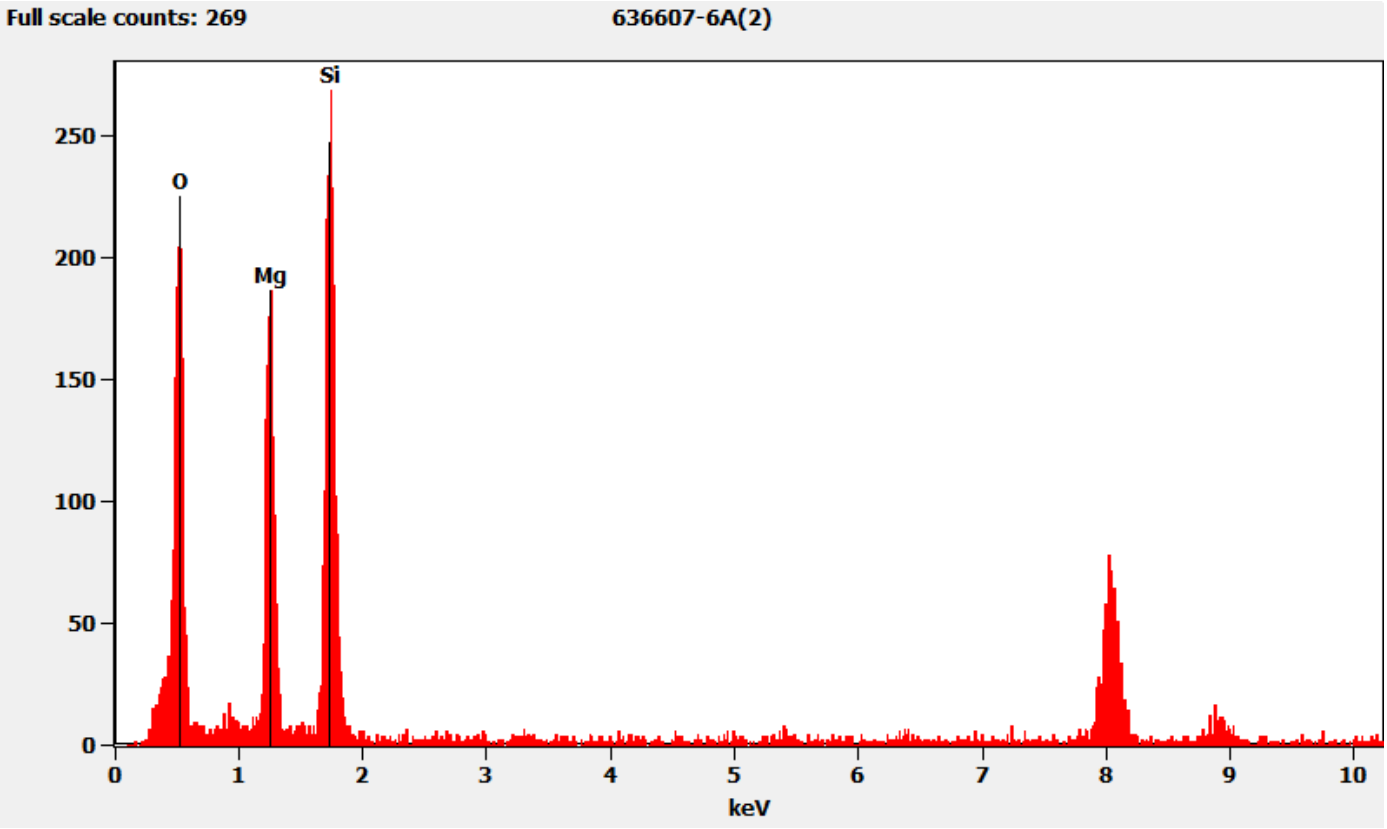
Hexagonal Diffraction Pattern from the Talc Particle Pictured Above



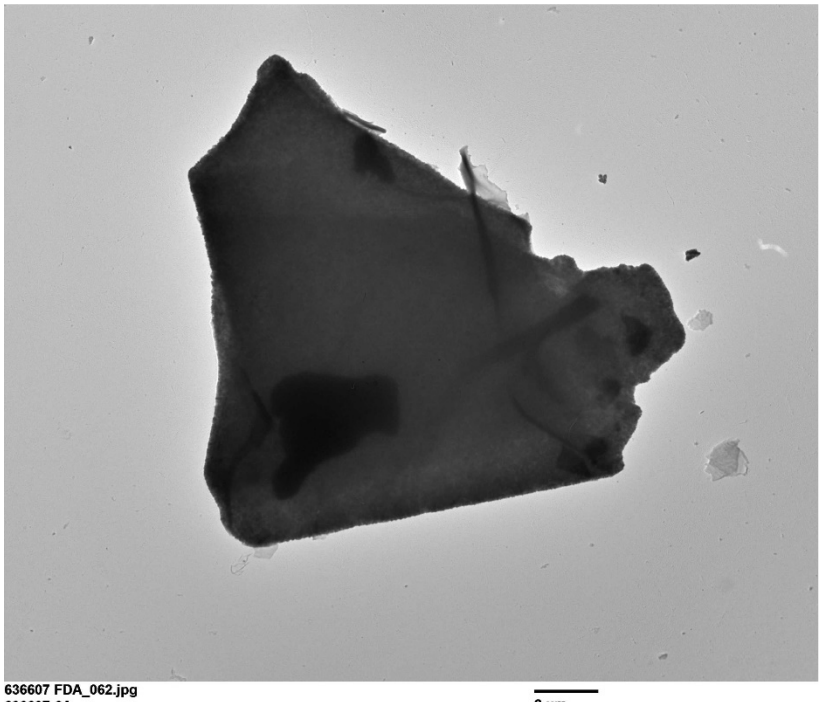
636607 FDA_058.jpg
636607-6A
Talc Particle
11:47 6/22/20 (b) (6)
Microscopis
Camera: NANOSPR15, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

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

Chemistry from the Talc Particle Pictured Above



636607-6A, Mica Particle with Titanium



636607 FDA_062.jpg
636607-6A
Mica w/Ti
Cal: 0.010296 µm/pix
11:57 6/22/2022
Microscopis (b) (6)
Camera: NANOSPRT5, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

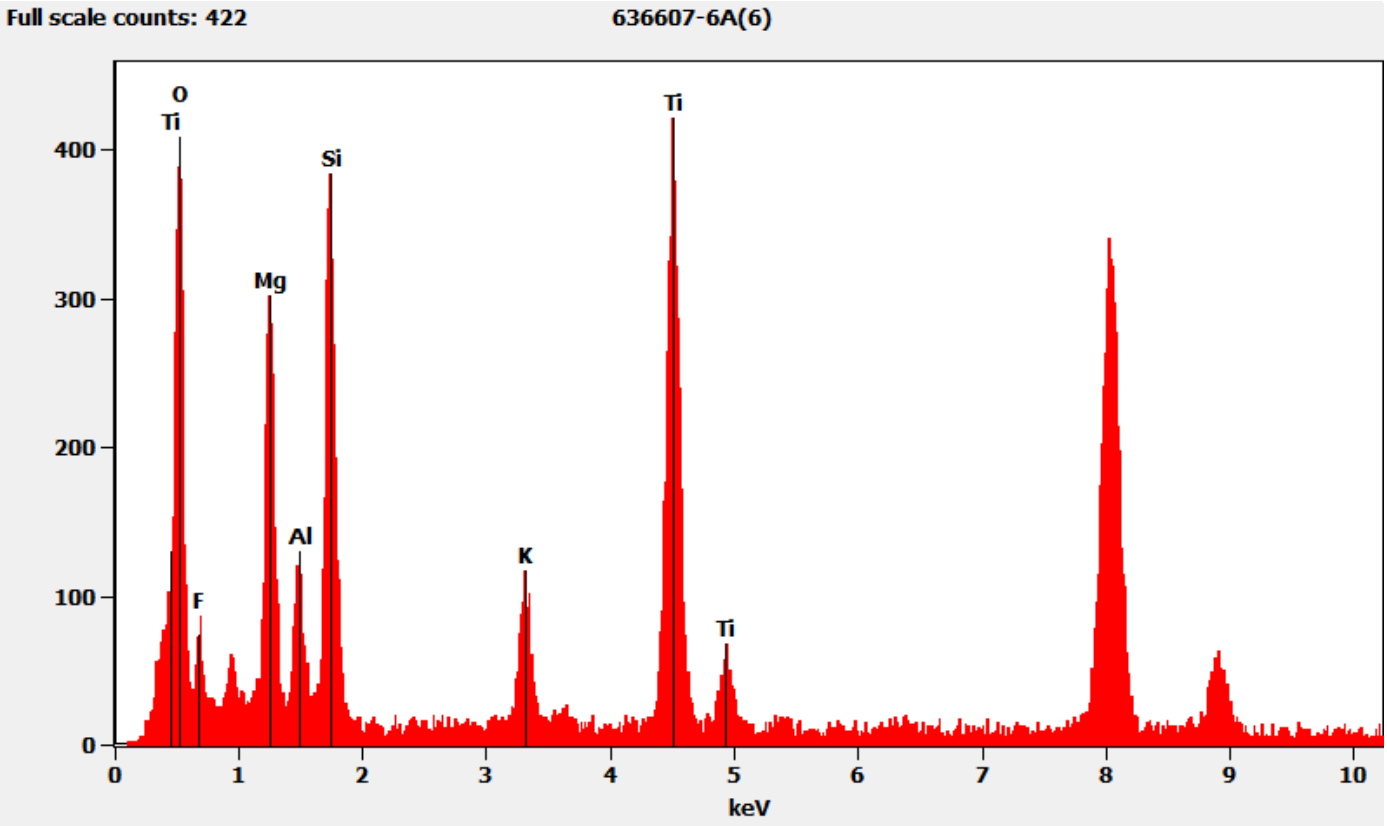
2 µm
HV=100kV
Direct Mag: 1000 x
AMA Analytical Services, Inc

Diffraction Pattern from the Mica Particle with Titanium Pictured Above

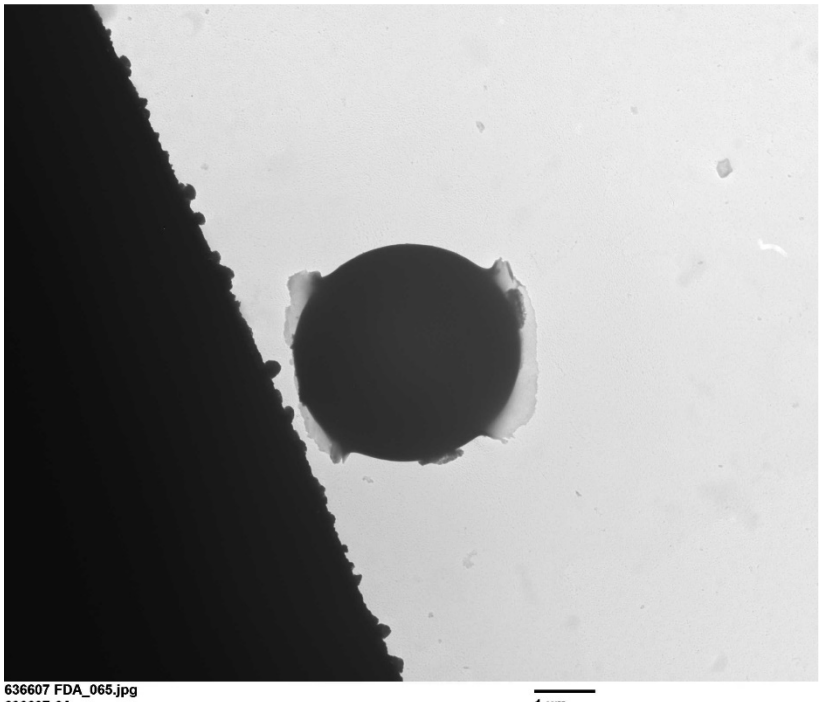
636607 FDA_061.jpg
636607-6A
Mica w/Ti
11:56 6/22/2022
Microscopis (b) (6)
Camera: NANOSPRT5, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

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

Chemistry from the Mica Particle with Titanium Pictured Above



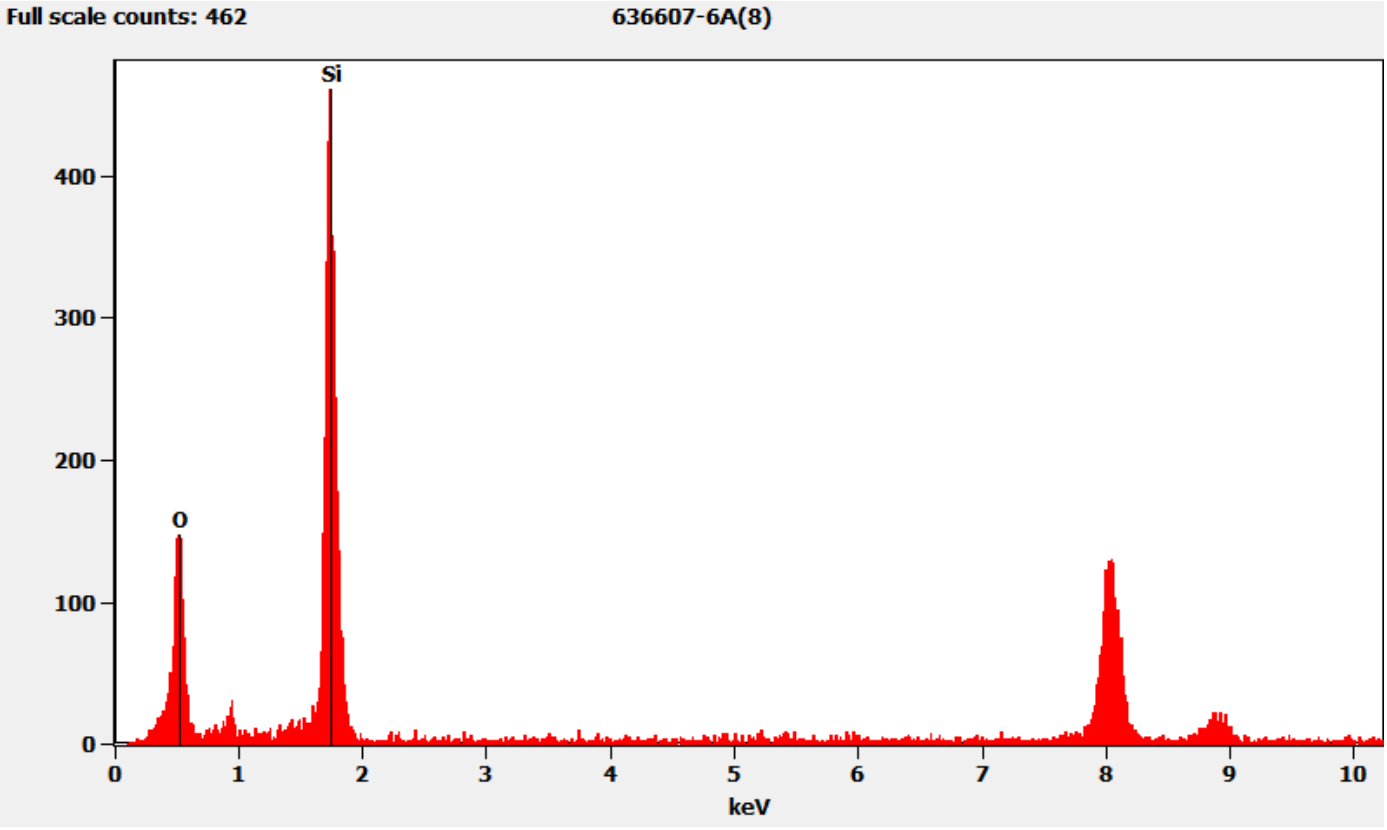
636607-6A, Silica Sphere



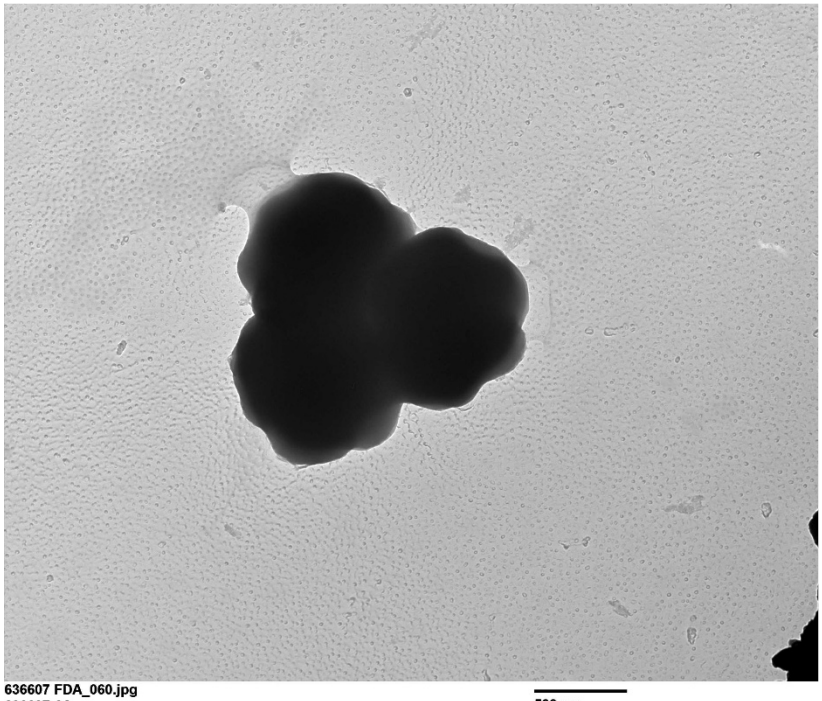
636607 FDA_065.jpg
636607-6A
Silica Sphere
Cal: 0.005419 µm/pix
12:08 6/22/2022
Microscopist (b) (6)
Camera: NANOSPRT5, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

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

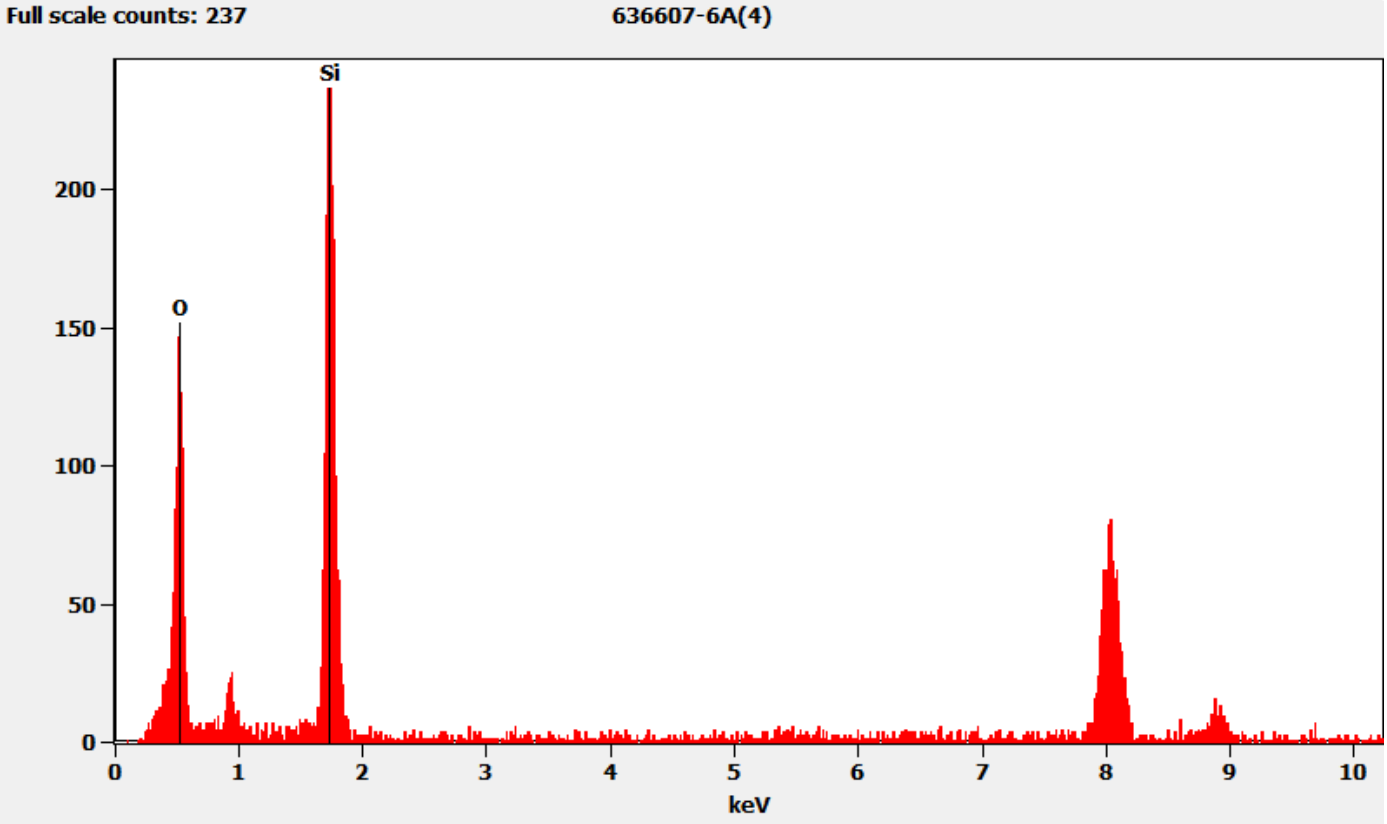
Chemistry from the Silica Sphere Pictured Above



636607-6A, Silicon Particle

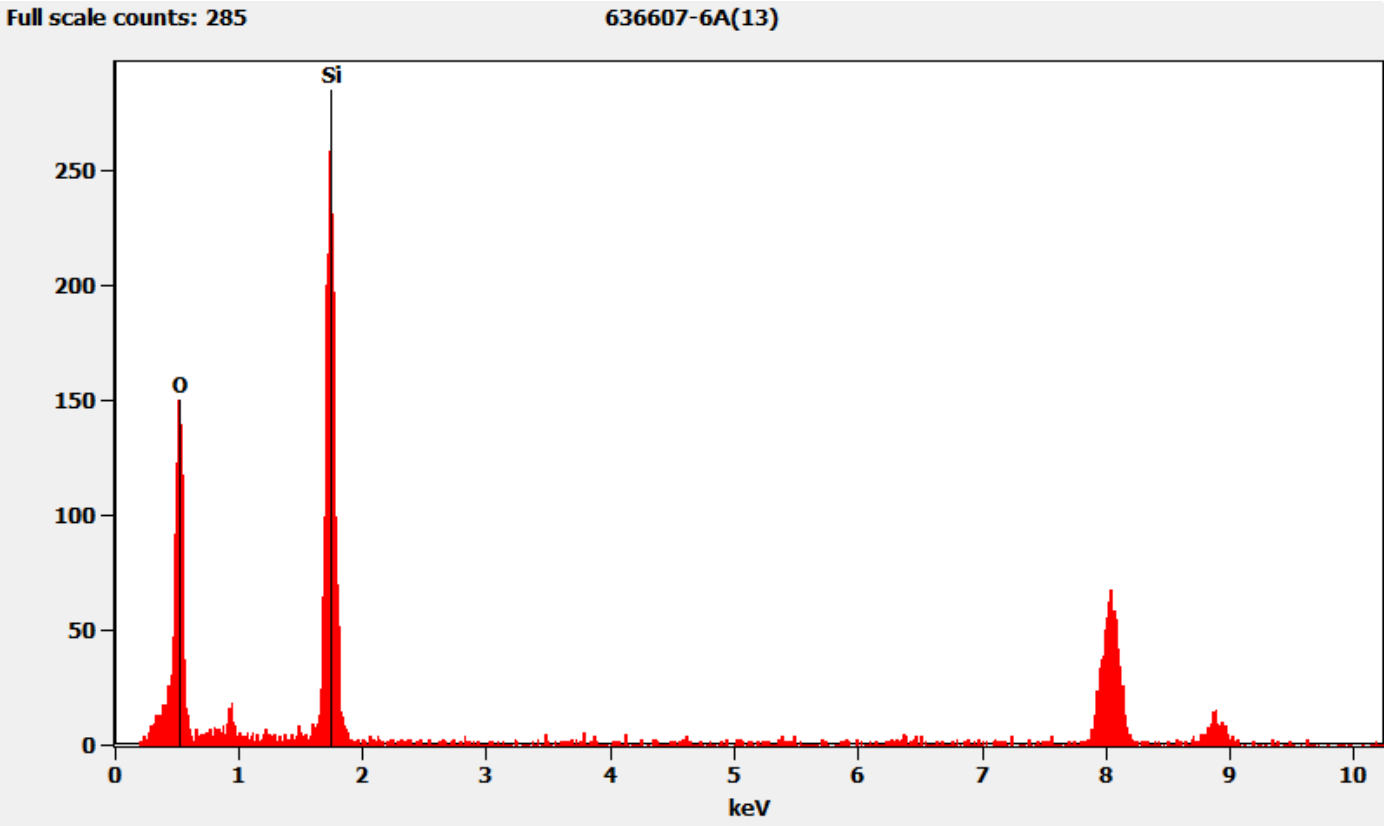


Chemistry from the Silicon Particle Pictured Above

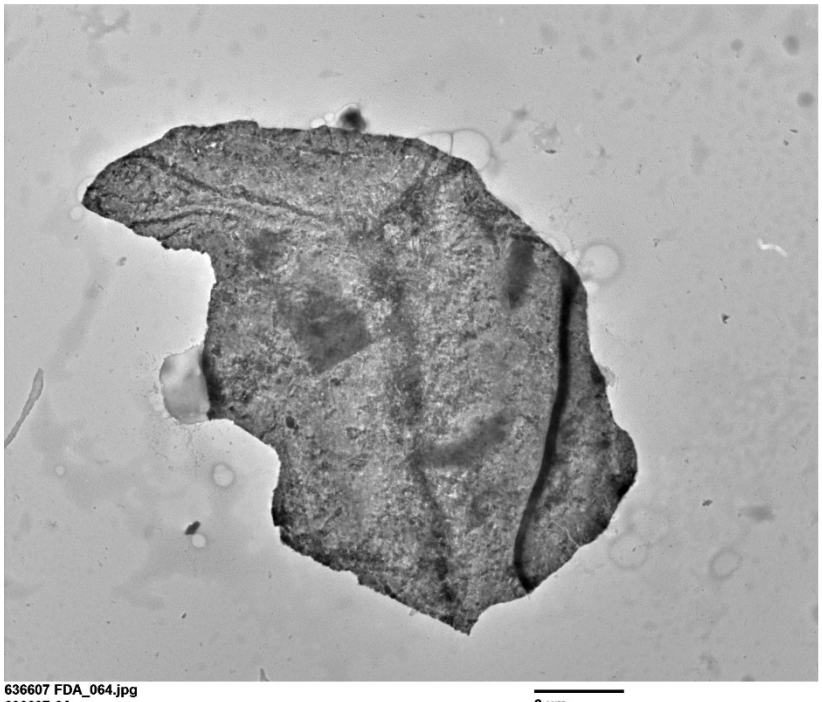


636607-6A, Silicon Fiber

Chemistry from the Silicon Fiber Pictured Above



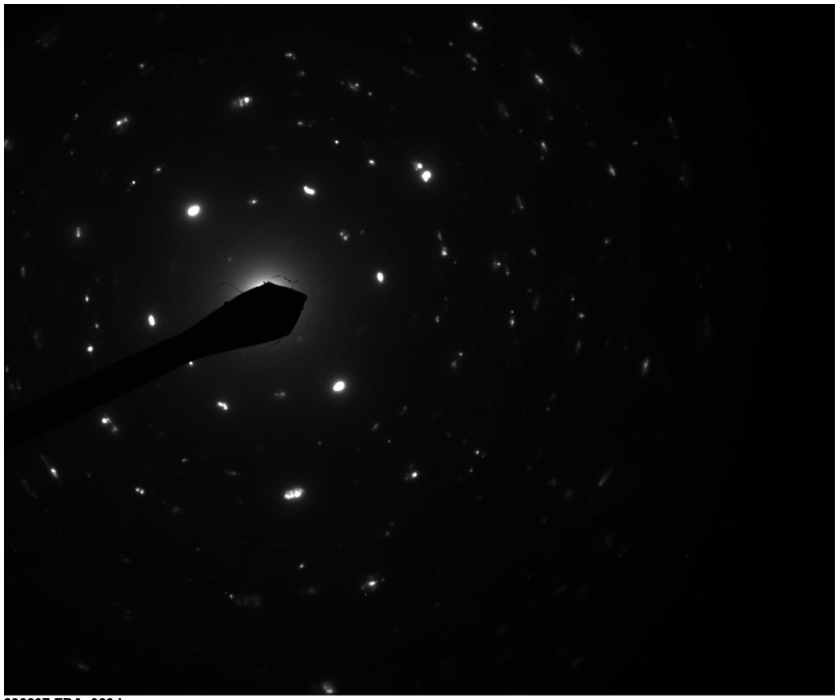
636607-6A, Particle Containing Zinc, Silicon, Chromium, and Iron



636607 FDA_064.jpg
636607-6A
Zn,Si,Cr,Fe particle
Cal: 0.007355 µm/pix
12:02 6/22/2022
Microscopis (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

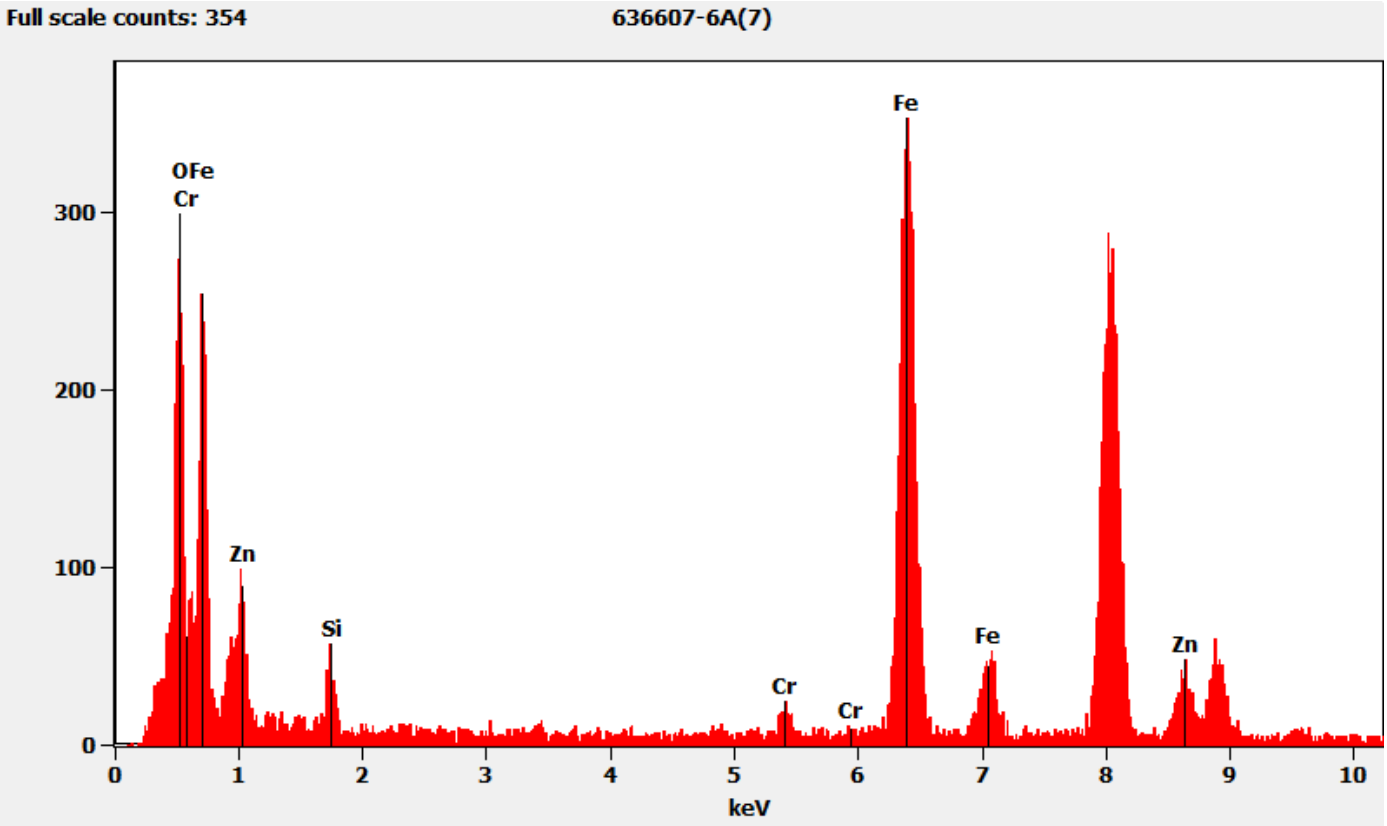
Diffraction Pattern from the Particle Containing Zinc, Silicon, Chromium, and Iron Pictured Above



636607 FDA_063.jpg
636607-6A
Zn,Si,Cr,Fe particle
12:01 6/22/2022
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 Zinc, Silicon, Chromium, and Iron Pictured Above



636607-7A, 7B, 7C/Client Sample: 05022022-7

PLM

All three aliquots of sample 05022022-7 were analyzed by (b) (6) on June 28, 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.

