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: 75F40122P00335

Assignment DFPG# 23-19, Batch No. 2 (Batch #04252023)
AMA COC No. 647151

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: 647151
Client: US Food & Drug Administration
Address: Office of Cosmetics & Colors
4300 River Road
College Park, MD 20740
Attention: John Gasper

Job Name: Assignment DFPG #23-19
Job Location: Batch 2 (No. 04252023)
Job Number: CLIN 0001
PO Number: 75F40122P00335

Date Submitted: 5/10/2023
Date Analyzed: 7/5/2023 - 7/31/2023
Report Date: 9/22/2023
Date Sampled: Not Provided
Person Submitting: Sabrina McKinney
Revised: 10/6/2023 (Revision #1)

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
647151-1	04252023-1	0.00000410%	0.00001642%	ND	ND	< 0.00002%	ND	12.48%	10.53%	77.00%	
647151-1A	04252023-1	0.00000356%	0.00001424%	ND	ND	< 0.00001%	ND	12.39%	11.72%	75.89%	
647151-1B	04252023-1	0.00000451%	0.00001802%	ND	ND	< 0.00002%	ND	12.42%	10.93%	76.65%	
647151-2	04252023-2	0.00000493%	0.00001973%	ND	ND	< 0.00002%	ND	7.64%	12.60%	79.75%	
647151-2A	04252023-2	0.00000395%	0.00001580%	ND	ND	< 0.00002%	ND	7.64%	11.93%	80.43%	
647151-2B	04252023-2	0.00000657%	0.00002630%	ND	ND	< 0.00003%	ND	7.63%	12.16%	80.21%	
647151-3	04252023-3	0.00000589%	0.00002355%	ND	ND	< 0.00002%	ND	11.74%	7.30%	80.96%	
647151-3A	04252023-3	0.00000712%	0.00002846%	ND	ND	< 0.00003%	ND	11.62%	6.74%	81.64%	
647151-3B	04252023-3	0.00000657%	0.00002630%	ND	ND	< 0.00003%	ND	11.62%	7.06%	81.32%	
647151-4	04252023-4	0.00000185%	0.00000738%	ND	ND	< 0.00001%	ND	13.98%	7.79%	78.23%	
647151-4A	04252023-4	0.00000205%	0.00000820%	ND	ND	< 0.00001%	ND	14.01%	6.19%	79.80%	
647151-4B	04252023-4	0.00000176%	0.00000703%	ND	ND	< 0.00001%	ND	13.98%	6.47%	79.55%	
647151-5	04252023-5	0.00000289%	0.00001156%	ND	ND	< 0.00001%	ND	1.87%	14.43%	83.70%	
647151-5A	04252023-5	0.00000287%	0.00001148%	ND	ND	< 0.00001%	ND	1.73%	12.67%	85.60%	
647151-5B	04252023-5	0.00000247%	0.00000986%	ND	ND	< 0.00001%	ND	1.76%	12.23%	86.01%	
647151-6	04252023-6	0.00000296%	0.00001183%	ND	ND	< 0.00001%	ND	8.88%	17.88%	73.24%	
647151-6A	04252023-6	0.00000347%	0.00001388%	ND	ND	< 0.00001%	ND	8.94%	16.38%	74.68%	
647151-6B	04252023-6	0.00000279%	0.00001114%	ND	ND	< 0.00001%	ND	8.97%	16.67%	74.36%	
647151-7	04252023-7	0.00000327%	0.00001306%	ND	ND	< 0.00001%	ND	33.20%	12.93%	53.88%	
647151-7A	04252023-7	0.00000242%	0.00000967%	ND	ND	< 0.00001%	ND	33.40%	14.12%	52.47%	
647151-7B	04252023-7	0.00000210%	0.00000841%	ND	ND	< 0.00001%	ND	33.10%	12.60%	54.30%	
647151-8	04252023-8	0.00000306%	0.00001225%	ND	ND	< 0.00001%	ND	5.47%	17.88%	76.66%	
647151-8A	04252023-8	0.00000317%	0.00001266%	ND	ND	< 0.00001%	ND	5.44%	16.53%	78.03%	
647151-8B	04252023-8	0.00000269%	0.00001076%	ND	ND	< 0.00001%	ND	5.50%	16.87%	77.63%	
647151-9	04252023-9	0.00000166%	0.00000664%	ND	ND	< 0.00001%	ND	27.79%	8.04%	64.18%	
647151-9A	04252023-9	0.00000241%	0.00000965%	ND	ND	< 0.00001%	ND	27.75%	8.52%	63.73%	
647151-9B	04252023-9	0.00000224%	0.00000897%	ND	ND	< 0.00001%	ND	27.83%	7.88%	64.29%	
647151-10	04252023-10	0.00000263%	0.00001053%	ND	ND	< 0.00001%	ND	3.71%	10.94%	85.34%	
647151-10A	04252023-10	0.00000237%	0.00000948%	ND	ND	< 0.00001%	ND	3.75%	11.72%	84.53%	
647151-10B	04252023-10	0.00000240%	0.00000959%	ND	ND	< 0.00001%	ND	3.71%	9.74%	86.55%	
647151-11	04252023-11	0.00000239%	0.00000957%	ND	ND	< 0.00001%	ND	15.32%	12.61%	72.07%	
647151-11A	04252023-11	0.00000182%	0.00000730%	ND	ND	< 0.00001%	ND	15.54%	9.75%	74.71%	
647151-11B	04252023-11	0.00000225%	0.00000900%	ND	ND	< 0.00001%	ND	15.48%	11.37%	73.15%	
647151-12	04252023-12	0.00000247%	0.00000987%	ND	ND	< 0.00001%	ND	33.21%	12.85%	53.94%	
647151-12A	04252023-12	0.00000225%	0.00000900%	ND	ND	< 0.00001%	ND	33.44%	11.02%	55.54%	
647151-12B	04252023-12	0.00000192%	0.00000767%	ND	ND	< 0.00001%	ND	33.42%	11.55%	55.03%	
647151-13	04252023-13	0.00000283%	0.00001131%	ND	ND	< 0.00001%	ND	25.34%	23.30%	51.36%	
647151-13A	04252023-13	0.00000297%	0.00001188%	ND	ND	< 0.00001%	ND	25.35%	20.32%	54.33%	
647151-13B	04252023-13	0.00000285%	0.00001138%	ND	ND	< 0.00001%	ND	25.46%	19.72%	54.82%	
647151-14	04252023-14	0.00000294%	0.00001174%	ND	ND	< 0.00001%	ND	35.08%	9.76%	55.16%	
647151-14A	04252023-14	0.00000270%	0.00001080%	ND	ND	< 0.00001%	ND	35.07%	8.63%	56.29%	

AMA Analytical Services, Inc.

Focused On Results. **CERTIFICATE OF ANALYSIS**

Chain of Custody: 647151
Client: US Food & Drug Administration
Address: Office of Cosmetics & Colors
4300 River Road
College Park, MD 20740
Attention: John Gasper

Job Name: Assignment DFPG #23-19
Job Location: Batch 2 (No. 04252023)
Job Number: CLIN 0001
PO Number: 75F40122P00335

Date Submitted: 5/10/2023
Date Analyzed: 7/5/2023 - 7/31/2023
Report Date: 9/22/2023
Date Sampled: Not Provided
Person Submitting: Sabrina McKinney
Revised: 10/6/2023 (Revision #1)

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
647151-14B	04252023-14	0.00000354%	0.00001415%	ND	ND	< 0.00001%	ND	35.03%	10.29%	54.68%	
647151-15	04252023-15	0.00000206%	0.00000823%	ND	ND	< 0.00001%	ND	5.64%	26.28%	68.09%	
647151-15A	04252023-15	0.00000212%	0.00000848%	ND	ND	< 0.00001%	ND	5.77%	27.26%	66.97%	
647151-15B	04252023-15	0.00000167%	0.00000670%	ND	ND	< 0.00001%	ND	5.70%	26.79%	67.51%	
647151-16	04252023-16	0.00000169%	0.00000676%	ND	ND	< 0.00001%	ND	12.64%	7.25%	80.12%	
647151-16A	04252023-16	0.00000213%	0.00000850%	ND	ND	< 0.00001%	ND	12.61%	6.69%	80.70%	
647151-16B	04252023-16	0.00000209%	0.00000836%	ND	ND	< 0.00001%	ND	12.63%	6.64%	80.74%	
647151-17	04252023-17	0.00000328%	0.00001313%	ND	ND	< 0.00001%	ND	15.06%	14.07%	70.87%	
647151-17A	04252023-17	0.00000179%	0.00000718%	ND	ND	< 0.00001%	ND	14.99%	12.39%	72.62%	
647151-17B	04252023-17	0.00000225%	0.00000899%	ND	ND	< 0.00001%	ND	15.04%	13.20%	71.76%	

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

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

Analyst(s): **PLM** (b) (6)
TEM 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 647151

Record Changes Report

Date	Description
10/6/2023	Removed extra “0” from the Contract/PO Number on the Title Page & on the Certificate of Analysis.
10/6/2023	p. 1 of Certificate of Analysis: Corrected LOQ value for 647151-10B to 0.00000959% and percent total chrysotile and tremolite value to < 0.00001%. Corrected LOD value for 647151-14A to 0.00000270%

10/6/2023	p.1 of Certificate of Analysis: Corrected LOD value for 647151-14A to 0.00000270%
10/6/2023	p. 17: Corrected typo in Contract/PO Number to correctly read "75F40122P00335."
10/6/2023	p. 40, 50, and 57: Added beryllium to the list of elements identified on the chemistry spectra as background noise from the specimen holder.
10/6/2023	p. 46: Corrected typo in heading for the chemistry spectra (from "Particle Containing Phosphorus and Calcium" to "Elongated Talc").
10/6/2023	p. 172: Corrected typo in heading for the diffraction pattern (from "Carbon" to "Calcium").

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.) **647151**

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 #23-19
Job Location: Batch 2 (04252023)
Job #: CLIN 0001 P.O. #: 75F40122P000335
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: 7/31/2023 ✓ 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 17 (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 17	3	17 '1-oz glass jars submitted in vacuum sealed plastic bags with	
		the custody seals intact (sealed by Sabrina McKinney & Andrea	
		Heise 4/25/2023 - 5/8/2023).	
		See attached FDA COC for additional details.	

	Print Name	Sign Name	Date	Time	Shipping Information
Relinquished by:					✓ UPS ☐ FedEx ☐ USPS ☐ In-Person ☐ Drop Box ☐ Courier ☐ Other
Received by:	(b) (6)		5/10/2023	09:47	(b) (6)

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 8, 2023

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

Re: Samples for Asbestos Analysis, Batch #04252023

Dear (b) (6):

Enclosed in the box are seventeen vials of approx. 5-g solid sample of commercial talc-containing cosmetic products being submitted for analysis for asbestiform fibers by transmission electron microscope (TEM) per FDA Assignment DFPG #23-19, Contract No. #75F40122P00335. 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 seventeen samples in this shipment constitute Batch 2 (No. 04252023) of the 50 samples that will be submitted to AMA for analysis in 2023.

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

Best regards,

Sabrina M. McKinney
Chemist

Chemistry Branch
Denver Laboratory
Office of Regulatory Affairs
U.S. Food and Drug Administration
T: 303-236-9665
sabrina.mckinney@fda.hhs.gov

Enclosure: Chain of custody

FOOD AND DRUG ADMINISTRATION OFFICE OF REGULATORY AFFAIRS *Office of Regulatory Science*	Document Number: FORM-000796	Revision #: 00 Revised: 02/21/2020
Title: **Cosmetic Talc Sample Chain-of-Custody Form**		Page 1 of 3

Batch No: 04252023

Submitter: Sabrina M. McKinney

Assignment No./ Contract No.: DFPG# 23-19 / #75F40122P00335

AMA COC No.:

Date Sealed: 5/8/23 Sample Type: Official Samples

Description of Evidence		
Item #	**Quantity**	**Description of Item** (Lab#, Lot #, Condition)
04252023-1	1 vial	Approx. 5 g of prepared talc-containing cosmetic sample
04252023-2	1 vial	Approx. 5 g of prepared talc-containing cosmetic sample
04252023-3	1 vial	Approx. 5 g of prepared talc-containing cosmetic sample
04252023-4	1 vial	Approx. 5 g of prepared talc-containing cosmetic sample
04252023-5	1 vial	Approx. 5 g of prepared talc-containing cosmetic sample
04252023-6	1 vial	Approx. 5 g of prepared talc-containing cosmetic sample
04252023-7	1 vial	Approx. 5 g of prepared talc-containing cosmetic sample
04252023-8	1 vial	Approx. 5 g of prepared talc-containing cosmetic sample
04252023-9	1 vial	Approx. 5 g of prepared talc-containing cosmetic sample
04252023-10	1 vial	Approx. 5 g of prepared talc-containing cosmetic sample
04252023-11	1 vial	Approx. 5 g of prepared talc-containing cosmetic sample
04252023-12	1 vial	Approx. 5 g of prepared talc-containing cosmetic sample
04252023-13	1 vial	Approx. 5 g of prepared talc-containing cosmetic sample
04252023-14	1 vial	Approx. 5 g of prepared talc-containing cosmetic sample
04252023-15	1 vial	Approx. 5 g of prepared talc-containing cosmetic sample
04252023-16	1 vial	Approx. 5 g of prepared talc-containing cosmetic sample

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.

For the most current and official copy, check QMiS

FOOD AND DRUG ADMINISTRATION OFFICE OF REGULATORY AFFAIRS *Office of Regulatory Science*	Document Number: FORM-000796	Revision #: 00 Revised: 02/21/2020
Title: **Cosmetic Talc Sample Chain-of-Custody Form**		Page 2 of 3

04252023-17	1 vial	Approx. 5 g of prepared talc-containing cosmetic sample

Chain of Custody				
Item #	**Date**	**Released by** (Print Name)	**Released by** (Signature)	**Comments/Location**
1-17	5/8/23	Sabrina McKinney		ORA/DENL

Chain of Custody				
Item #	**Date/Time**	**Received by** (Print Name)	**Received by** (Signature)	**Comments/Location**
1-17	5/10/23	(b) (6)	(b) (6)	AMA

Final Disposal Authority

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.

For the most current and official copy, check QMiS

FOOD AND DRUG ADMINISTRATION OFFICE OF REGULATORY AFFAIRS *Office of Regulatory Science*	Document Number: FORM-000796	Revision #: 00 Revised: 02/21/2020
Title: **Cosmetic Talc Sample Chain-of-Custody Form**		Page 3 of 3

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: _____

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

LEAH MORRIS
1-303-236-9702
FDA-ORA-SW-DO-DEN
1 DENVER FEDERAL CTR RM FLR DF
DENVER CO 80225

2 LBS 1 OF 1

SHIP TO:
AMA ANALYTICAL SERVICES, INC.
4475 FORBES BLVD
LANHAM MD 20706-4354

MD 201 9-17

UPS NEXT DAY AIR
TRACKING #: (b) (6)
1

BILLING: P/P

CENTER: ORA HQ
Center/Office: DEN-DO
CS 23.6.00. WNTNV50 19.0A 05/2023*

TM

FOLD HERE

5/9/23, 7:30 AM UPS CampusShip | UPS - United States

UPS CampusShip: View/Print Label

1. **Ensure there are no other shipping or tracking labels attached to your package.** Select the Print button on the print dialog box that appears. Note: If your browser does not support this function select Print from the File menu to print the label.
2. **Fold the printed label at the solid line below.** Place the label in a UPS Shipping Pouch. If you do not have a pouch, affix the folded label using clear plastic shipping tape over the entire label.
3. **GETTING YOUR SHIPMENT TO UPS**
   Customers with a Daily Pickup
   Your driver will pickup your shipment(s) as usual.

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

UPS Access Point™
THE UPS STORE
12081 W ALAMEDA PKWY
LAKEWOOD, CO 80228

UPS Access Point™
ADVANCE AUTO PARTS STORE 7869
10600 W COLFAX AVE
LAKEWOOD, CO 80215

UPS Access Point™
ADVANCE AUTO PARTS STORE 5547
12540 W ALAMEDA PKWY
LAKEWOOD, CO 80228

https://www.campusship.ups.com/cship/create?ActionOriginPair=default___PrintWindowPage&key=labelWindow&type=html&loc=en_US&instr=A&do... 1/1

Proof of Delivery

Dear Customer,

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

Tracking Number
(b) (6)

Weight
2.00 LBS

Service
UPS Next Day Air®

Shipped / Billed On
05/09/2023

Delivered On
05/10/2023 9:47 A.M.

Delivered To
LANHAM, MD, US

Received By
(b) (6)

Left At
Reception

Please print for your records as photo and details are only available for a limited time.

Sincerely,

UPS

Tracking results provided by UPS: 06/16/2023 12:59 P.M. EST

From: UPS
To: (b) (6)
Subject: UPS Status Notification, Tracking Number (b) (6)
Date: Tuesday, August 29, 2023 9:59:28 AM

Please see below for package information and current transit status.

Scheduled Delivery Date: Wednesday, 05/10/2023

UPS My Choice for home

Shipment Details

Tracking Detail

Your package is on time with a scheduled delivery date of 05/10/2023

Tracking Number:	(b) (6)
Status:	Delivered
Scheduled Delivery:	05/10/2023
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	05/10/2023	9:47 AM	DELIVERED
Landover, MD, United States	05/10/2023	9:33 AM	Out For Delivery Today
Landover, MD, United States	05/10/2023	7:32 AM	Loaded on Delivery Vehicle

Landover, MD, United States	05/10/2023	7:22 AM	Processing at UPS Facility
Landover, MD, United States	05/10/2023	7:00 AM	Arrived at Facility
Linthicum, MD, United States	05/10/2023	6:22 AM	Departed from Facility
Linthicum, MD, United States	05/10/2023	5:33 AM	Arrived at Facility
Rockford, IL, United States	05/10/2023	2:58 AM	Departed from Facility
Rockford, IL, United States	05/10/2023	12:54 AM	Arrived at Facility
Commerce City, CO, United States	05/09/2023	9:44 PM	Departed from Facility
Commerce City, CO, United States	05/09/2023	7:40 PM	Arrived at Facility
Commerce City, CO, United States	05/09/2023	5:51 PM	Origin Scan
Commerce City, CO, United States	05/09/2023	3:21 PM	Pickup Scan
United States	05/09/2023	7:30 AM	Shipper created a label, UPS has not received the package yet.
Tracking results provided by UPS 08/29/2023 9:59 A.M. Eastern Time			

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

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Case Narrative

Client Name:	FDA Office of Cosmetics & Colors	**Contact:**	John Gasper
Contract Number:	75F40122P00335	**Phone:**	(240) 402-1133
Job Name/Location:	Assignment DFPG #23-19 Batch No. 04252023 (Batch #2)	**Email:**	john.gasper@fda.hhs.gov
AMA COC Number:	647151	**Date Received:**	May 10, 2023

AMA Sample No.	Client Sample No.	Sample Description	Analytical Method
647151-1	04252023-1	Cinnamon colored, slightly clumpy powder with a matte appearance	Mod. PLM ELAP 198.6/TEM ELAP 198.4
647151-1A	04252023-1		Mod. PLM ELAP 198.6/TEM ELAP 198.4
647151-1B	04252023-1		Mod. PLM ELAP 198.6/TEM ELAP 198.4
647151-2	04252023-2	Very pale peach colored, slightly clumpy powder with a matte appearance	Mod. PLM ELAP 198.6/TEM ELAP 198.4
647151-2A	04252023-2		Mod. PLM ELAP 198.6/TEM ELAP 198.4
647151-2B	04252023-2		Mod. PLM ELAP 198.6/TEM ELAP 198.4
647151-3	04252023-3	Very pale rose colored, fine powder with a slight pearlescent appearance	Mod. PLM ELAP 198.6/TEM ELAP 198.4
647151-3A	04252023-3		Mod. PLM ELAP 198.6/TEM ELAP 198.4
647151-3B	04252023-3		Mod. PLM ELAP 198.6/TEM ELAP 198.4
647151-4	04252023-4	Cotton candy colored, slightly clumpy powder with a matte appearance	Mod. PLM ELAP 198.6/TEM ELAP 198.4
647151-4A	04252023-4		Mod. PLM ELAP 198.6/TEM ELAP 198.4
647151-4B	04252023-4		Mod. PLM ELAP 198.6/TEM ELAP 198.4
647151-5	04252023-5	White colored, slightly clumpy powder with a matte appearance	Mod. PLM ELAP 198.6/TEM ELAP 198.4
647151-5A	04252023-5		Mod. PLM ELAP 198.6/TEM ELAP 198.4
647151-5B	04252023-5		Mod. PLM ELAP 198.6/TEM ELAP 198.4

AMA Sample No.	Client Sample No.	Sample Description	Analytical Method
647151-6	04252023-6	Off-white colored, slightly clumpy powder with a matte appearance	Mod. PLM ELAP 198.6/TEM ELAP 198.4
647151-6A	04252023-6		Mod. PLM ELAP 198.6/TEM ELAP 198.4
647151-6B	04252023-6		Mod. PLM ELAP 198.6/TEM ELAP 198.4
647151-7	04252023-7	Neon pink colored, slightly clumpy powder with a matte appearance	Mod. PLM ELAP 198.6/TEM ELAP 198.4
647151-7A	04252023-7		Mod. PLM ELAP 198.6/TEM ELAP 198.4
647151-7B	04252023-7		Mod. PLM ELAP 198.6/TEM ELAP 198.4
647151-8	04252023-8	Tan/nude colored, fine powder with a slight pearlescent appearance	Mod. PLM ELAP 198.6/TEM ELAP 198.4
647151-8A	04252023-8		Mod. PLM ELAP 198.6/TEM ELAP 198.4
647151-8B	04252023-8		Mod. PLM ELAP 198.6/TEM ELAP 198.4
647151-9	04252023-9	Black colored, fine powder with a matte appearance	Mod. PLM ELAP 198.6/TEM ELAP 198.4
647151-9A	04252023-9		Mod. PLM ELAP 198.6/TEM ELAP 198.4
647151-9B	04252023-9		Mod. PLM ELAP 198.6/TEM ELAP 198.4
647151-10	04252023-10	Taupe/nude colored, sightly clumpy powder with a matte appearance	Mod. PLM ELAP 198.6/TEM ELAP 198.4
647151-10A	04252023-10		Mod. PLM ELAP 198.6/TEM ELAP 198.4
647151-10B	04252023-10		Mod. PLM ELAP 198.6/TEM ELAP 198.4
647151-11	04252023-11	Dark rust colored, sightly clumpy powder with a matte appearance	Mod. PLM ELAP 198.6/TEM ELAP 198.4
647151-11A	04252023-11		Mod. PLM ELAP 198.6/TEM ELAP 198.4
647151-11B	04252023-11		Mod. PLM ELAP 198.6/TEM ELAP 198.4
647151-12	04252023-12	Light gray colored, slightly clumpy powder with a matte appearance	Mod. PLM ELAP 198.6/TEM ELAP 198.4
647151-12A	04252023-12		Mod. PLM ELAP 198.6/TEM ELAP 198.4

AMA Sample No.	Client Sample No.	Sample Description	Analytical Method
647151-12B	04252023-12		Mod. PLM ELAP 198.6/TEM ELAP 198.4
647151-13	04252023-13	Brown colored, slightly clumpy powder with a slight pearlescent appearance	Mod. PLM ELAP 198.6/TEM ELAP 198.4
647151-13A	04252023-13		Mod. PLM ELAP 198.6/TEM ELAP 198.4
647151-13B	04252023-13		Mod. PLM ELAP 198.6/TEM ELAP 198.4
647151-14	04252023-14	Dark rose colored, slightly clumpy powder with a slight pearlescent appearance	Mod. PLM ELAP 198.6/TEM ELAP 198.4
647151-14A	04252023-14		Mod. PLM ELAP 198.6/TEM ELAP 198.4
647151-14B	04252023-14		Mod. PLM ELAP 198.6/TEM ELAP 198.4
647151-15	04252023-15	Mauve pink colored, fine powder with a matte appearance	Mod. PLM ELAP 198.6/TEM ELAP 198.4
647151-15A	04252023-15		Mod. PLM ELAP 198.6/TEM ELAP 198.4
647151-15B	04252023-15		Mod. PLM ELAP 198.6/TEM ELAP 198.4
647151-16	04252023-16	Very pale pink colored, fine powder with a matte appearance	Mod. PLM ELAP 198.6/TEM ELAP 198.4
647151-16A	04252023-16		Mod. PLM ELAP 198.6/TEM ELAP 198.4
647151-16B	04252023-16		Mod. PLM ELAP 198.6/TEM ELAP 198.4
647151-17	04252023-17	Mauve colored, fine powder with a slight pearlescent appearance.	Mod. PLM ELAP 198.6/TEM ELAP 198.4
647151-17A	04252023-17		Mod. PLM ELAP 198.6/TEM ELAP 198.4
647151-17B	04252023-17		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

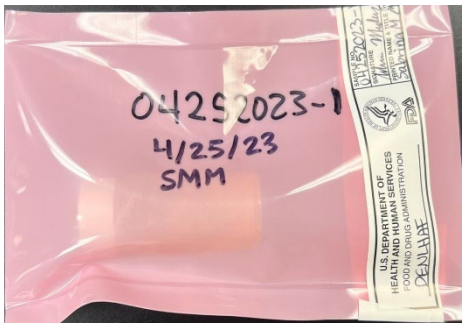
Sample Receipt Description

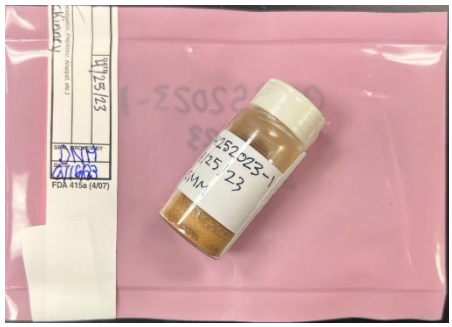
The samples were received at AMA Analytical Services, Inc. on May 10, 2023, at 09:47 via UPS Tracking No. (b) (6) by (b) (6), who assigned them to Chain of Custody (COC) No. 647151. This COC number served as the internal laboratory job number for tracking purposes. The set consisted of seventeen (17) powder samples

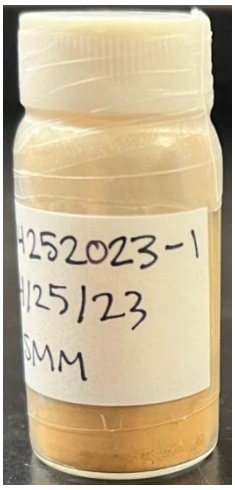
submitted in ~1-oz glass jars; each jar of powder was sealed with parafilm and individually packaged in a pink vacuum and custody sealed plastic bag. Conditions were checked upon receipt and all sample containers and custody seals were intact. The samples were entered into the AMA laboratory database on June 16, 2023, at 12:54 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 samples were also stored in AMA's lockbox in during period between and login.

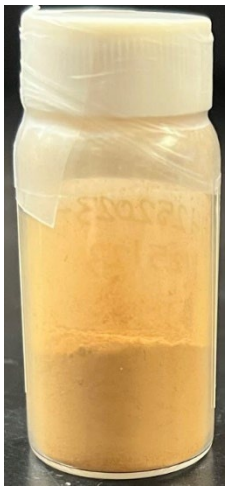
The following pictures document the condition of samples upon receipt at AMA:

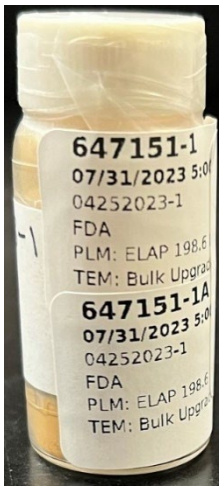
647151-1, 1A, 1B/04252023-1

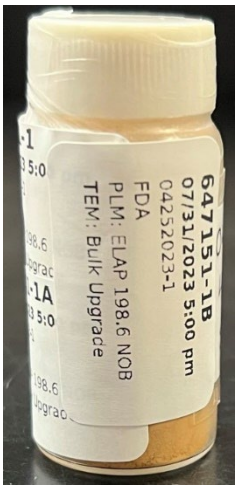


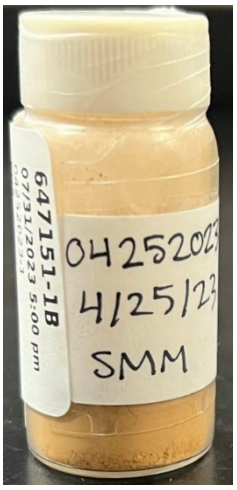


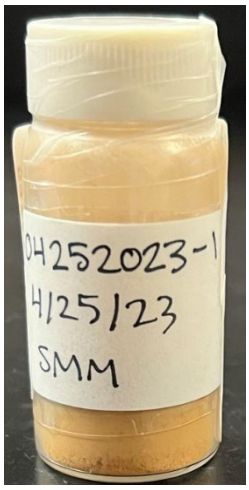












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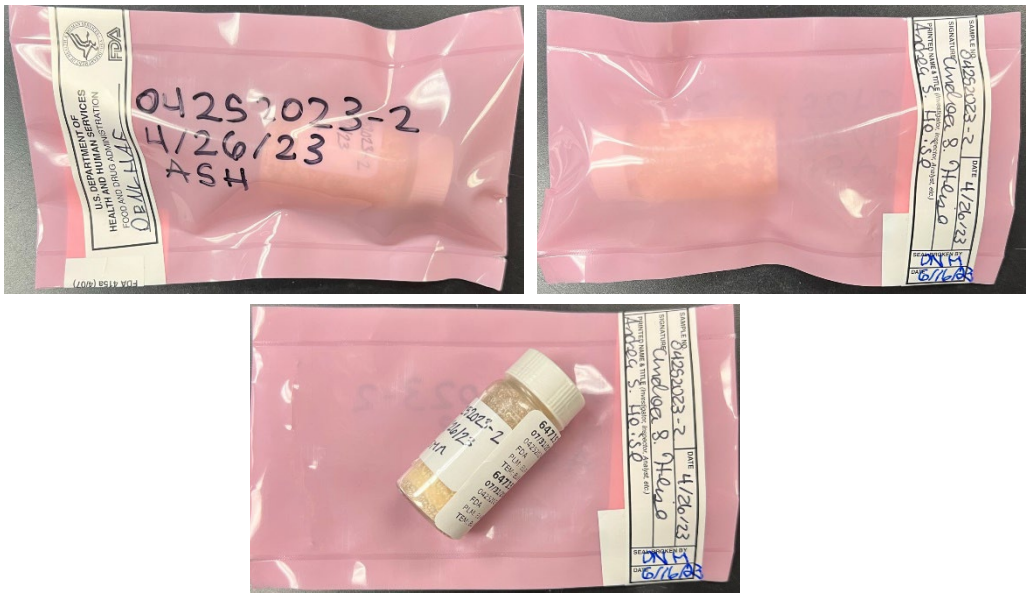

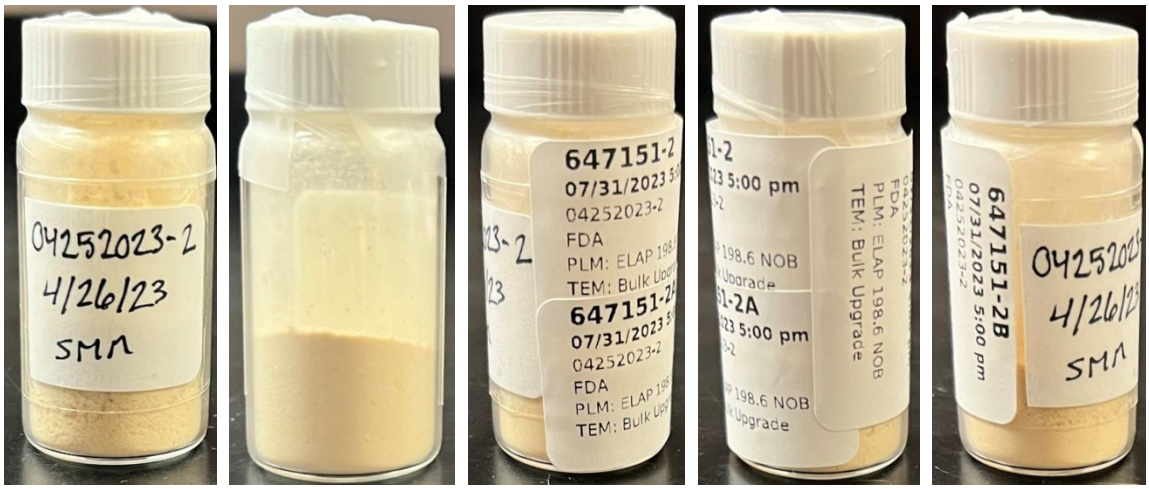

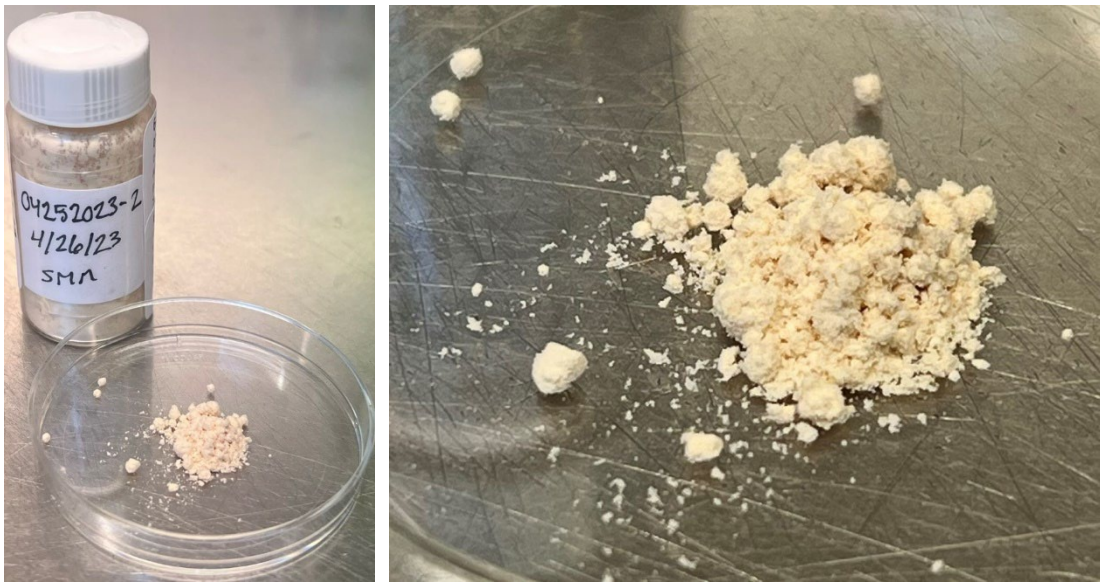

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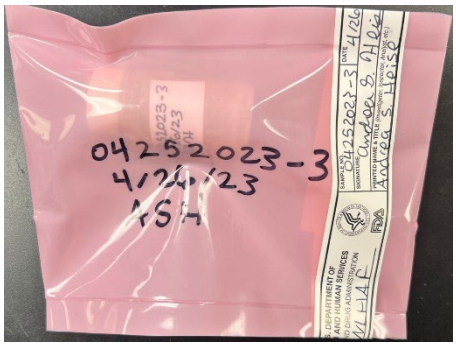

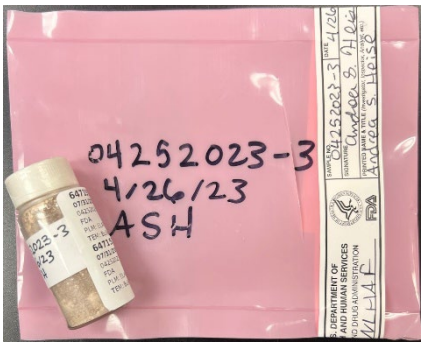

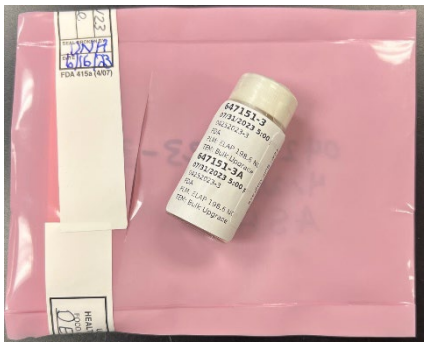

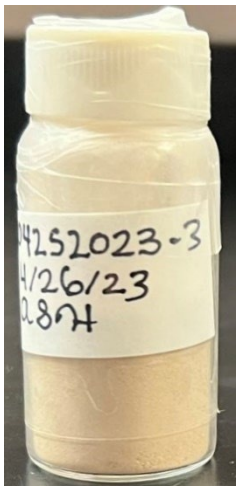

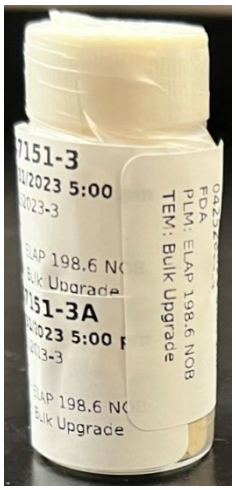

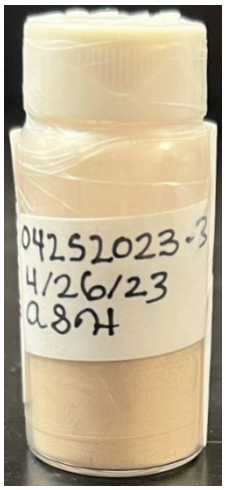

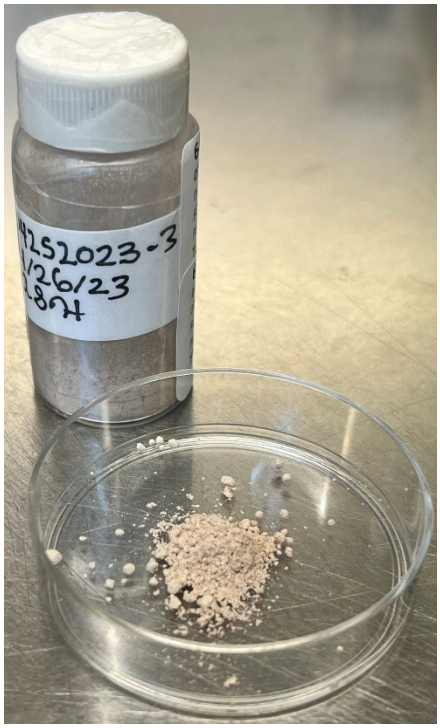

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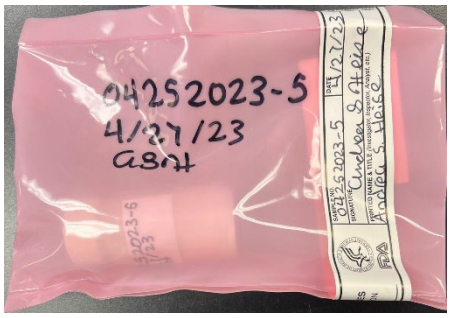

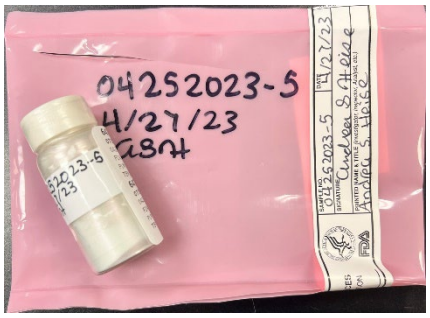

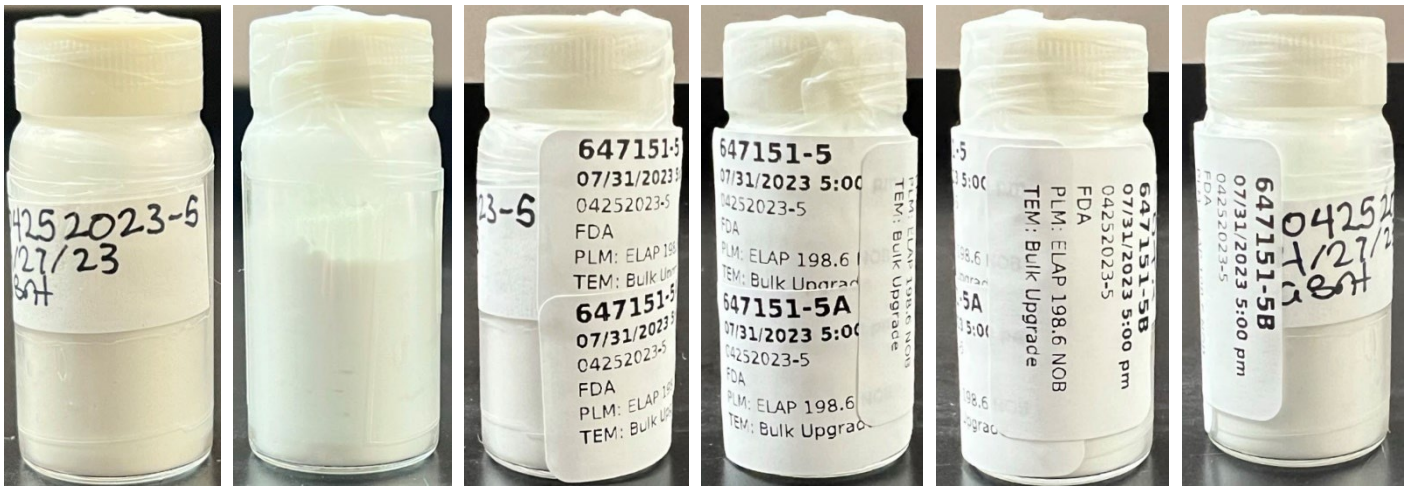

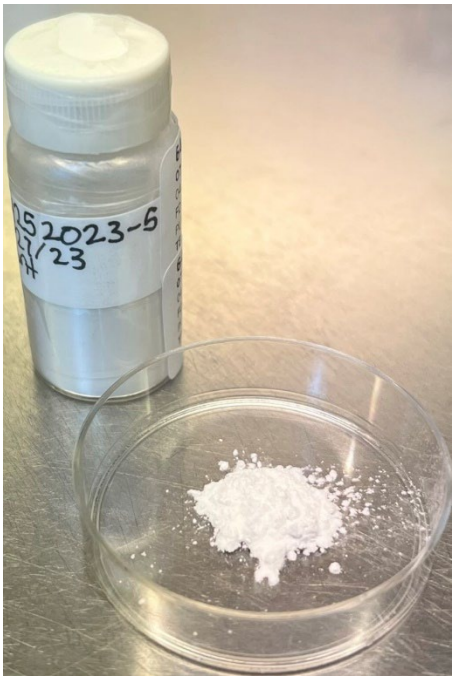

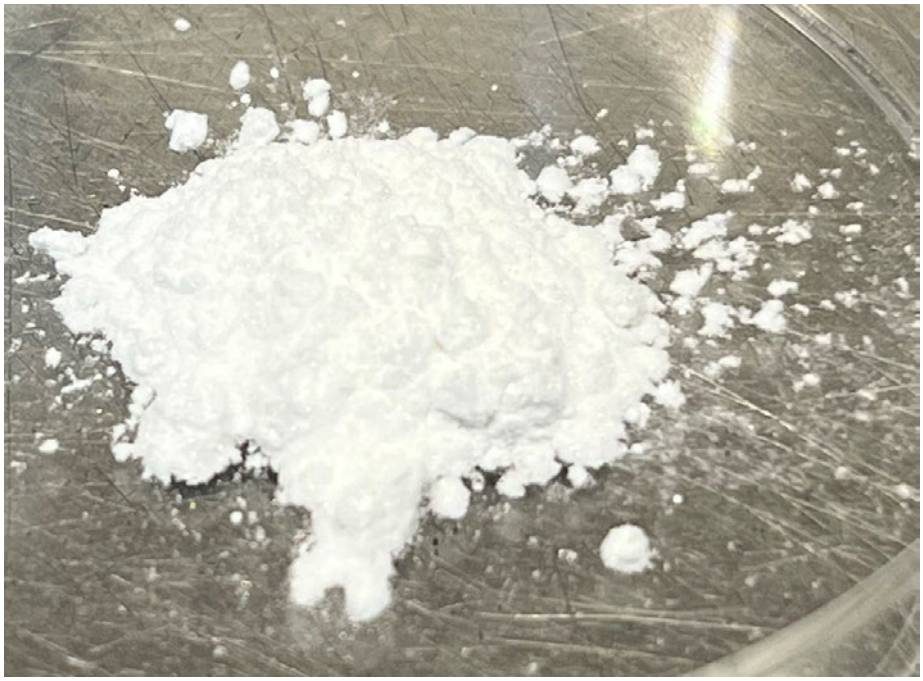

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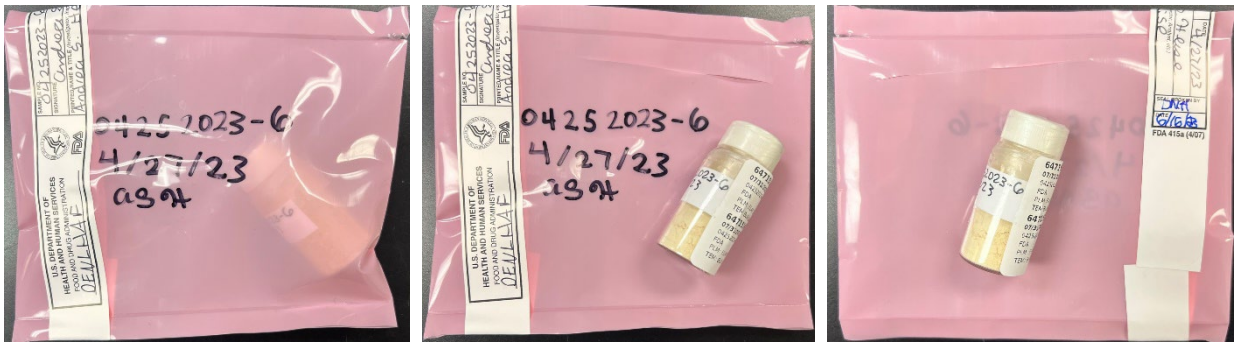

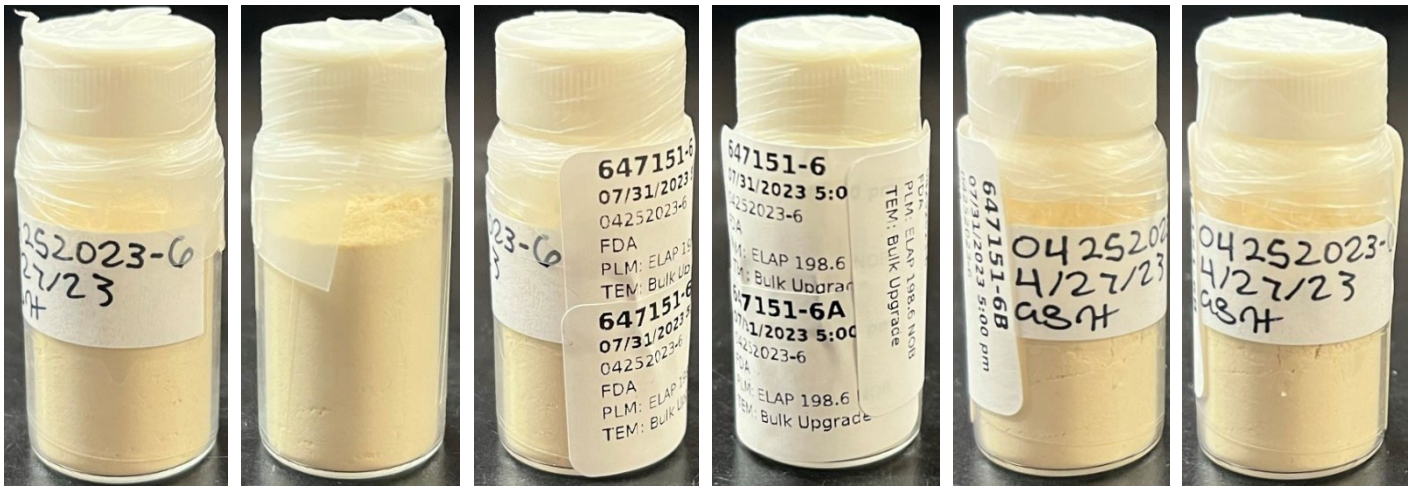

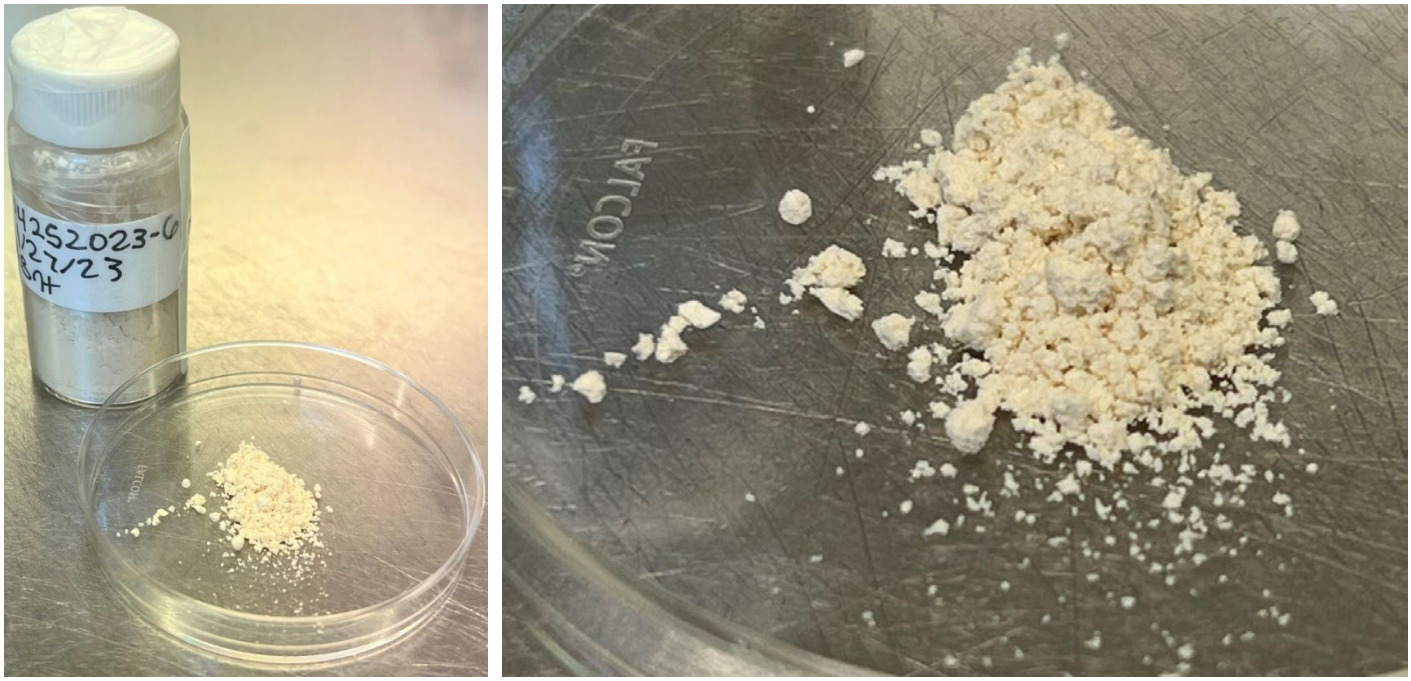

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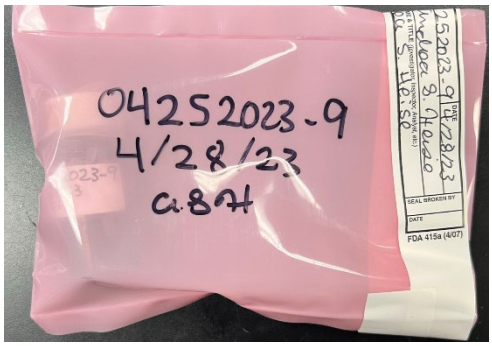

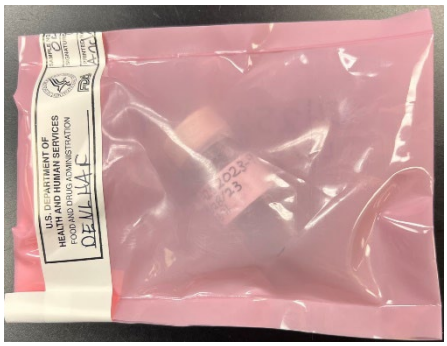

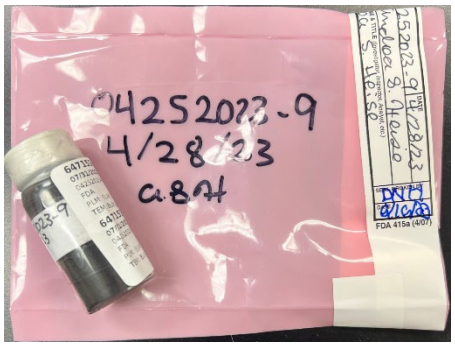

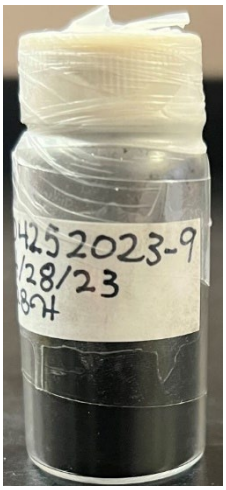

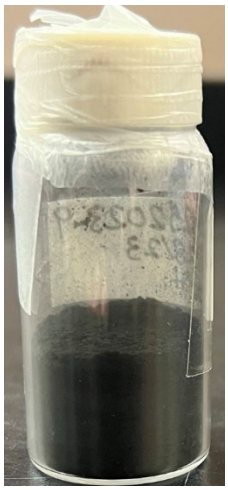

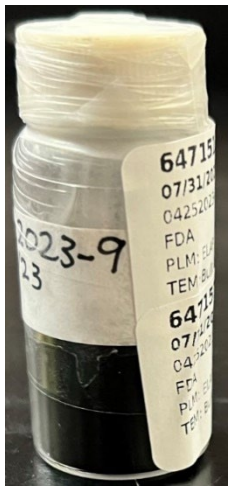

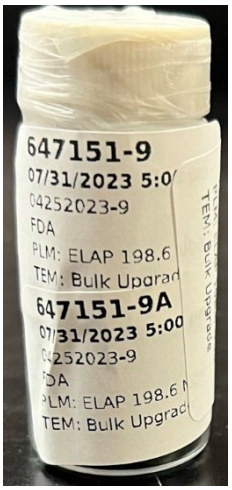

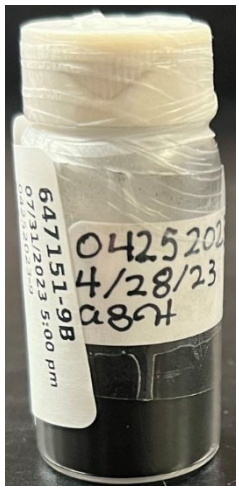

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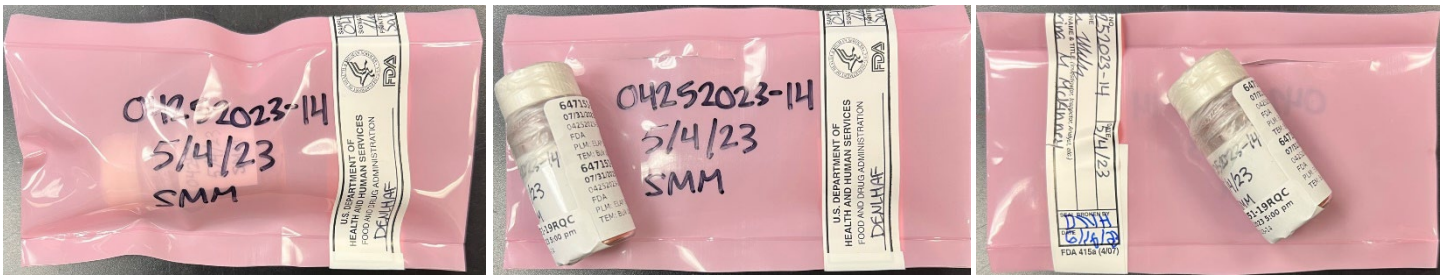

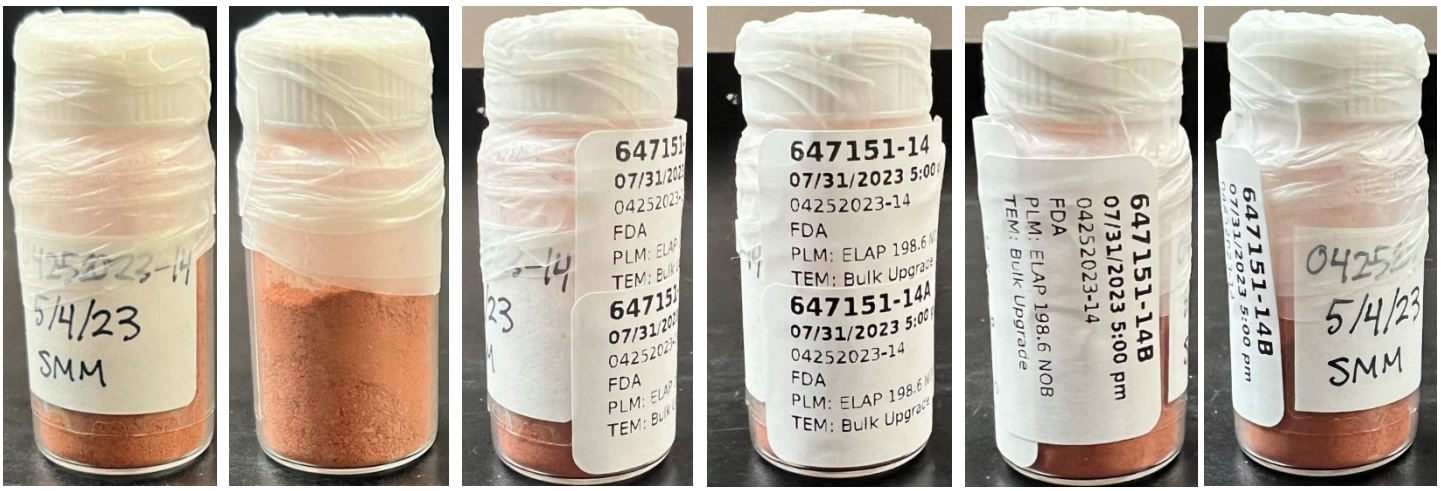

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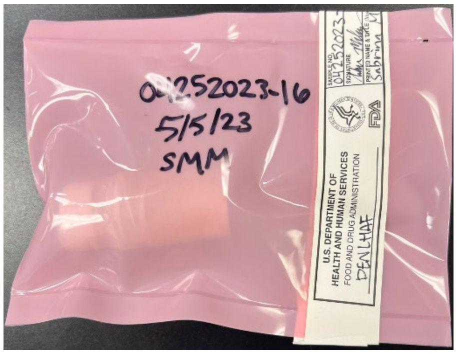
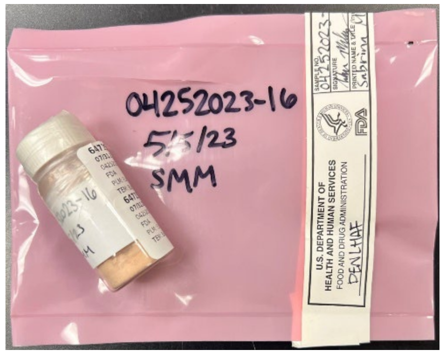
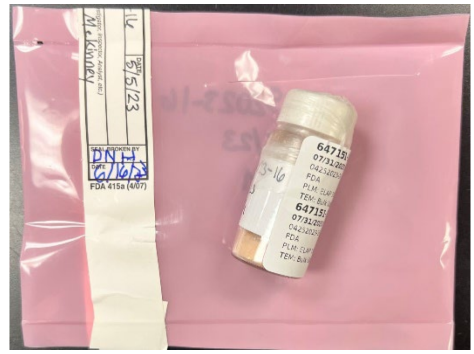
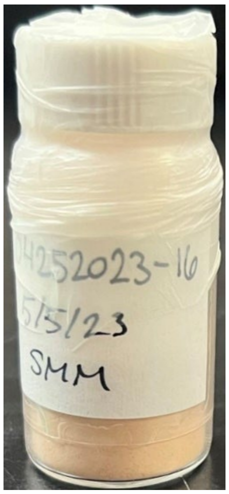
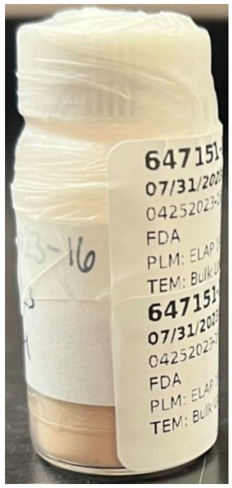
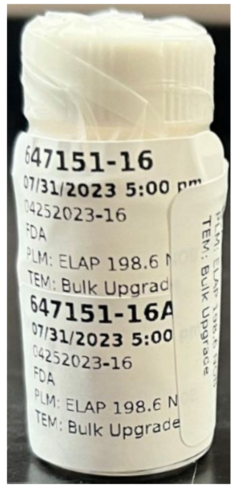


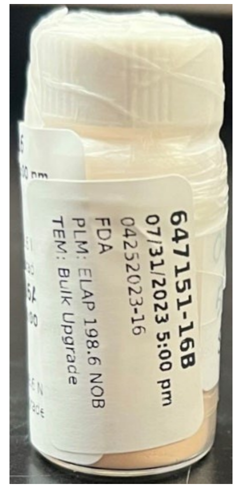


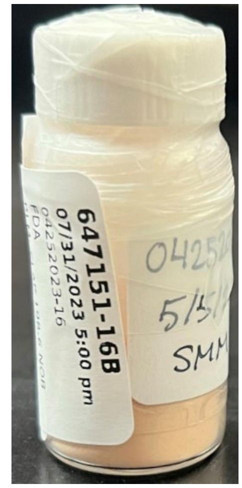




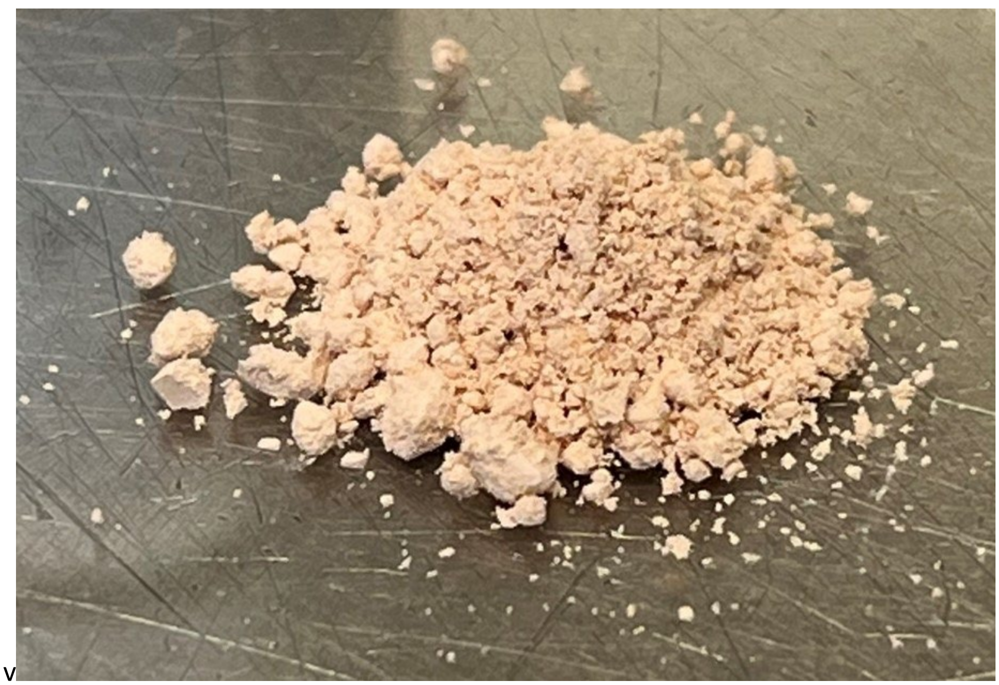




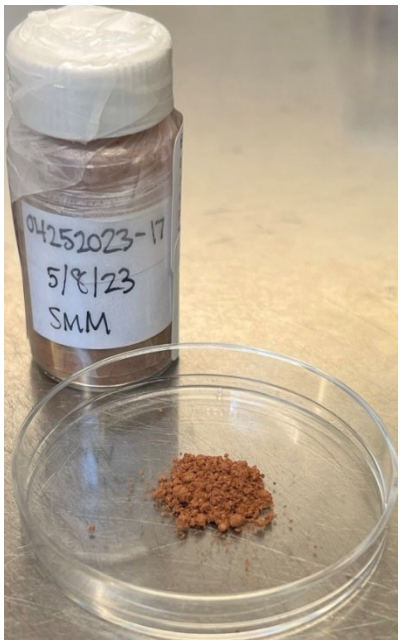




v



647151-17, 17A, 17B/04252023-17



Sample Preparation

Samples were gravimetrically reduced and filtered by (b) (6) on: June 16, 2023 through June 23, 2023 for 647151-1 through 647151-3B, and NB23-357/358; June 23, 2023 through June 27, 2023 for 647151-4 through 647151-6B, and NB23-370/371; July 6, 2023 through July 12, 2023 for 647151-7 through 647151-9B, and NB23-385/386; July 13, 2023 through July 17, 2023 for 647151-10 through 647151-13B, 647151-18DQC, 647151-20RQC, and NB23-391/392; and July 19, 2023 through July 21, 2023 for 647151-14 through 647151-17B, 647151-19RQC, and NB23-396/397. PLM slide preparations were made by (b) (6) on: June 16, 2023 for 647151-1 through 647151-3B, and NB23-358; June 26, 2023 for 647151-4 through 647151-6B, and NB23-371; July 7, 2023 for 647151-8 through 647151-9B, and NB23-386; July 14, 2023 for 647151-10 through 647151-13B, 647151-18DQC, 647151-20RQC, and NB23-392; and July 20, 2023 for 647151-14 through 647151-17B, 647151-19RQC, and NB23-397. TEM grid preparations were made by: (b) (6) on June 26, 2023 for 647151-1 through 647151-3B, and NB23-357; (b) (6) on July 5, 2023 for 647151-4 through 647151-6B, and NB23-370; (b) (6) on July 18, 2023, for 647151-7 through 647151-9B, and NB23-385; (b) (6) on July 19, 2023 for 647151-10 through 647151-13B, 647151-18DQC, 647151-20RQC, and NB23-391; and (b) (6) on July 25, 2023 for 6647151-14 through 647151-17B, 647151-19RQC, and NB23-396. 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 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 a 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 either a JEOL JEM-100CX II transmission electron microscope (TEM) equipped with ThermoFisher NSS System 7 Energy Dispersive X-Ray Analyzer (EDXA) or a JEOL 1400 Flash equipped with ThermoFisher Pathfinder Energy Dispersive X-Ray Analyzer (EDXA), at magnifications of 19,000x or 20,000x. All TEM scopes are equipped with a Selective Area Electron Diffraction (SAED) setting that allows the operator to view the diffraction pattern of any mineral substance. Twenty (20) grid openings over two (2) grids were examined for each aliquot.

Modifications to the NY ELAP 198.4 Method were:

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

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

Calculations

TEM ASTM D5756 Mass:

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

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

Gravimetric Reduction Percentages:

Organic: ((W1 – W2) * 100/W1

Acid Soluble: ((W2 – W3) * 100/W1

Other* Percent: ((W3/W1) * 100) – Calculated Asbestos %

*Other is defined as the non-asbestos, inorganic, acid insoluble portion of the sample

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

Asbestos Percent Calculation:

TEM

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

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

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

PLM

(ASB * W3)/W1

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

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

Limit of Detection and Quantification

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

Discussion and Interpretation of Analytical Findings

647151-1, 1A, 1B/Client Sample: 04252023-1

PLM

All three aliquots of sample 04252023-1 were analyzed by (b) (6) on July 31, 2023. No asbestos or non-asbestos amphibole variants were observed during analysis. The results were calculated using the equations detailed in the *Calculations* section above.

647151-1	No Asbestos Detected
647151-1A	No Asbestos Detected
647151-1B	No Asbestos Detected

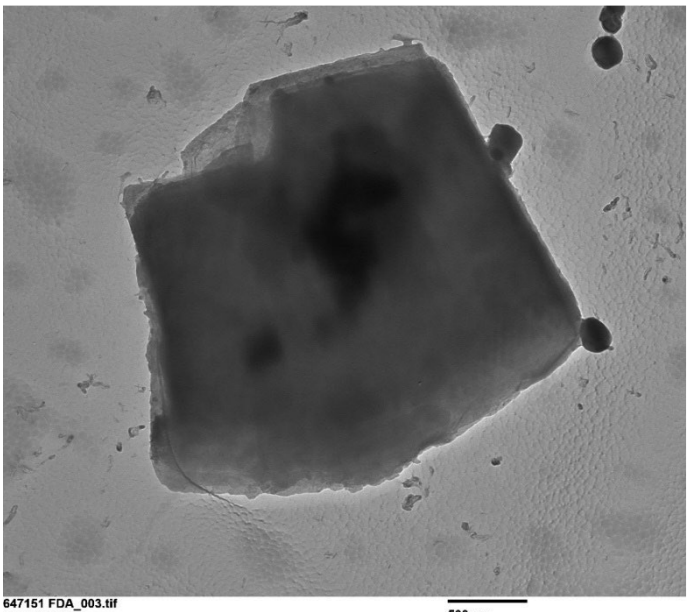
TEM

(b) (6) analyzed aliquot 1 on July 5, 2023. (b) (6) analyzed aliquot 1A on July 7, 2023, and (b) (6) analyzed aliquot 1B on July 10, 2023. The primary particle observed was talc; titanium particles were also observed along with talc ribbons/fibers, silica spheres, carbon particles, 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.

647151-1	No Asbestos Detected
647151-1A	No Asbestos Detected
647151-1B	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, beryllium, and carbon from the TEM specimen holder.