636607-7A	No Asbestos Detected
636607-7B	No Asbestos Detected
636607-7C	No Asbestos Detected

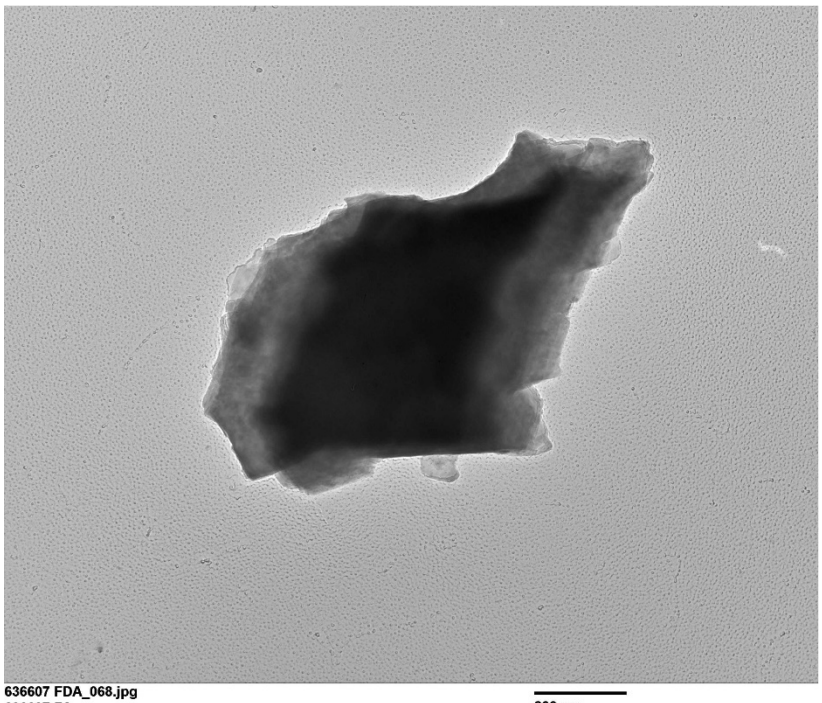
TEM

(b) (6) analyzed aliquot 7A on June 22, 2022. Andreas Saldivar analyzed aliquots 7B and 7C on June 23, 2022. The primary particle observed was talc; talc ribbons and talc fibers 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.

636607-7A	No Asbestos Detected
636607-7B	No Asbestos Detected
636607-7C	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.

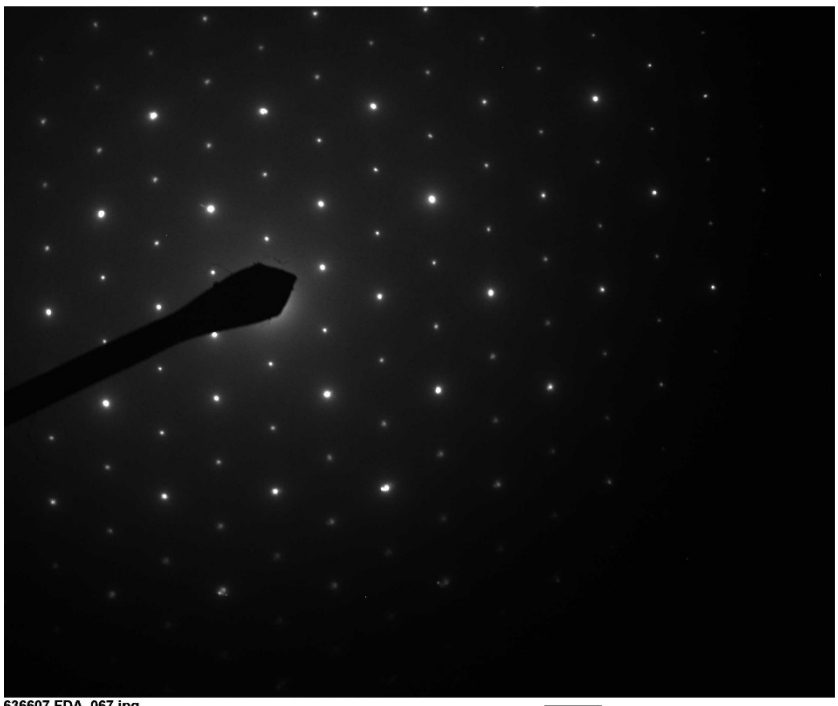
636607-7A, Talc Particle



636607 FDA_068.jpg
636607-7A
Talc Particle
Cal: 0.002860 µm/pix
13:01 6/22/2022
Microscopis(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

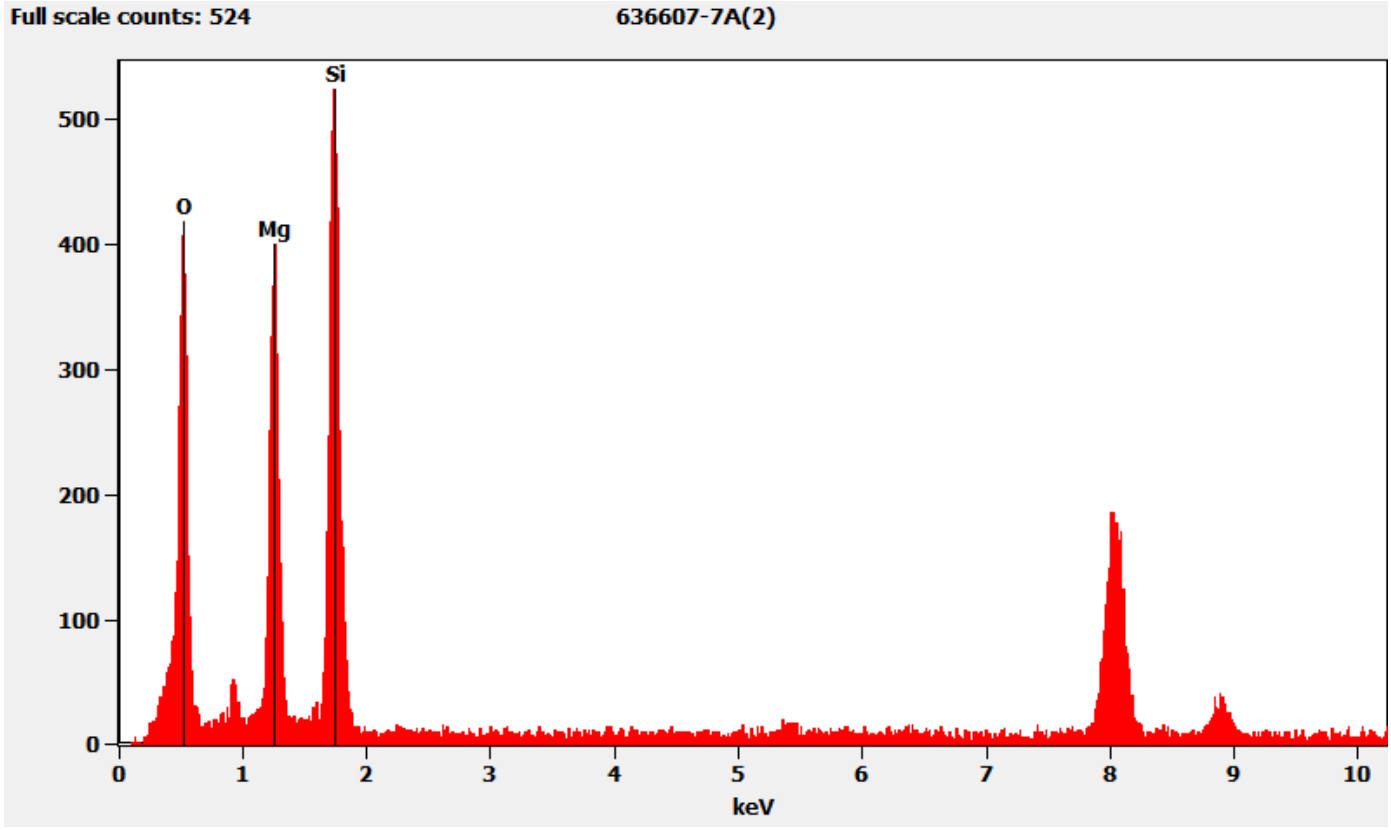
Hexagonal Diffraction Pattern from the Talc Particle Pictured Above



636607 FDA_067.jpg
636607-7A
Talc Particle
13:01 6/22/2022
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

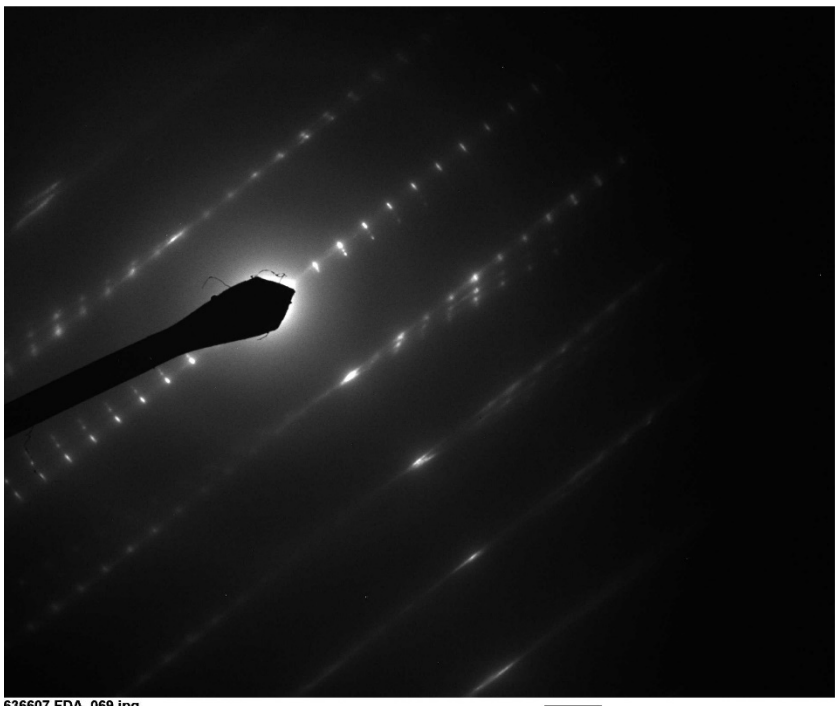


636607-7A, Talc Ribbon

636607 FDA_070.jpg
636607-7A
Talc Ribbon
Cal: 0.007355 µm/pix
13:10 6/22/2022
Microscopist: (b) (6)
Camera: NANOSPR15, 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

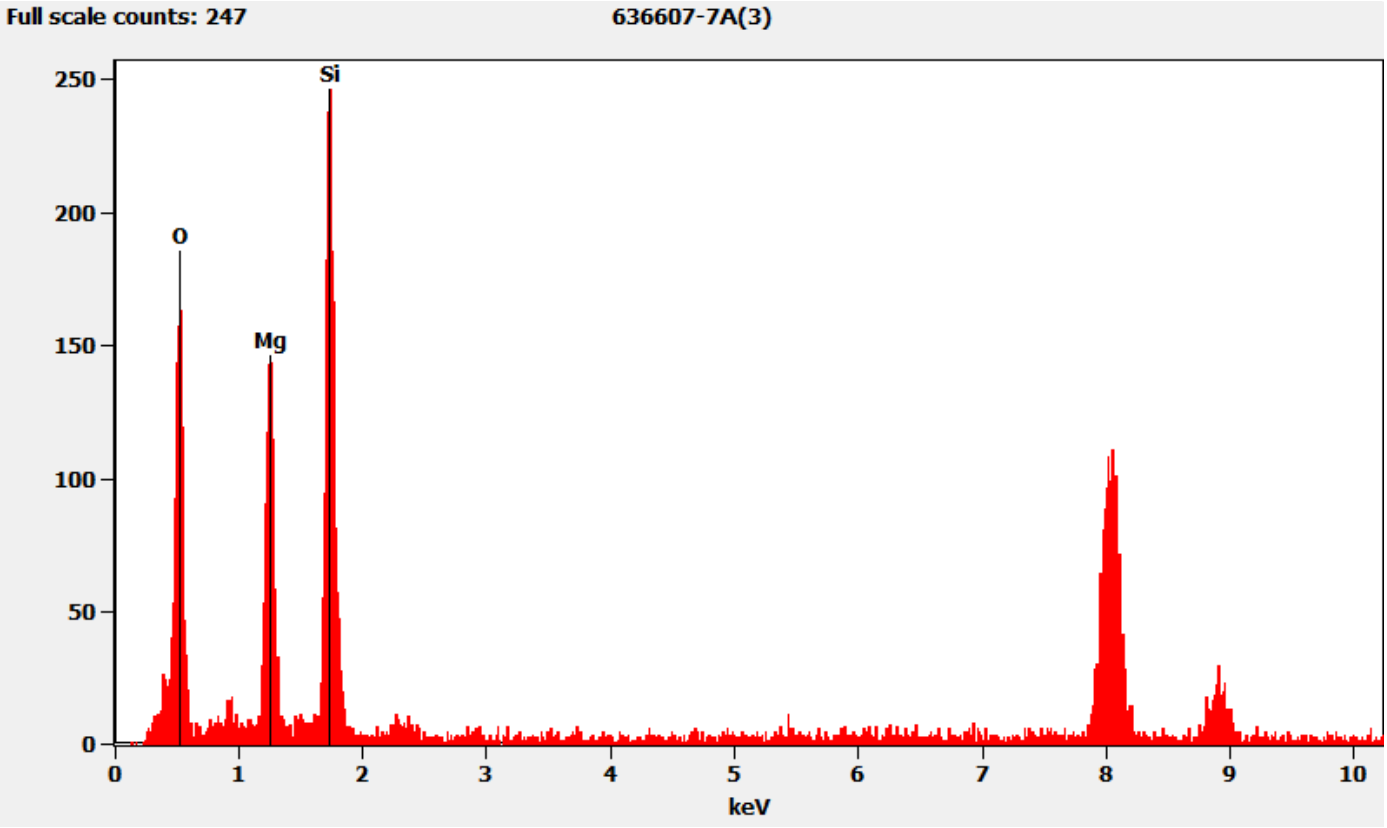
Diffraction Pattern from the Talc Ribbon Pictured Above



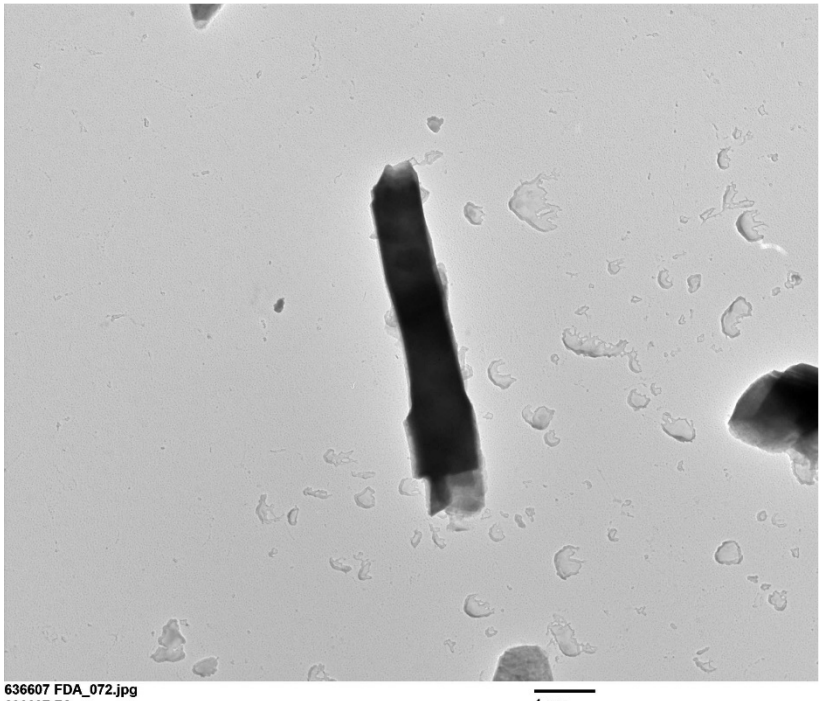
636607 FDA_069.jpg
636607-7A
Talc Ribbon
13:09 6/22/2022
Microscopis (b) (6)
Camera: NAI T5, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

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

Chemistry from the Talc Ribbon Pictured Above



636607-7A, Talc Fiber



636607 FDA_072.jpg
636607-7A
Talc Fiber
Cal: 0.005419 µm/pix
13:21 6/22/2022
Microscopist (b) (6)
Camera: NANOSPRT5, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

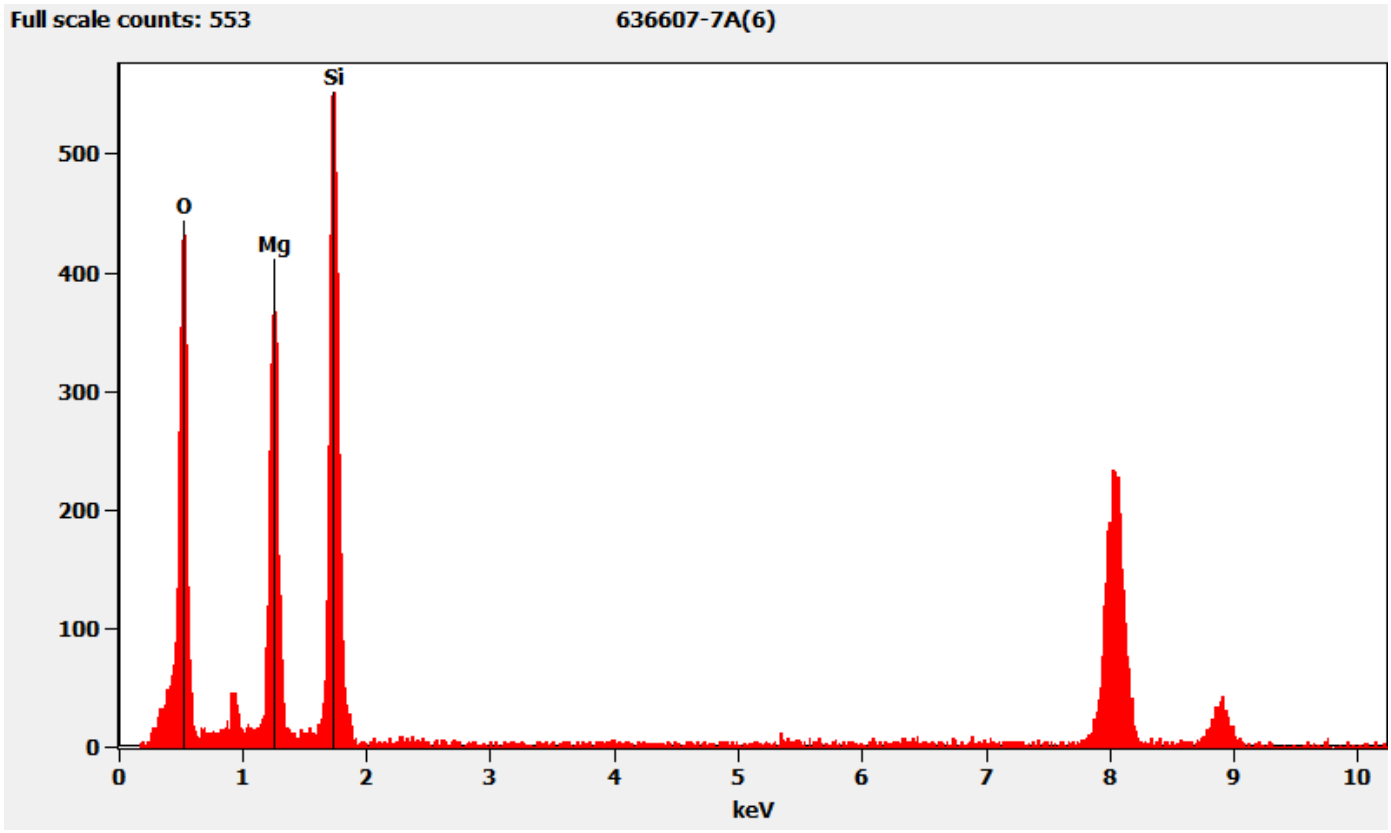
1 µm
HV=100kV
Direct Mag: 1900 x
AMA Analytical Services, Inc

Hexagonal Diffraction Pattern from the Talc Fiber Pictured Above

636607 FDA_071.jpg
636607-7A
Talc Fiber
13:21 6/22/2022
Microscopis (b) (6)
Camera: NA[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 Fiber Pictured Above



636607-8A, 8B, 8C/Client Sample: 05022022-8

PLM

All three aliquots of sample 05022022-8 were analyzed by (b) (6) on June 28, 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.

636607-8A	No Asbestos Detected
636607-8B	No Asbestos Detected
636607-8C	No Asbestos Detected

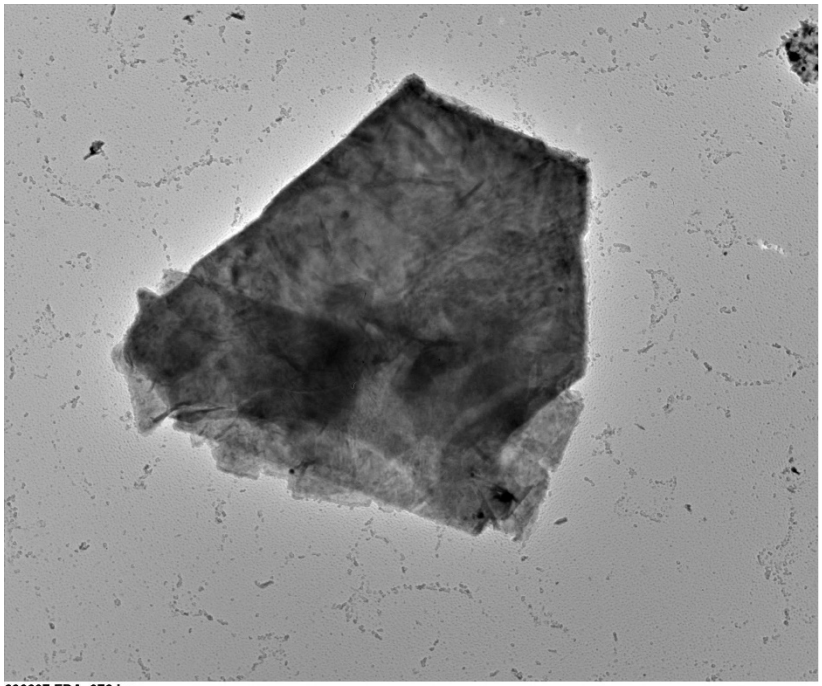
TEM

(b) (6) analyzed aliquot 8A on June 22, 2022, and aliquots 8B and 8C on June 23, 2022. The primary particles observed were talc, iron, and titanium; mica particles and particles containing sodium, aluminum, silicon, and sulfur were also observed along with talc fibers 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.

636607-8A	No Asbestos Detected
636607-8B	No Asbestos Detected
636607-8C	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.

636607-8A, Talc Particle

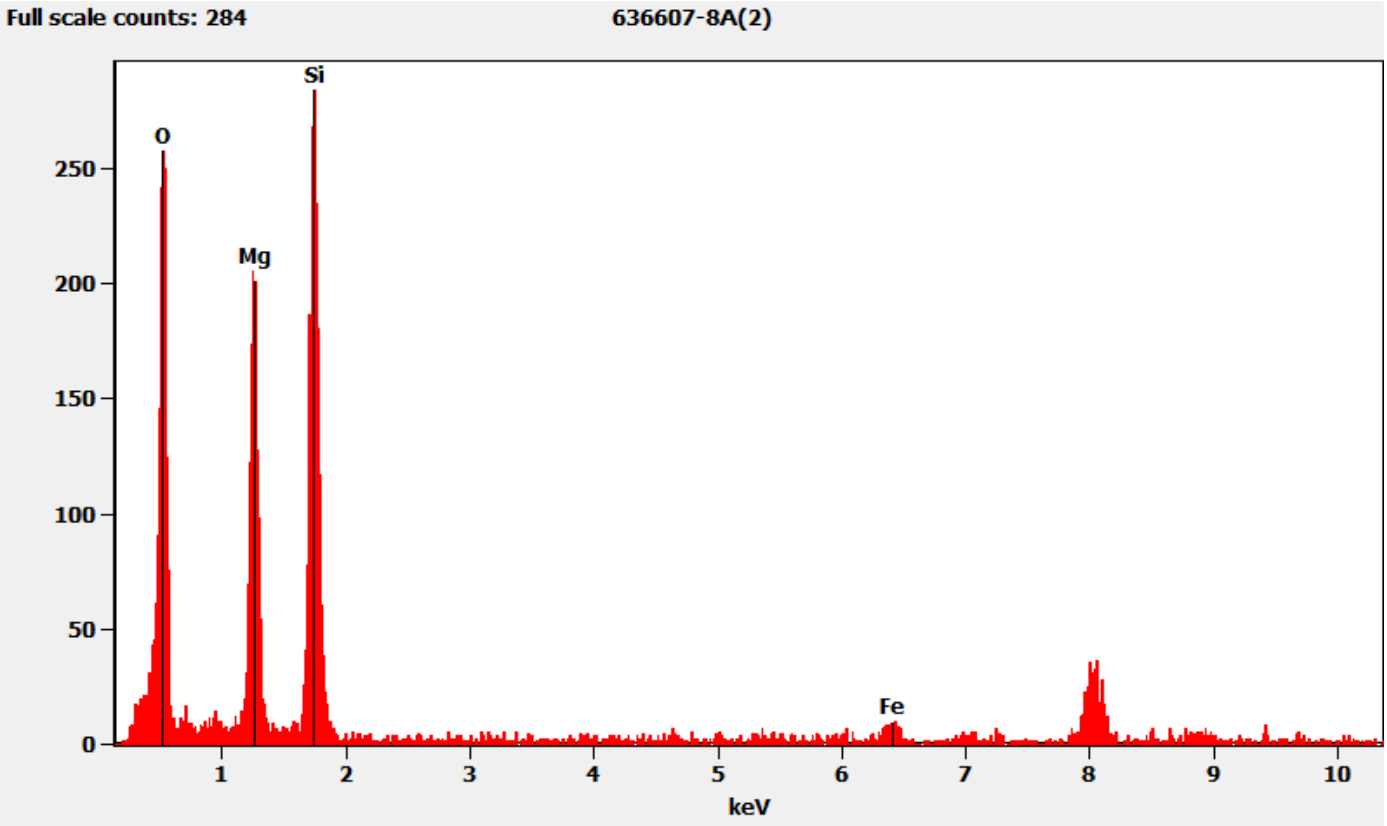


Hexagonal Diffraction Pattern from the Talc Particle Pictured Above

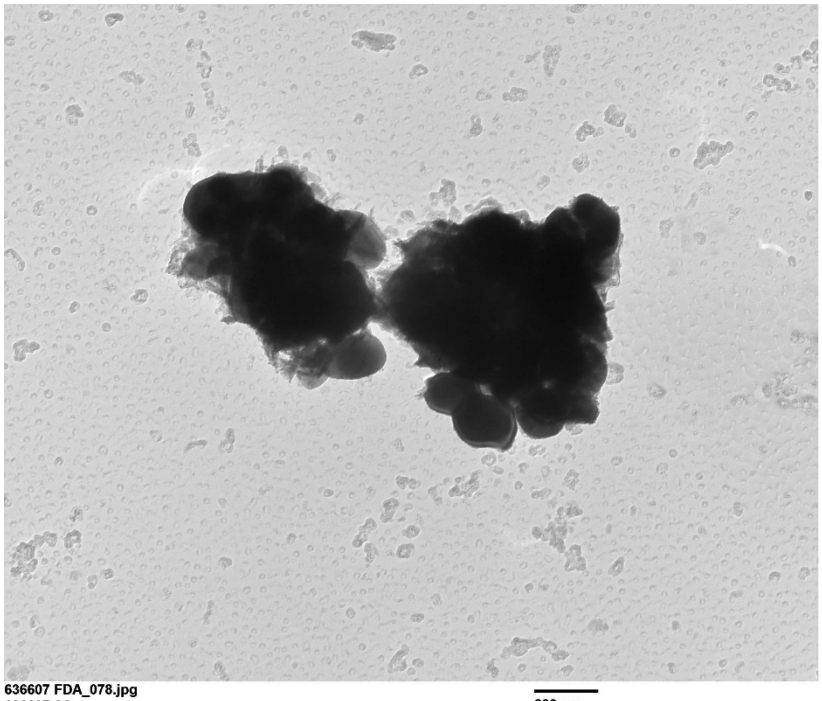
636607 FDA_075.jpg
636607-8A
Talc Particle
14:50 6/22/2022
Microscopist (b) (6)
Camera: NANOSPRT5, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