647151-1, Talc Particle

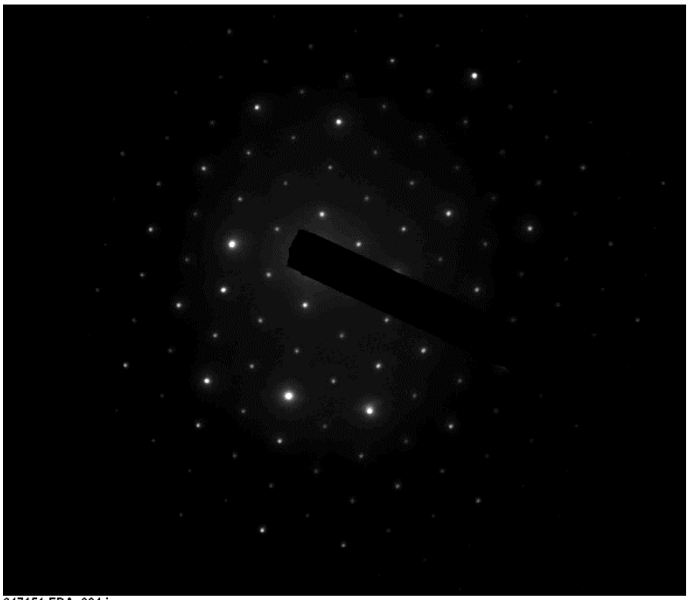


647151 FDA_003.tif
647151 FDA
Talc

Cal: 0.001612 µm/pix
11:04 2023-07-05
TEM Mode: Imaging
Microscopist: (b) (6)
Camera: NS6, Exposure: 500 (ms) x 3 std. frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

500 nm
HV=80kV
Direct Mag: 6000 x

Hexagonal Diffraction Pattern from the Talc Particle Pictured Above

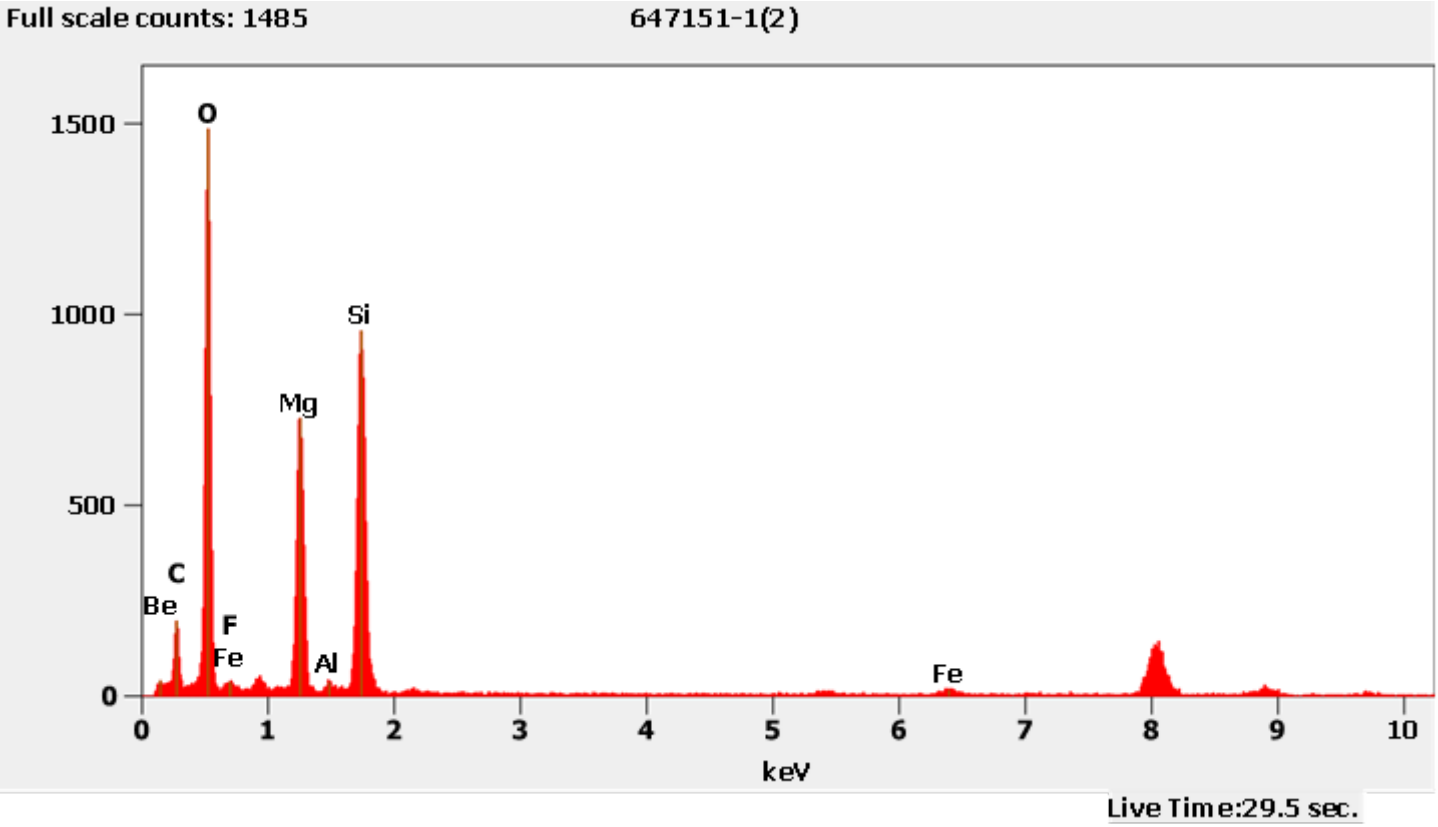


647151 FDA_004.jpg
647151 FDA
Talc

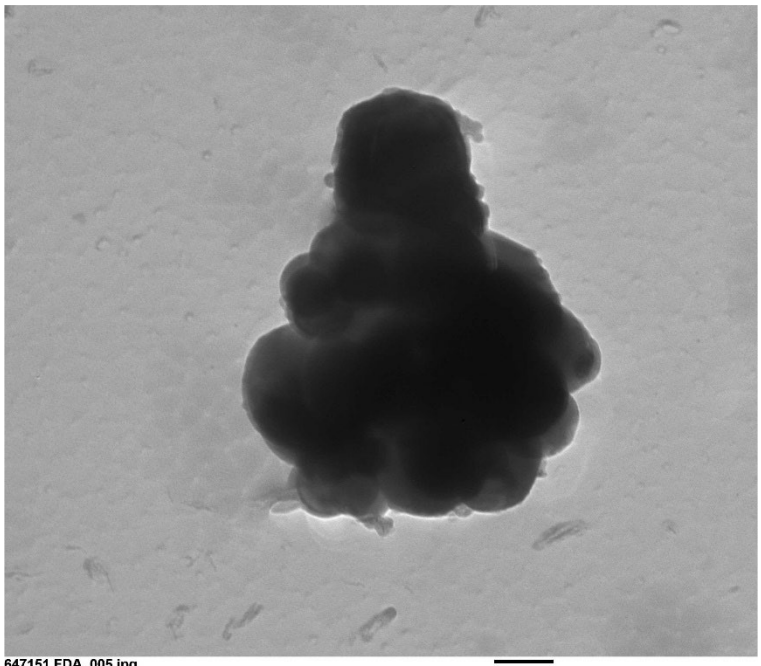
Cal: 0.001612 µm/pix
11:05 2023-07-05
TEM Mode: Diffraction
Microscopist: (b) (6)
Camera: NS6, Exposure: 500 (ms) x 3 std. frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

0.2 Å^{-1}
HV=80kV
Cam Len: 0.2000 m

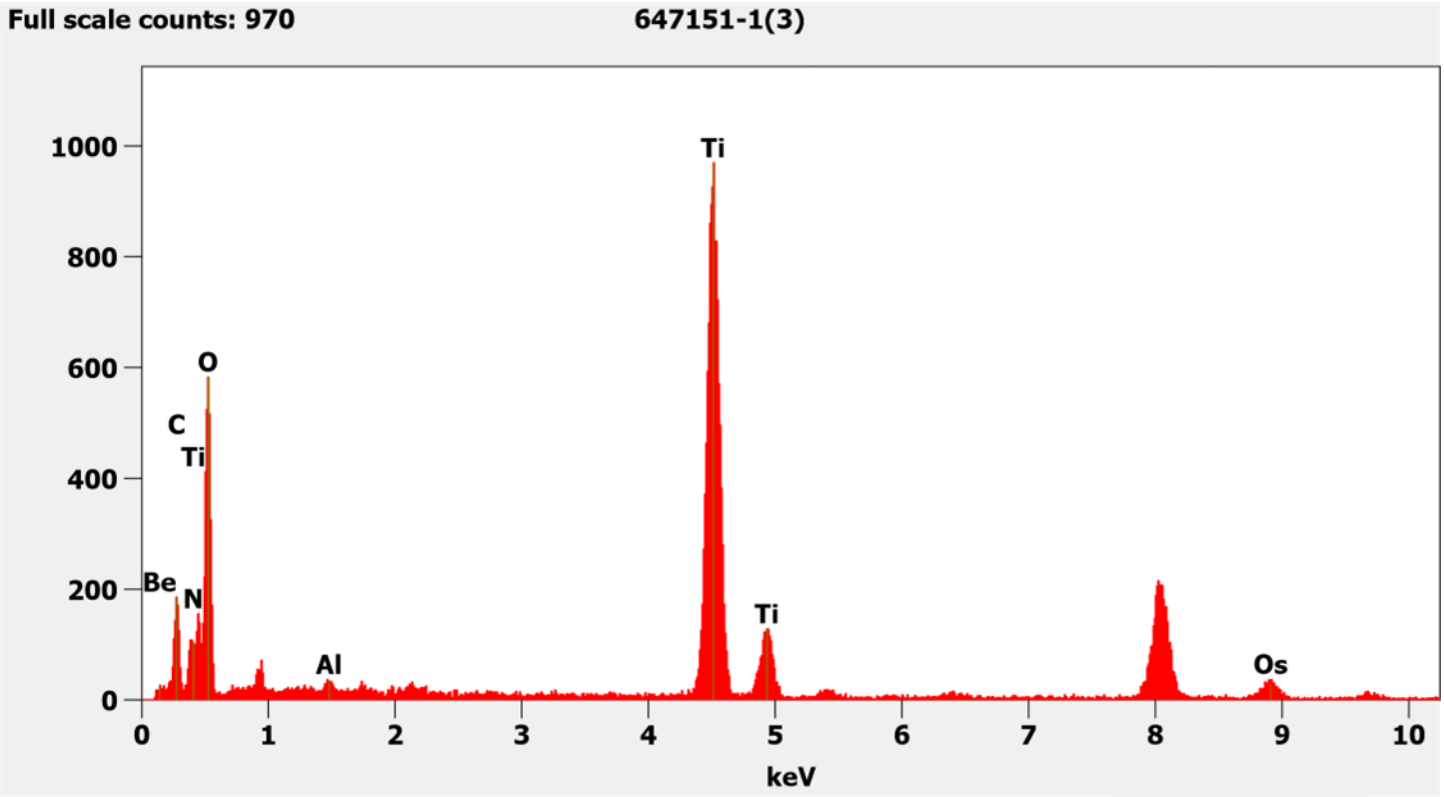
Chemistry from the Talc Particle Pictured Above



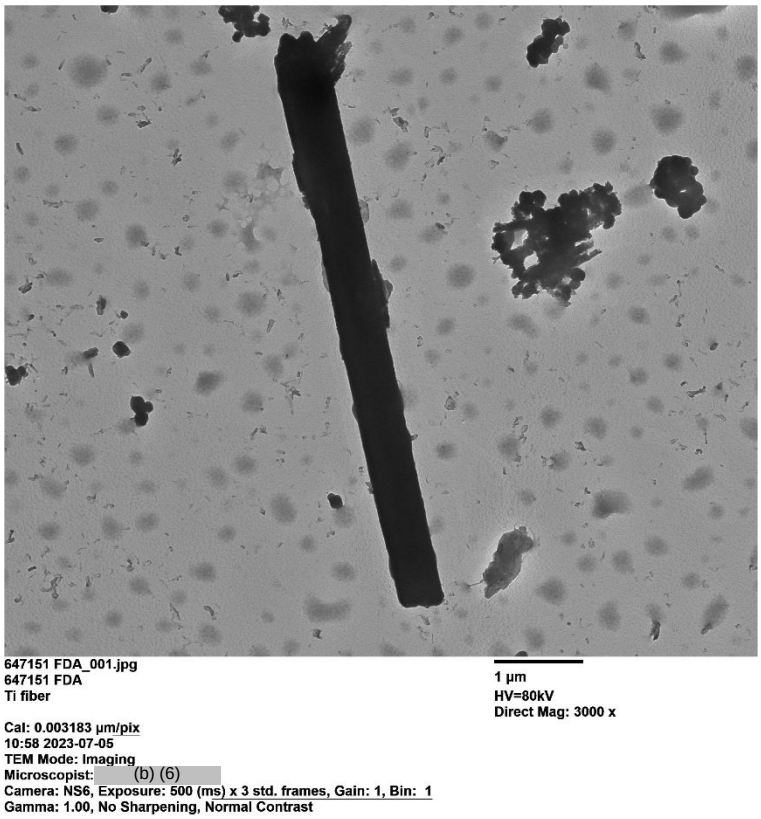
647151-1, Titanium Particles



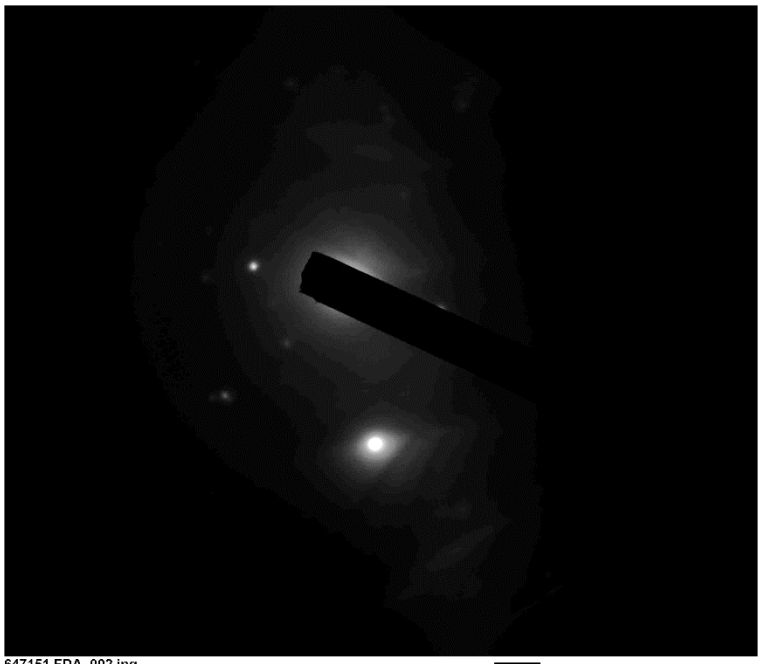
Chemistry from the Titanium Particles Pictured Above



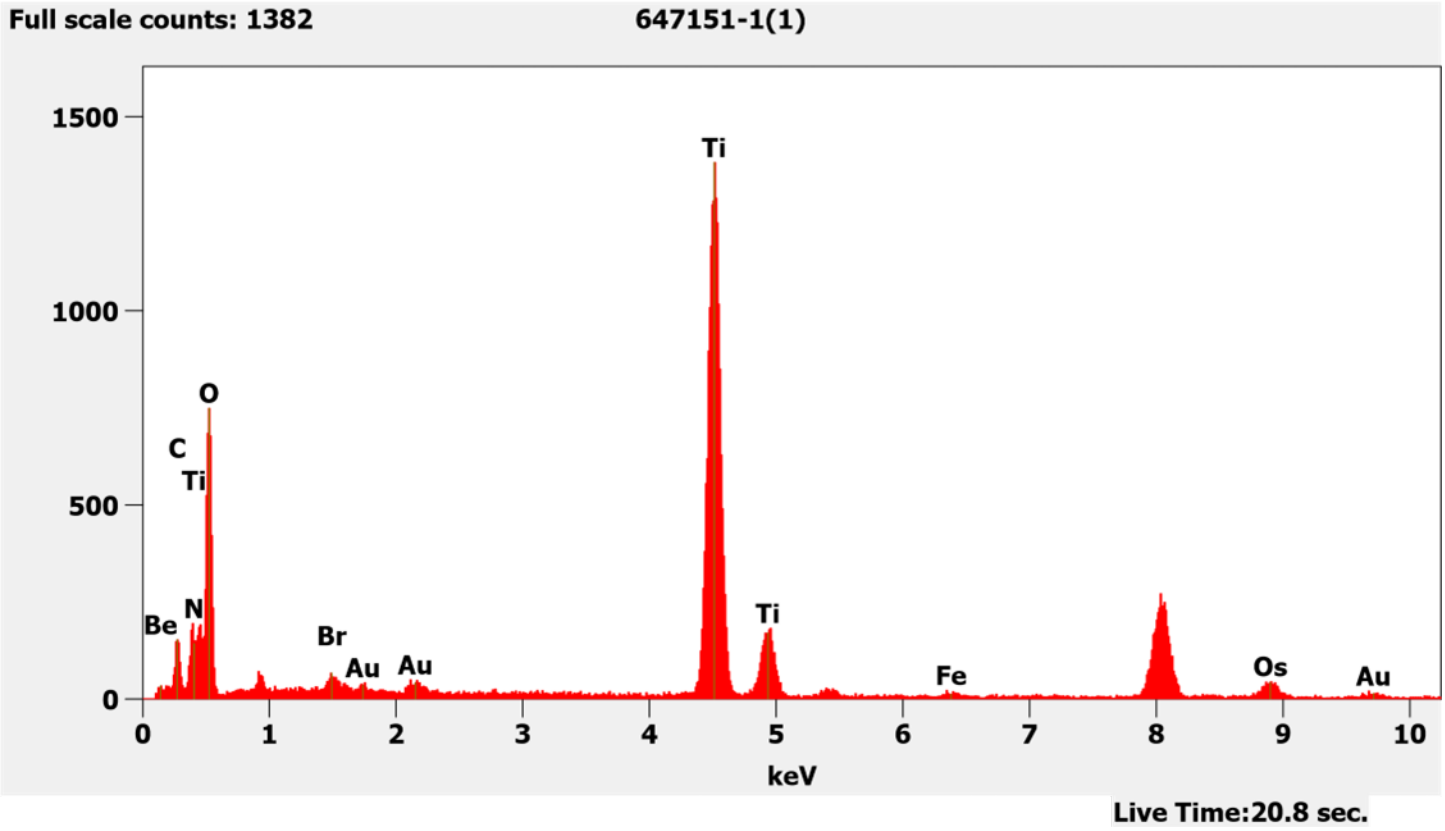
647151-1, Elongated Titanium Particle



Diffraction Pattern from the Elongated Titanium Particle Pictured Above



Chemistry from the Elongated Titanium Particle Pictured Above



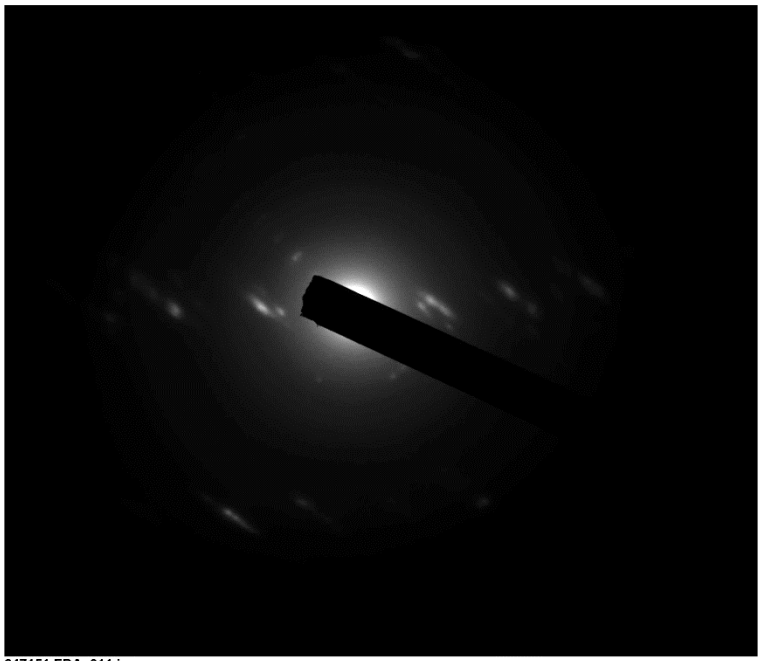
647151-1, Talc Ribbon

647151 FDA_012.jpg
647151 FDA
Talc ribbon

Cal: 0.000817 µm/pix
14:20 2023-07-05
TEM Mode: Imaging
Microscopist: (b) (6)
Camera: NS6, Exposure: 500 (ms) x 3 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

200 nm
HV=80kV
Direct Mag: 12000 x

Diffraction Pattern from the Talc Ribbon Pictured Above

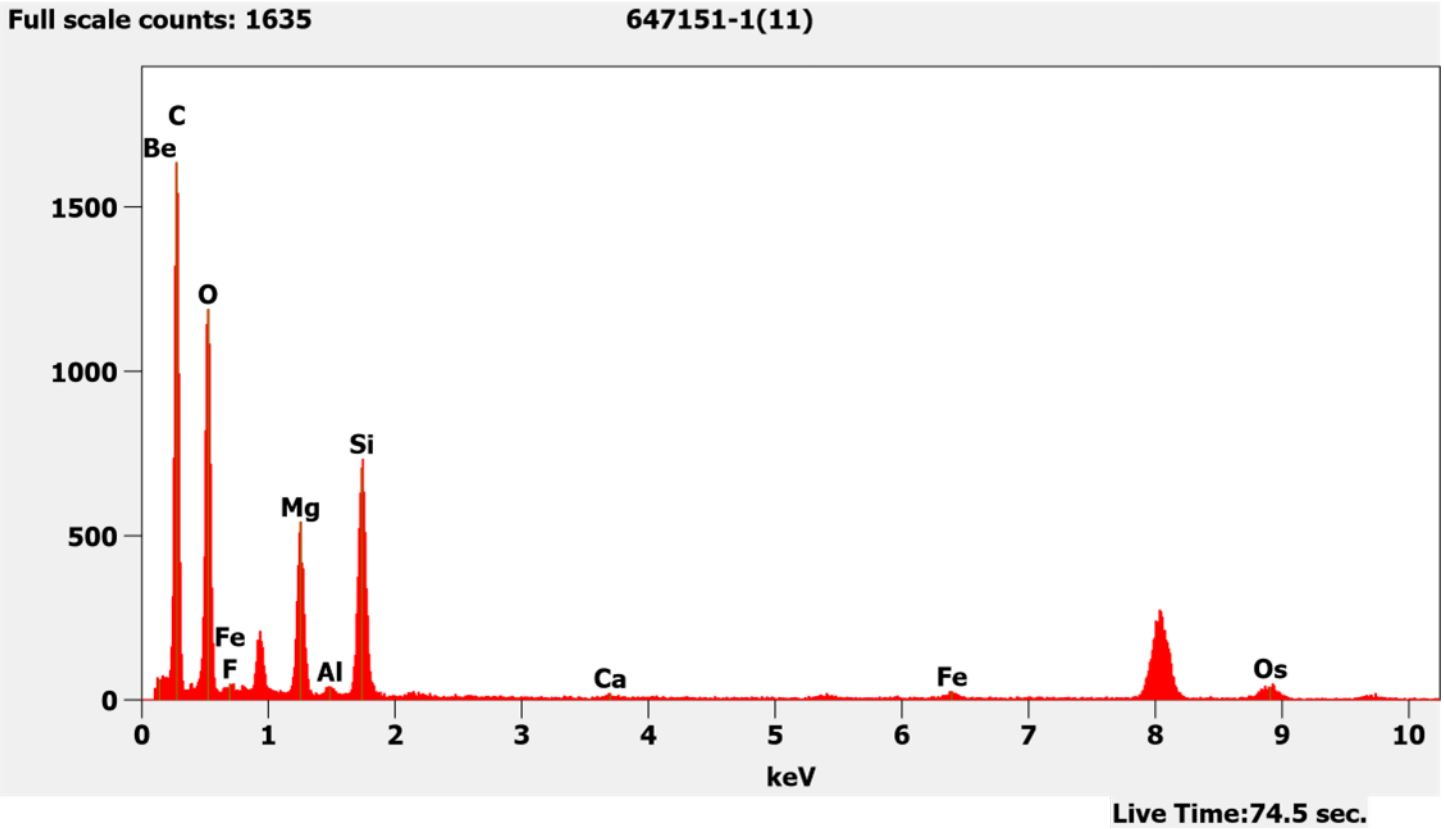


647151 FDA_011.jpg
647151 FDA
Talc ribbon

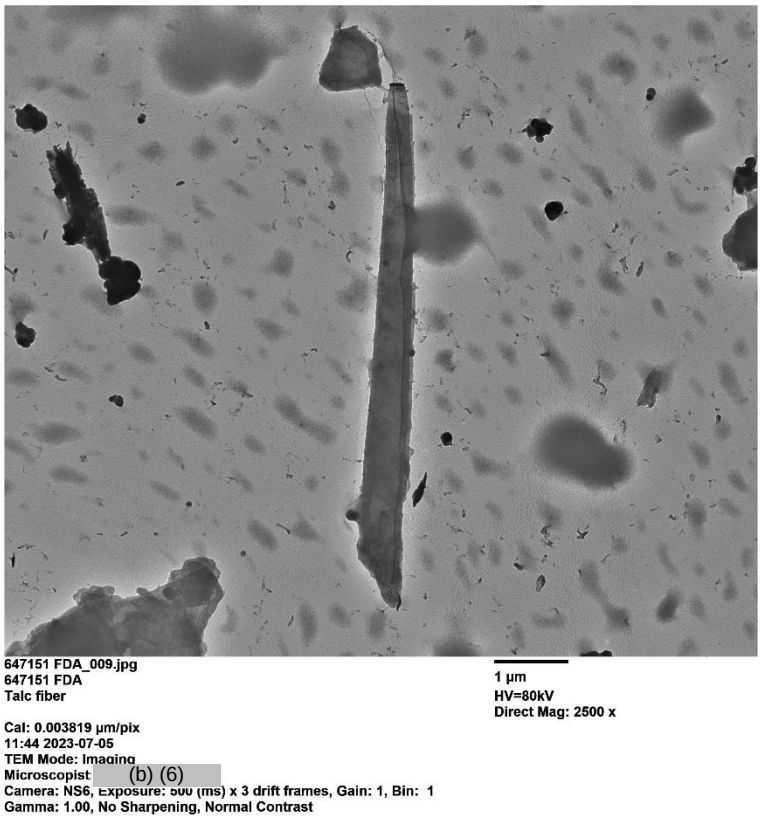
Cal: 0.000955 µm/pix
14:18 2023-07-05
TEM Mode: Diffraction
Microscopist: (b) (6)
Camera: NS6, Exposure: 500 (ms) x 3 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

0.2 Å⁻¹
HV=80kV
Cam Len: 0.2000 m

Chemistry from the Talc Ribbon Pictured Above

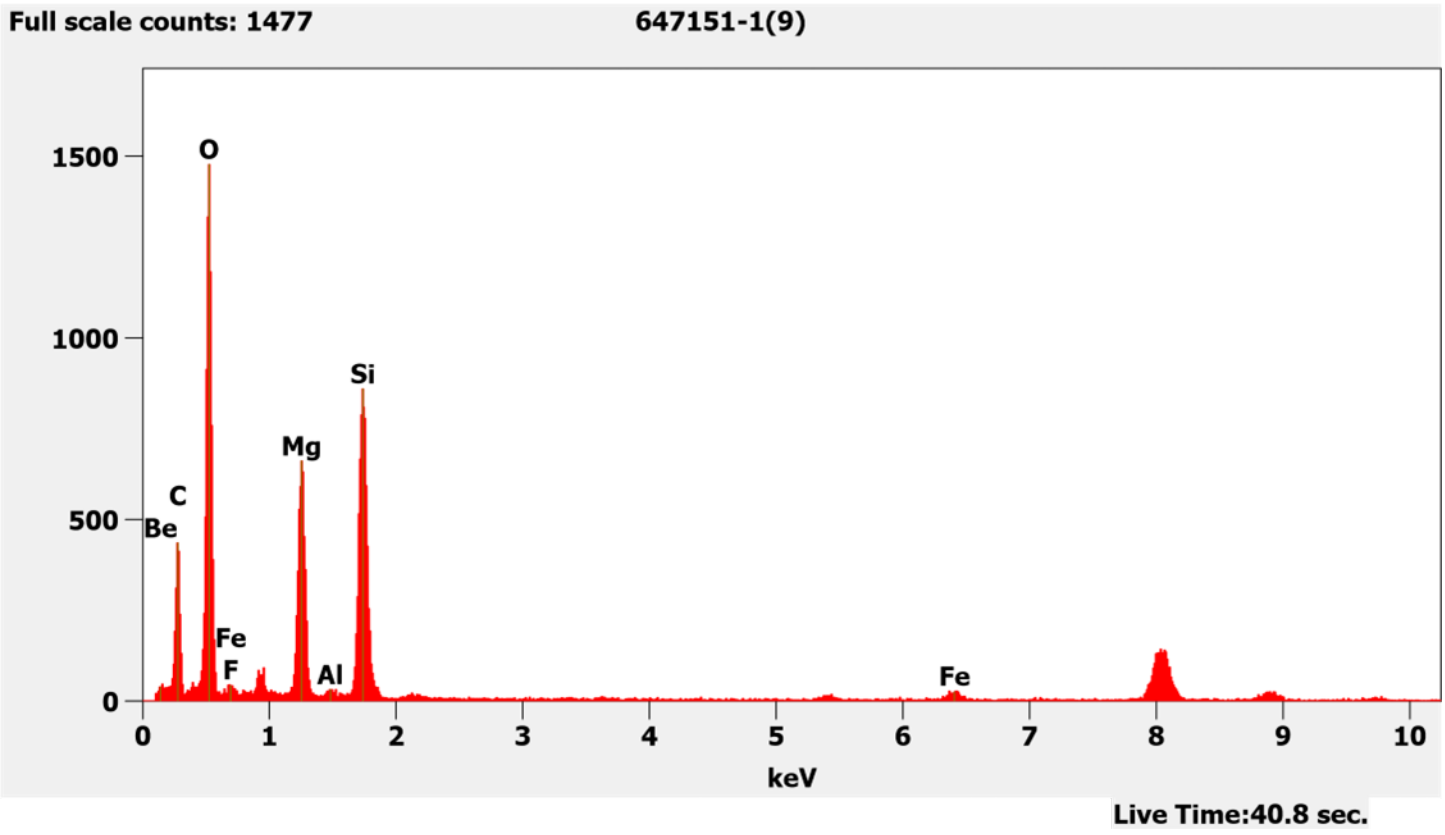


647151-1, Elongated Talc Particle

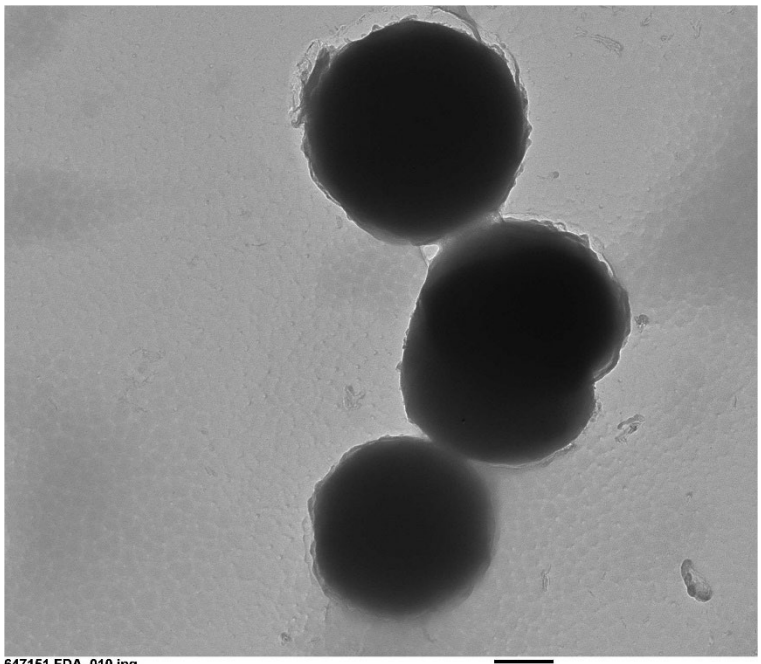


Hexagonal Diffraction Pattern from the Elongated Talc Particle Pictured Above

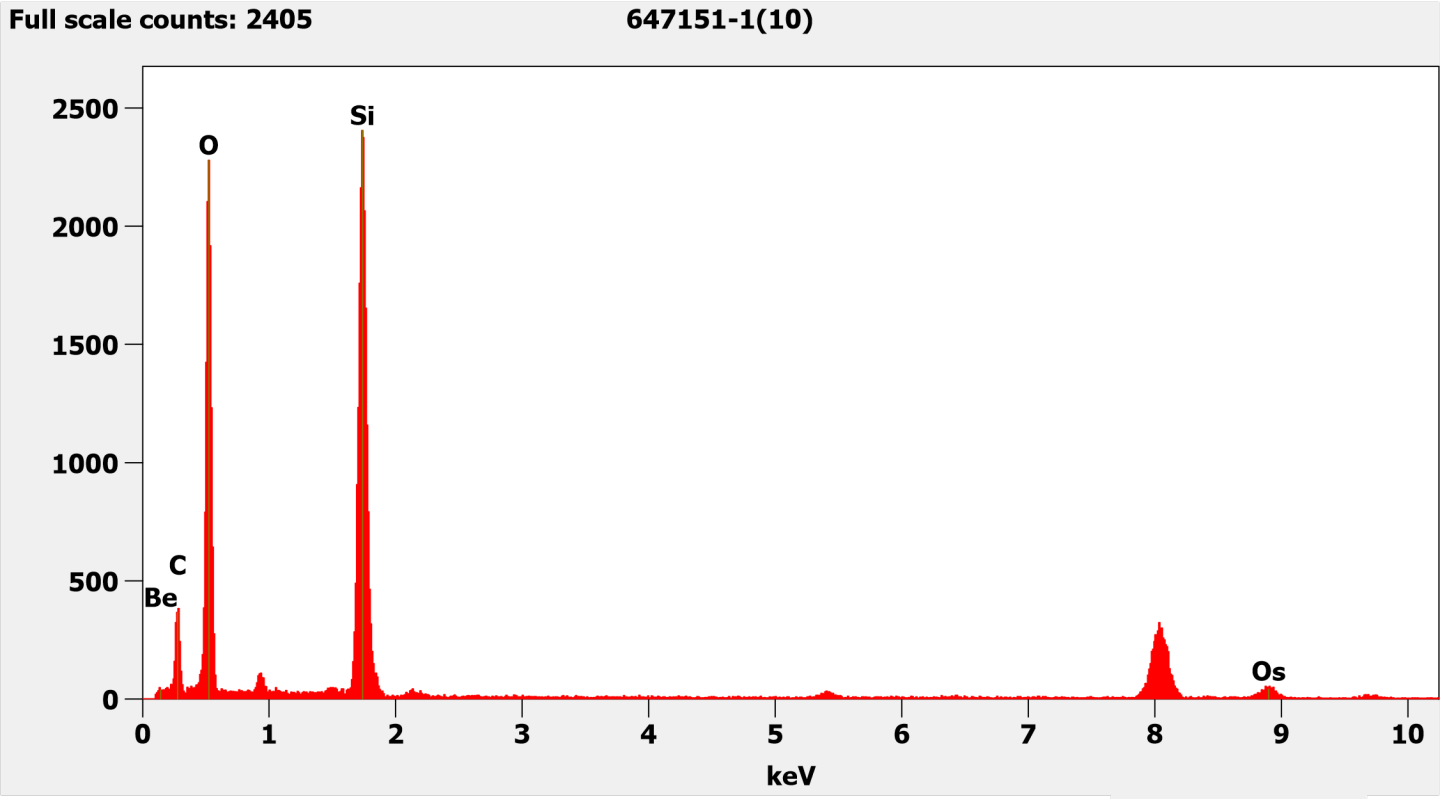
Chemistry from the Elongated Talc Particle Pictured Above



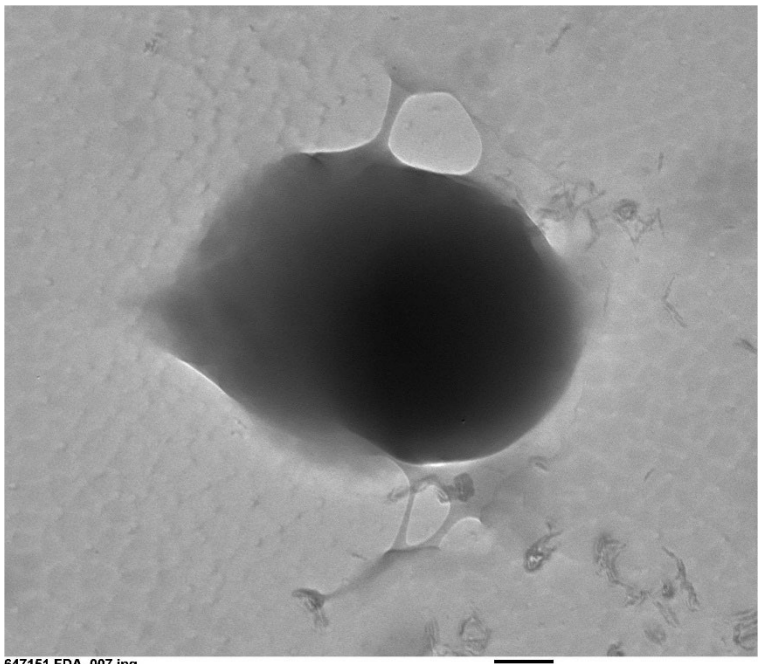
647151-1, Silica Spheres



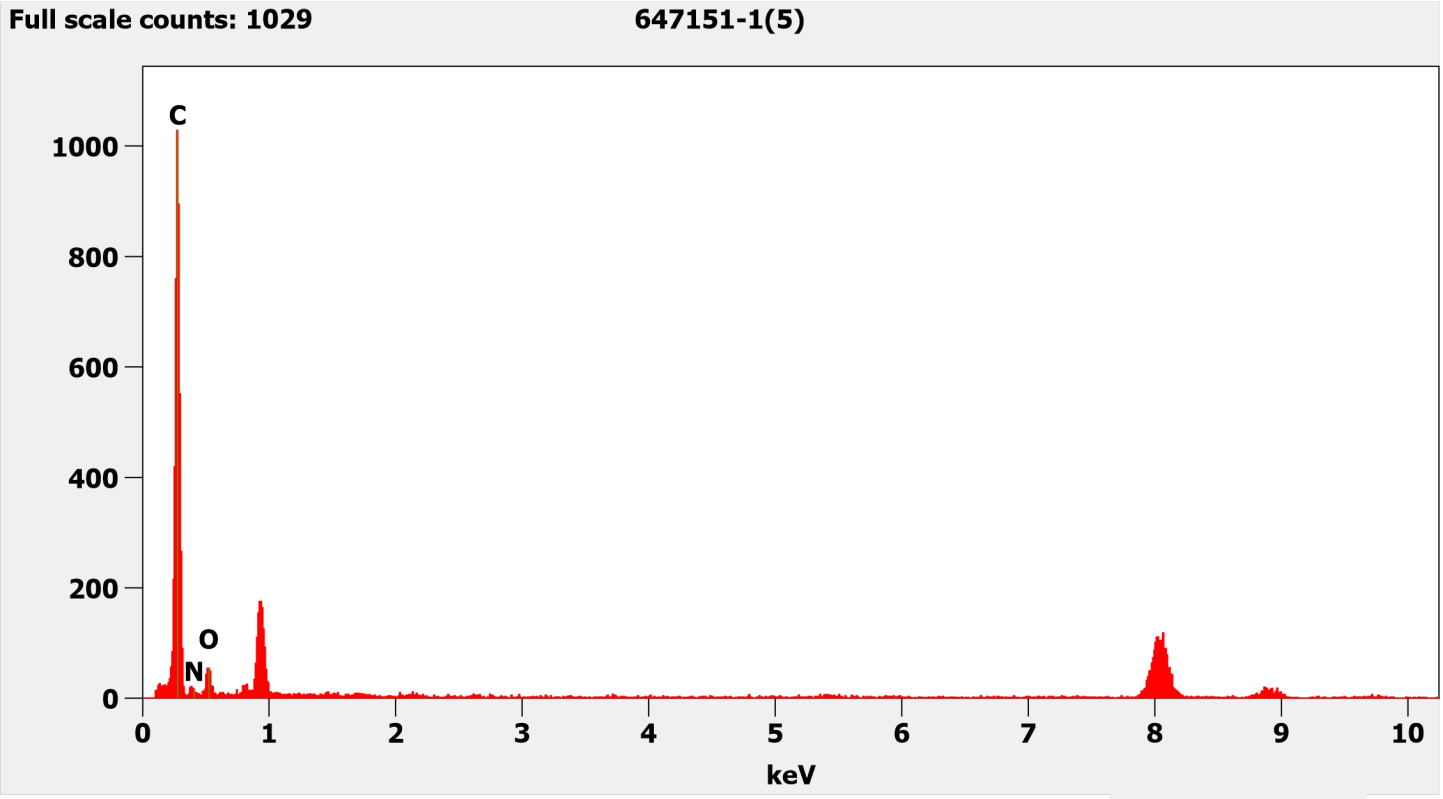
Chemistry from the Silica Spheres Pictured Above



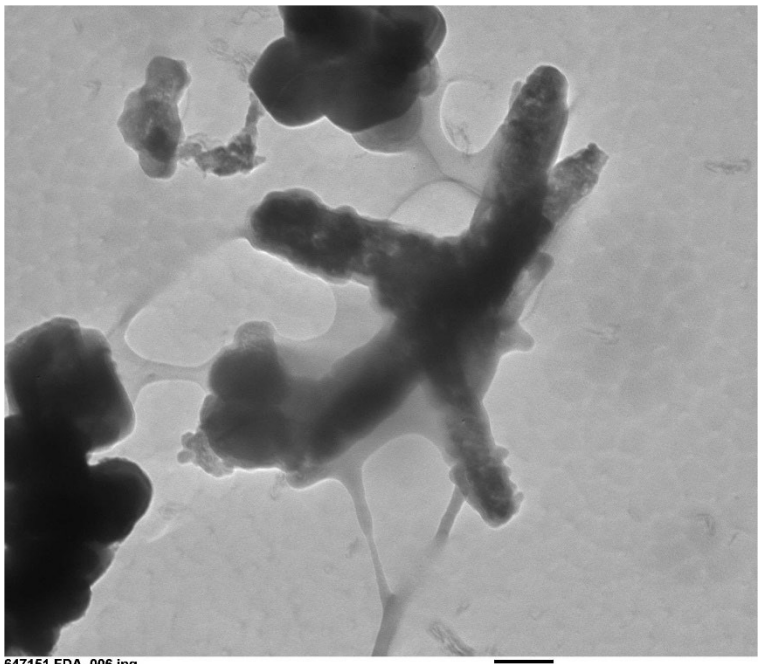
647151-1, Carbon Particle



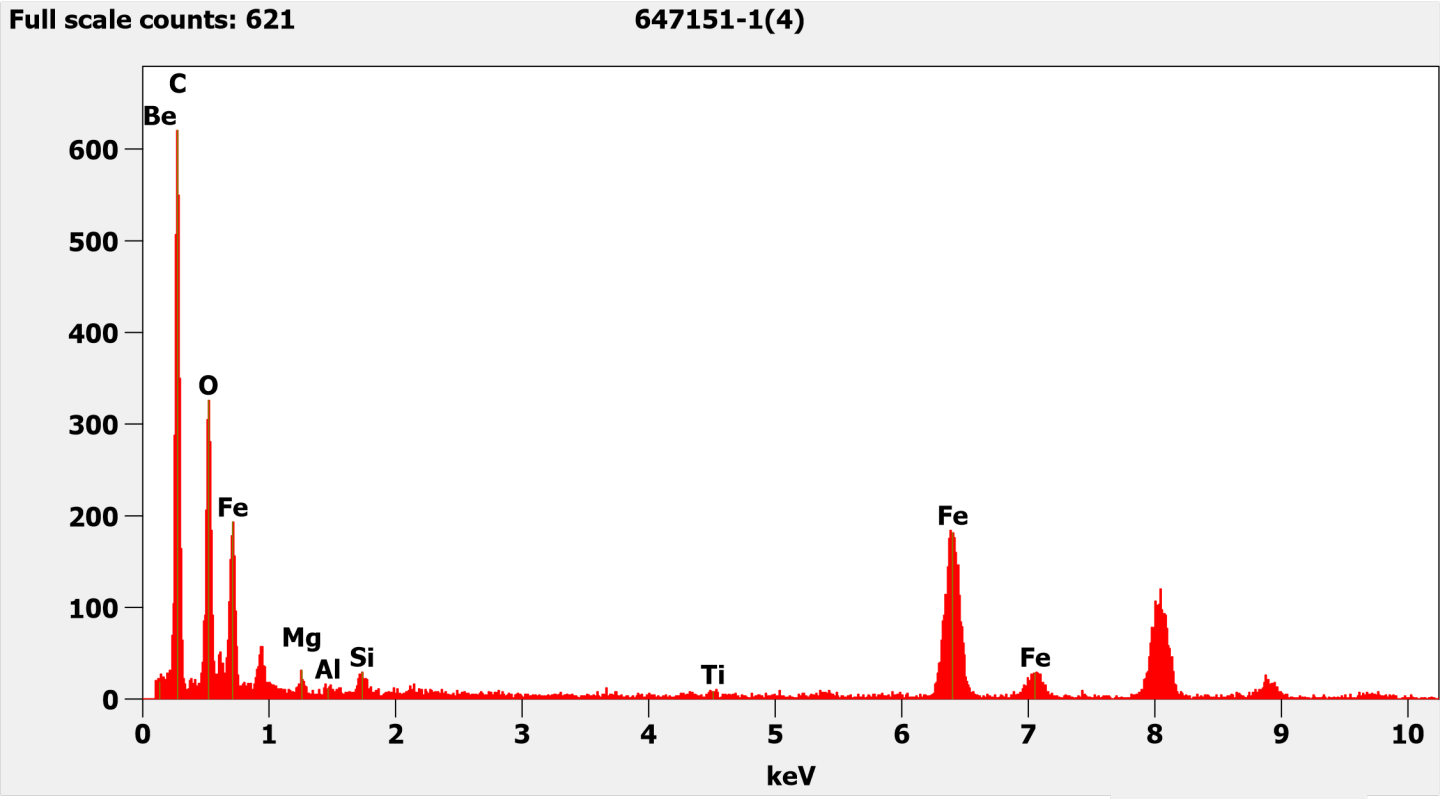
Chemistry from the Carbon Particle Pictured Above



647151-1, Elongated Iron Particles



Chemistry from the Elongated Iron Particles Pictured Above



647151-2, 2A, 2B/Client Sample: 04252023-2

PLM

All three aliquots of sample 04252023-2 were analyzed by (b) (6) on July 31, 2023. No asbestos or non-asbestos amphibole variants were observed during analysis. The results were calculated using the equations detailed in the *Calculations* section above.

647151-2	No Asbestos Detected
647151-2A	No Asbestos Detected
647151-2B	No Asbestos Detected

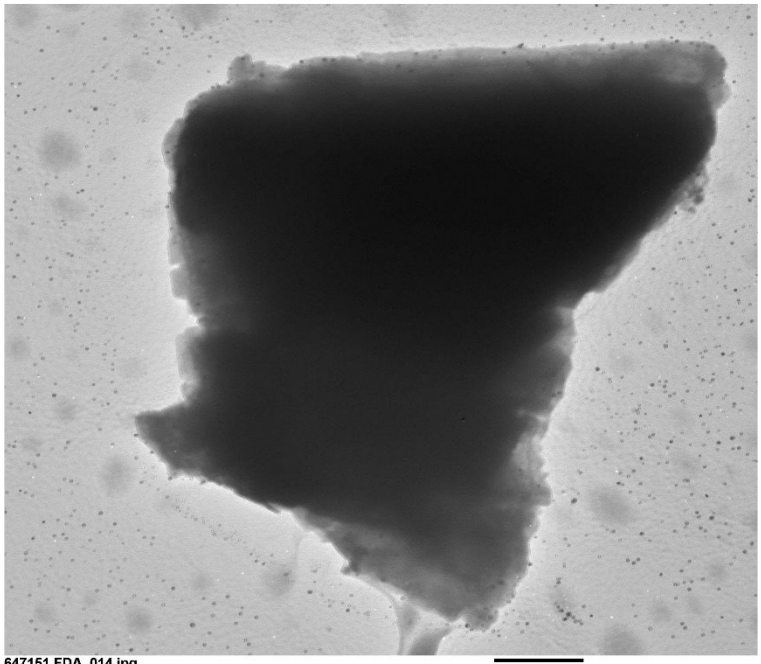
TEM

(b) (6) analyzed aliquot 2 on July 6, 2023. (b) (6) analyzed aliquot 2A on July 14, 2023, and aliquot 2B on July 17, 2023. The primary particle observed was talc; silica spheres and carbon particles were also observed along with talc ribbons/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.

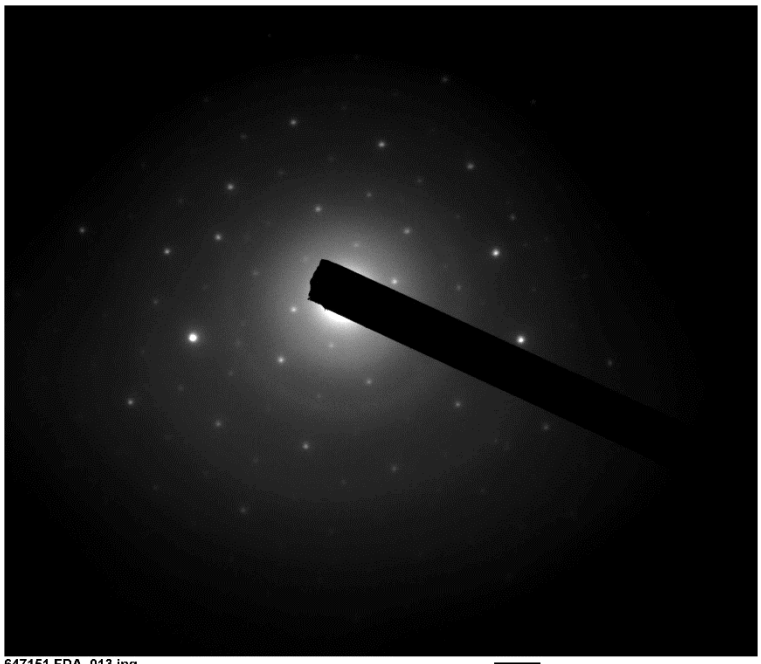
647151-2	No Asbestos Detected
647151-2A	No Asbestos Detected
647151-2B	No Asbestos Detected

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, beryllium, and carbon from the TEM specimen holder.

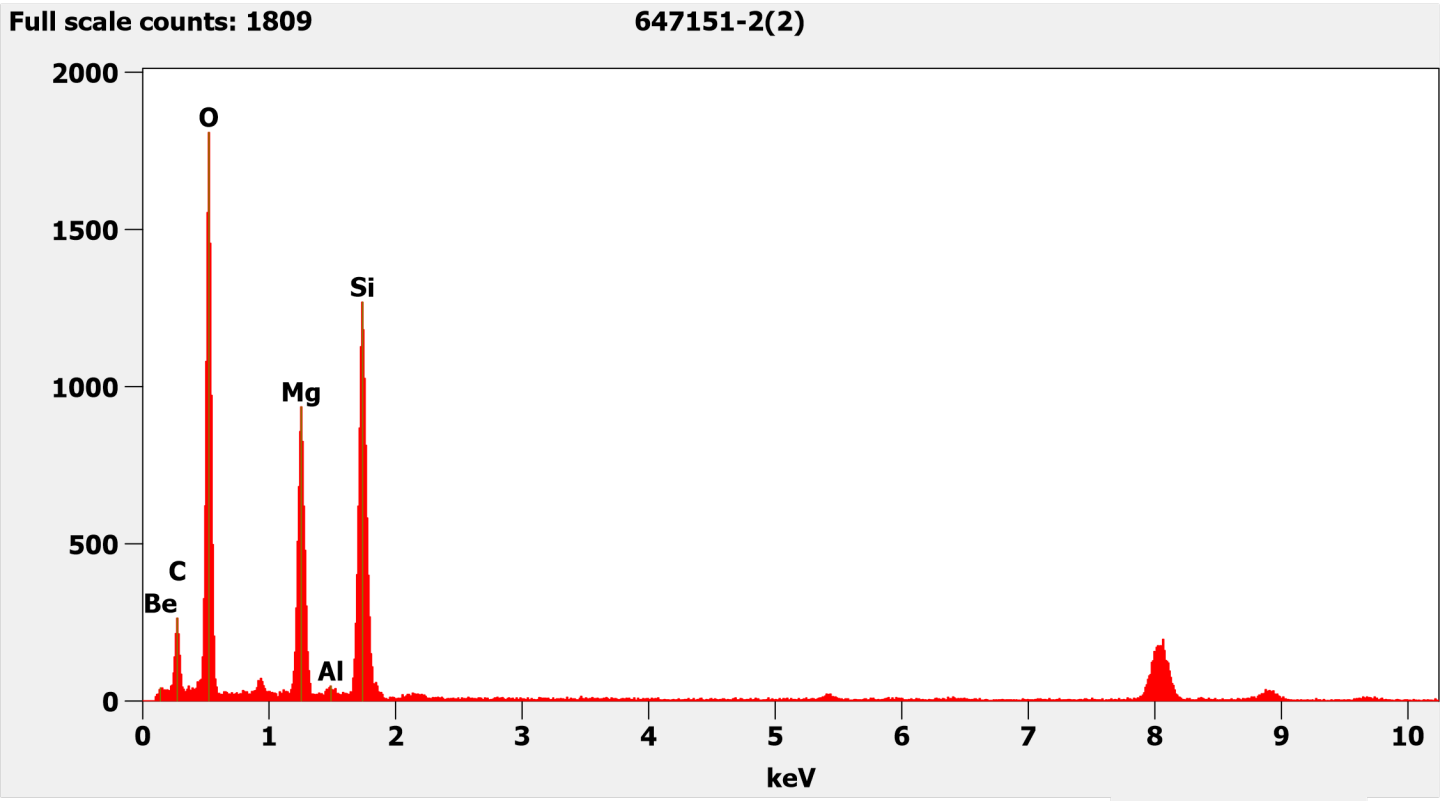
647151-2, Talc Particle



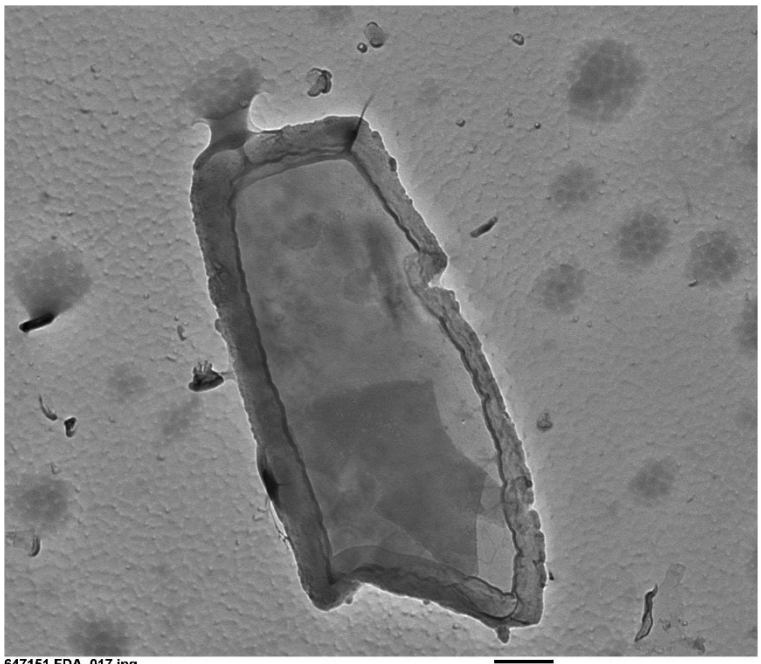
Hexagonal Diffraction Pattern from the Talc Particle Pictured Above



Chemistry from the Talc Particle Pictured Above



647151-2, Talc Particle

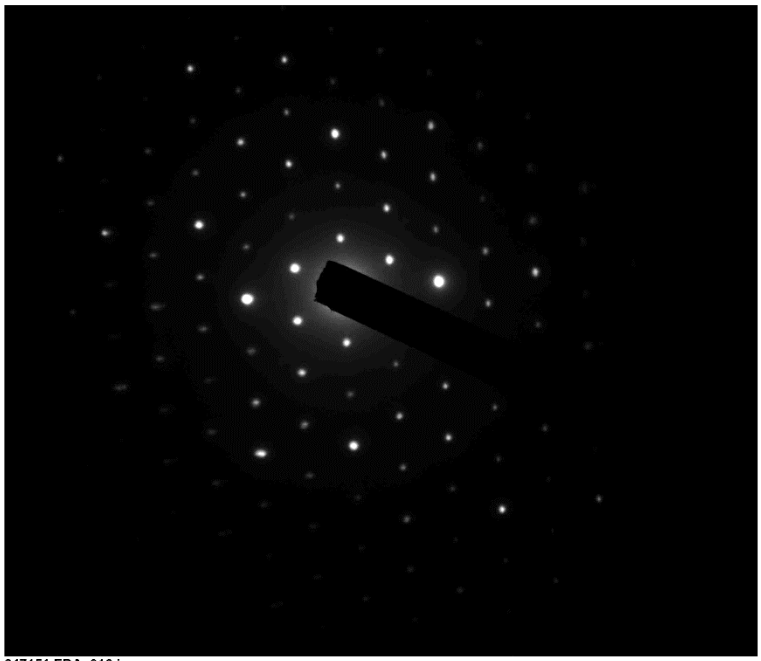


647151 FDA_017.jpg
647151-2
Talc

Cal: 0.000955 µm/pix
12:17 2023-07-06
TEM Mode: Imaging
Microscopist: (b) (6)
Camera: NS6, Exposure: 500 (ms) x 3 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

200 nm
HV=80kV
Direct Mag: 10000 x

Hexagonal Diffraction Pattern from the Talc Particle Pictured Above

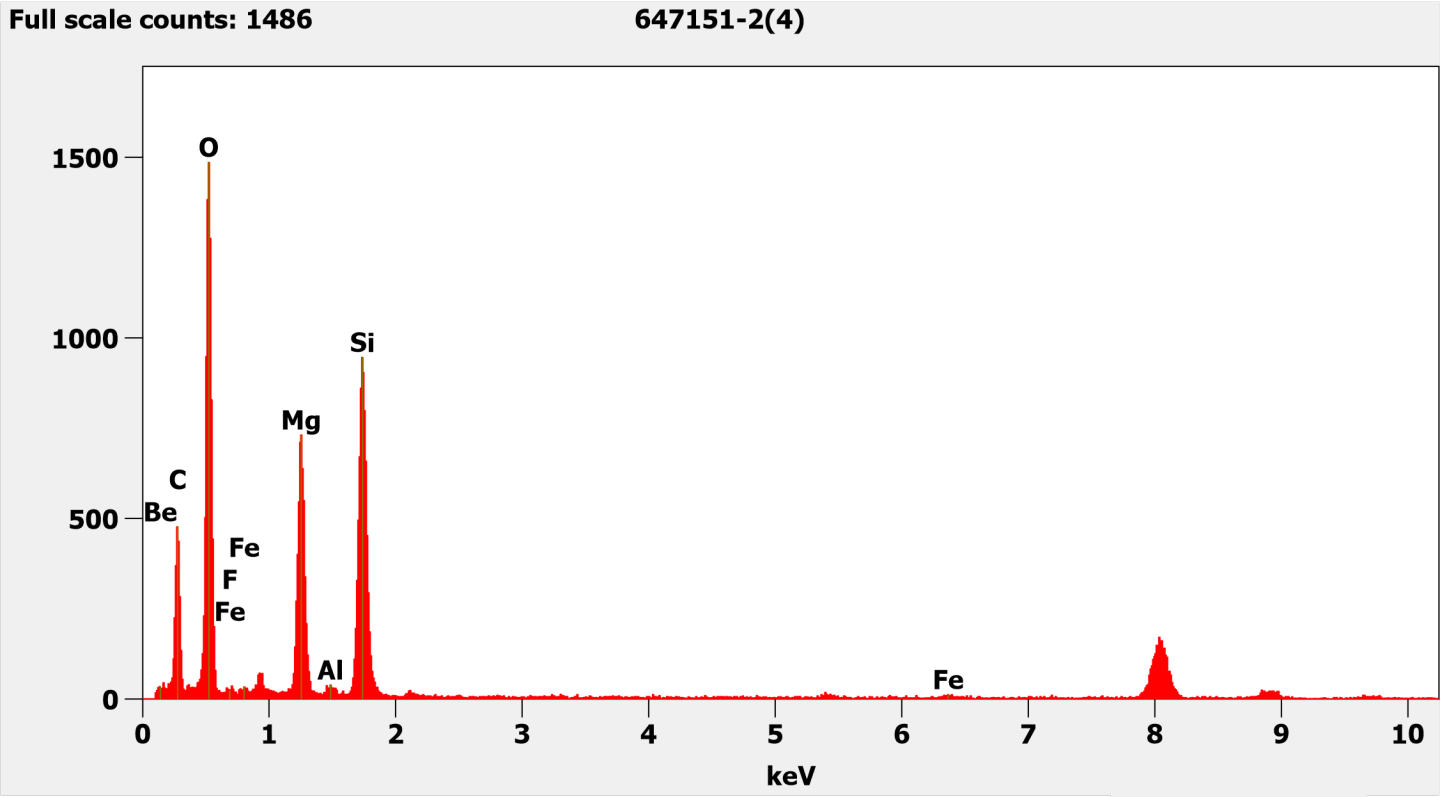


647151 FDA_016.jpg
647151-2
Talc

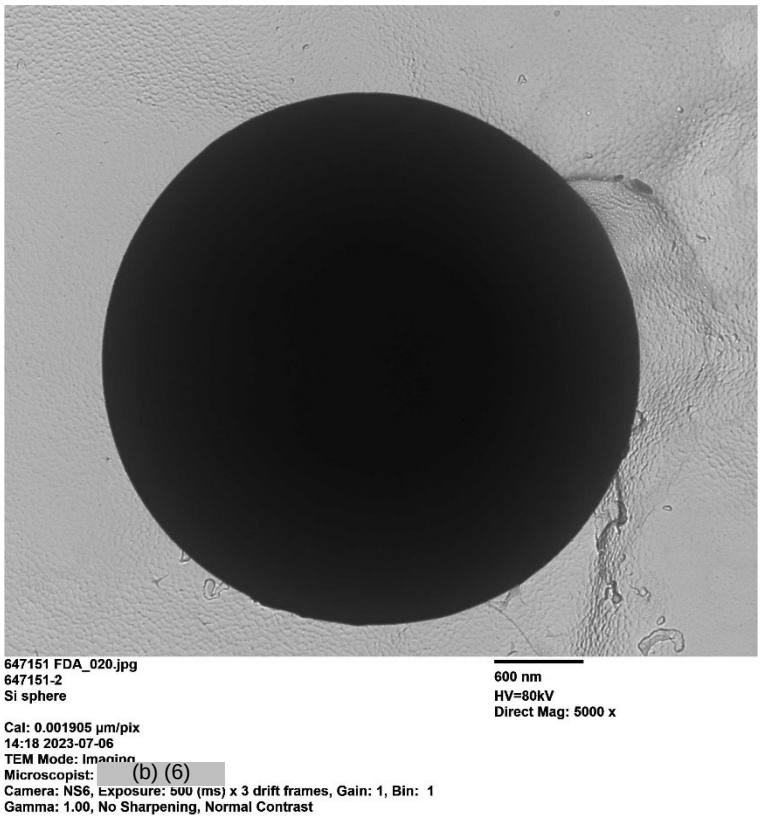
Cal: 0.000626 µm/pix
12:15 2023-07-06
TEM Mode: Diffraction
Microscopist: (b) (6)
Camera: NS6, Exposure: 500 (ms) x 3 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

0.2 Å⁻¹
HV=80kV
Cam Len: 0.2000 m

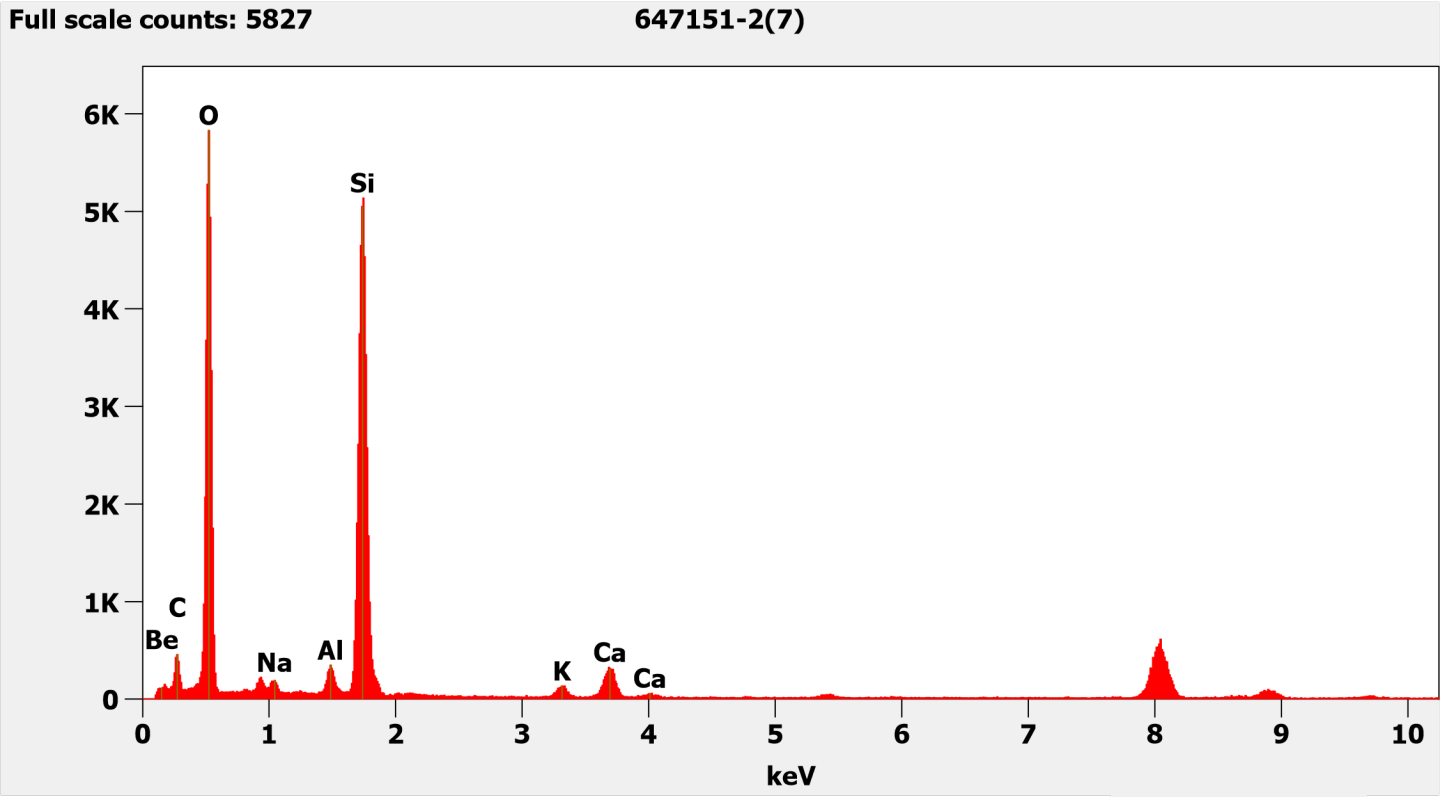
Chemistry from the Talc Particle Pictured Above



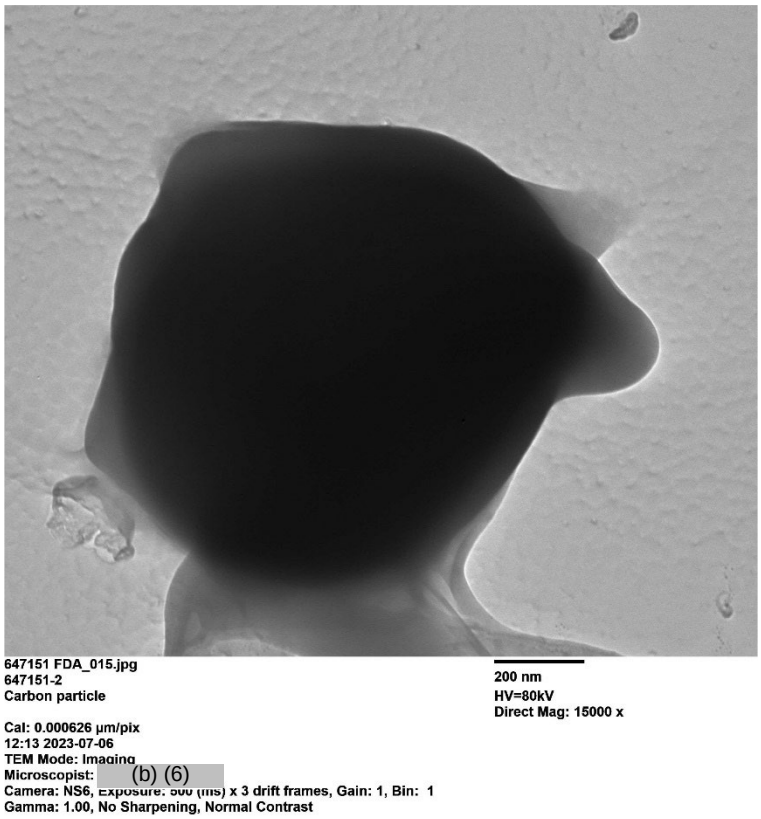
647151-2, Silica Sphere



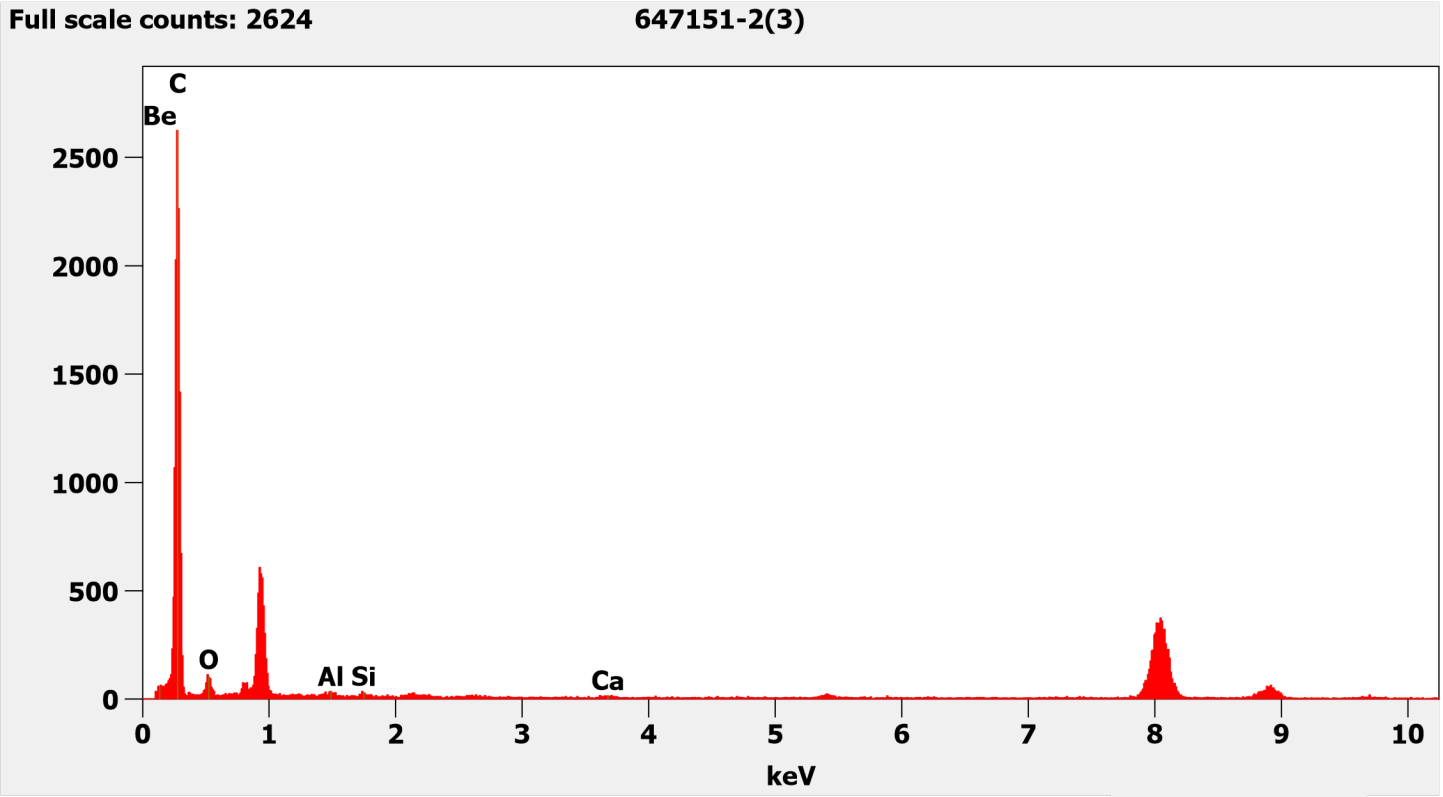
Chemistry from the Silica Sphere Above



647151-2, Carbon Particle

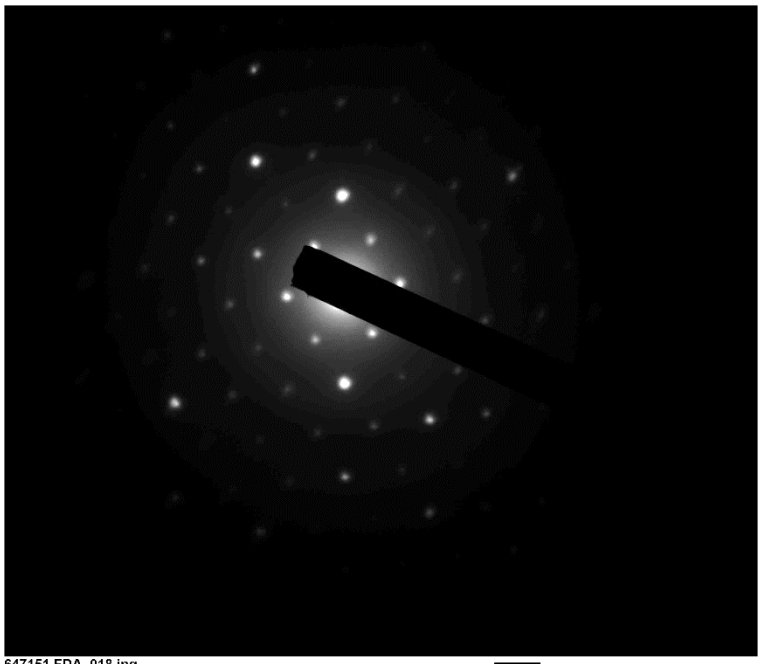


Chemistry from the Carbon Particle Pictured Above

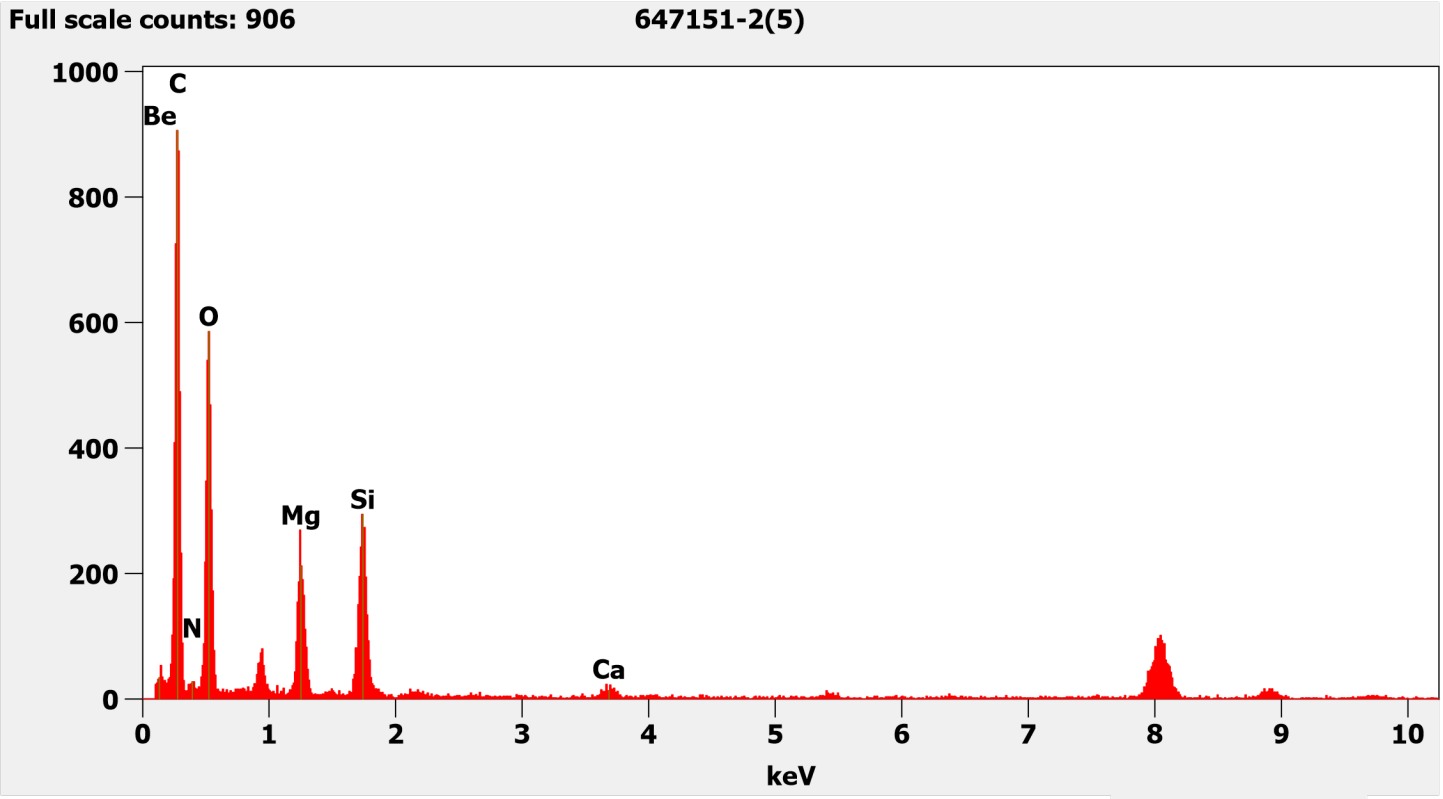


647151-2, Elongated Talc Particle

Hexagonal Diffraction Pattern from the Elongated Talc Particle Pictured Above



Chemistry from the Elongated Talc Particle Pictured Above



647151-3, 3A, 3B/Client Sample: 04252023-3

PLM

All three aliquots of sample 04252023-3 were analyzed by (b) (6) on July 31, 2023. No asbestos or non-asbestos amphibole variants were observed during analysis. The results were calculated using the equations detailed in the *Calculations* section above.

647151-3	No Asbestos Detected
647151-3A	No Asbestos Detected
647151-3B	No Asbestos Detected

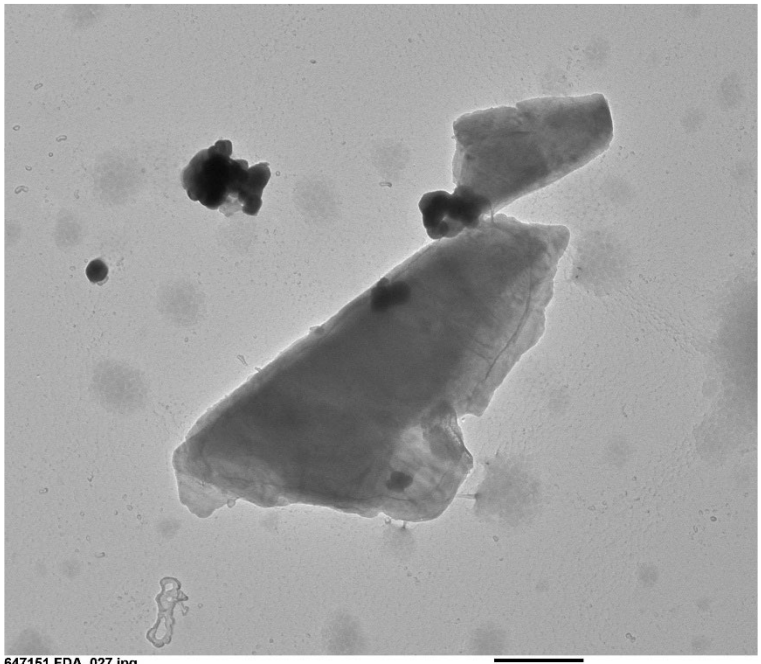
TEM

(b) (6) analyzed aliquot 3 on July 26, 2023. (b) (6) analyzed aliquot 3A on July 17, 2023, and aliquot 3B on July 18, 2023. The primary particle observed was mica; titanium particles were also observed along with talc and silicon particles. No asbestos or non-asbestos amphibole variants were observed during analysis. The results were calculated using the equations detailed in the *Calculations* section above.