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

Chemistry from the Talc Particle Pictured Above



636607-8A, Iron Particles

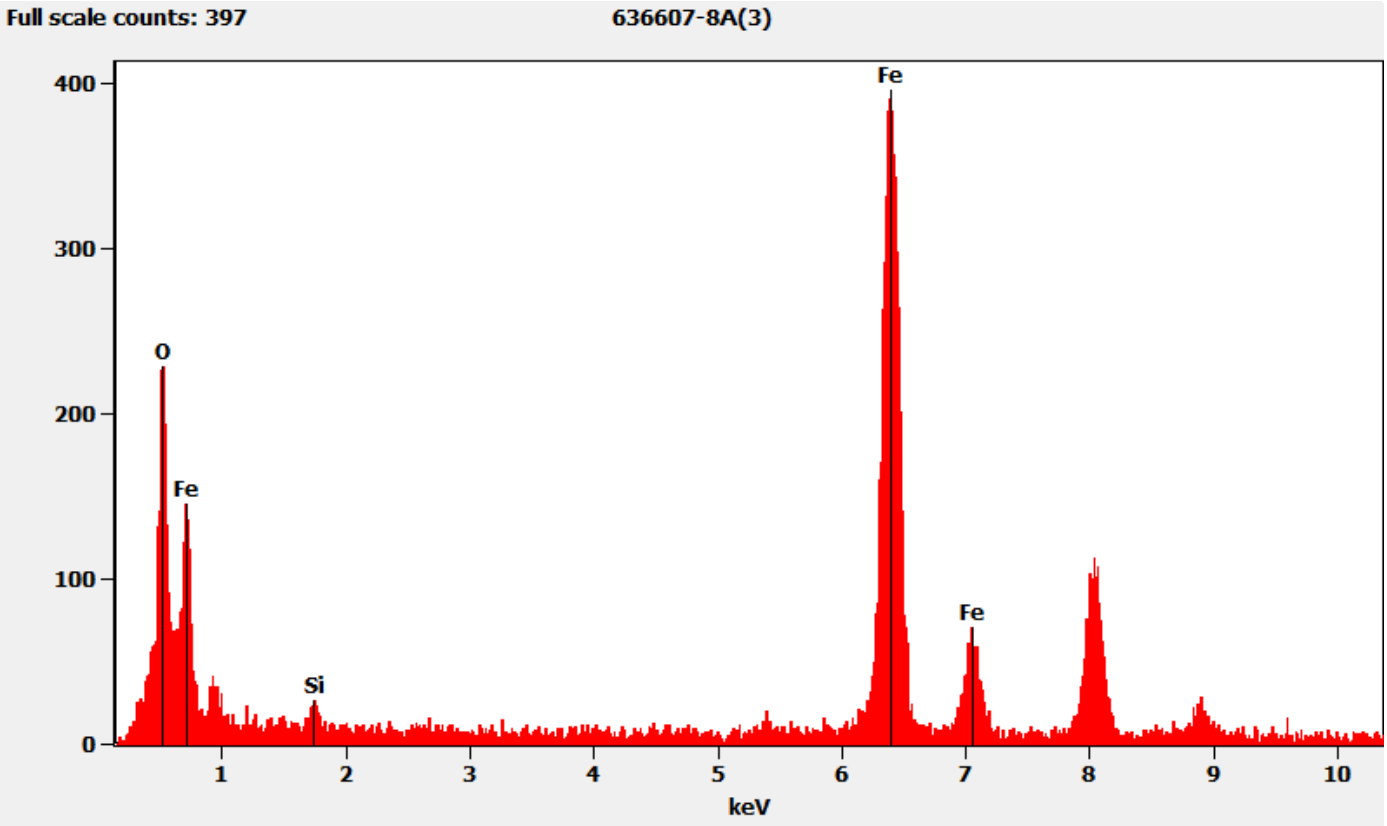


Diffraction Pattern from the Iron Particles Pictured Above

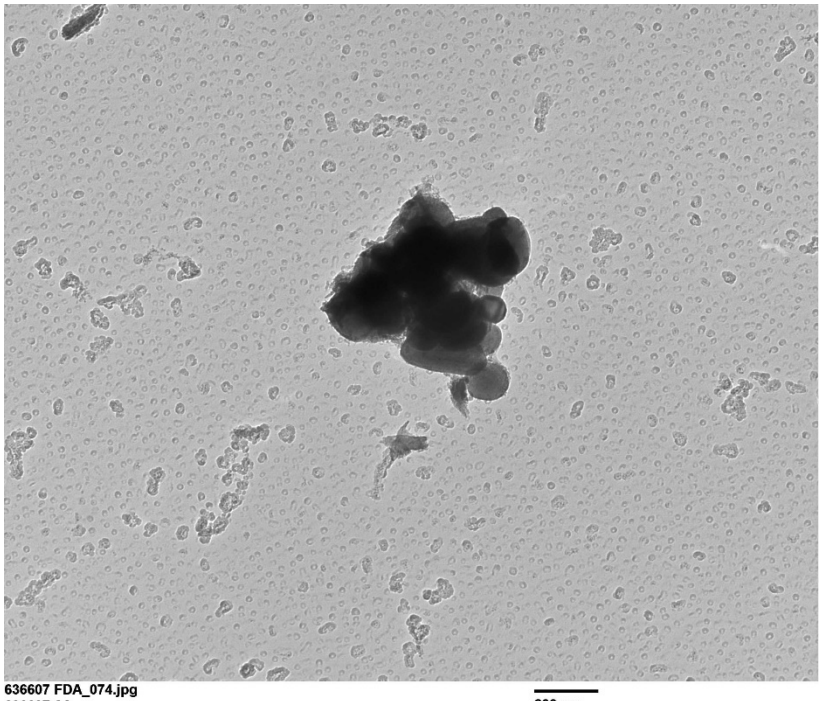
636607 FDA_077.jpg
636607-8A
Fe Particles
15:35 6/22/2022
Microscopist: (b) (6)
Camera: NA[illegible], Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

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

Chemistry from the Iron Particles Pictured Above



636607-8A, Titanium Particles

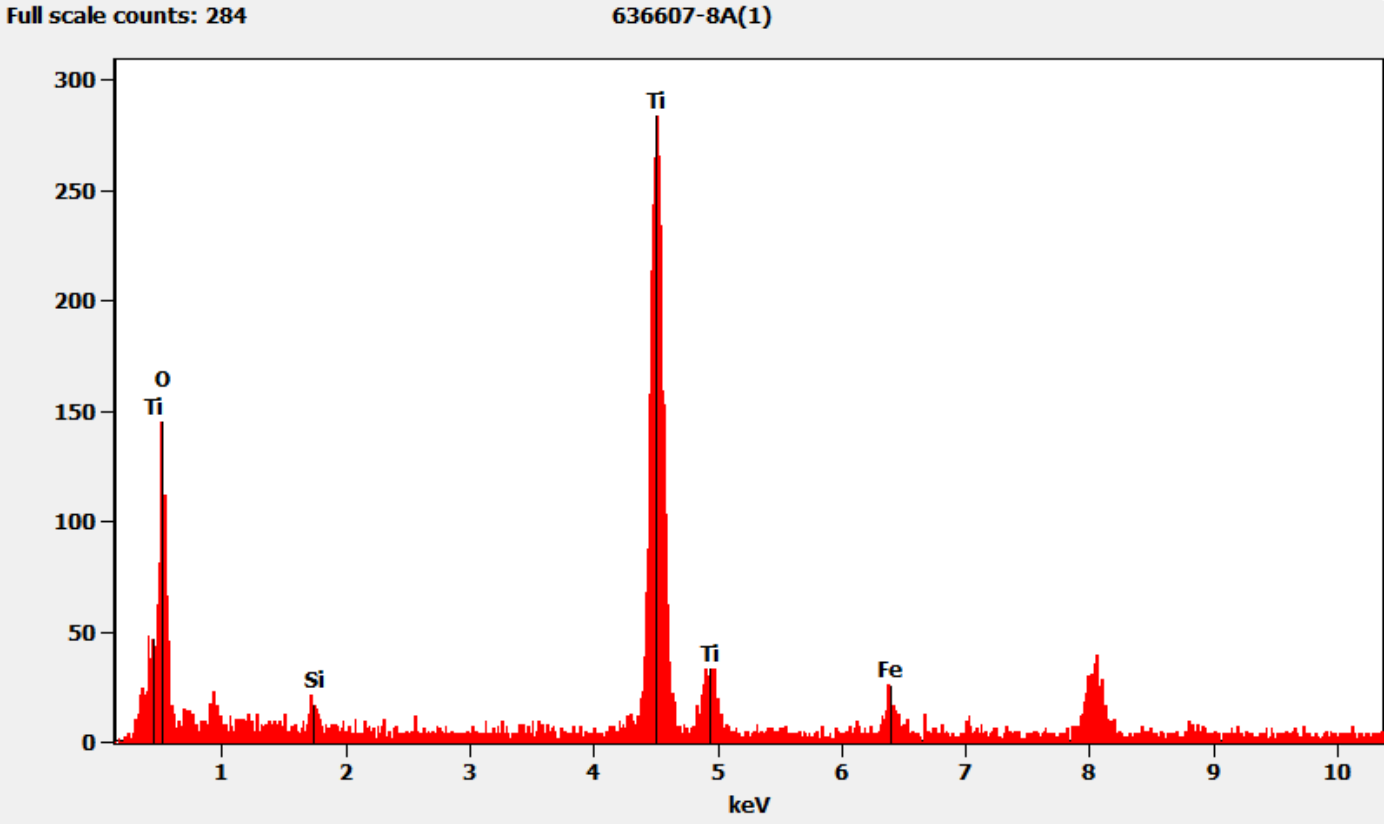


Diffraction Pattern from the Titanium Particles Pictured Above

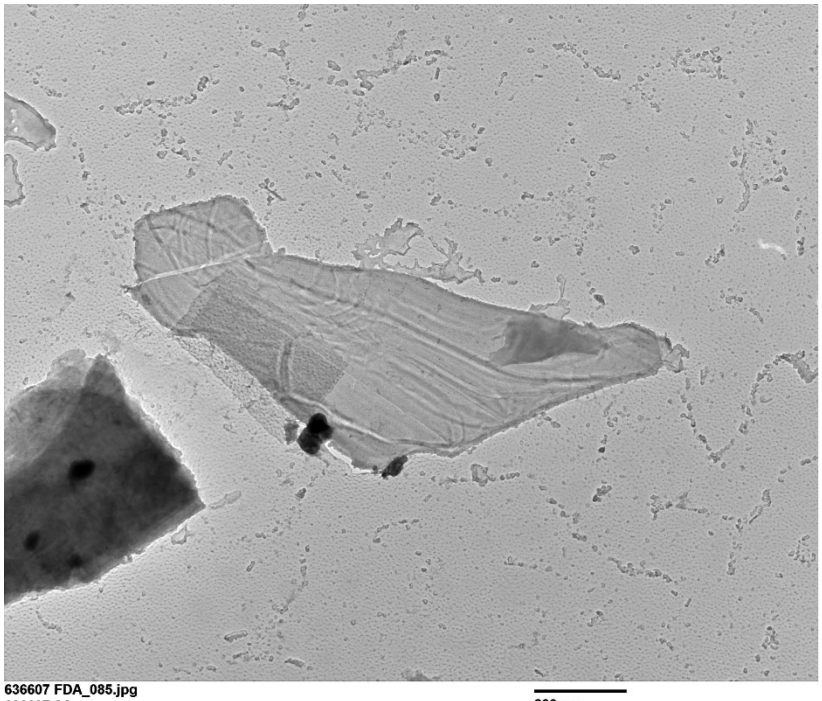
636607 FDA_073.jpg
636607-8A
Ti particles
14:47 6/22/2022
Microscopist: (b) (6)
Camera: NANOSPRI5, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

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

Chemistry from the Titanium Particle Pictured Above



636607-8A, Mica Particle

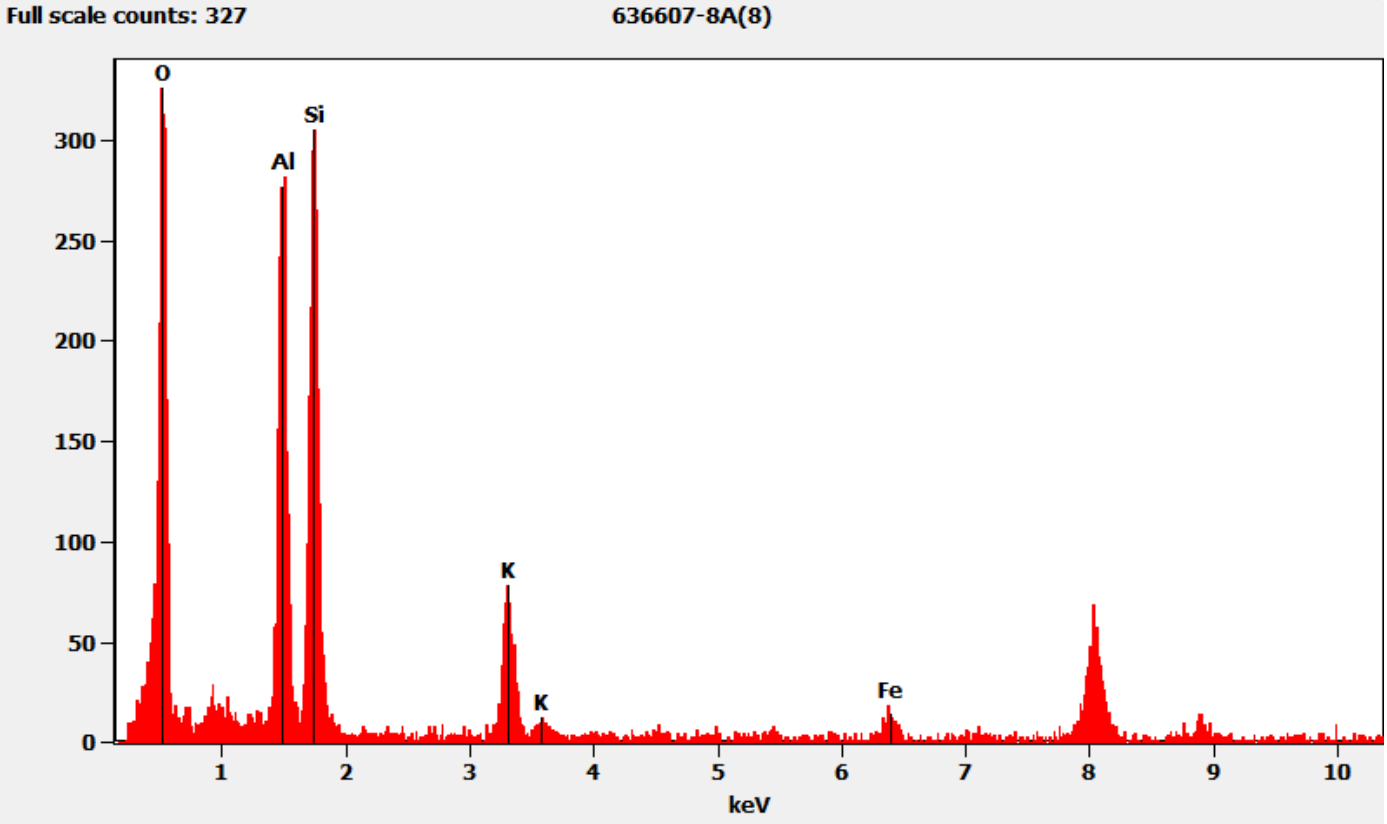


Hexagonal Diffraction Pattern from the Mica Particle Pictured Above

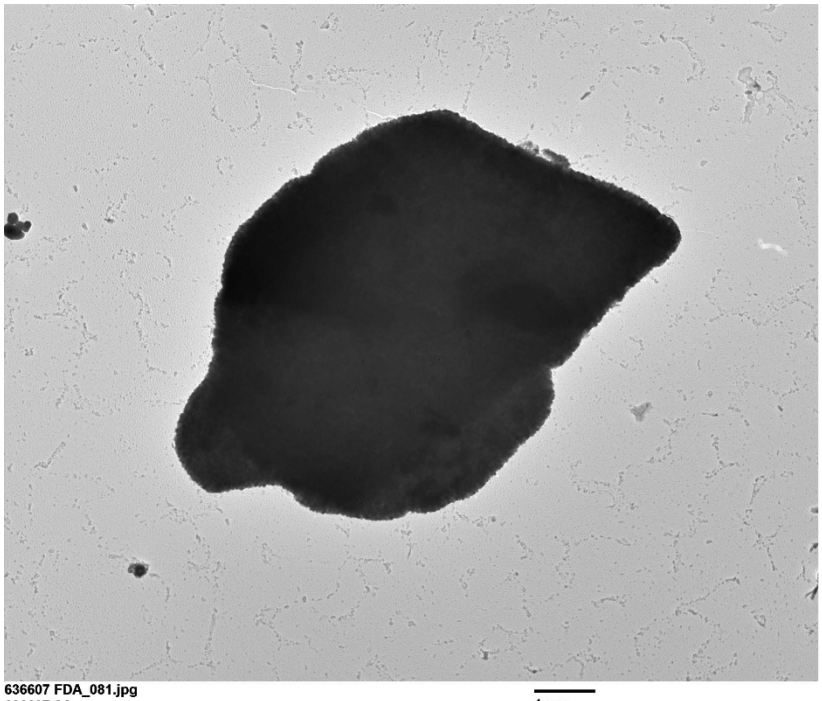
636607 FDA_084.jpg
636607-8A
Mica Particle
16:02 6/22/2022
Microscopist: (b) (6)
Camera: NANOSPR15, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

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

Chemistry from the Mica Particle Pictured Above



636607-8A, Mica Particle with Titanium

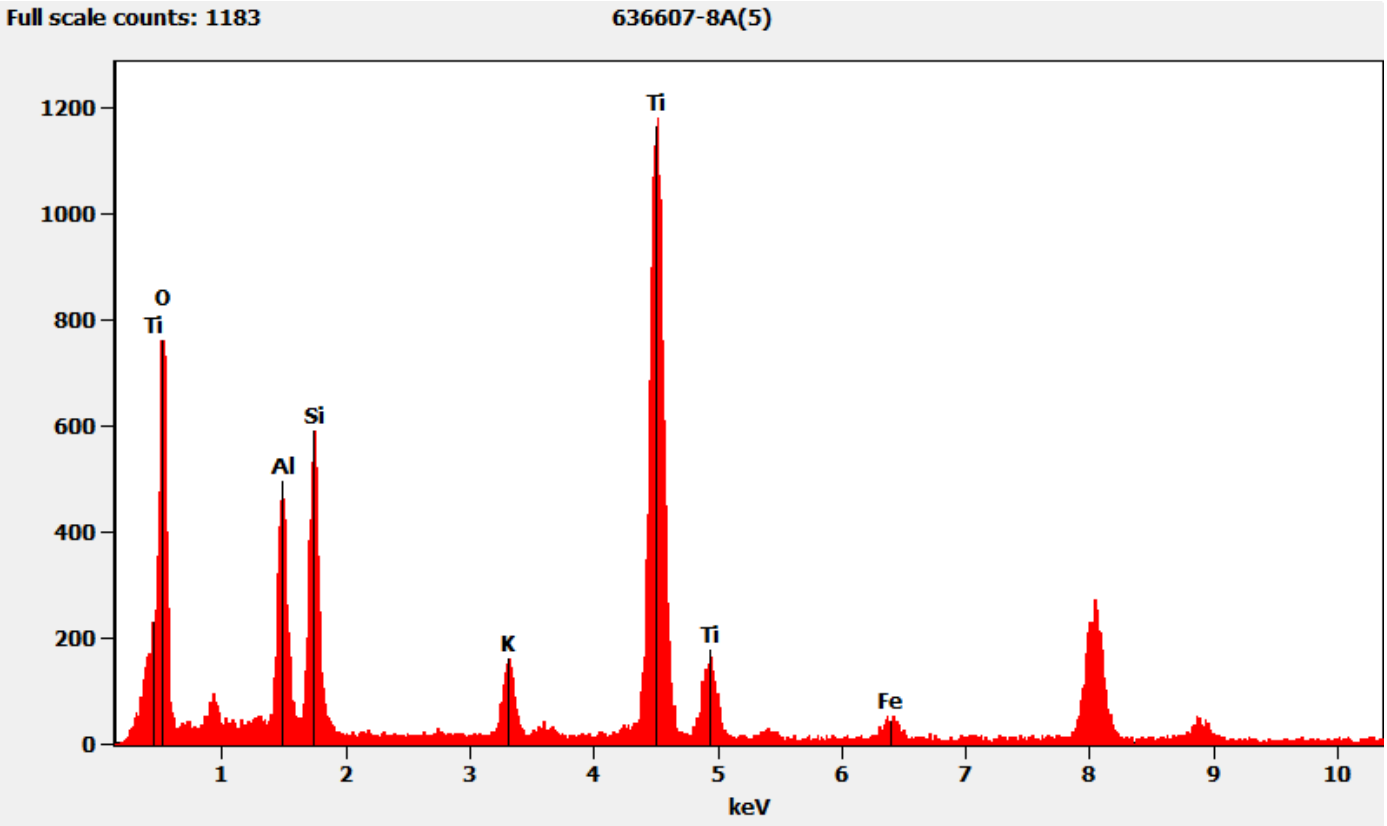


636607 FDA_081.jpg
636607-8A
Mica w/Ti
Cal: 0.005419 µm/pix
15:42 6/22/2022
Microscopis(b) (6)
Camera: NANOSPR15, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

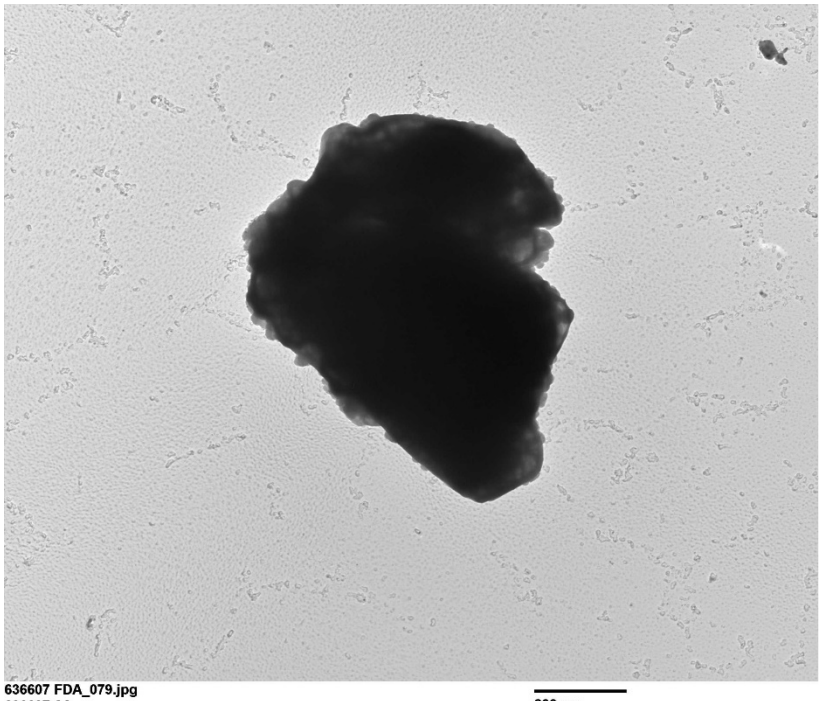
1 µm
HV=100kV
Direct Mag: 1900 x
AMA Analytical Services, Inc

Diffraction Pattern from the Mica Particle with Titanium Pictured Above

Chemistry from the Mica Particle with Titanium Pictured Above



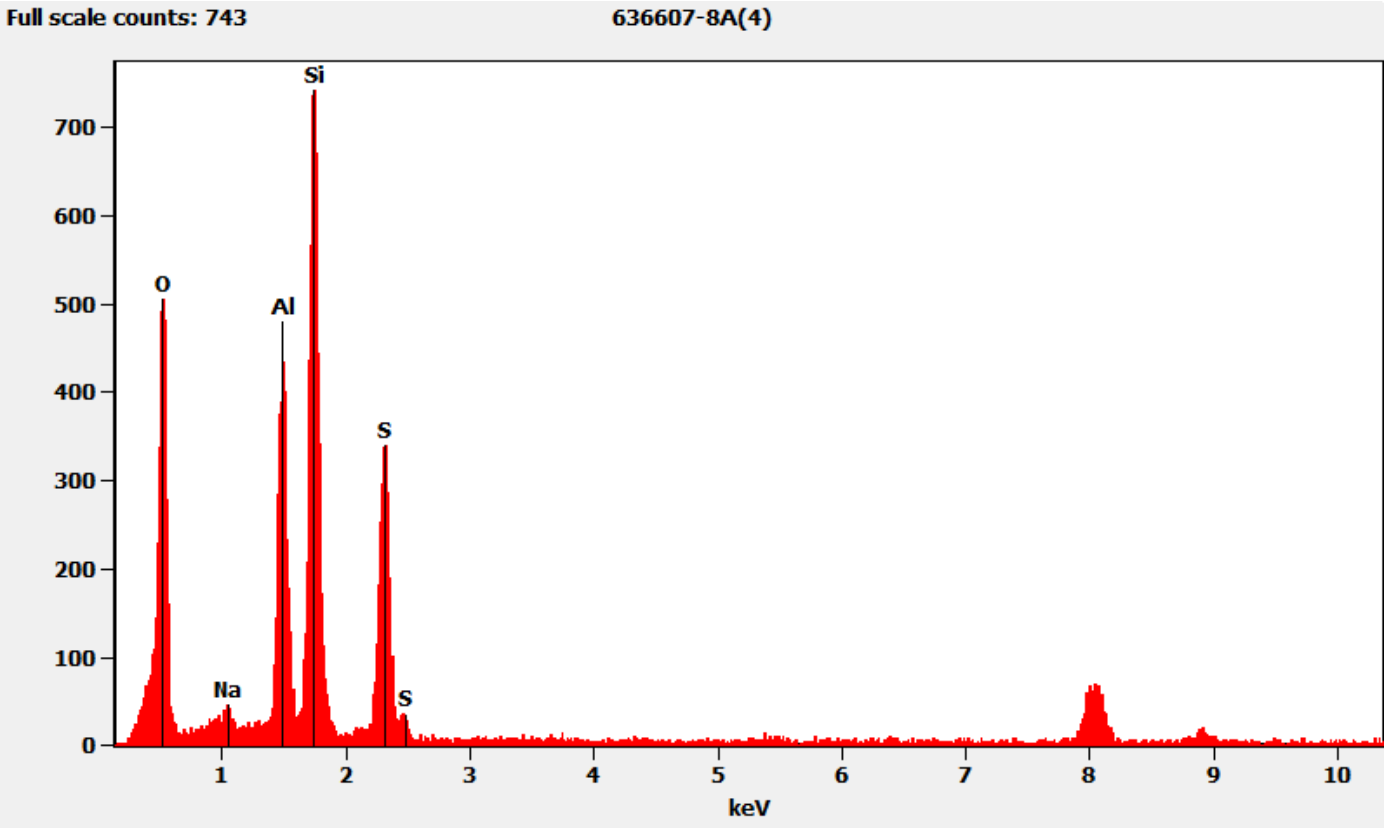
636607-8A, Particle Containing Sodium, Aluminum, Silicon, and Sulfur



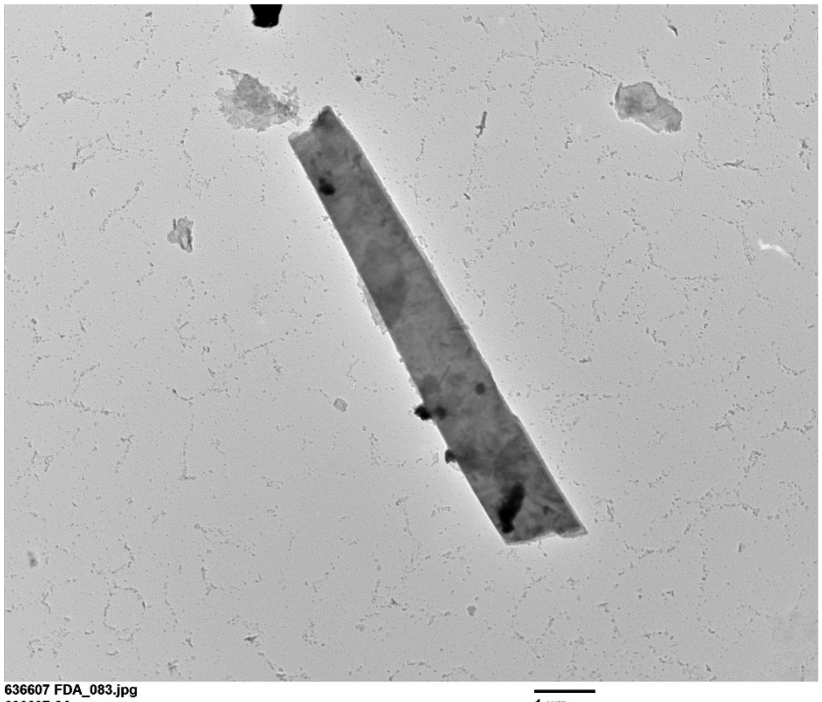
636607 FDA_079.jpg
636607-8A
Na,Al,Si,S particle
Cal: 0.002860 µm/pix
15:37 6/22/2022
Microscopist (b) (6)
Camera: NANOSPRTS, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

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

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



636607-8A, Talc Fiber



636607 FDA_083.jpg
636607-8A
Talc Fiber
Cal: 0.005419 µm/pix
15:51 6/22/2022
Microscopist (b) (6)
Camera: NANOSPR15, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

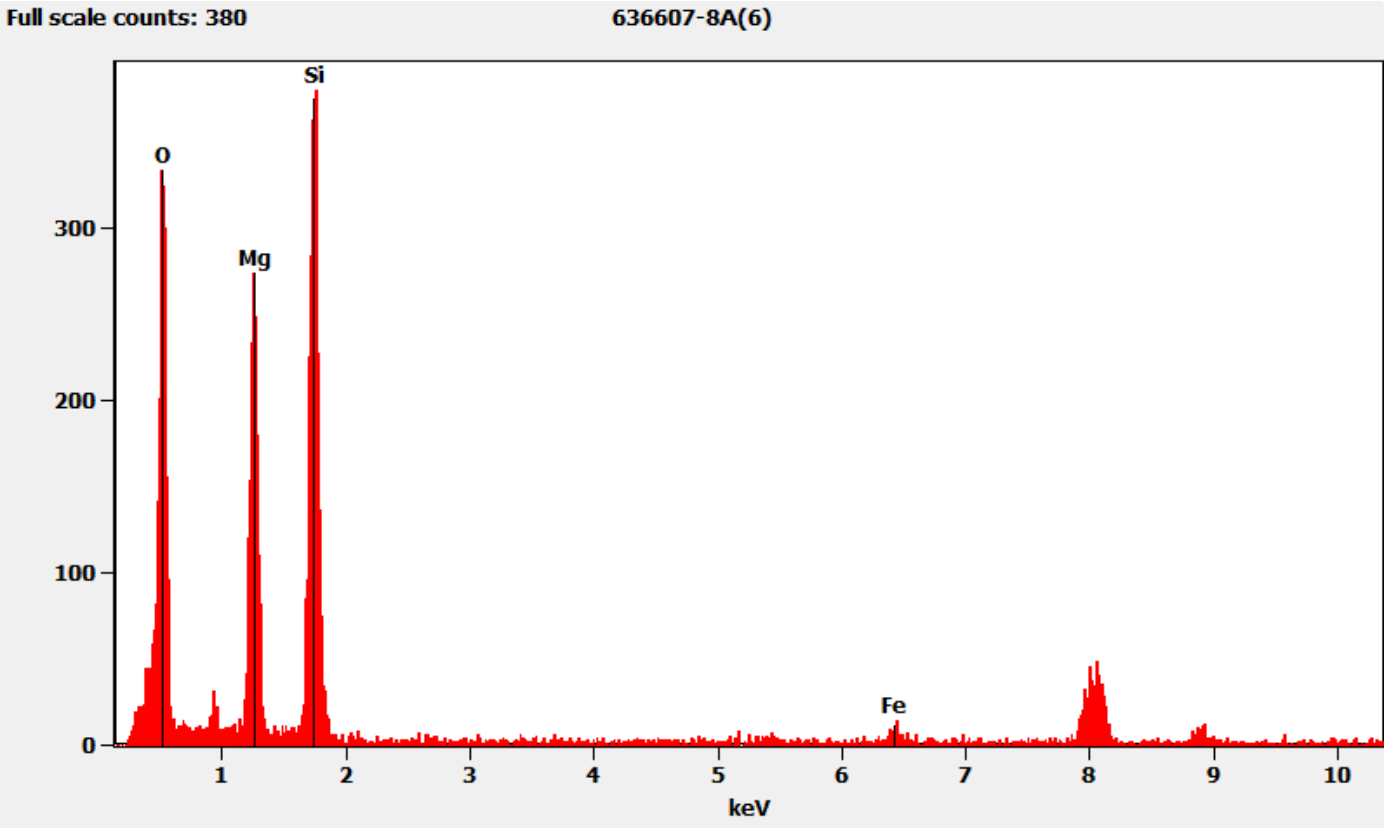
1 µm
HV=100kV
Direct Mag: 1900 x
AMA Analytical Services, Inc

Hexagonal Diffraction Pattern from the Talc Fiber Pictured Above

636607 FDA_082.jpg
636607-8A
Talc Fiber
15:50 6/22/20
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 Fiber Pictured Above

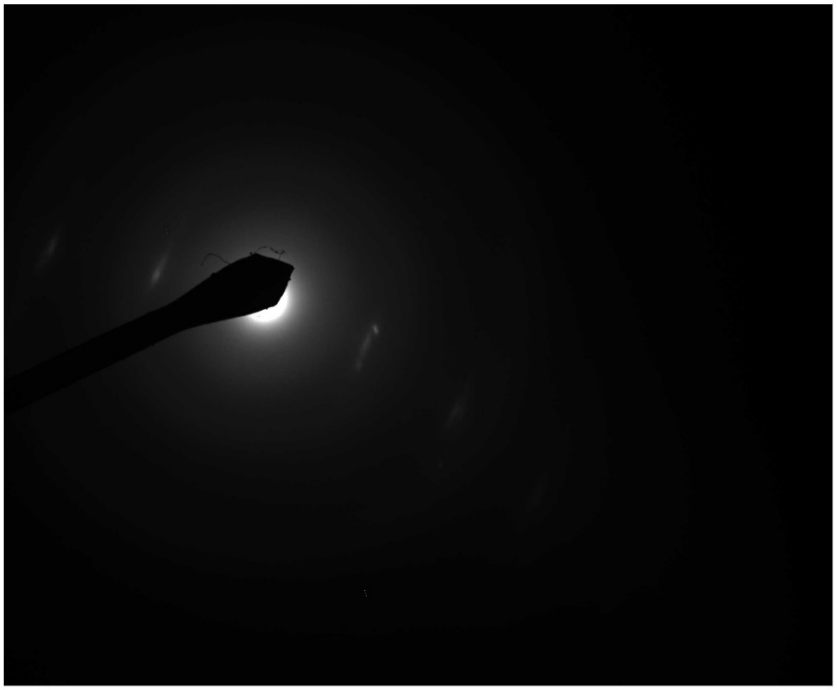


636607-8A, Talc Ribbon

636607 FDA_087.jpg
636607-8A
Talc Ribbon
Cal: 0.007355 µm/pix
16:20 6/22/2022
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

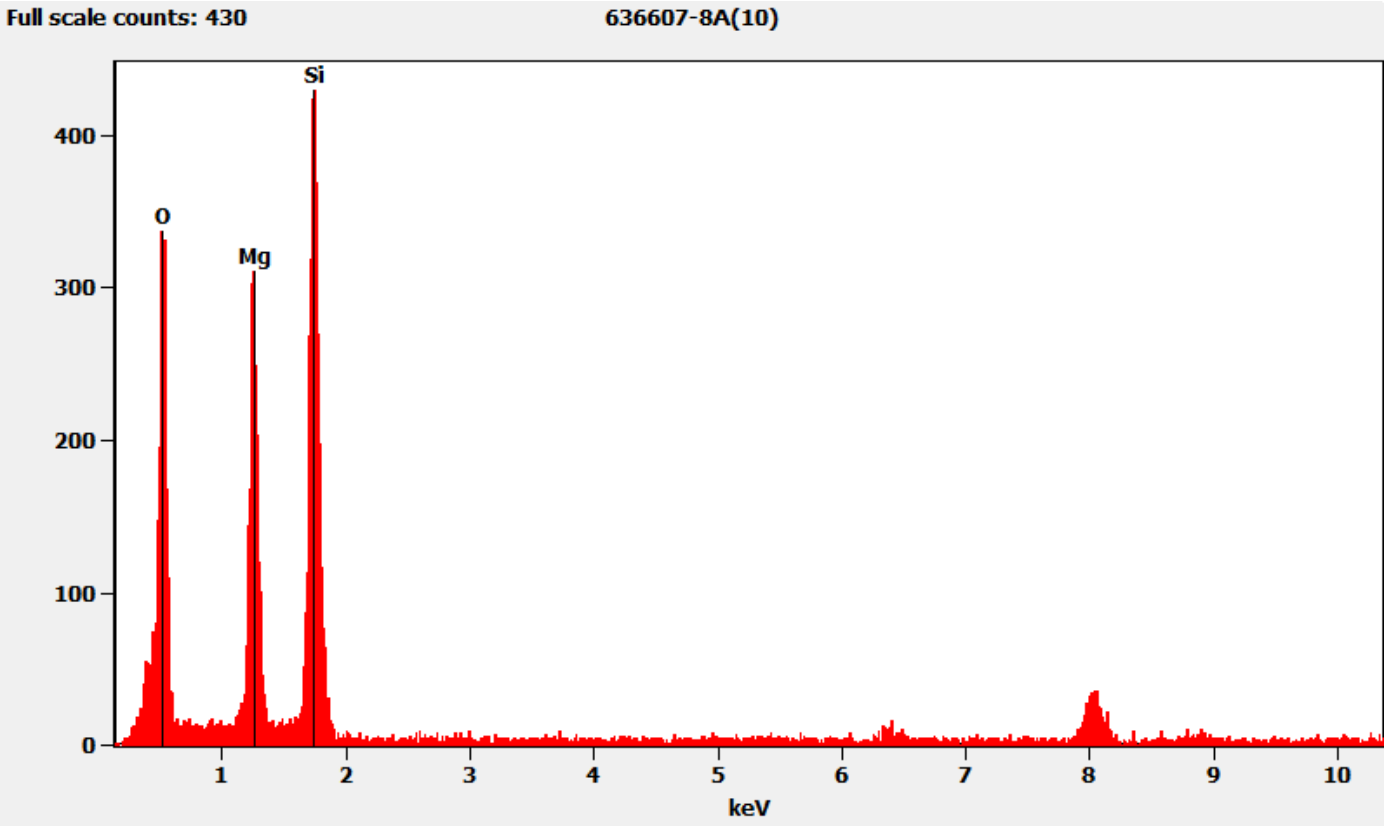
Diffraction Pattern from the Talc Ribbon Pictured Above



636607 FDA_086.jpg
636607-8A
Talc Ribbon
16:19 6/22/2022
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



636607-9A, 9B, 9C/Client Sample: 05022022-9

PLM

All three aliquots of sample 05022022-9 were analyzed by (b) (6) on June 28, 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.

636607-9A	No Asbestos Detected
636607-9B	No Asbestos Detected
636607-9C	No Asbestos Detected

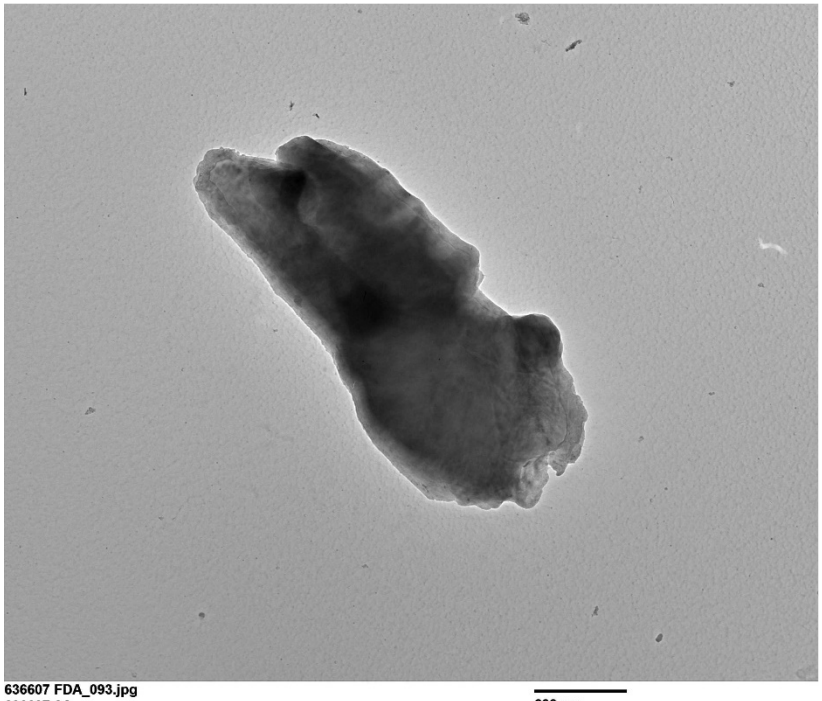
TEM

(b) (6) analyzed aliquot 9A on June 27, 2022, through June 28, 2022. Andreas Saldivar analyzed aliquots 9B and 9C on June 28, 2022. The primary particles observed were talc and mica; iron and titanium particles were also observed along with silica spheres. No asbestos or non-asbestos amphibole variants were observed during analysis. The results were calculated using the equations detailed in the *Calculations* section above.

636607-9A	No Asbestos Detected
636607-9B	No Asbestos Detected
636607-9C	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.

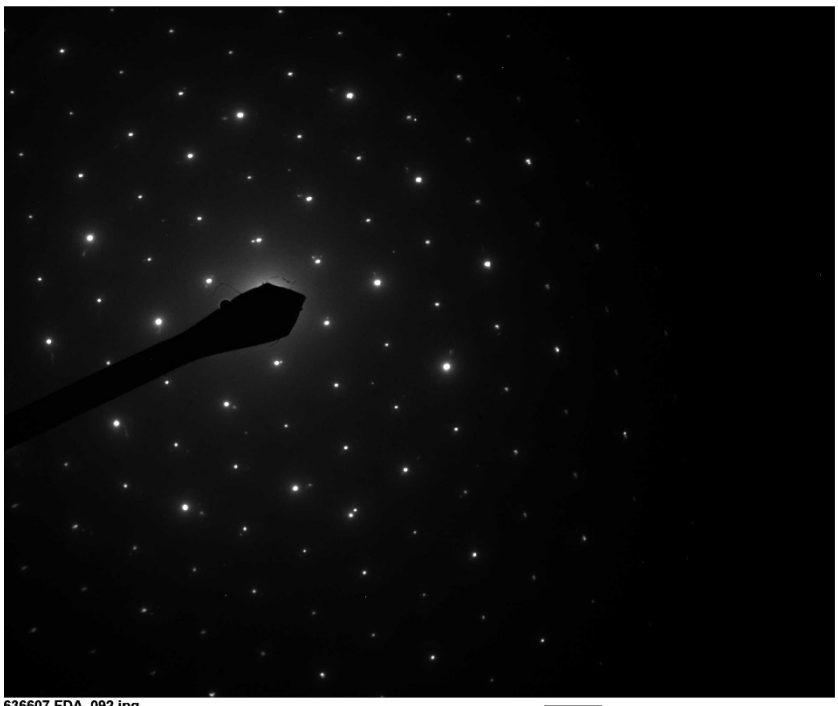
636607-9A, Talc Particle



636607 FDA_093.jpg
636607-9A
Talc Particle
Cal: 0.002145 µm/pix
19:44 6/27/2022
Microscopist: (b) (6)
Camera: NANOSPRI5, 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

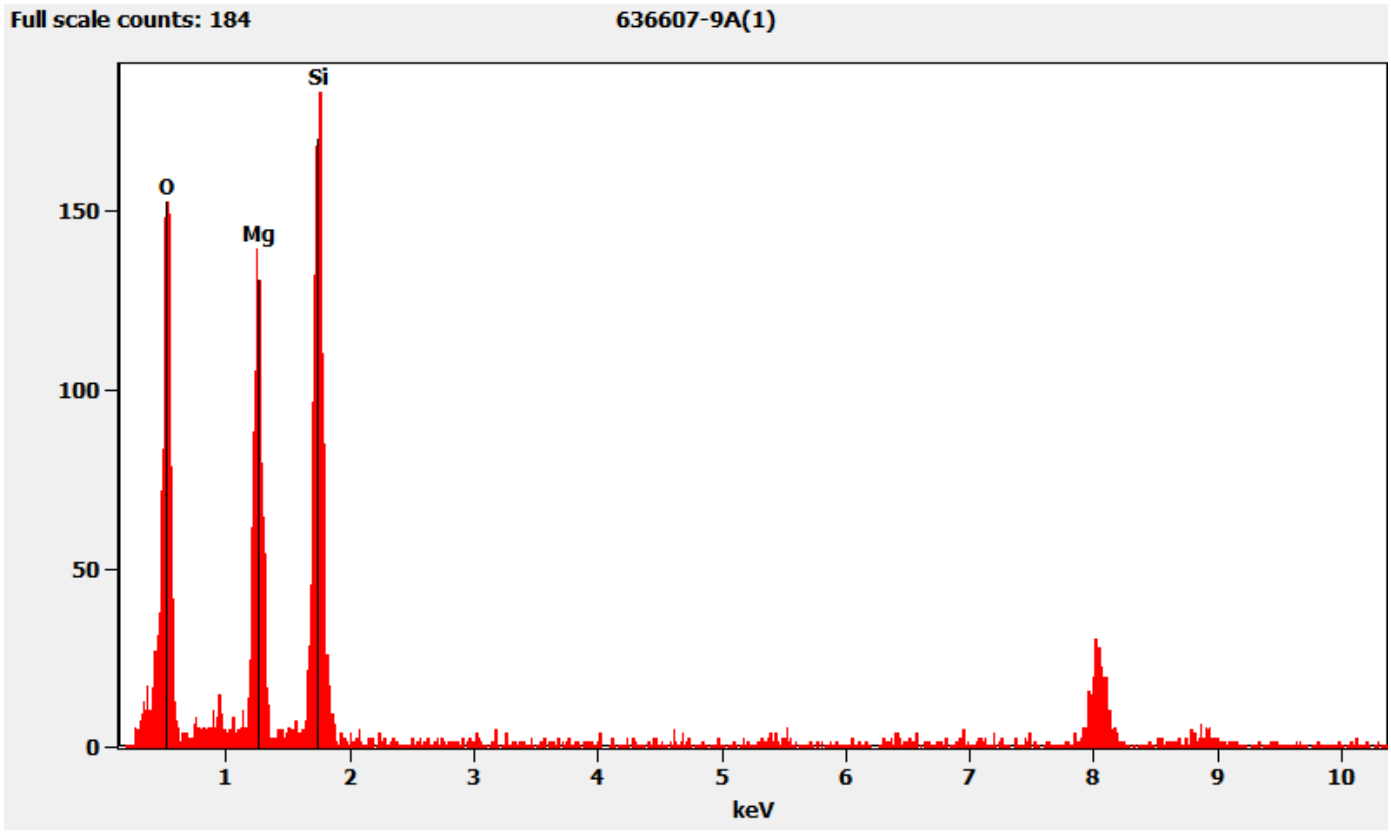
Hexagonal Diffraction Pattern from the Talc Particle Pictured Above



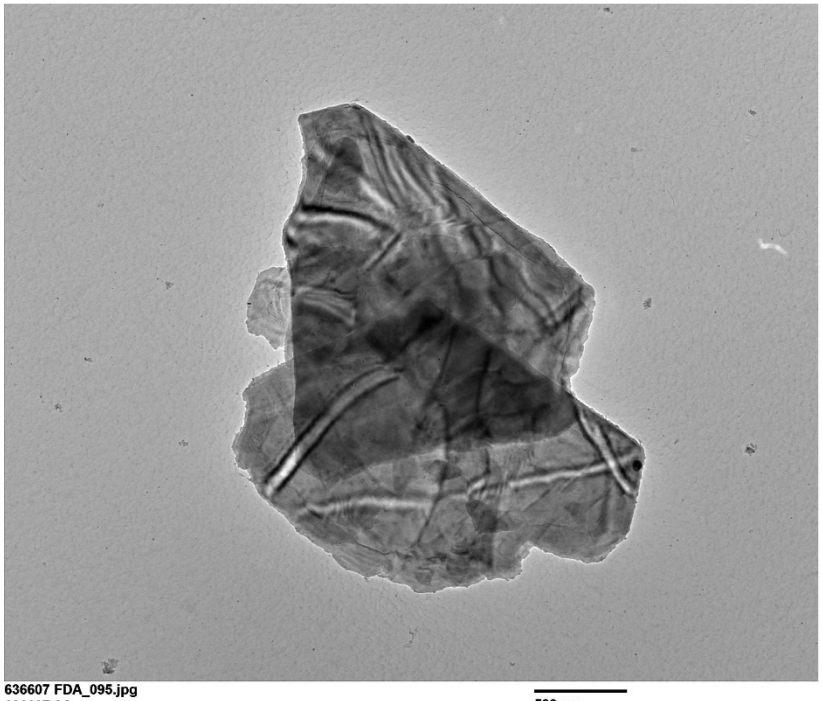
636607 FDA_092.jpg
636607-9A
Talc Particle
19:43 6/27/2022
Microscopis (b) (6)
Camera: NAI[illegible]75, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

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

Chemistry from the Talc Particle pictured above



636607-9A, Mica Particle

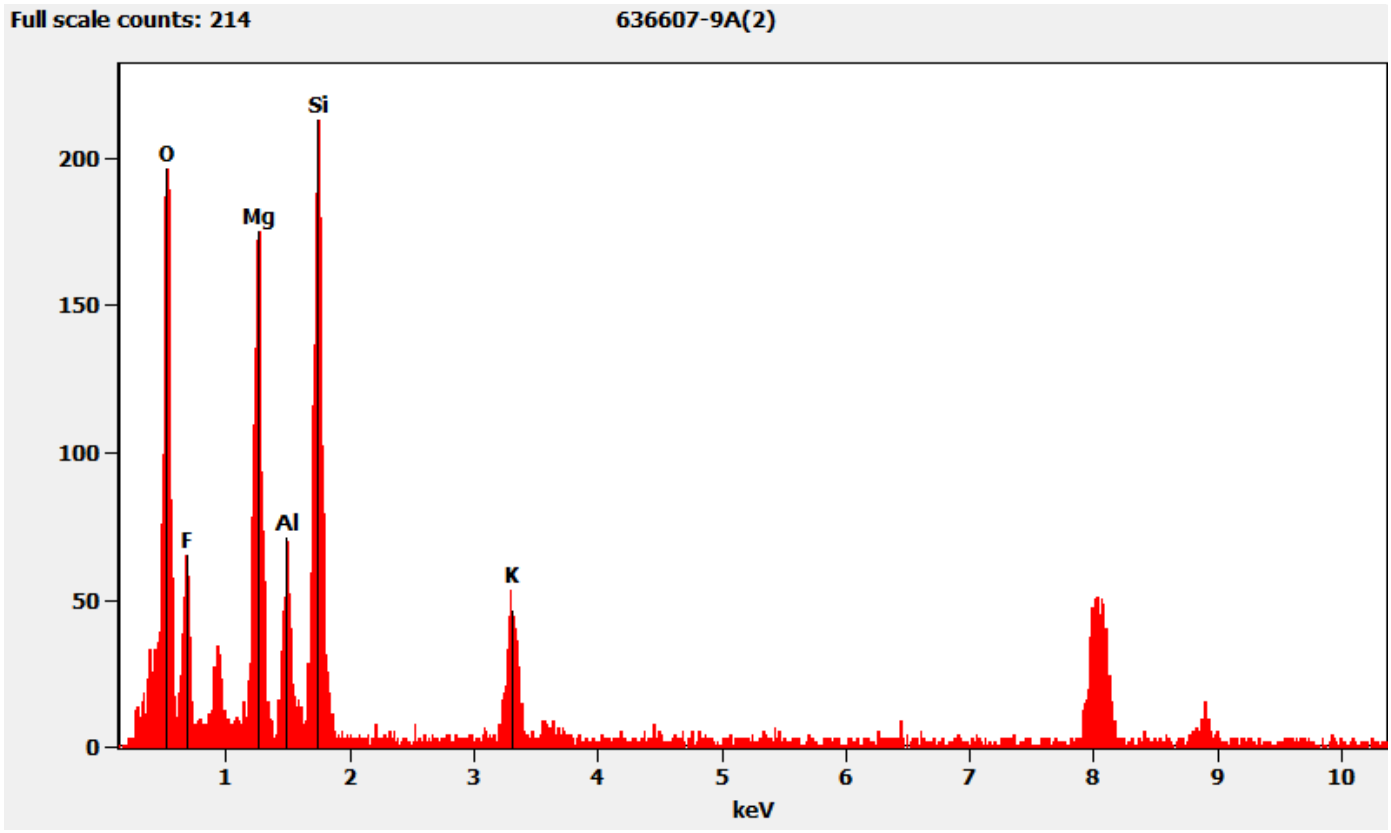


Hexagonal Diffraction Pattern from the Mica Particle Pictured above

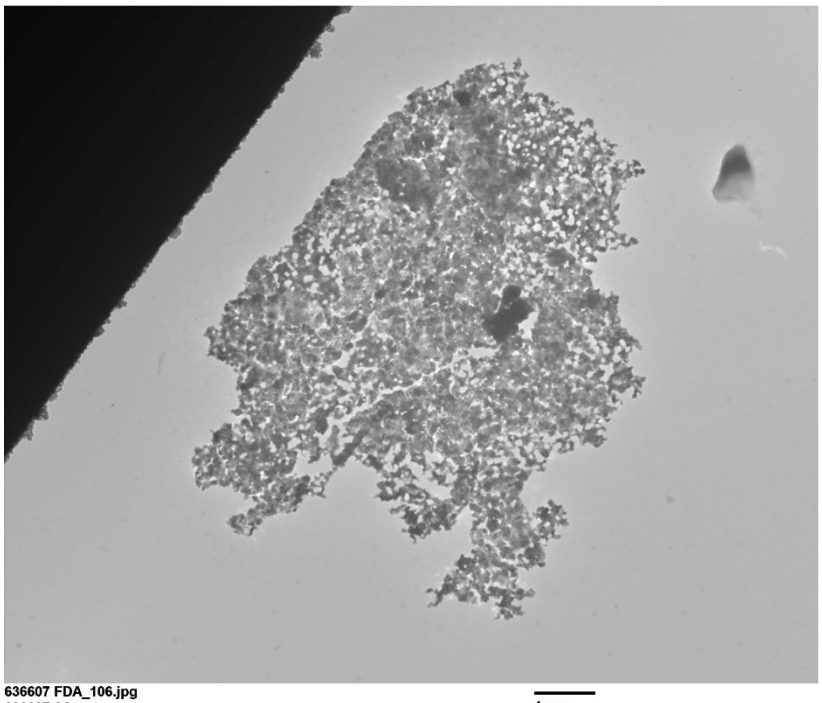
636607 FDA_094.jpg
636607-9A
Mica Particle
19:46 6/27/2022
Microscopis (b) (6)
Camera: NAI [redacted]5, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

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

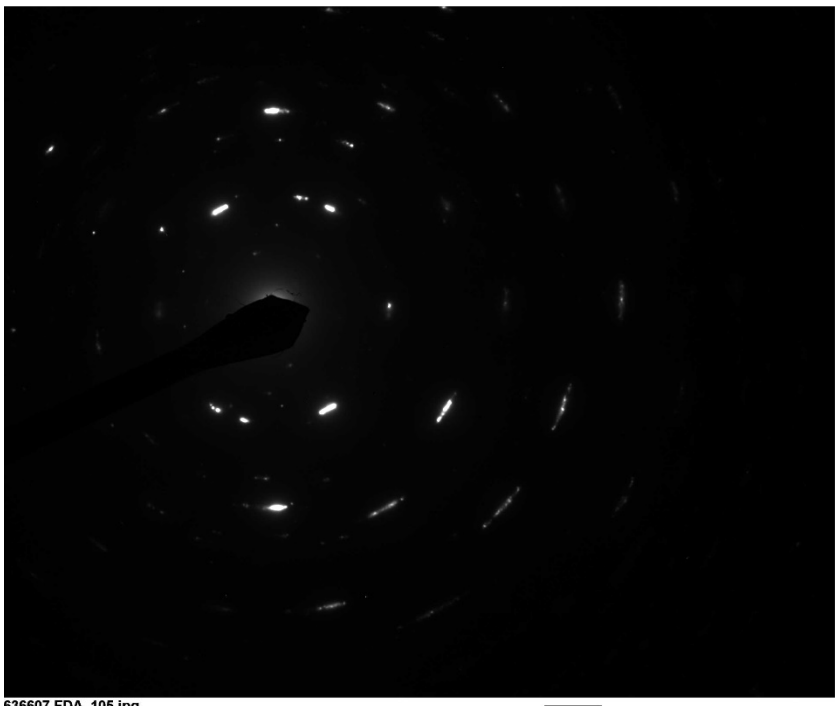
Chemistry from the Mica Particle Pictured Above



636607-9A, Iron Particle



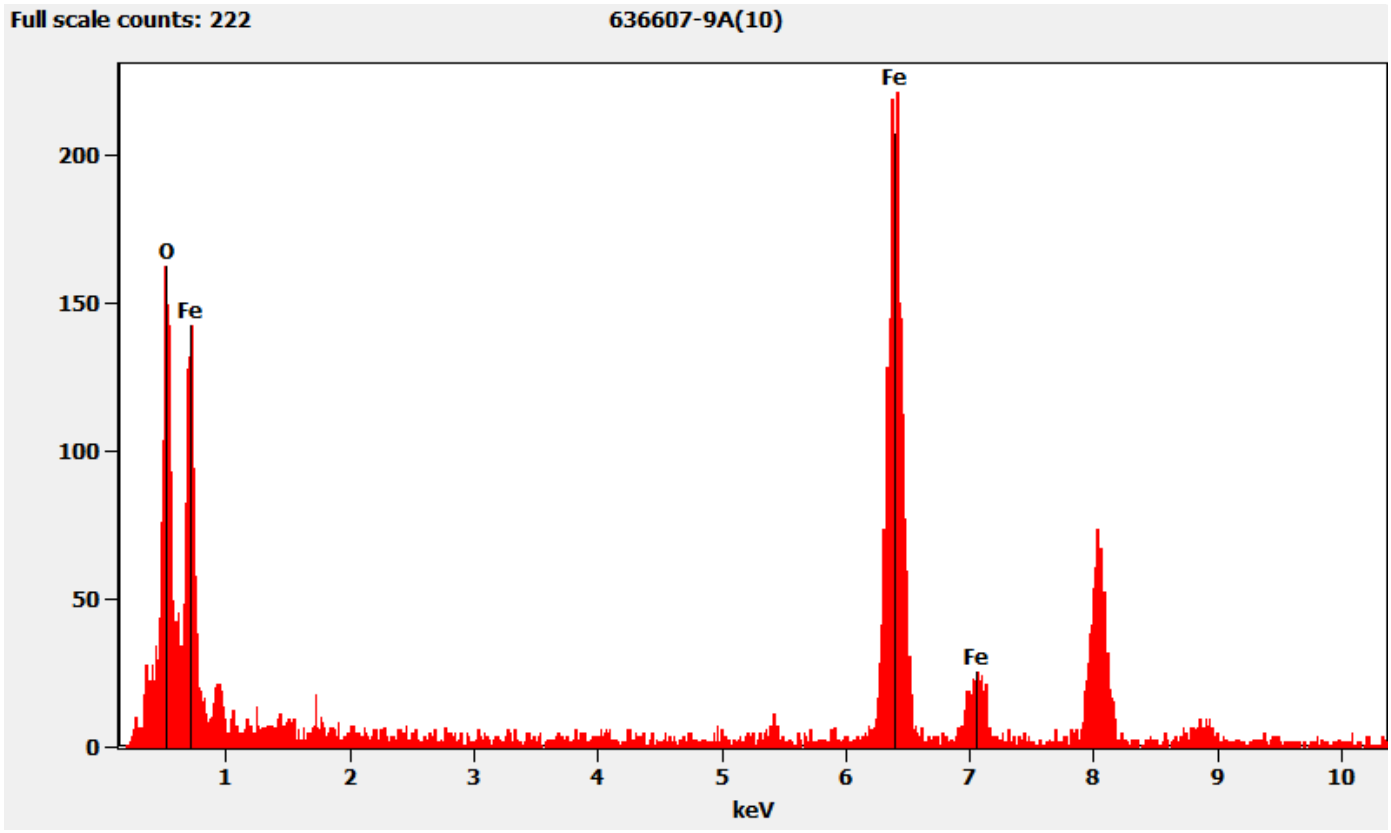
Diffraction Pattern from the Iron Particle Pictured Above