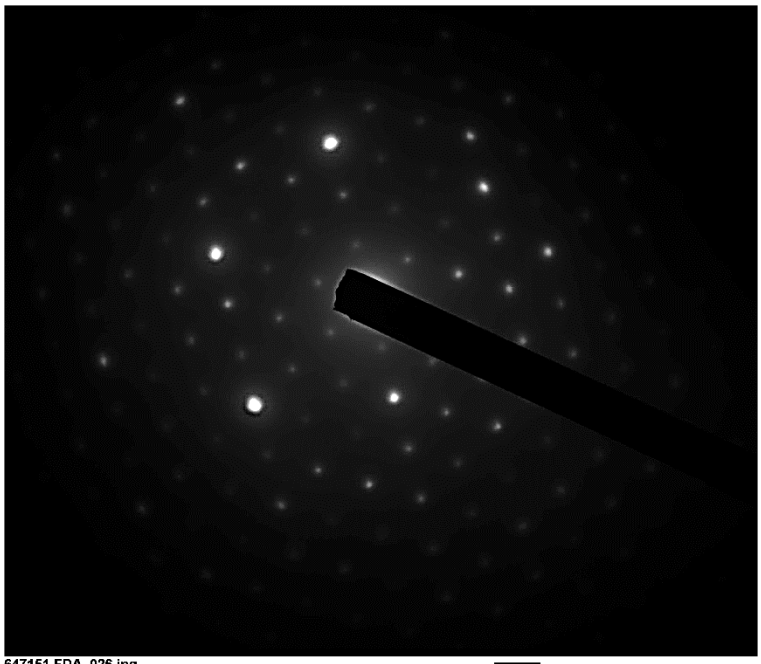
647151-3	No Asbestos Detected
647151-3A	No Asbestos Detected
647151-3B	No Asbestos Detected

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, beryllium, and carbon from the TEM specimen holder.

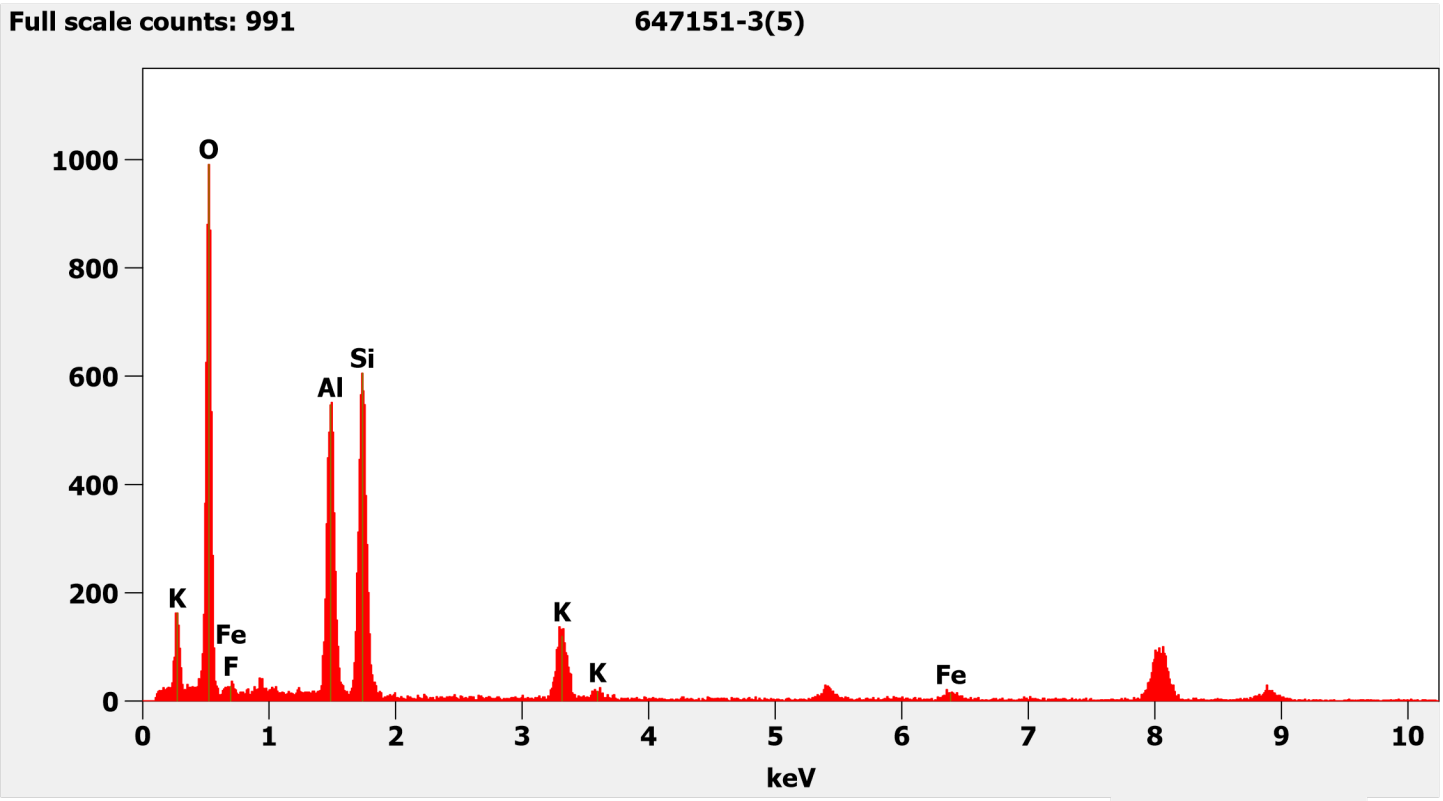
647151-3, Mica Particle



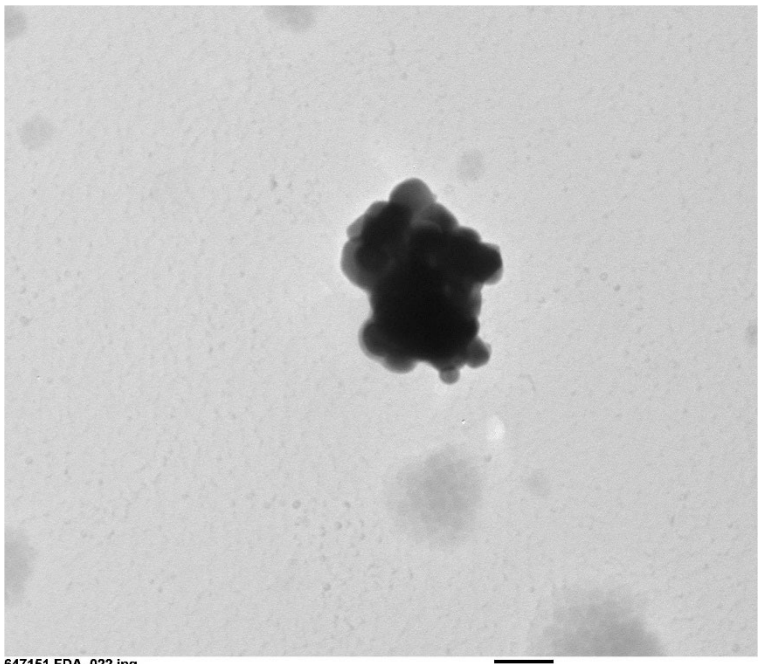
Hexagonal Diffraction Pattern from the Mica Particle Pictured Above



Chemistry from the Mica Particle Pictured Above



647151-3, Titanium Particles

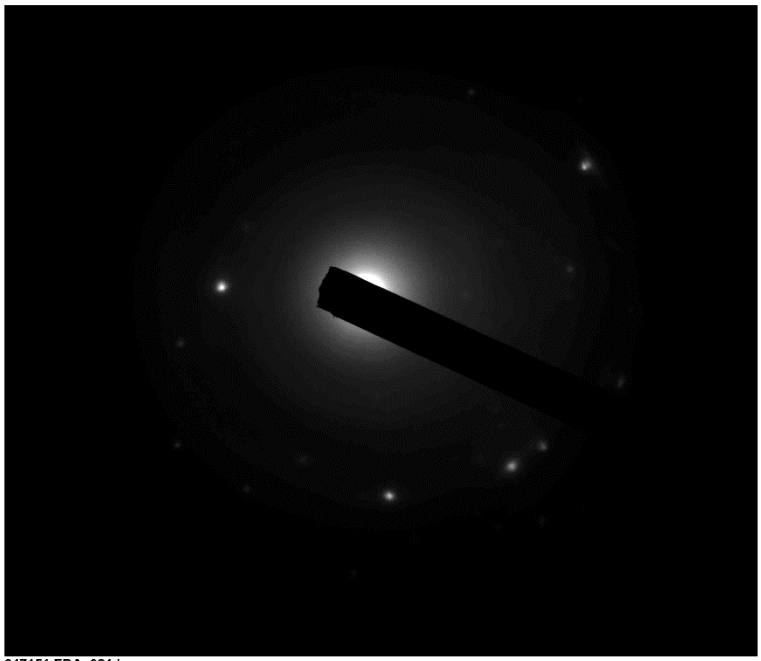


647151 FDA_022.jpg
647151-3
Ti particles

Cal: 0.000955 µm/pix
15:13 2023-07-06
TEM Mode: Imaging
Microscopist: (b) (6)
Camera: NS6, Exposure: 500 (ms) x 3 std. frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

200 nm
HV=80kV
Direct Mag: 10000 x

Diffraction Pattern from the Titanium Particles Pictured Above

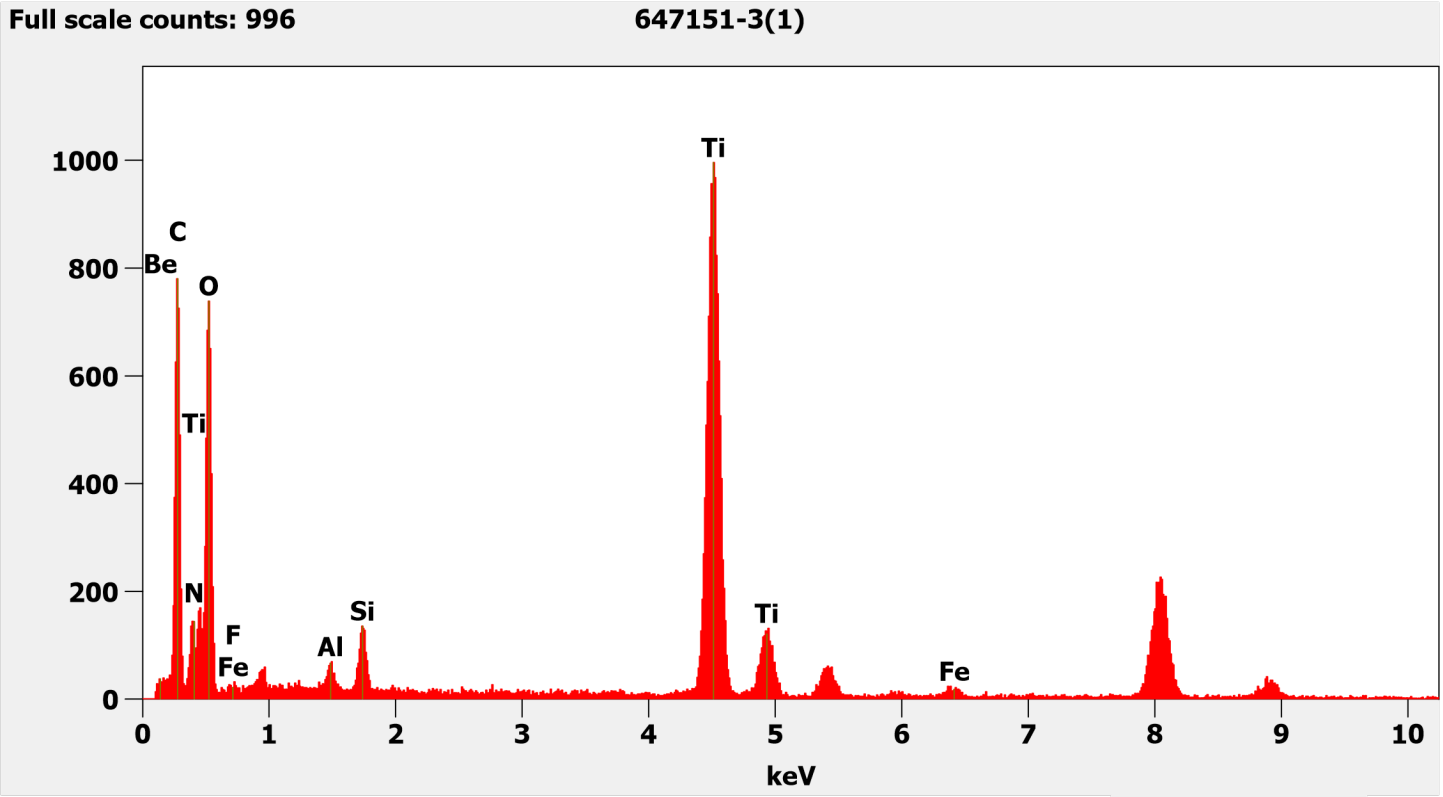


647151 FDA_021.jpg
647151-3
Ti particles

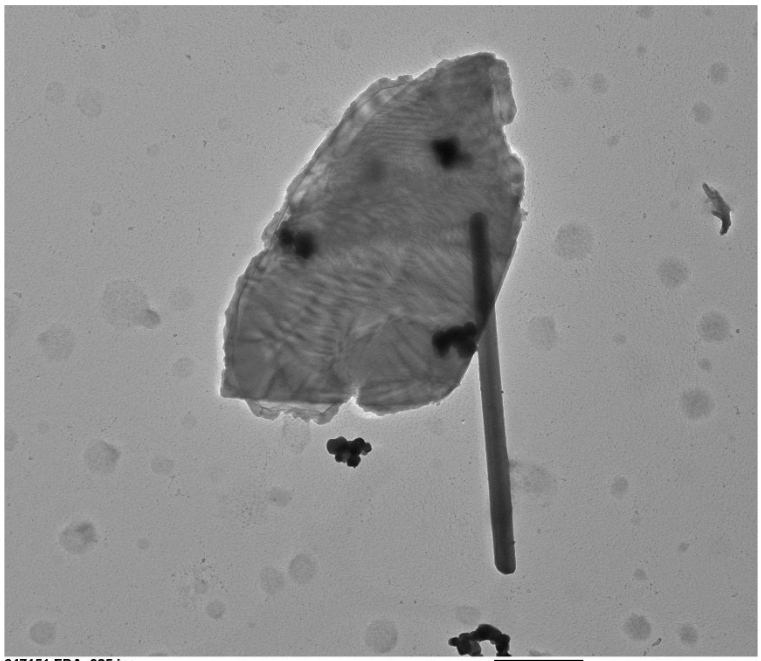
15:12 2023-07-06
TEM Mode: Diffraction
Microscopist: (b) (6)
Camera: NS6, Exposure: 500 (ms) x 3 std. frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

0.2 Å⁻¹
HV=80kV
Cam Len: 0.2000 m

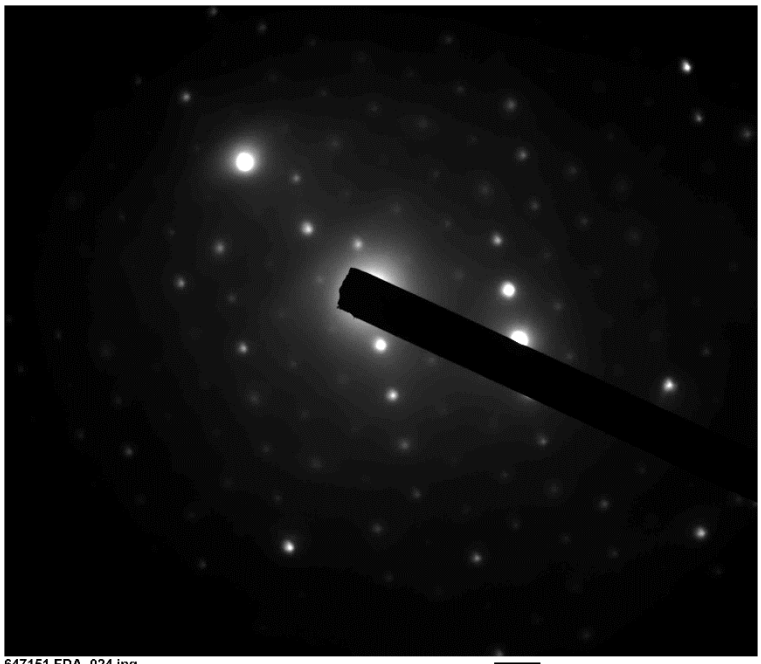
Chemistry from the Titanium Particles Pictured Above



647151-3, Mica Particle & Elongated Titanium Particle



Hexagonal Diffraction Pattern from the Mica Particle Pictured Above

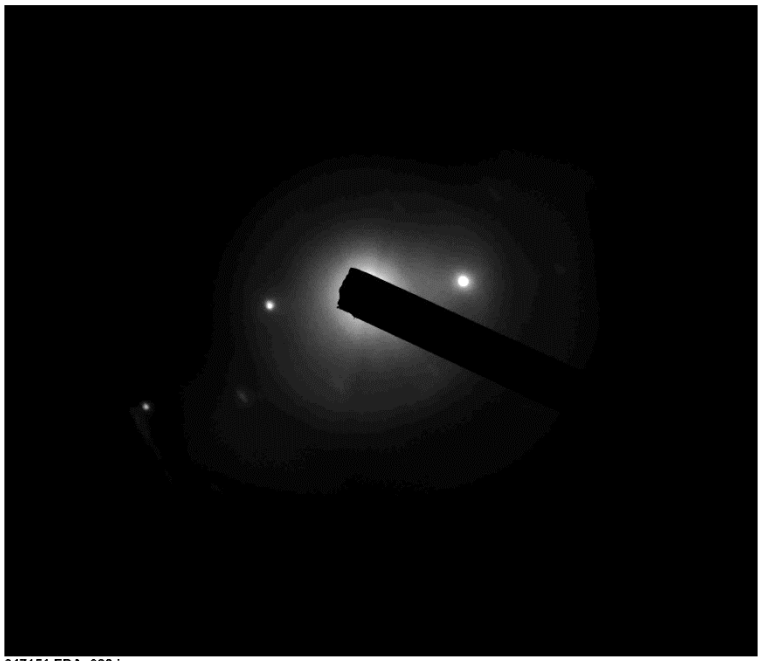


647151 FDA_024.jpg
647151-3
Mica particle

Cal: 0.000955 µm/pix
15:18 2023-07-06
TEM Mode: Diffraction
Microscopist: (b) (6)
Camera: NS6, Exposure: 500 (ms) x 3 std. frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

0.2 $Å^{-1}$
HV=80kV
Cam Len: 0.2000 m

Diffraction Pattern from the Elongated Titanium Particle Pictured Above

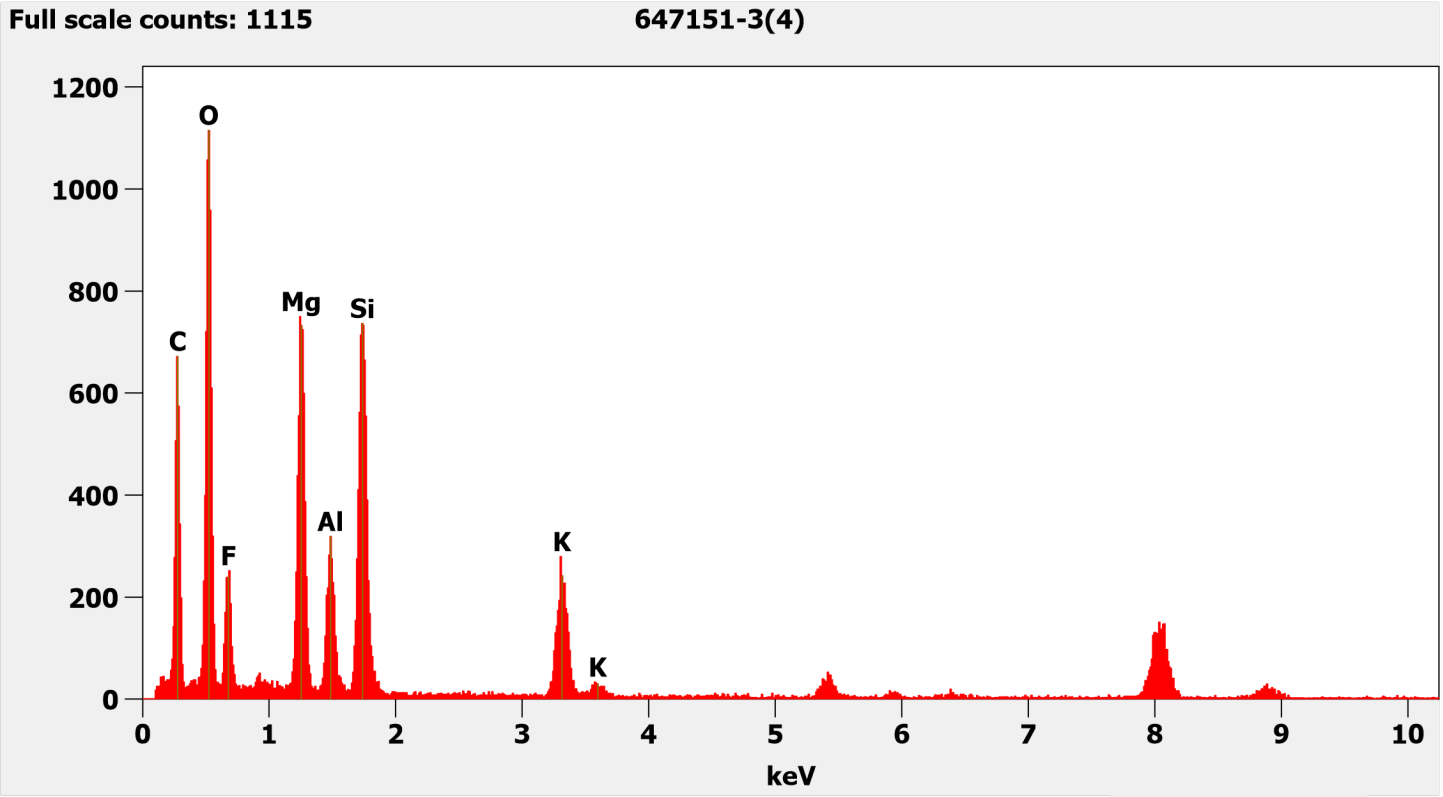


647151 FDA_023.jpg
647151-3
Ti Fiber

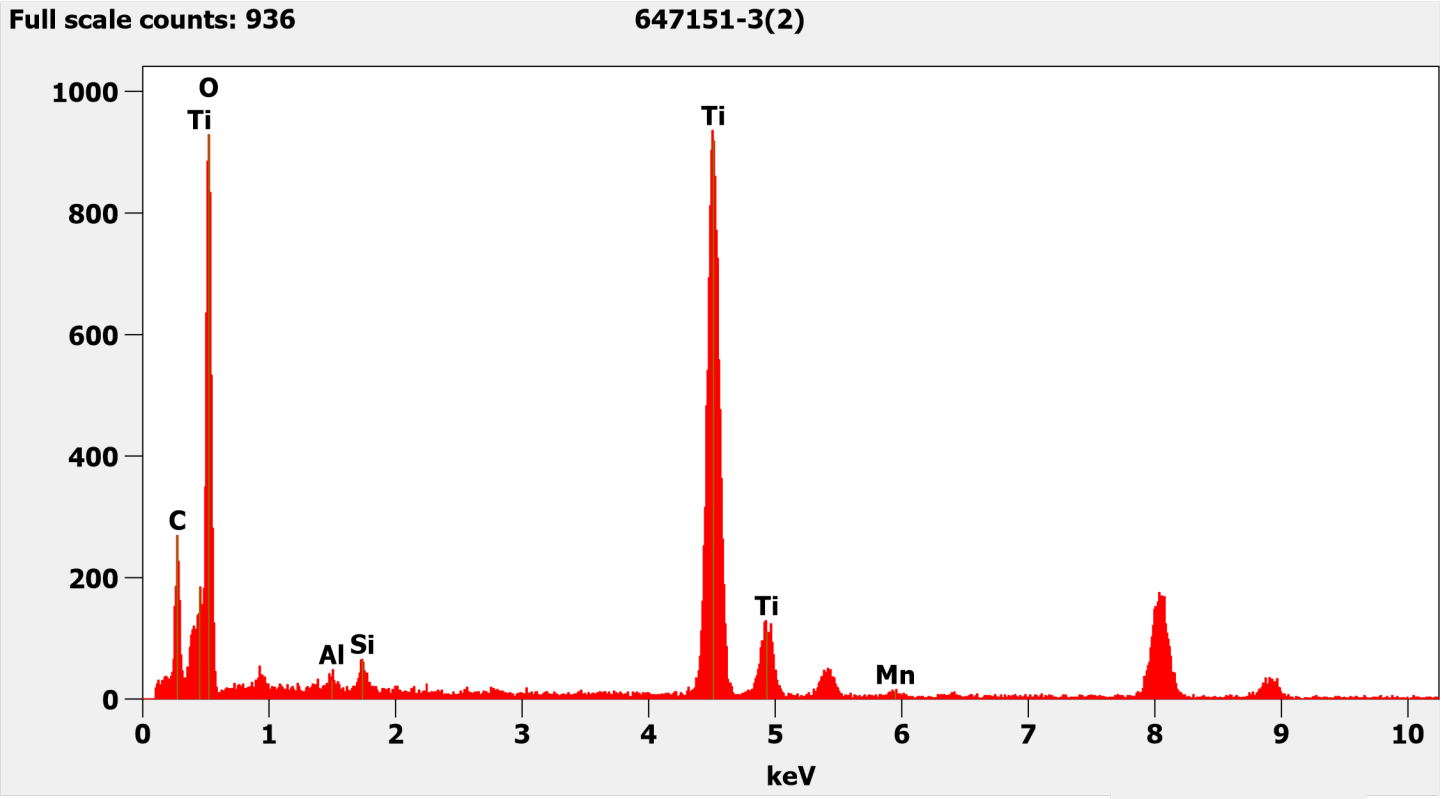
Cal: 0.000955 µm/pix
15:18 2023-07-06
TEM Mode: Diffraction
Microscopist: (b) (6)
Camera: NS6, Exposure: 500 (ms) x 3 std. frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

0.2 $Å^{-1}$
HV=80kV
Cam Len: 0.2000 m

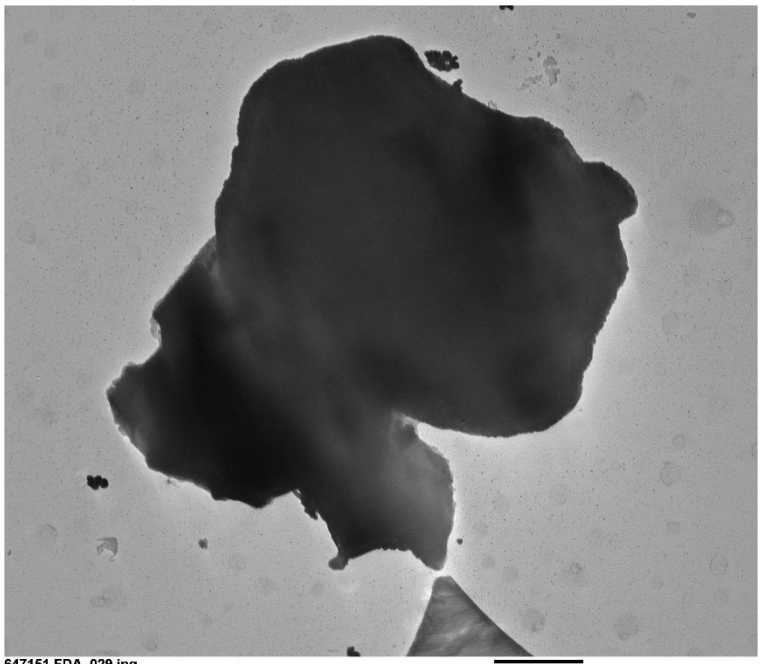
Chemistry from the Mica Particle Pictured Above



Chemistry from the Elongated Titanium Particle Pictured Above



647151-3, Mica Particle with Titanium

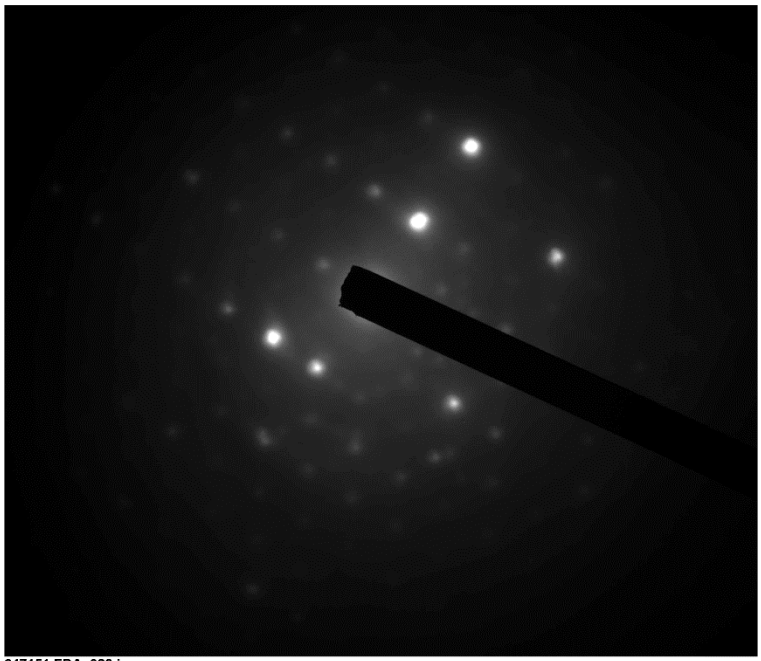


647151 FDA_029.jpg
647151-3
Mica w/Ti

Cal: 0.006365 µm/pix
15:35 2023-07-06
TEM Mode: Imaging
Microscopist: (b) (6)
Camera: NS6, Exposure: 500 (ms) x 3 std. frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

2 µm
HV=80kV
Direct Mag: 1500 x

Diffraction Pattern from the Mica Particle with Titanium Pictured Above

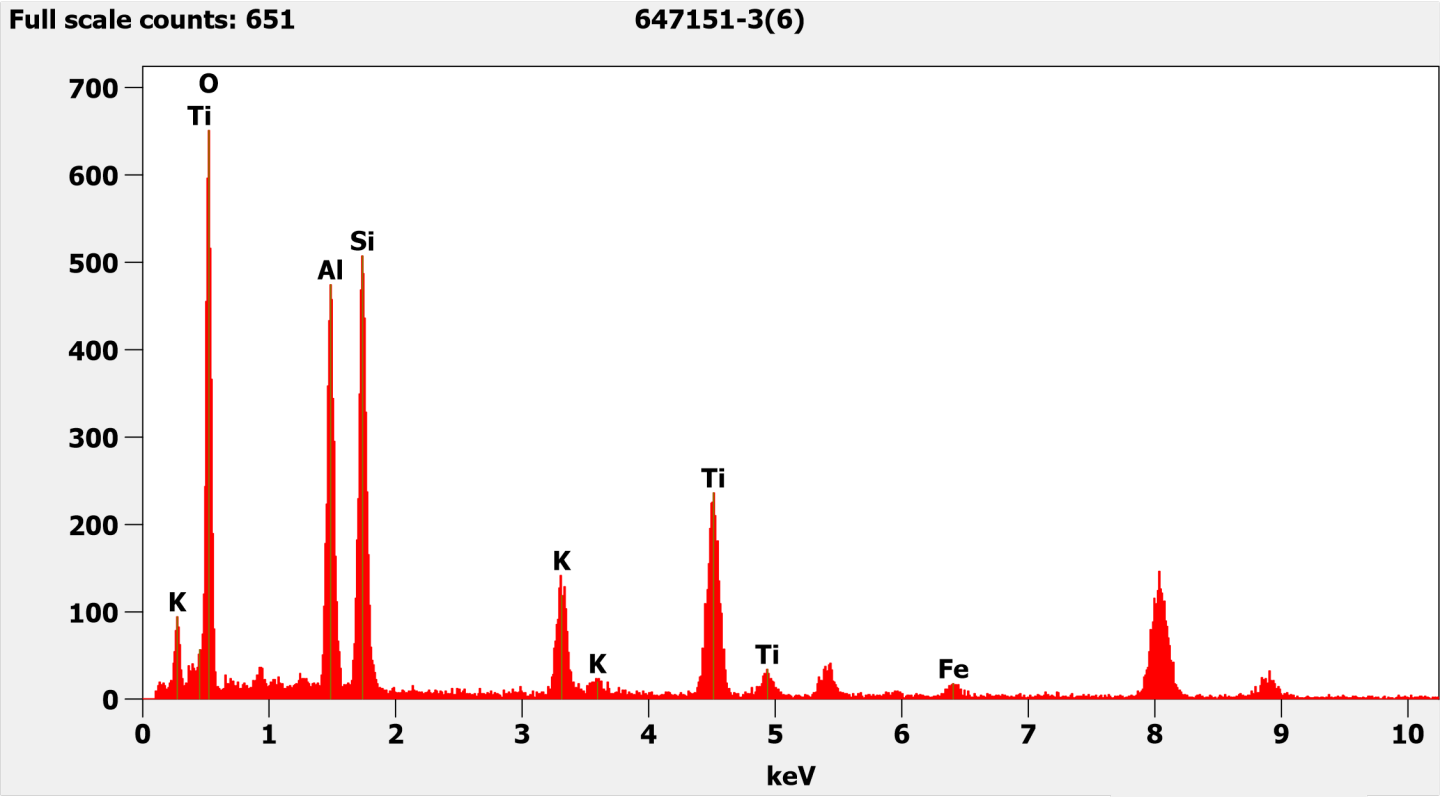


647151 FDA_028.jpg
647151-3
Mica w/Ti

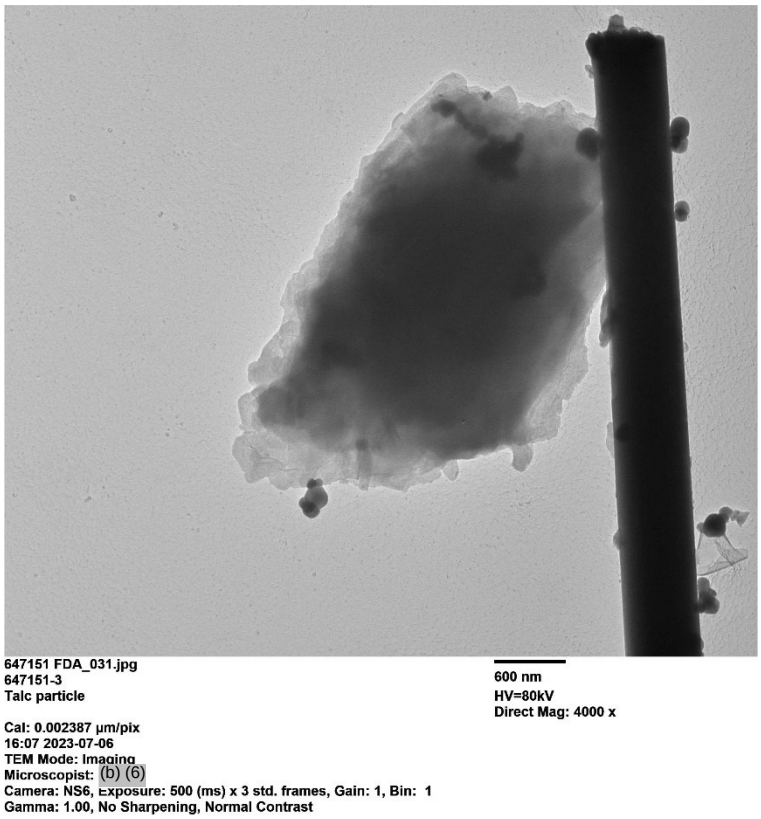
Cal: 0.001905 µm/pix
15:34 2023-07-06
TEM Mode: Diffraction
Microscopist: (b) (6)
Camera: NS6, Exposure: 500 (ms) x 3 std. frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

0.2 Å⁻¹
HV=80kV
Cam Len: 0.2000 m

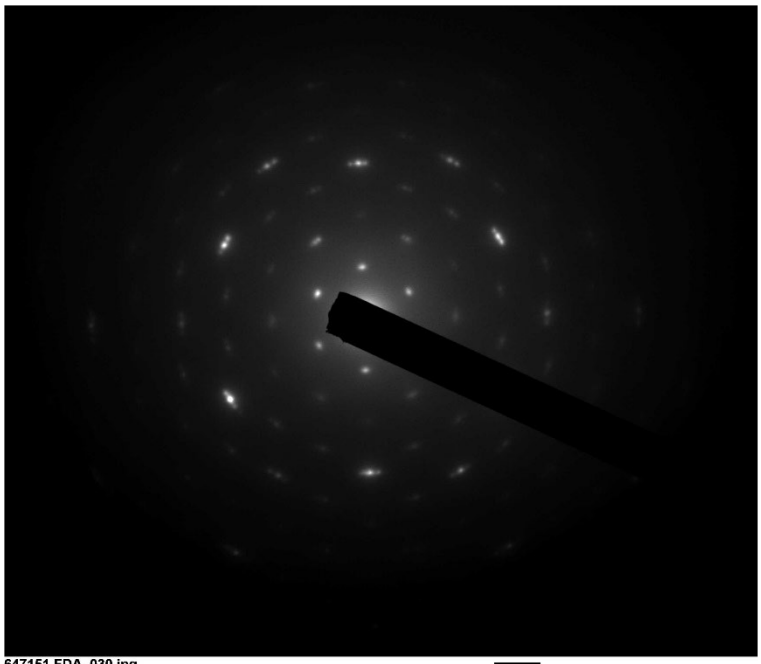
Chemistry from the Mica Particle with Titanium Pictured Above



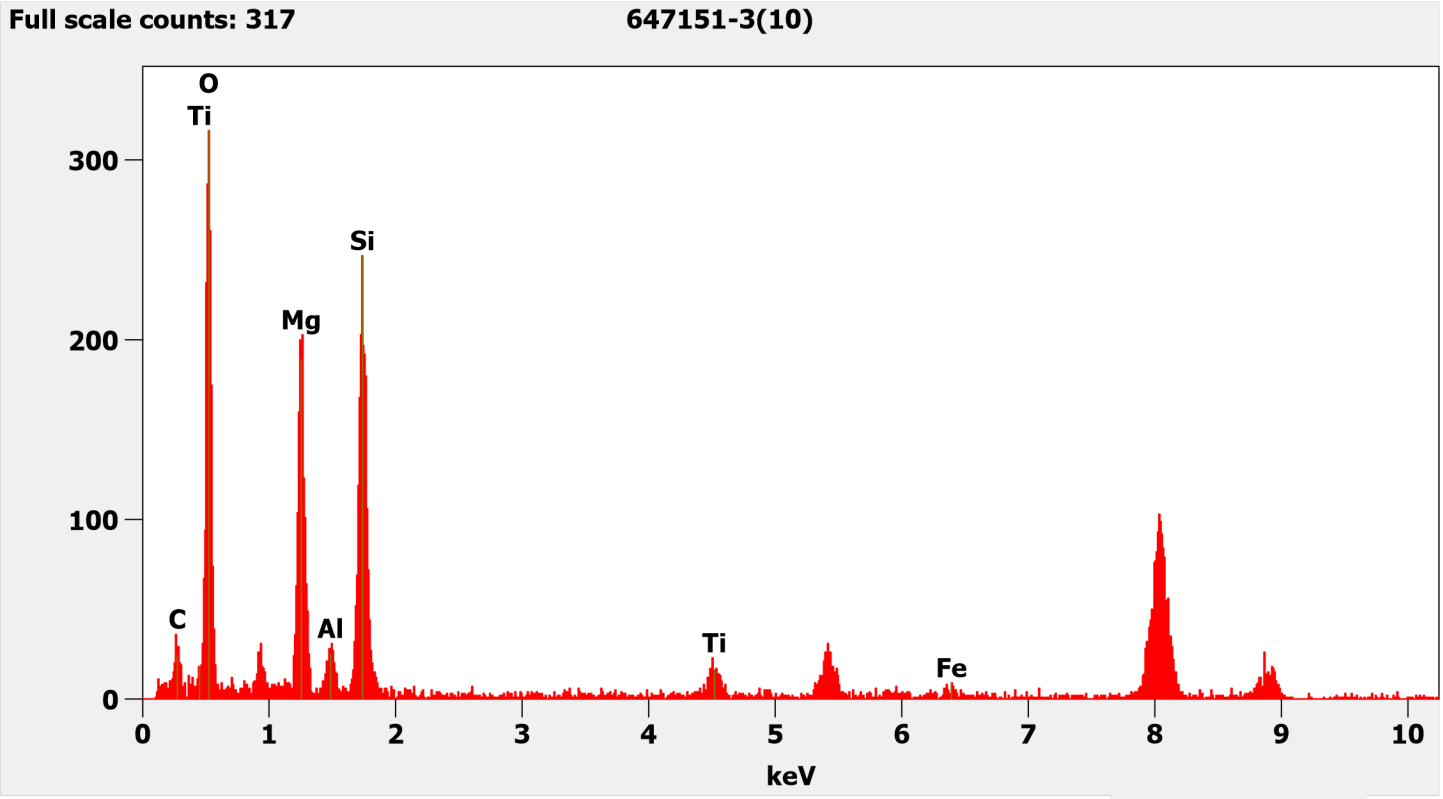
647151-3, Talc Particle (Layered)



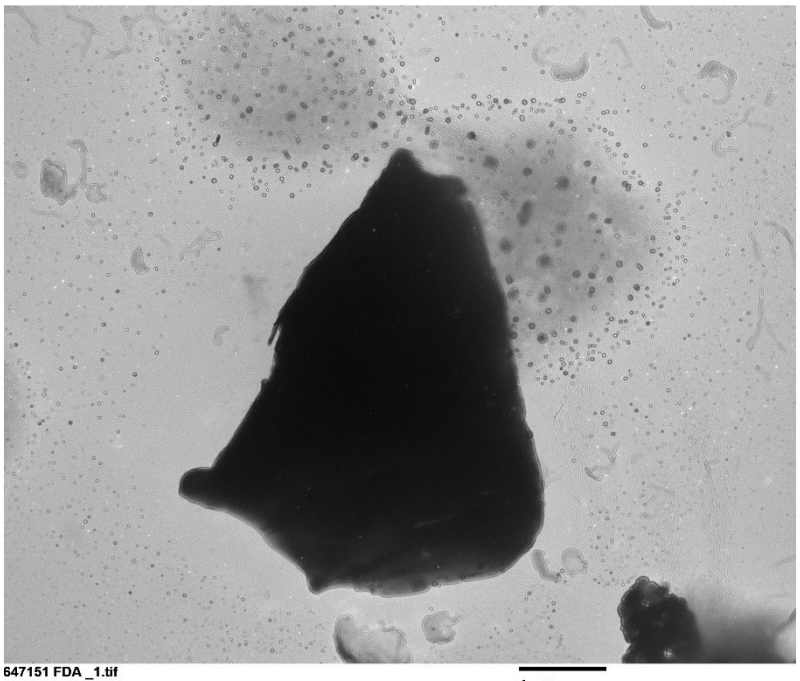
Diffraction Pattern from the Talc Particle (Layered) Pictured Above



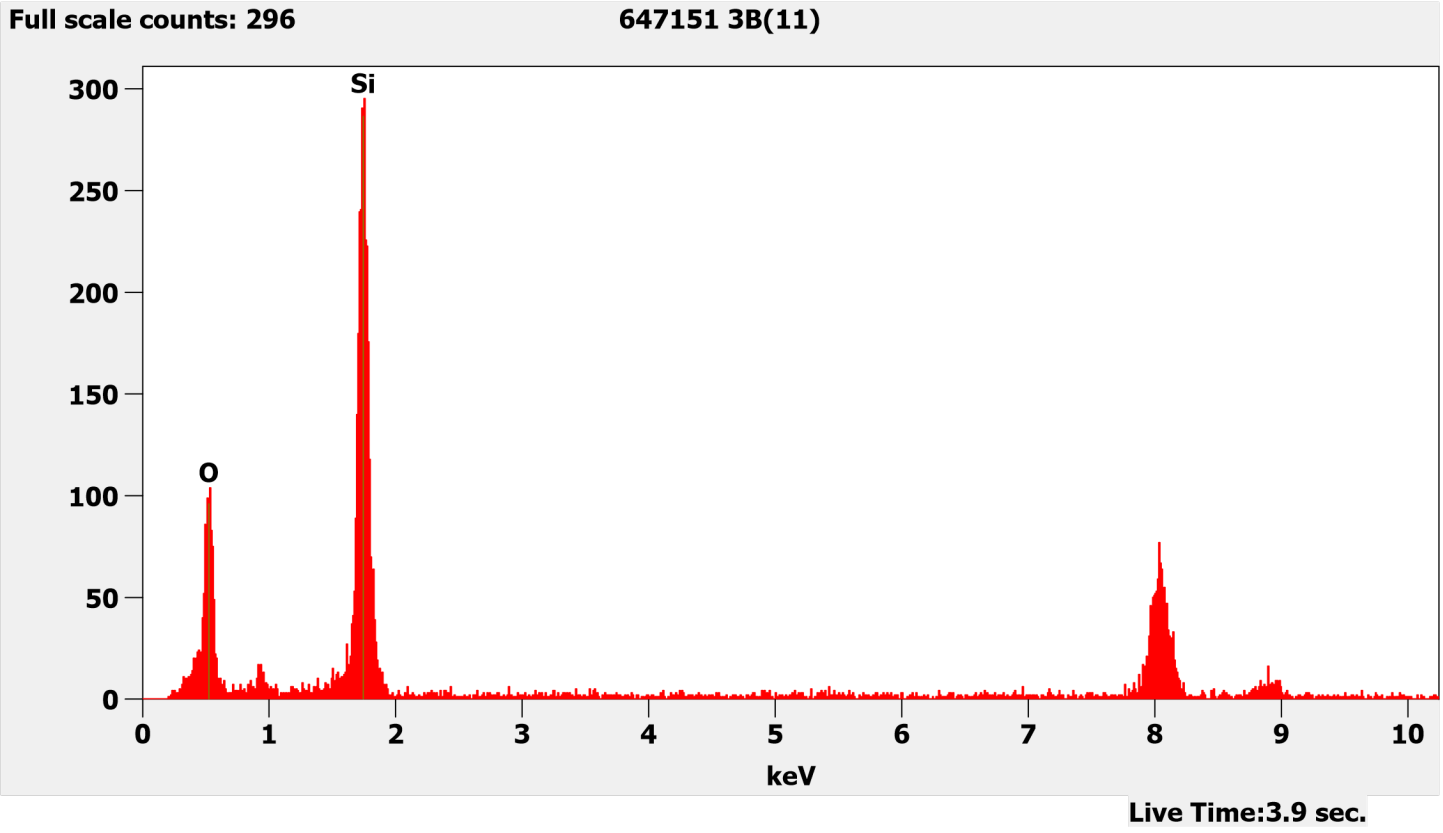
Chemistry from the Talc Particle (Layered) Pictured Above



647151-3B, Silicon Particle



Chemistry from the Silicon Particle Pictured Above



647151-4, 4A, 4B/Client Sample: 04252023-4

PLM

All three aliquots of sample 04252023-4 were analyzed by (b) (6) on July 31, 2023. No asbestos or non-asbestos amphibole variants were observed during analysis. The results were calculated using the equations detailed in the *Calculations* section above.

647151-4	No Asbestos Detected
647151-4A	No Asbestos Detected
647151-4B	No Asbestos Detected

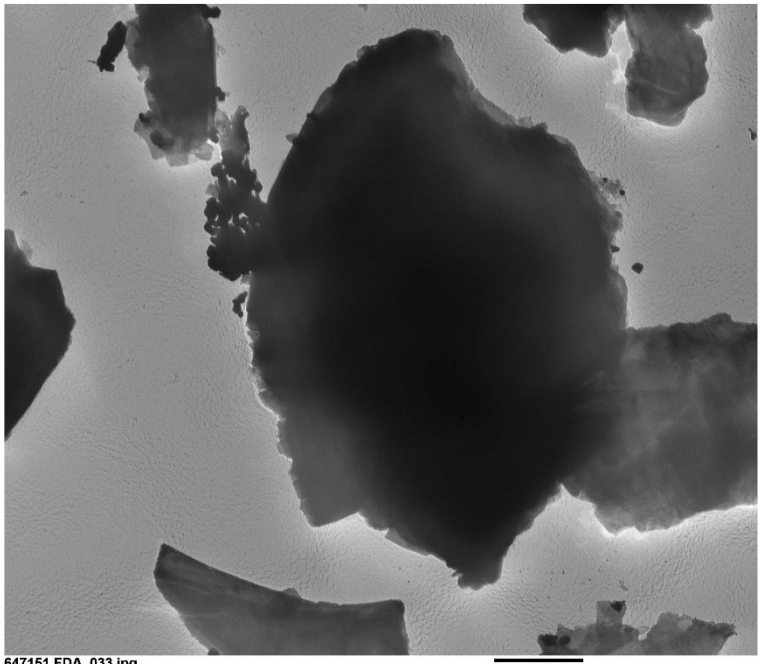
TEM

(b) (6) analyzed aliquot 4 on July 7, 2023. (b) (6) analyzed aliquot 4A on July 18, 2023, and aliquot 4B on July 18, 2023. The primary particle observed was talc; mica and titanium particles were also observed. No asbestos or non-asbestos amphibole variants were observed during analysis. The results were calculated using the equations detailed in the *Calculations* section above.

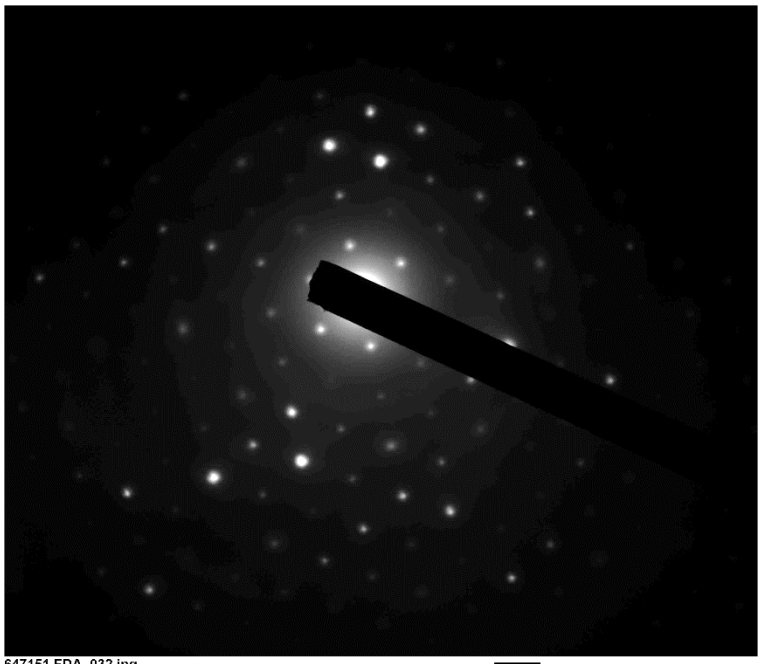
647151-4	No Asbestos Detected
647151-4A	No Asbestos Detected
647151-4B	No Asbestos Detected

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.

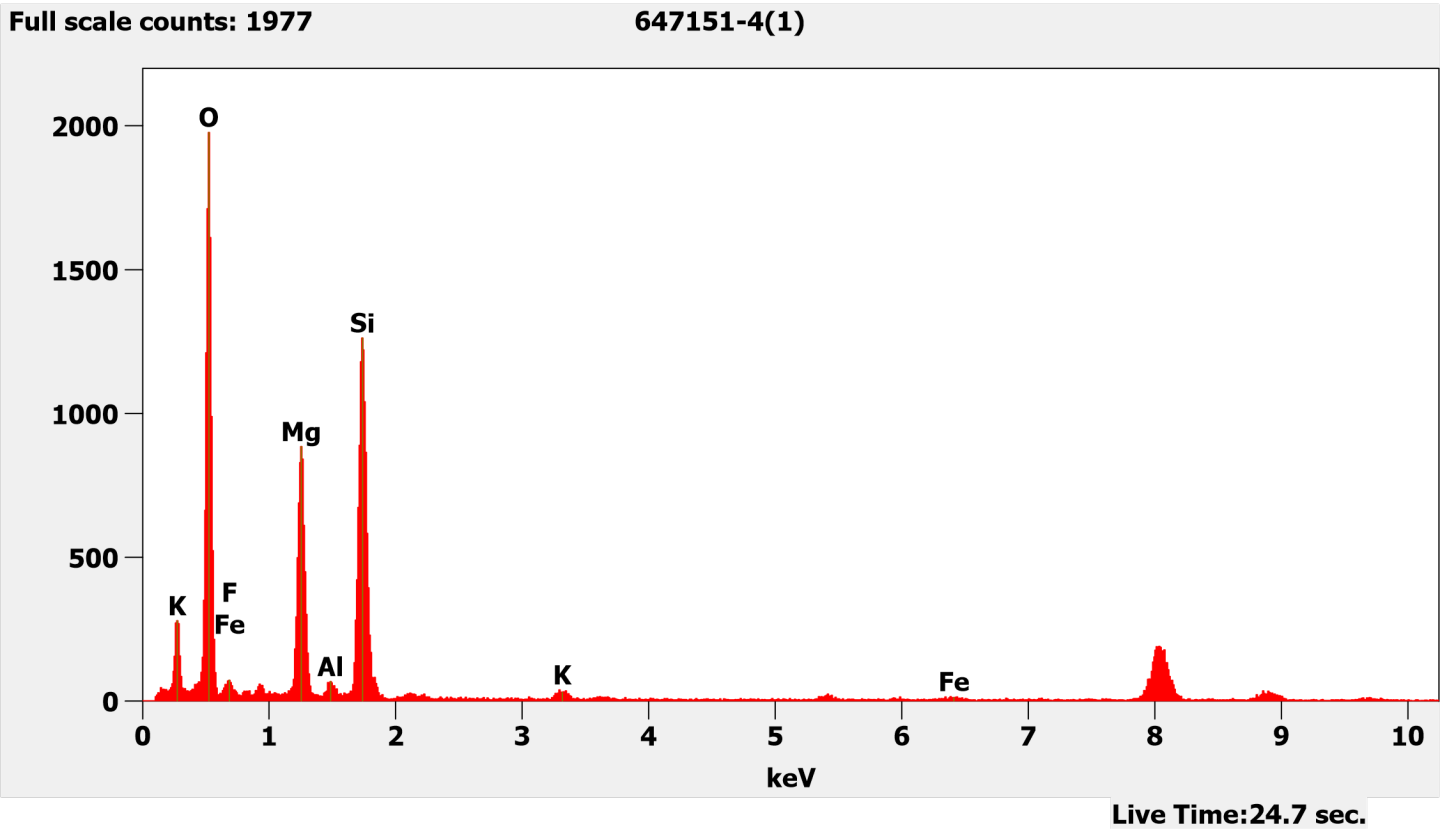
647151-4, Talc Particle



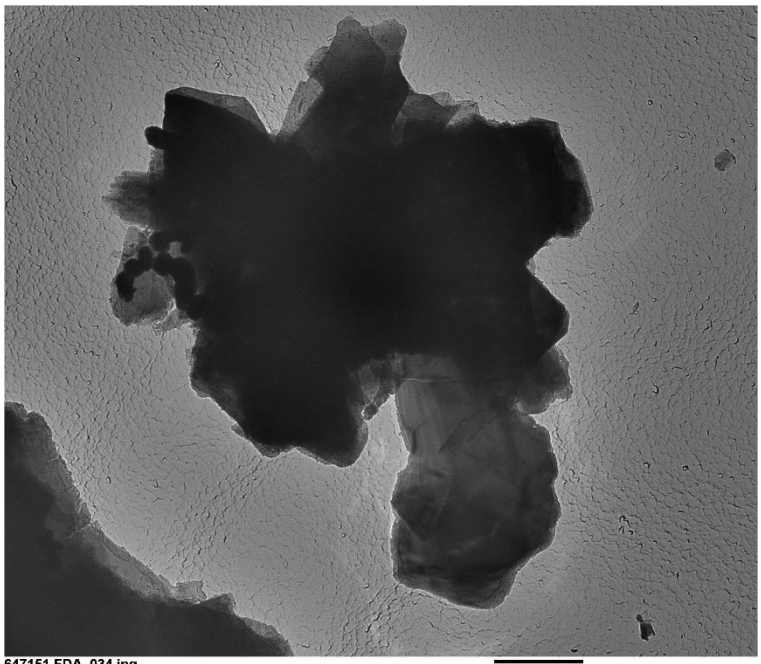
Hexagonal Diffraction Pattern from the Talc Particle Pictured Above



Chemistry from the Talc Particle Pictured Above



647151-4, Mica Particle

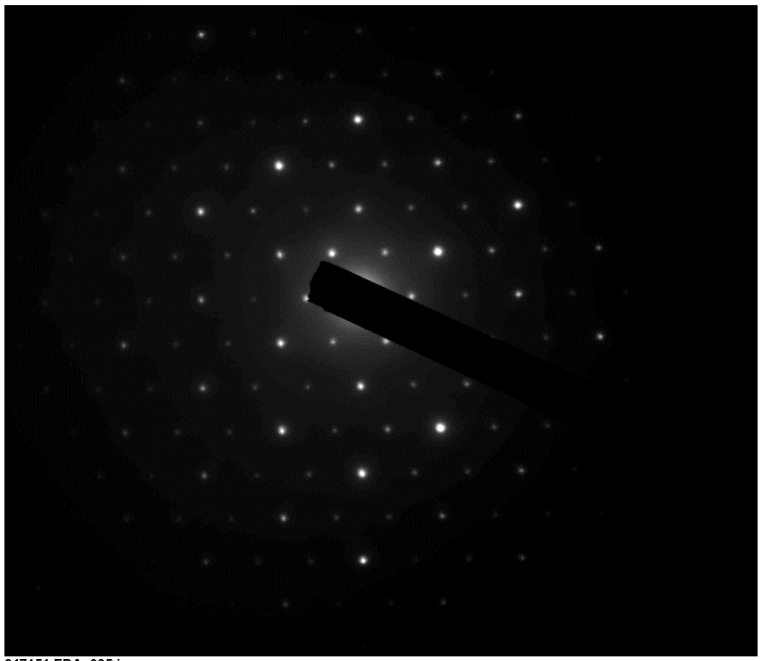


647151 FDA_034.jpg
647151-4
Mica

Cal: 0.003183 µm/pix
15:39 2023-07-07
TEM Mode: Imaging
Microscopist: (b) (6)
Camera: NS6, Exposure: 500 (ms) x 3 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

1 µm
HV=80kV
Direct Mag: 3000 x

Hexagonal Diffraction Pattern from the Mica Particle Pictured Above

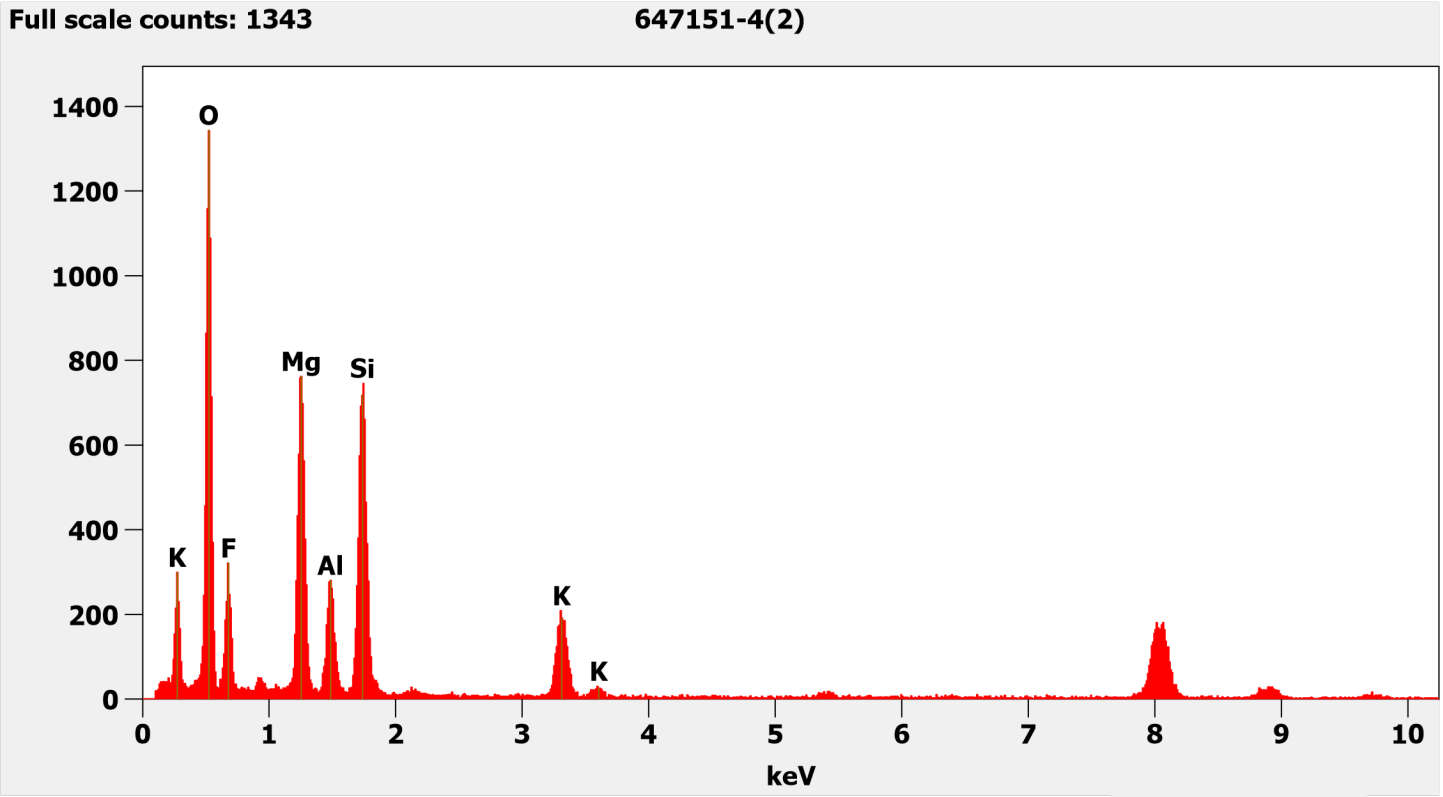


647151 FDA_035.jpg
647151-4
Mica

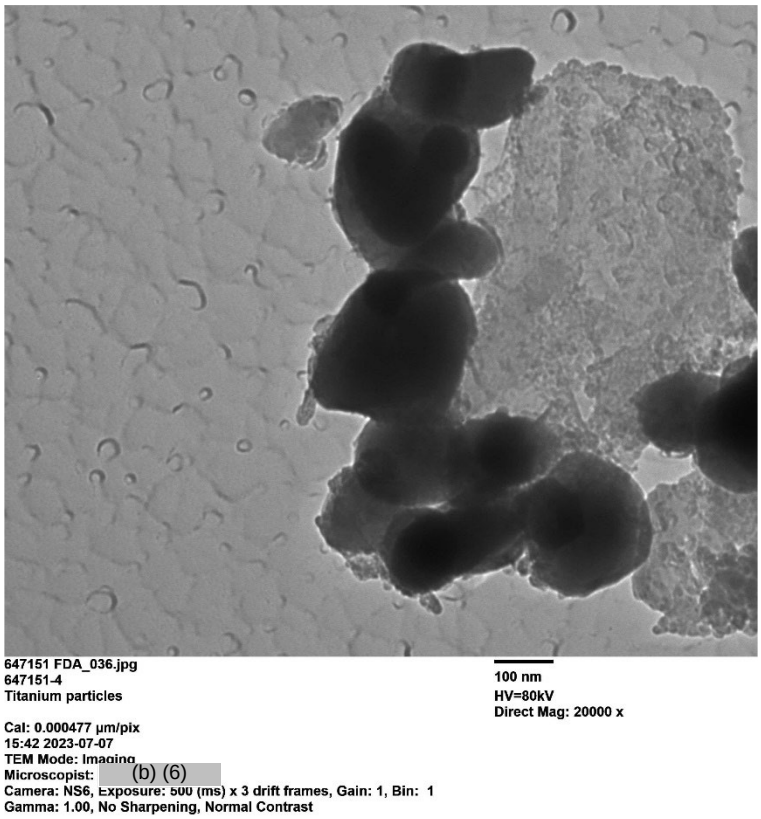
Cal: 0.003183 µm/pix
15:41 2023-07-07
TEM Mode: Diffraction
Microscopist: (b) (6)
Camera: NS6, Exposure: 500 (ms) x 3 drift frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

0.2 Å⁻¹
HV=80kV
Cam Len: 0.2000 m

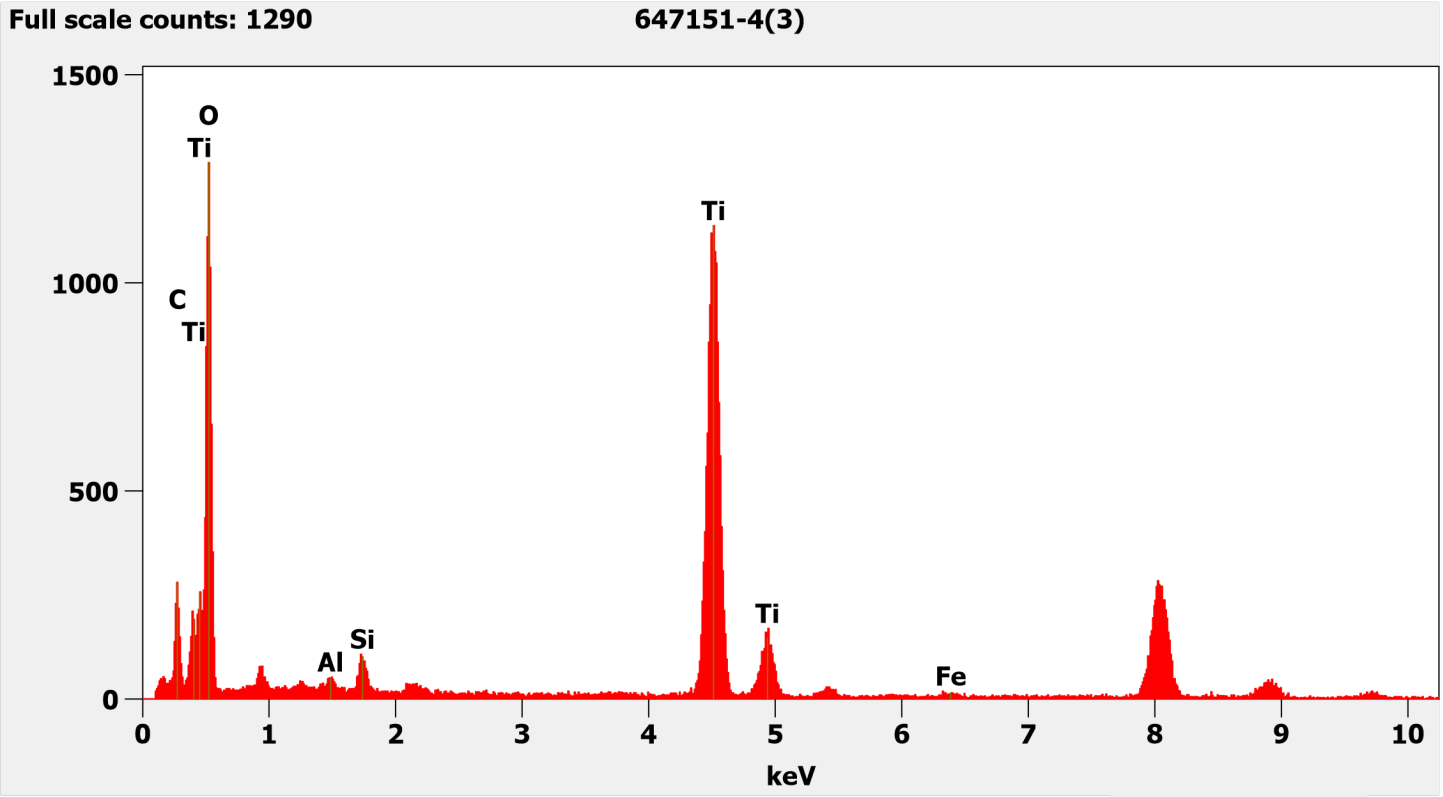
Chemistry from the Mica Particle Pictured Above



647151-4, Titanium Particles



Chemistry from the Titanium Particles Pictured Above



647151-5, 5A, 5B/Client Sample: 04252023-5

PLM

All three aliquots of sample 04252023-5 were analyzed by (b) (6) on July 31, 2023. No asbestos or non-asbestos amphibole variants were observed during analysis. The results were calculated using the equations detailed in the *Calculations* section above.

647151-5	No Asbestos Detected
647151-5A	No Asbestos Detected
647151-5B	No Asbestos Detected

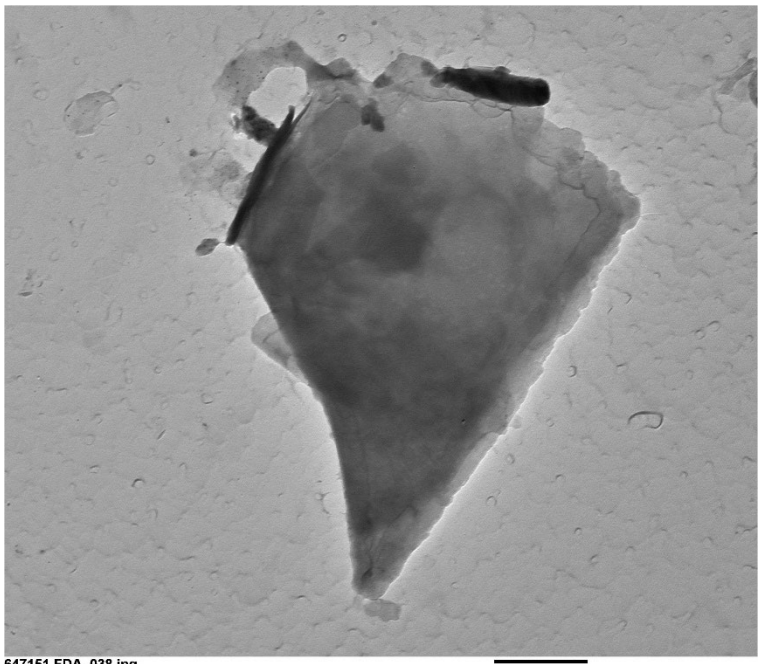
TEM

(b) (6) analyzed aliquot 5 on July 10, (b) (6) analyzed aliquots 5A and 5B on July 19, 2023. The primary particle observed was talc; talc ribbons/fibers and silica spheres were also observed along with mica, calcium, silicon, and titanium 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.

647151-5	No Asbestos Detected
647151-5A	No Asbestos Detected
647151-5B	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.