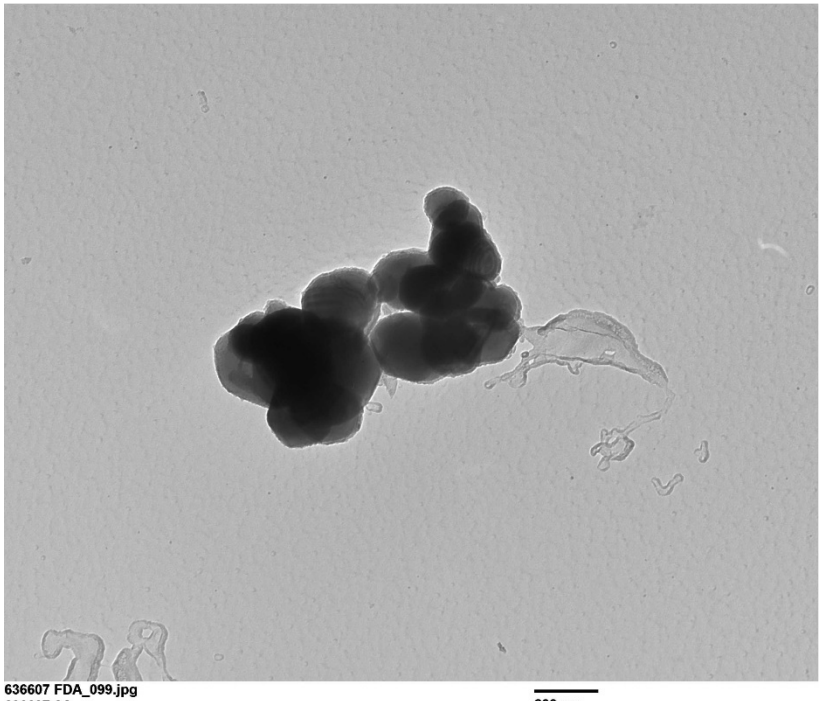
636607 FDA_105.jpg
636607-9A
Iron particles
10:07 6/28/2022
Microscopist: (b) (6)
Camera: NANOSPRT5, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

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

Chemistry from the Iron Particle Pictured Above



636607-9A, Titanium Particles



636607 FDA_099.jpg
636607-9A
Ti Particles
Cal: 0.001030 µm/pix
19:52 6/27/2022
Microscopis(b) (6)
Camera: NANOSPRT5, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

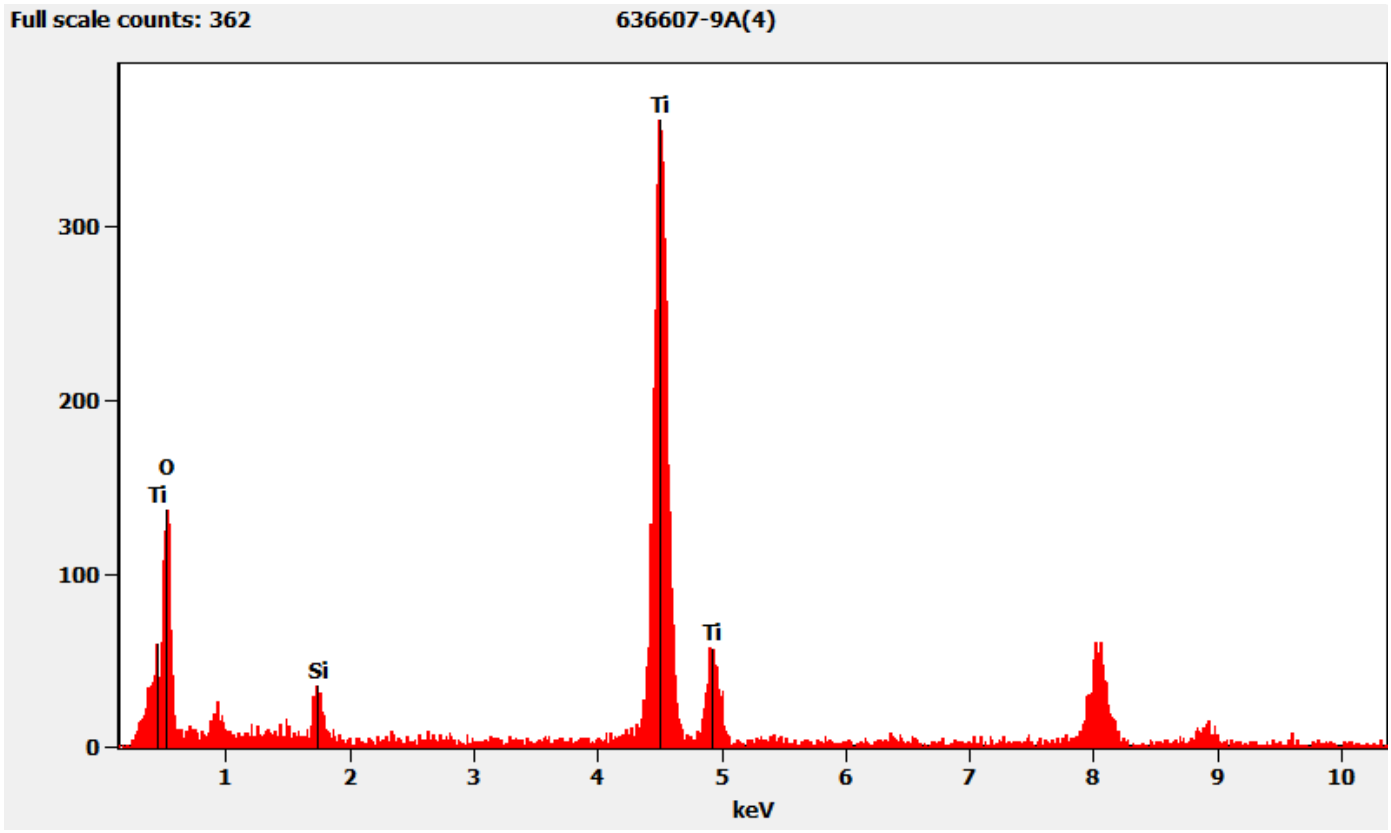
200 nm
HV=100kV
Direct Mag: 10000 x
AMA Analytical Services, Inc

Diffraction Pattern from the Titanium Particles Pictured Above

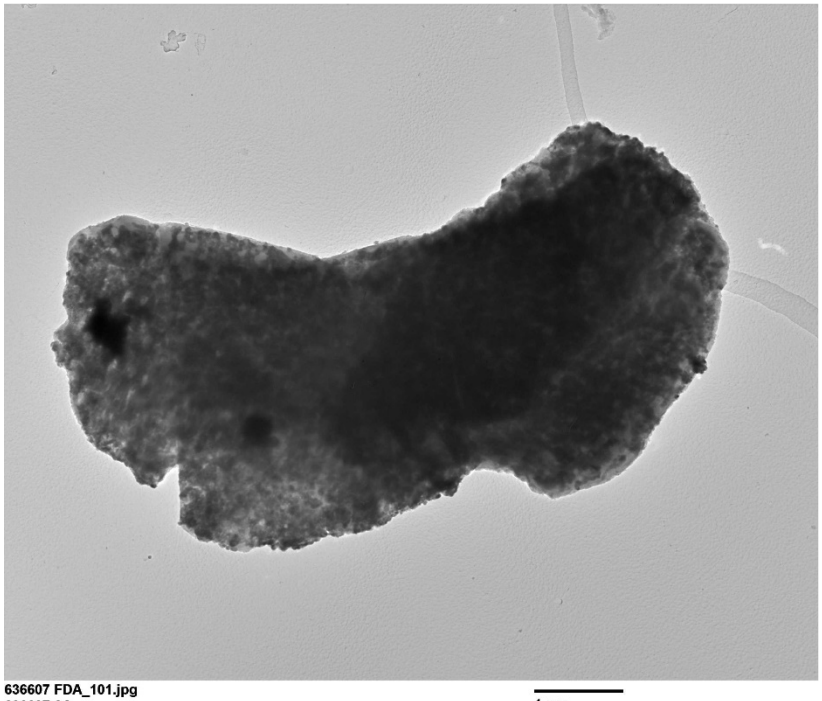
636607 FDA_098.jpg
636607-9A
Ti Particles
19:52 6/27/2022
Microscopist (b) (6)
Camera: NAN 5, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

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

Chemistry from the Titanium Particles pictured above



636607-9A, Mica Particle with Iron



636607 FDA_101.jpg
636607-9A
Mica w/ Fe
Cal: 0.003702 µm/pix
19:55 6/27/2022
Microscopist (b) (6)
Camera: NANOSPRT5, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

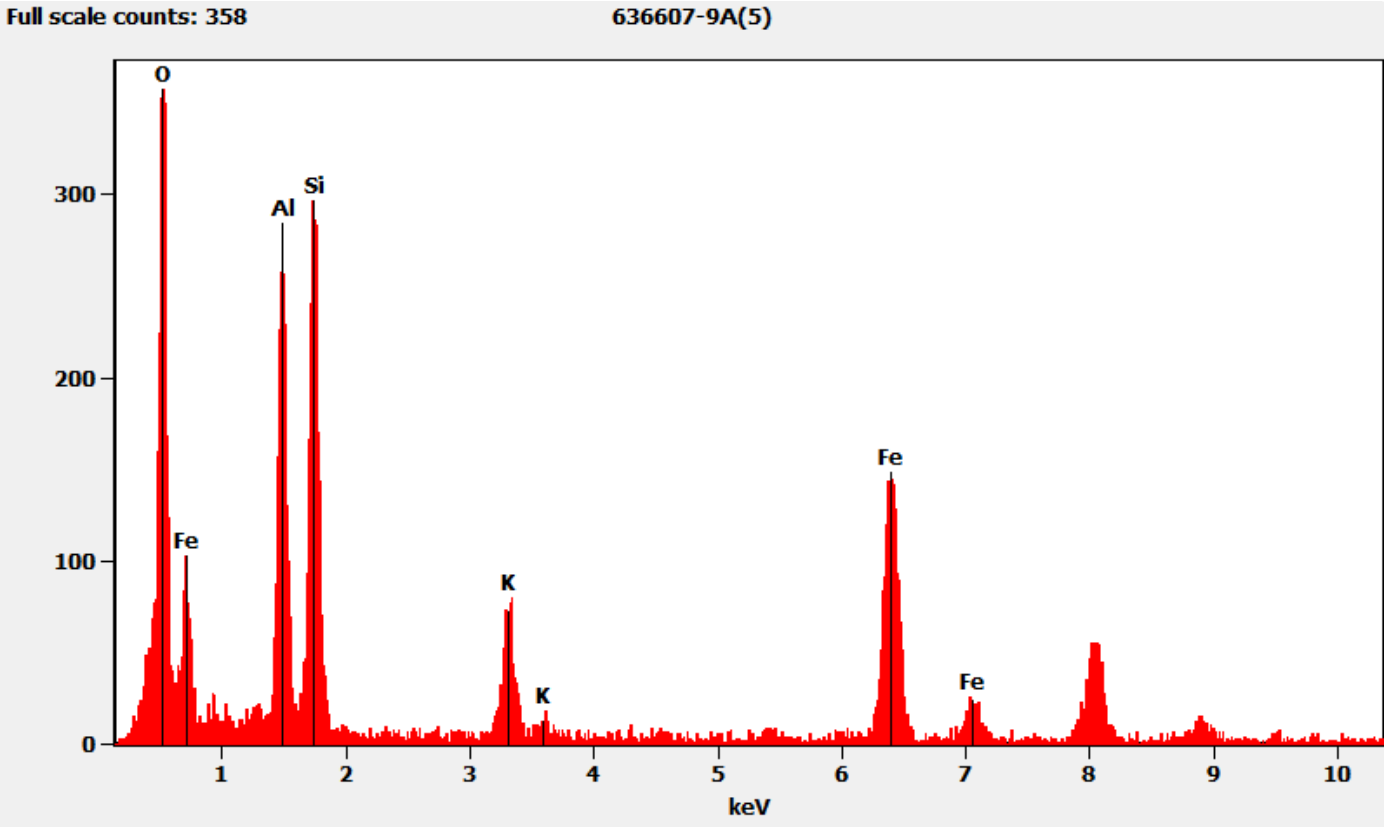
1 µm
HV=100kV
Direct Mag: 2900 x
AMA Analytical Services, Inc

Diffraction Pattern from the Mica Particle with Iron Pictured Above

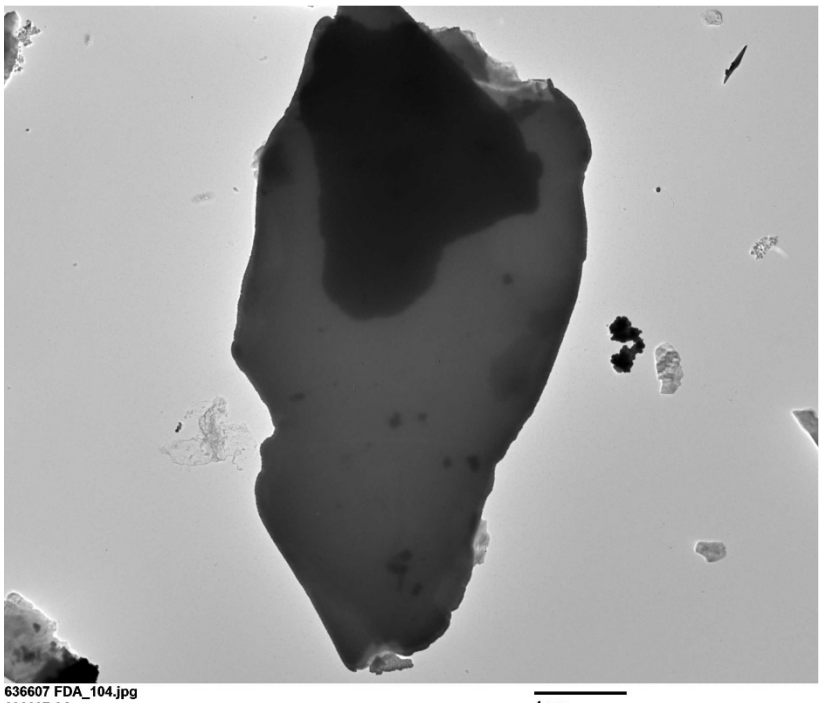
636607 FDA_100.jpg
636607-9A
Mica w/ Fe
19:54 6/27/20(b) (6)
Microscopis
Camera: NAI 5, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

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

Chemistry from the Mica Particle with Iron Pictured Above



636607-9A, Mica Particle with Titanium

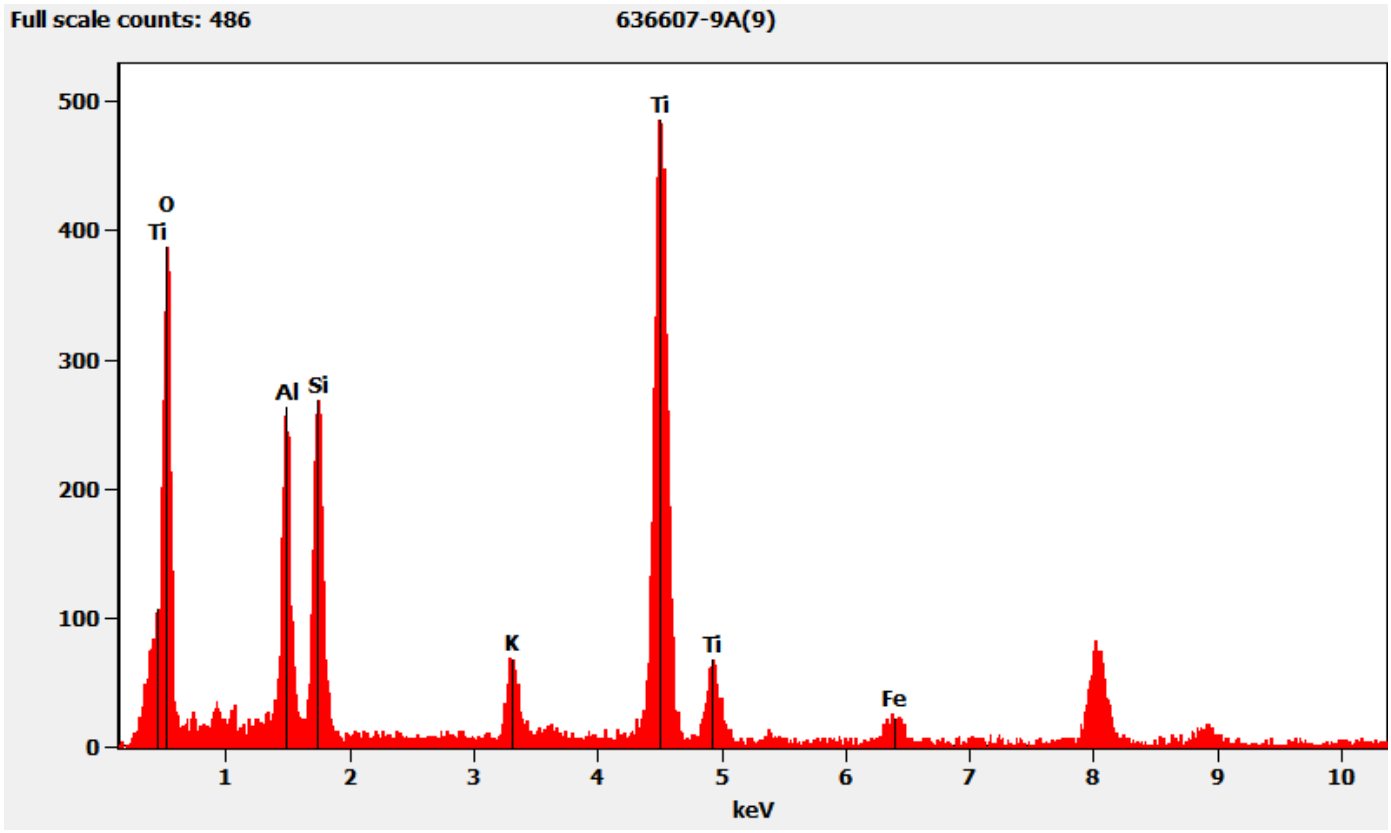


Diffraction Pattern from the Mica Particle with Titanium Pictured Above

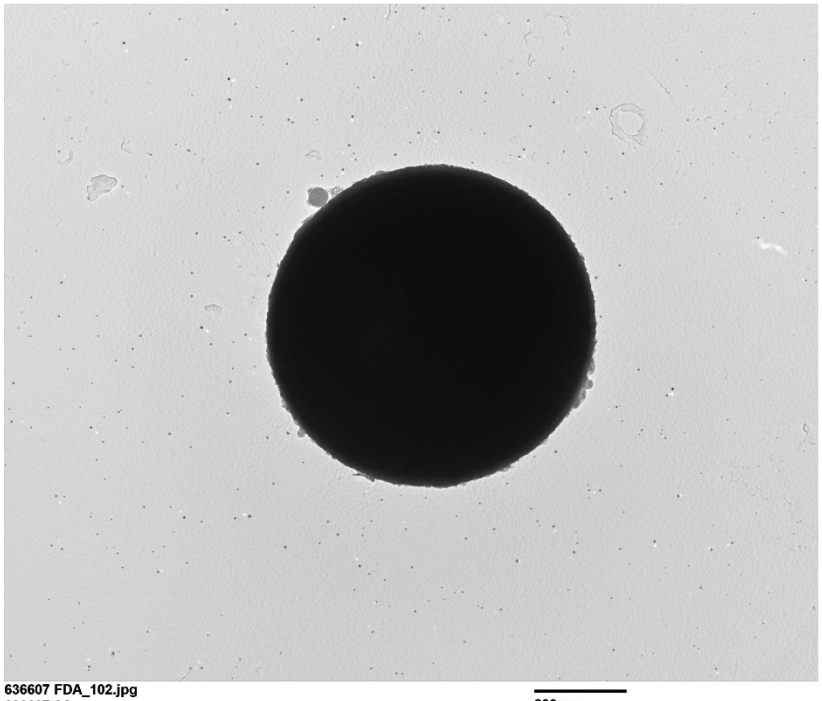
636607 FDA_103.jpg
636607-9A
Mica w/ Ti
10:02 6/28/20(b) (6)
Microscopis
Camera: NANOSPRT5, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

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

Chemistry from the Mica Particle with Titanium Pictured Above



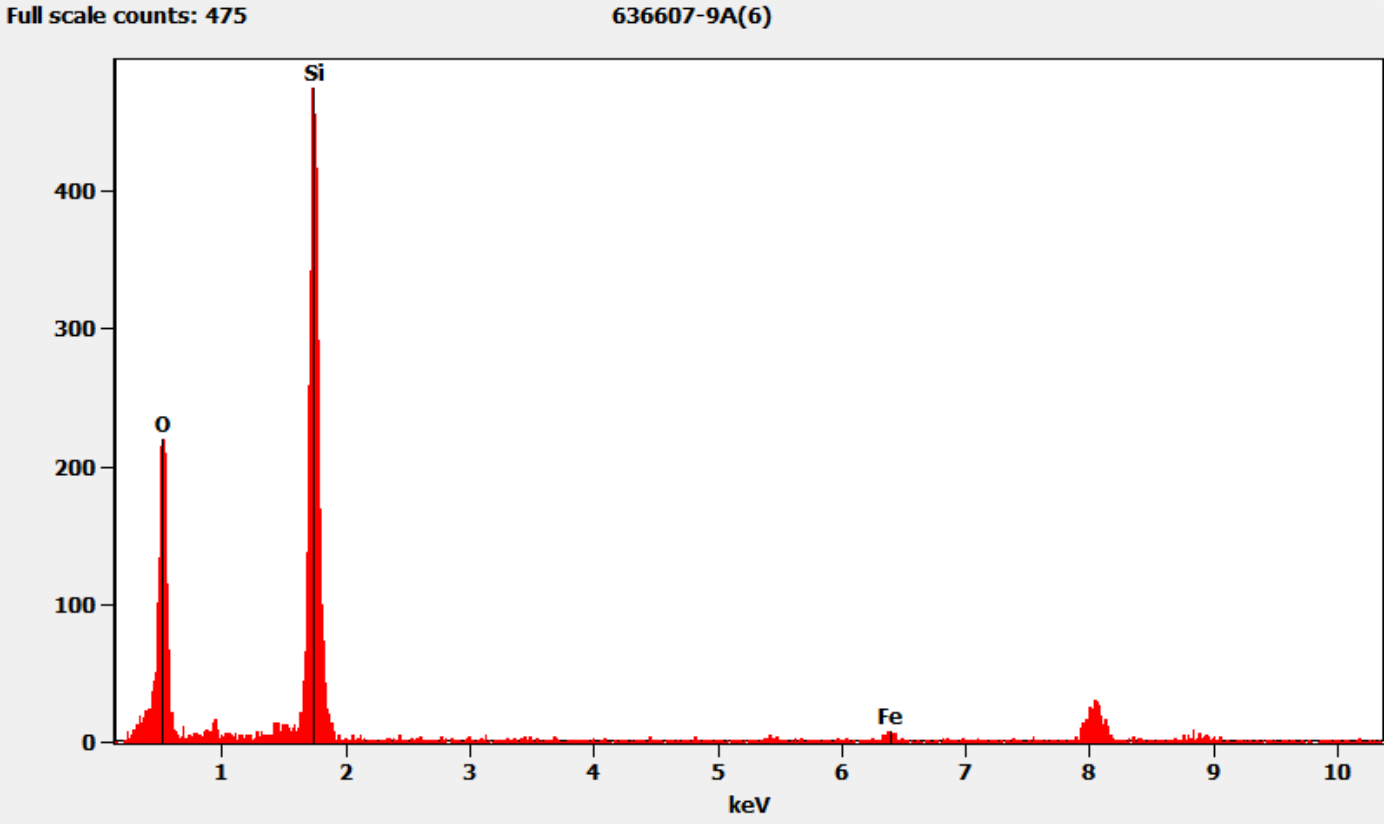
636607-9A, Silica Sphere



636607 FDA_102.jpg
636607-9A
Silica Sphere
Cal: 0.002860 µm/pix
19:57 6/27/2022
Microscopist (b) (6)
Camera: NANOSPR 15, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

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

Chemistry from the Silica Sphere pictured above



636607-10A, 10B, 10C/Client Sample: 05022022-10

PLM

All three aliquots of sample 05022022-10 were analyzed by (b) (6) on June 28, 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.

636607-10A	No Asbestos Detected
636607-10B	No Asbestos Detected
636607-10C	No Asbestos Detected

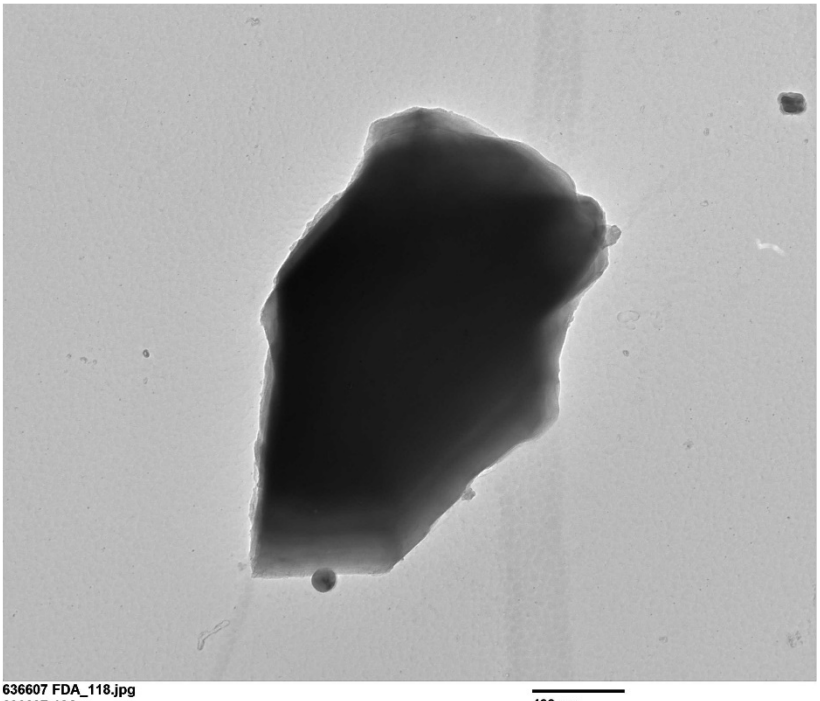
TEM

(b) (6) analyzed aliquot 10A on June 28, 2022, and aliquots 10B and 10C on June 29, 2022. The primary particles observed were talc and mica; titanium and silicon particles were also observed along with 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.