647151-5, Talc Particle

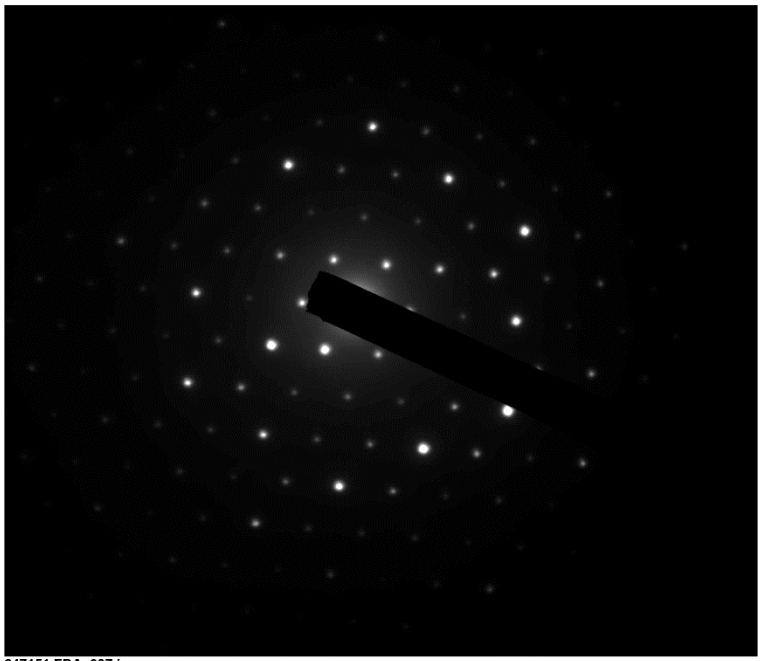


647151 FDA_038.jpg
647151-5
Talc

Cal: 0.001209 µm/pix
11:38 2023-07-10
TEM Mode: Imaging
Microscopist: (b) (6)
Camera: NS6, Exposure: 500 (ms) x 3 std. frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

400 nm
HV=80kV
Direct Mag: 8000 x

Hexagonal Diffraction Pattern from the Talc Particle Pictured Above

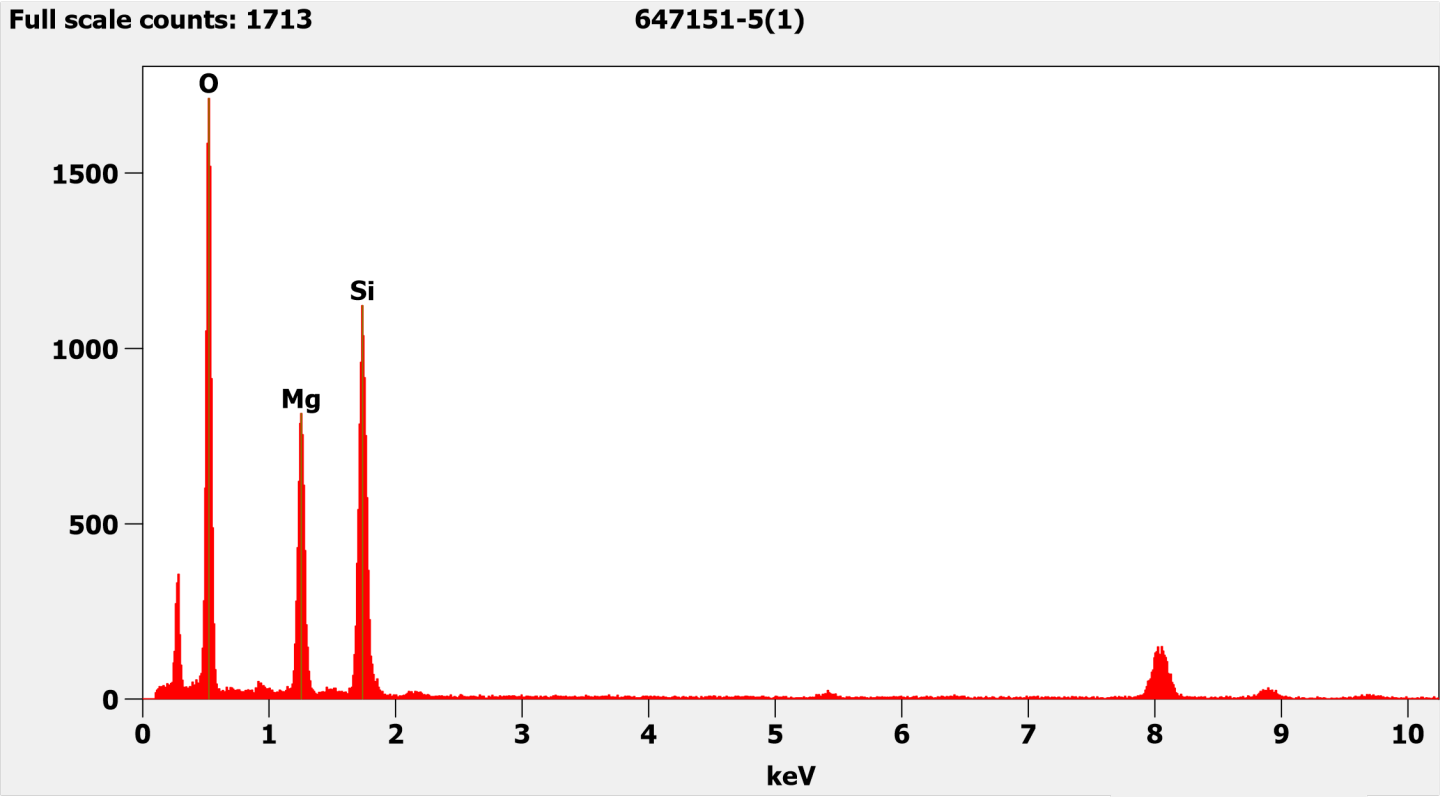


647151 FDA_037.jpg
647151-5
Talc

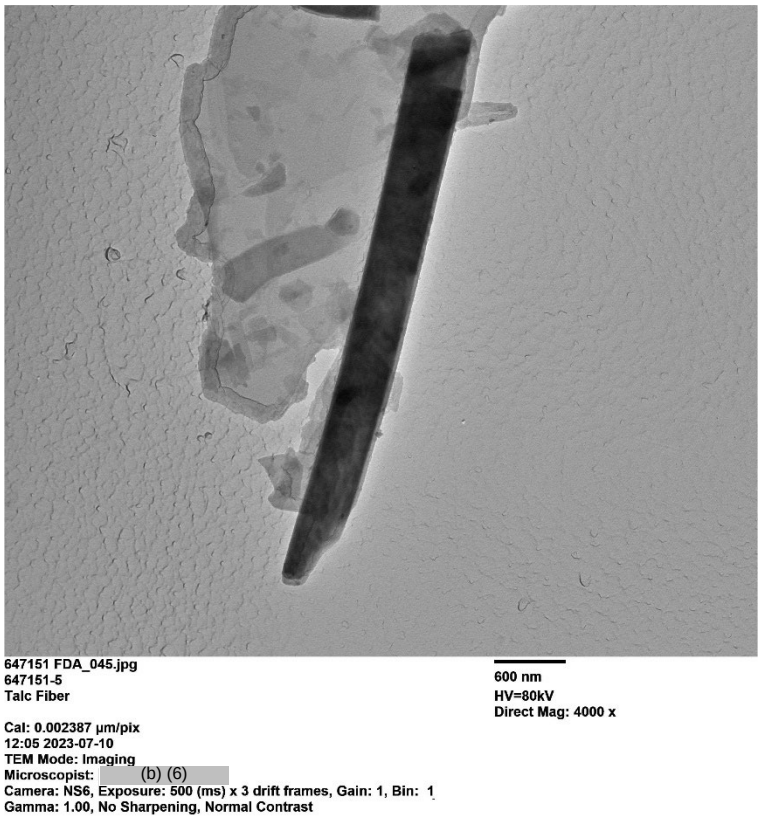
11:35 2023-07-10
TEM Mode: Diffraction
Microscopist: (b) (6)
Camera: NS6, Exposure: 500 (ms) x 3 std. frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

0.2 Å⁻¹
HV=80kV
Cam Len: 0.2000 m

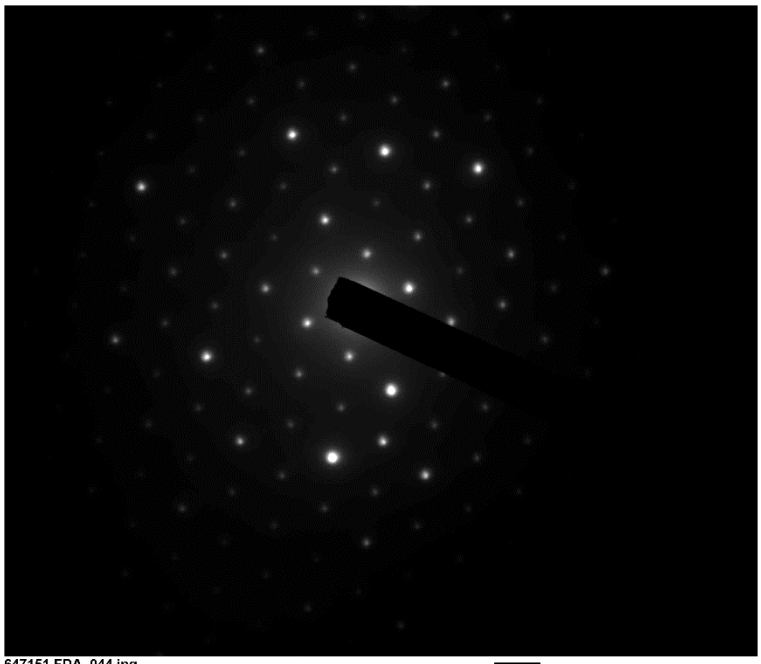
Chemistry from the Talc Particle Pictured Above



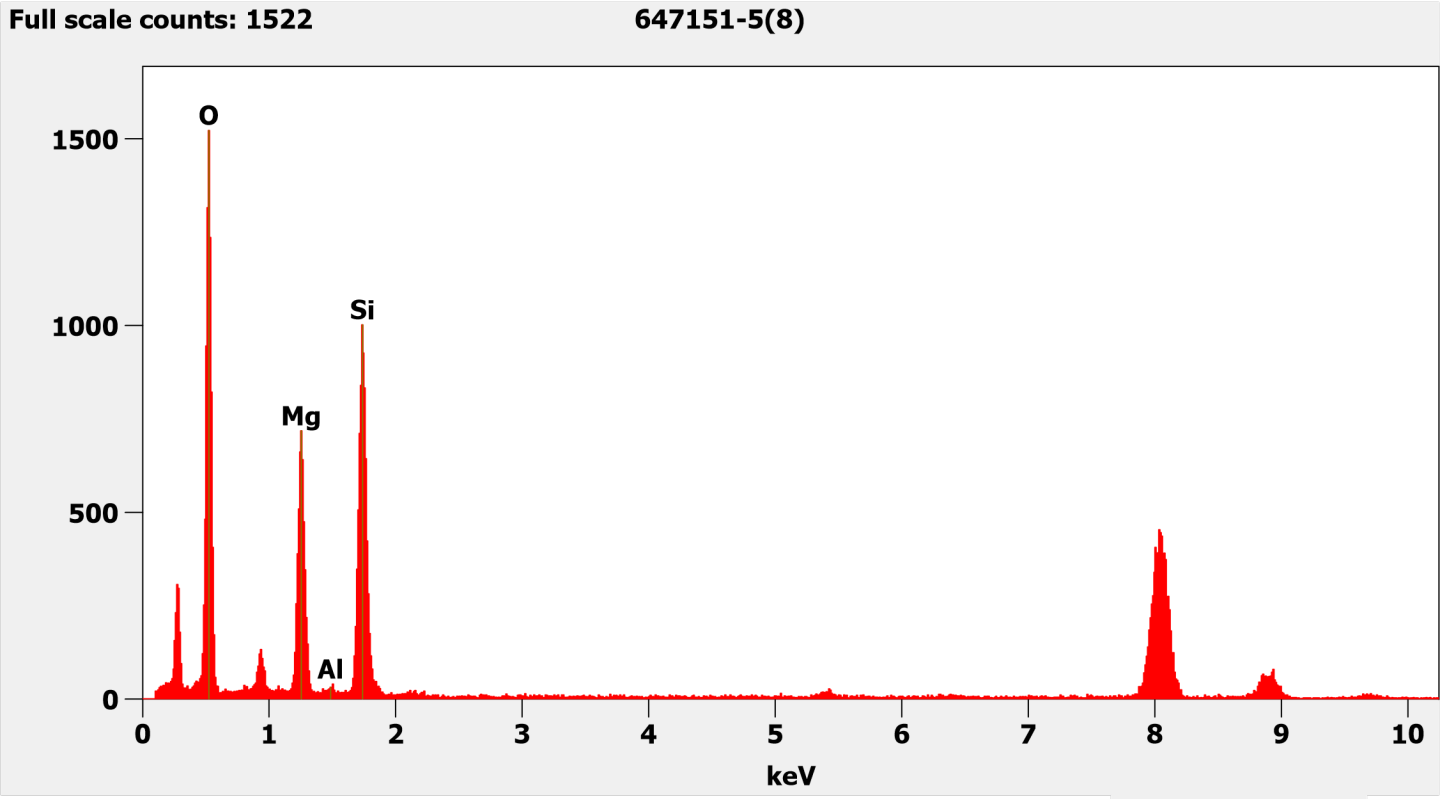
647151-5, Elongated Talc Particle



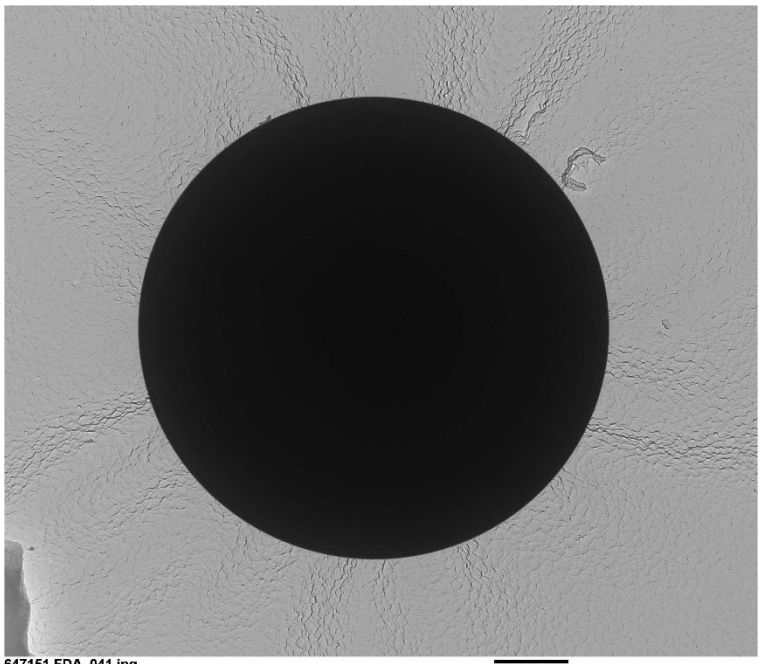
Hexagonal Diffraction Pattern from the Elongated Talc Particle Pictured Above



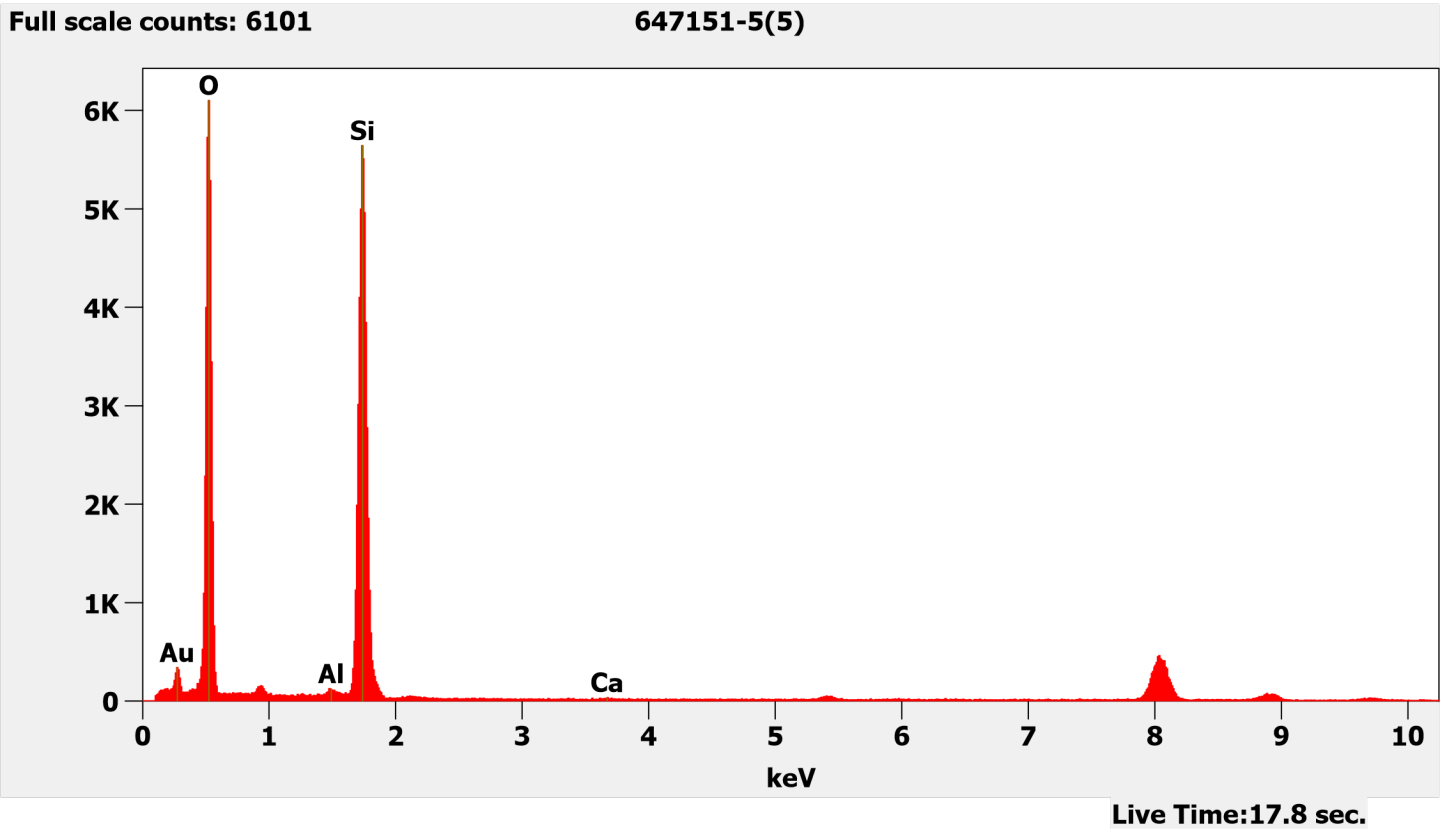
Chemistry from the Elongated Talc Particle Pictured Above



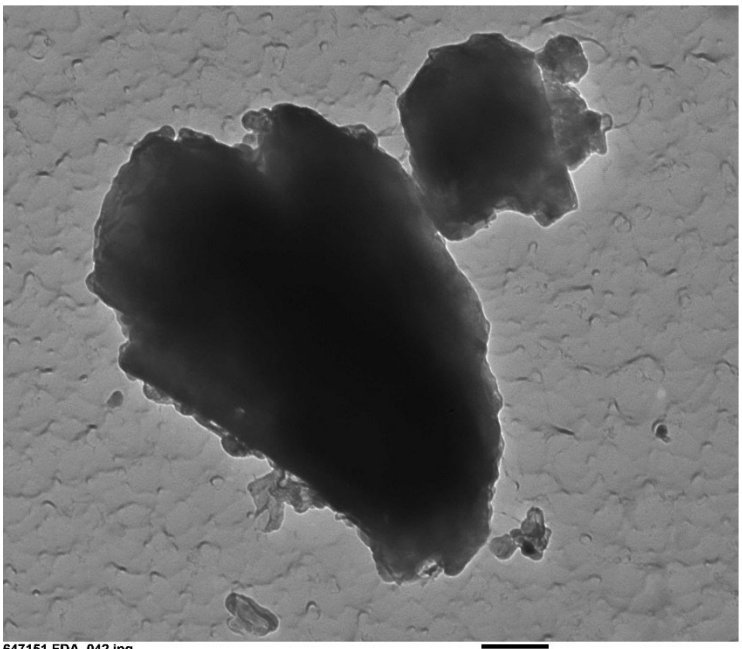
647151-5, Silica Sphere



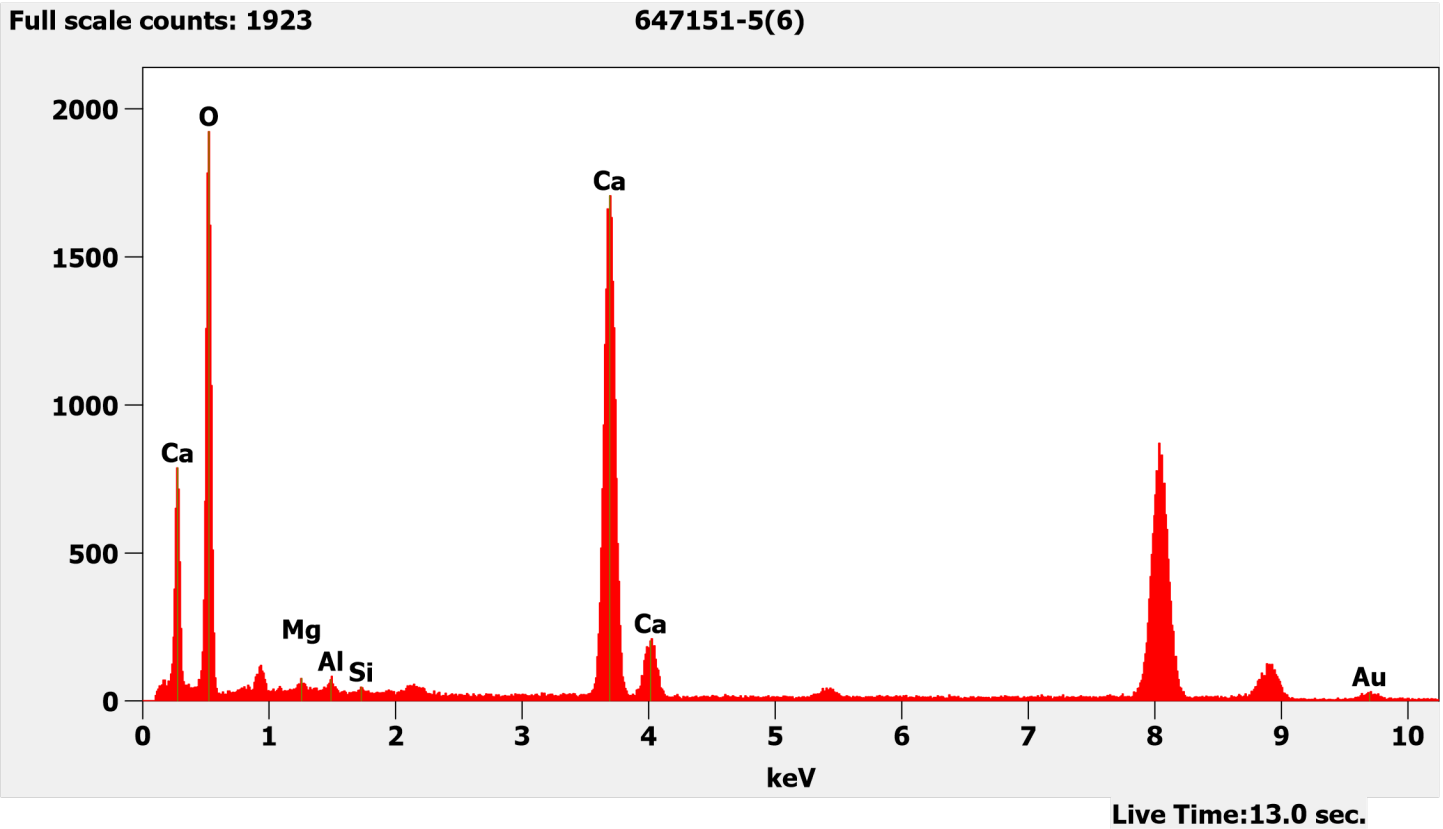
Chemistry from the Silica Sphere Pictured Above



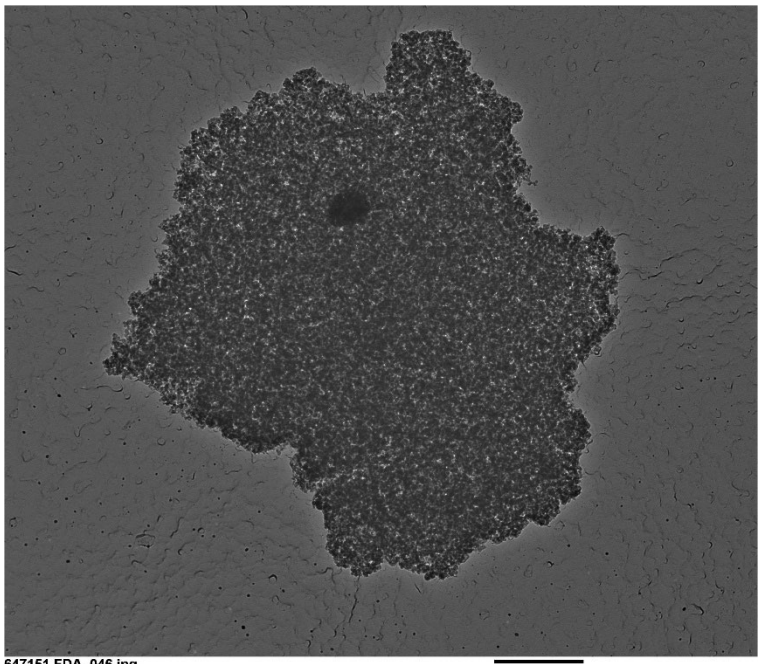
647151-5, Calcium Particles



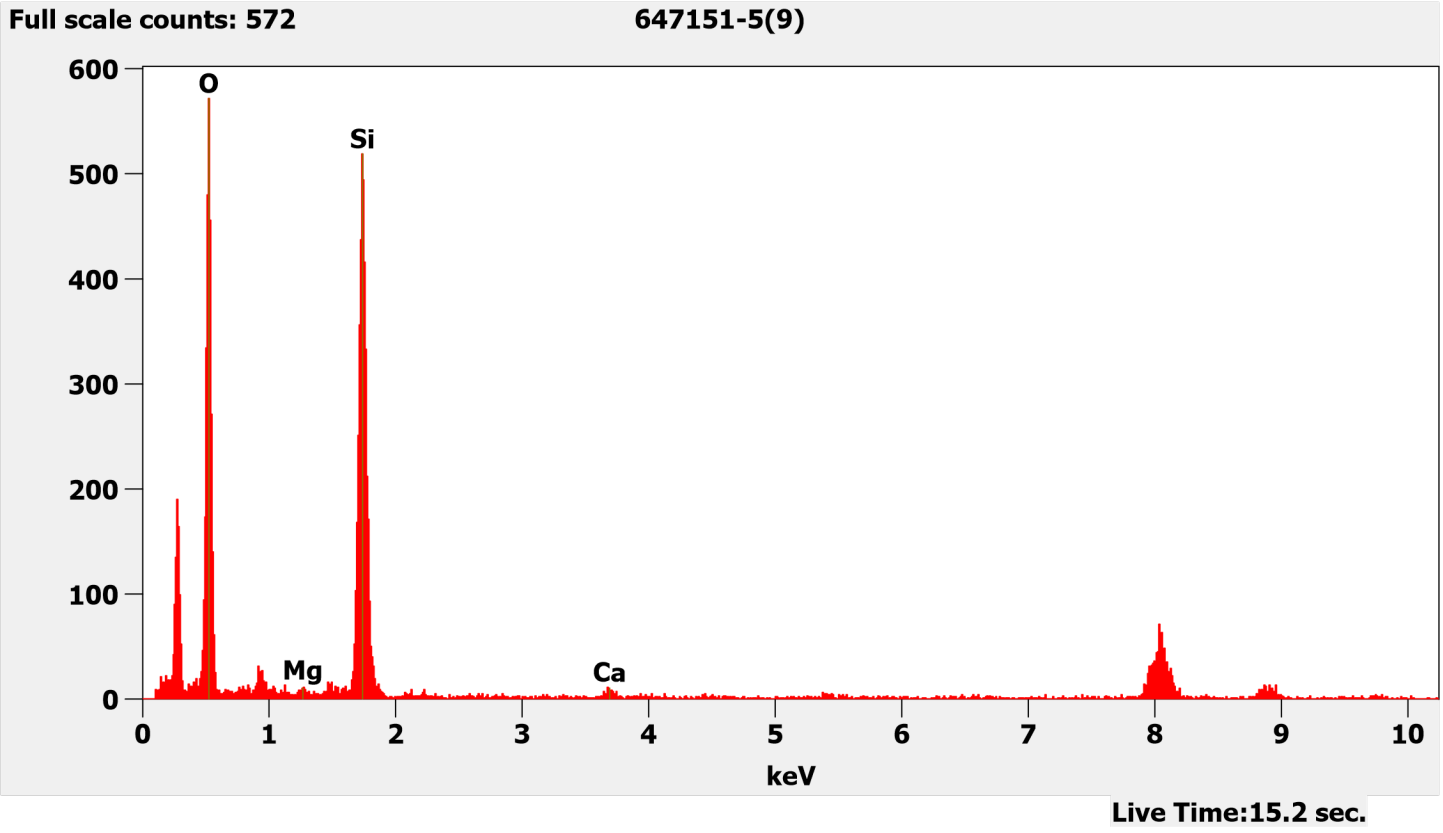
Chemistry from the Calcium Particles Pictured Above



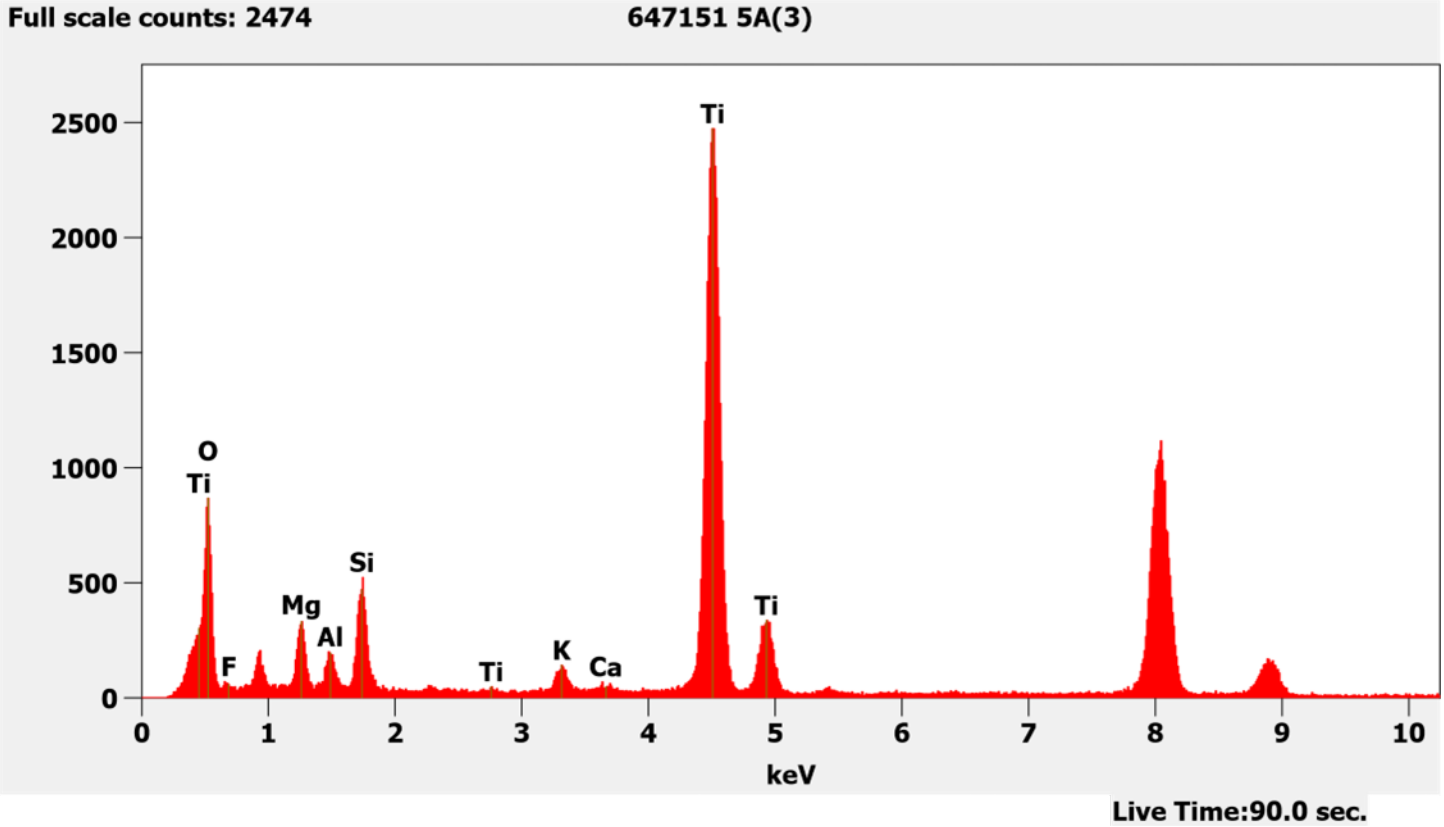
647151-5, Silicon Particles



Chemistry from the Silicon Particles Pictured Above



647151-5A, Chemistry from Titanium Particles



647151-6, 6A, 6B/Client Sample: 04252023-6

PLM

All three aliquots of sample 04252023-6 were analyzed by (b) (6) on July 31, 2023. No asbestos or non-asbestos amphibole variants were observed during analysis. The results were calculated using the equations detailed in the *Calculations* section above.

647151-6	No Asbestos Detected
647151-6A	No Asbestos Detected
647151-6B	No Asbestos Detected

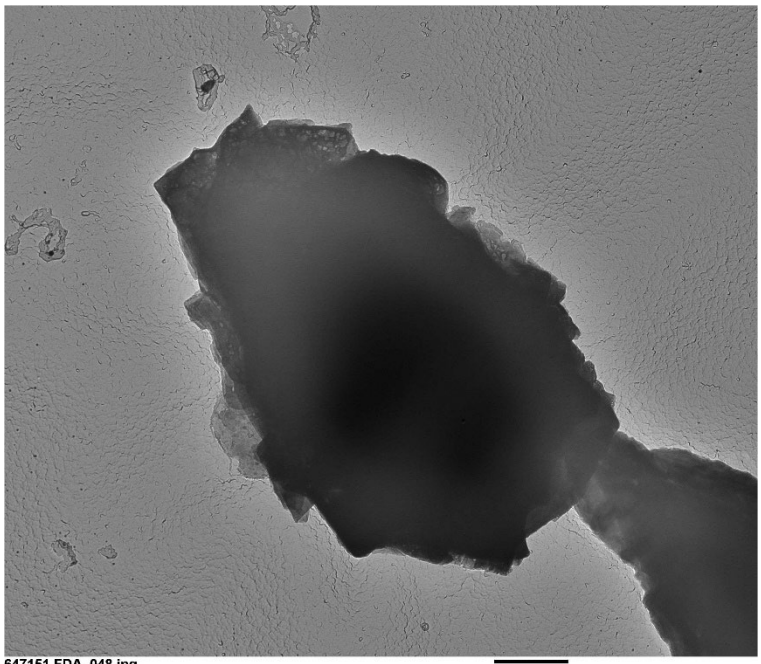
TEM

(b) (6) analyzed aliquot 6 July 11, 2023. (b) (6) analyzed aliquots 6A and 6B on July 20, 2023. The primary particle observed was talc; mica particles, silica spheres, and titanium particles were also observed along with talc ribbons/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.

647151-6	No Asbestos Detected
647151-6A	No Asbestos Detected
647151-6B	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.

647151-6, Talc Particle

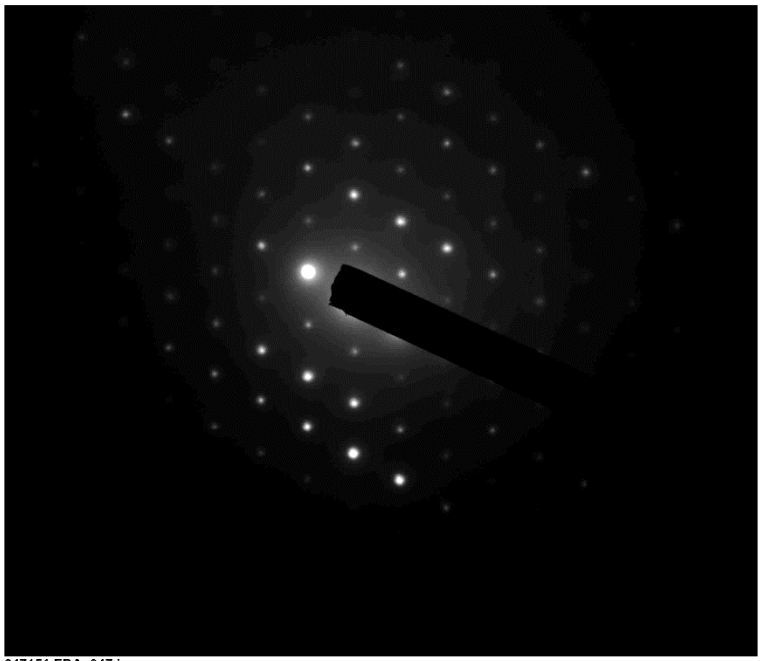


647151 FDA_048.jpg
647151-6
Talc

Cal: 0.003819 µm/pix
10:33 2023-07-11
TEM Mode: Imaging
Microscopist: (b) (6)
Camera: NS6, Exposure: 500 (ms) x 3 std. frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

1 µm
HV=80kV
Direct Mag: 2500 x

Hexagonal Diffraction Pattern from the Talc Particle Pictured Above

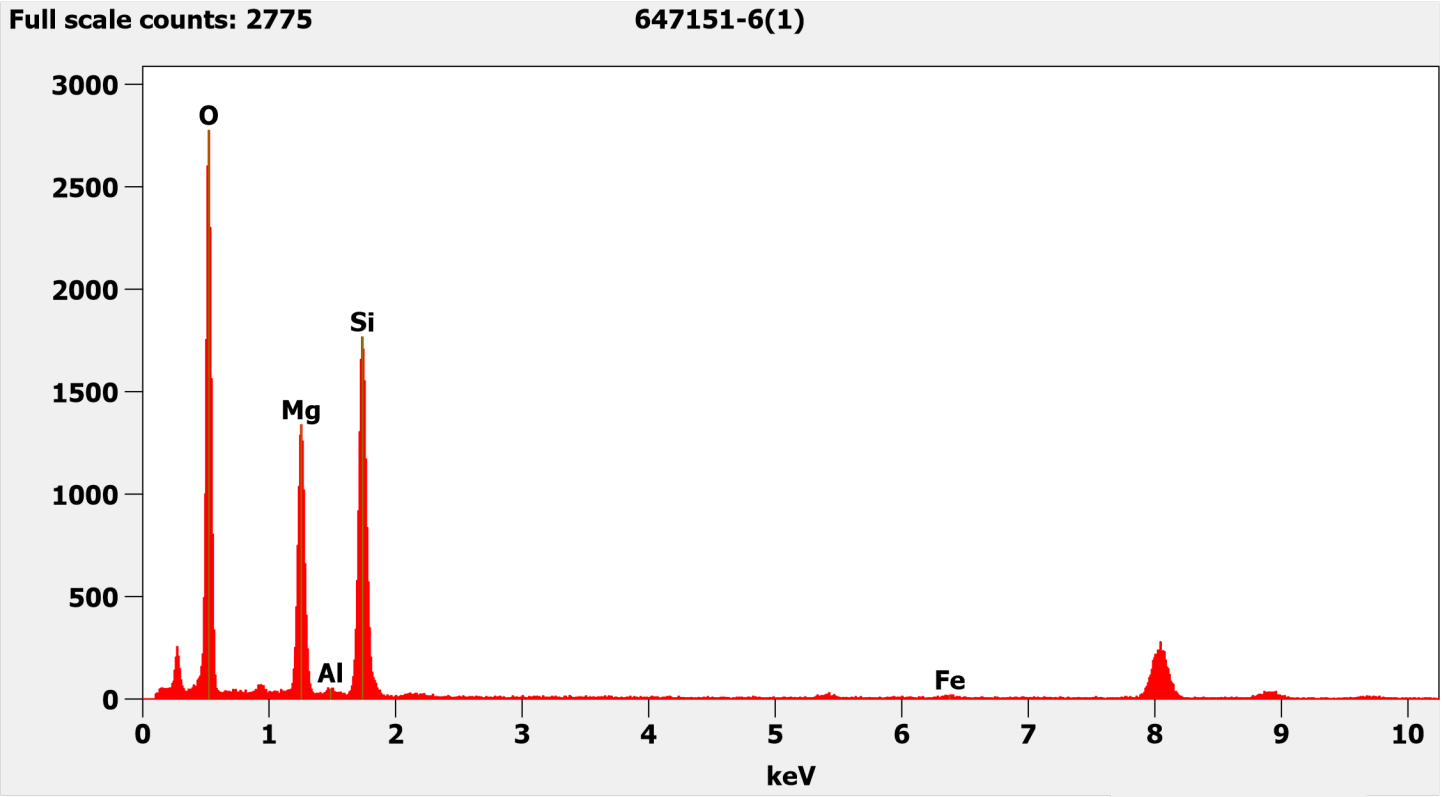


647151 FDA_047.jpg
647151-6
Talc

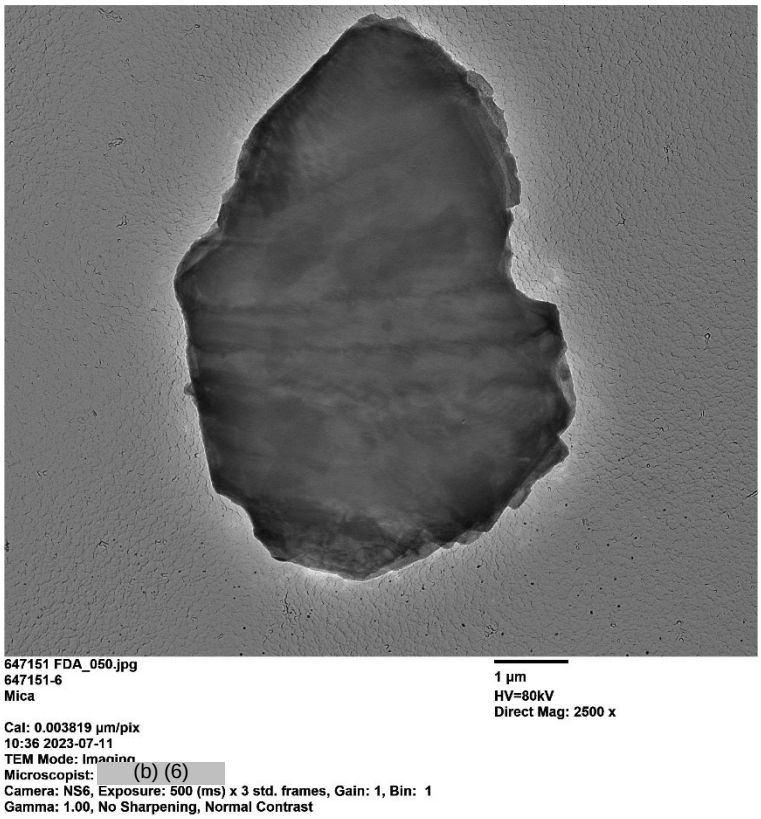
10:31 2023-07-11
TEM Mode: Diffraction
Microscopist: (b) (6)
Camera: NS6, Exposure: 500 (ms) x 3 std. frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

0.2 Å⁻¹
HV=80kV
Cam Len: 0.2000 m

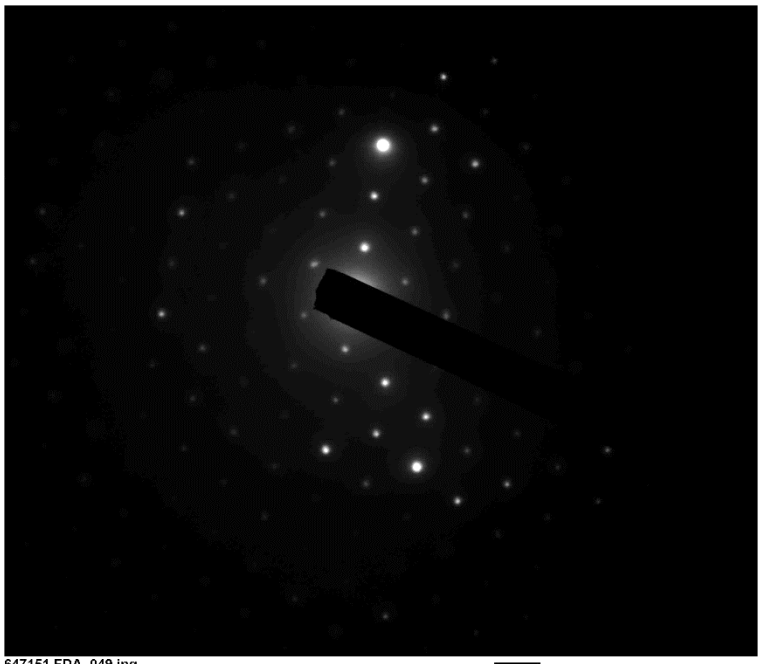
Chemistry from the Talc Particle Pictured Above



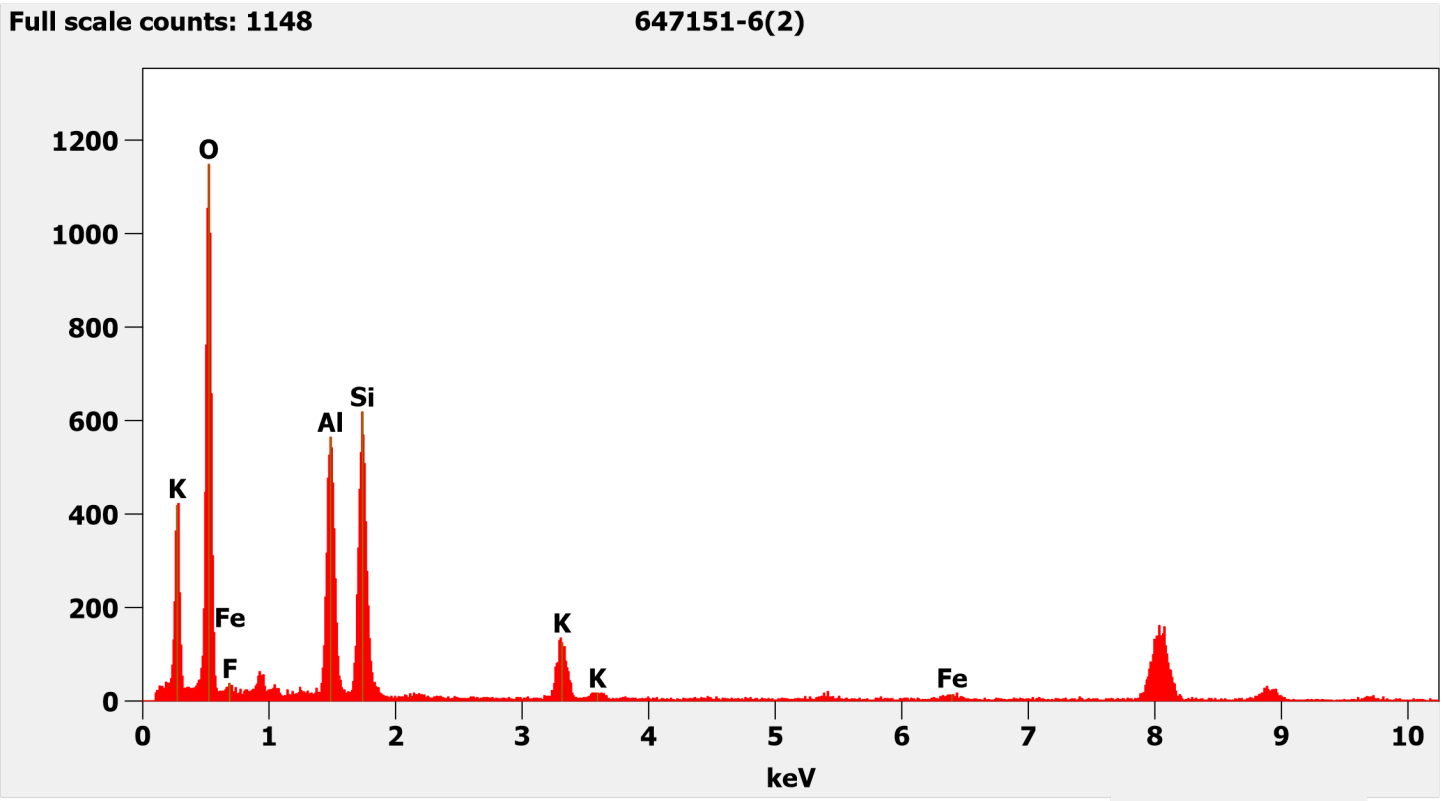
647151-6, Mica Particle (Layered)



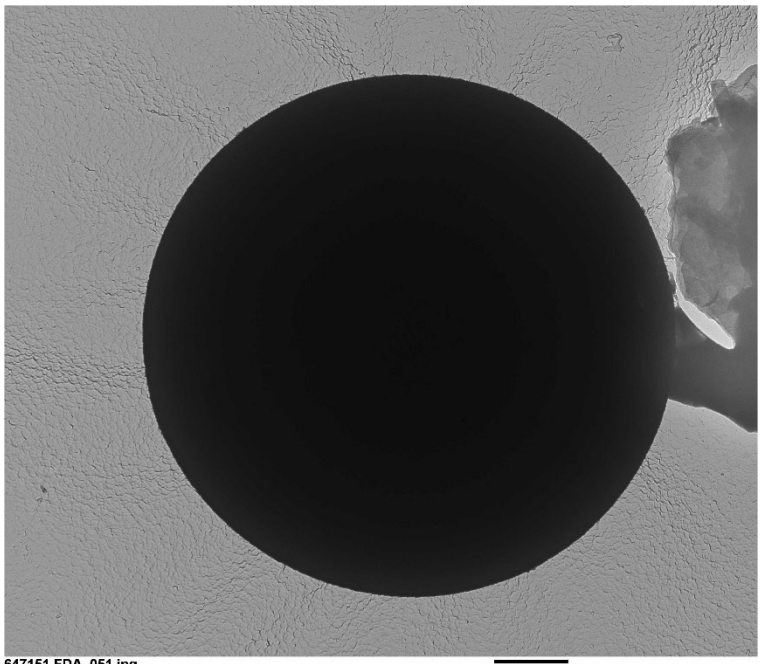
Diffraction Pattern from the Mica Particle (Layered) Pictured Above



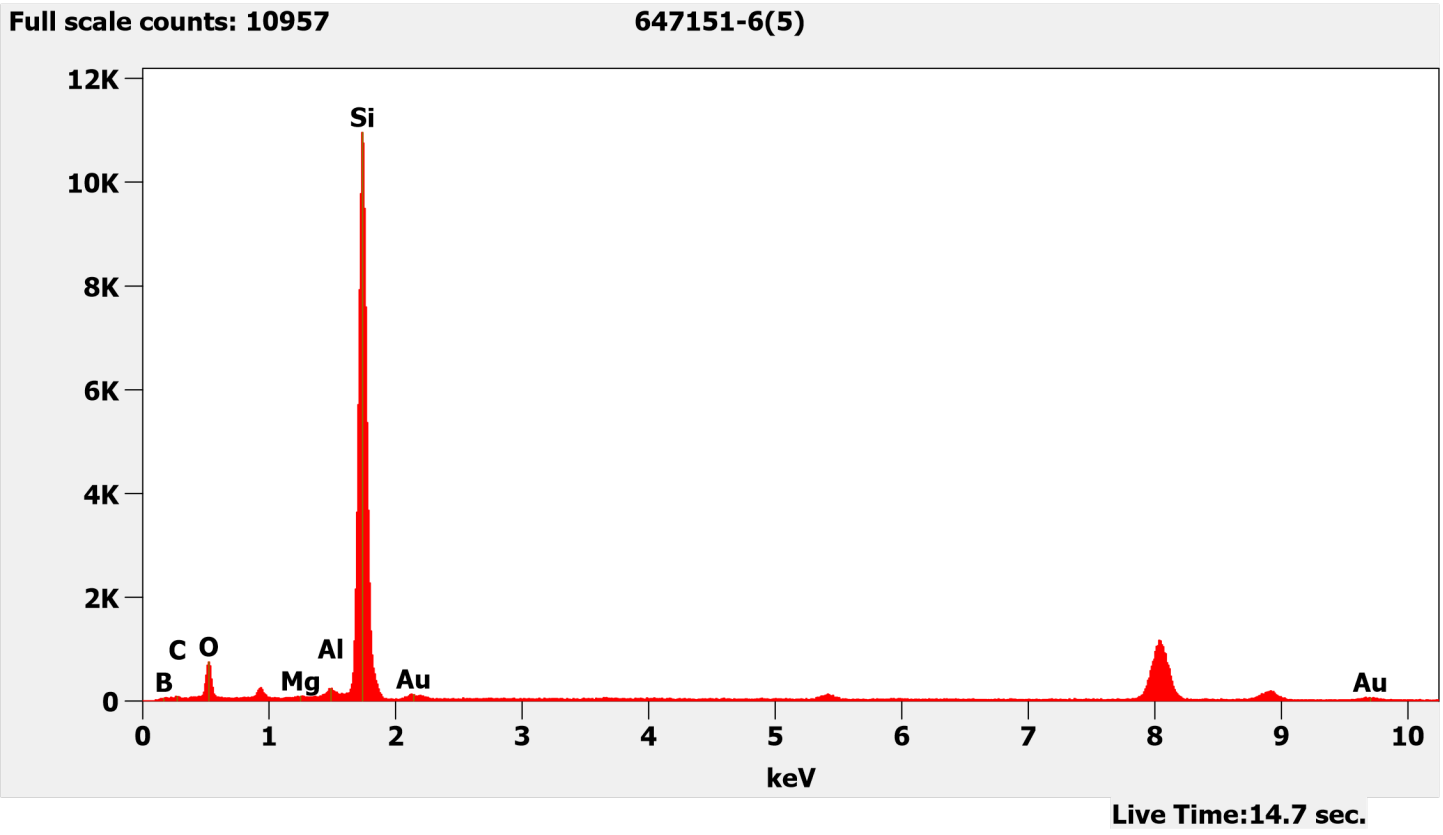
Chemistry from the Mica Particle (Layered) Pictured Above



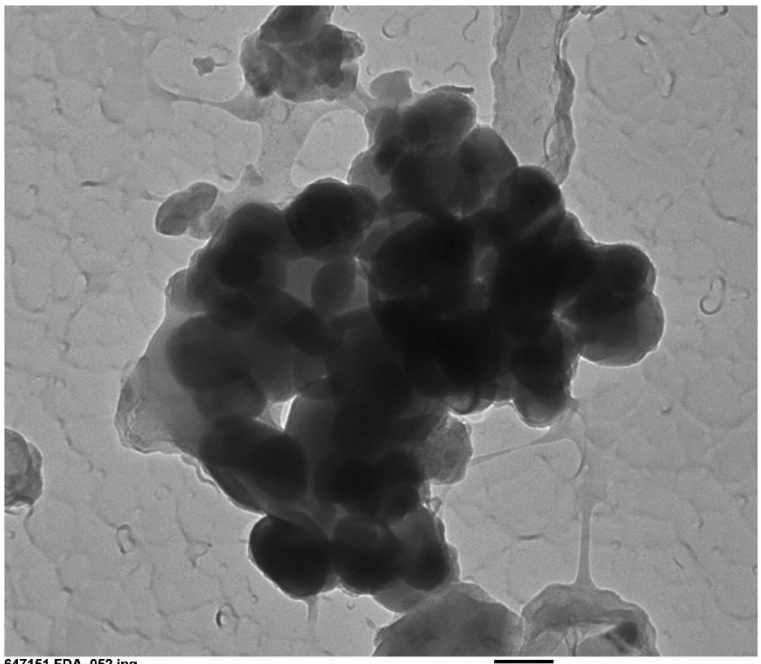
647151-6, Silica Sphere



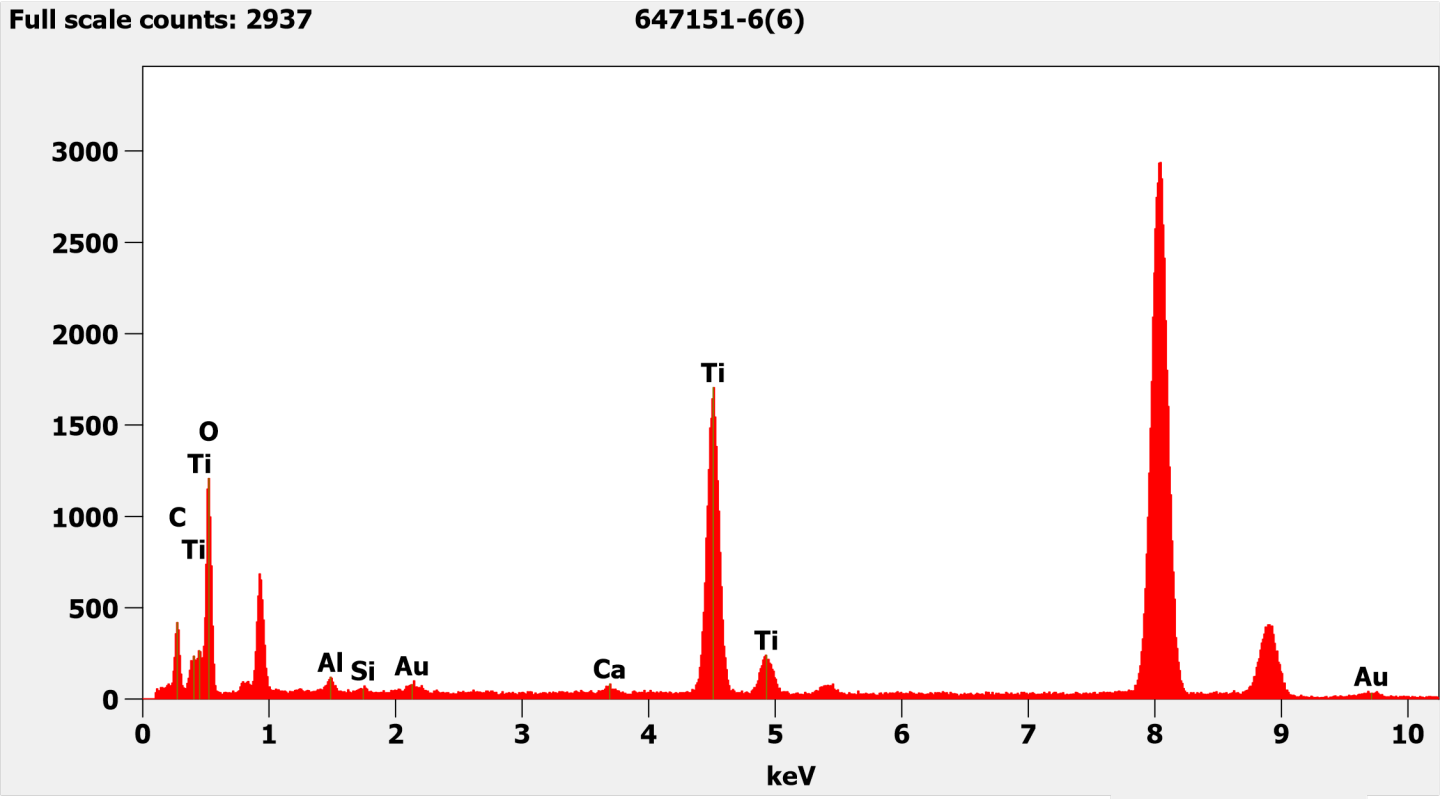
Chemistry from the Silica Sphere Pictured Above



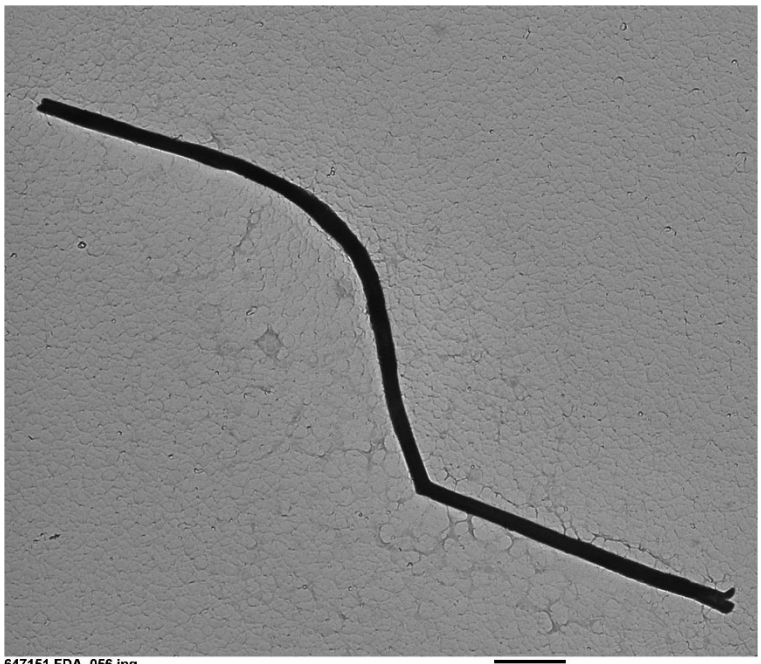
647151-6, Titanium Particles



Chemistry from the Titanium Particles Pictured Above



647151-6, Talc Ribbon

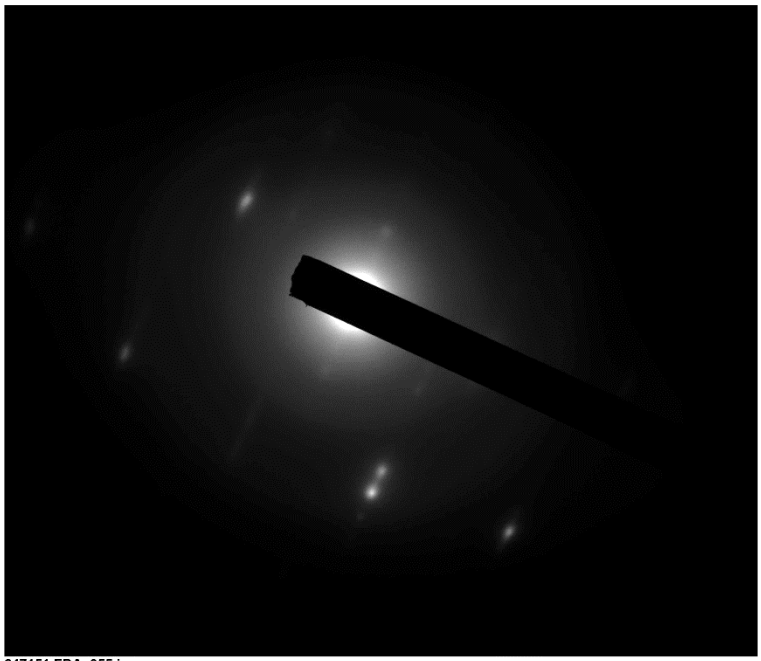


647151 FDA_056.jpg
647151-6
Talc Ribbon

Cal: 0.002387 µm/pix
11:39 2023-07-11
TEM Mode: Imaging
Microscopist: (b) (6)
Camera: NS6, Exposure: 500 (ms) x 3 std. frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

600 nm
HV=80kV
Direct Mag: 4000 x

Diffraction Pattern from the Talc Ribbon Pictured Above

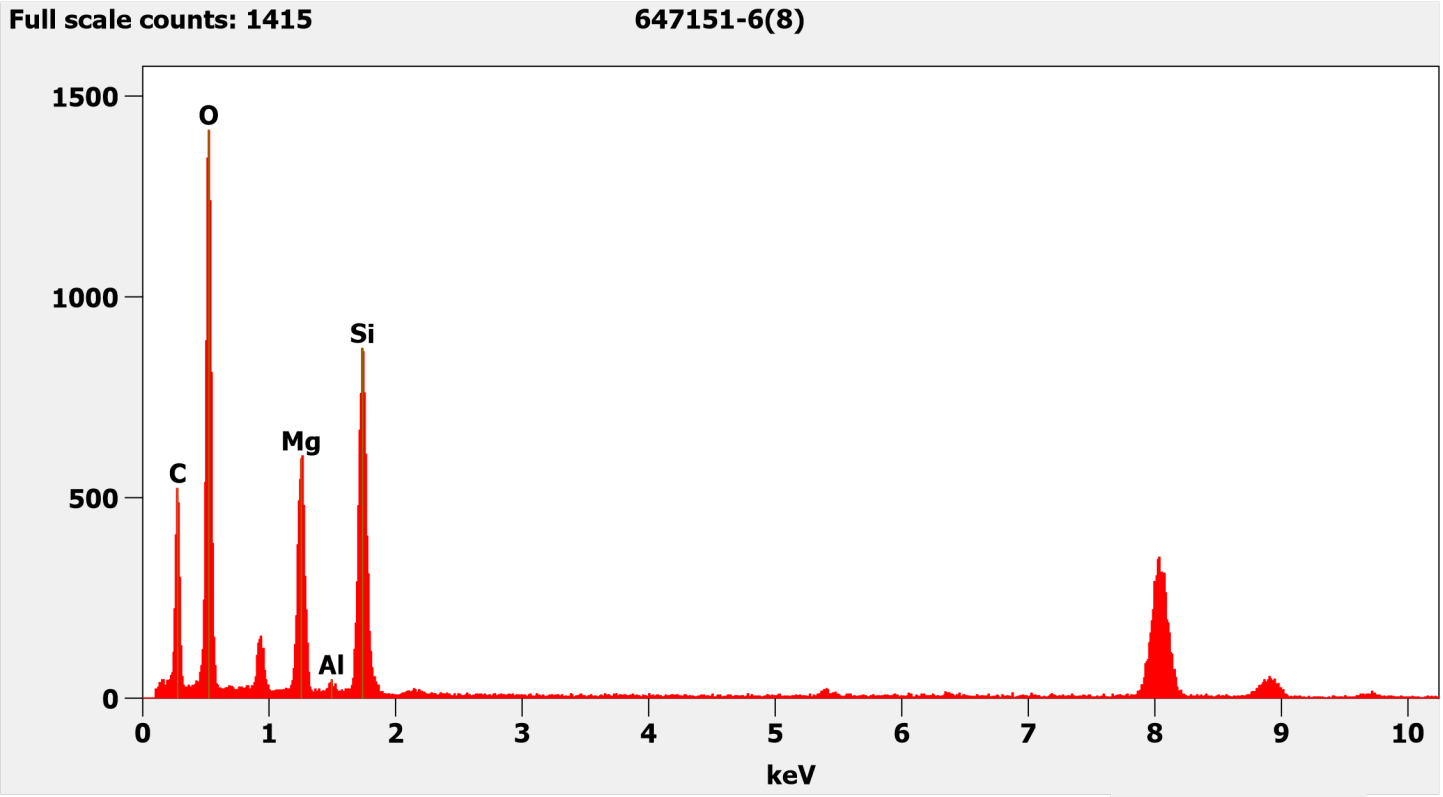


647151 FDA_055.jpg
647151-6
Talc Ribbon

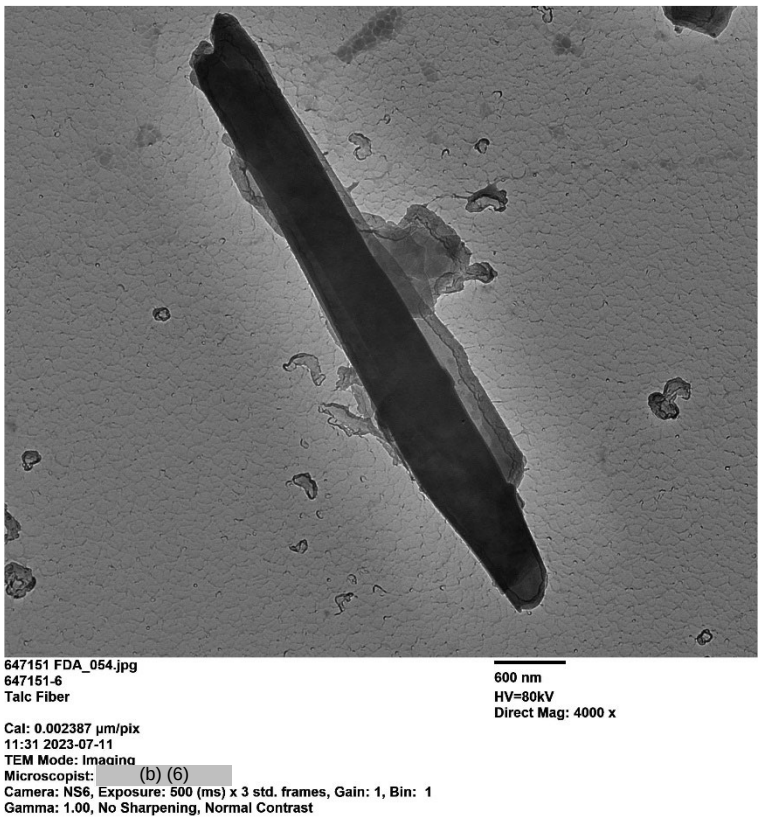
Cal: 0.002387 µm/pix
11:36 2023-07-11
TEM Mode: Diffraction
Microscopist: (b) (6)
Camera: NS6, Exposure: 500 (ms) x 3 std. frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

0.2 Å⁻¹
HV=80kV
Cam Len: 0.2000 m

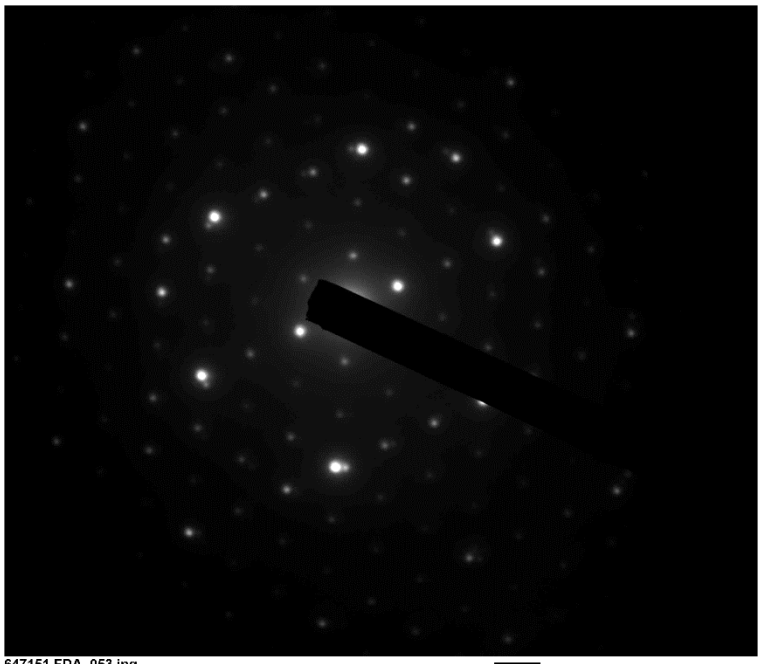
Chemistry from the Talc Ribbon Pictured Above



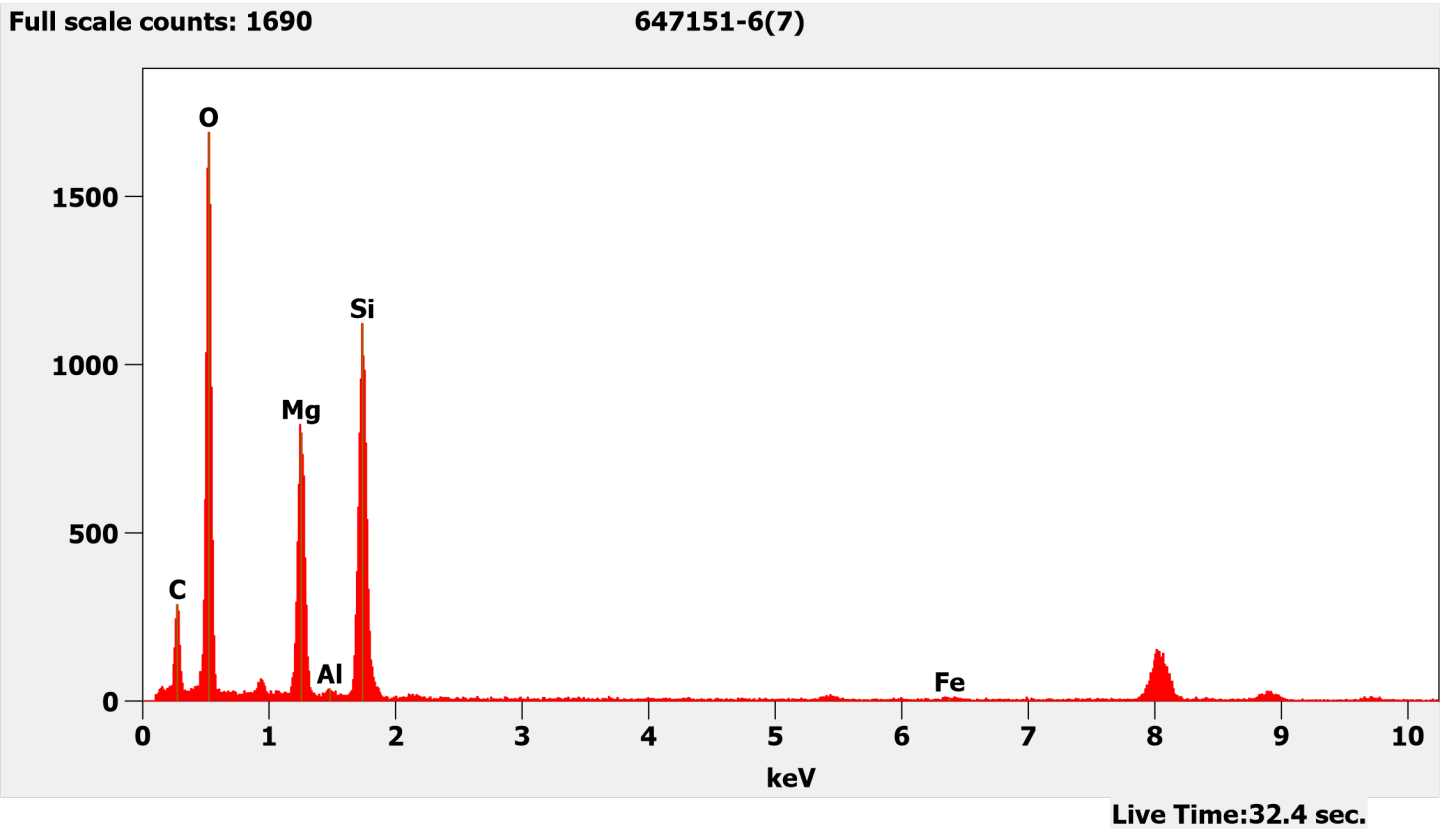
647151-6, Elongated Talc Particle



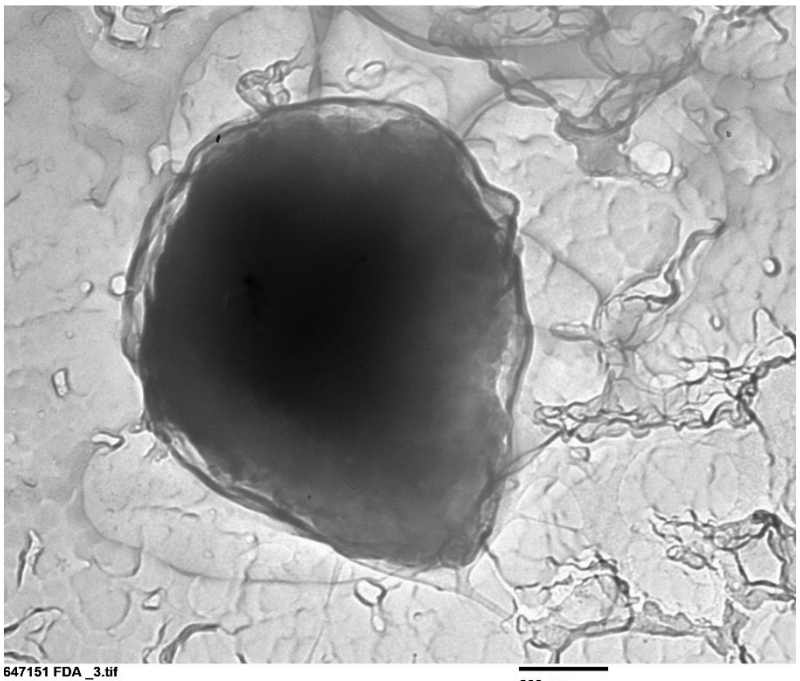
Hexagonal Diffraction Pattern from the Elongated Talc Particle Pictured Above



Chemistry from the Elongated Talc Particle Pictured Above

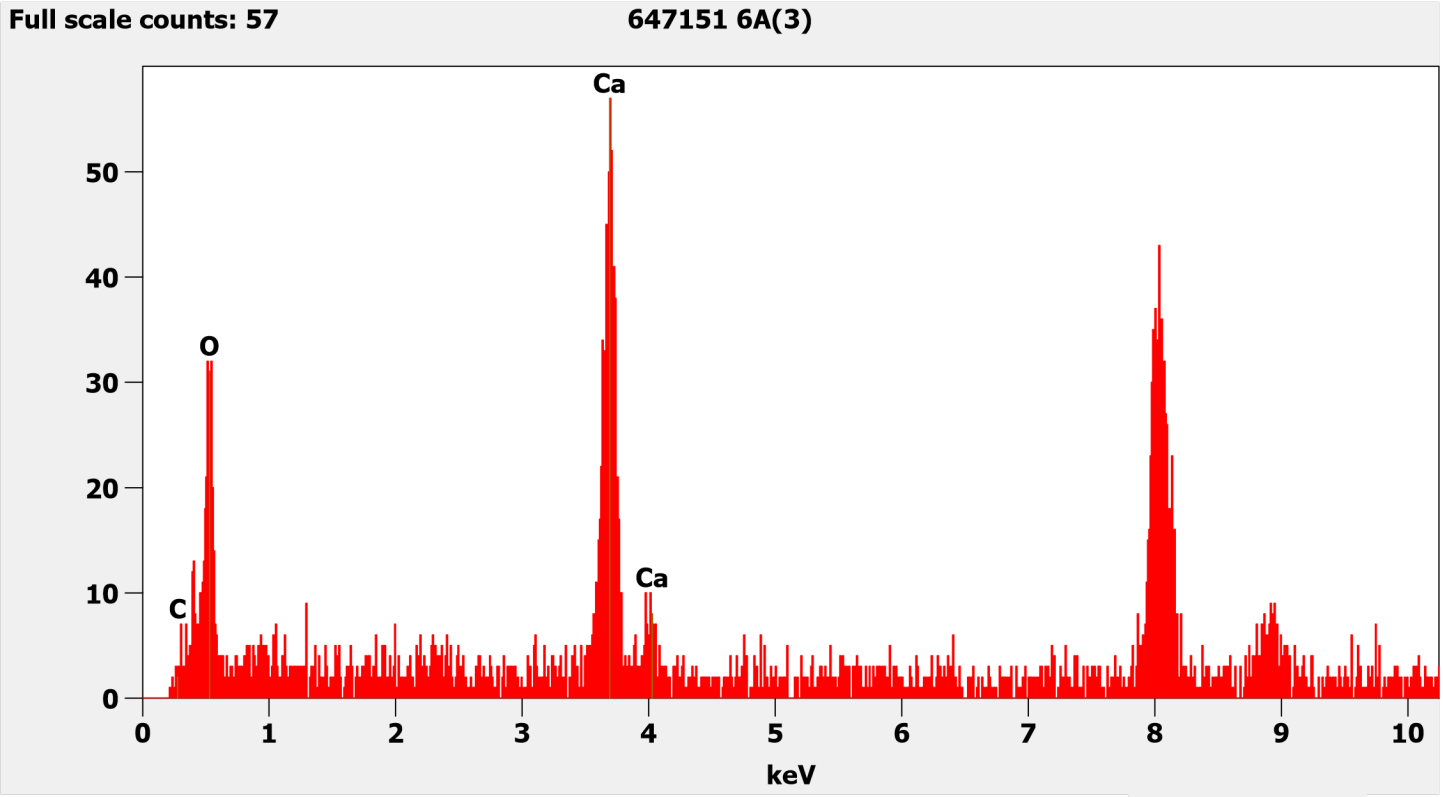


647151-6, Calcium Particle



Diffraction Pattern from the Calcium Particle Pictured Above

Chemistry from the Calcium Particle Pictured Above



647151-7, 7A, 7B/Client Sample: 04252023-7

PLM

All three aliquots of sample 04252023-7 were analyzed by (b) (6) on July 31, 2023. No asbestos or non-asbestos amphibole variants were observed during analysis. The results were calculated using the equations detailed in the *Calculations* section above.

647151-7	No Asbestos Detected
647151-7A	No Asbestos Detected
647151-7B	No Asbestos Detected

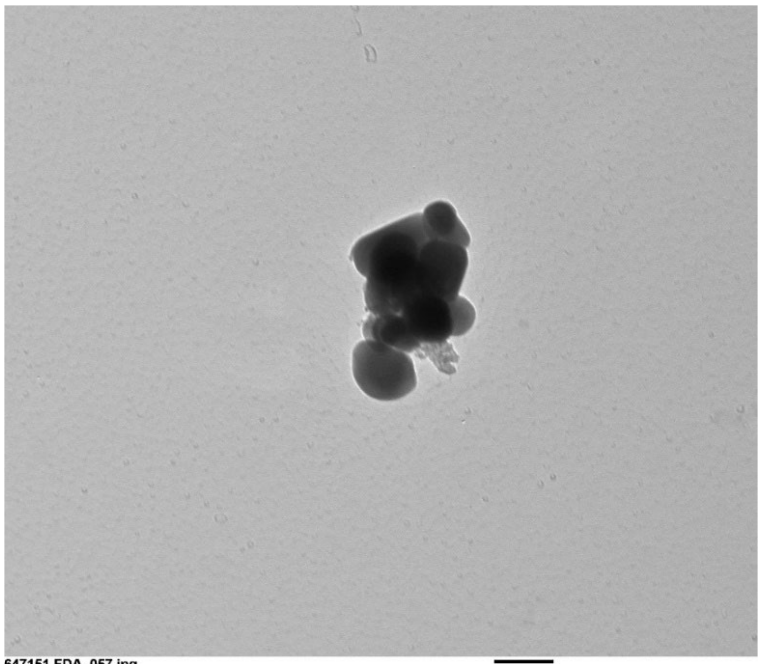
TEM

(b) (6) analyzed aliquot 7 on July 18, 2023. (b) (6) analyzed aliquot 7A on July 20, 2023, and aliquot 7B on July 21, 2023. The primary particle observed was titanium; talc and mica particles, and particles containing magnesium, aluminum, and silicon were also observed along with silicon particles and elongated titanium 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.

647151-7	No Asbestos Detected
647151-7A	No Asbestos Detected
647151-7B	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.

647151-7, Titanium Particles



647151 FDA_057.jpg
647151-7
Ti particles

Cal: 0.000955 µm/pix
16:42 2023-07-18
TEM Mode: Imaging
Microscopist: (b) (6)
Camera: NS6, Exposure: 500 (ms) x 3 std. frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

200 nm
HV=80kV
Direct Mag: 10000 x

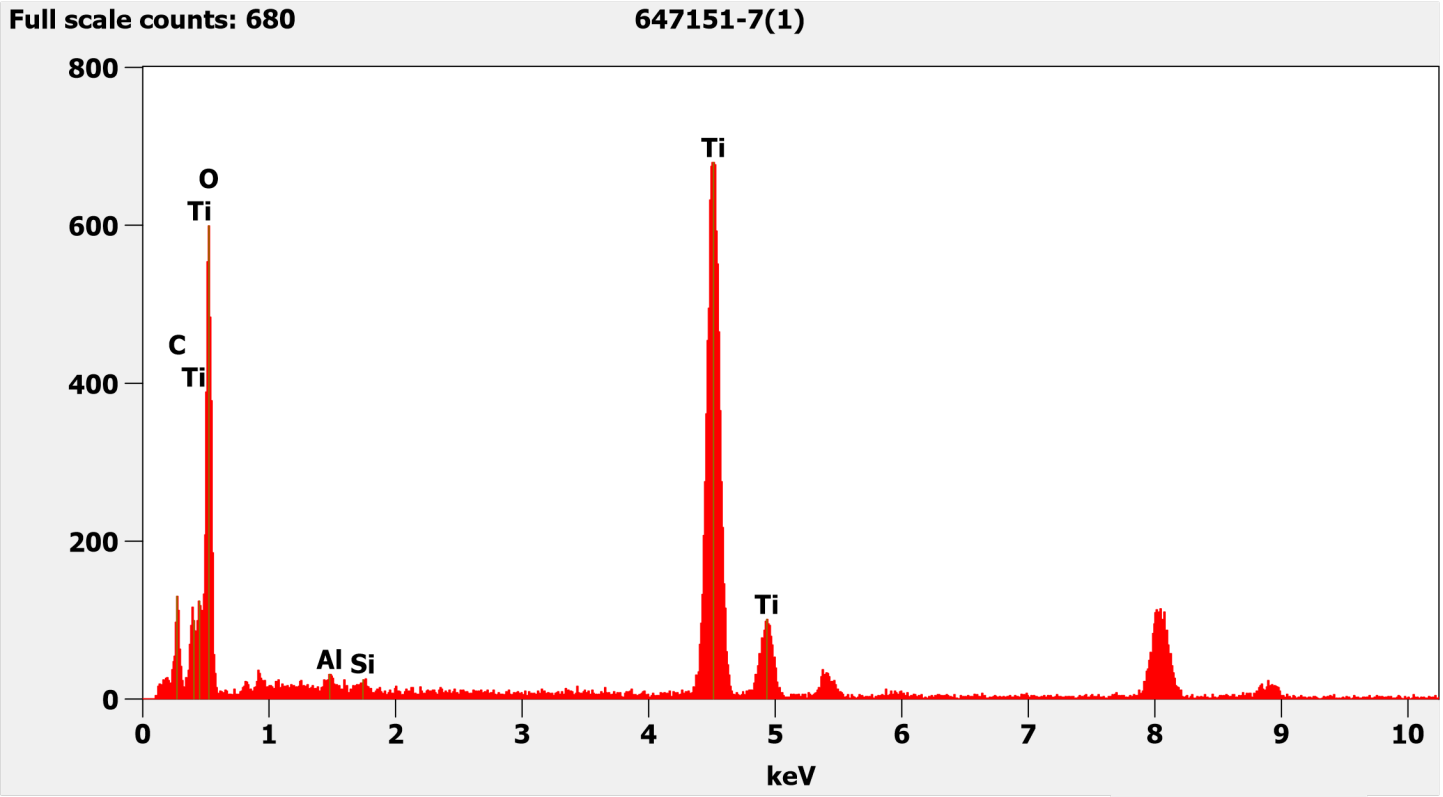
Diffraction Pattern from the Titanium Particles Pictured Above

647151 FDA_058.jpg
647151-7
Ti particles

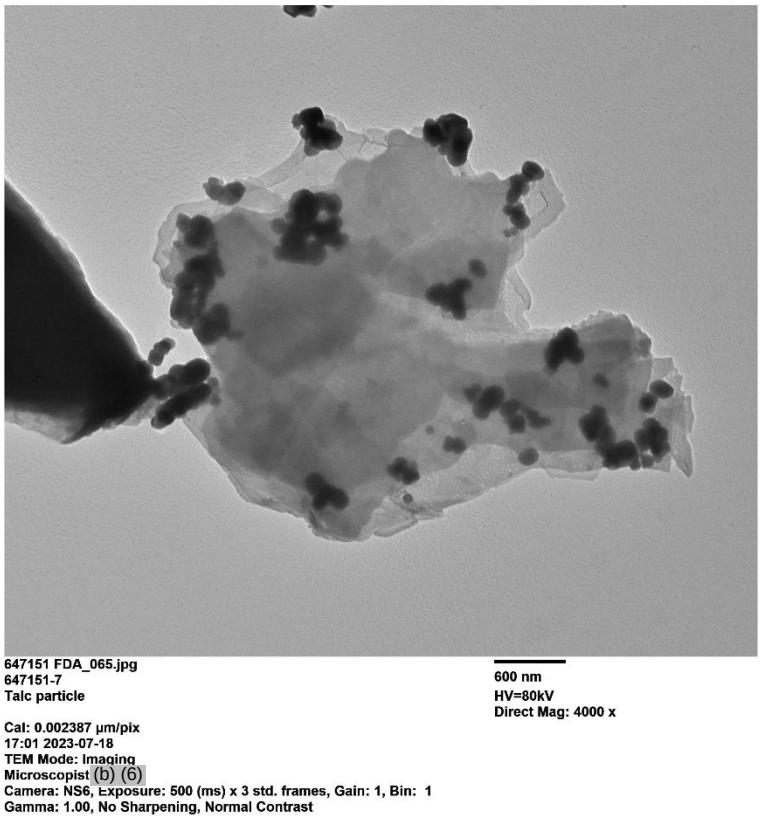
Cal: 0.000955 µm/pix
16:43 2023-07-18
TEM Mode: Diffraction
Microscopist: (b) (6)
Camera: NS6, Exposure: 500 (ms) x 3 std. frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

0.2 Å⁻¹
HV=80kV
Cam Len: 0.2000 m

Chemistry from the Titanium Particles Pictured Above

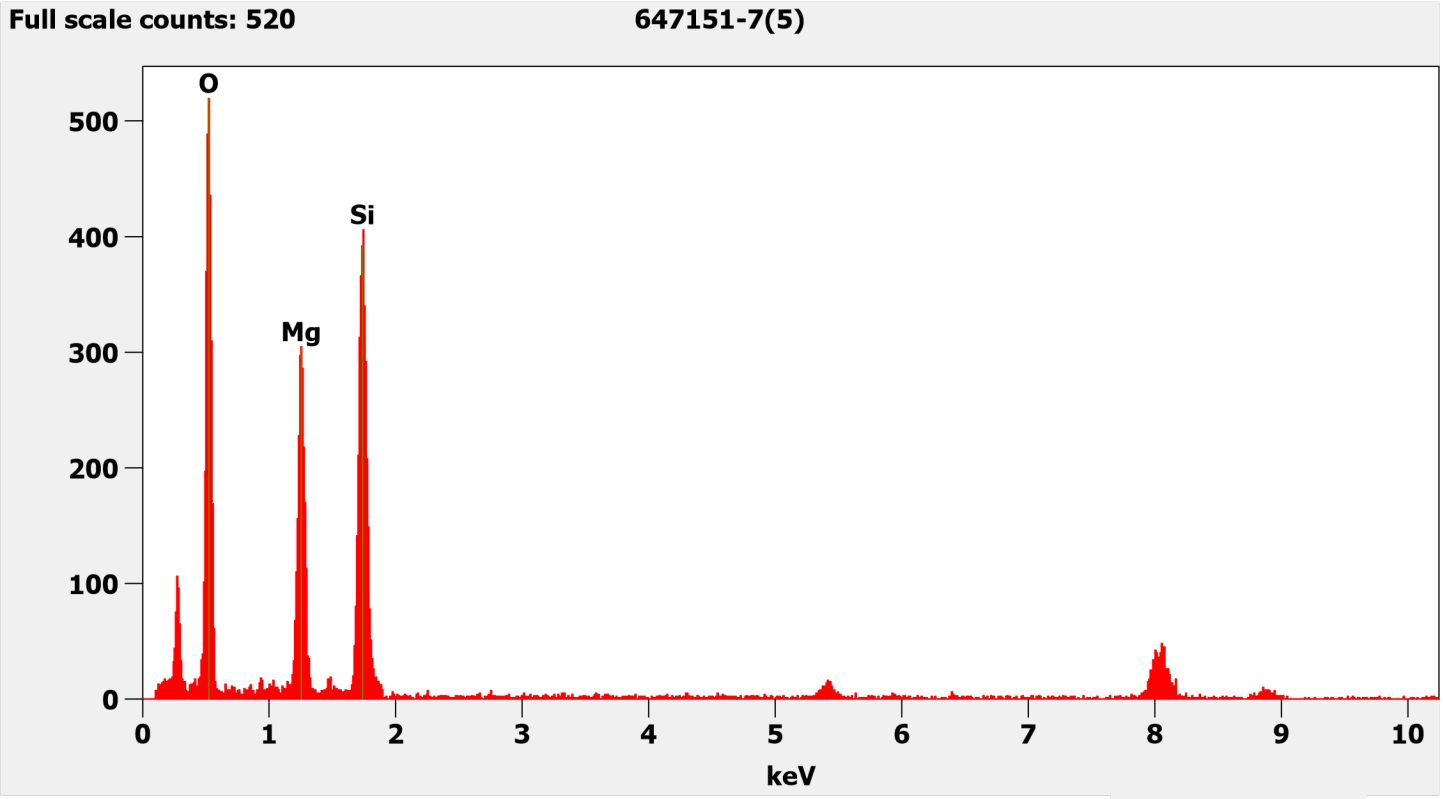


647151-7, Talc Particle

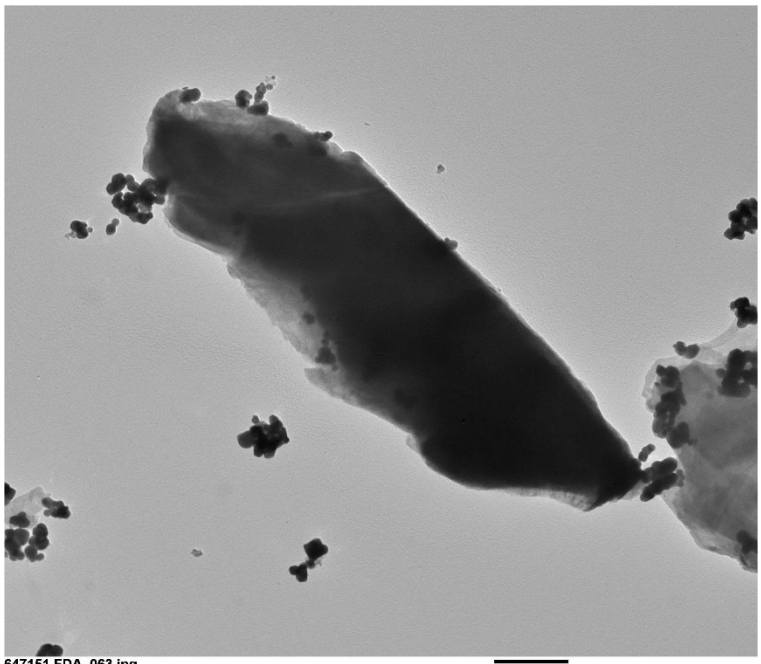


Hexagonal Diffraction Pattern from the Talc Particle Pictured Above

Chemistry from the Talc Particle Pictured Above



647151-7, Mica Particle

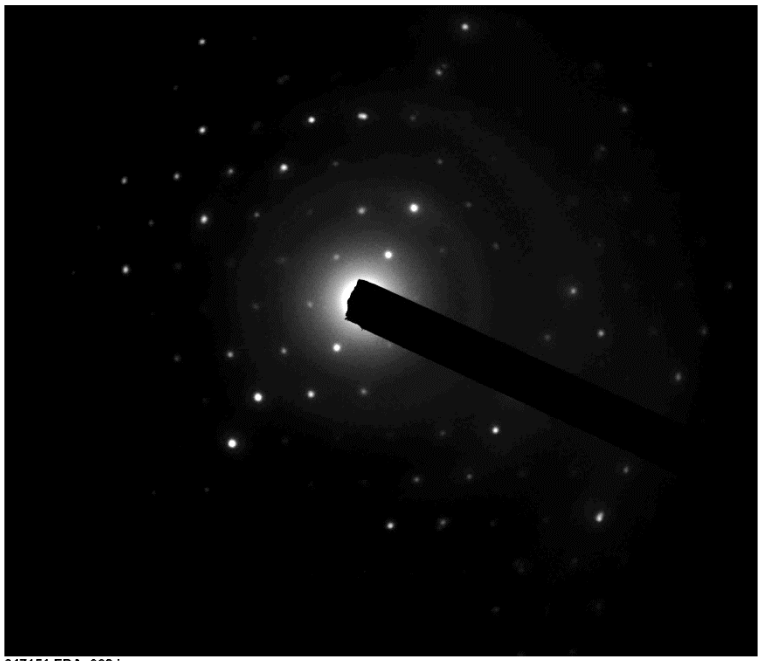


647151 FDA_063.jpg
647151-7
Mica particle

Cal: 0.003819 µm/pix
16:58 2023-07-18
TEM Mode: Imaging
Microscopist: (b) (6)
Camera: NS6, Exposure: 500 (ms) x 3 std. frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

1 µm
HV=80kV
Direct Mag: 2500 x

Hexagonal Diffraction Pattern from the Mica Particle with Iron Pictured Above

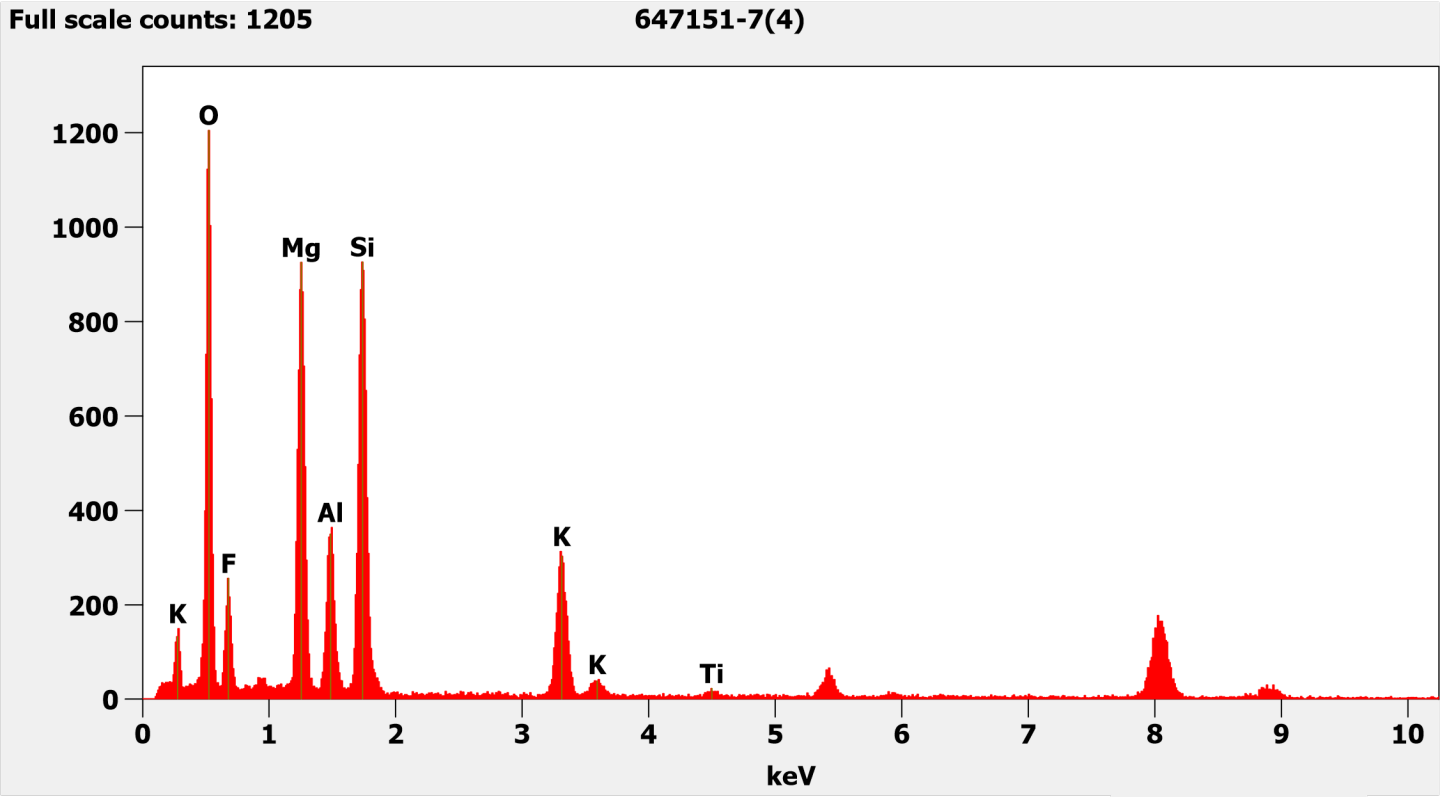


647151 FDA_062.jpg
647151-7
Mica particle

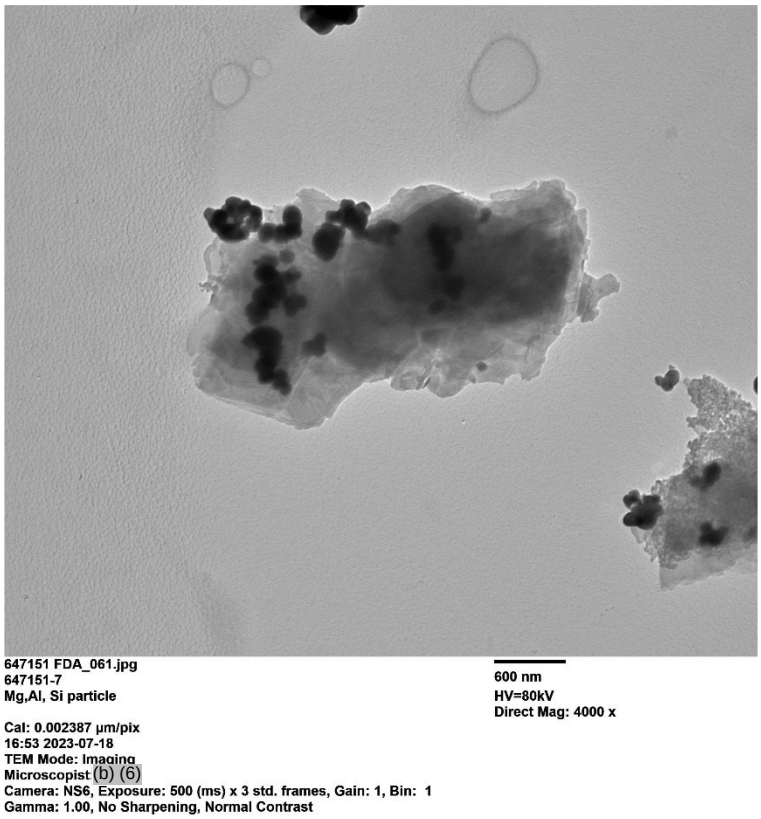
Cal: 0.002387 µm/pix
16:57 2023-07-18
TEM Mode: Diffraction
Microscopist: (b) (6)
Camera: NS6, Exposure: 500 (ms) x 3 std. frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

0.2 Å⁻¹
HV=80kV
Cam Len: 0.2000 m

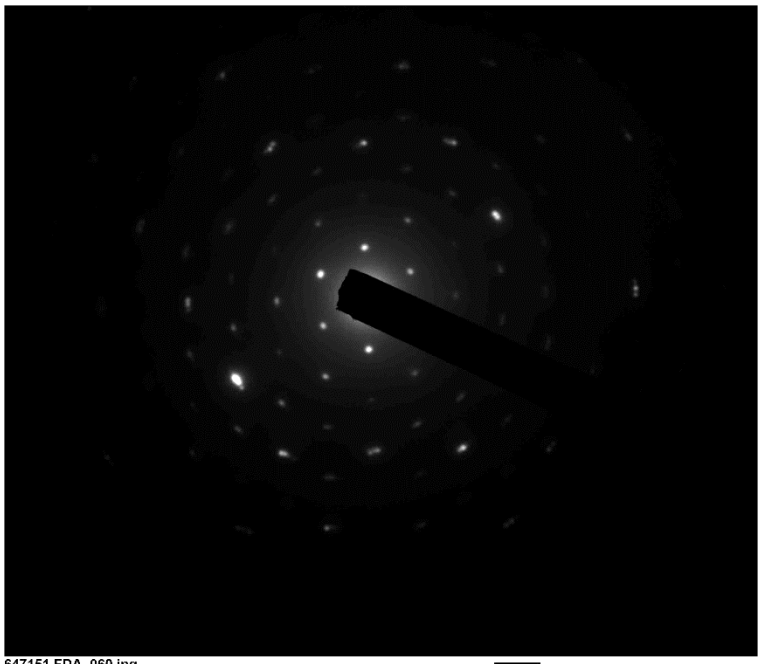
Chemistry from the Mica Particle with Iron Pictured Above



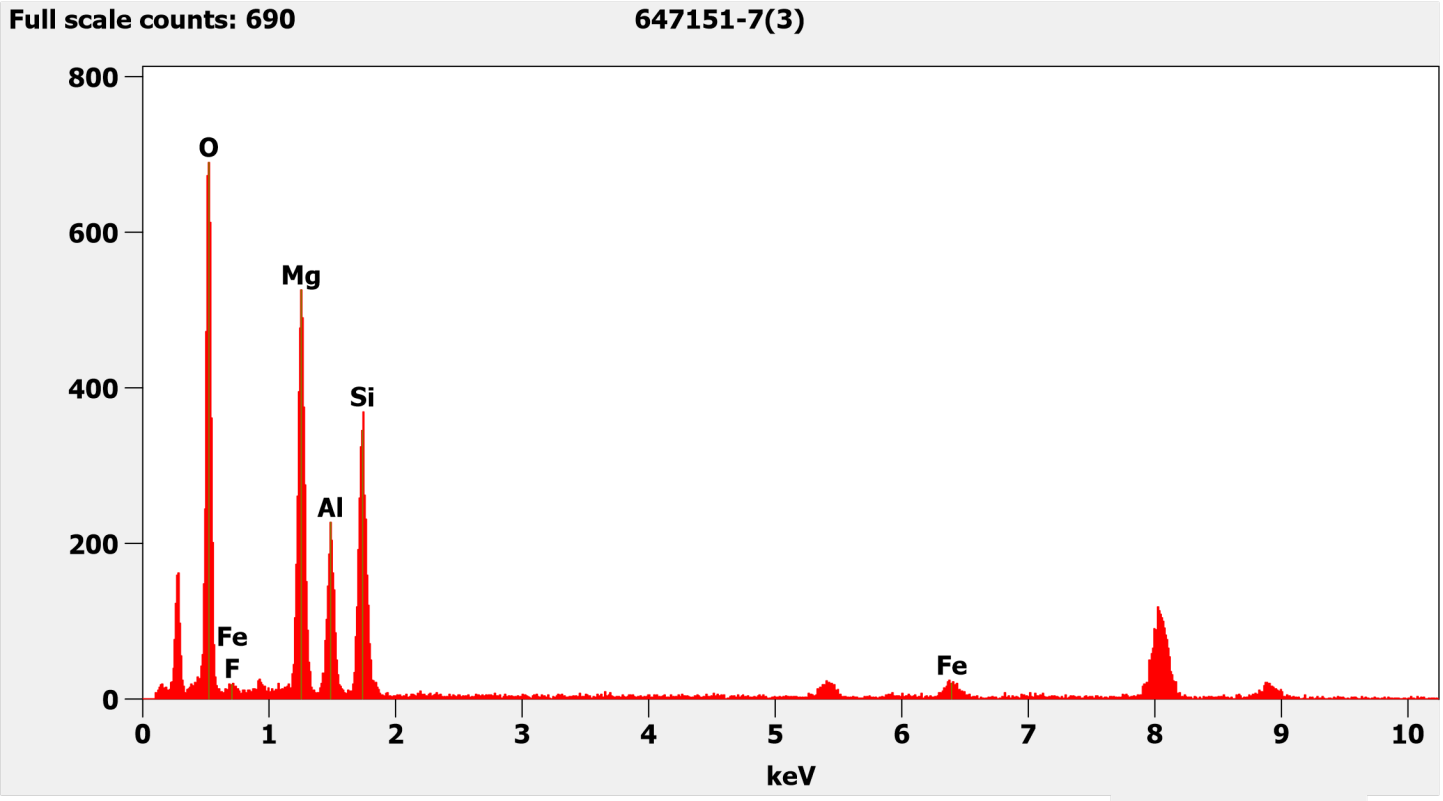
647151-7, Particle Containing Magnesium, Aluminum, and Silicon



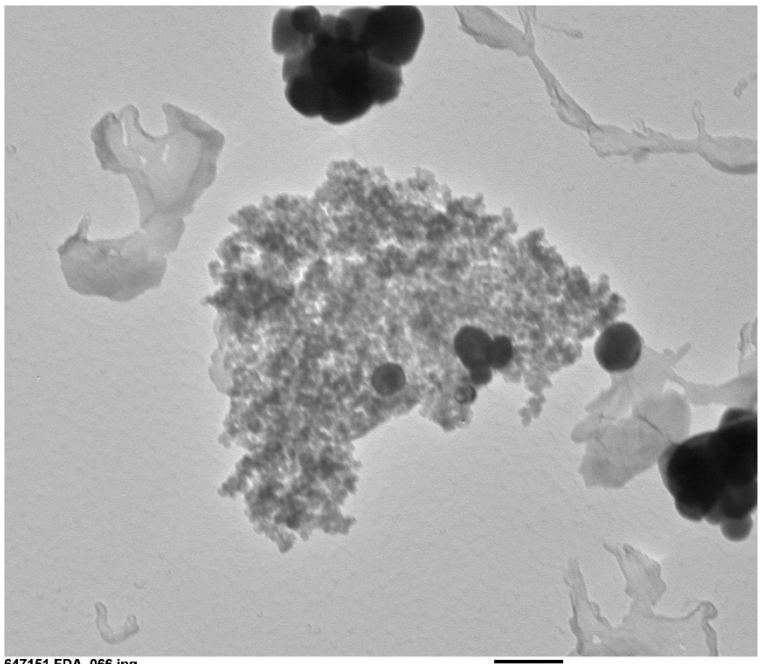
Diffraction Pattern from the Particle Containing Magnesium, Aluminum, and Silicon Pictured Above



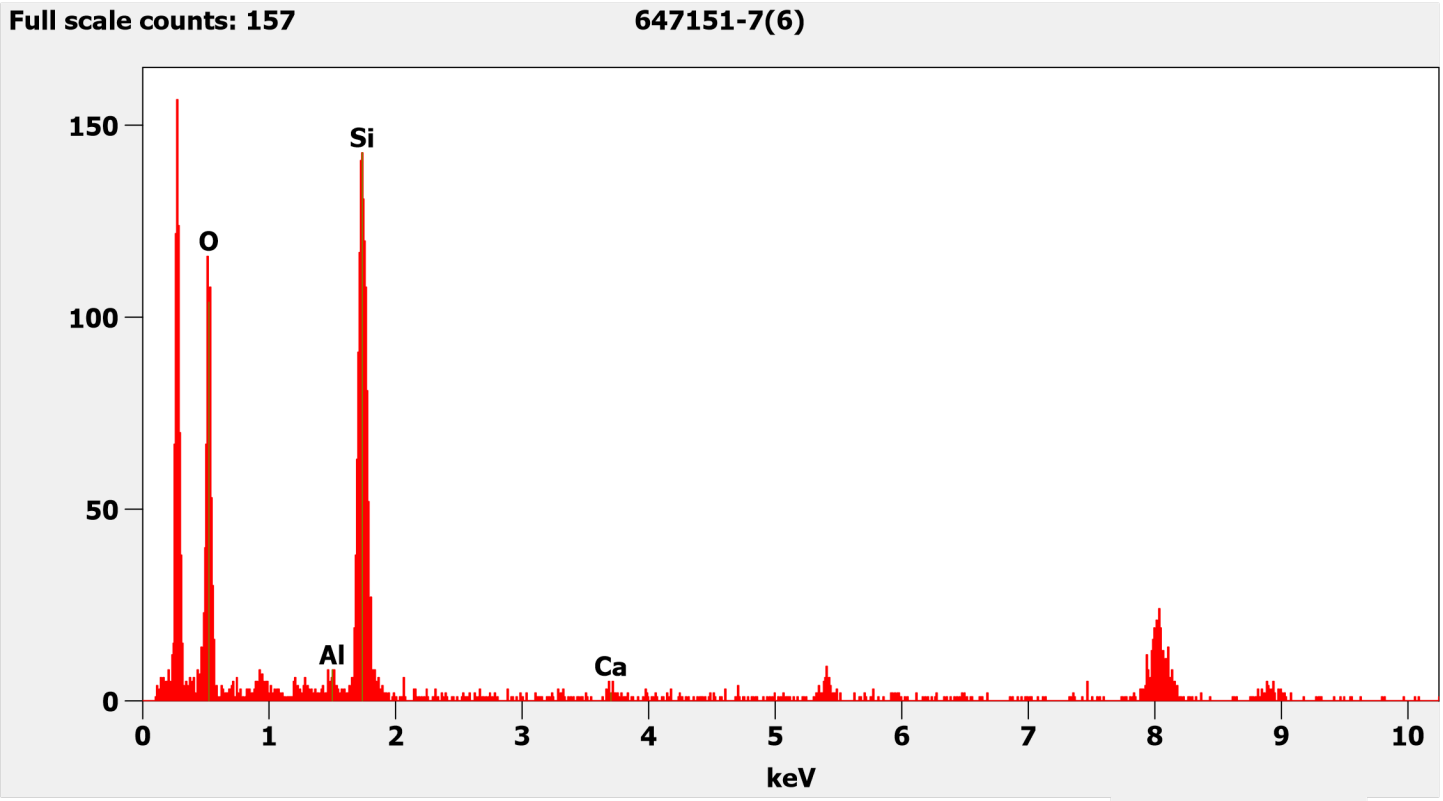
Chemistry from the Particle Containing Magnesium, Aluminum, and Silicon Pictured Above



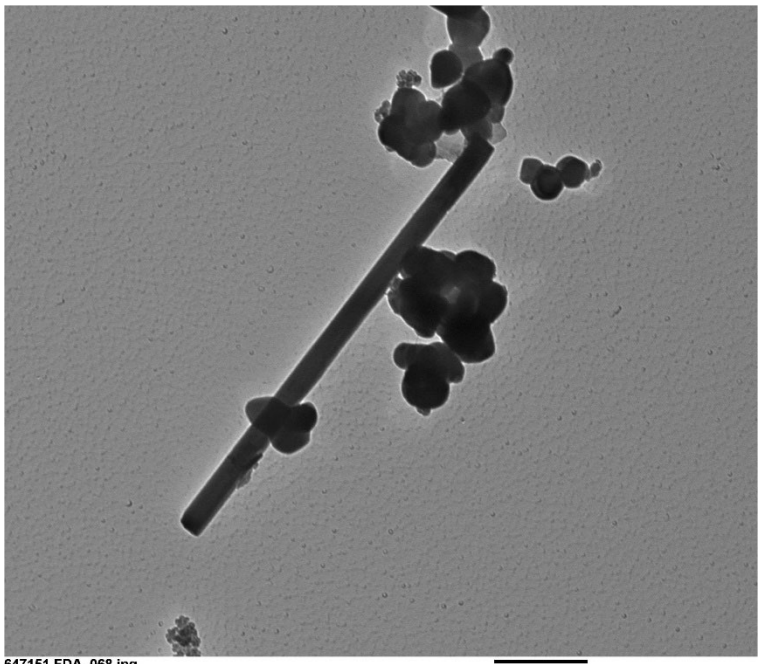
647151-7, Silicon Particles



Chemistry from the Silicon Particles Pictured Above



647151-7, Titanium Fiber

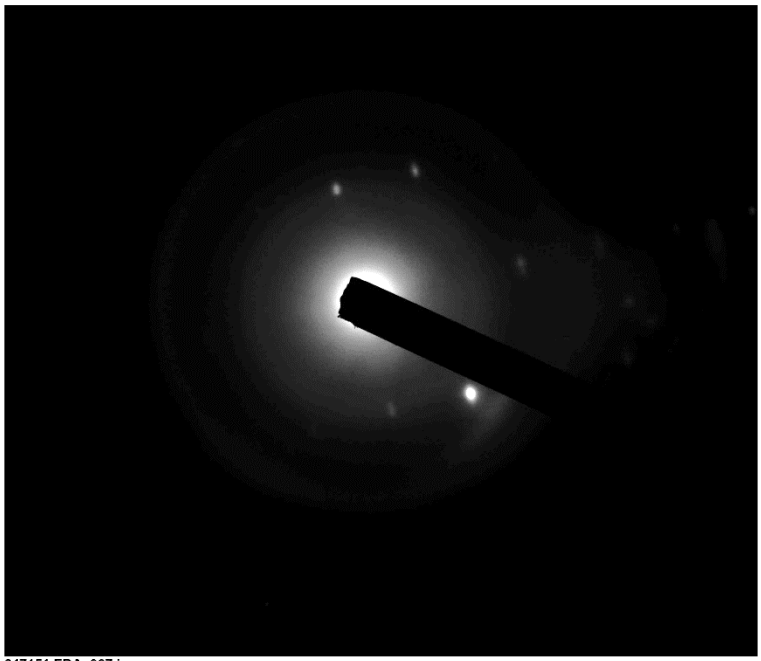


647151 FDA_068.jpg
647151-7
Ti Fiber

Cal: 0.001209 µm/pix
17:24 2023-07-18
TEM Mode: Imaging
Microscopist: (b) (6)
Camera: NS6, Exposure: 500 (ms) x 3 std. frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

400 nm
HV=80kV
Direct Mag: 8000 x

Diffraction Pattern from the Titanium Fiber Particle Pictured Above

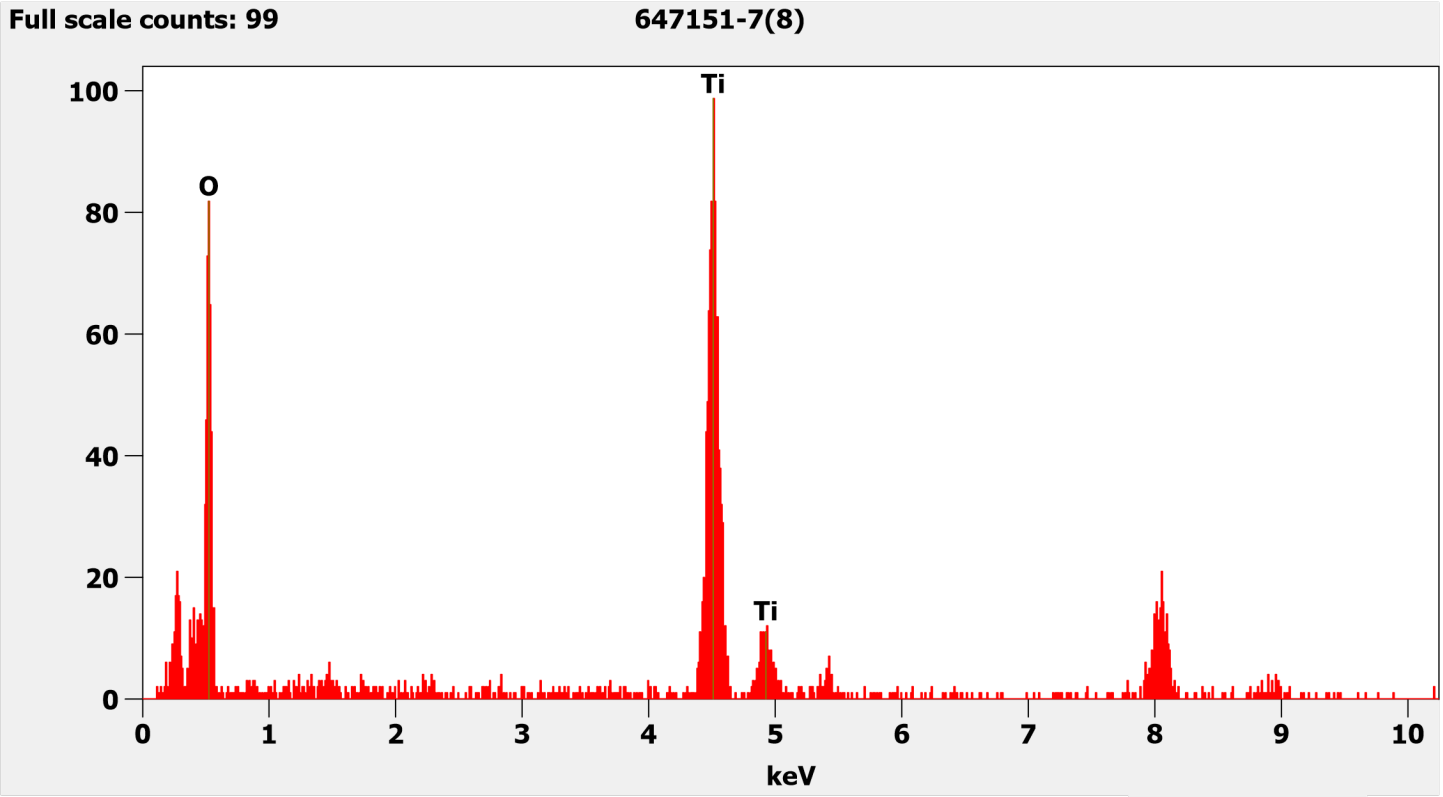


647151 FDA_067.jpg
647151-7
Ti Fiber

Cal: 0.000817 µm/pix
17:23 2023-07-18
TEM Mode: Diffraction
Microscopist (b) (6)
Camera: NS6, Exposure: 500 (ms) x 3 std. frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

0.2 $Å^{-1}$
HV=80kV
Cam Len: 0.2000 m

Chemistry from the Titanium Fiber Pictured Above



647151-8, 8A, 8B/Client Sample: 04252023-8

PLM

All three aliquots of sample 04252023-8 were analyzed by (b) (6) on July 31, 2023. No asbestos or non-asbestos amphibole variants were observed during analysis. The results were calculated using the equations detailed in the *Calculations* section above.

647151-8	No Asbestos Detected
647151-8A	No Asbestos Detected
647151-8B	No Asbestos Detected

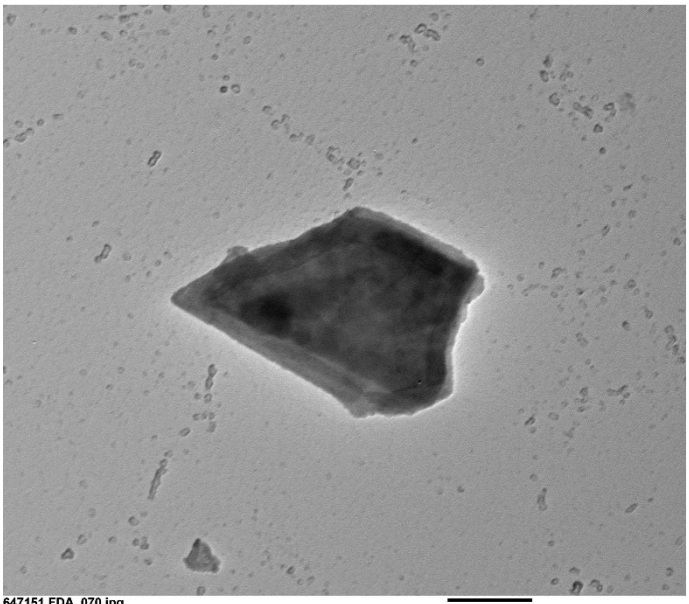
TEM

(b) (6) analyzed aliquot 8 on July 19, 2023. (b) (6) analyzed aliquot 8A on July 24, 2023, and aliquot 8B on July 25, 2023. The primary particles observed were talc and mica; iron particles and particles containing sodium, aluminum, silicon, and potassium, were also observed along with talc ribbons/fibers and silicon particles. No asbestos or non-asbestos amphibole variants were observed during analysis. The results were calculated using the equations detailed in the *Calculations* section above.

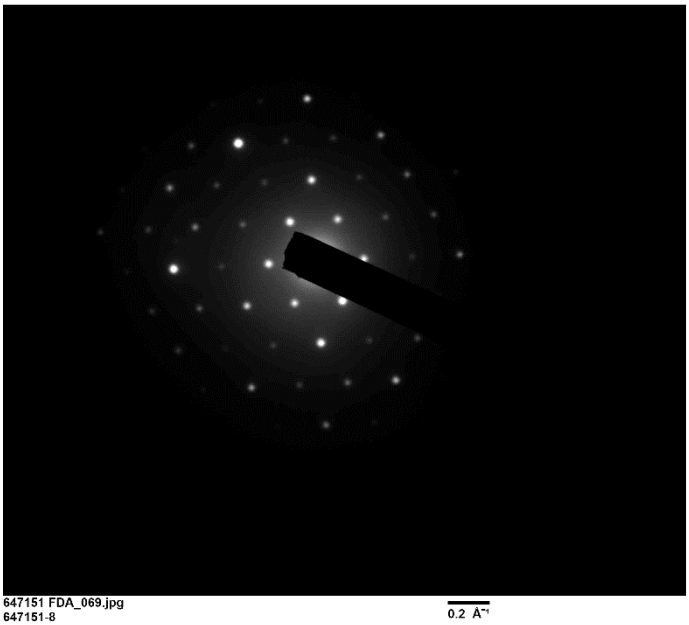
647151-8	No Asbestos Detected
647151-8A	No Asbestos Detected
647151-8B	No Asbestos Detected

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.

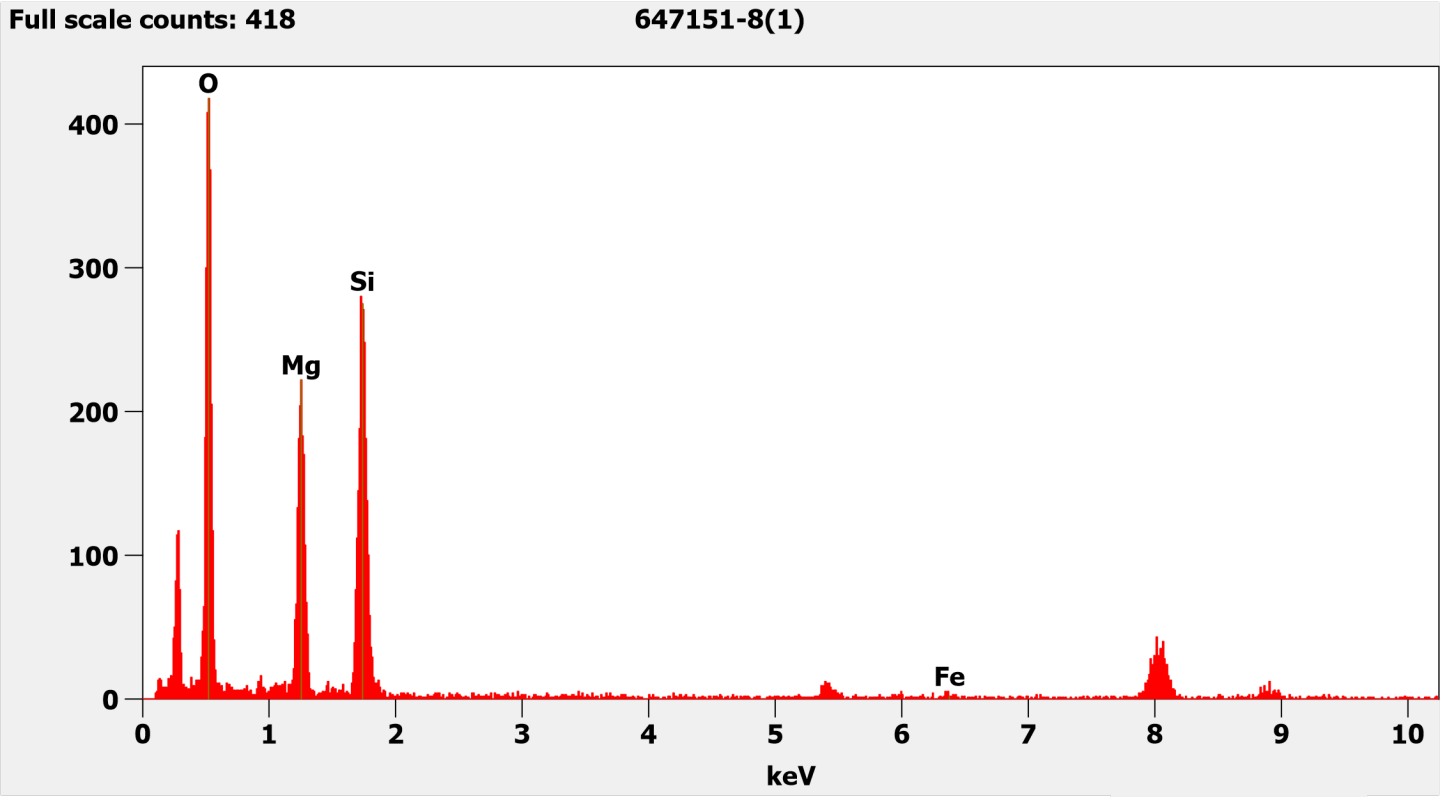
647151-8, Talc Particle



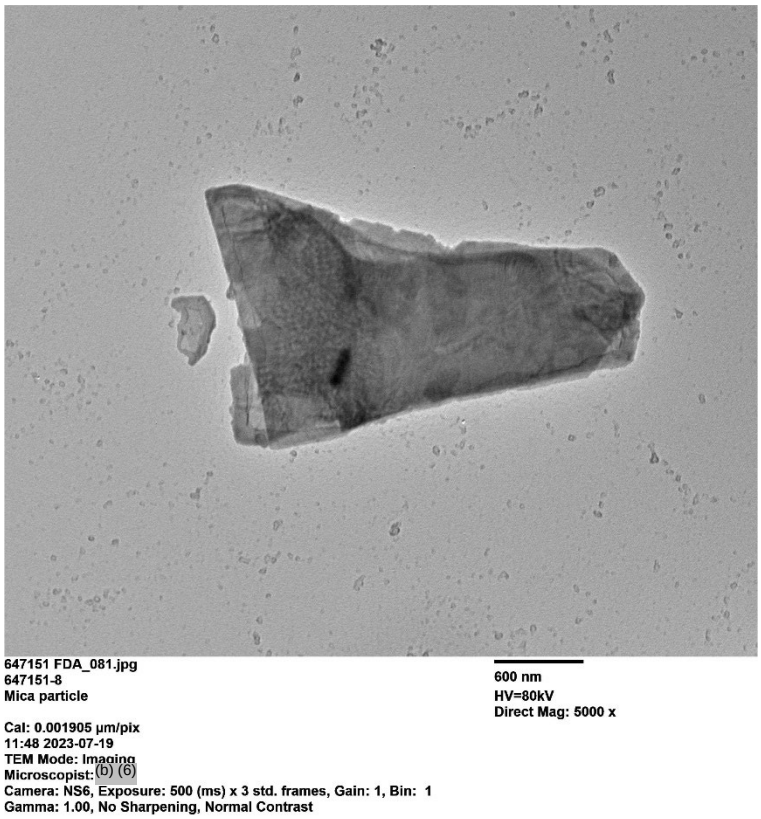
Hexagonal Diffraction Pattern from the Talc Particle Pictured Above



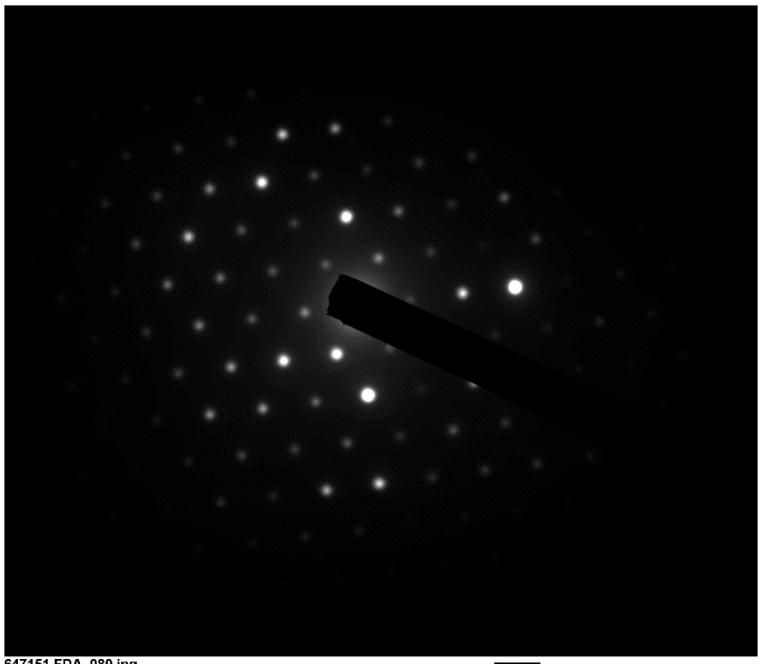
Chemistry from the Talc Particle Pictured Above



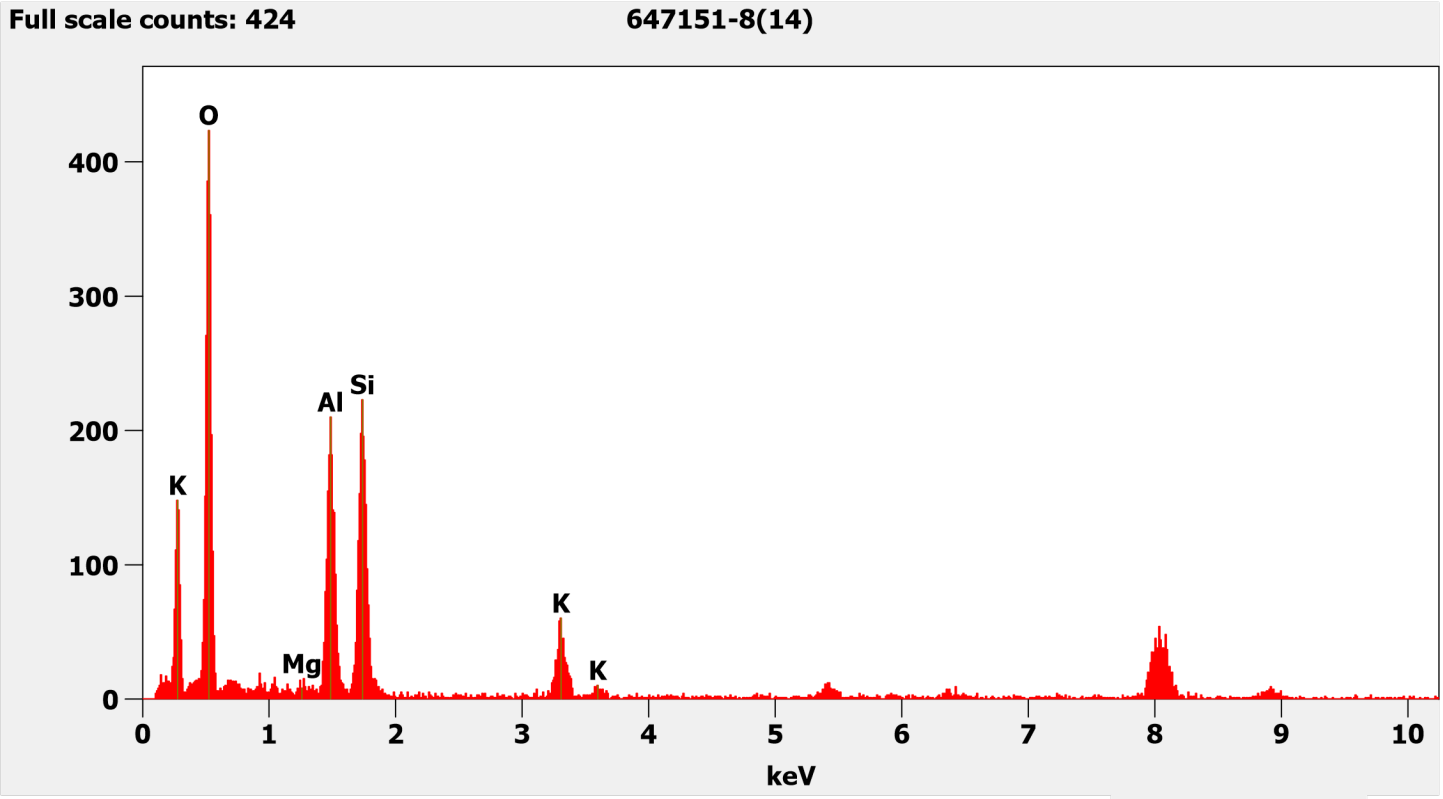
647151-8, Mica Particle



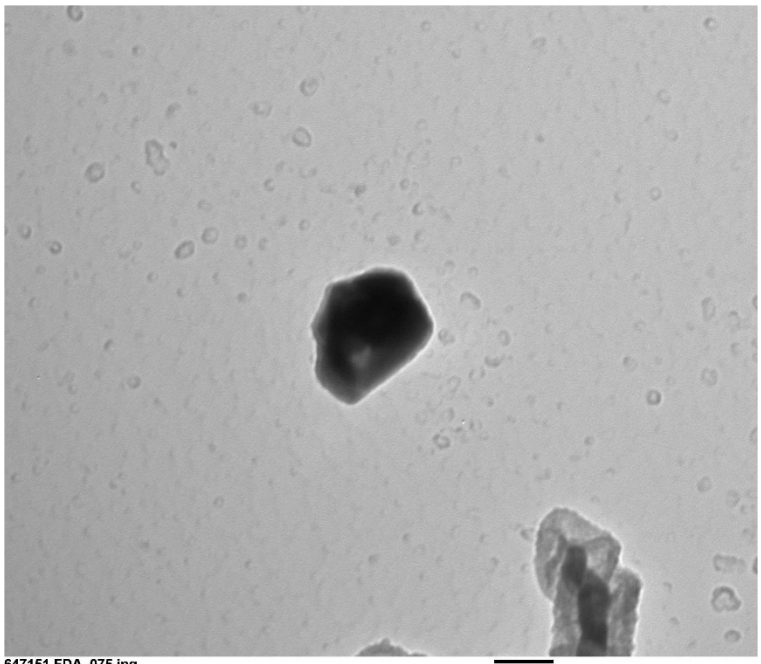
Hexagonal Diffraction Pattern from the Mica Particle Pictured Above



Chemistry from the Mica Particle Pictured Above



647151-8, Iron Particle

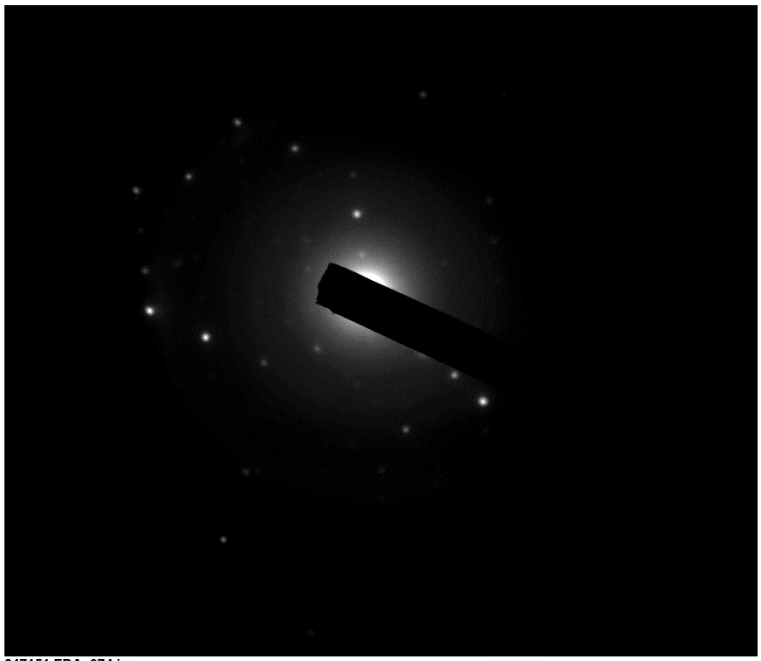


647151 FDA_075.jpg
647151-8
Fe particle

Cal: 0.000477 µm/pix
11:29 2023-07-19
TEM Mode: Imaging
Microscopist: (b) (6)
Camera: NS6, Exposure: 500 (ms) x 3 std. frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

100 nm
HV=80kV
Direct Mag: 20000 x

Diffraction Pattern from the Iron Particle Pictured Above

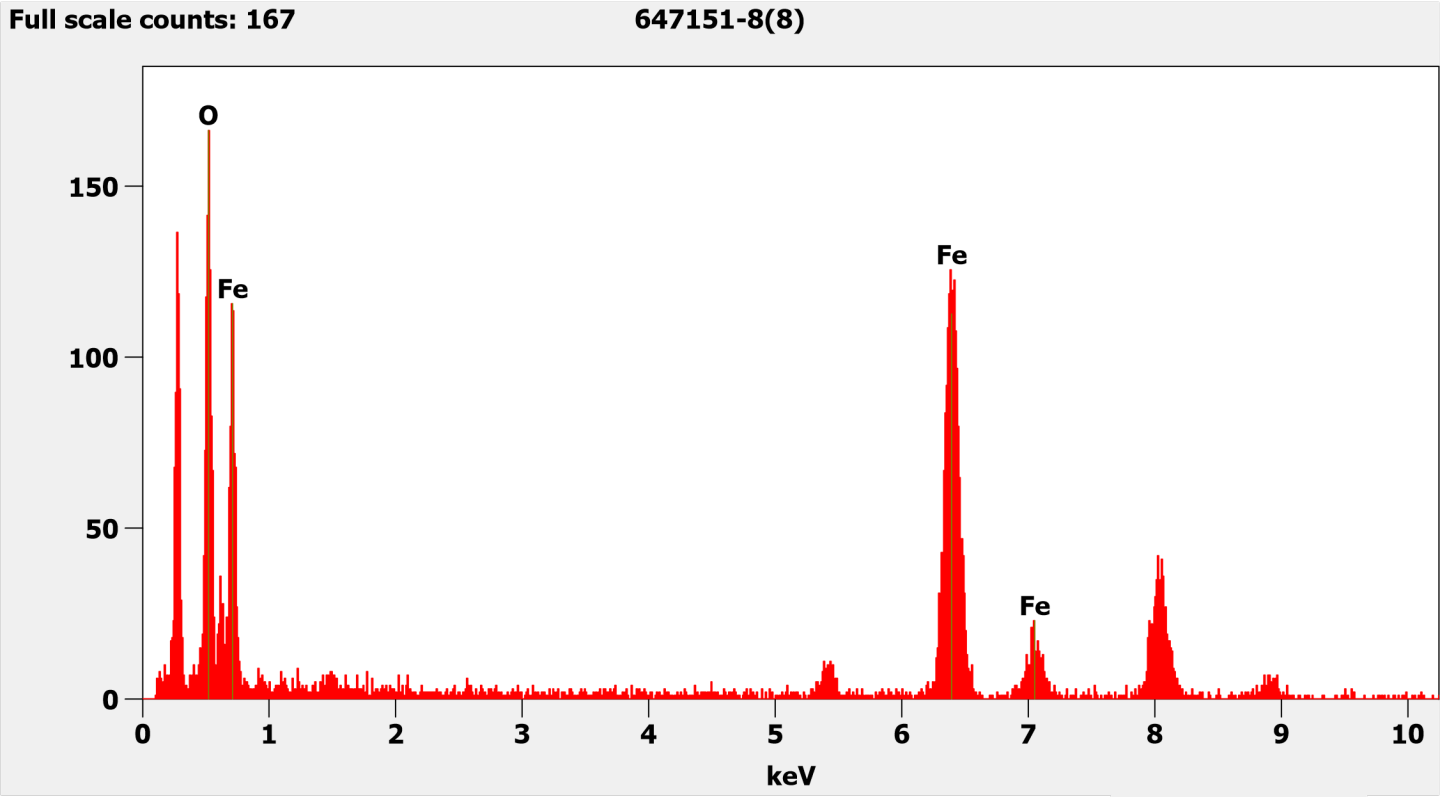


647151 FDA_074.jpg
647151-8
Fe particle

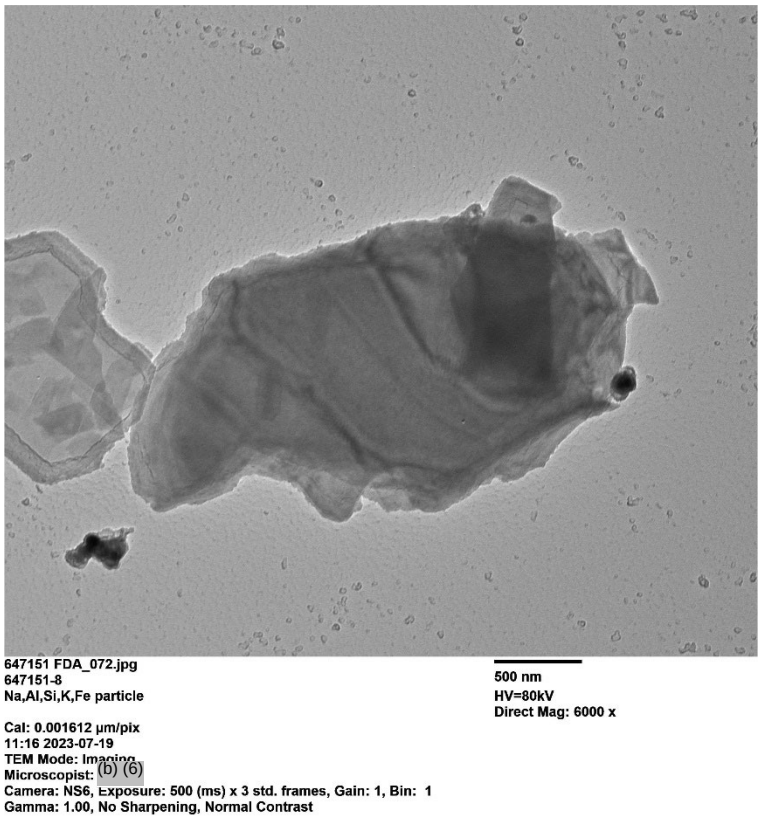
Cal: 0.002387 µm/pix
11:28 2023-07-19
TEM Mode: Diffraction
Microscopist: (b) (6)
Camera: NS6, Exposure: 500 (ms) x 3 std. frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

0.2 Å⁻¹
HV=80kV
Cam Len: 0.2000 m

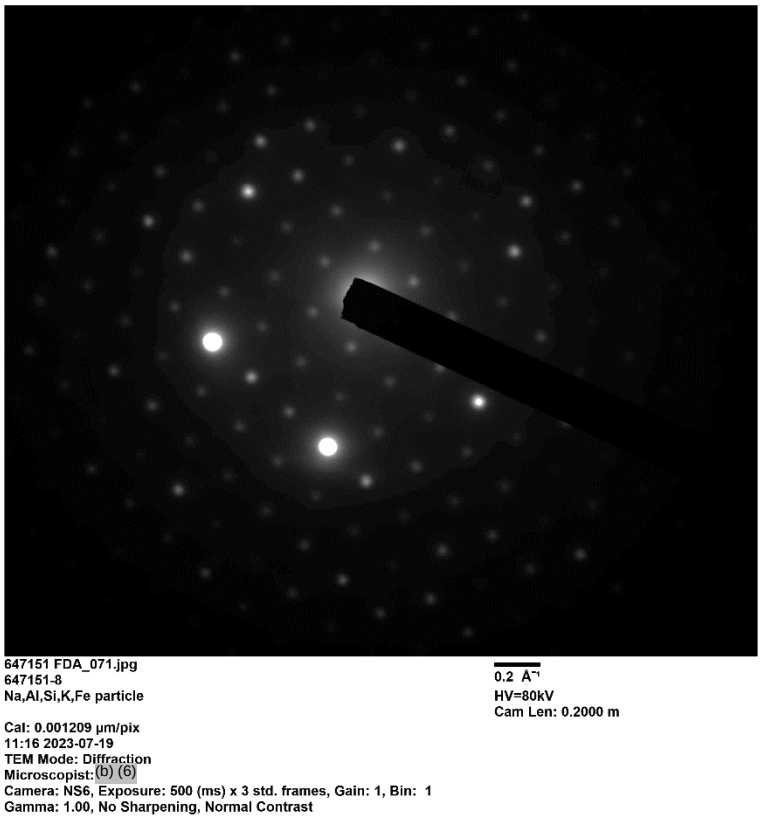
Chemistry from the Iron Particle Pictured Above



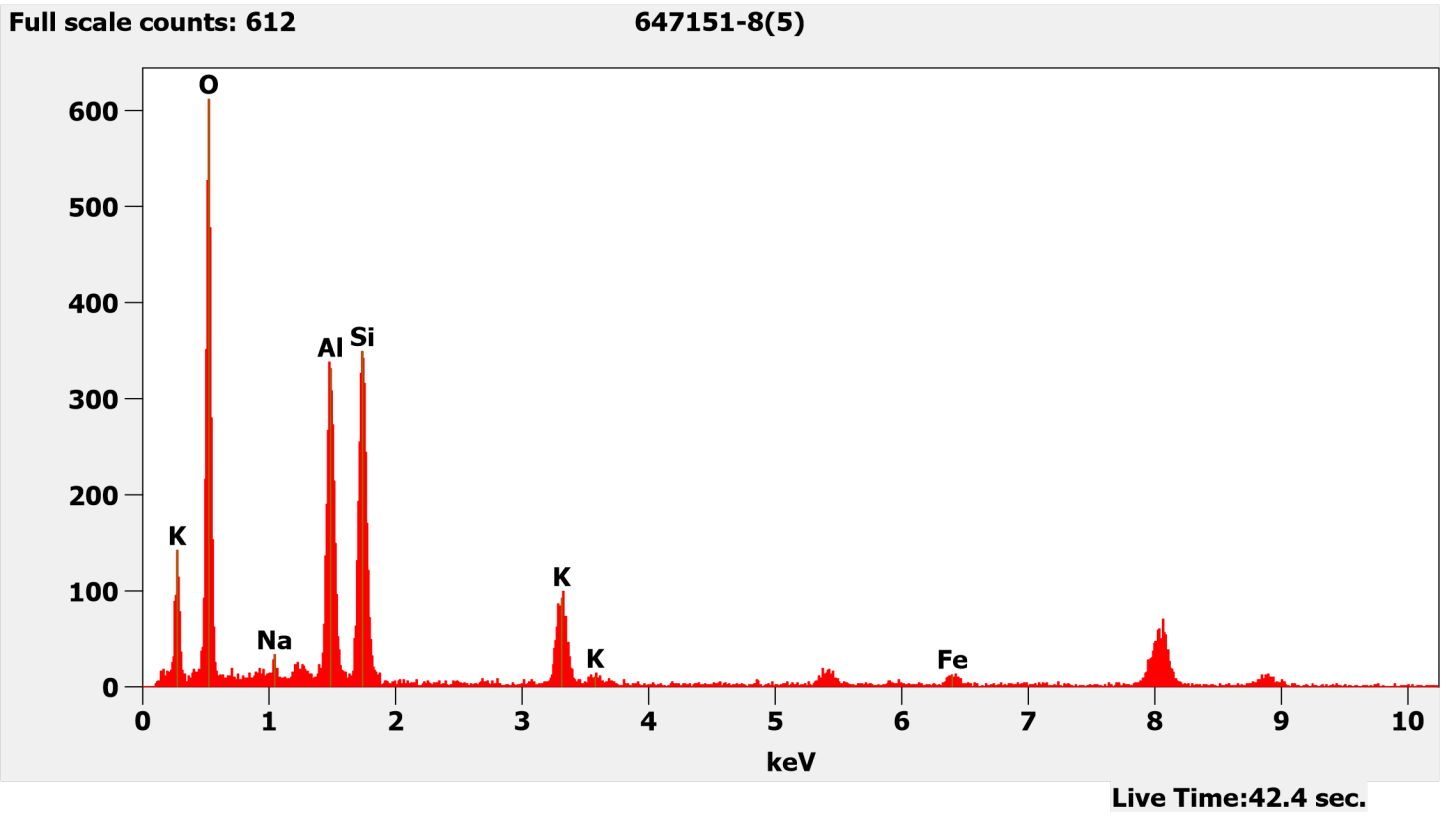
647151-8, Particle Containing Sodium, Aluminum, Silicon, Potassium, and Iron



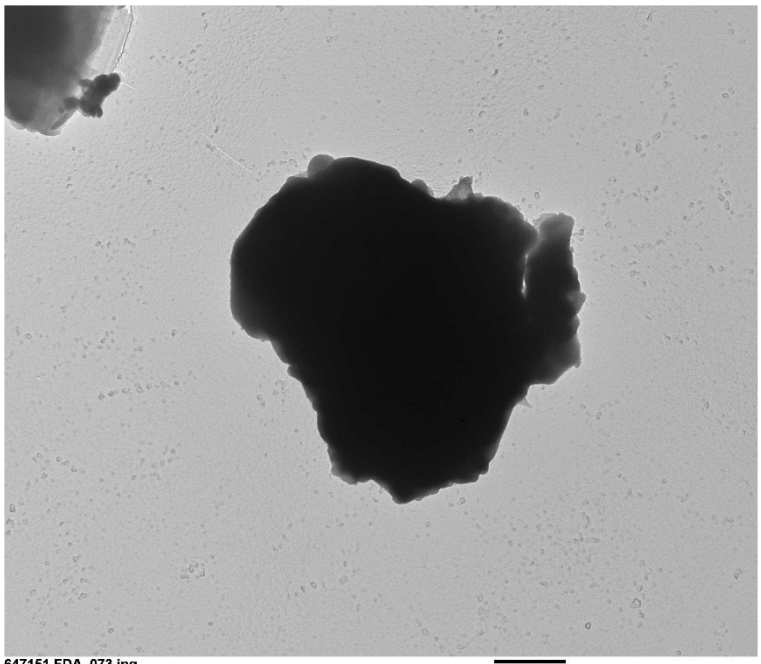
Hexagonal Diffraction Pattern from the Particle Containing Sodium, Aluminum, Silicon, Potassium, and Iron Particles Pictured Above



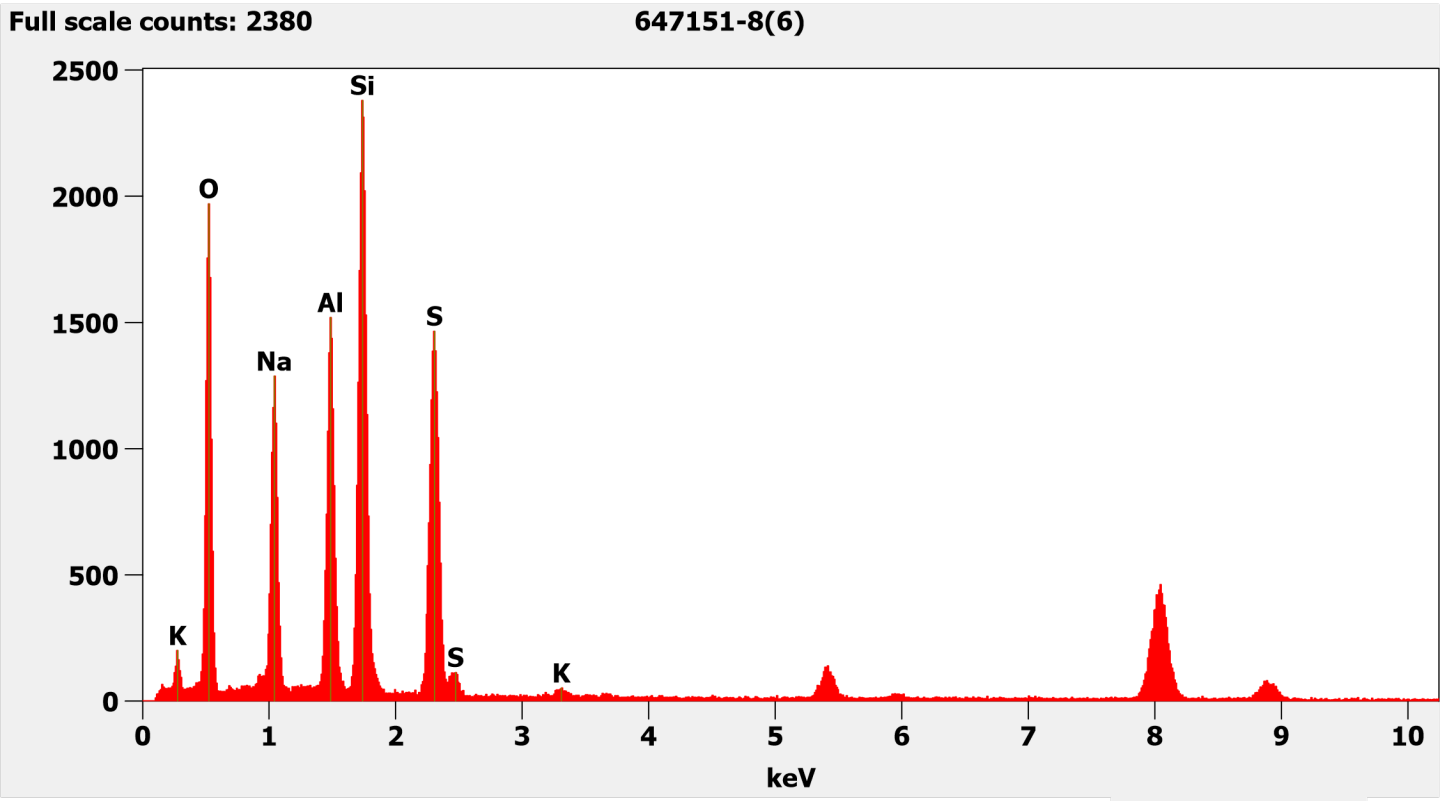
Chemistry from the Particle Containing Sodium, Aluminum, Silicon, Potassium, and Iron Pictured Above