636607-10A	No Asbestos Detected
636607-10B	No Asbestos Detected
636607-10C	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

636607-10A, Talc Particle



636607 FDA_118.jpg
636607-10A
Talc Particle
Cal: 0.001430 µm/pix
10:44 6/28/2022
Microscopist: (b) (6)
Camera: NANOSPRT5, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

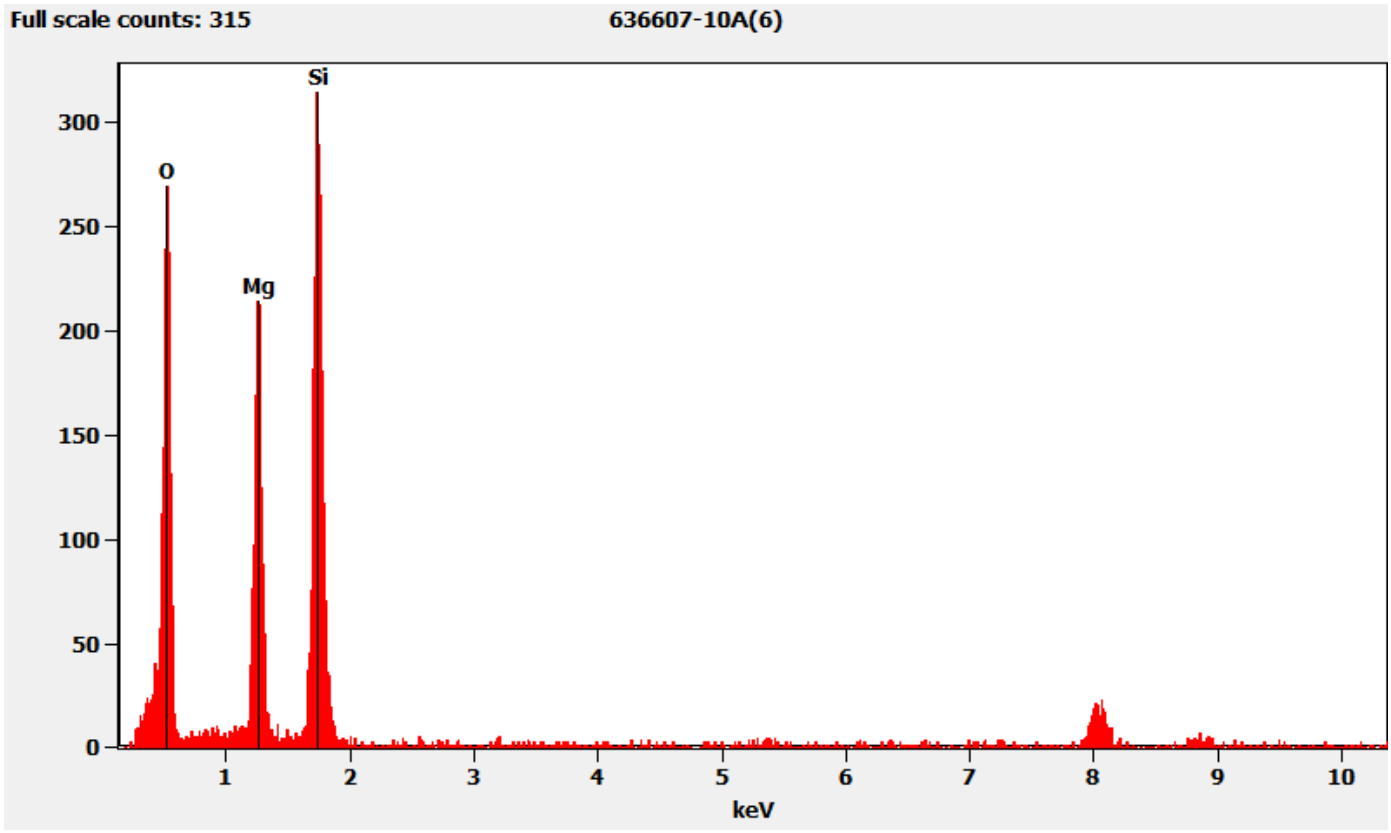
400 nm
HV=100kV
Direct Mag: 7200 x
AMA Analytical Services, Inc

Hexagonal Diffraction Pattern from the Talc Particle Pictured Above

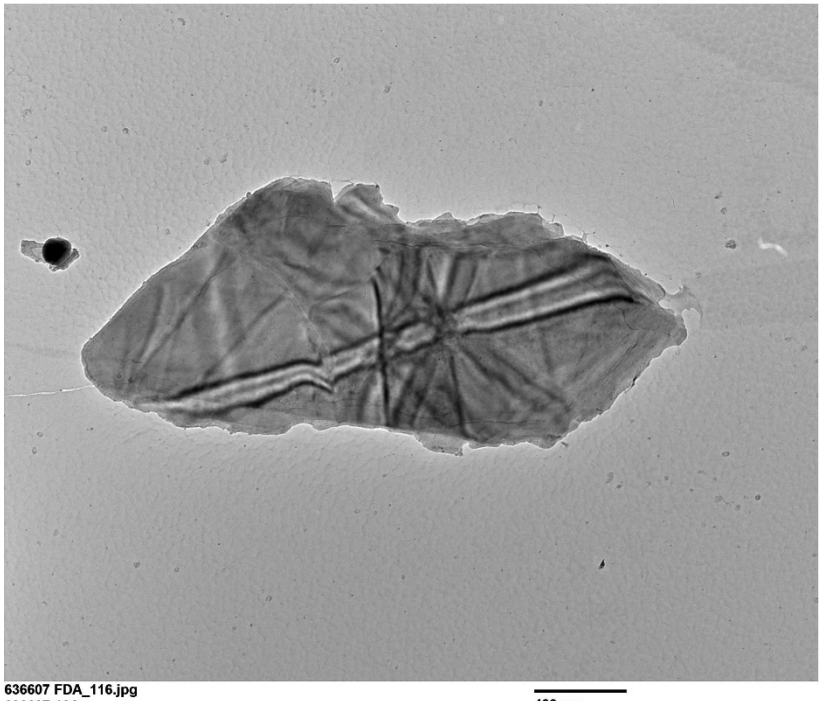
636607 FDA_117.jpg
636607-10A
Talc Particle
10:43 6/28/2022
Microscopis (b) (6)
Camera: NANOSPRTS, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

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

Chemistry from the Talc Particle Pictured Above



636607-10A, Mica Particle

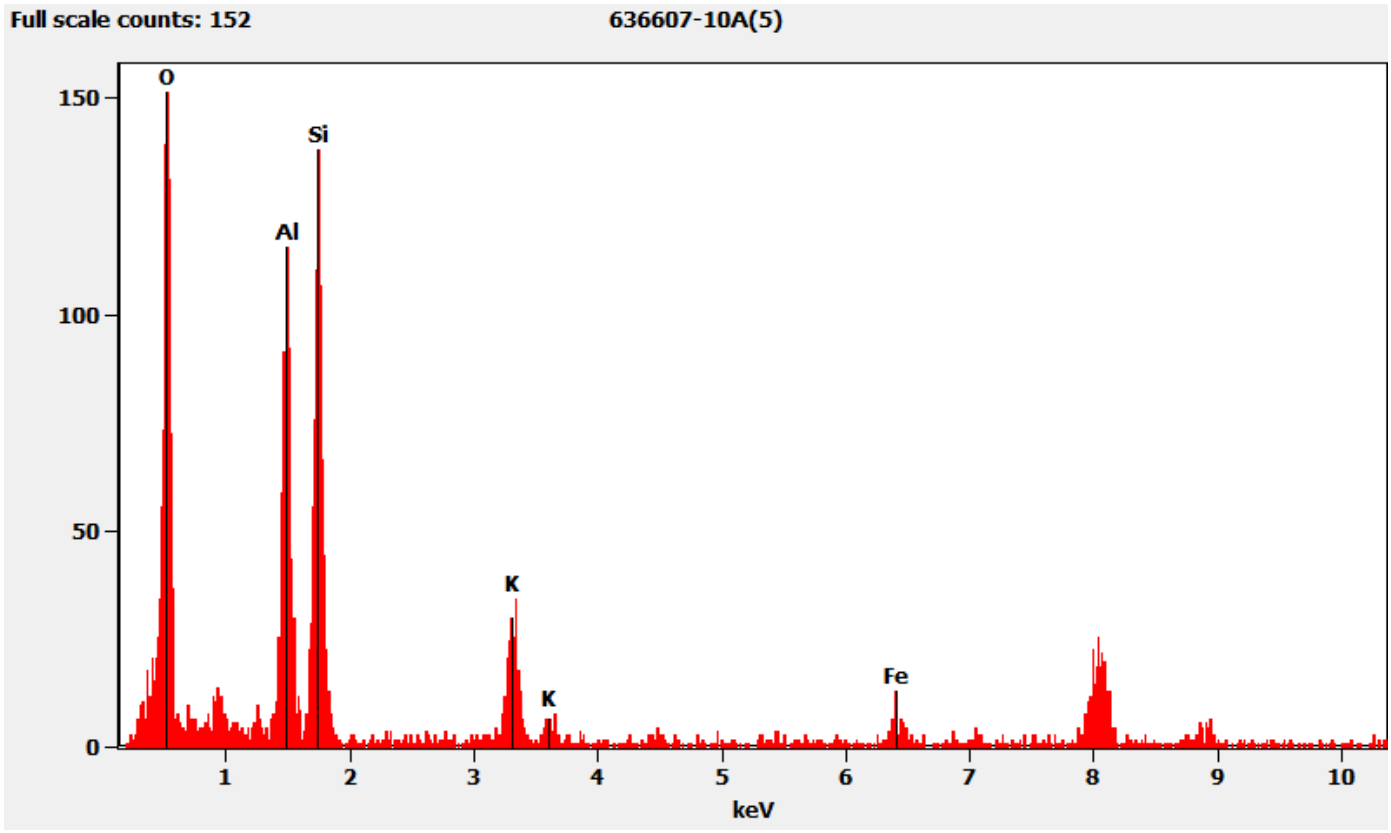


Hexagonal Diffraction Pattern from the Mica Particle Pictured Above

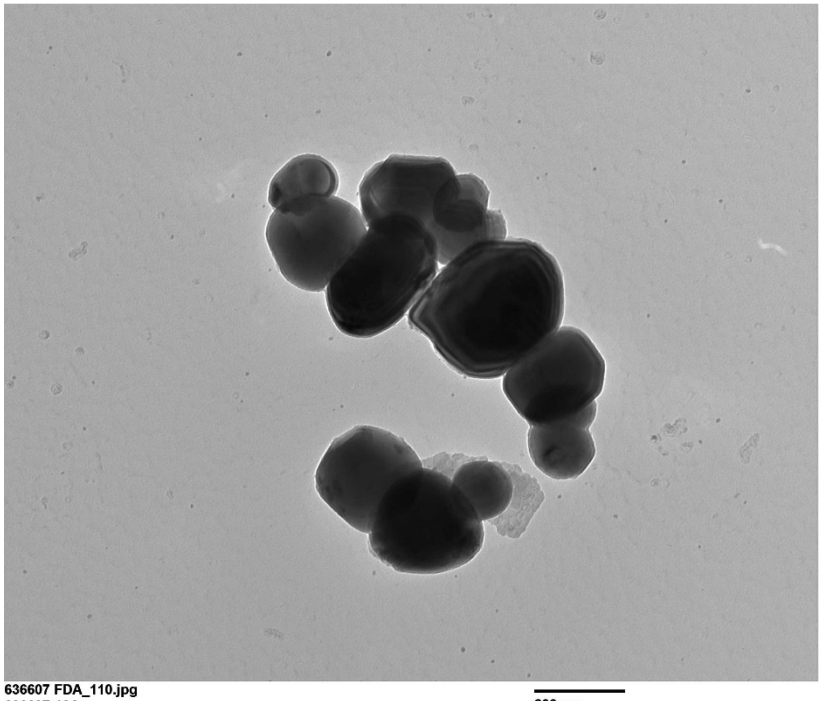
636607 FDA_115.jpg
636607-10A
Mica
10:40 6/28/20(b) (6)
Microscopist
Camera: NANOSPR15, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

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

Chemistry from the Mica Particle Pictured Above



636607-10A, Titanium Particles



636607 FDA_110.jpg
636607-10A
Ti particles
Cal: 0.726816 nm/pix
10:25 6/28/2022
Microscopist: (b) (6)
Camera: NAT[illegible], Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

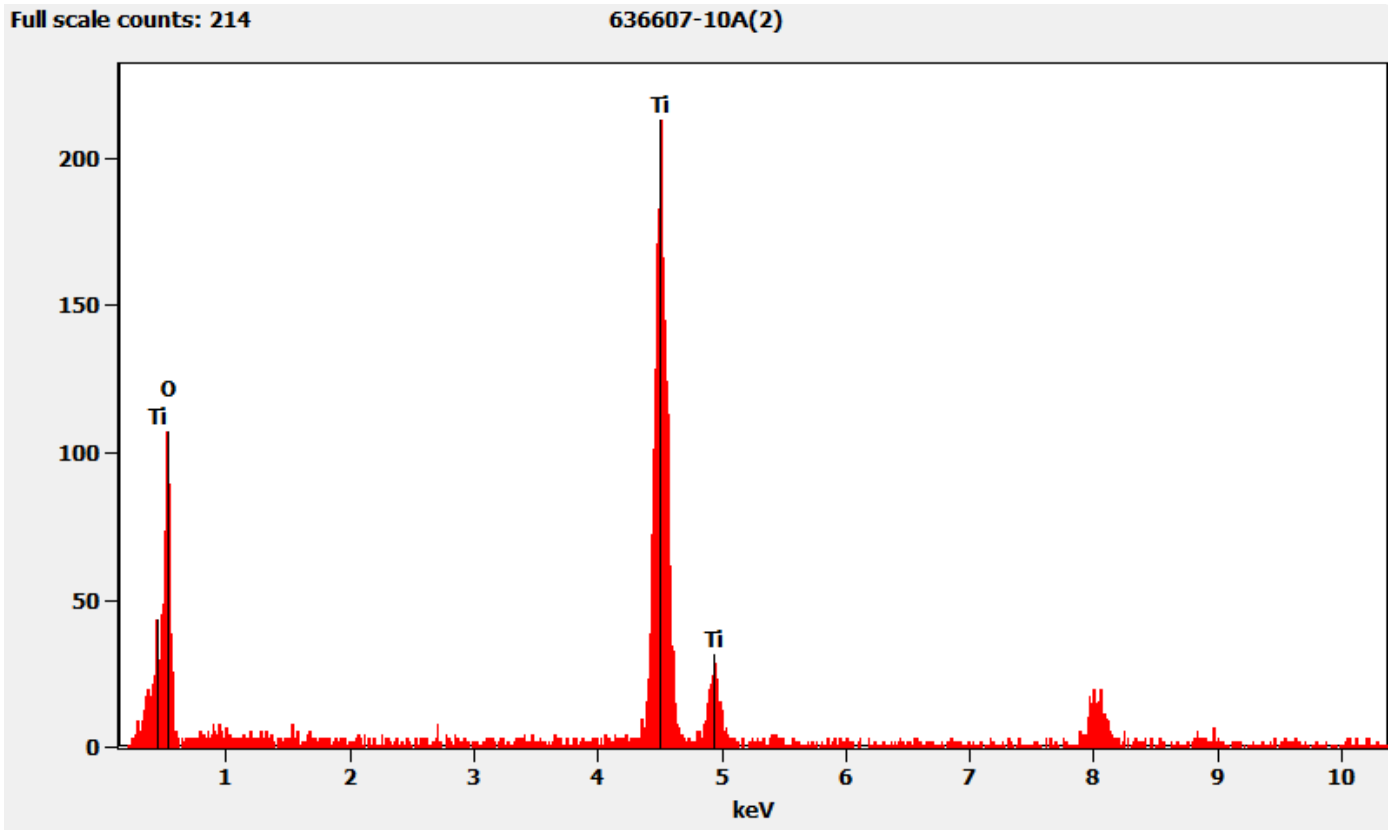
200 nm
HV=100kV
Direct Mag: 14000 x
AMA Analytical Services, Inc

Diffraction Pattern from the Titanium Particles Pictured Above

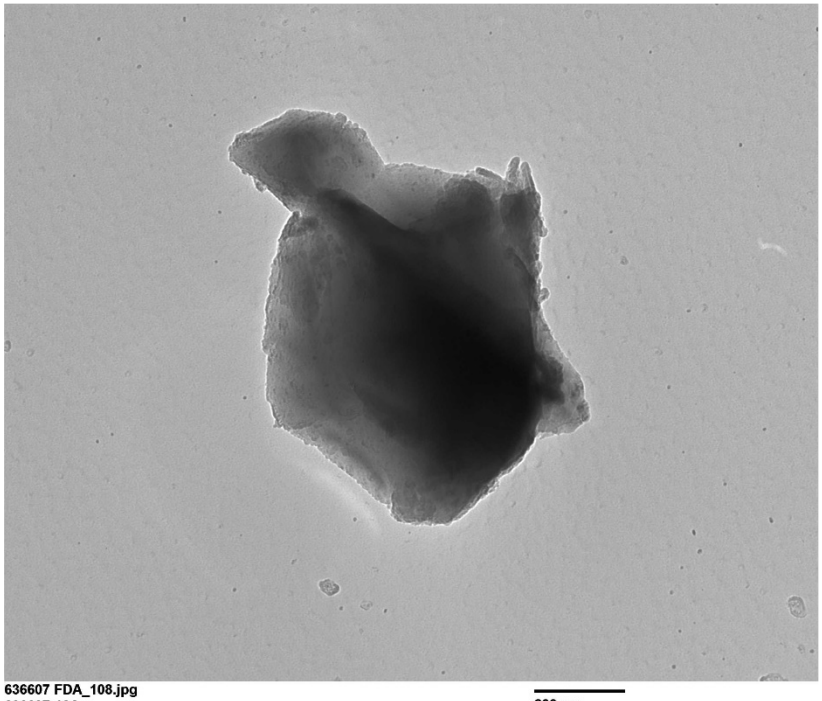
636607 FDA_109.jpg
636607-10A
Ti particles
10:24 6/28/2022
Microscopis (b) (6)
Camera: NANOSPRT5, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

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

Chemistry from the Titanium Particles Pictured Above



636607-10A, Silicon Particle

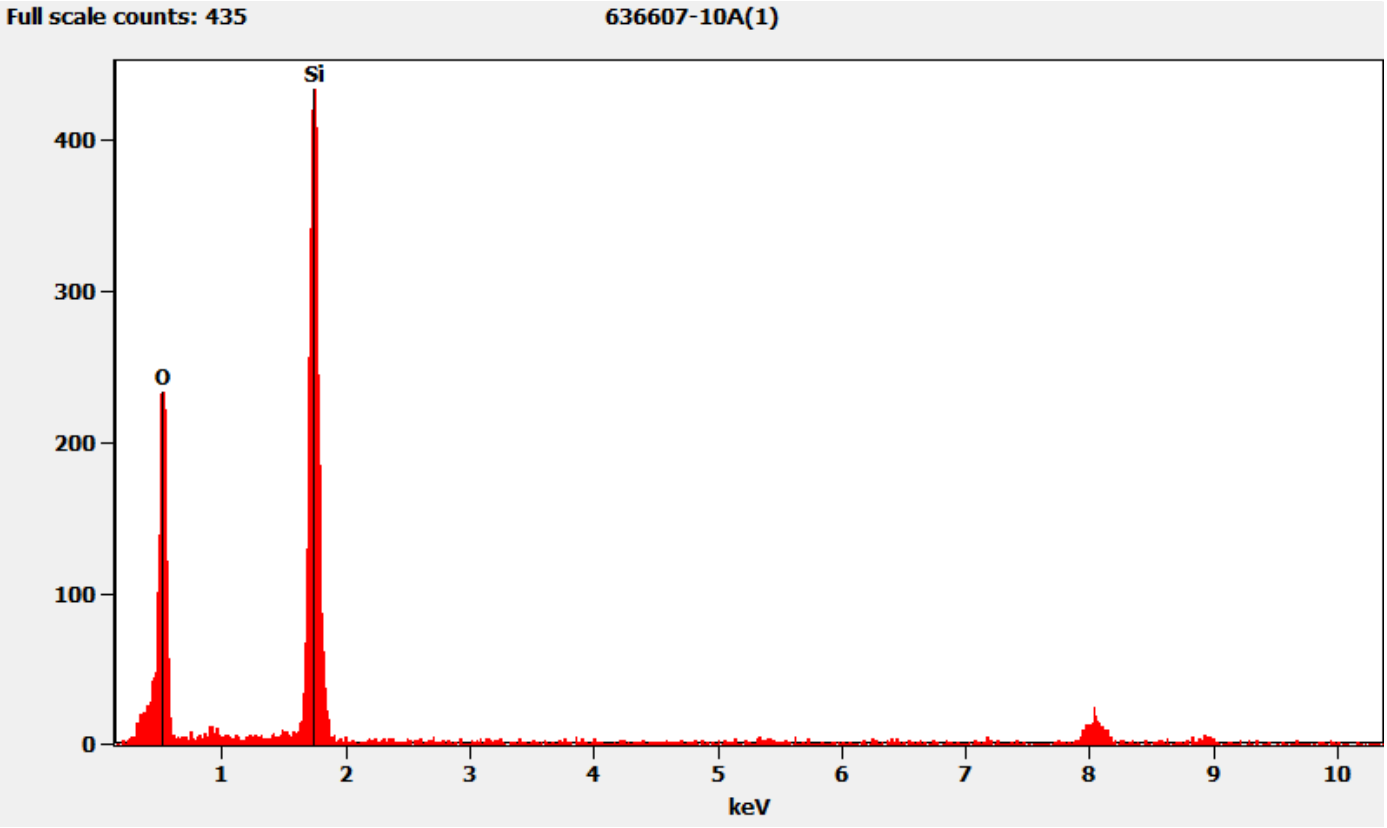


Diffraction Pattern from the Silicon Particle Pictured Above

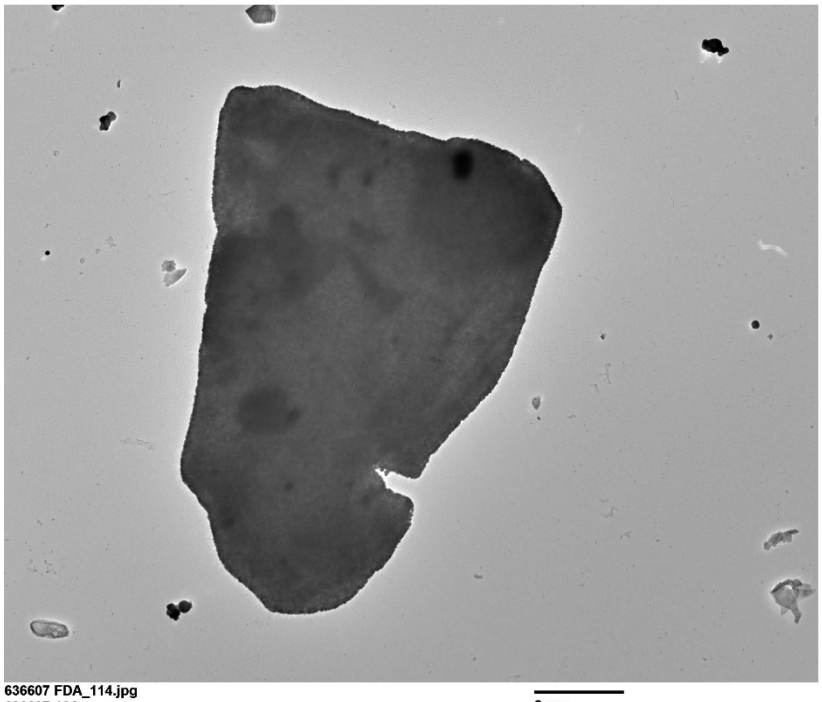
636607 FDA_107.jpg
636607-10A
Silica Particle
10:23 6/28/2022
Microscopist: (b) (6)
Camera: NANO...75, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

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

Chemistry from the Silicon Particles Pictured Above



636607-10A, Mica Particle with Titanium

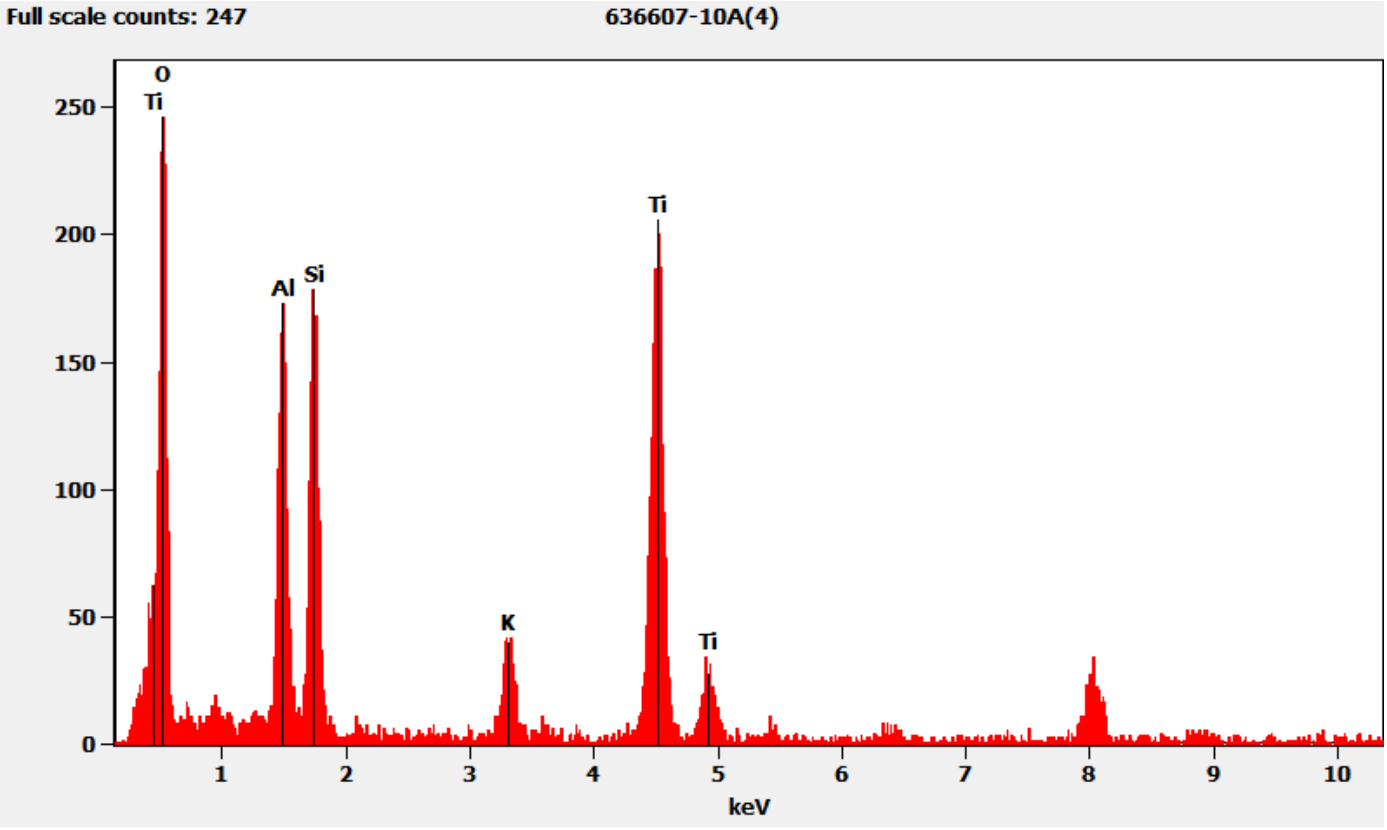


Diffraction Pattern from the Mica Particle with Titanium Pictured Above

636607 FDA_113.jpg
636607-10A
Mica w/Ti
10:30 6/28/2022
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

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

Chemistry from the Mica Particle with Titanium Pictured Above



636607-10A, Talc Ribbon

636607 FDA_112.jpg
636607-10A
Talc Ribbon
Cal: 0.001030 µm/pix
10:27 6/28/2022
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

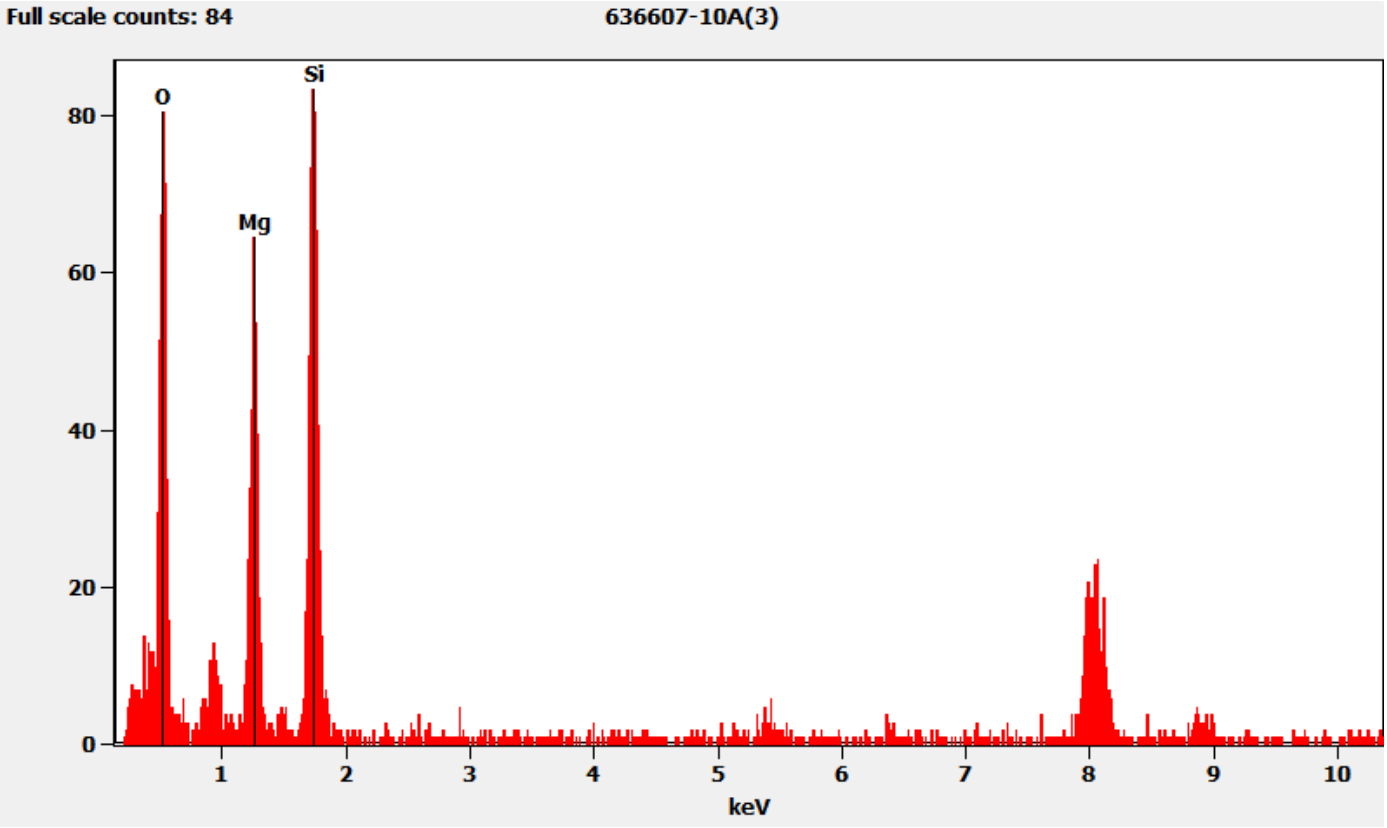
200 nm
HV=100kV
Direct Mag: 10000 x
AMA Analytical Services, Inc

Diffraction Pattern from the Talc Ribbon Pictured Above

636607 FDA_111.jpg
636607-10A
Talc Ribbon
10:26 6/28/2022
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 Ribbon Pictured Above



636607-11A, 11B, 11C/Client Sample: 05022022-11

PLM

All three aliquots of sample 05022022-11 were analyzed by (b) (6) on June 28, 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.

636607-11A	No Asbestos Detected
636607-11B	No Asbestos Detected
636607-11C	No Asbestos Detected

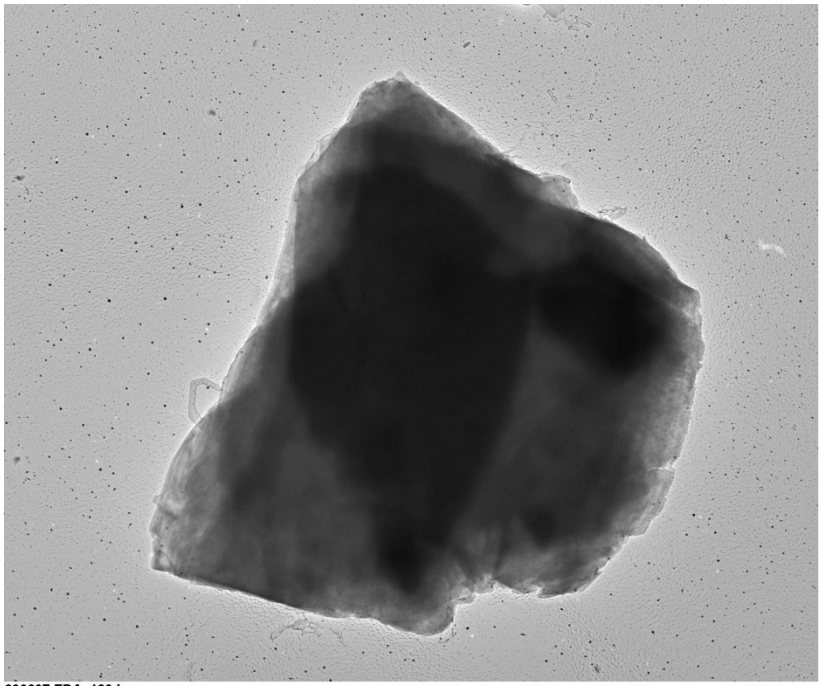
TEM

(b) (6) analyzed aliquot 11A on June 28, 2022, and aliquot 11B on June 29, 2022. Andreas Saldivar analyzed aliquot 11C on June 29, 2022. The primary particle observed was talc; silica spheres and talc fibers 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.