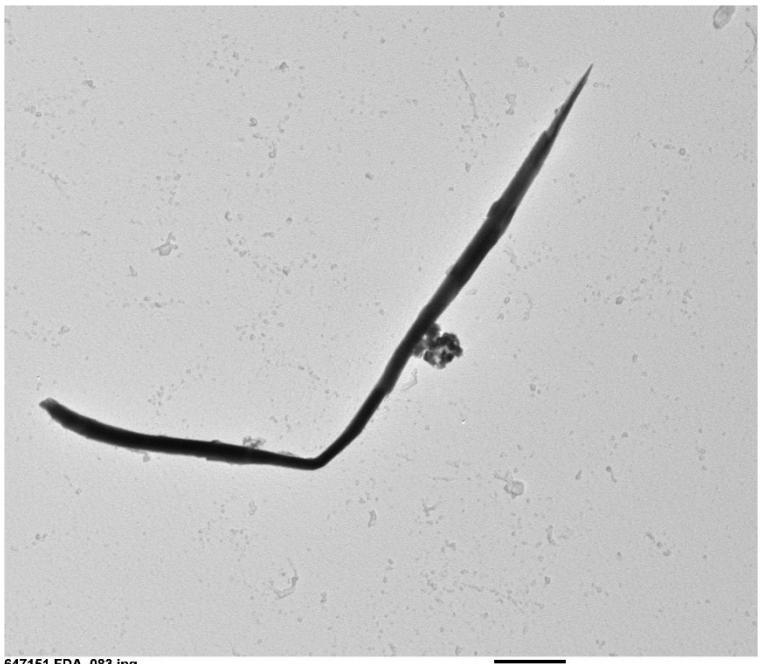
647151-8, Particle Containing Sodium, Aluminum, Silicon, Sulfur, and Potassium



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



647151-8, Talc Ribbon

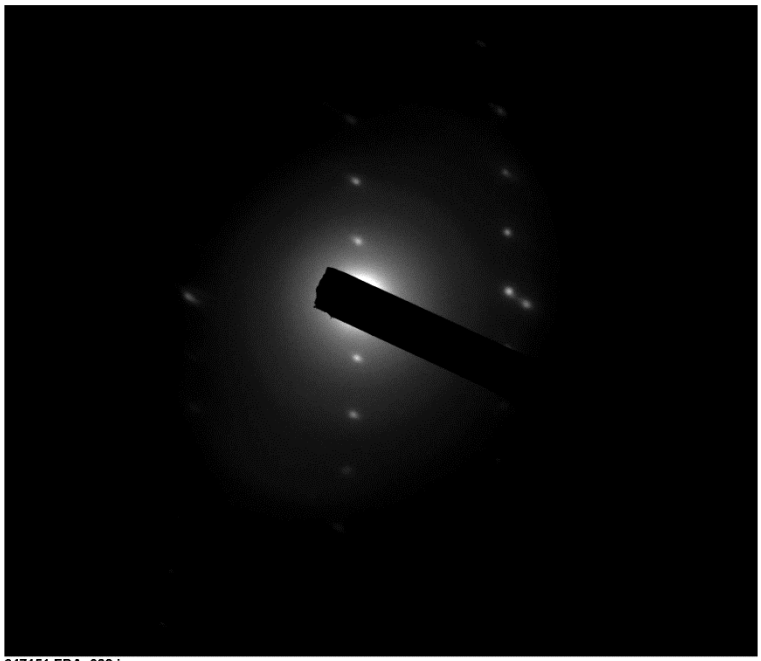


647151 FDA_083.jpg
647151-8
Talc Ribbon

Cal: 0.002387 µm/pix
11:55 2023-07-19
TEM Mode: Imaging
Microscopist: (b) (6)
Camera: NS6, Exposure: 500 (ms) x 3 std. frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

600 nm
HV=80kV
Direct Mag: 4000 x

Diffraction Pattern from the Talc Ribbon Pictured Above

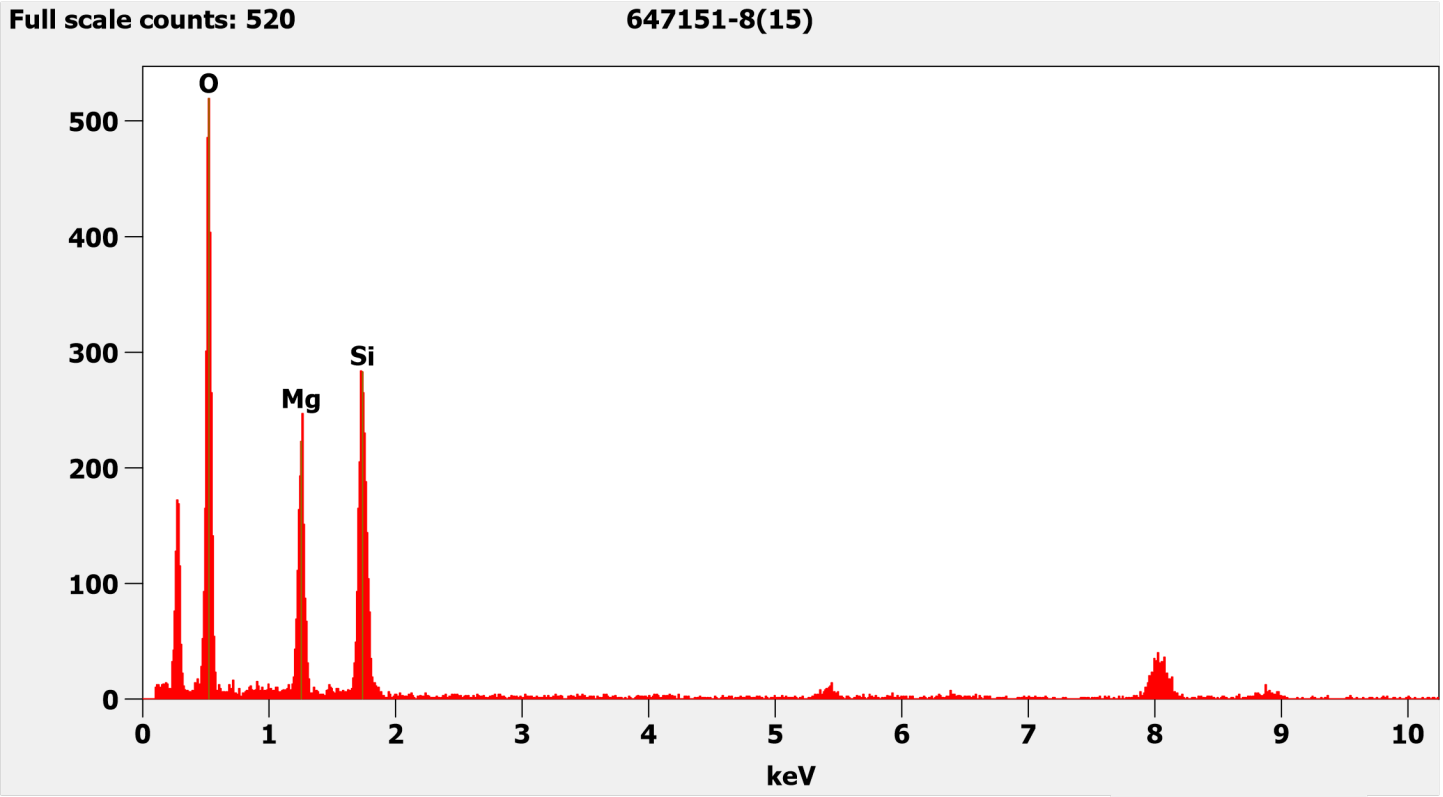


647151 FDA_082.jpg
647151-8
Talc Ribbon

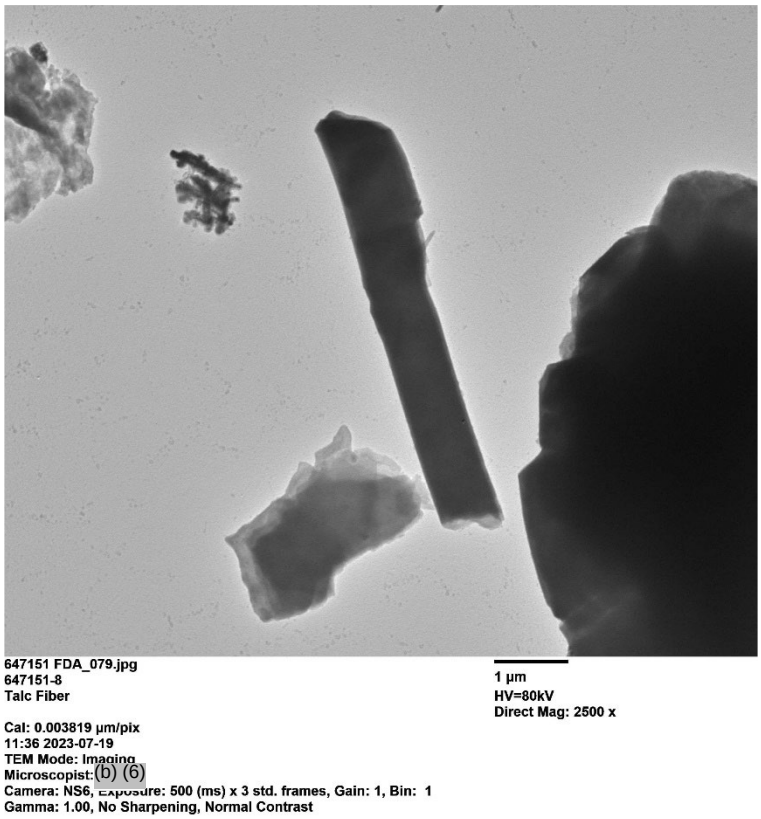
Cal: 0.001905 µm/pix
11:54 2023-07-19
TEM Mode: Diffraction
Microscopist: (b) (6)
Camera: NS6, Exposure: 500 (ms) x 3 std. frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

0.2 Å⁻¹
HV=80kV
Cam Len: 0.2000 m

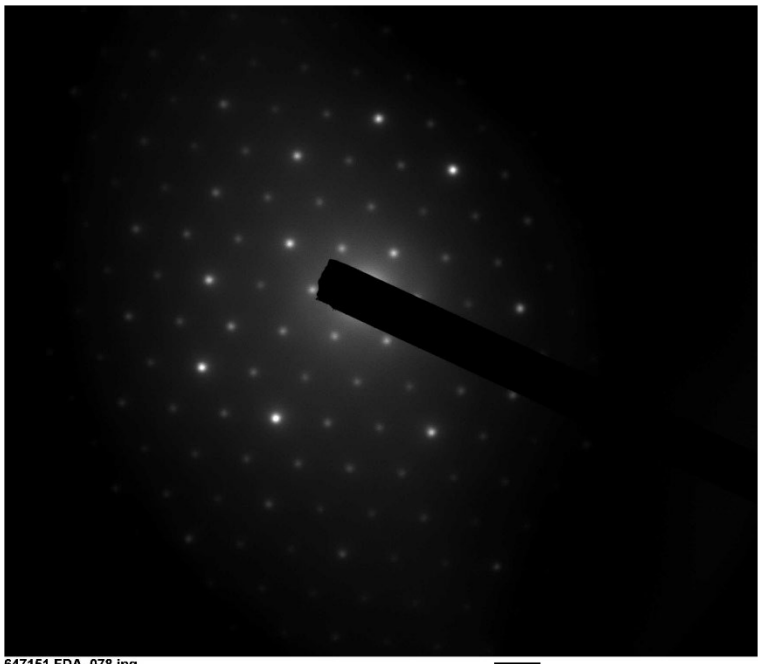
Chemistry from the Talc Ribbon Pictured Above



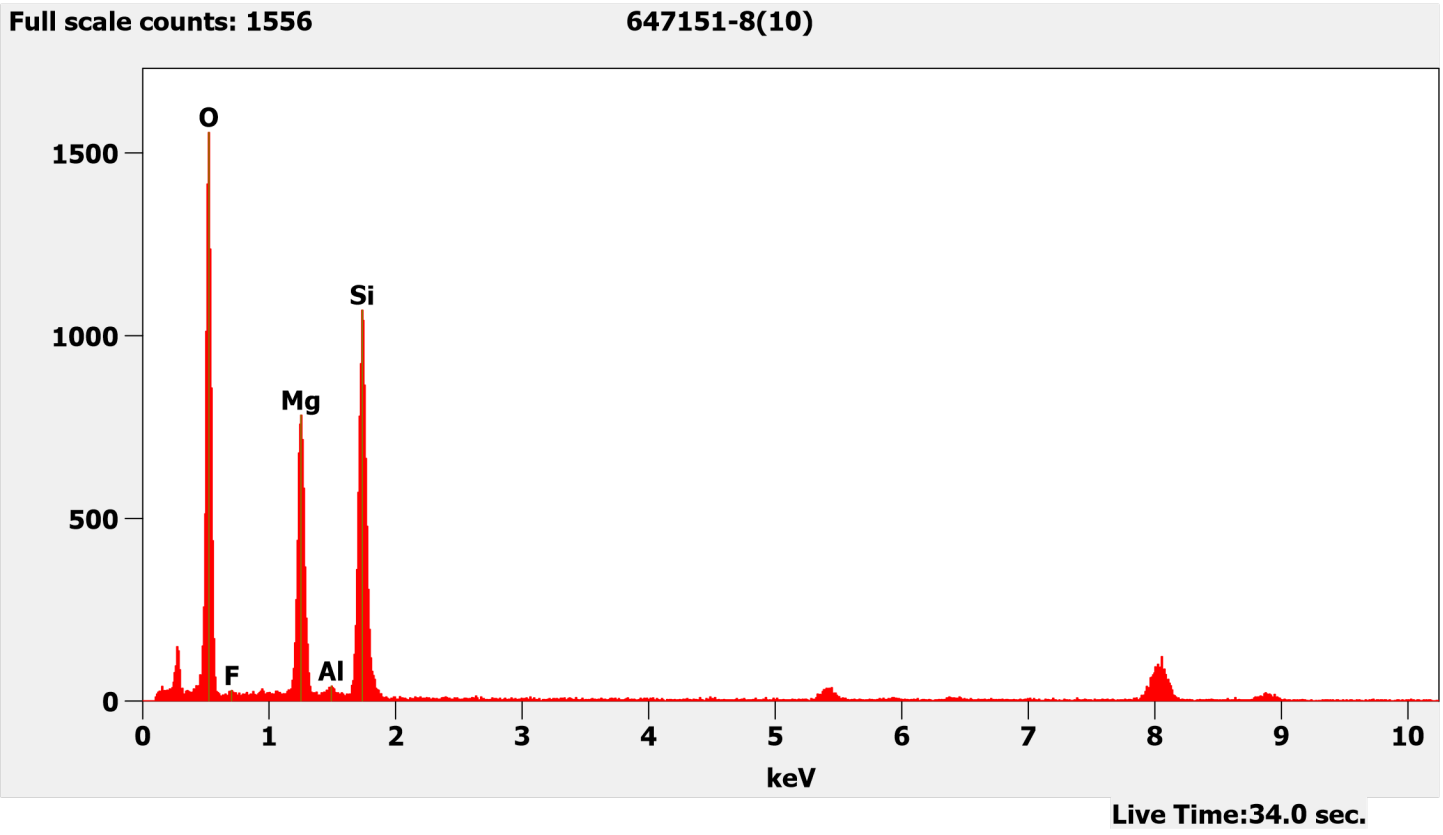
647151-8, Elongated Talc Particle



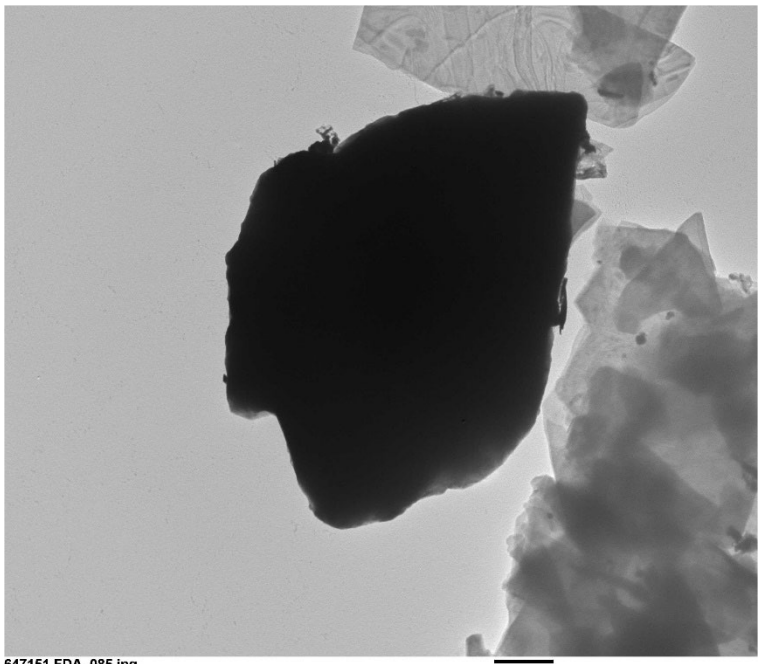
Hexagonal Diffraction Pattern from the Elongated Talc Particle Pictured Above



Chemistry from the Elongated Talc Particle Pictured Above



647151-8, Silicon Particle

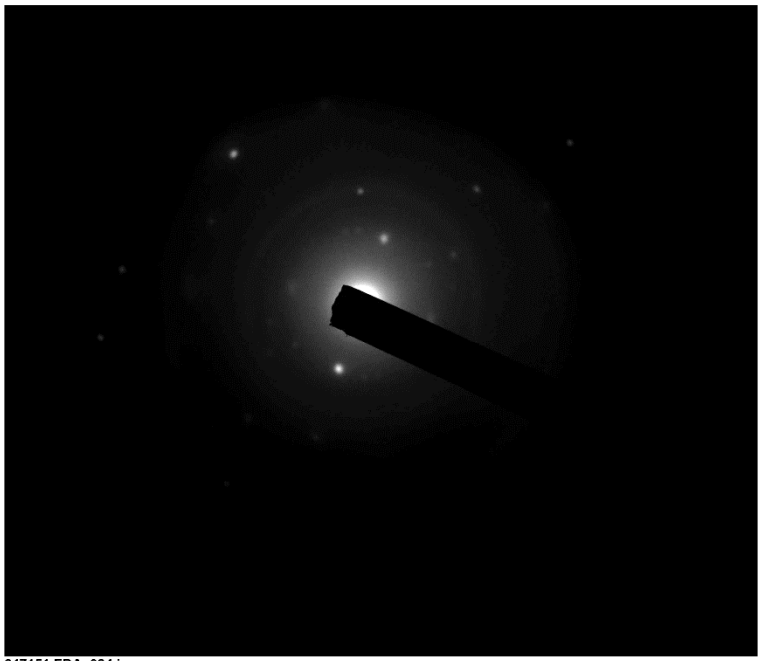


647151 FDA_085.jpg
647151-8
Si particle

Cal: 0.004774 µm/pix
12:21 2023-07-19
TEM Mode: Imaging
Microscopist: (b) (6)
Camera: NS6, Exposure: 500 (ms) x 3 std. frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

1 µm
HV=80kV
Direct Mag: 2000 x

Diffraction Pattern from the Silicon Particle Pictured Above

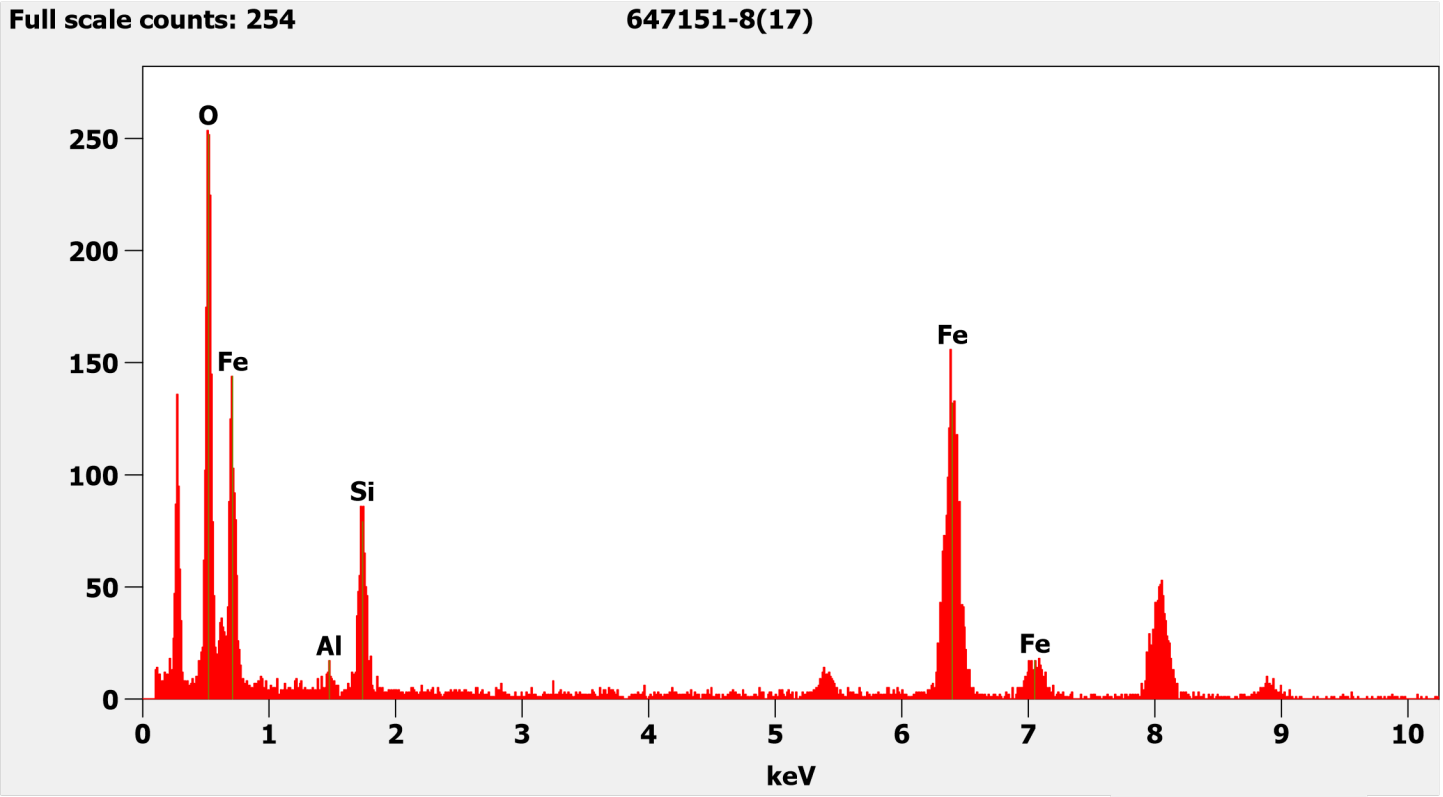


647151 FDA_084.jpg
647151-8
Si particle

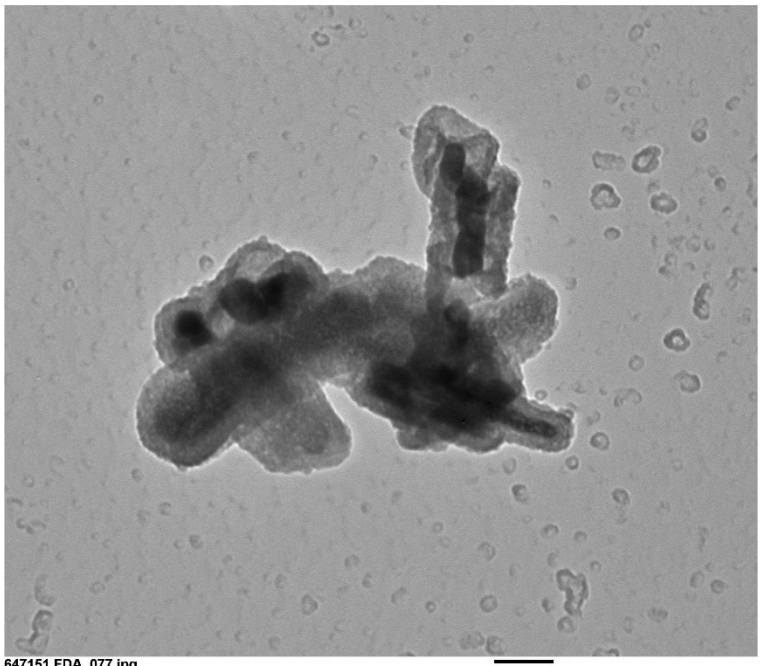
Cal: 0.002387 µm/pix
12:20 2023-07-19
TEM Mode: Diffraction
Microscopist: (b) (6)
Camera: NS6, Exposure: 500 (ms) x 3 std. frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

0.2 Å⁻¹
HV=80kV
Cam Len: 0.2000 m

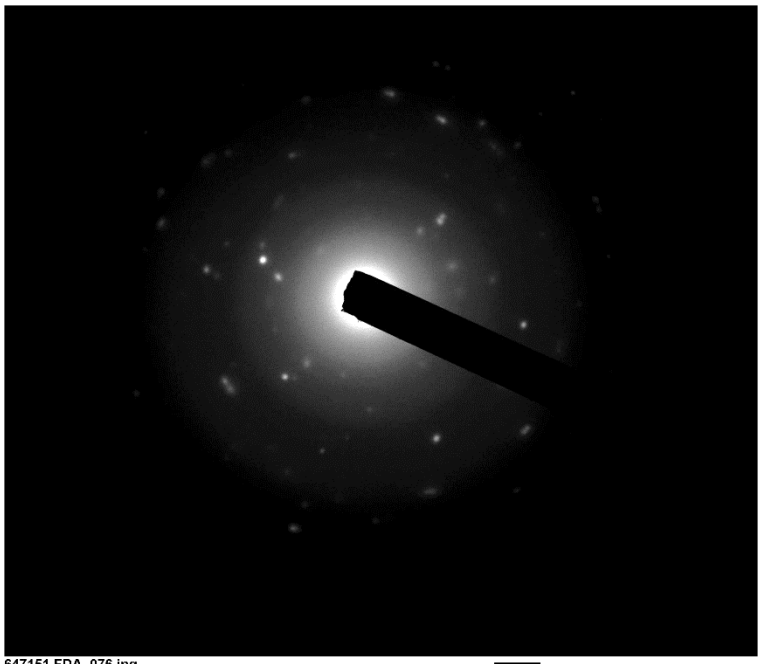
Chemistry from the Silicon Particle Pictured Above



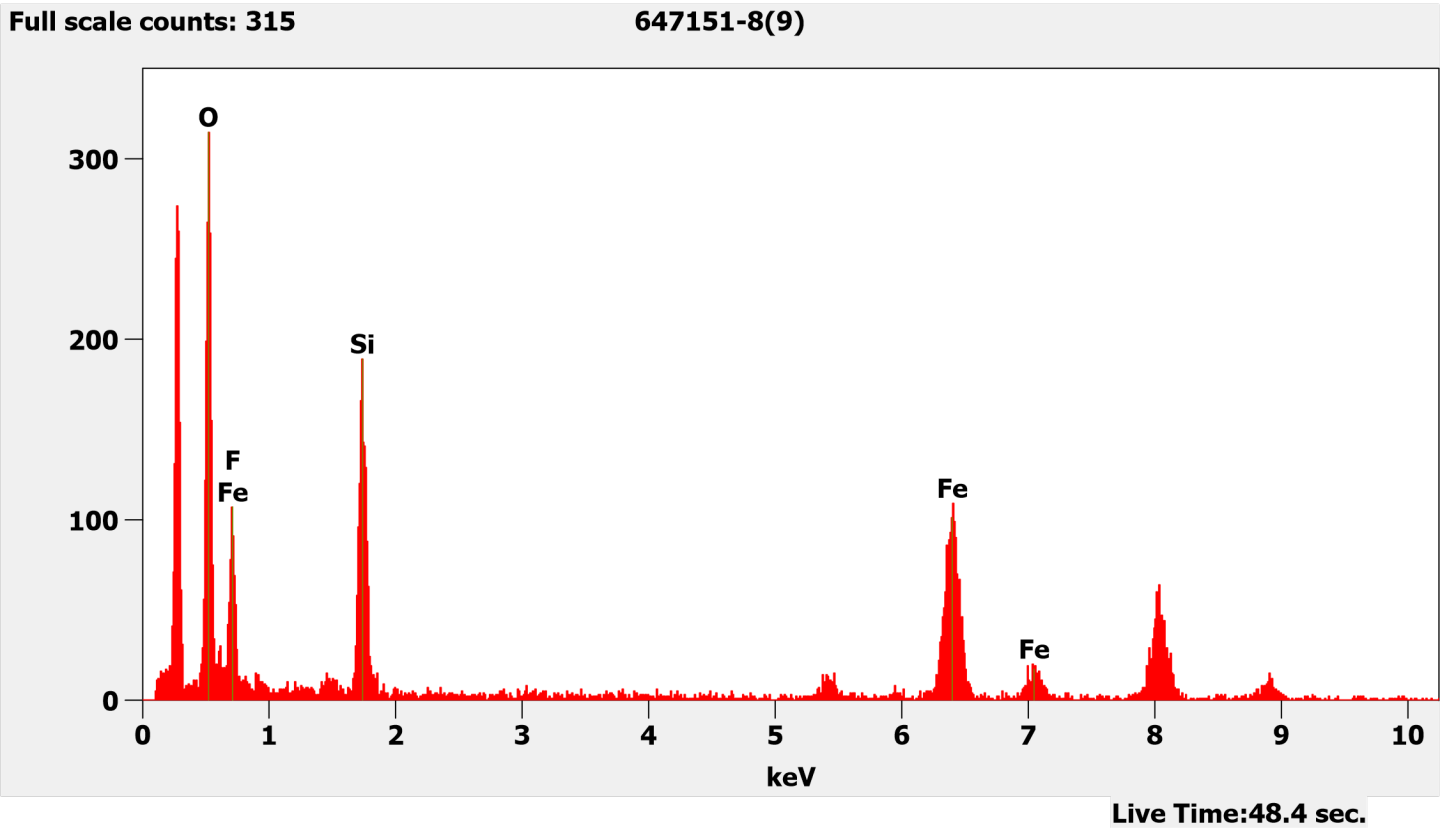
647151-8, Silicon and Iron Particles



Diffraction Pattern from the Silicon and Iron Particles Pictured Above



Chemistry from the Silicon and Iron Particle Pictured Above



647151-9, 9A, 9B/Client Sample: 04252023-9

PLM

All three aliquots of sample 04252023-9 were analyzed by (b) (6) on July 31, 2023. No asbestos or non-asbestos amphibole variants were observed during analysis. The results were calculated using the equations detailed in the *Calculations* section above.

647151-9	No Asbestos Detected
647151-9A	No Asbestos Detected
647151-9B	No Asbestos Detected

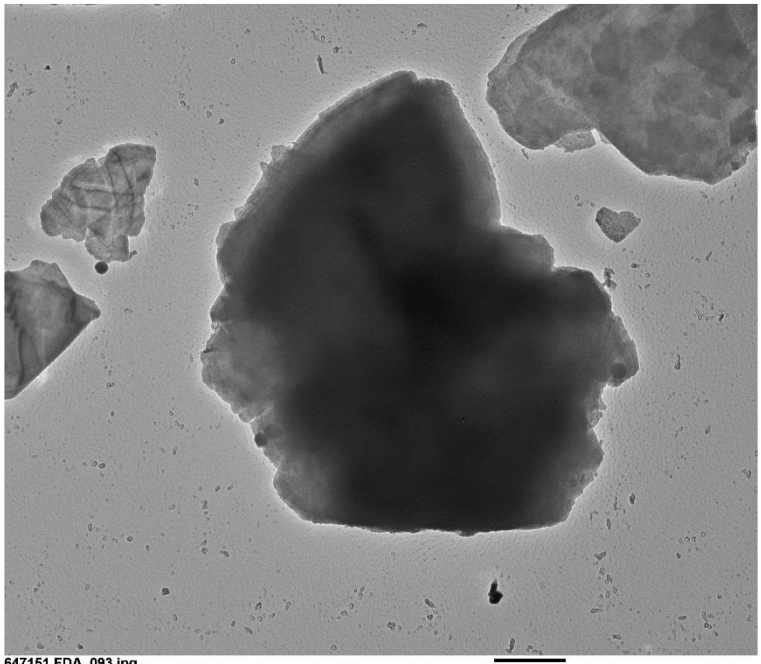
TEM

(b) (6) analyzed aliquot 9 on July 19, 2023. (b) (6) analyzed aliquots 9A and 9B on July 25, 2023. The primary particles observed were talc and mica; iron particles were also observed along with talc fibers/ribbons, silicon particles, and 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.

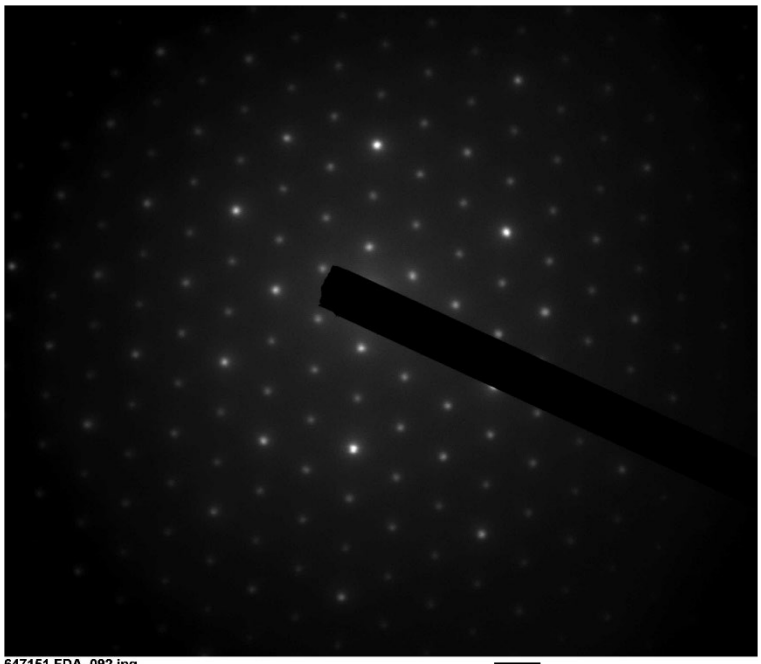
647151-9	No Asbestos Detected
647151-9A	No Asbestos Detected
647151-9B	No Asbestos Detected

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.

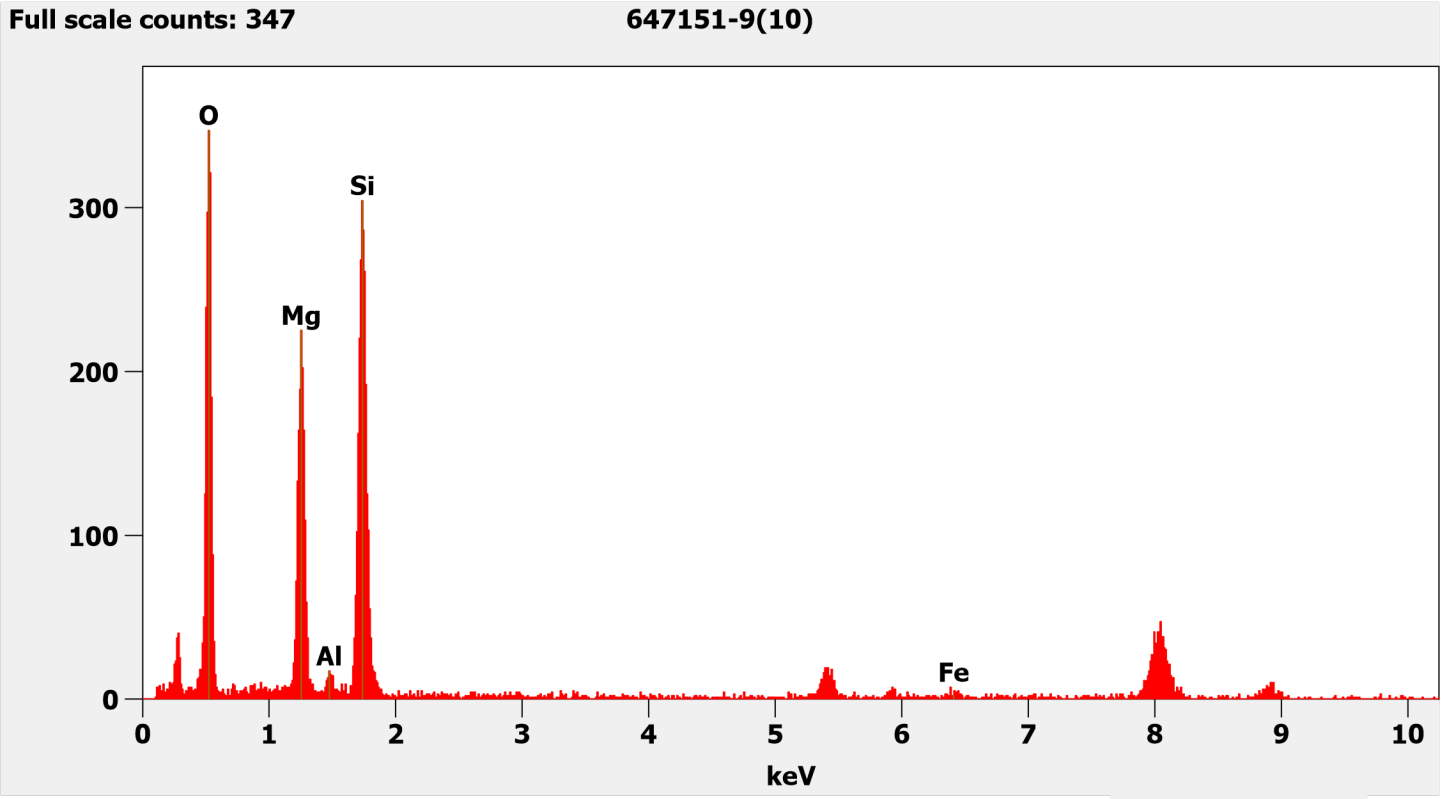
647151-9, Talc Particle



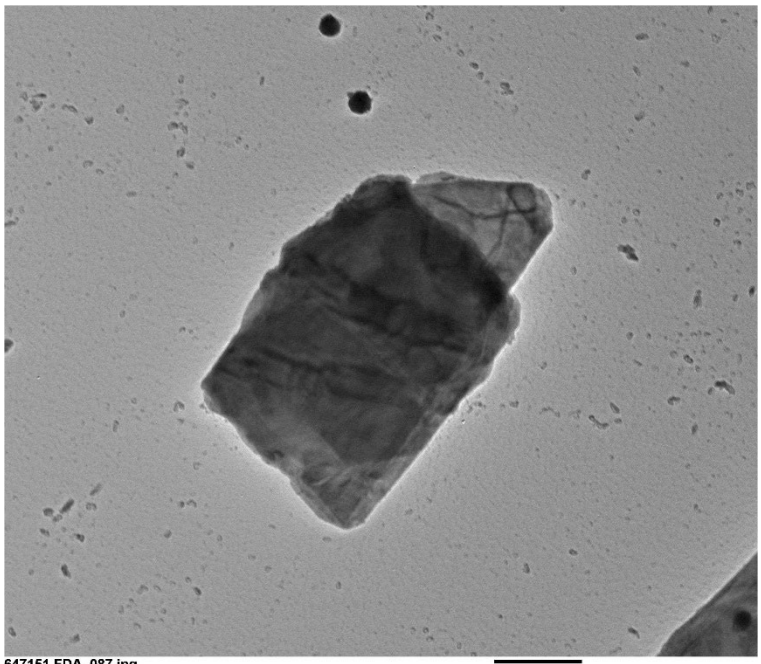
Hexagonal Diffraction Pattern from the Talc Particle Pictured Above



Chemistry from the Talc Particle Pictured Above



647151-9, Mica Particle

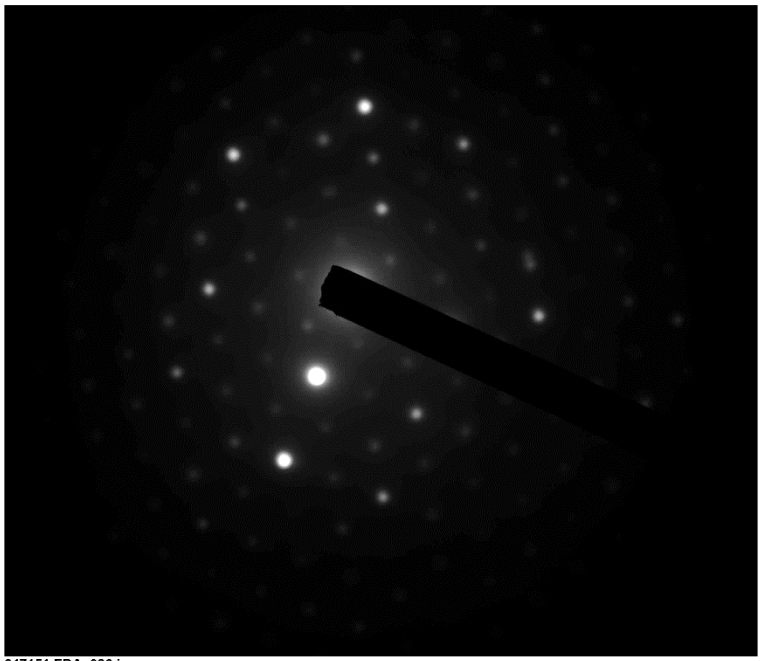


647151 FDA_087.jpg
647151-9
Mica particle

Cal: 0.001612 µm/pix
15:56 2023-07-19
TEM Mode: Imaging
Microscopist: (b) (6)
Camera: NS6, Exposure: 500 (ms) x 3 std. frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

500 nm
HV=80kV
Direct Mag: 6000 x

Hexagonal Diffraction Pattern from the Mica Particle Pictured Above

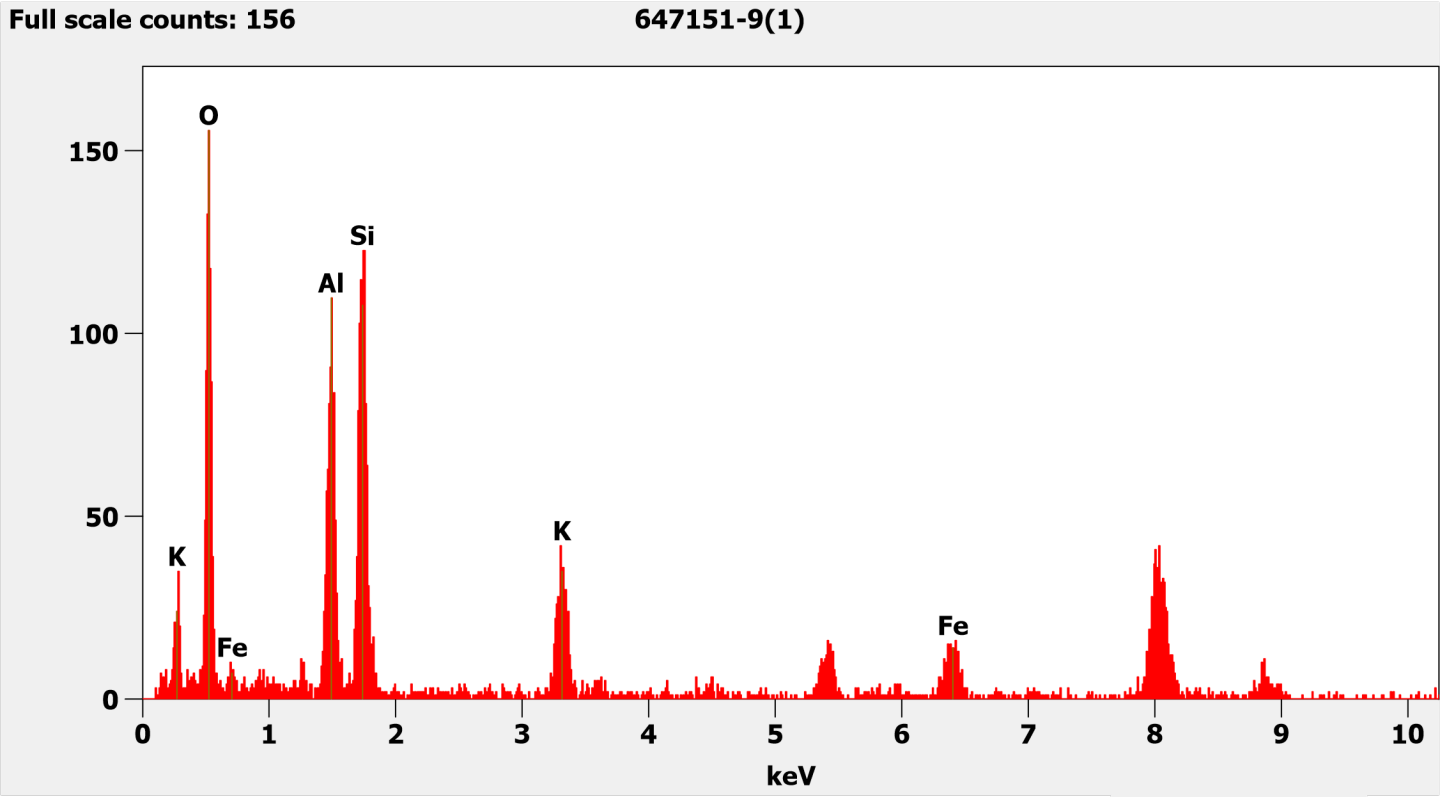


647151 FDA_086.jpg
647151-9
Mica particle

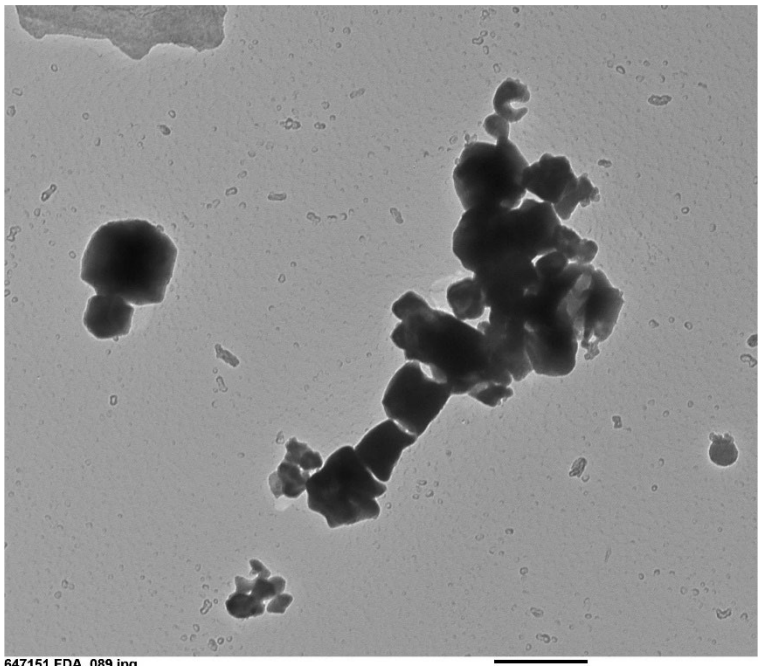
15:56 2023-07-19
TEM Mode: Diffraction
Microscopist: (b) (6)
Camera: NS6, Exposure: 500 (ms) x 3 std. frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

0.2 Å⁻¹
HV=80kV
Cam Len: 0.2000 m

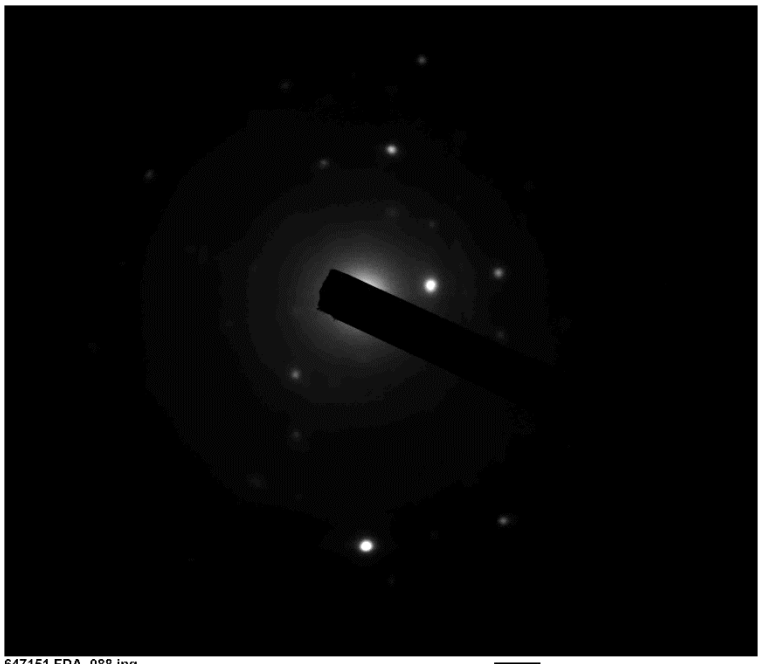
Chemistry from the Mica Particle Pictured Above



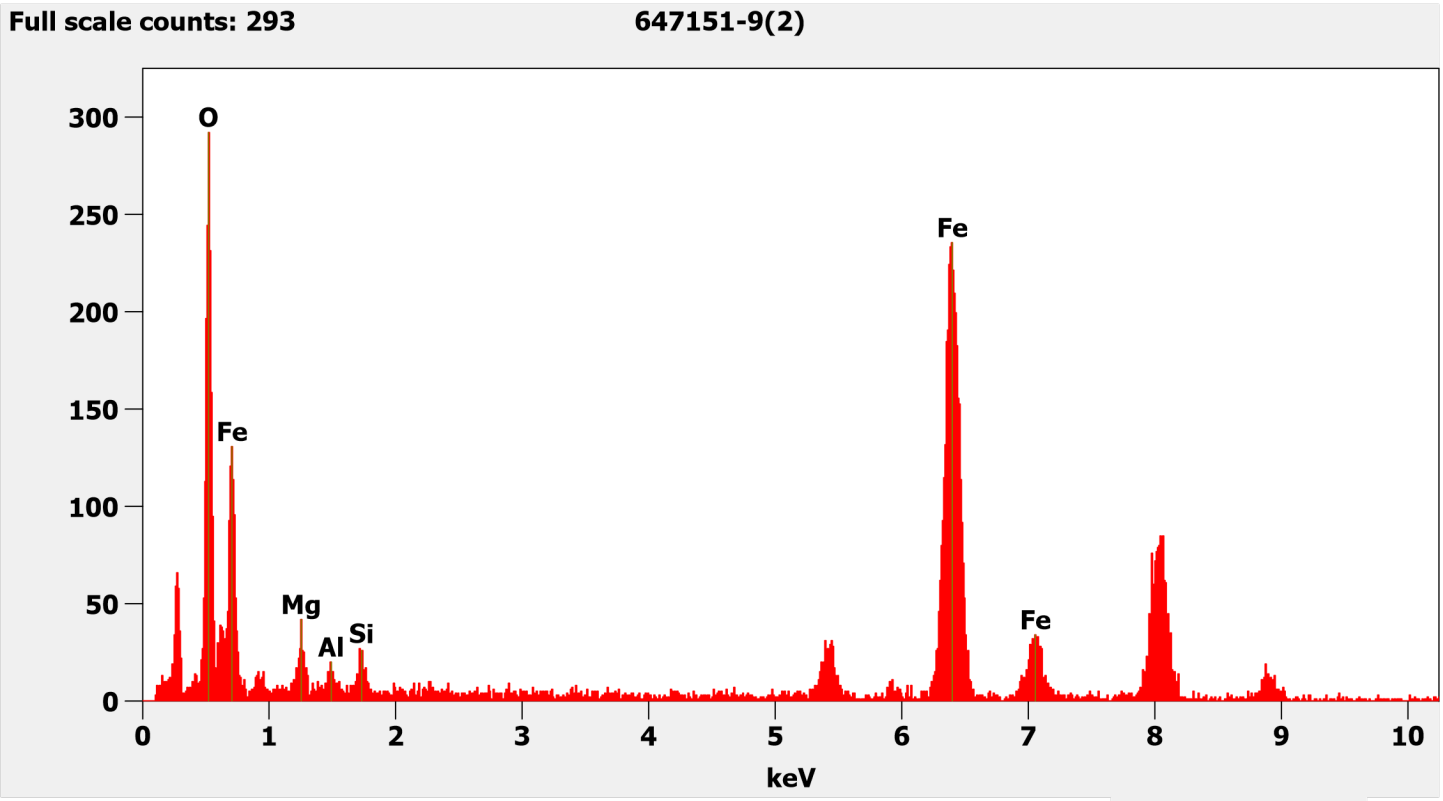
647151-9, Iron Particles



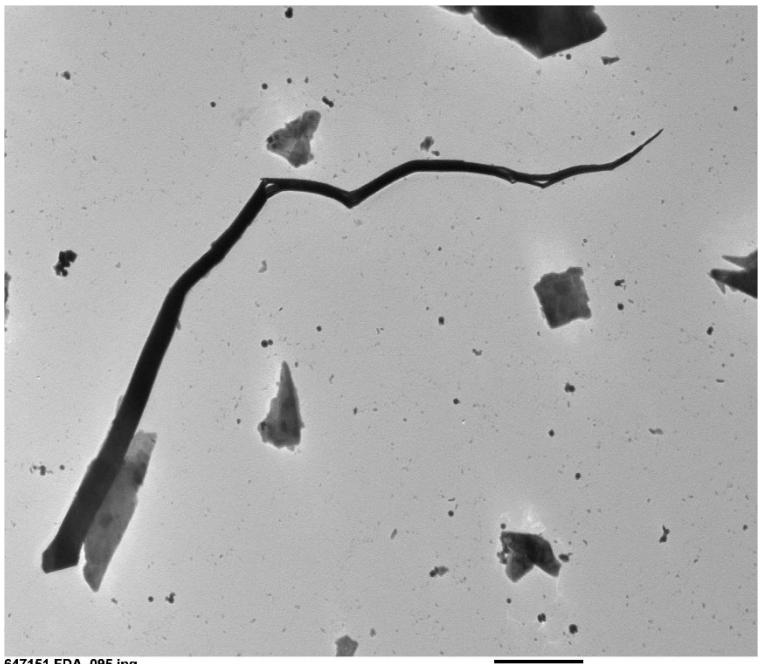
Diffraction Pattern from the Iron Particles Pictured Above



Chemistry from the Iron Particles Pictured Above



647151-9, Talc Ribbon

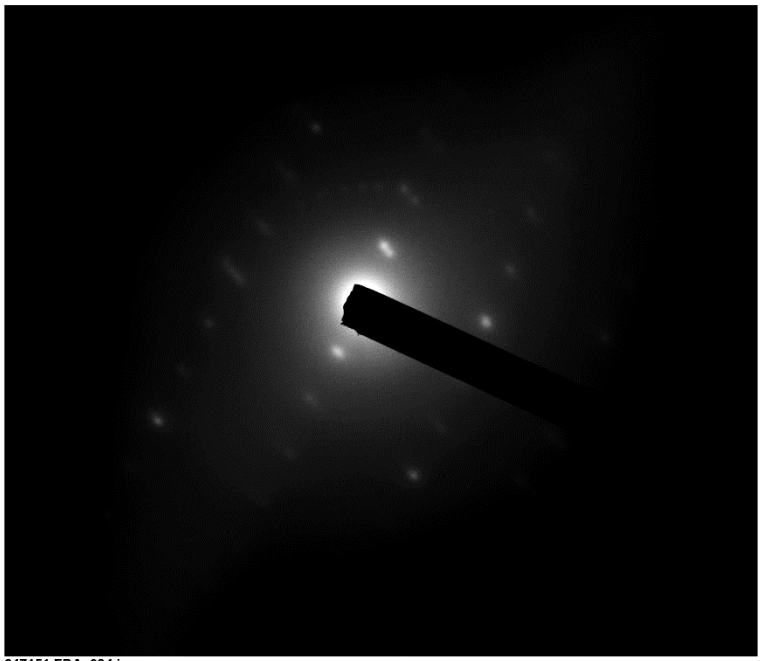


647151 FDA_095.jpg
647151-9
Talc Ribbon

Cal: 0.006365 µm/pix
17:10 2023-07-19
TEM Mode: Imaging
Microscopist: (b) (6)
Camera: NS6, Exposure: 500 (ms) x 3 std. frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

2 µm
HV=80kV
Direct Mag: 1500 x

Diffraction Pattern from the Talc Ribbon Pictured Above

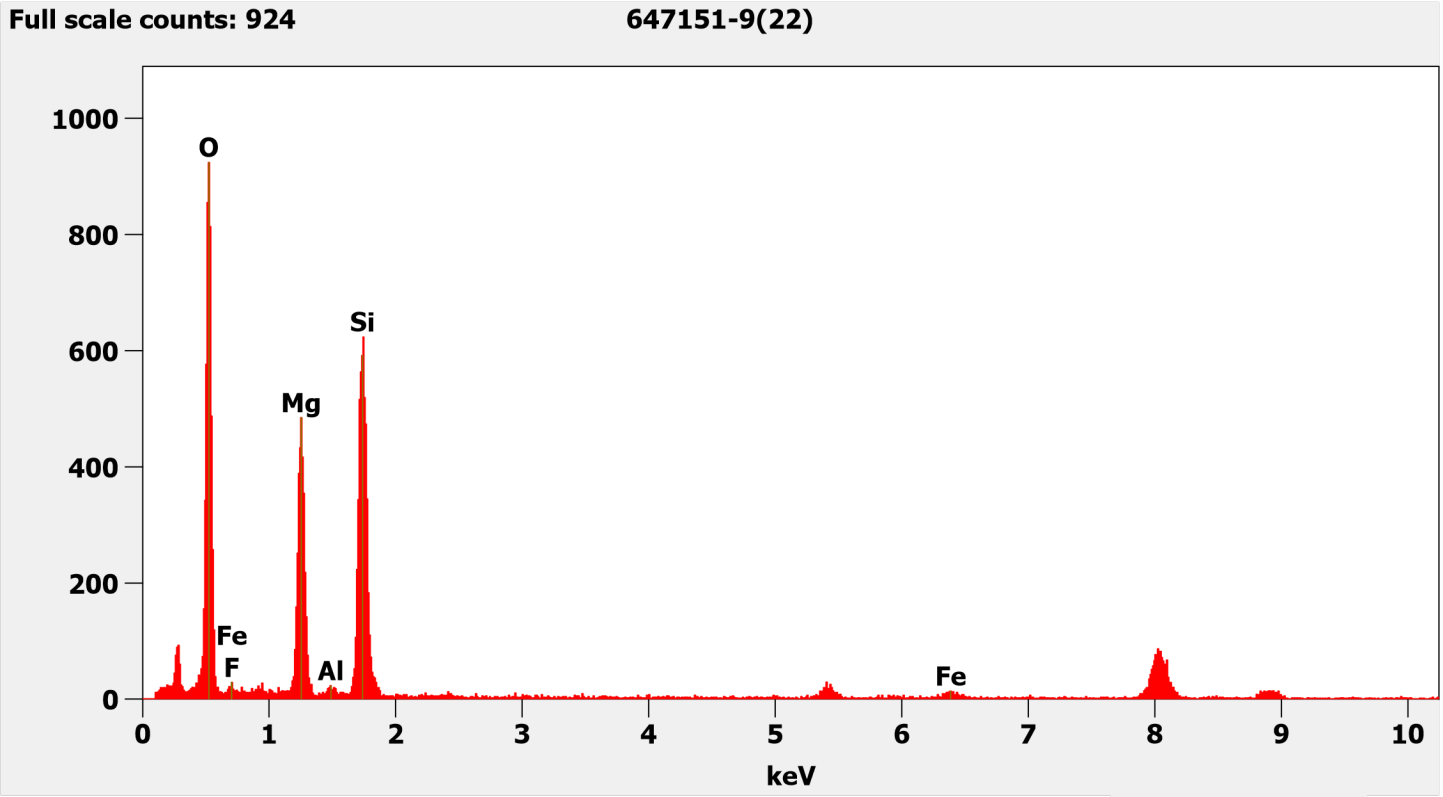


647151 FDA_094.jpg
647151-9
Talc Ribbon

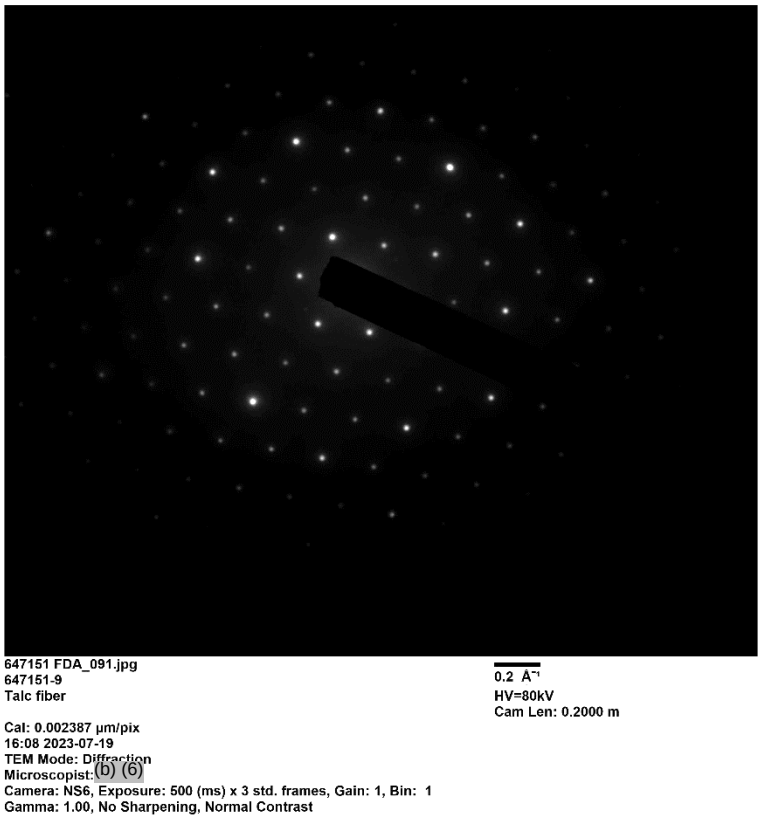
Cal: 0.002387 µm/pix
17:09 2023-07-19
TEM Mode: Diffraction
Microscopist: (b) (6)
Camera: NS6, Exposure: 500 (ms) x 3 std. frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

0.2 Å⁻¹
HV=80kV
Cam Len: 0.2000 m

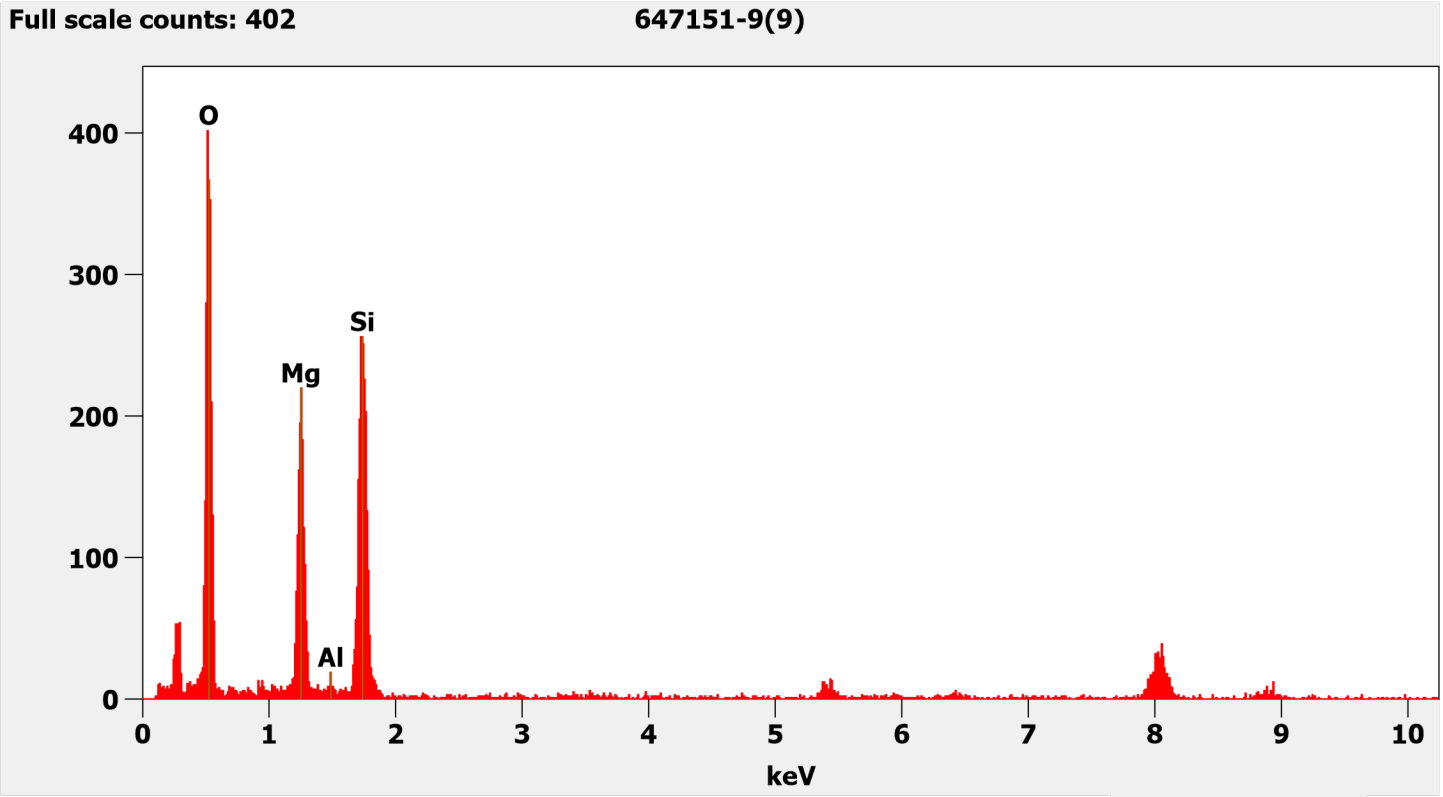
Chemistry from the Talc Ribbon Pictured Above



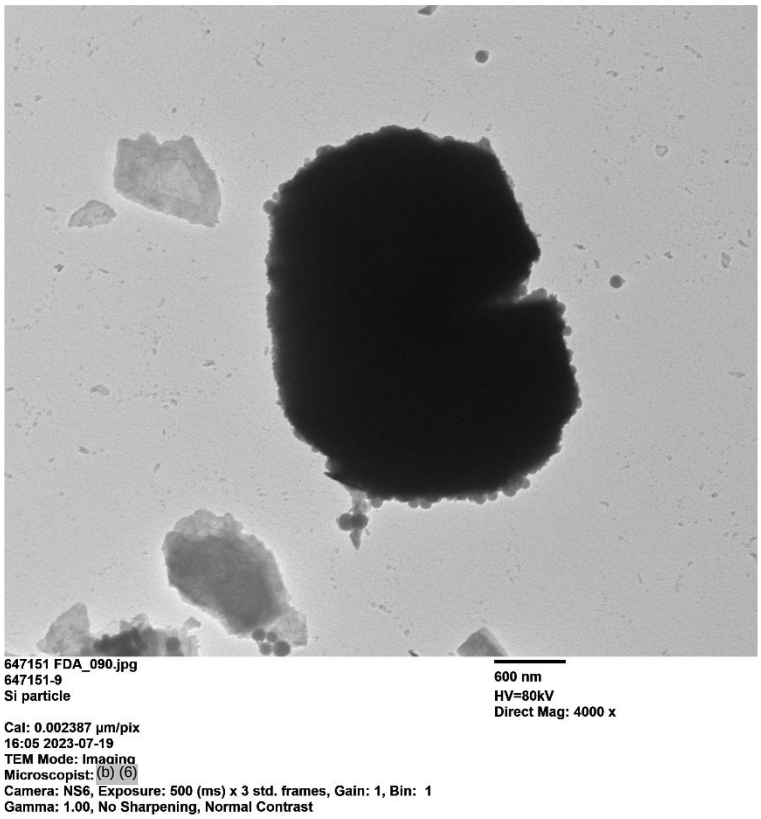
647151-9, Hexagonal Diffraction Pattern from Elongated Talc Particle



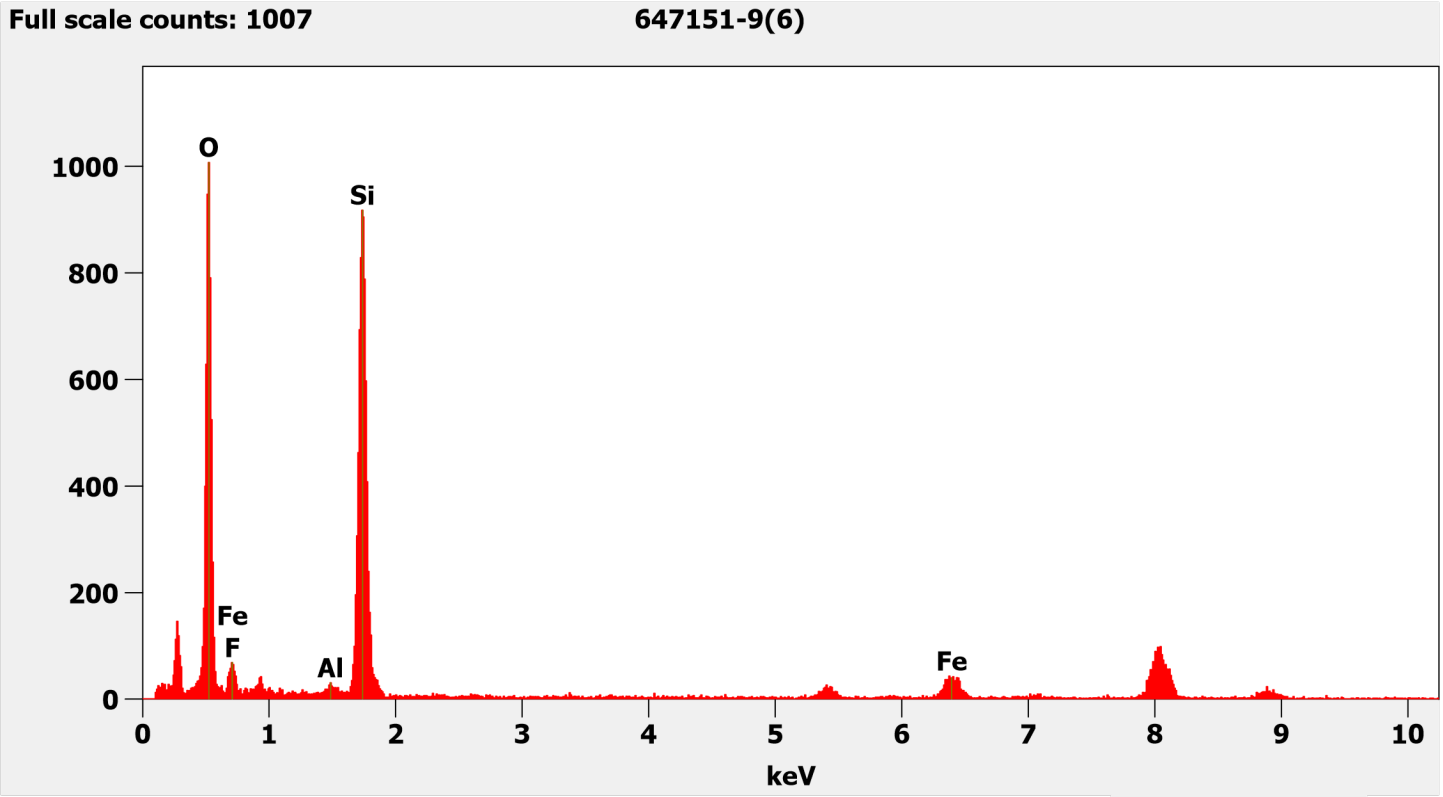
Chemistry from the Elongated Talc Particle Reference Above



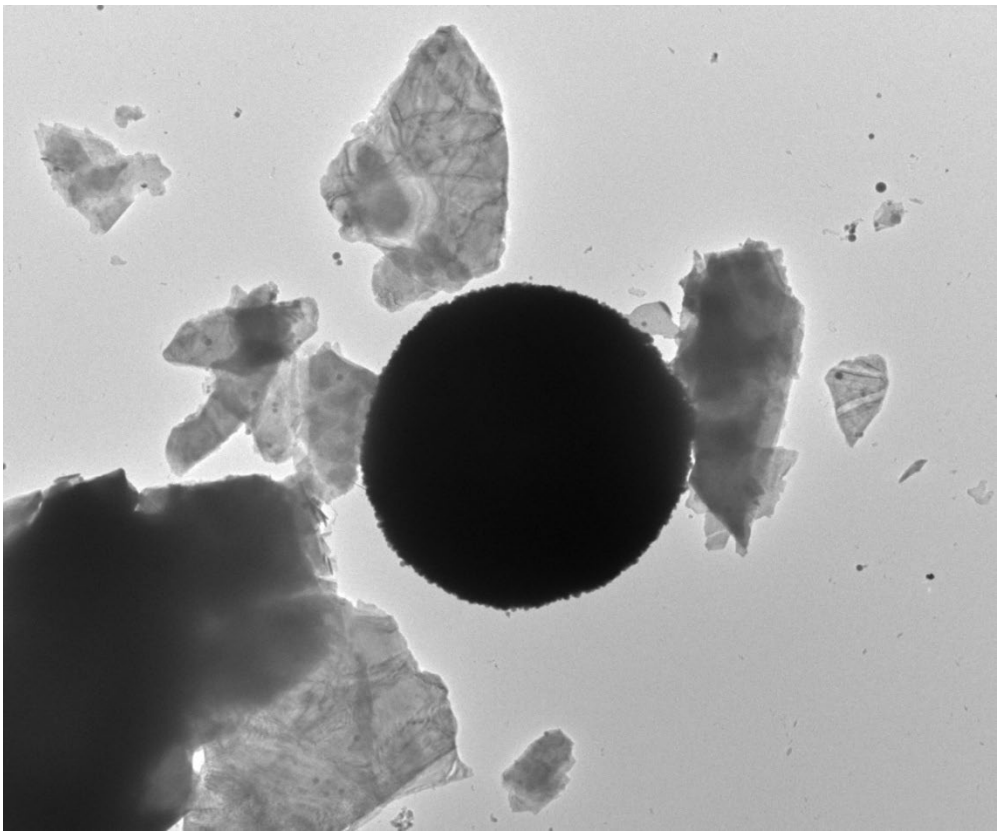
647151-9, Silicon Particle



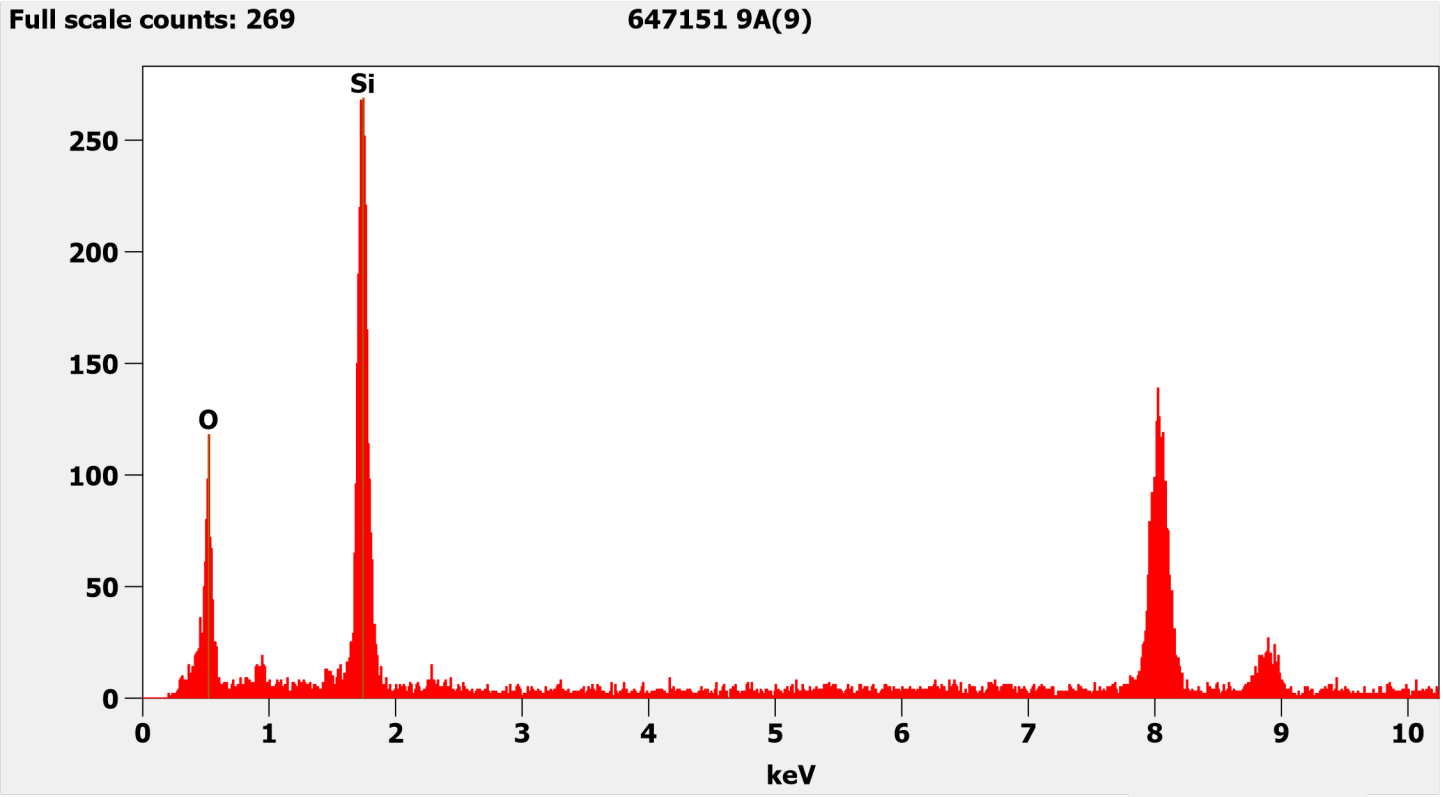
Chemistry from the Silicon Particle Pictured Above



647151-9A, Silica Sphere



Chemistry from the Silica Sphere Pictured Above



647151-10, 10A, 10B/Client Sample: 04252023-10

PLM

All three aliquots of sample 04252023-10 were analyzed by (b) (6) on July 31, 2023. No asbestos or non-asbestos amphibole variants were observed during analysis. The results were calculated using the equations detailed in the *Calculations* section above.

647151-10	No Asbestos Detected
647151-10A	No Asbestos Detected
647151-10B	No Asbestos Detected

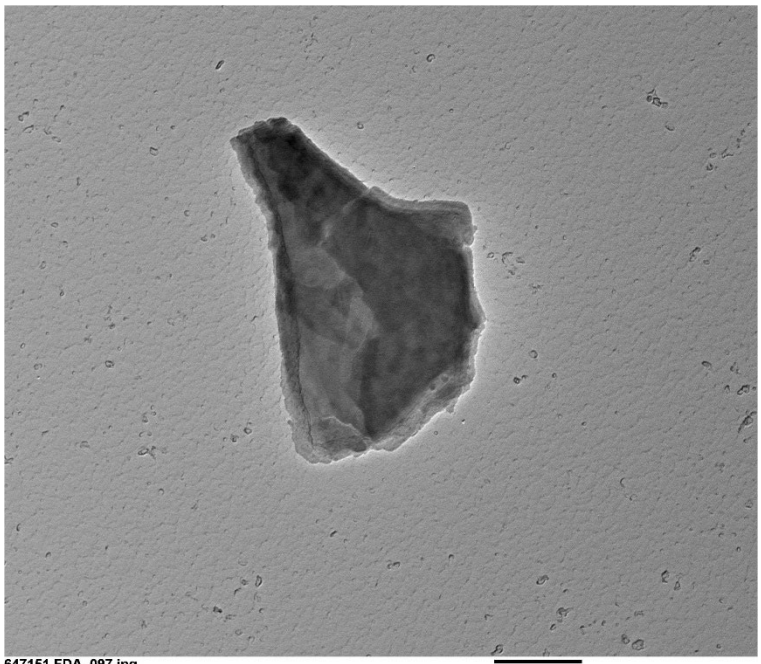
TEM

(b) (6) analyzed aliquot 10 on July 20, 2023. (b) (6) analyzed aliquots 10A and 10B on July 26, 2023. The primary particle observed was talc; mica particles and silica spheres were also observed along with talc ribbons/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.

647151-10	No Asbestos Detected
647151-10A	No Asbestos Detected
647151-10B	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.

647151-10, Talc Particle

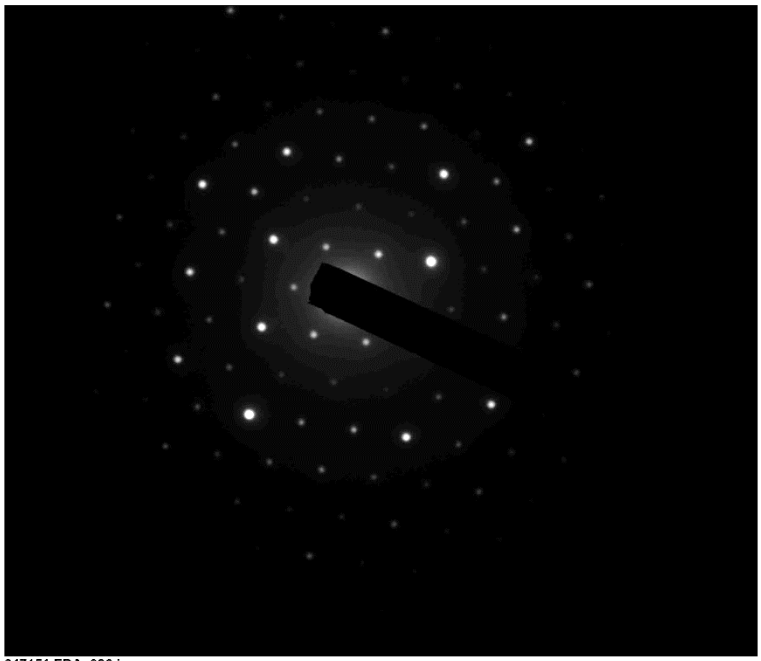


647151 FDA_097.jpg
647151-10
Talc Particle

Cal: 0.001612 µm/pix
12:15 2023-07-20
TEM Mode: Imaging
Microscopist: (b) (6)
Camera: NS6, Exposure: 500 (ms) x 3 std. frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

500 nm
HV=80kV
Direct Mag: 6000 x

Hexagonal Diffraction Pattern from the Talc Particle Pictured Above

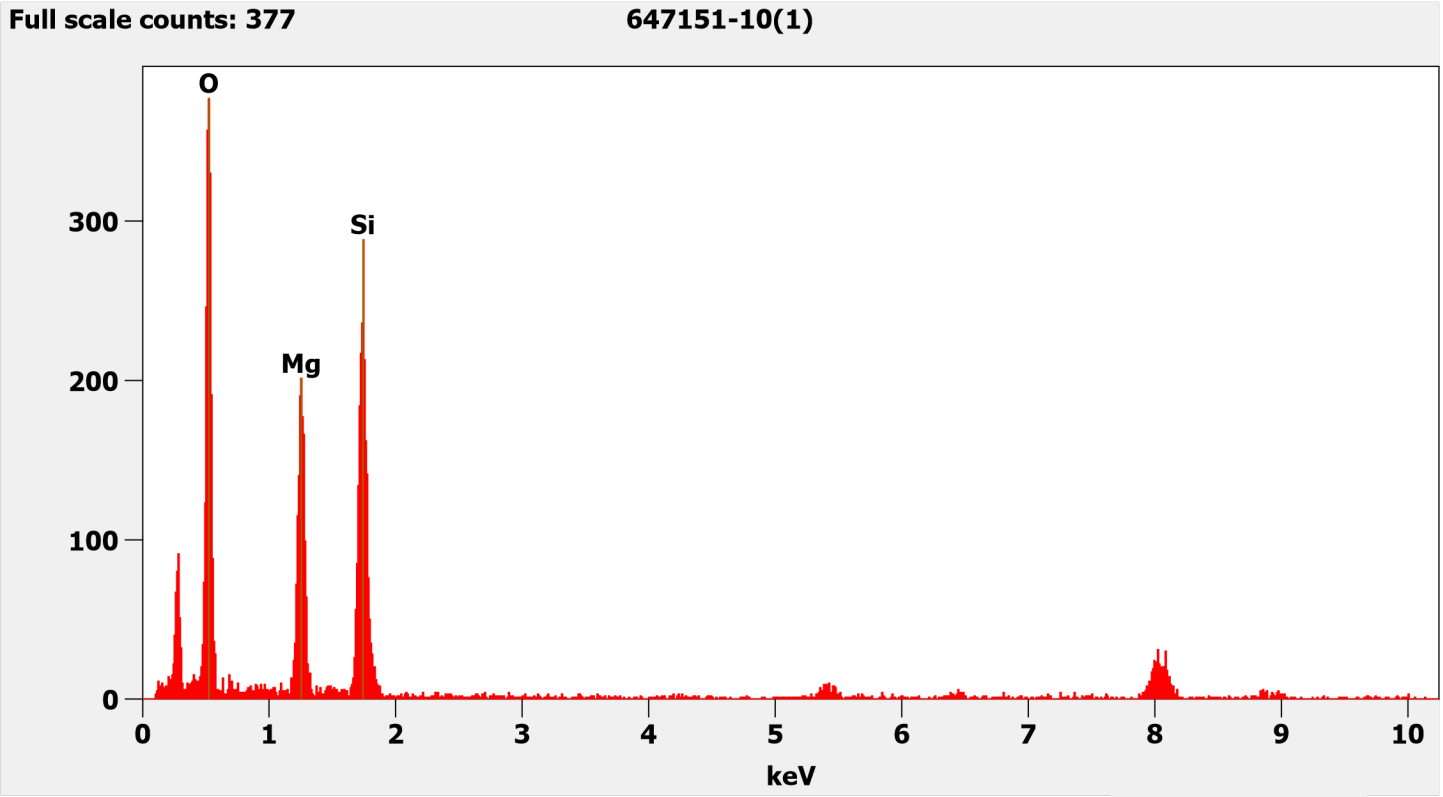


647151 FDA_096.jpg
647151-10
Talc Particle

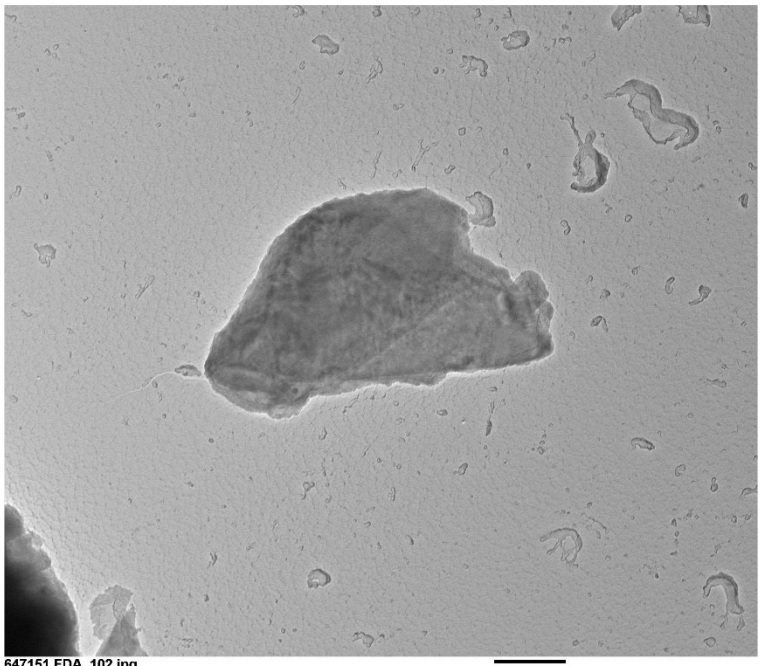
12:14 2023-07-20
TEM Mode: Diffraction
Microscopist: (b) (6)
Camera: NS6, Exposure: 500 (ms) x 3 std. frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

0.2 Å⁻¹
HV=80kV
Cam Len: 0.2000 m

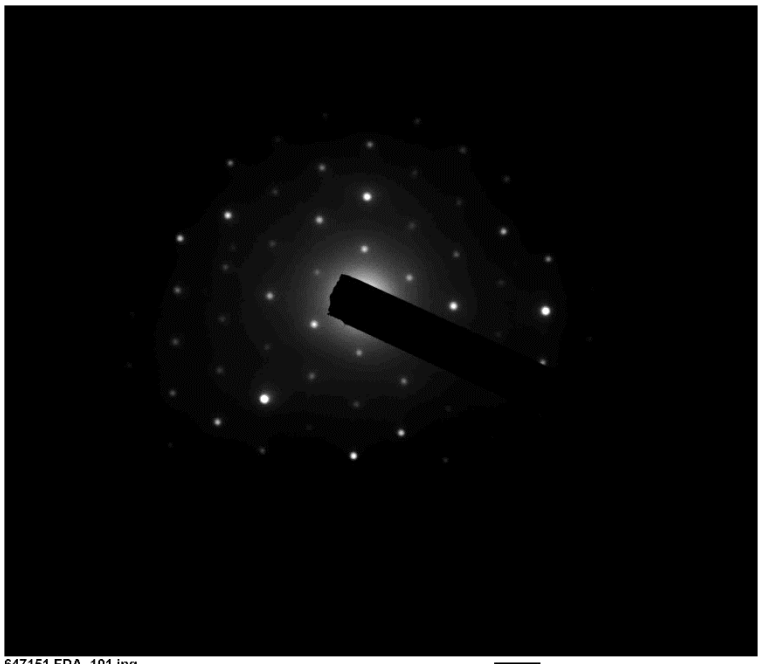
Chemistry from the Talc Particle Pictured Above



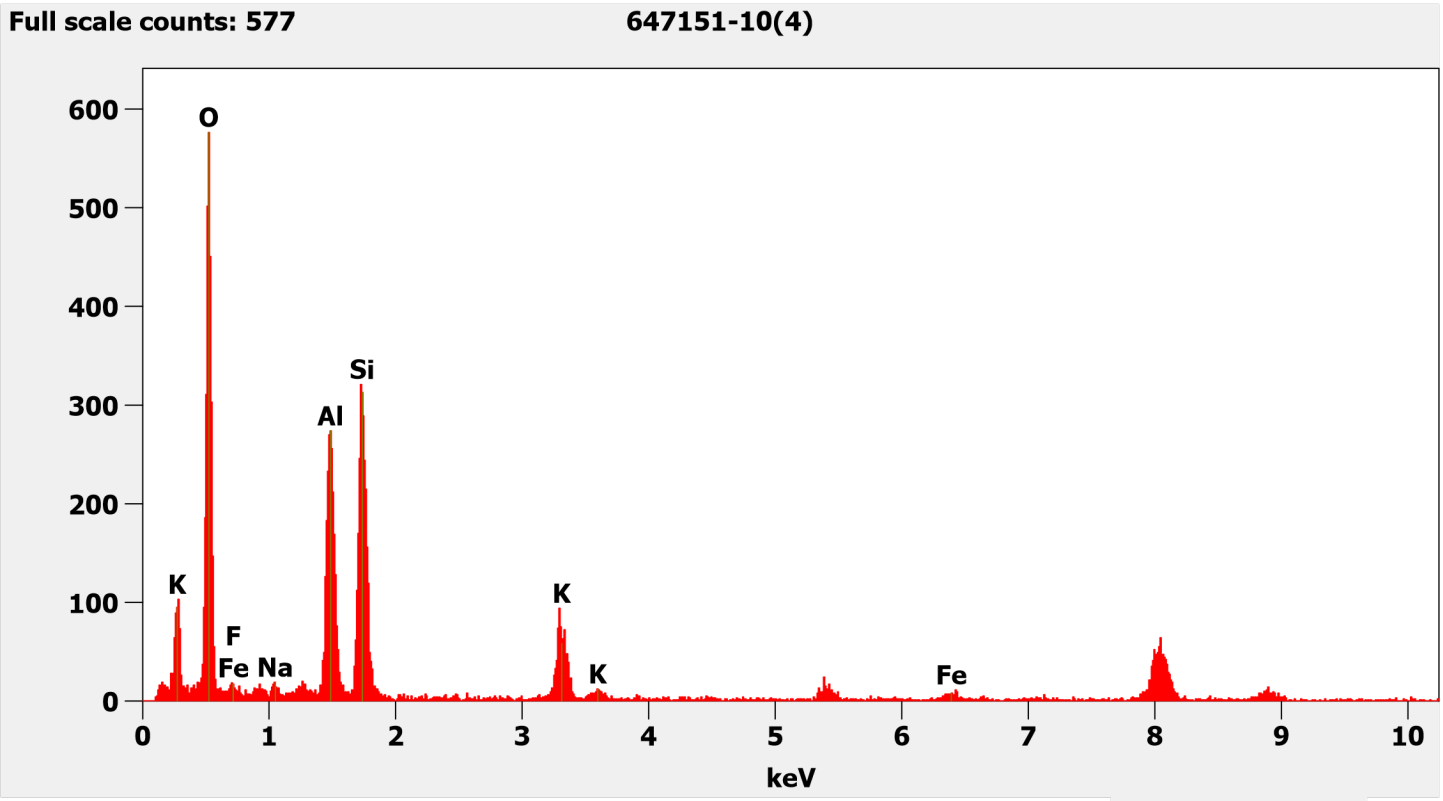
647151-10, Mica Particle



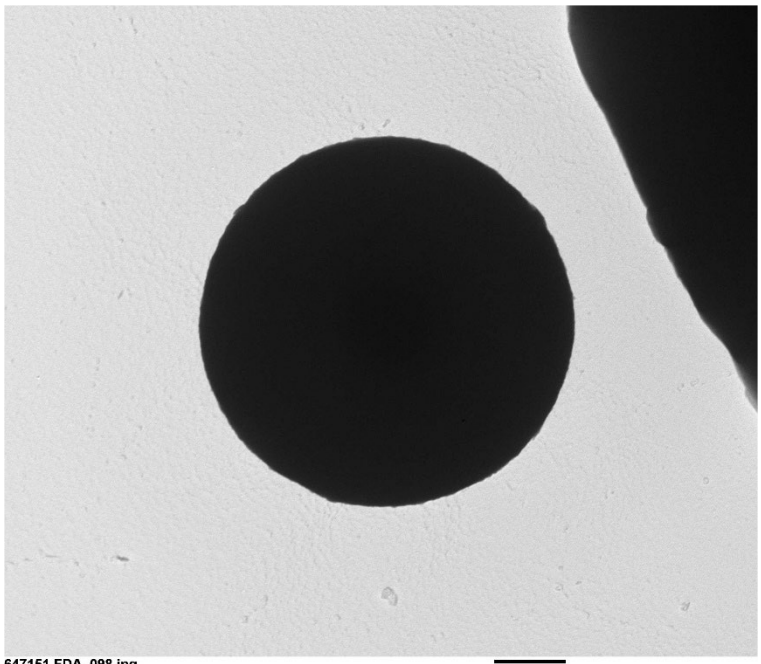
Hexagonal Diffraction Pattern from the Mica Particle Pictured Above



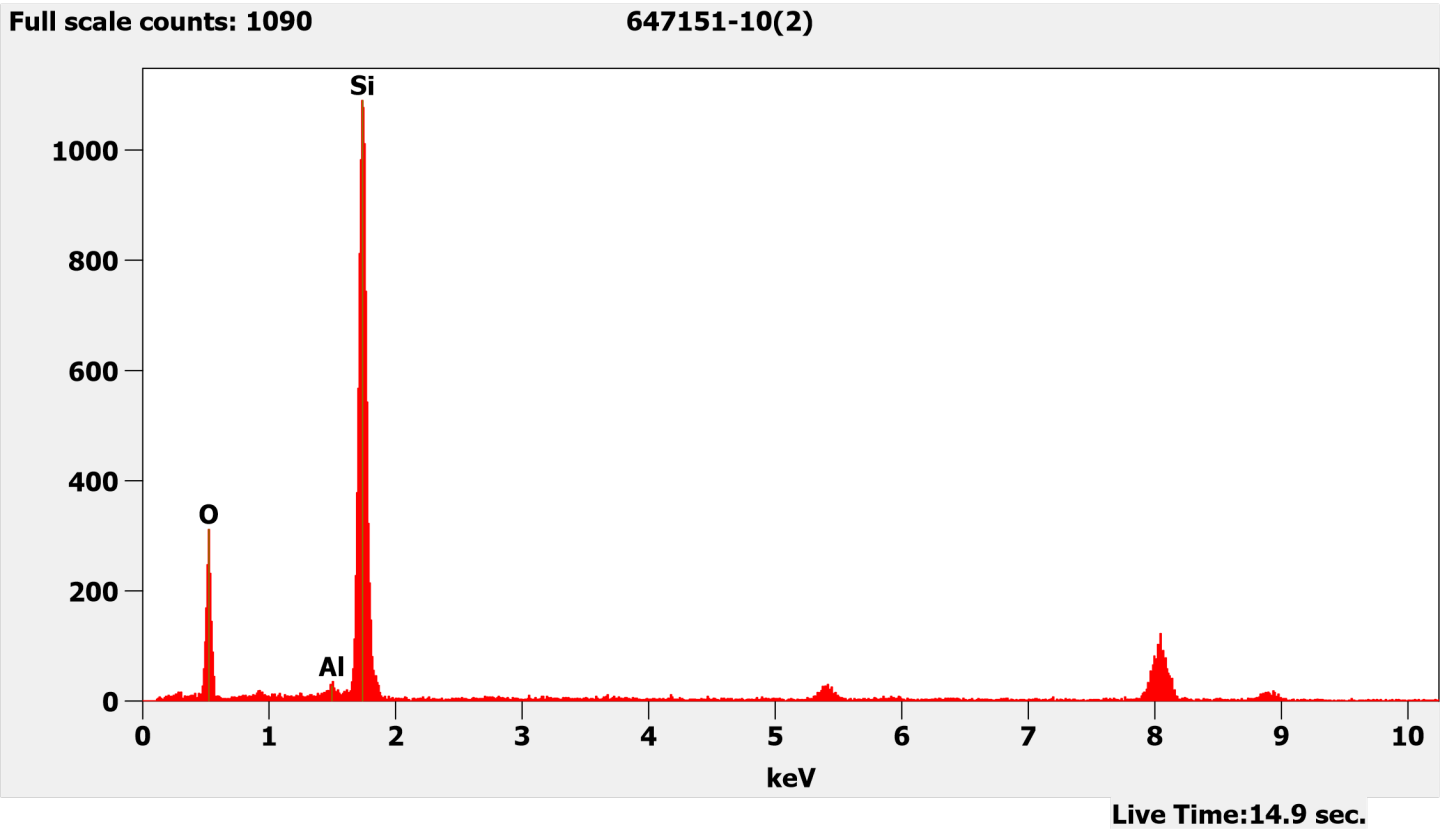
Chemistry from the Mica Particle Pictured Above



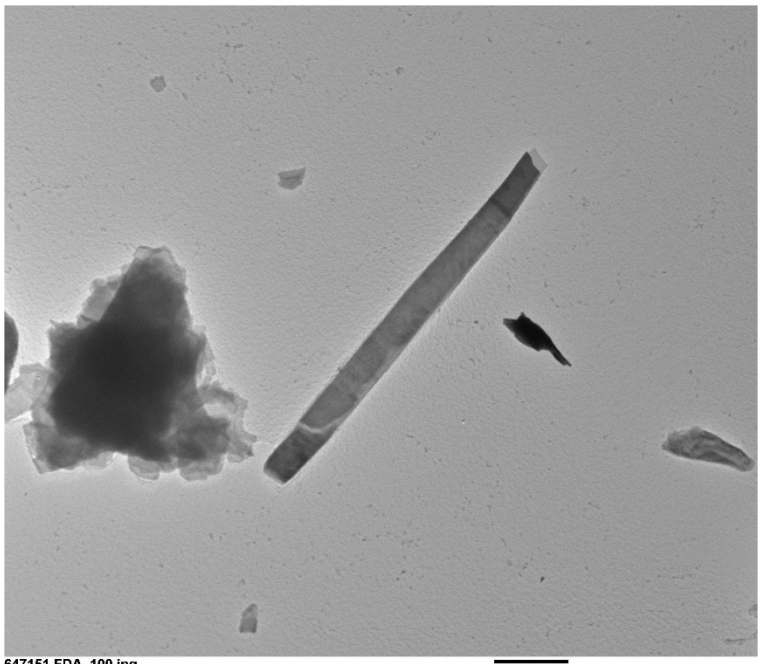
647151-10, Silica Sphere



Chemistry from the Silica Sphere Pictured Above



647151-10, Elongated Talc Particle

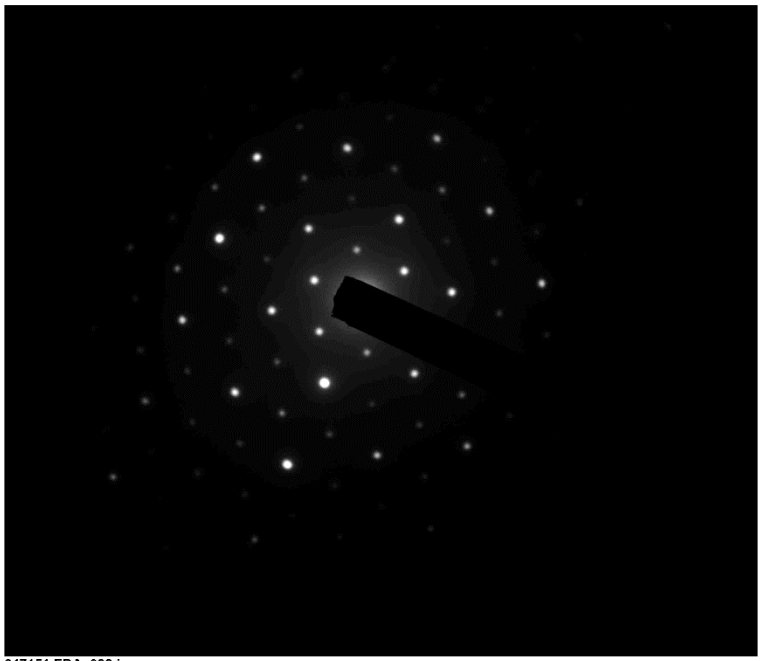


647151 FDA_100.jpg
647151-10
Talc Fiber

Cal: 0.003819 µm/pix
12:29 2023-07-20
TEM Mode: Imaging
Microscopist: (b) (6)
Camera: NS6, Exposure: 500 (ms) x 3 std. frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

1 µm
HV=80kV
Direct Mag: 2500 x

Hexagonal Diffraction Pattern from the Elongated Talc Particle Pictured Above

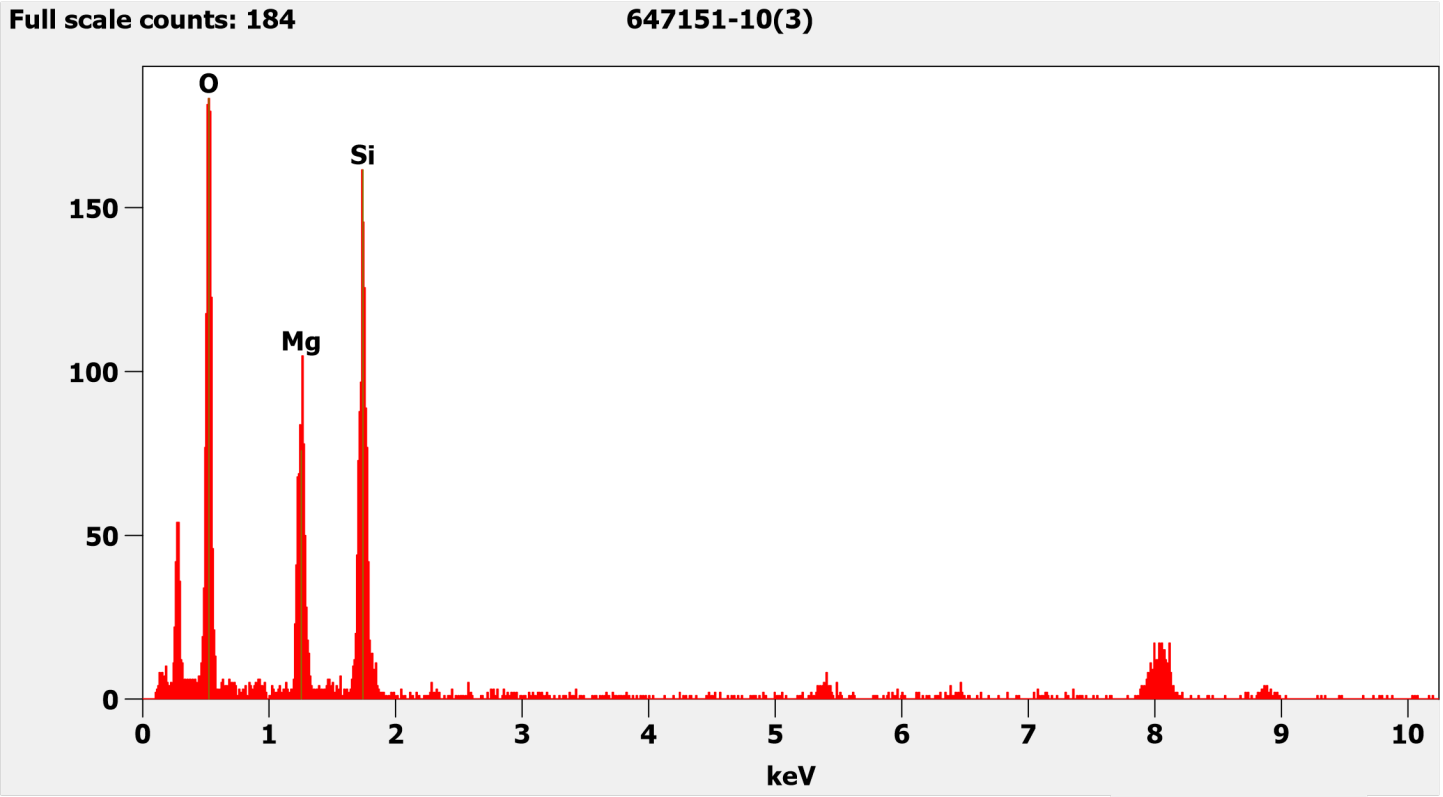


647151 FDA_099.jpg
647151-10
Talc Fiber

Cal: 0.002387 µm/pix
12:29 2023-07-20
TEM Mode: Diffraction
Microscopist: (b) (6)
Camera: NS6, Exposure: 500 (ms) x 3 std. frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

0.2 Å⁻¹
HV=80kV
Cam Len: 0.2000 m

Chemistry from the Elongate Talc Particle Pictured Above



647151-11, 11A, 11B/Client Sample: 04252023-11

PLM

All three aliquots of sample 04252023-11 were analyzed by (b) (6) on July 31, 2023. No asbestos or non-asbestos amphibole variants were observed during analysis. The results were calculated using the equations detailed in the *Calculations* section above.

647151-11	No Asbestos Detected
647151-11A	No Asbestos Detected
647151-11B	No Asbestos Detected

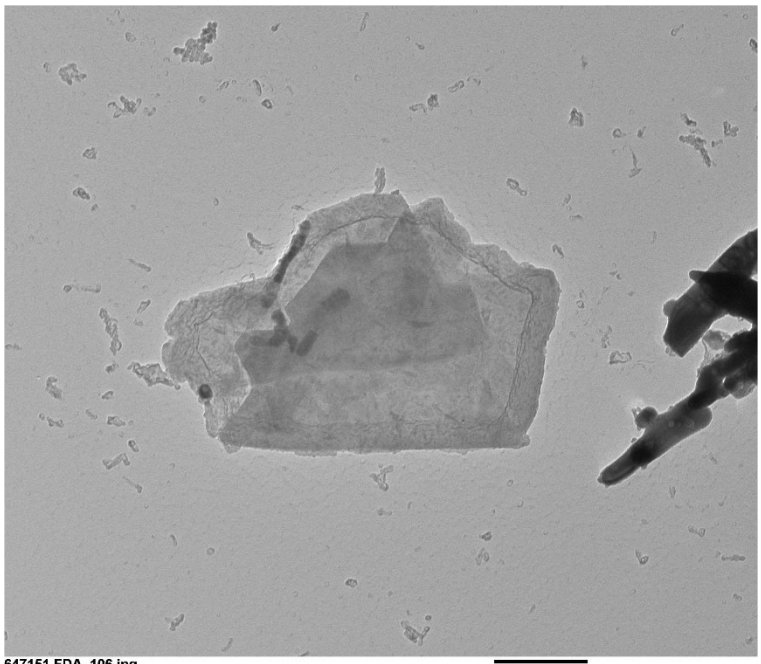
TEM

(b) (6) analyzed aliquot 11 on July 21, 2023. (b) (6) analyzed aliquots 11A and 11B on July 26, 2023. The primary particles observed were talc and iron; mica particles were also observed along with silica sphere, talc ribbons/fibers, and titanium 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.

647151-11	No Asbestos Detected
647151-11A	No Asbestos Detected
647151-11B	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.

647151-11, Talc Particle

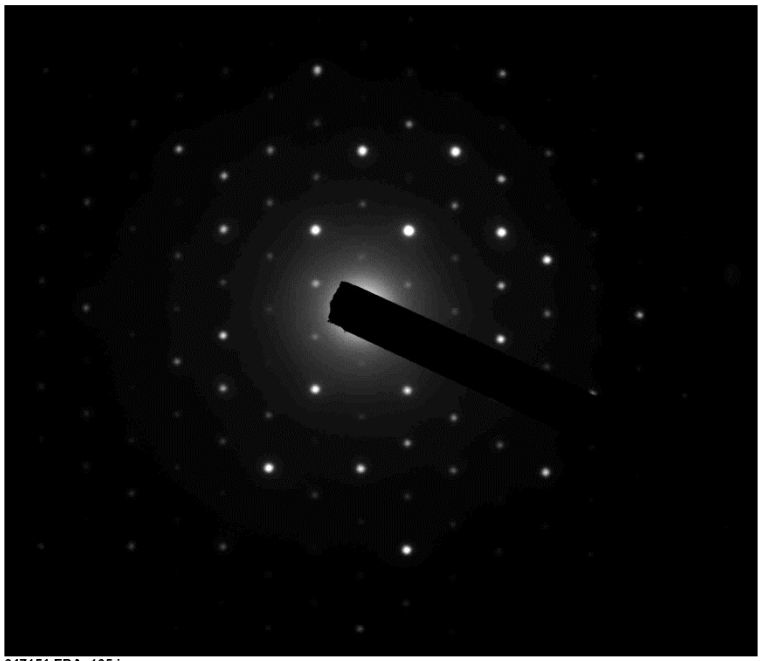


647151 FDA_106.jpg
647151-11
Talc Particle

Cal: 0.001209 µm/pix
11:18 2023-07-21
TEM Mode: Imaging
Microscopist: (b) (6)
Camera: NS6, Exposure: 500 (ms) x 3 std. frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

400 nm
HV=80kV
Direct Mag: 8000 x

Hexagonal Diffraction Pattern from the Talc Particle Pictured Above

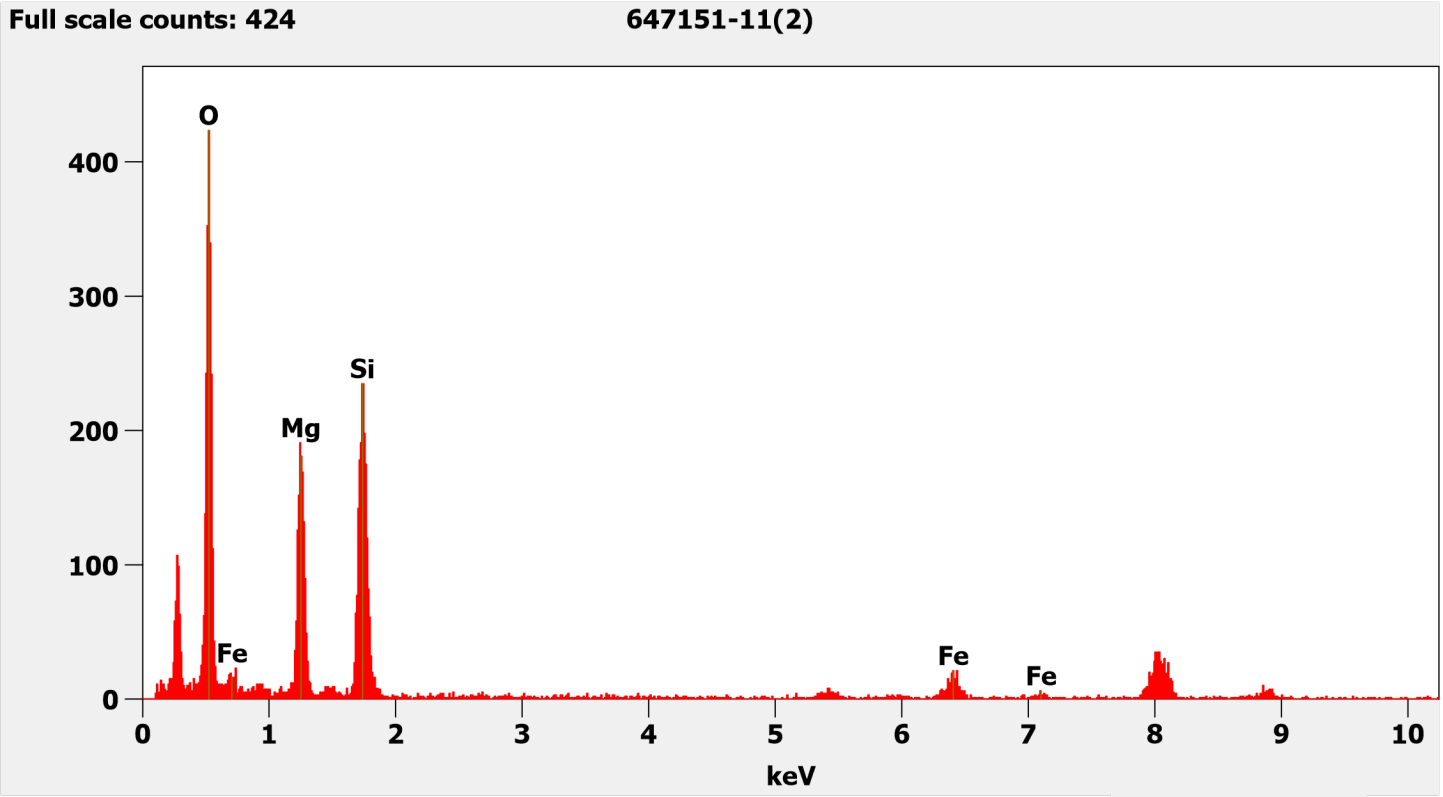


647151 FDA_105.jpg
647151-11
Talc Particle

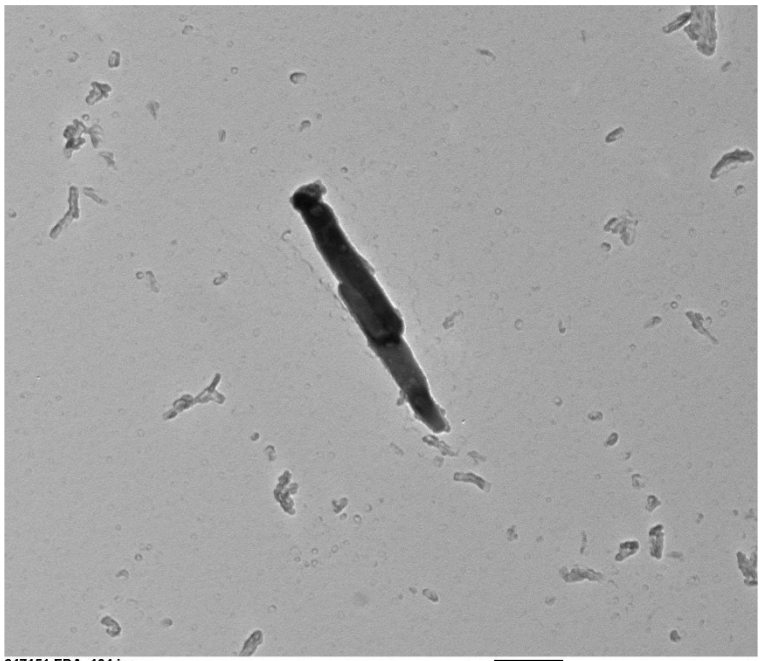
Cal: 0.000817 µm/pix
11:18 2023-07-21
TEM Mode: Diffraction
Microscopist: (b) (6)
Camera: NS6, Exposure: 500 (ms) x 3 std. frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

0.2 Å⁻¹
HV=80kV
Cam Len: 0.2000 m

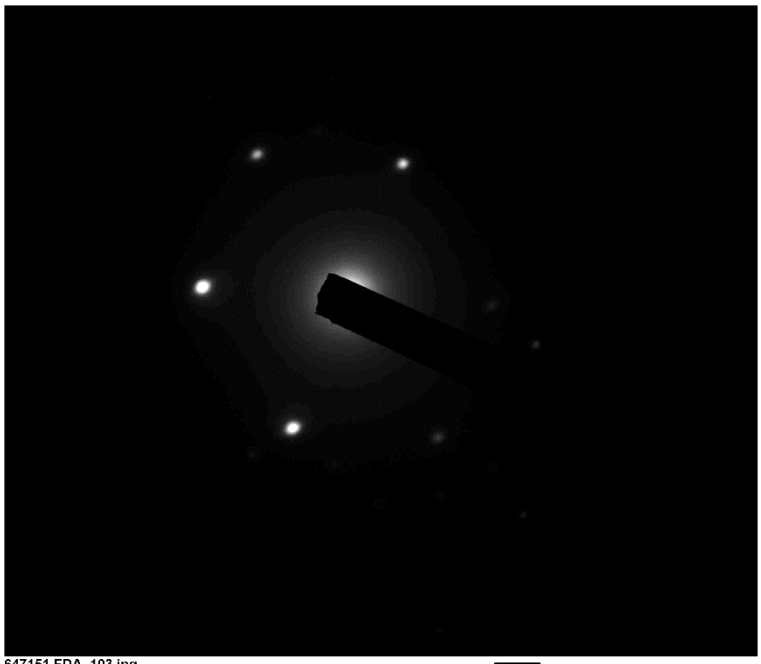
Chemistry from the Talc Particle Pictured Above



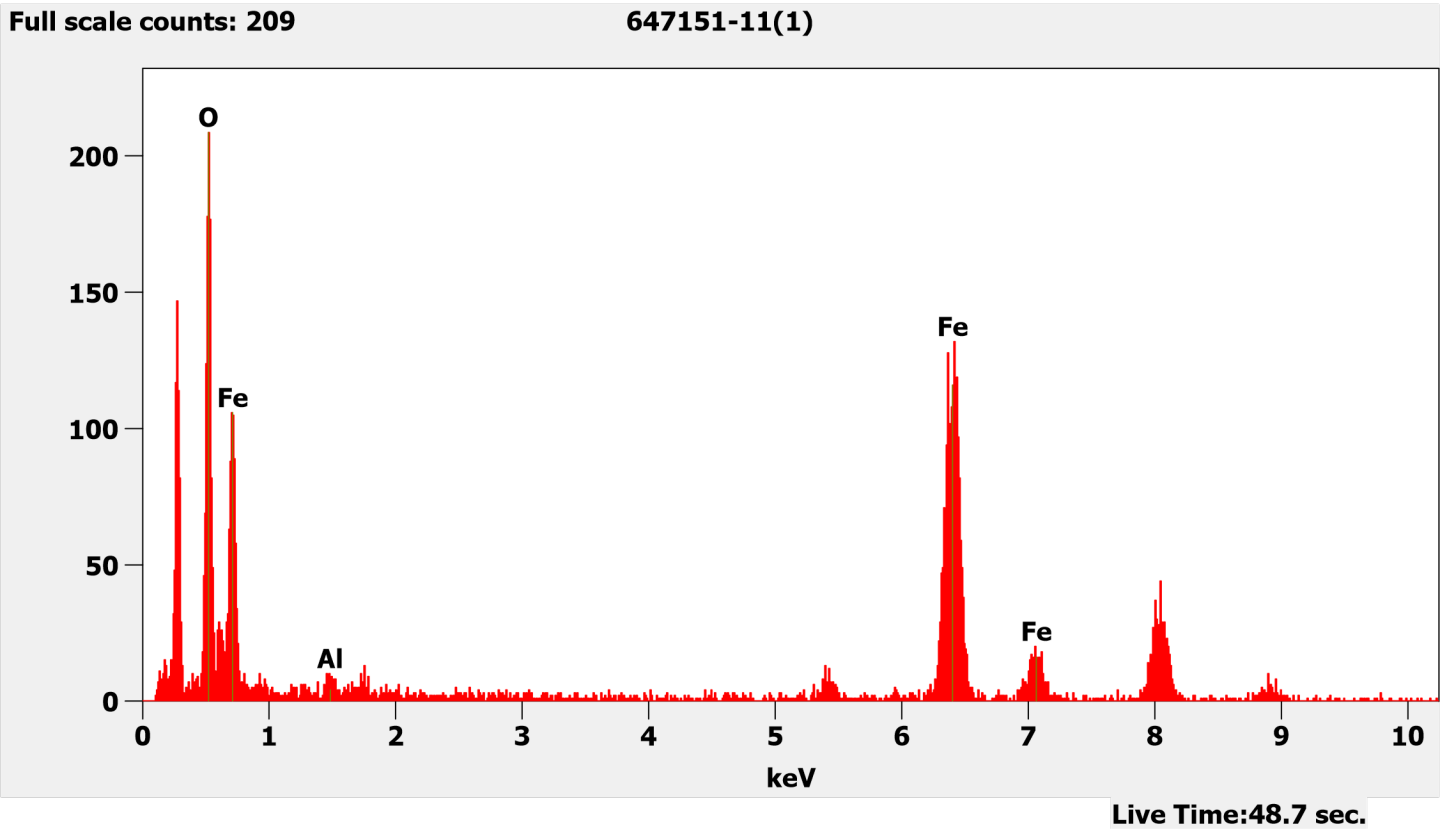
647151-11, Elongated Iron Particle



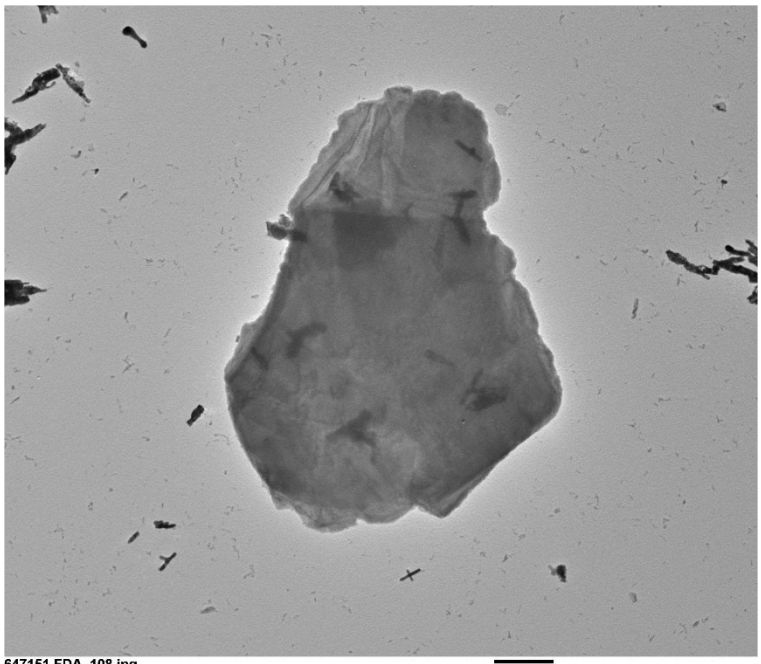
Diffraction Pattern from the Elongated Iron Particle Pictured Above



Chemistry from the Elongated Iron Particle Pictured Above



647151-11, Mica Particle

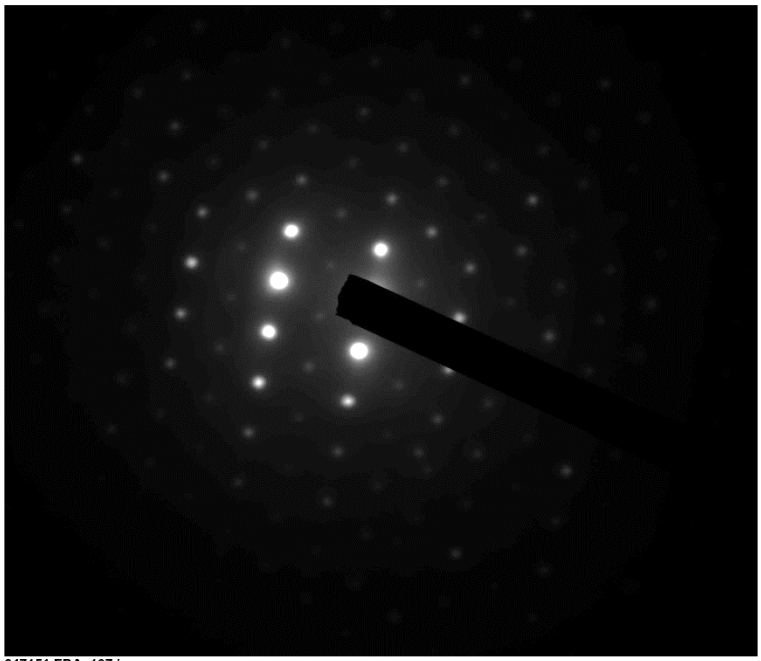


647151 FDA_108.jpg
647151-11
Mica Particle

Cal: 0.004774 µm/pix
11:23 2023-07-21
TEM Mode: Imaging
Microscopist: (b) (6)
Camera: NS6, Exposure: 500 (ms) x 3 std. frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

1 µm
HV=80kV
Direct Mag: 2000 x

Hexagonal Diffraction Pattern from the Mica Particle Pictured Above

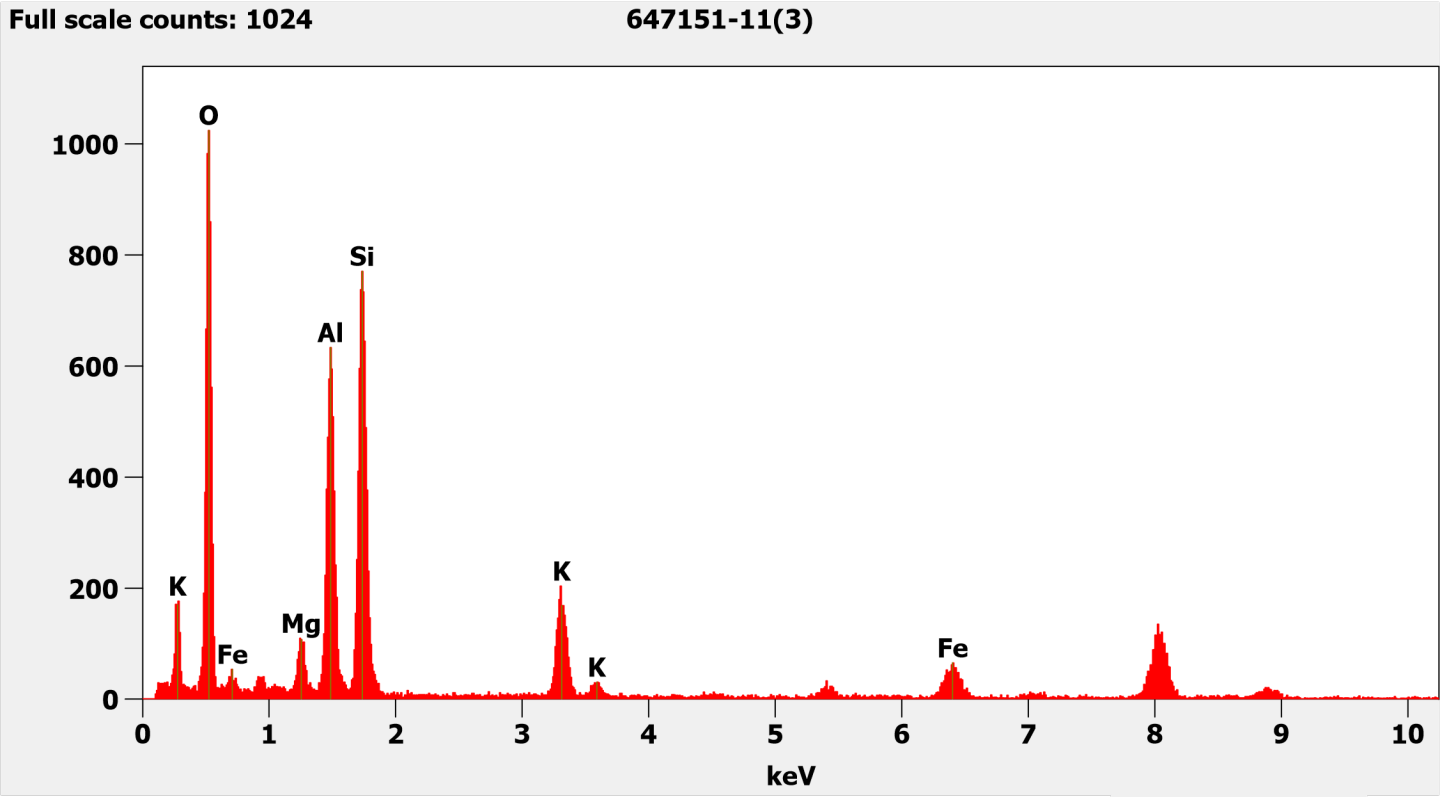


647151 FDA_107.jpg
647151-11
Mica Particle

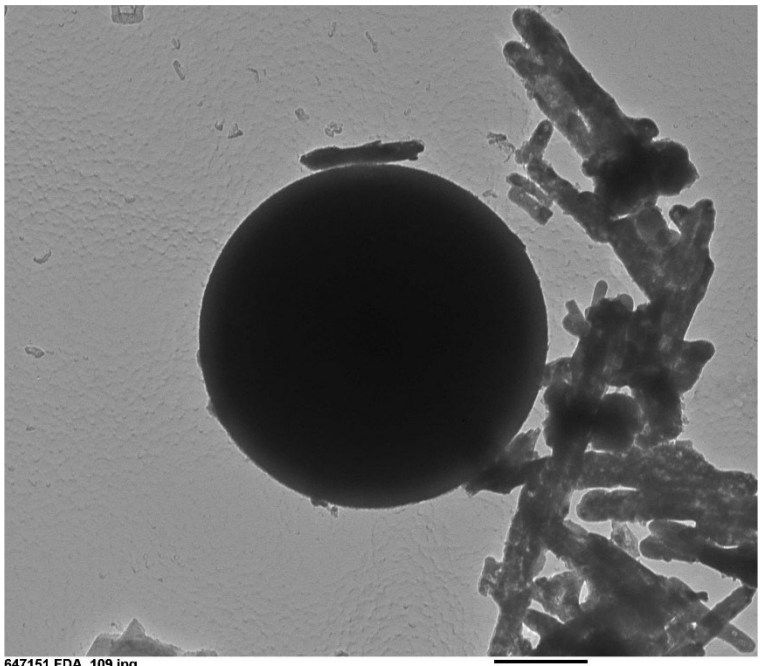
Cal: 0.001209 µm/pix
11:23 2023-07-21
TEM Mode: Diffraction
Microscopist: (b) (6)
Camera: NS6, Exposure: 500 (ms) x 3 std. frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

0.2 Å⁻¹
HV=80kV
Cam Len: 0.2000 m

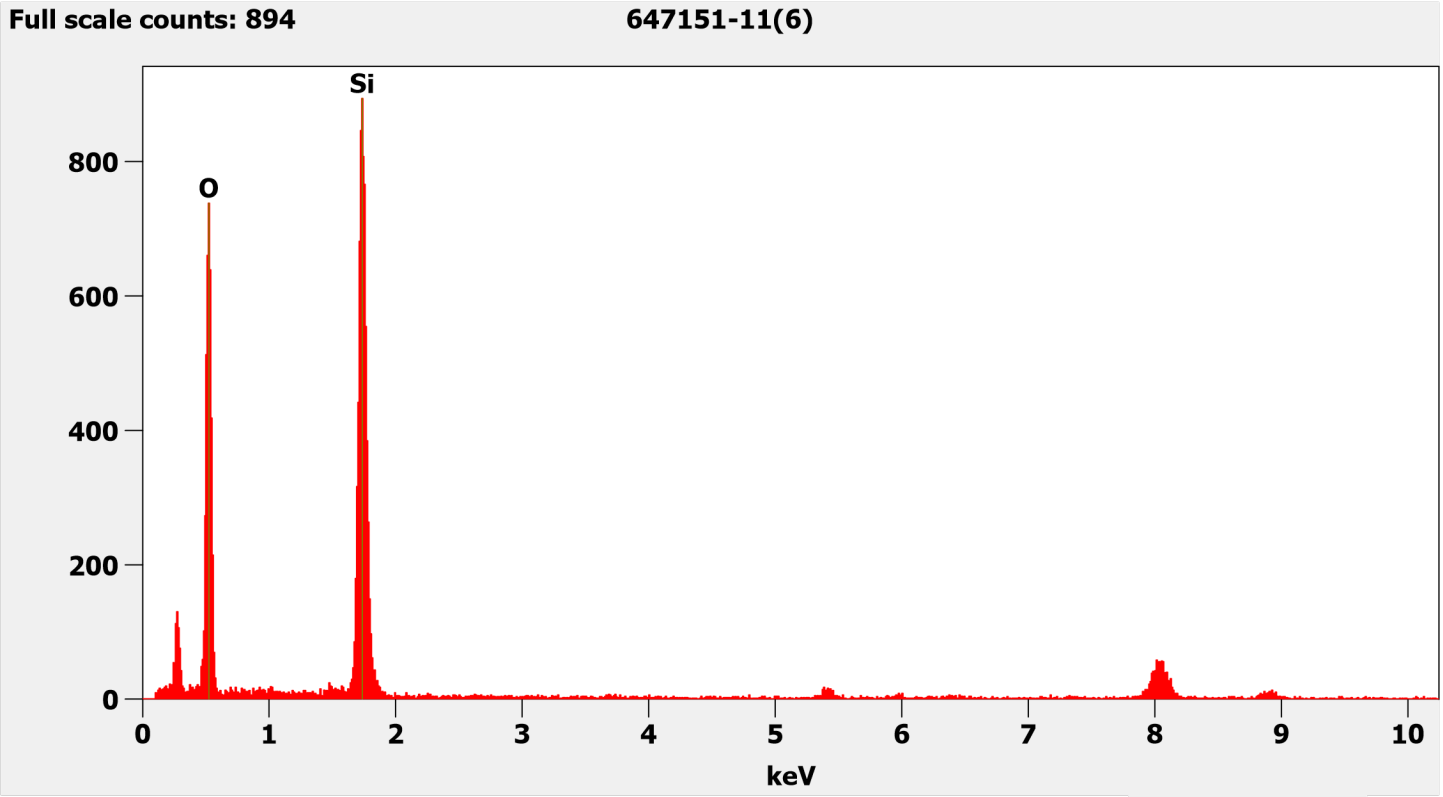
Chemistry from the Mica Particle Pictured Above



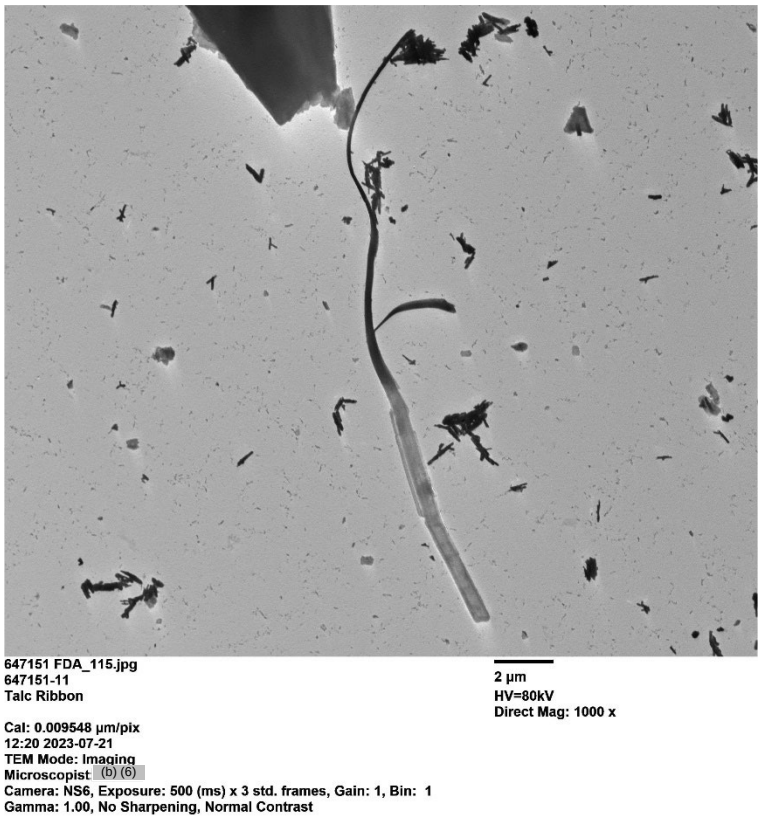
647151-11, Silica Sphere



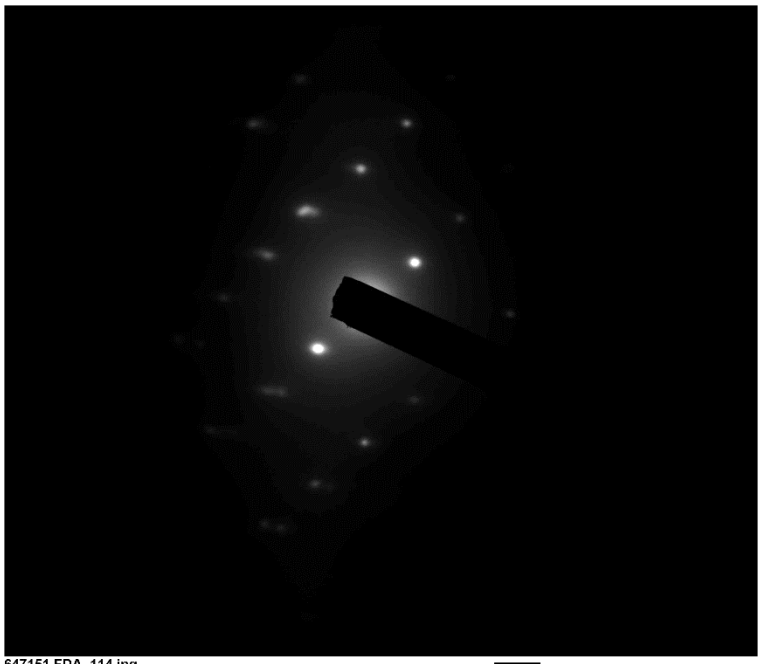
Chemistry from the Silica Sphere Pictured Above



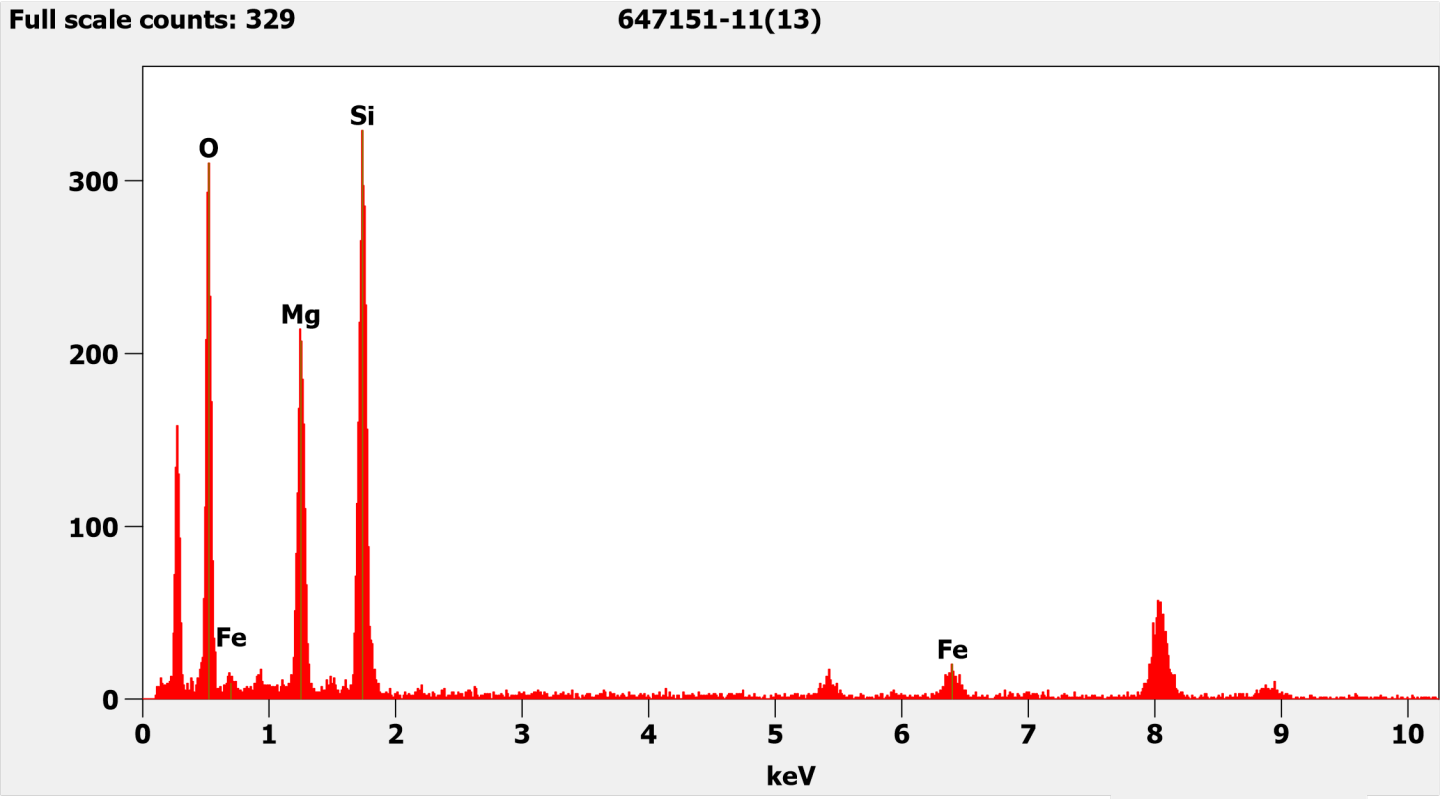
647151-11, Talc Ribbon



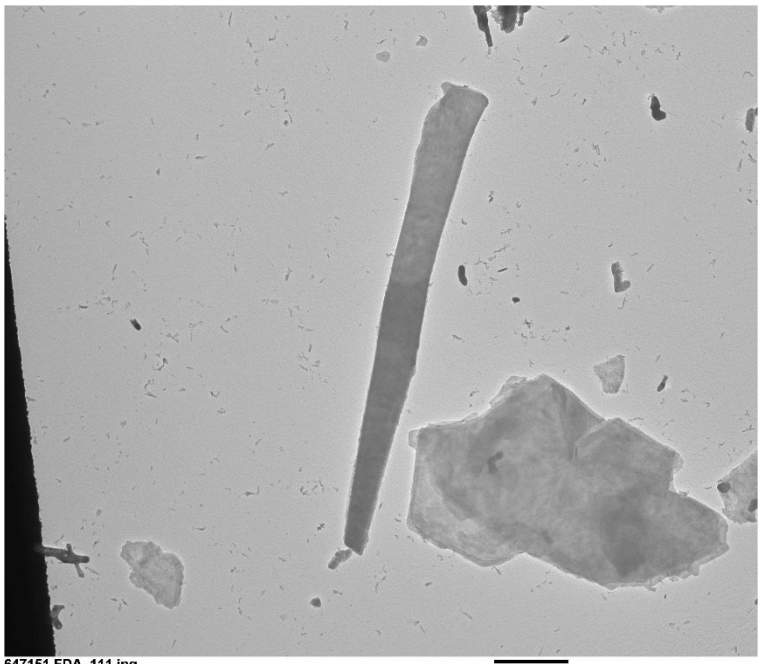
Diffraction Pattern from the Talc Ribbon Pictured Above



Chemistry from the Talc Ribbon Pictured Above



647151-11, Elongated Talc Particle

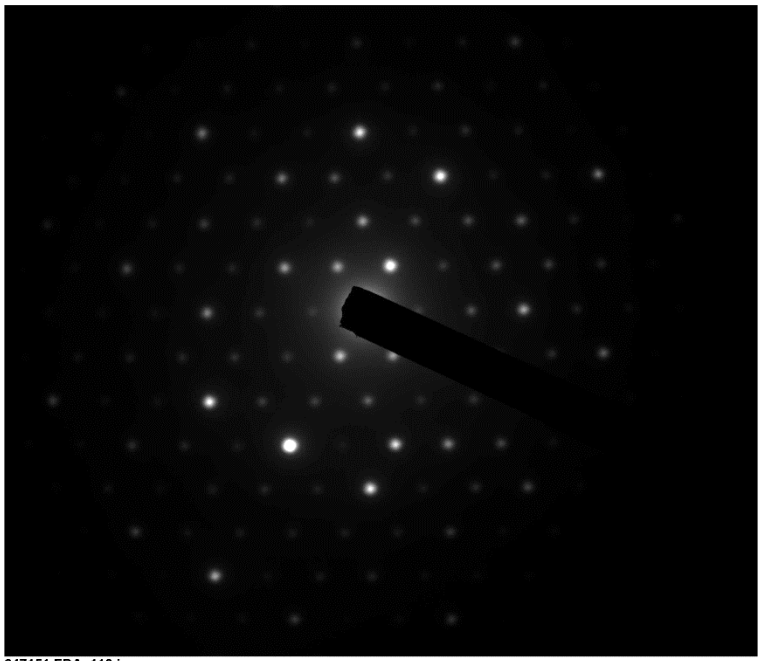


647151 FDA_111.jpg
647151-11
Talc Fiber

Cal: 0.003819 µm/pix
11:47 2023-07-21
TEM Mode: Imaging
Microscopist: (b) (6)
Camera: NS6, Exposure: 500 (ms) x 3 std. frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

1 µm
HV=80kV
Direct Mag: 2500 x

Hexagonal Diffraction Pattern from the Elongated Talc Particle Pictured Above

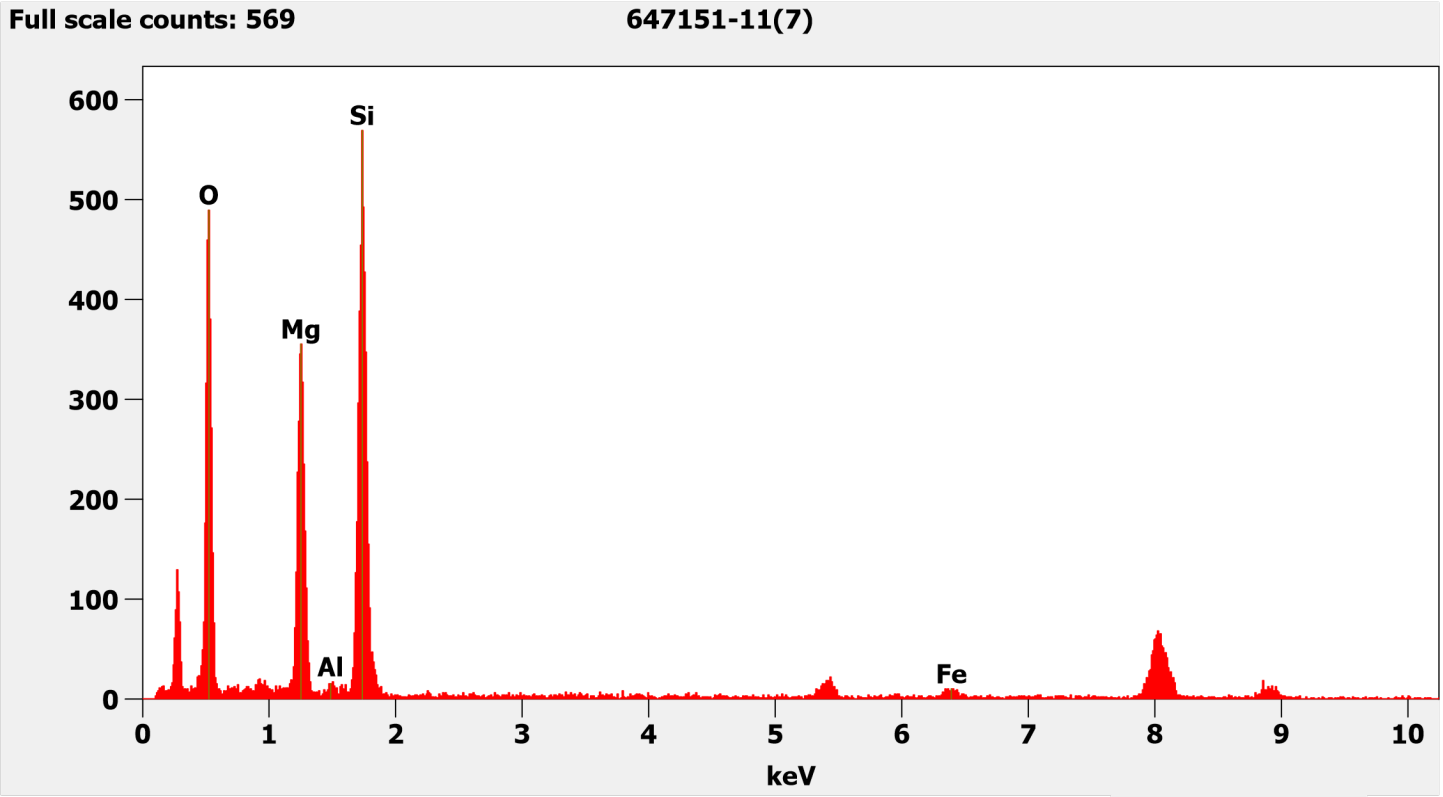


647151 FDA_110.jpg
647151-11
Talc Fiber

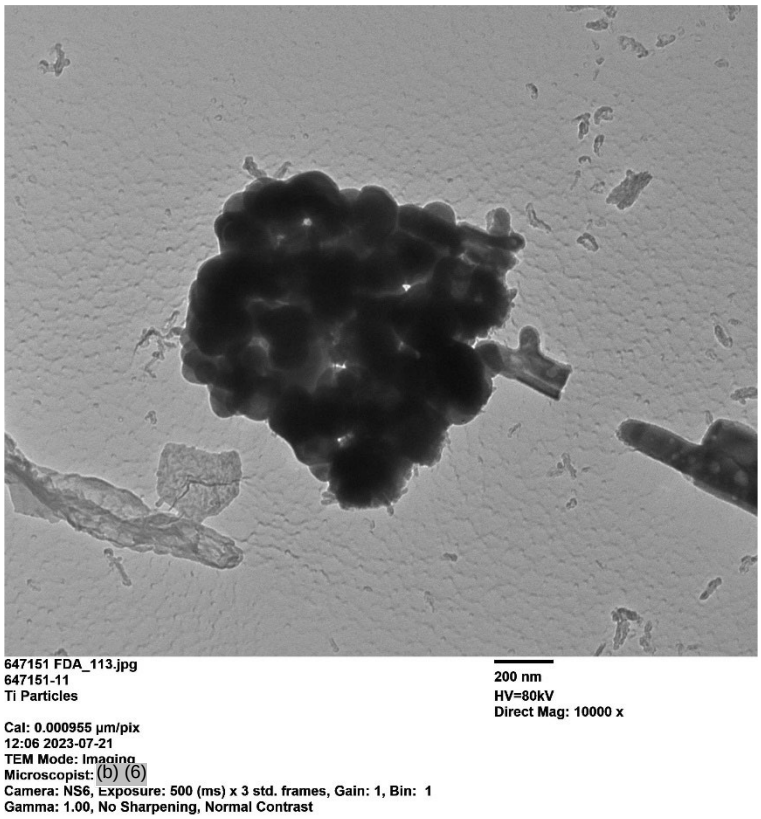
Cal: 0.001209 µm/pix
11:47 2023-07-21
TEM Mode: Diffraction
Microscopist: (b) (6)
Camera: NS6, Exposure: 500 (ms) x 3 std. frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

0.2 Å⁻¹
HV=80kV
Cam Len: 0.2000 m

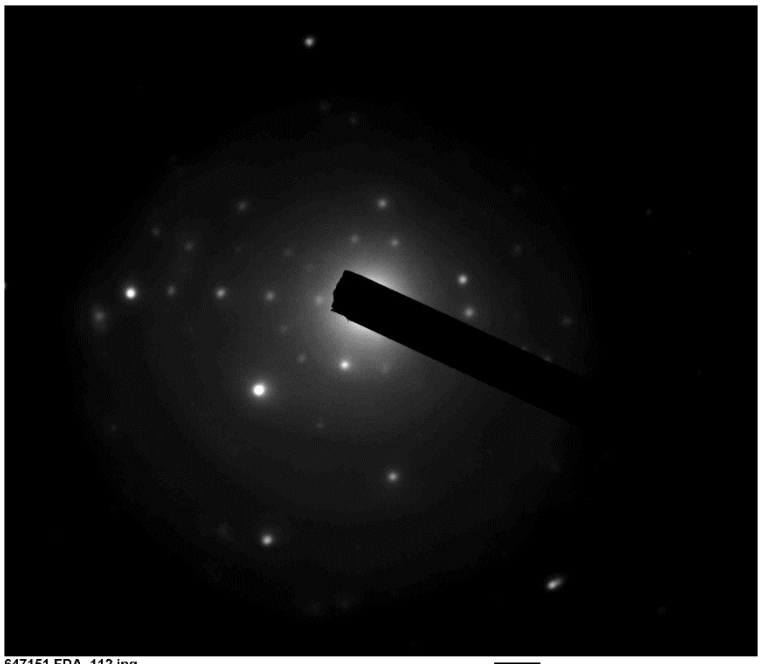
Chemistry from the Elongated Talc Particle Pictured Above



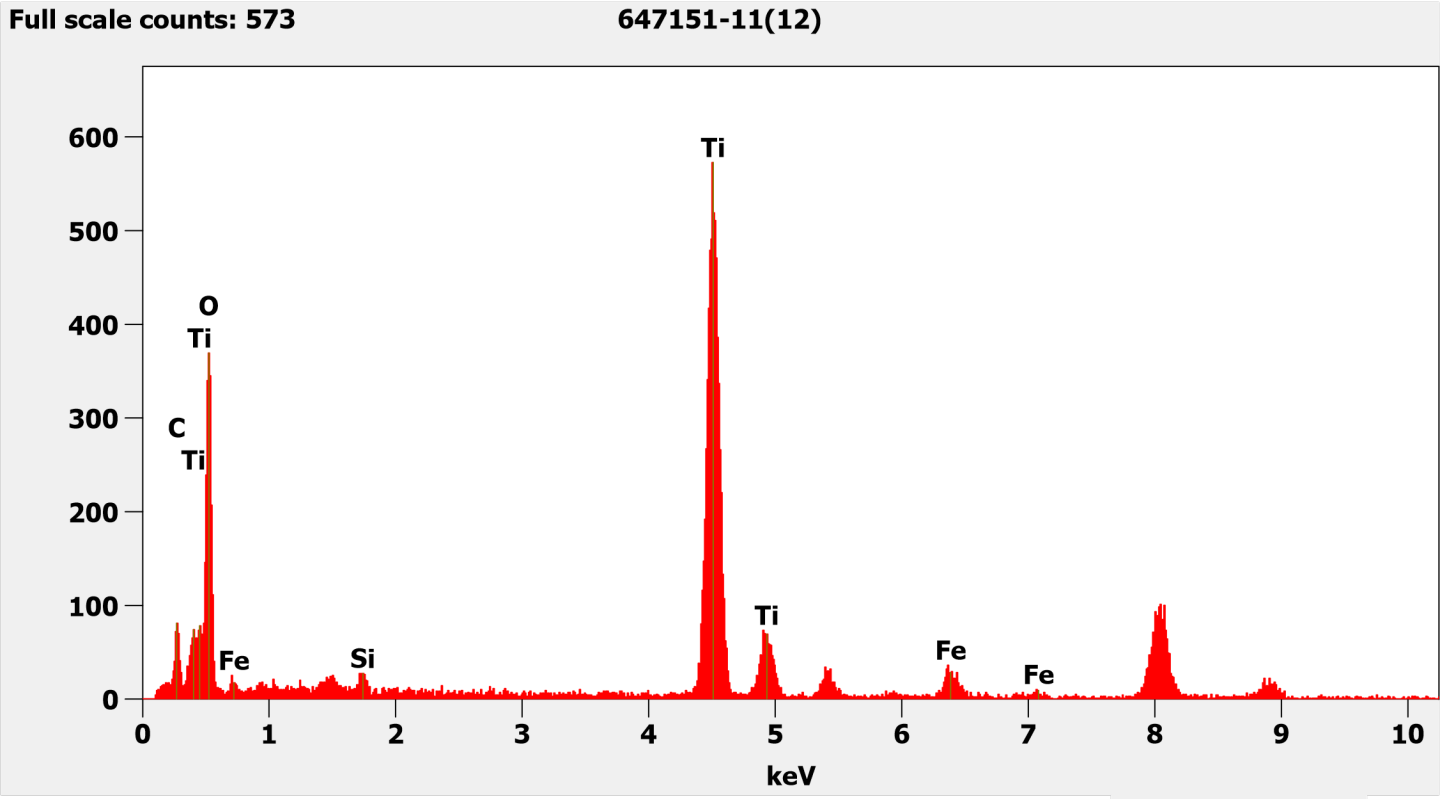
647151-11, Titanium Particles



Diffraction Pattern from the Titanium Particles Pictured Above



Chemistry from the Titanium Particles Pictured Above



647151-12, 12A, 12B/Client Sample: 04252023-12

PLM

All three aliquots of sample 04252023-12 were analyzed by (b) (6) on July 31, 2023. No asbestos or non-asbestos amphibole variants were observed during analysis. The results were calculated using the equations detailed in the *Calculations* section above.