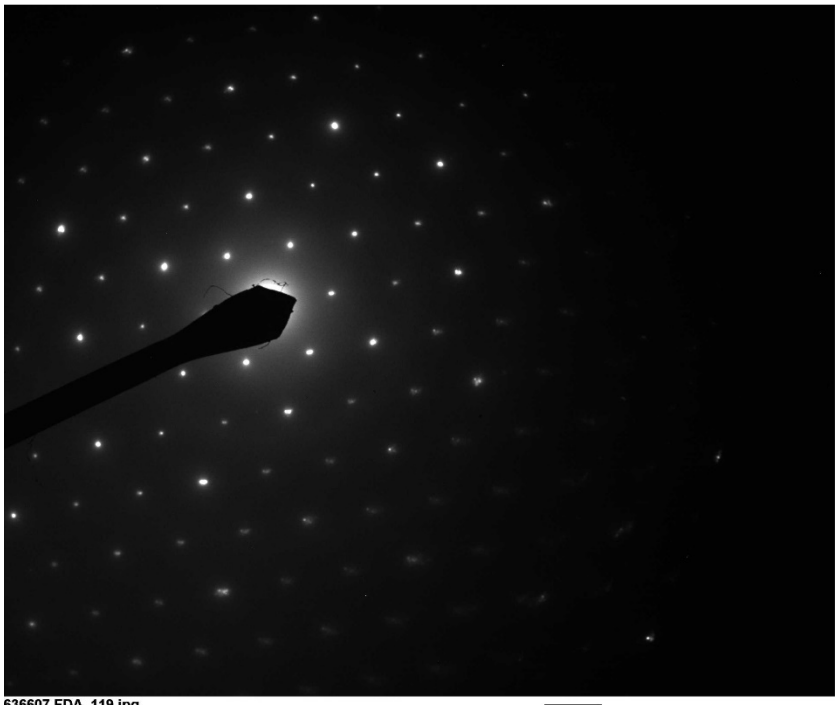
636607-11A	No Asbestos Detected
636607-11B	No Asbestos Detected
636607-11C	No Asbestos Detected

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

636607-11A, Talc Particle



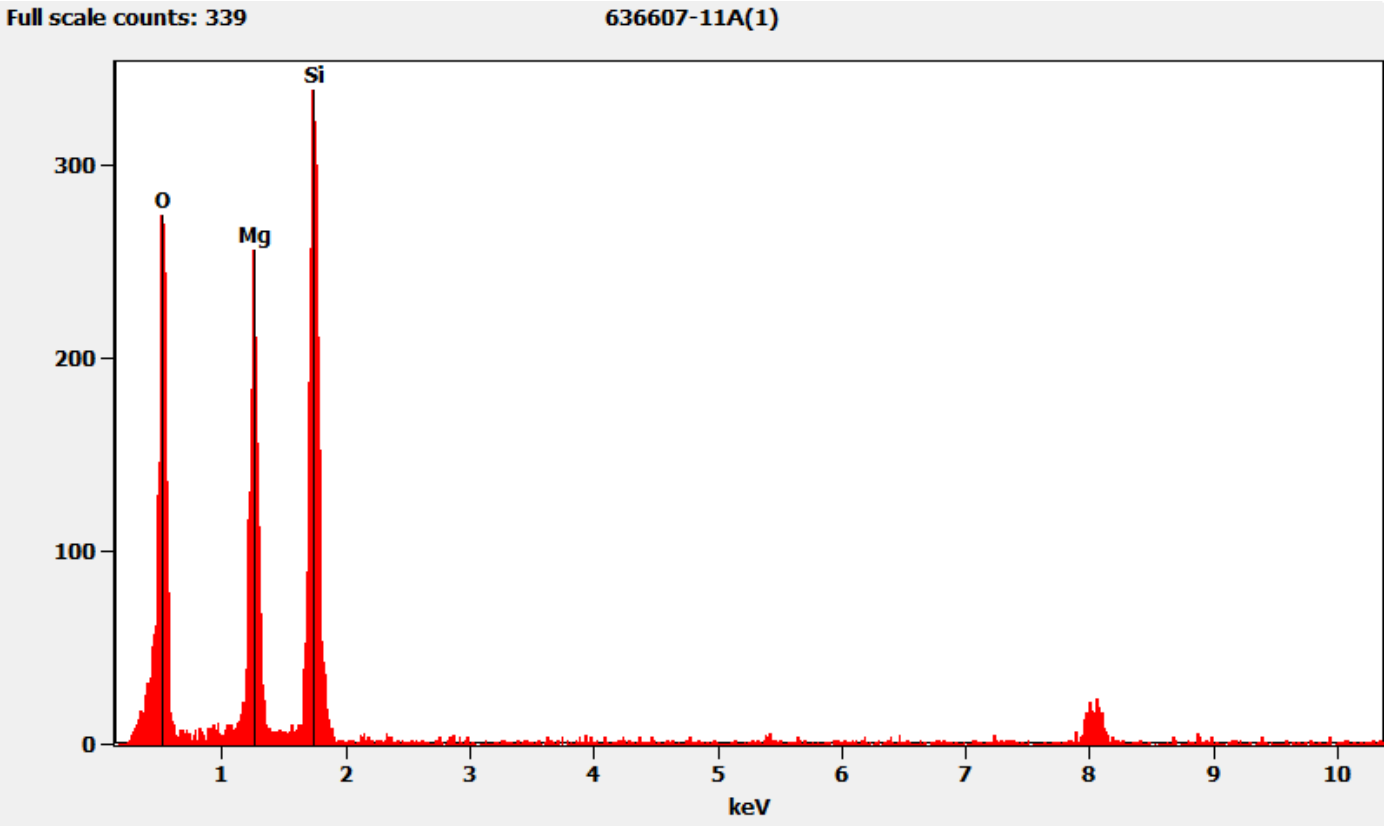
Hexagonal Diffraction Pattern from the Talc Particle Pictured Above



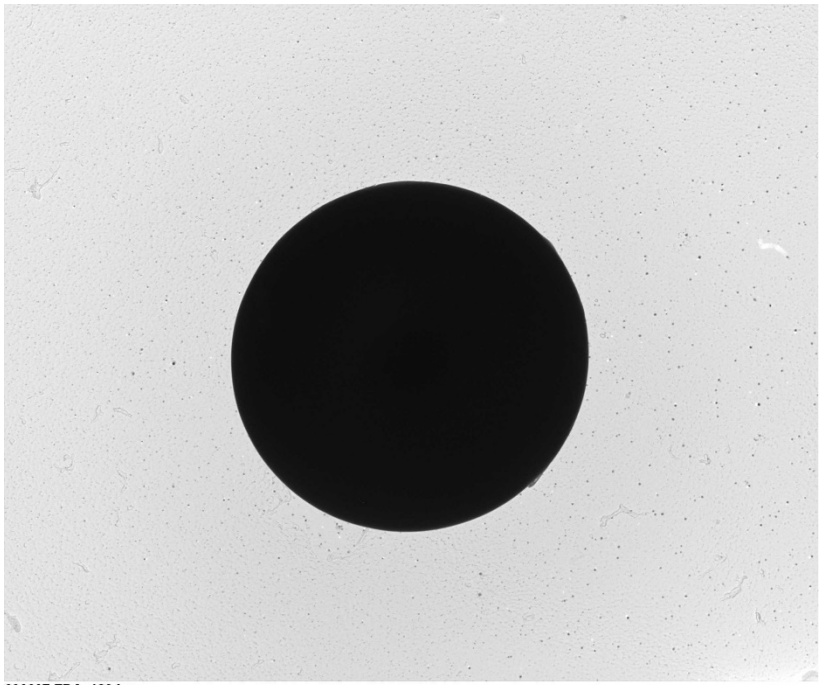
636607 FDA_119.jpg
636607-11A
Talc Particle
11:49 6/28/20(b) (6)
Microscopist
Camera: NA , Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

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

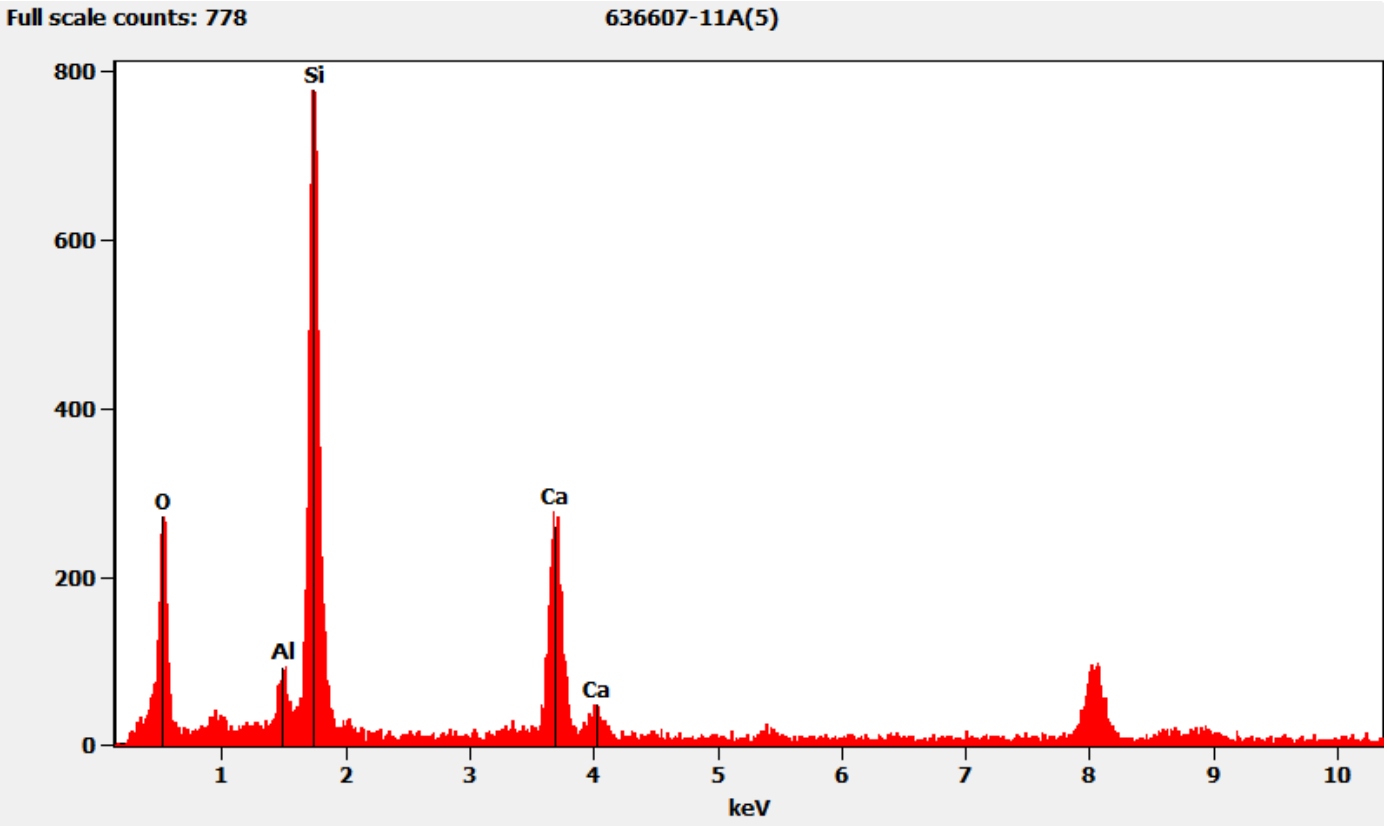
Chemistry from the Talc Particle Pictured Above



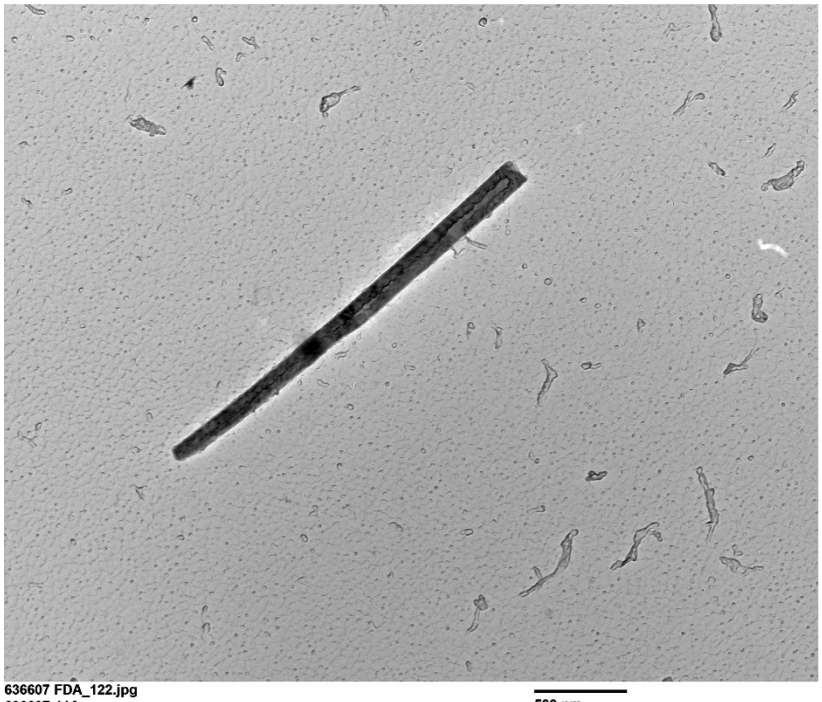
636607-11A, Silica Sphere



Chemistry from the Silica Sphere Pictured Above



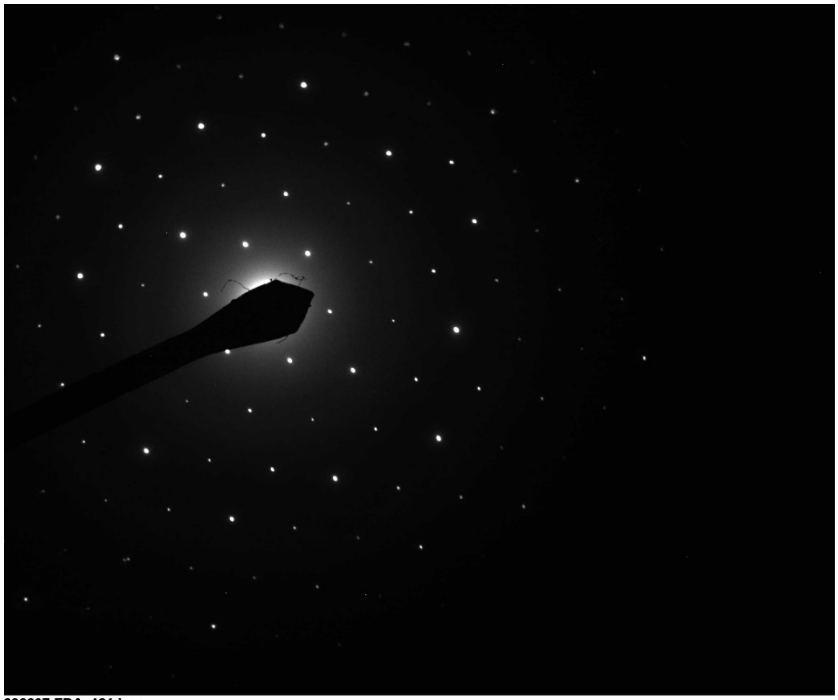
636607-11A, Talc Fiber



636607 FDA_122.jpg
636607-11A
Talc Fiber
Cal: 0.001775 µm/pix
11:58 6/28/2022
Microscopis(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

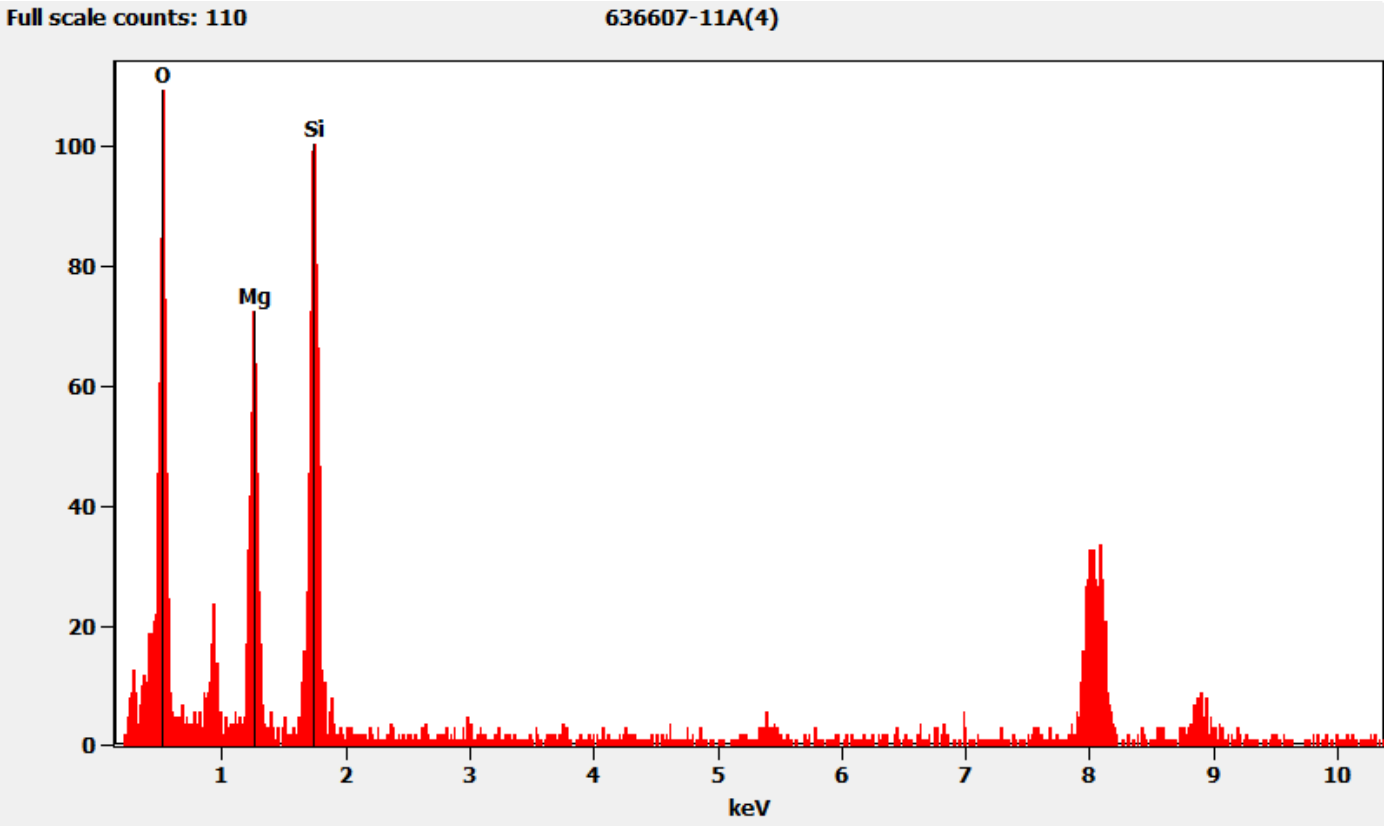
Hexagonal Diffraction Pattern from the Talc Fiber Pictured Above



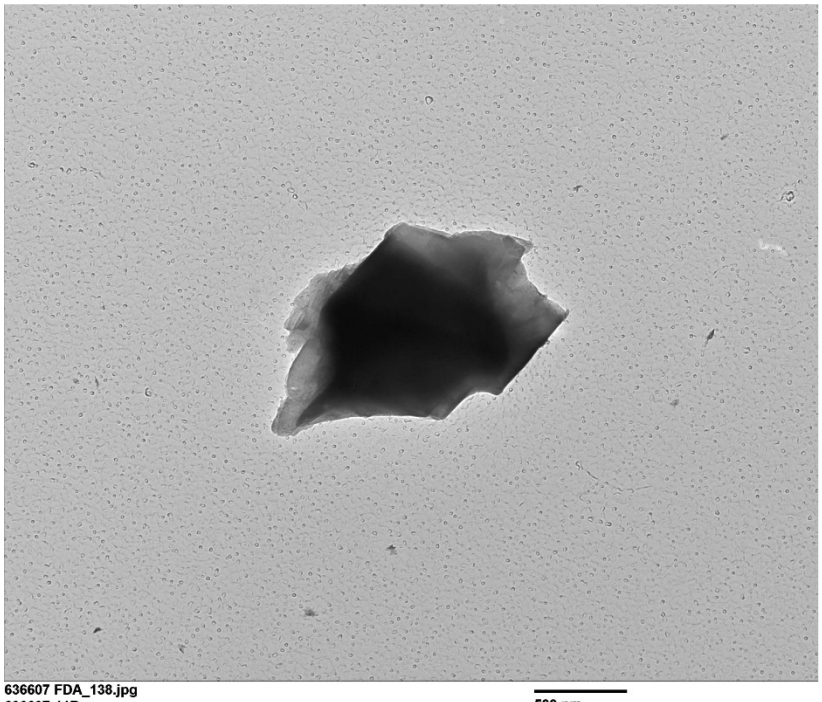
636607 FDA_121.jpg
636607-11A
Talc Fiber
11:57 6/28/2022
Microscopist (b) (6)
Camera: NAN , Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

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

Chemistry from the Talc Fiber Pictured Above



636607-11B, Particle Containing Sodium, Aluminum, and Silicon



636607 FDA_138.jpg
636607-11B
Na, Al, Si Particle
Cal: 0.001775 µm/pix
12:46 6/29/20(b) (6)
Microscopis
Camera: NANOSPRT5, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

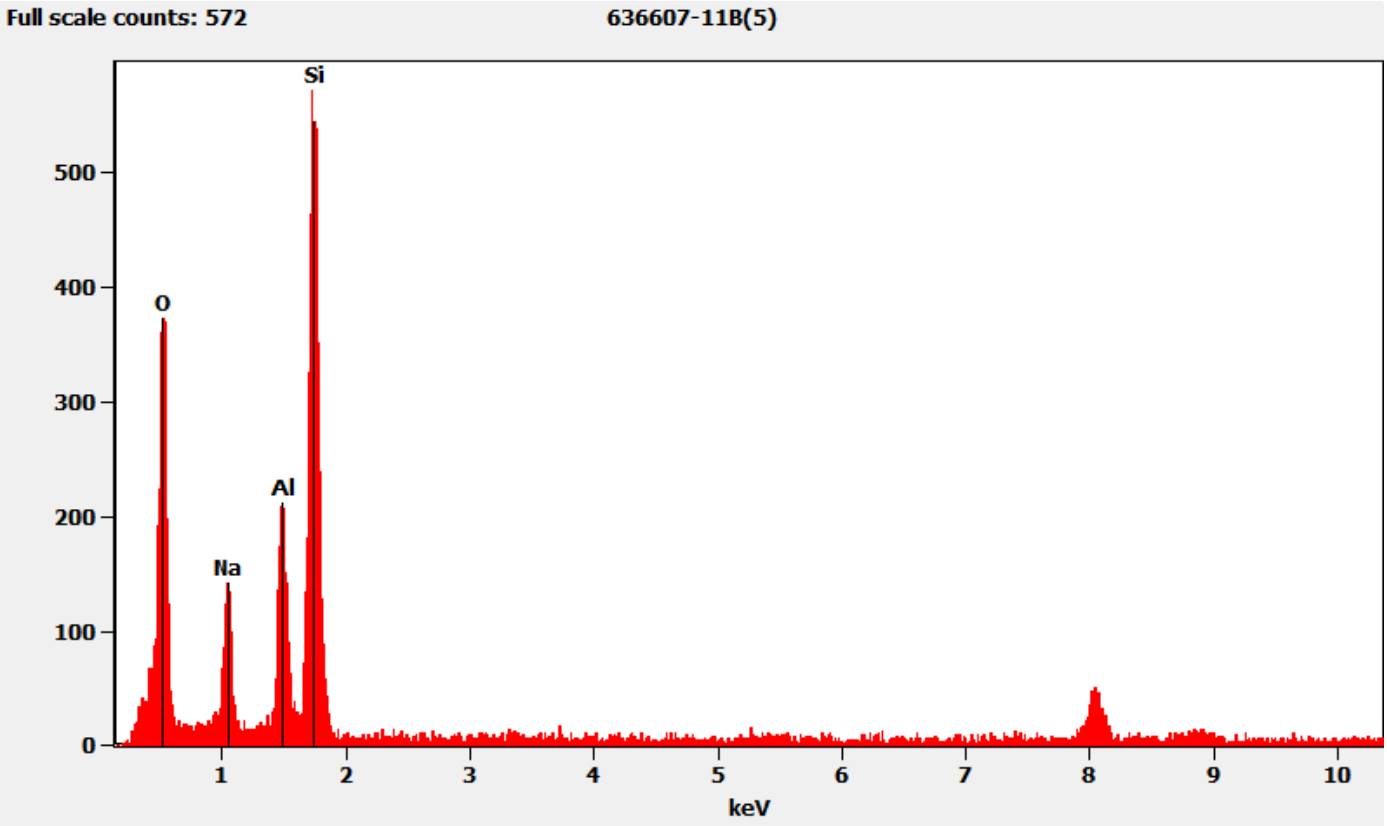
500 nm
HV=100kV
Direct Mag: 5800 x
AMA Analytical Services, Inc

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

636607 FDA_137.jpg
636607-11B
Na, Al, Si Particle
12:45 6/29/202(b) (6)
Microscopis
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



636607-12A, 12B, 12C/Client Sample: 05022022-12

PLM

All three aliquots of sample 05022022-12 were analyzed by (b) (6) on June 28, 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.

636607-12A	No Asbestos Detected
636607-12B	No Asbestos Detected
636607-12C	No Asbestos Detected

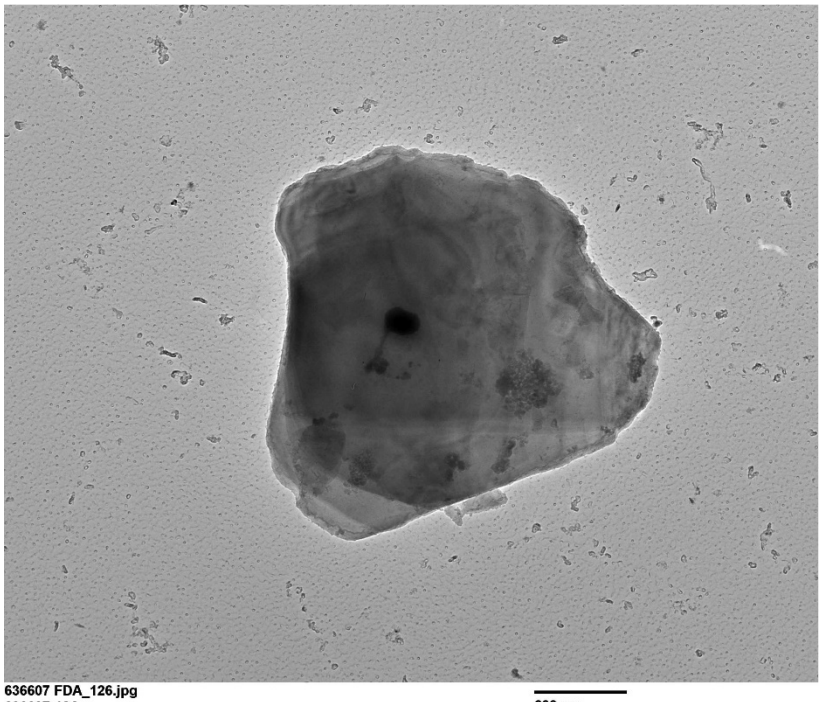
TEM

(b) (6) analyzed aliquot 12A on June 28, 2022. Andreas Saldivar analyzed aliquots 12B and 12C on June 29, 2022. The primary particle observed was mica; talc and titanium particles were also observed along with silicon particles, silica spheres and iron 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.

636607-12A	No Asbestos Detected
636607-12B	No Asbestos Detected
636607-12C	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

636607-12A, Mica Particle

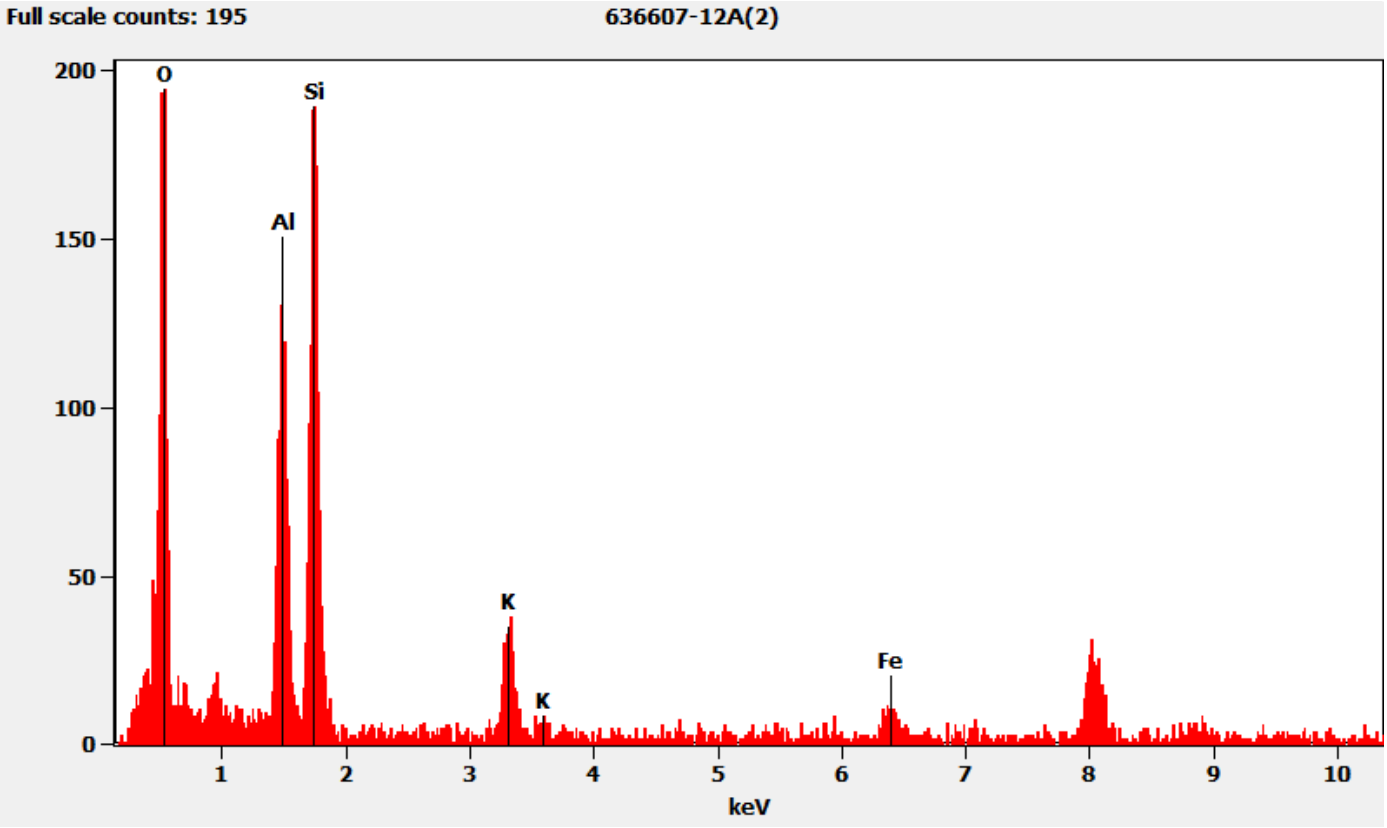


Hexagonal Diffraction Pattern from the Mica Particle Pictured Above

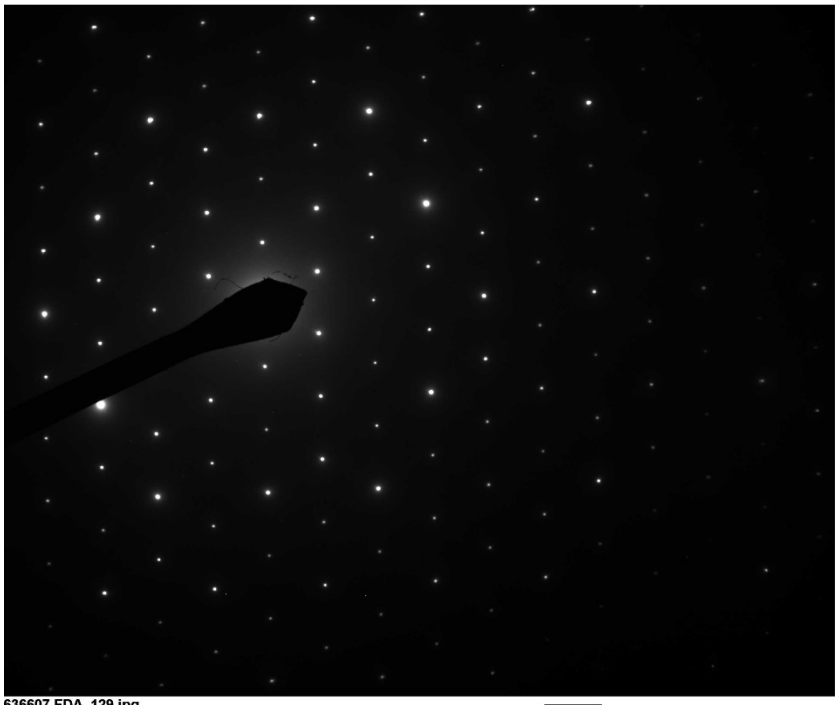
636607 FDA_125.jpg
636607-12A
Mica Particle
14:59 6/28/2022
Microscopist: (b) (6)
Camera: NANOSPRING, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

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

Chemistry from the Mica Particle Pictured Above



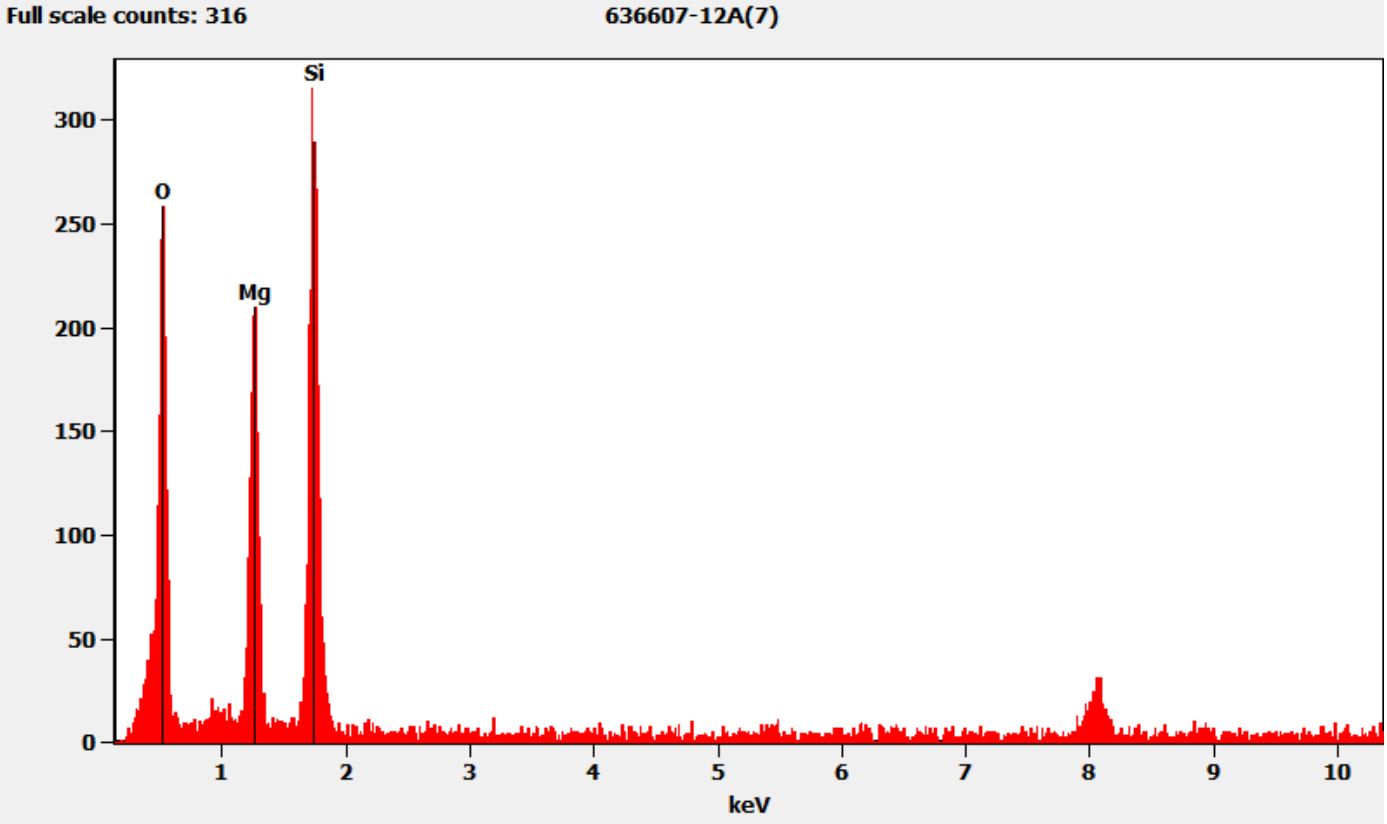
636607-12A, Talc Particle Hexagonal Diffraction Pattern



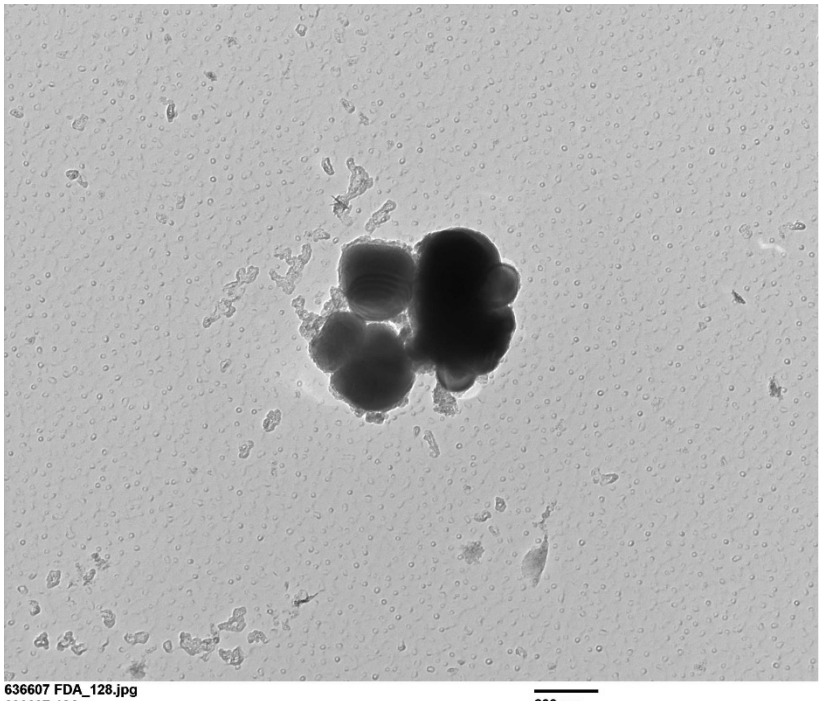
636607 FDA_129.jpg
636607-12A
Talc particle
15:10 6/28/2022
Microscopist (b) (6)
Camera: NANOSPRT5, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

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

Chemistry from the Talc Particle Referenced Above



636607-12A, Titanium Particle

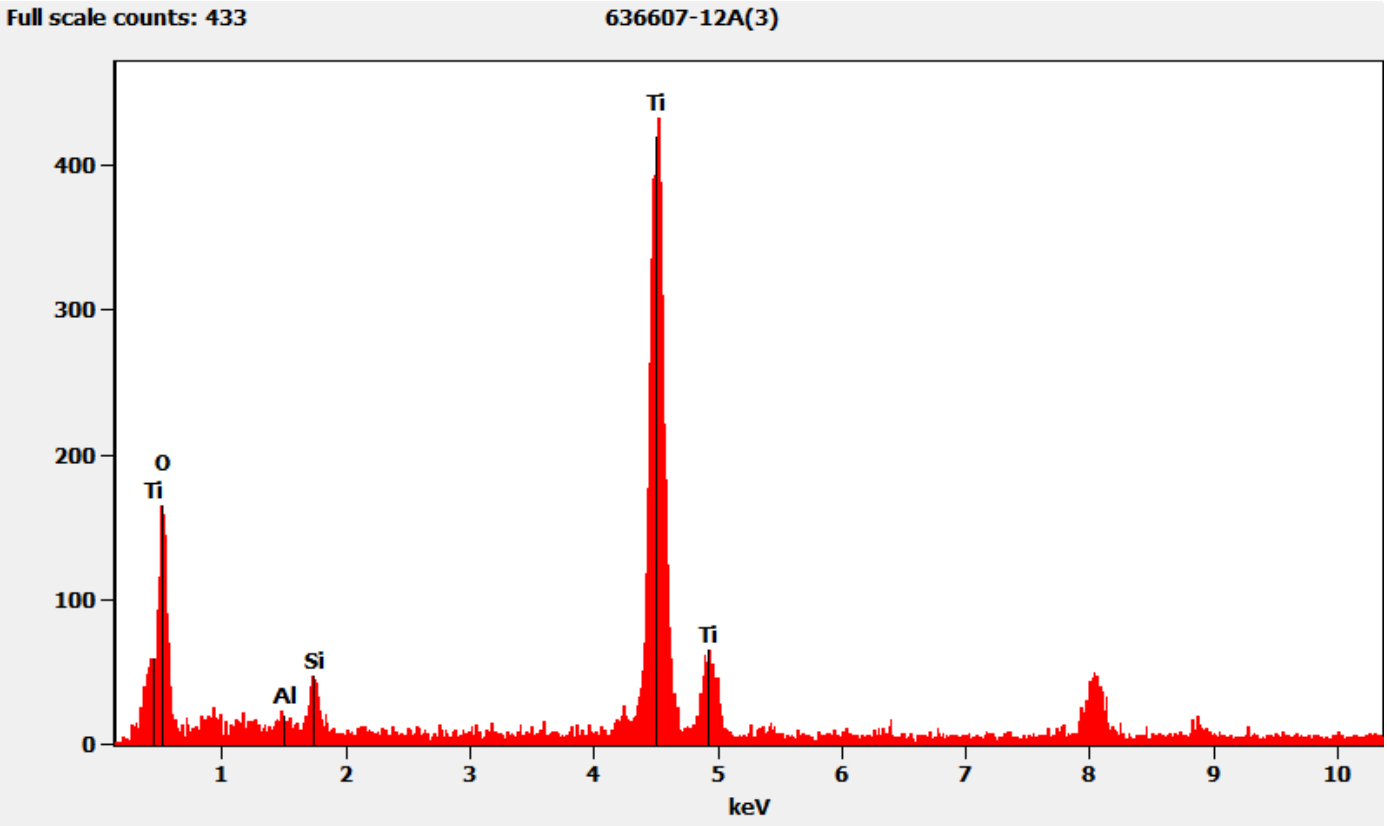


Diffraction Pattern from the Titanium Particle Pictured Above

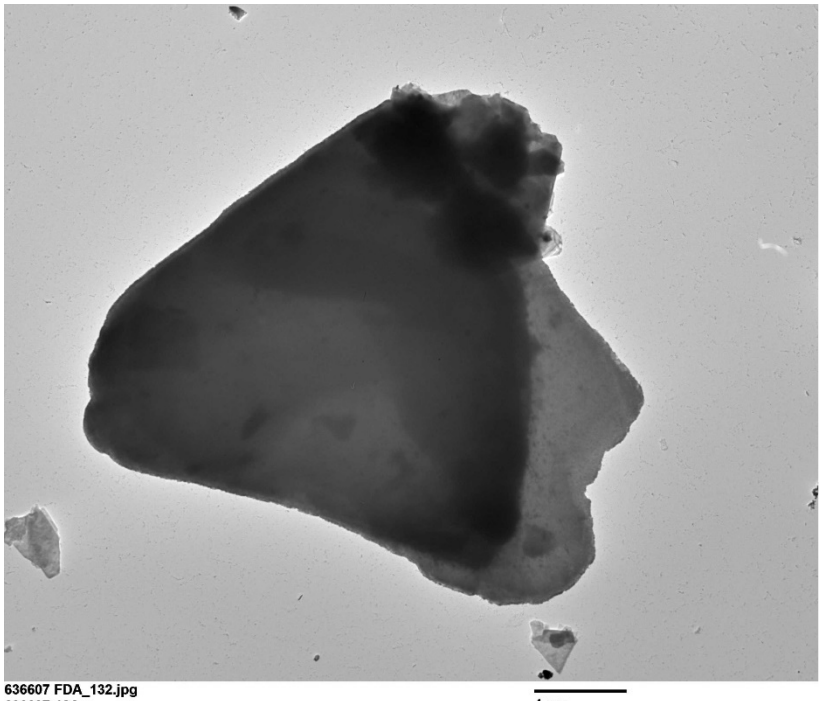
636607 FDA_127.jpg
636607-12A
Ti particles
15:01 6/28/20(b) (6)
Microscopist
Camera: NANOSPR[illegible]5, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

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

Chemistry from the Titanium Particle Pictured Above



636607-12A, Mica Particle with Titanium

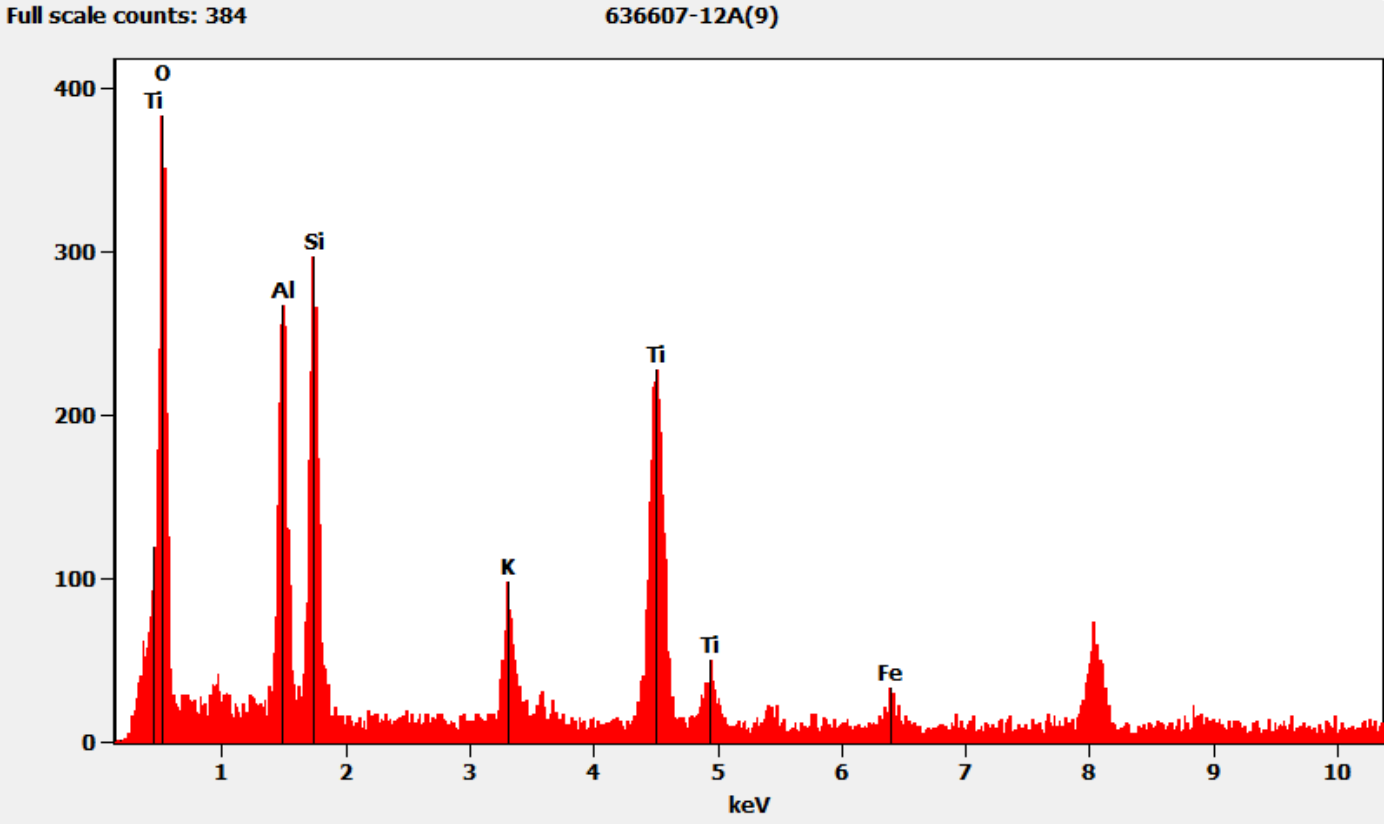


636607 FDA_132.jpg
636607-12A
Mica w/ Ti
Cal: 0.014300 µm/pix
15:21 6/28/2022
Microscopist (b) (6)
Camera: NAN[redacted]5, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

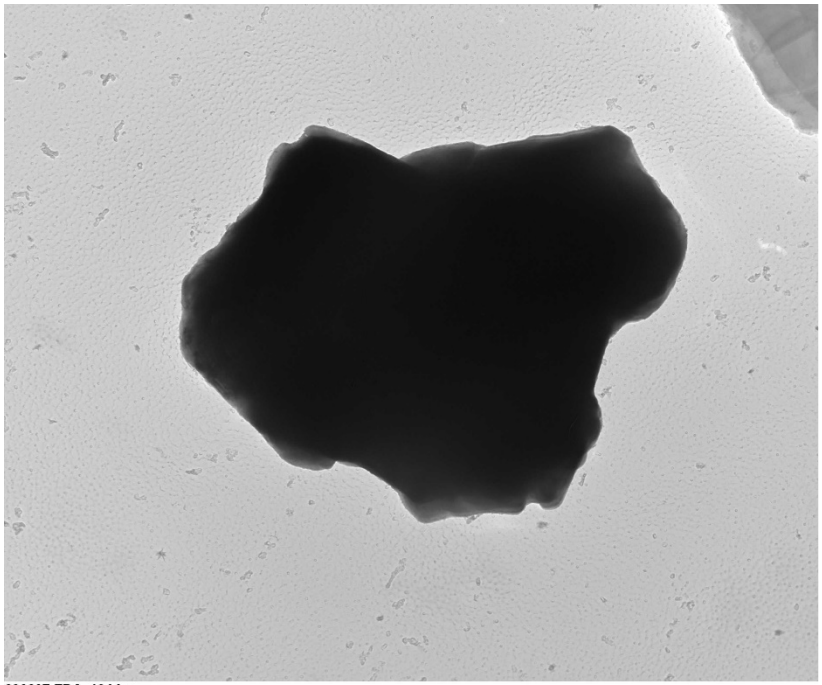
4 µm
HV=100kV
Direct Mag: 720 x
AMA Analytical Services, Inc

Diffraction Pattern from the Mica Particle with Titanium Pictured Above

Chemistry from the Mica Particle with Titanium Pictured Above



636607-12A, Silicon Particle



636607 FDA_134.jpg
636607-12A
Silica Particle
Cal: 0.002145 µm/pix
15:32 6/28/2022
Microscopist: (b) (6)
Camera: NANOSPRIS, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

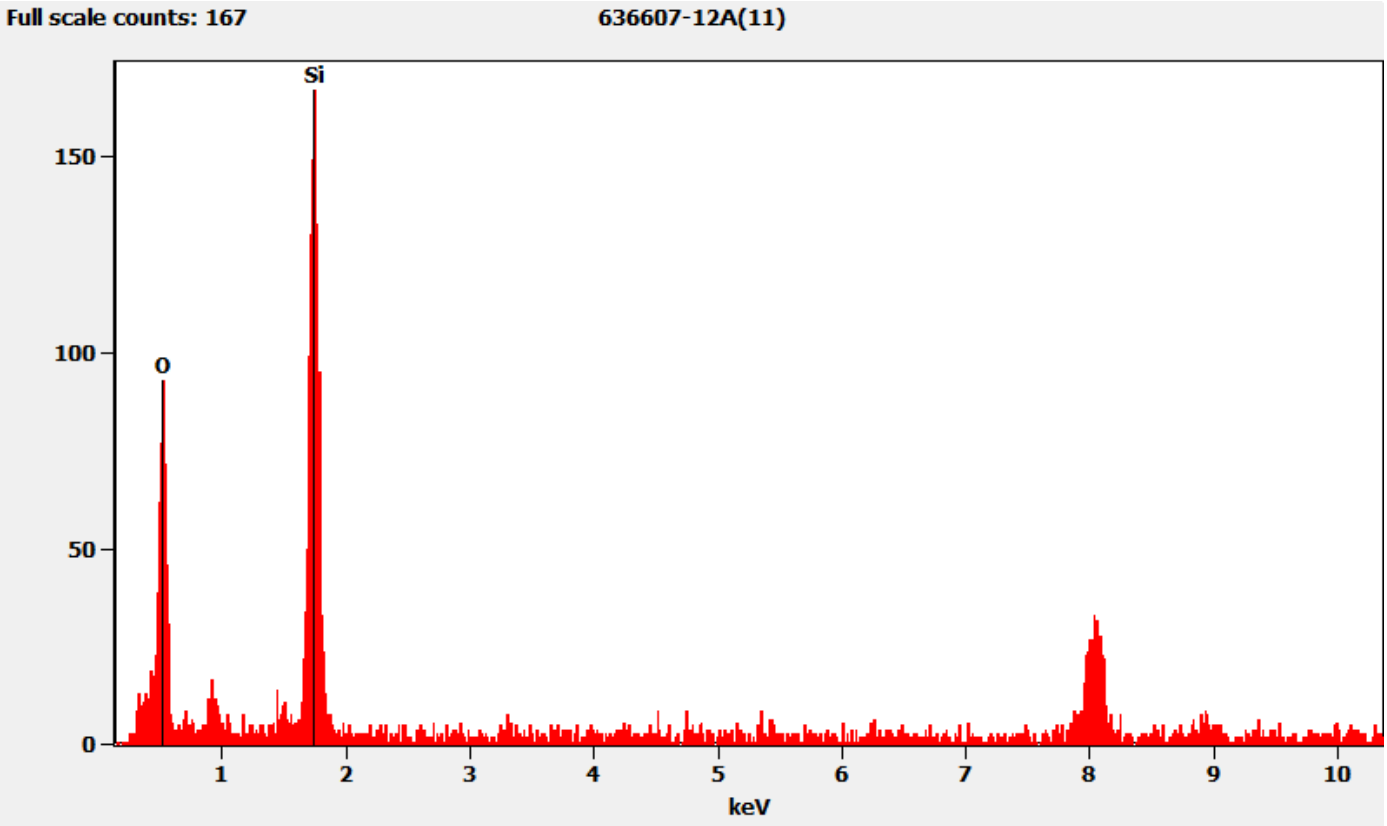
600 nm
HV=100kV
Direct Mag: 4800 x
AMA Analytical Services, Inc

Diffraction Pattern from the Silicon Particle Pictured Above

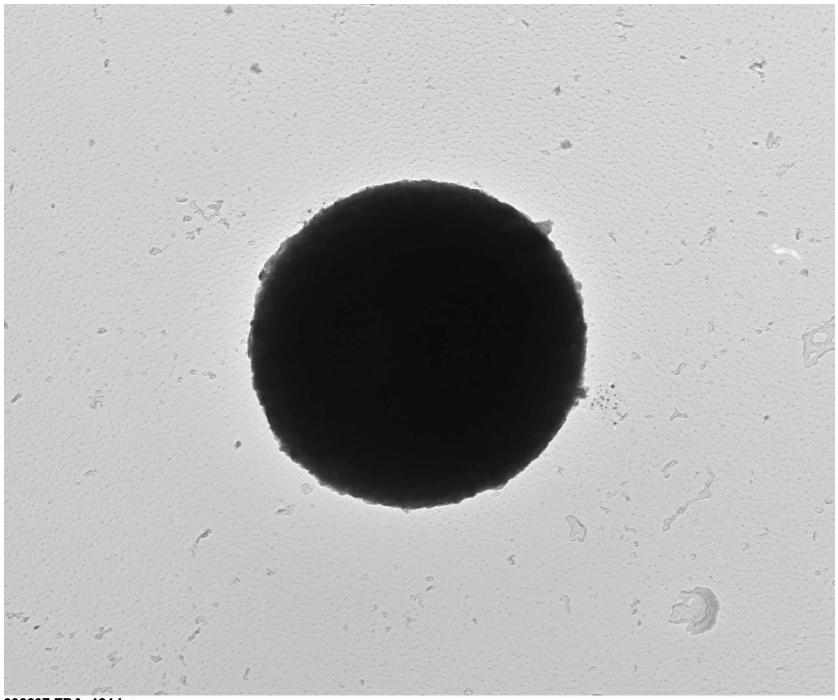
636607 FDA_133.jpg
636607-12A
Silica Particle
15:31 6/28/2022
Microscopist: (b) (6)
Camera: NANOSPRIS, Exposure: 840 (ms) x 5 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

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

Chemistry from the Silicon Particle Pictured Above



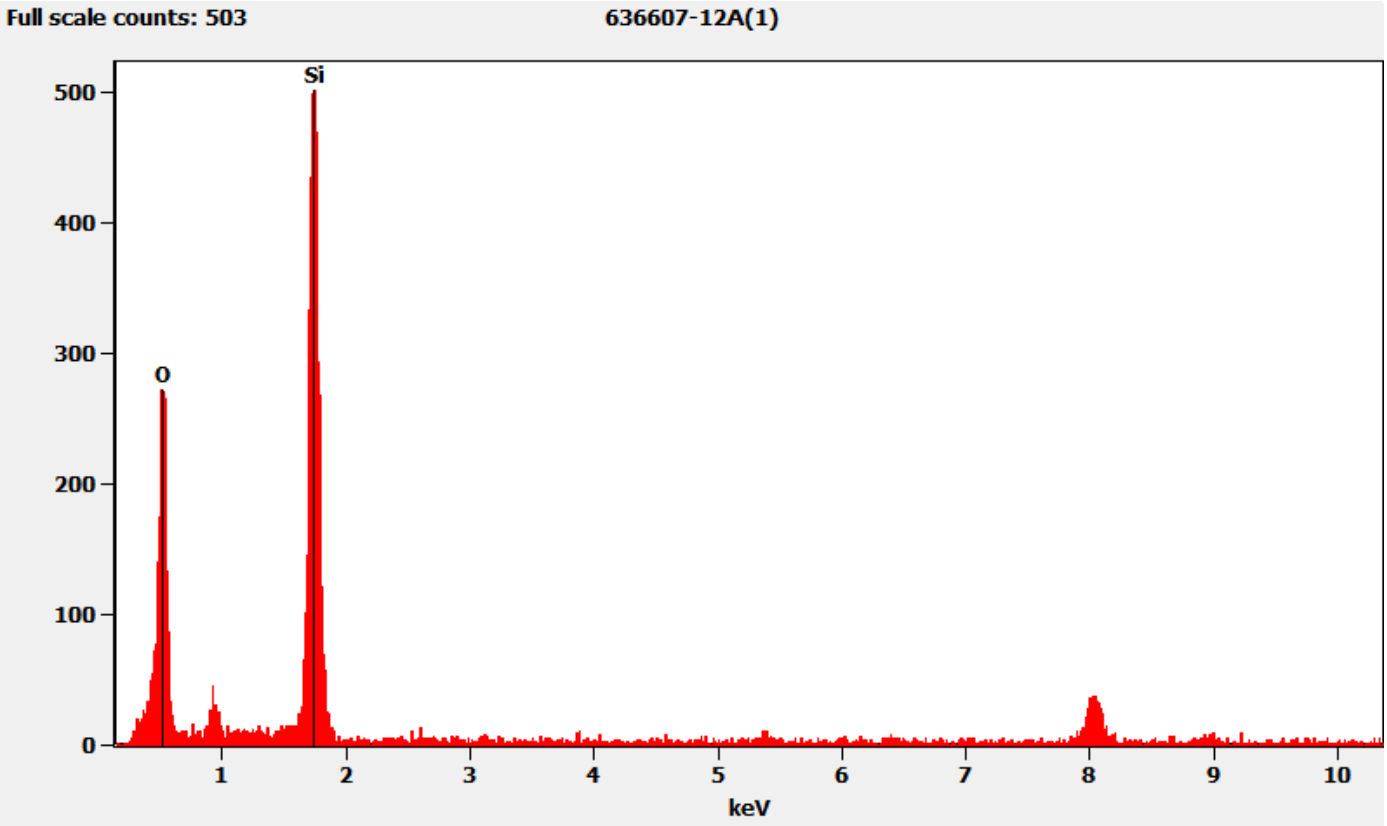
636607-12A, Silica Sphere



636607 FDA_124.jpg
636607-12A
Silica Sphere
Cal: 0.002145 µm/pix
14:56 6/28/2022
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

Chemistry from the Silica Sphere 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 NB22-333/334, NB22-343/344, and NB22-354/355 were not analyzed since no asbestos was observed on the associated client samples.

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-12 were not analyzed since no asbestos was observed on the associated client samples.

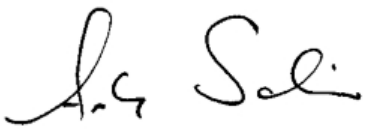
TEM grid preparation (EB) blank samples were prepared with each batch of carbon coated filters. AMA policy is to analyze these blank samples whenever asbestos, or the non-asbestos versions of the regulated minerals, is detected on an associated client sample or when the laboratory blank identification number ends in a “0” or “5.” Since no asbestos

was observed on any of the client samples, only EB Blank IDs 58580, 58645, and 58680 were analyzed. (b) (6) analyzed EB-58580 on June 15, 2022, and EB-58645 and EB-58680 on August 8, 2022. No asbestos was detected on the TEM grid preparation blank samples.

Our laboratory information management system (LIMS) randomly selected sample 636607-9A/05022022-9 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 28, 2022, for PLM and by (b) (6) on September 22, 2022, for TEM. The QC results were consistent with the original findings.

Our laboratory information management system (LIMS) randomly selected sample 636607-12A/05022022-12 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 28, 2022, for PLM and by Andreas Saldivar on September 29, 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.



10/12/2022

Andreas Saldivar — Date
President