647151-12	No Asbestos Detected
647151-12A	No Asbestos Detected
647151-12B	No Asbestos Detected

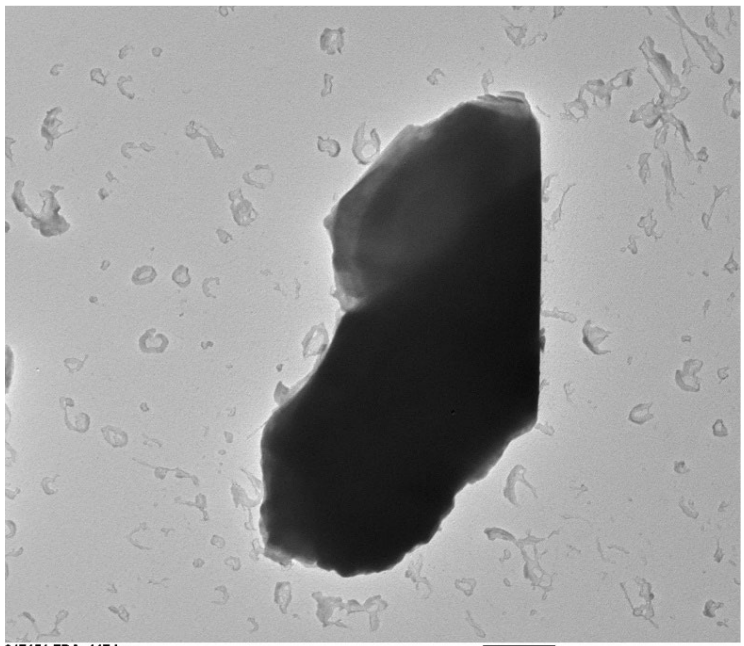
TEM

(b) (6) analyzed aliquot 12 on July 24, 2023. (b) (6) analyzed aliquots 12A and 12B on July 28, 2023. The primary particles observed were talc and mica; silica spheres and silicon particles were also observed along with talc ribbons/fibers, chromium particles, and particles containing sodium, aluminum, silicon, and sulfur. No asbestos or non-asbestos amphibole variants were observed during analysis. The results were calculated using the equations detailed in the *Calculations* section above.

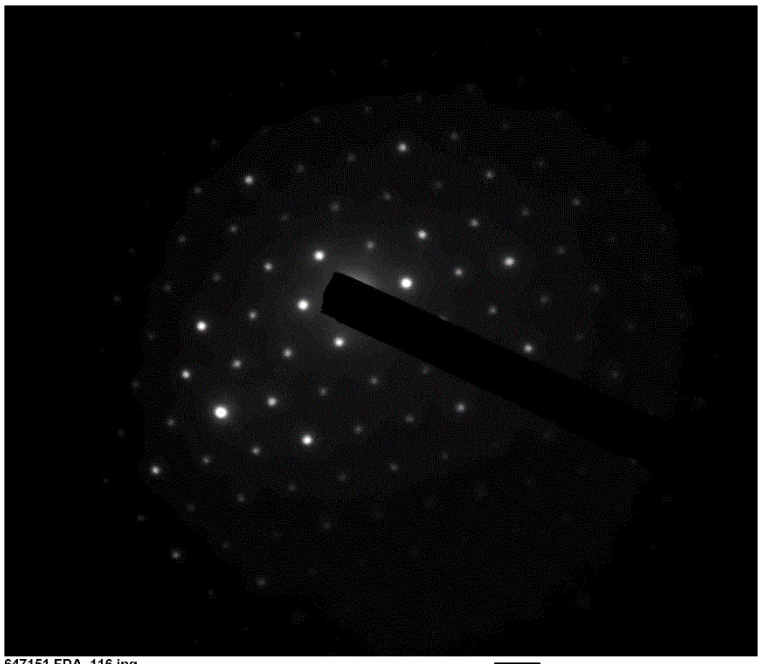
647151-12	No Asbestos Detected
647151-12A	No Asbestos Detected
647151-12B	No Asbestos Detected

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.

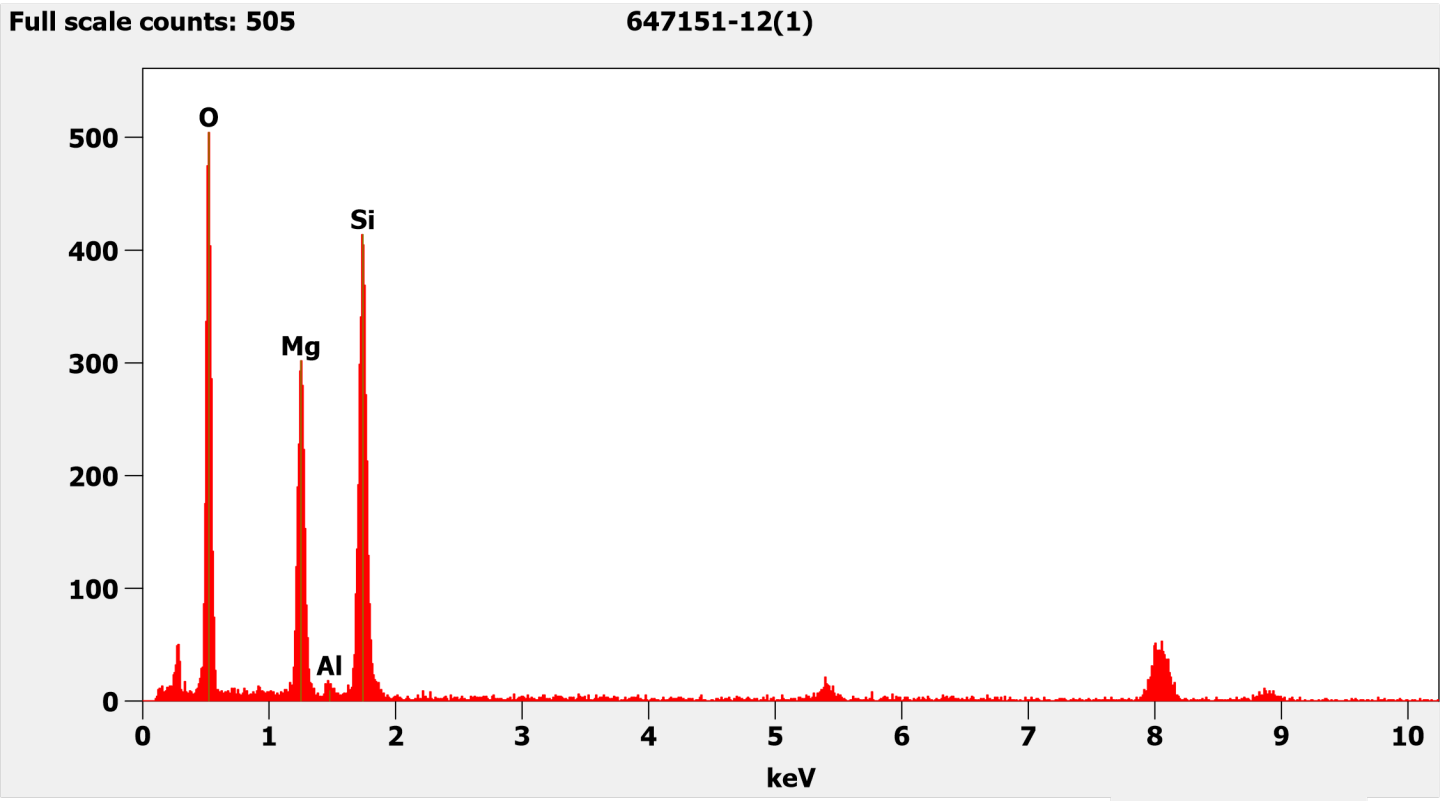
647151-12, Talc Particle



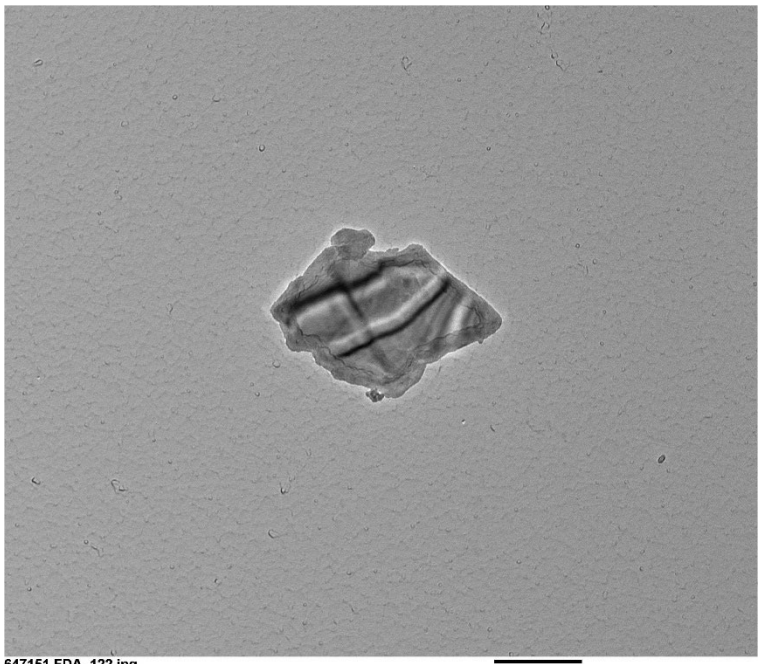
Hexagonal Diffraction Pattern from the Talc Particle Pictured Above



Chemistry from the Talc Particle Pictured Above



647151-12, Mica Particle

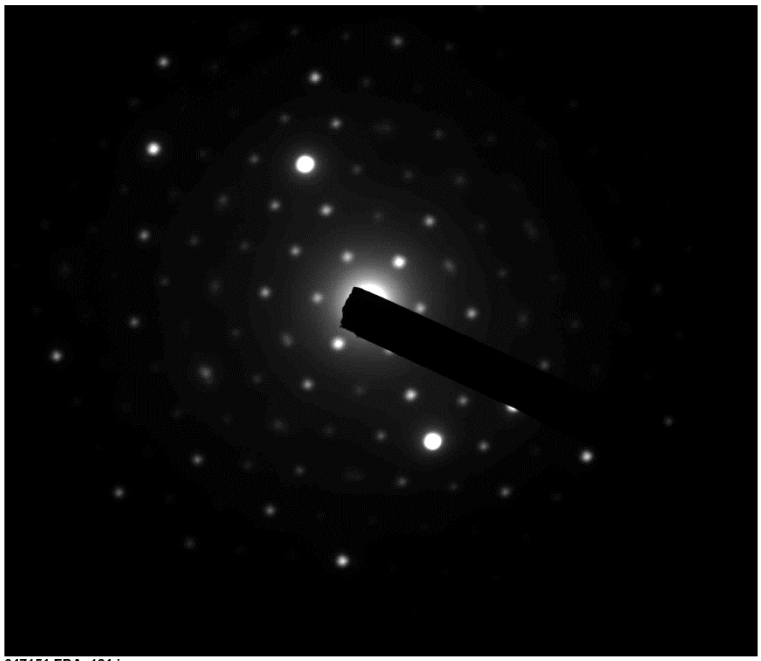


647151 FDA_122.jpg
647151-12
Mica particle

Cal: 0.001612 µm/pix
15:01 2023-07-24
TEM Mode: Imaging
Microscopist: (b) (6)
Camera: NS6, Exposure: 500 (ms) x 3 std. frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

500 nm
HV=80kV
Direct Mag: 6000 x

Hexagonal Diffraction Pattern from the Mica Particle Pictured Above

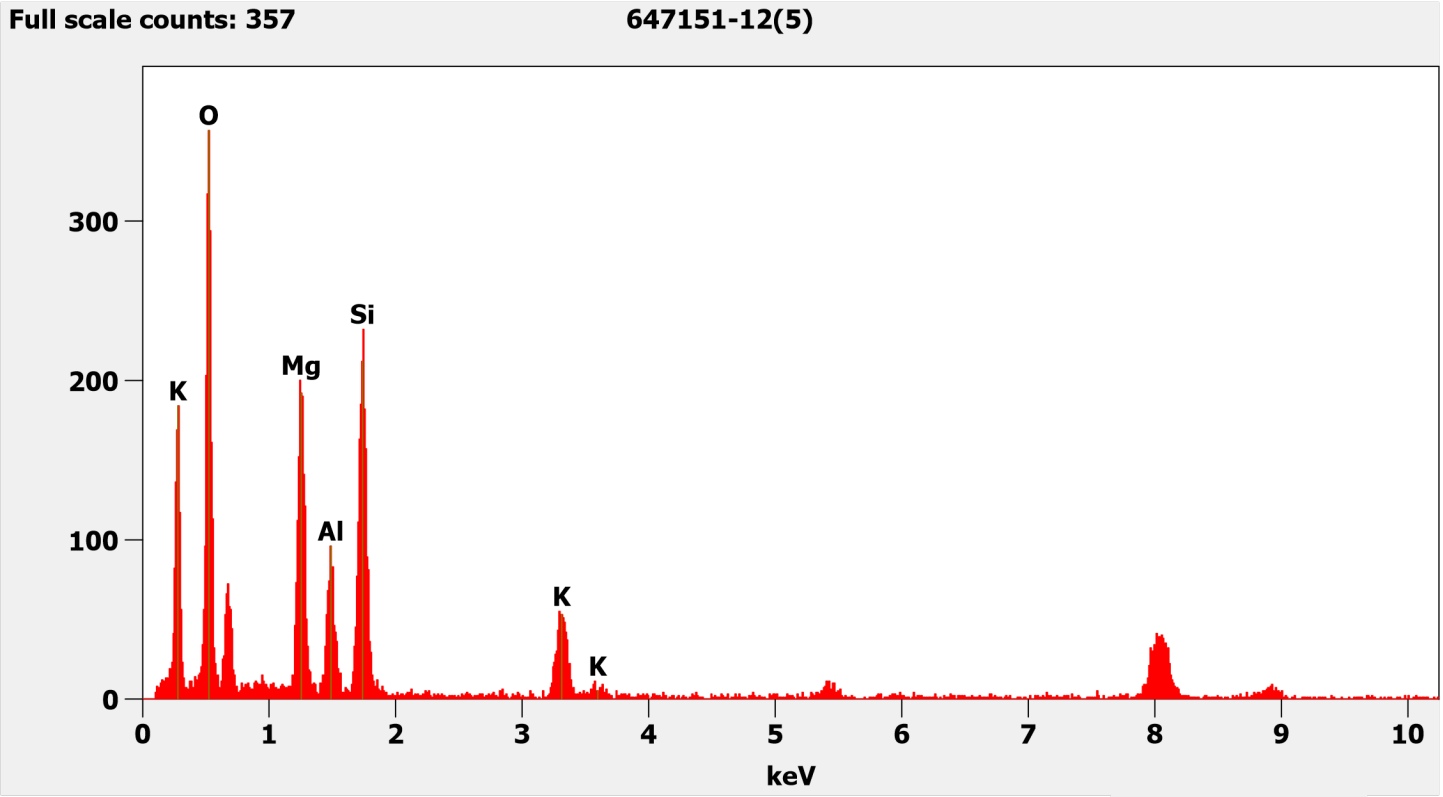


647151 FDA_121.jpg
647151-12
Mica particle

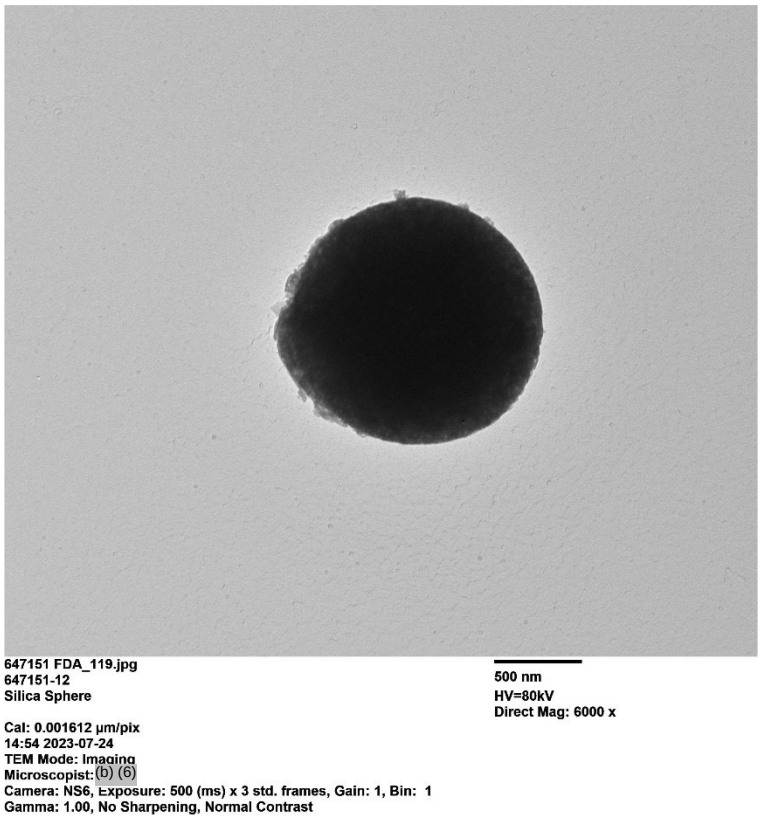
Cal: 0.001209 µm/pix
15:01 2023-07-24
TEM Mode: Diffraction
Microscopist: (b) (6)
Camera: NS6, Exposure: 500 (ms) x 3 std. frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

0.2 Å⁻¹
HV=80kV
Cam Len: 0.2000 m

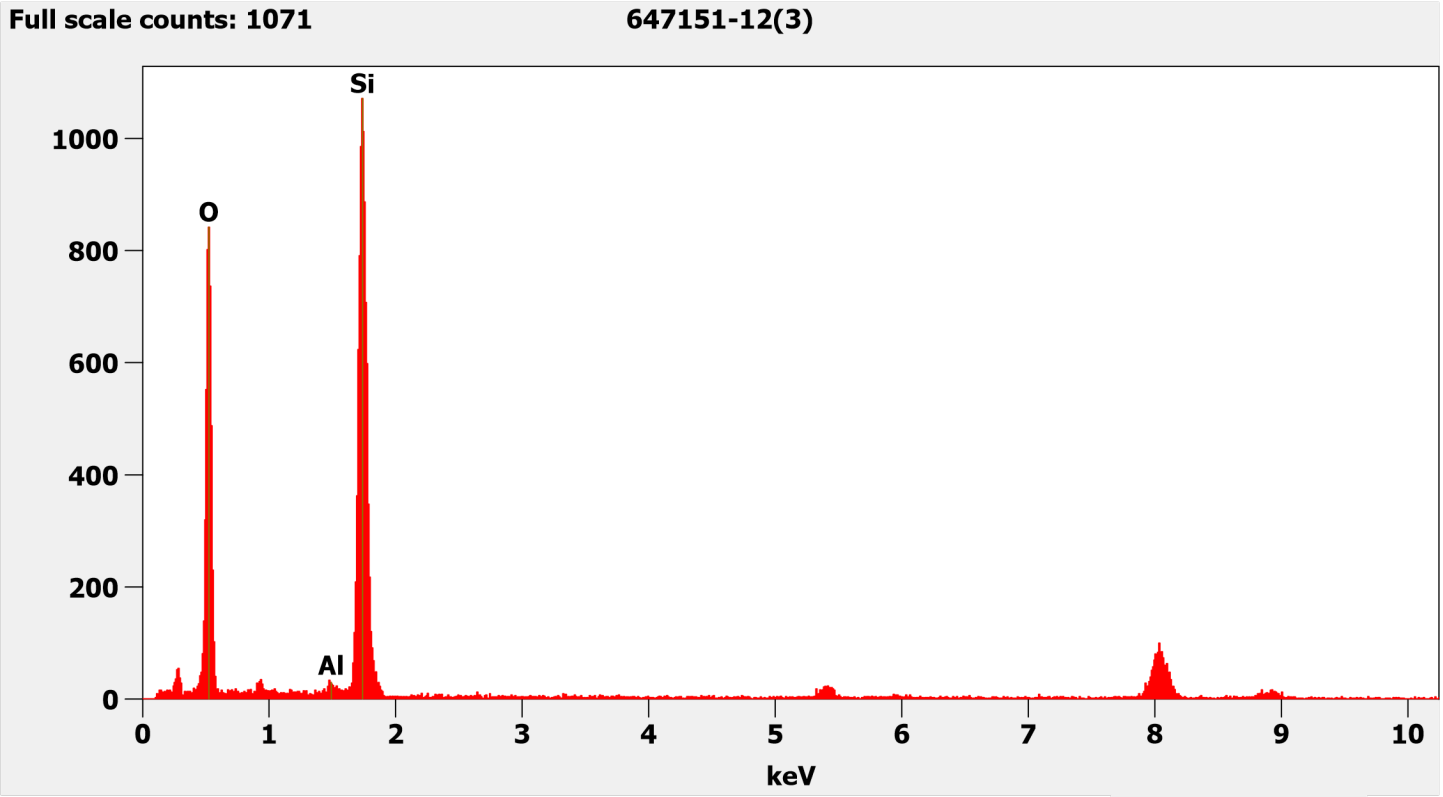
Chemistry from the Mica Particle Pictured Above



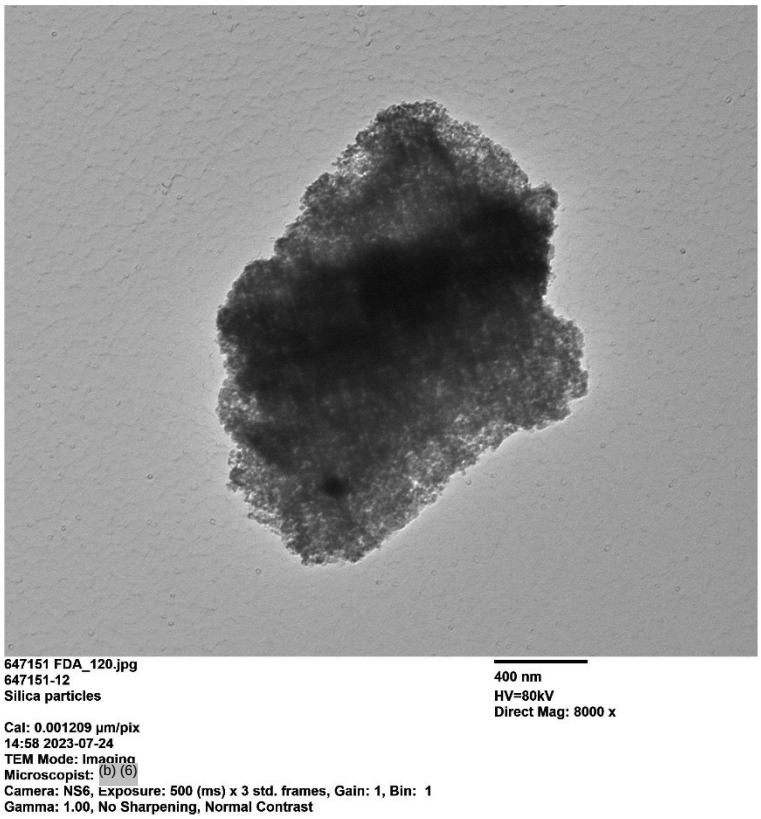
647151-12, Silica Sphere



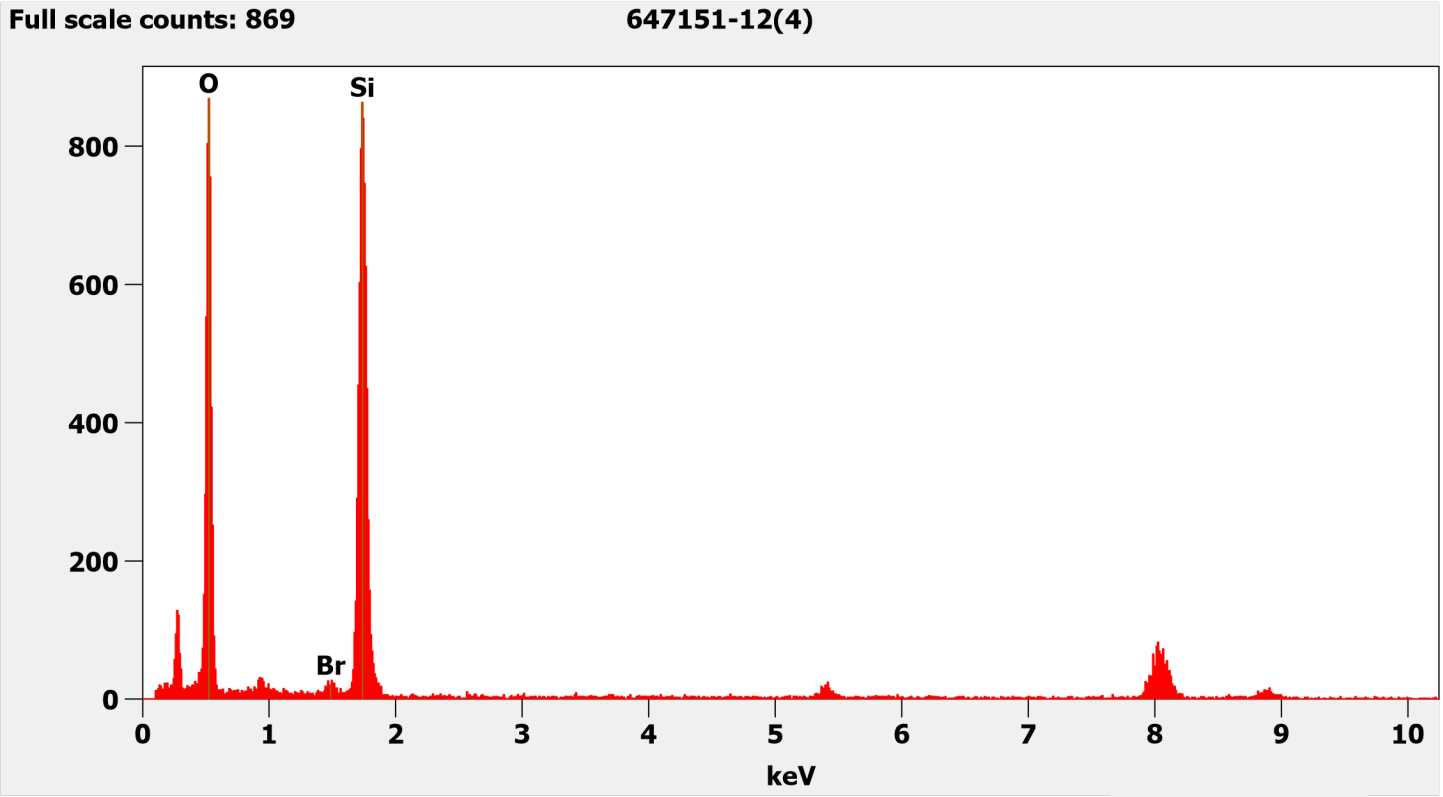
Chemistry from the Silica Sphere Pictured Above



647151-12, Silicon Particles

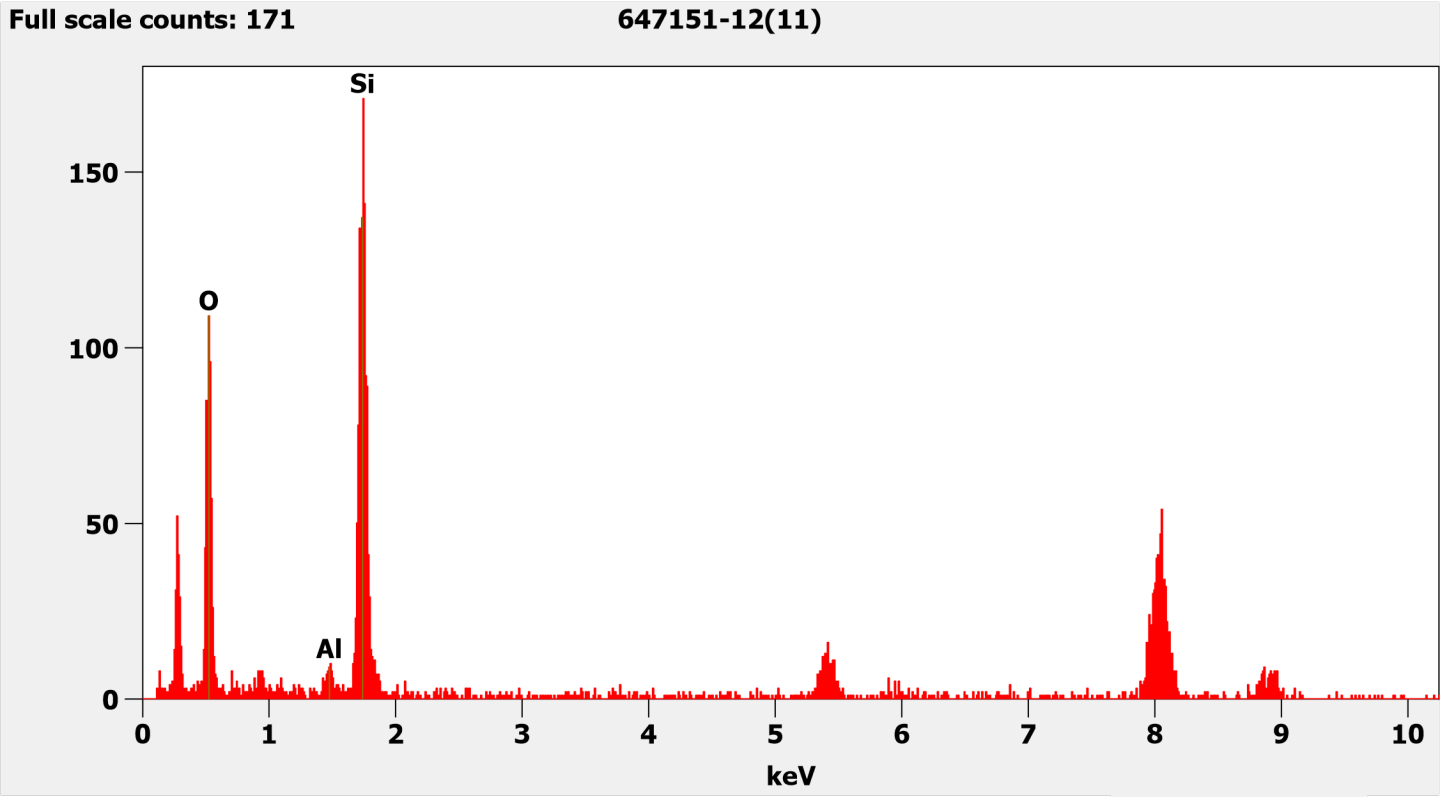


Chemistry from the Silicon Particles Pictured Above

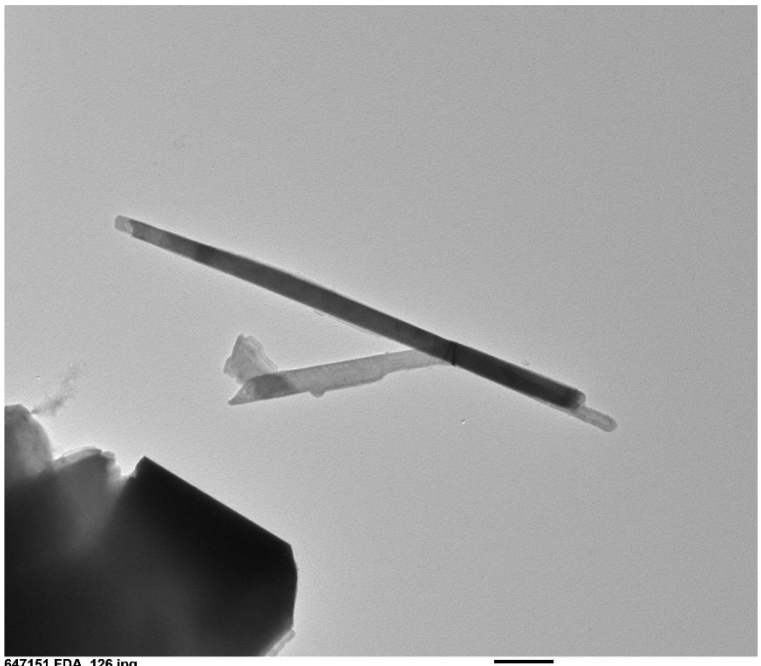


647151-12, Silicon Particle

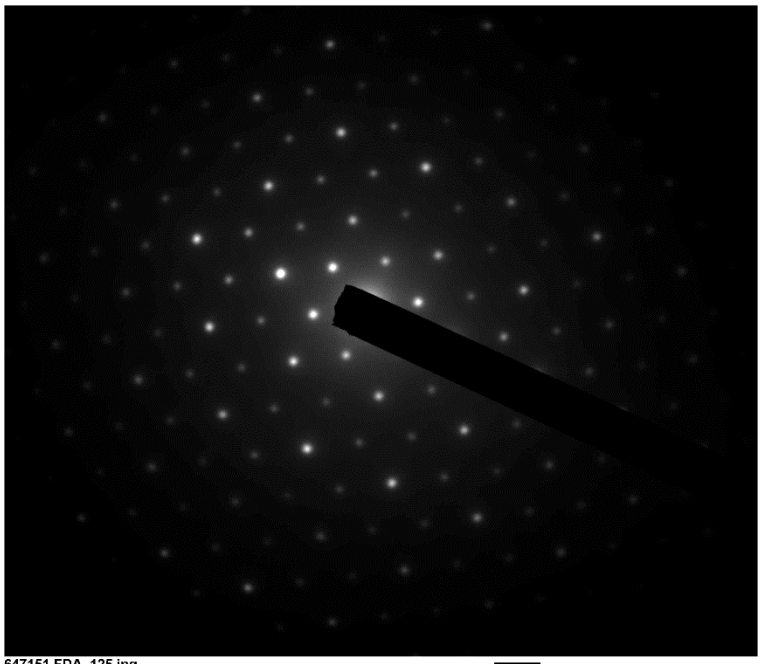
Chemistry from the Silicon Particle Pictured Above



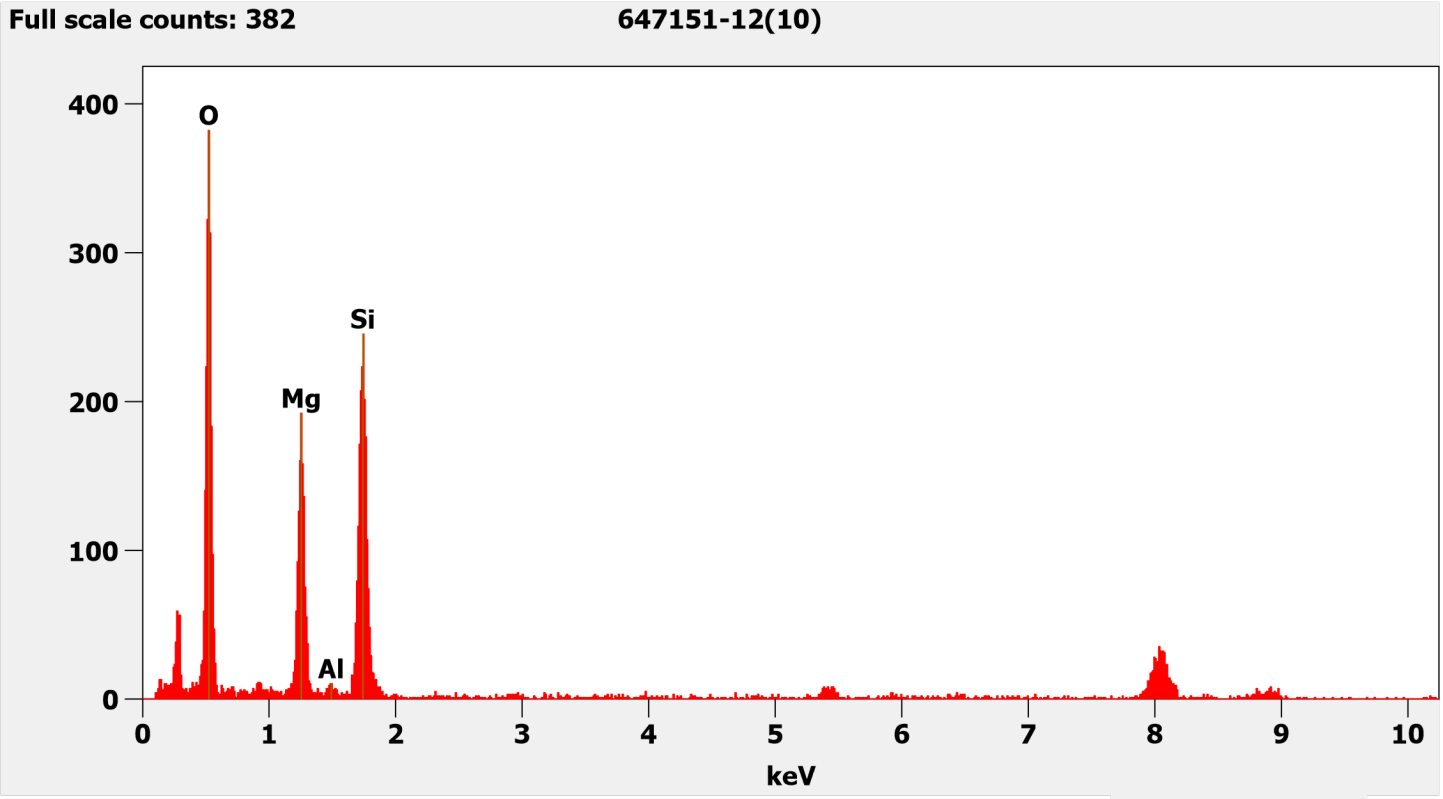
647151-12, Talc Fiber



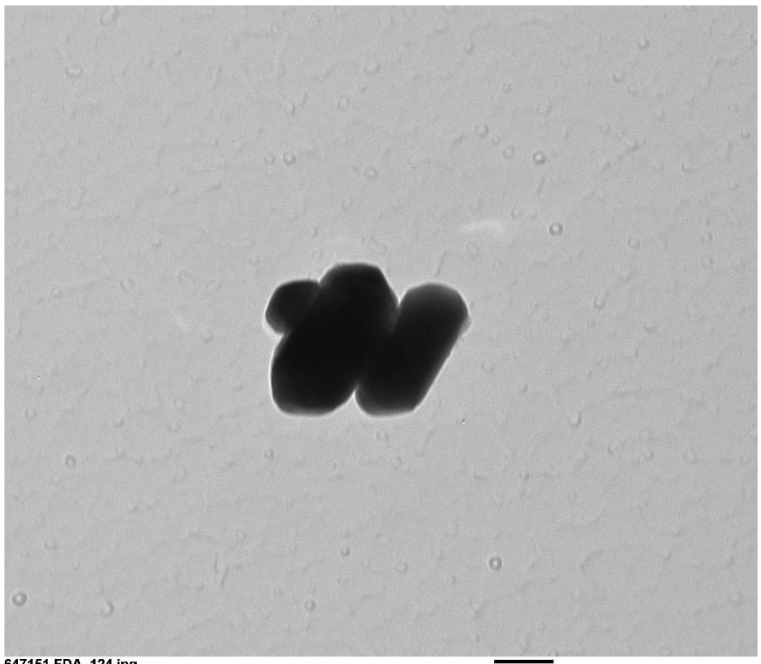
Hexagonal Diffraction Pattern from the Talc Fiber Pictured Above



Chemistry from the Talc Fiber Pictured Above



647151-12, Chromium Particle

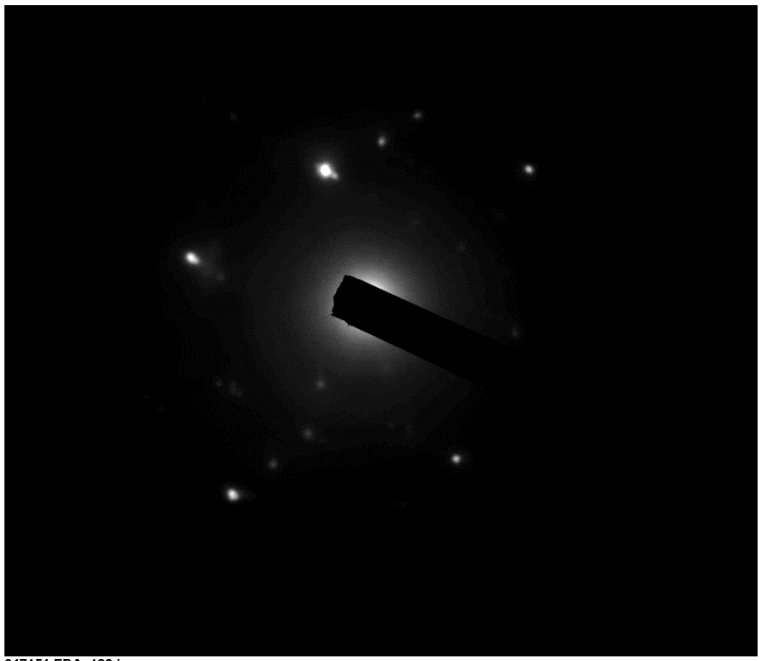


647151 FDA_124.jpg
647151-12
Cr particle

Cal: 0.000477 µm/pix
15:13 2023-07-24
TEM Mode: Imaging
Microscopist: (b) (6)
Camera: NS6, Exposure: 500 (ms) x 3 std. frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

100 nm
HV=80kV
Direct Mag: 20000 x

Diffraction Pattern from the Chromium Particle Pictured Above

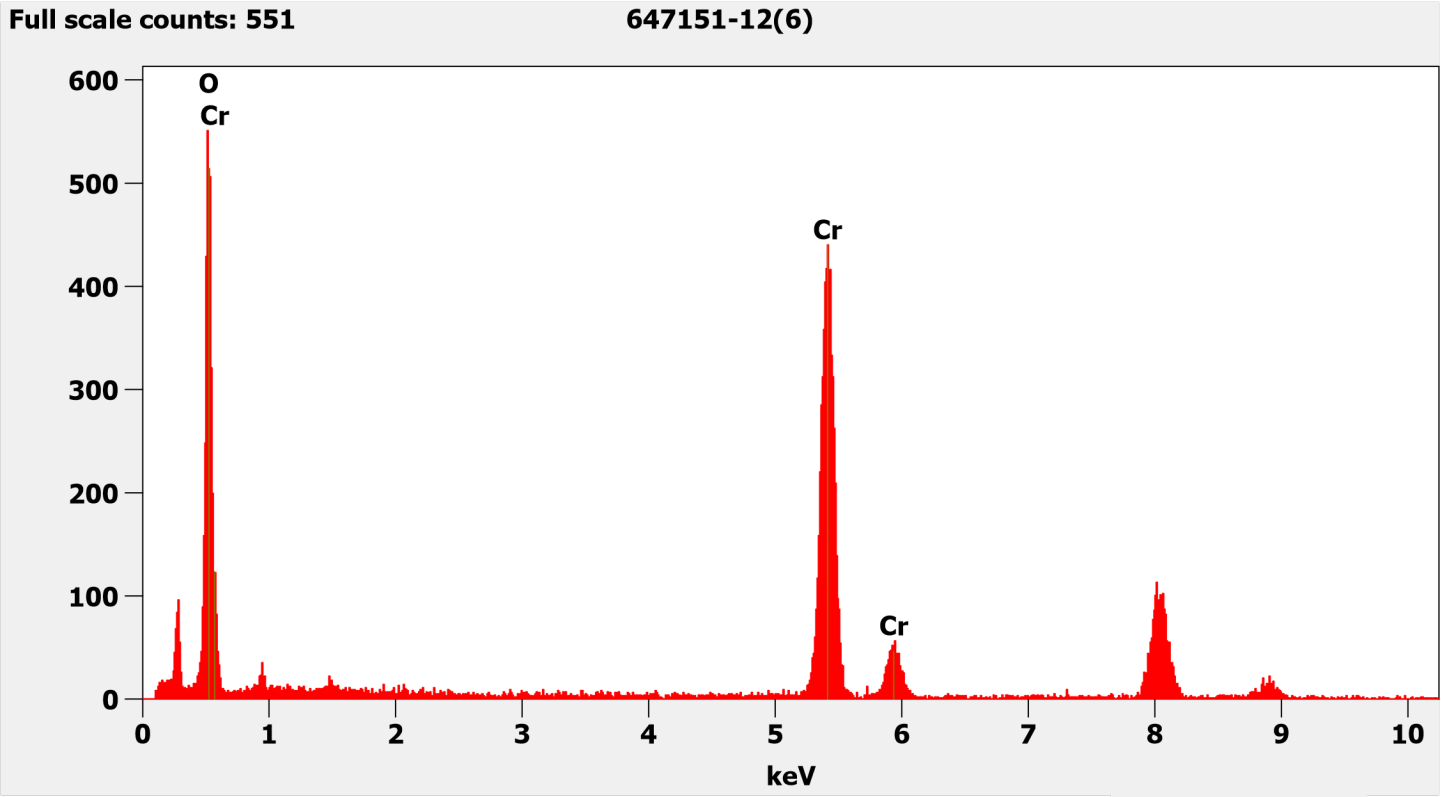


647151 FDA_123.jpg
647151-12
Cr particle

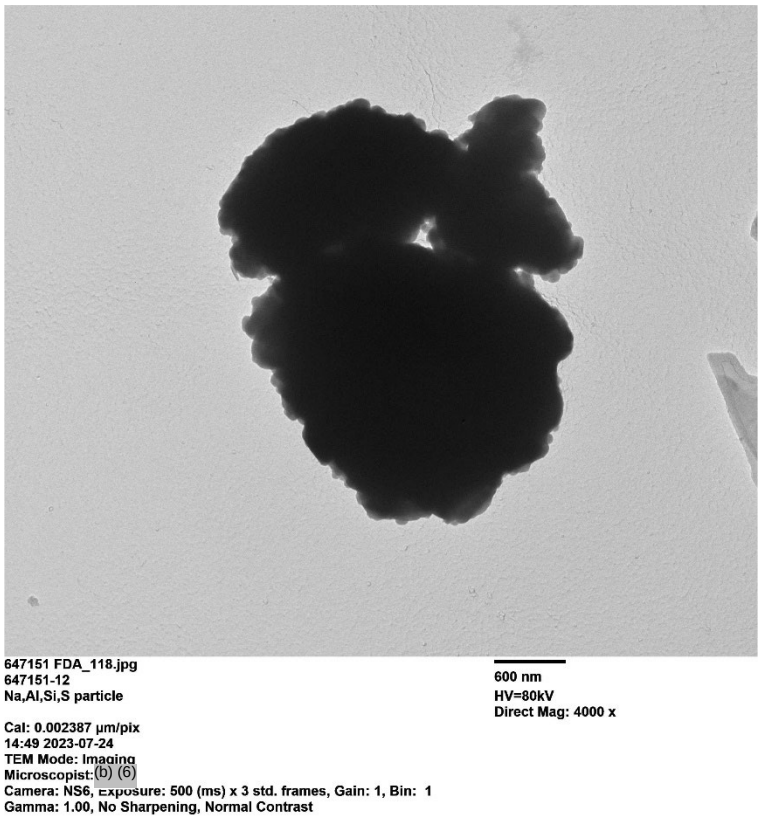
Cal: 0.001612 µm/pix
15:12 2023-07-24
TEM Mode: Diffraction
Microscopist: (b) (6)
Camera: NS6, Exposure: 500 (ms) x 3 std. frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

0.2 Å⁻¹
HV=80kV
Cam Len: 0.2000 m

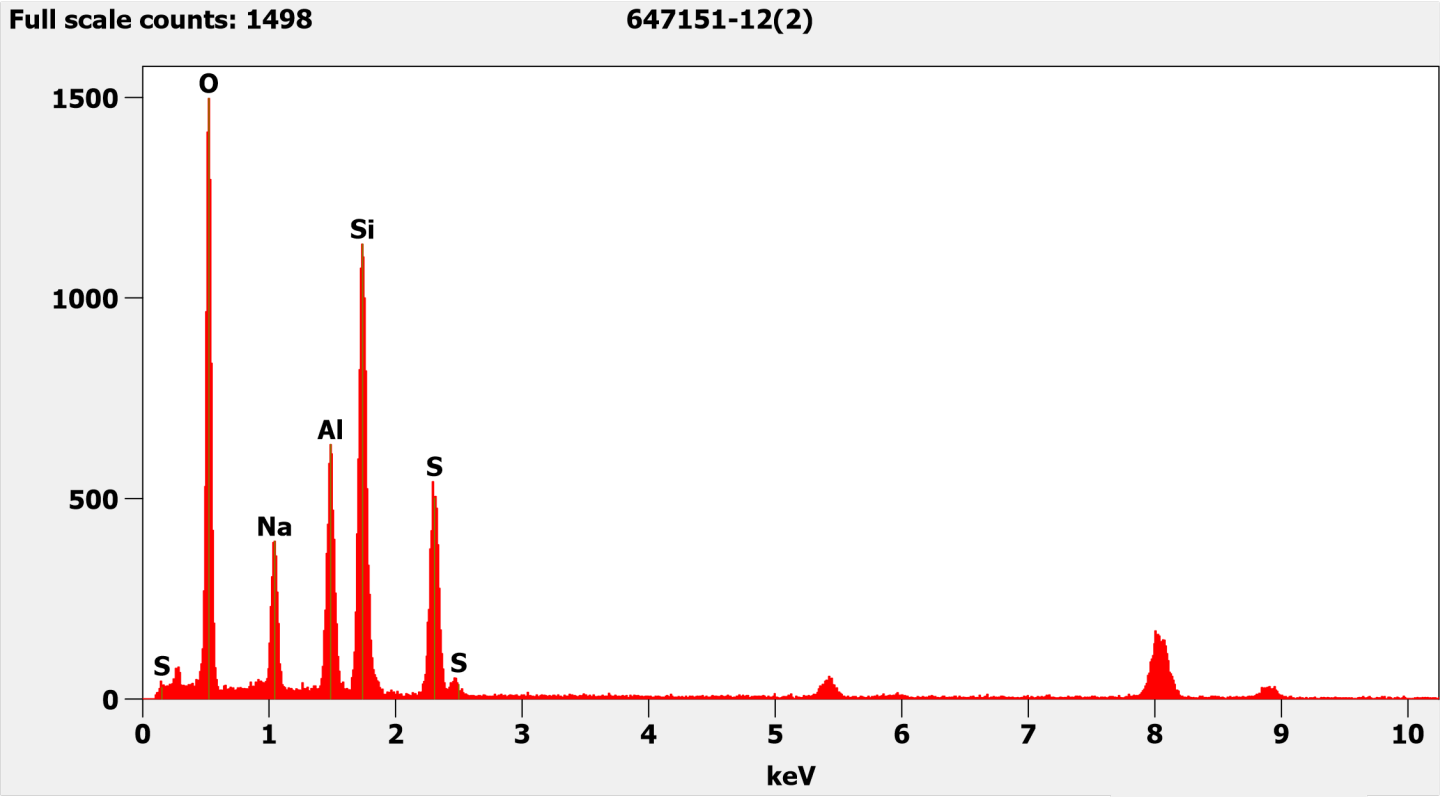
Chemistry from the Chromium Particle Pictured Above



647151-12, Particle Containing Sodium, Aluminum, Silicon, and Sulfur



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



647151-13, 13A, 13B/Client Sample: 04252023-13

PLM

All three aliquots of sample 04252023-13 were analyzed by (b) (6) on July 31, 2023. No asbestos or non-asbestos amphibole variants were observed during analysis. The results were calculated using the equations detailed in the *Calculations* section above.

647151-13	No Asbestos Detected
647151-13A	No Asbestos Detected
647151-13B	No Asbestos Detected

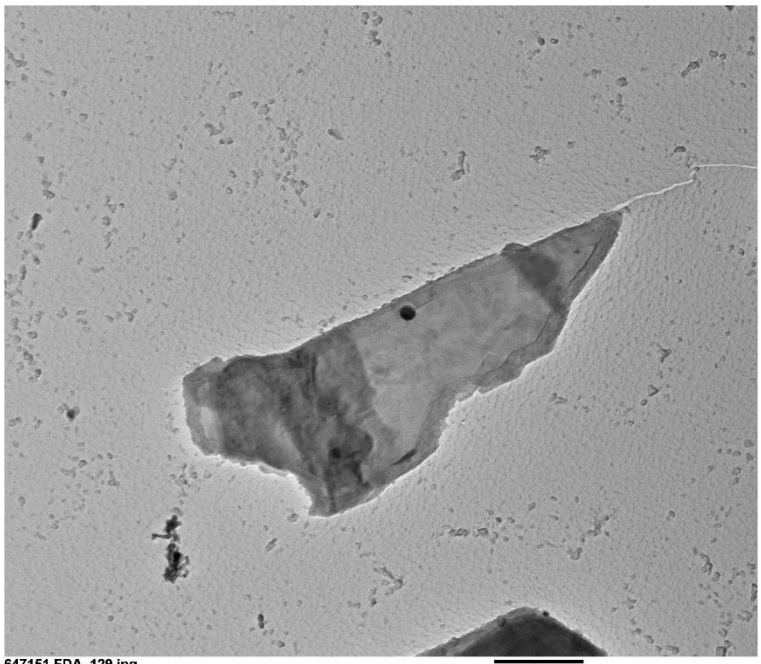
TEM

(b) (6) analyzed aliquots 13, 13A, and 13B on July 25, 2023. The primary particles observed were talc and mica; titanium particles were also observed along with talc ribbons/fibers 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.

647151-13	No Asbestos Detected
647151-13A	No Asbestos Detected
647151-13B	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.

647151-13, Talc Particle

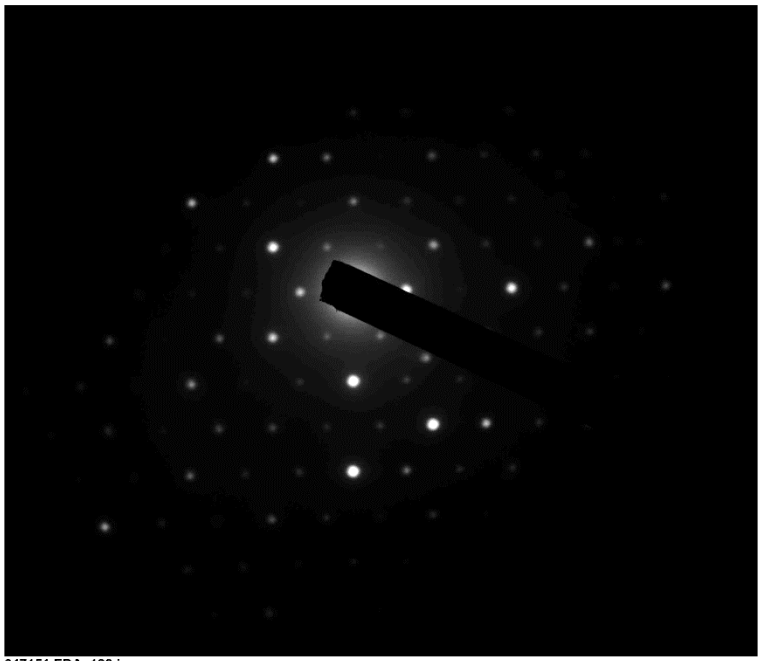


647151 FDA_129.jpg
647151-13
Talc Particle

Cal: 0.001905 µm/pix
10:43 2023-07-25
TEM Mode: Imaging
Microscopist: (b) (6)
Camera: NS6, Exposure: 500 (ms) x 3 std. frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

600 nm
HV=80kV
Direct Mag: 5000 x

Hexagonal Diffraction Pattern from the Talc Particle Pictured Above

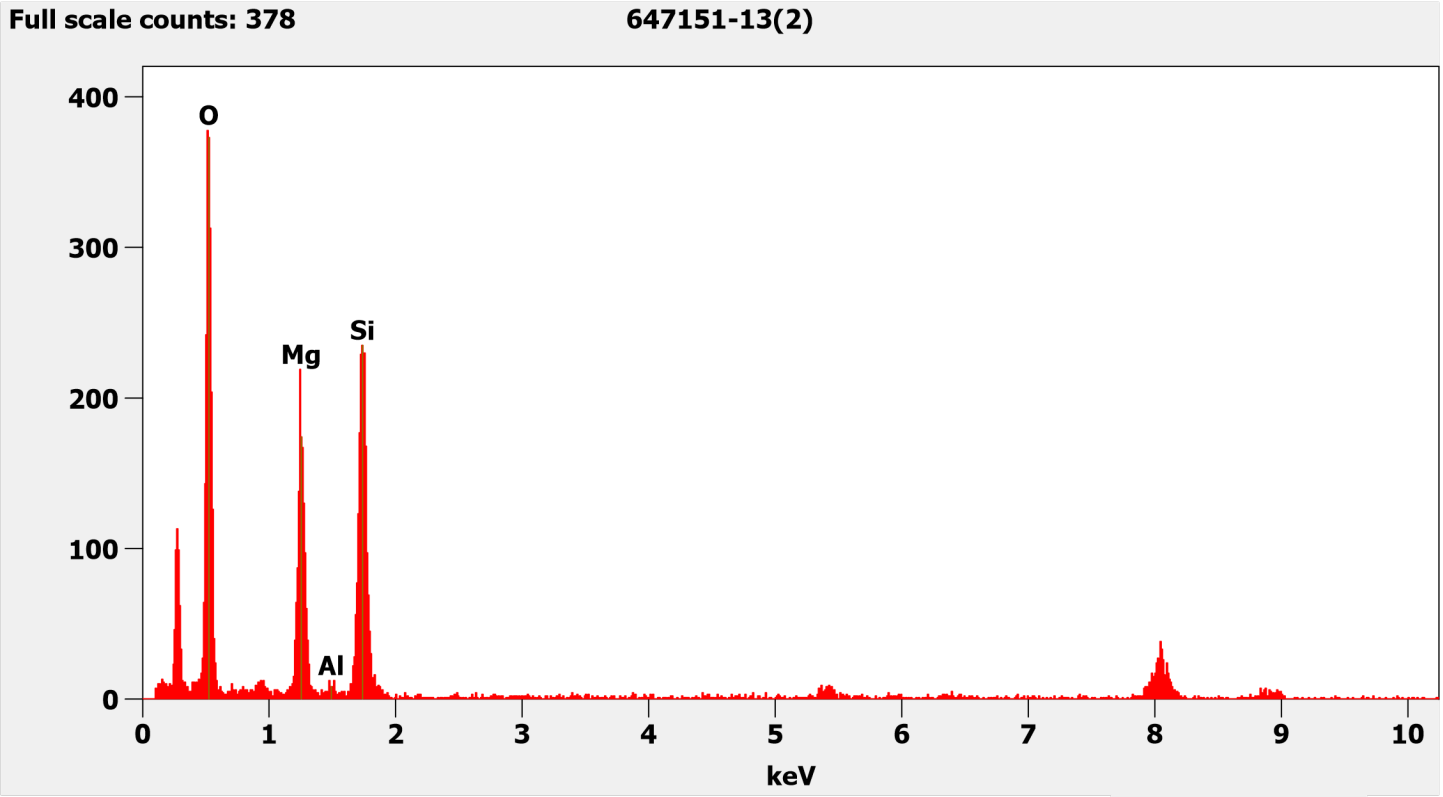


647151 FDA_128.jpg
647151-13
Talc Particle

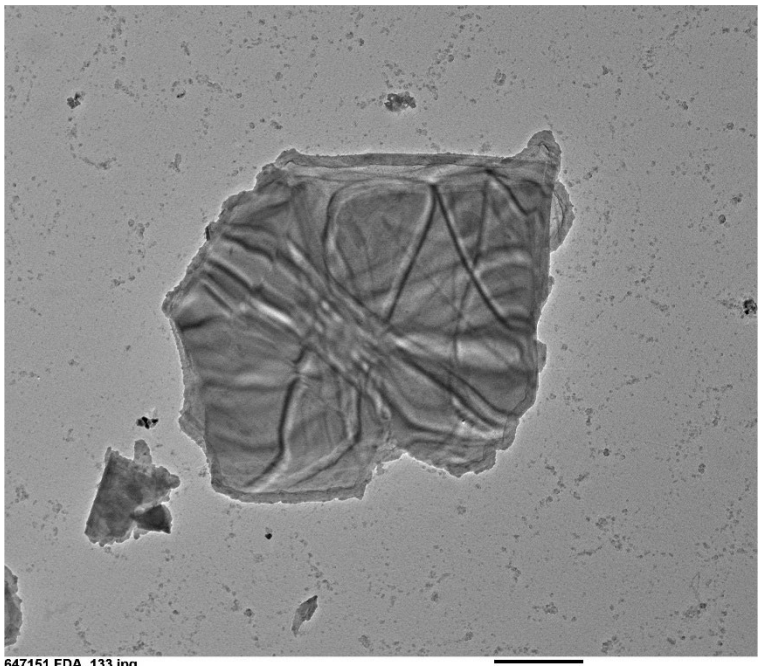
10:42 2023-07-25
TEM Mode: Diffraction
Microscopist: (b) (6)
Camera: NS6, Exposure: 500 (ms) x 3 std. frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

0.2 Å⁻¹
HV=80kV
Cam Len: 0.2000 m

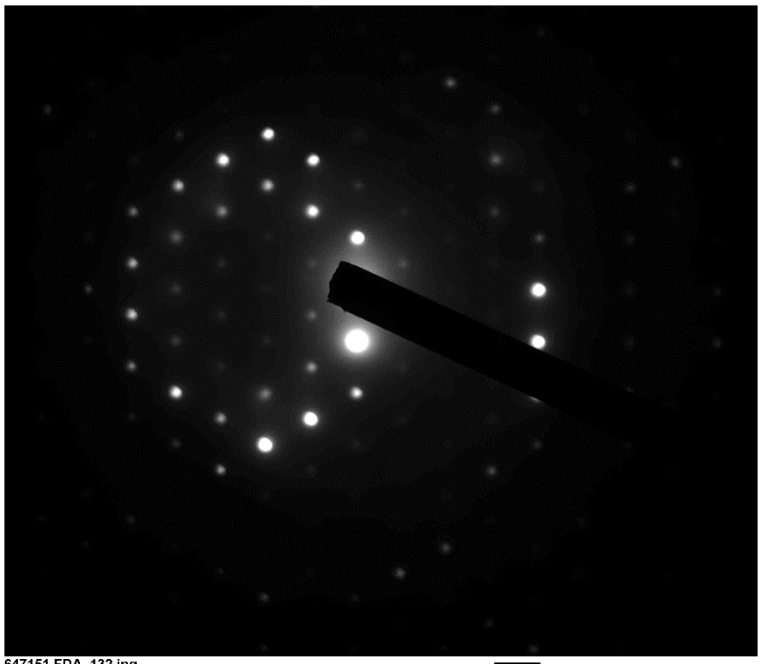
Chemistry from the Talc Particle Pictured Above



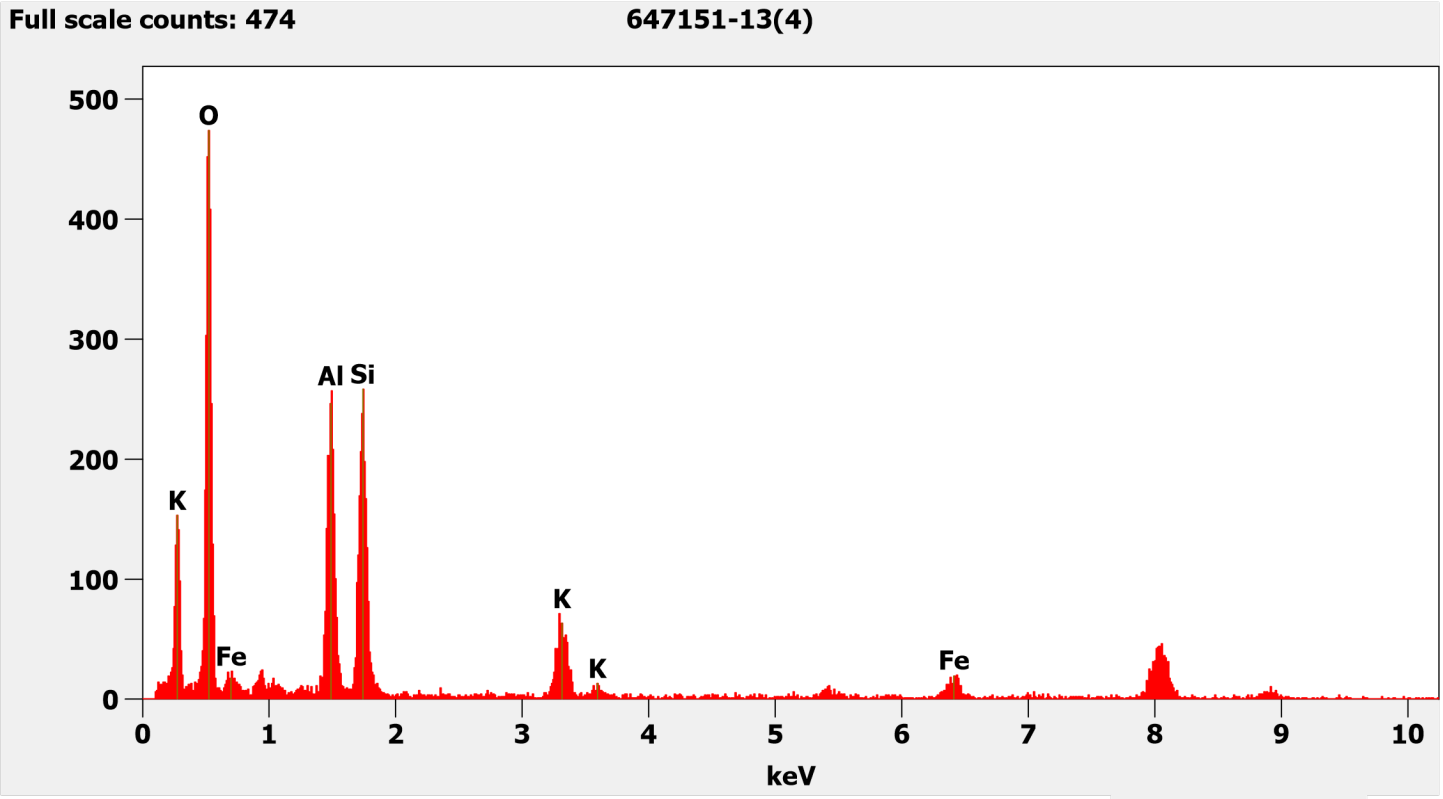
647151-13, Mica Particle



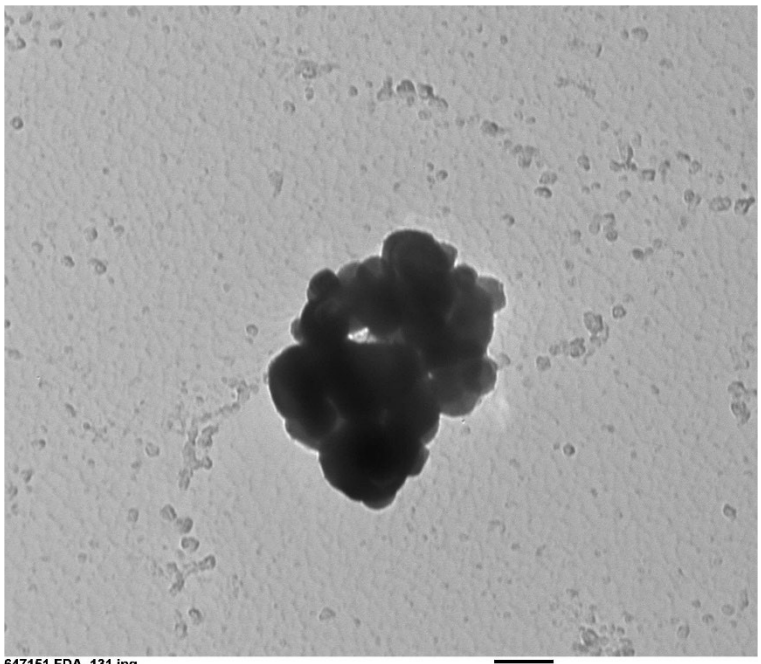
Hexagonal Diffraction Pattern from the Mica Particle Pictured Above



Chemistry from the Mica Particle Pictured Above



647151-13, Titanium Particles

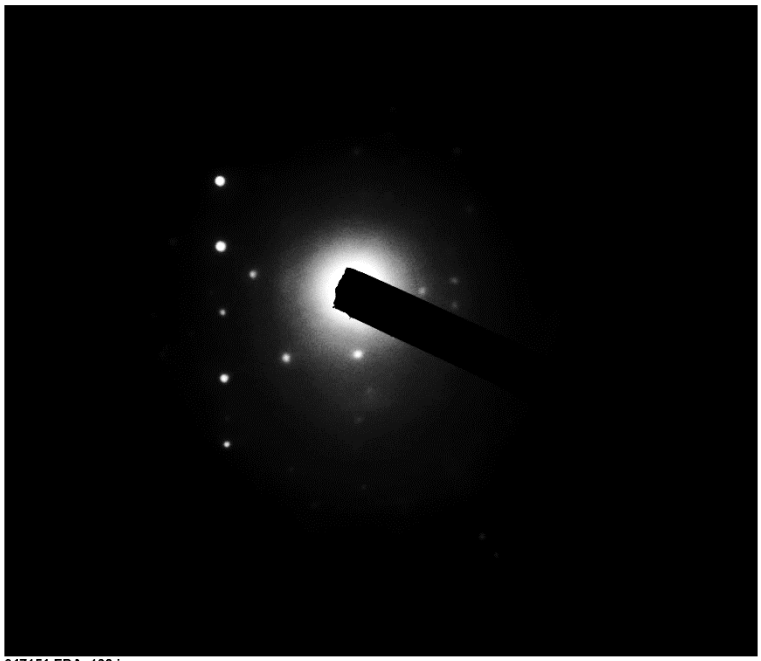


647151 FDA_131.jpg
647151-13
Ti Particles

Cal: 0.000955 µm/pix
10:46 2023-07-25
TEM Mode: Imaging
Microscopist (b) (6)
Camera: NS6, Exposure: 500 (ms) x 3 std. frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

200 nm
HV=80kV
Direct Mag: 10000 x

Diffraction Pattern from the Titanium Particles Pictured Above

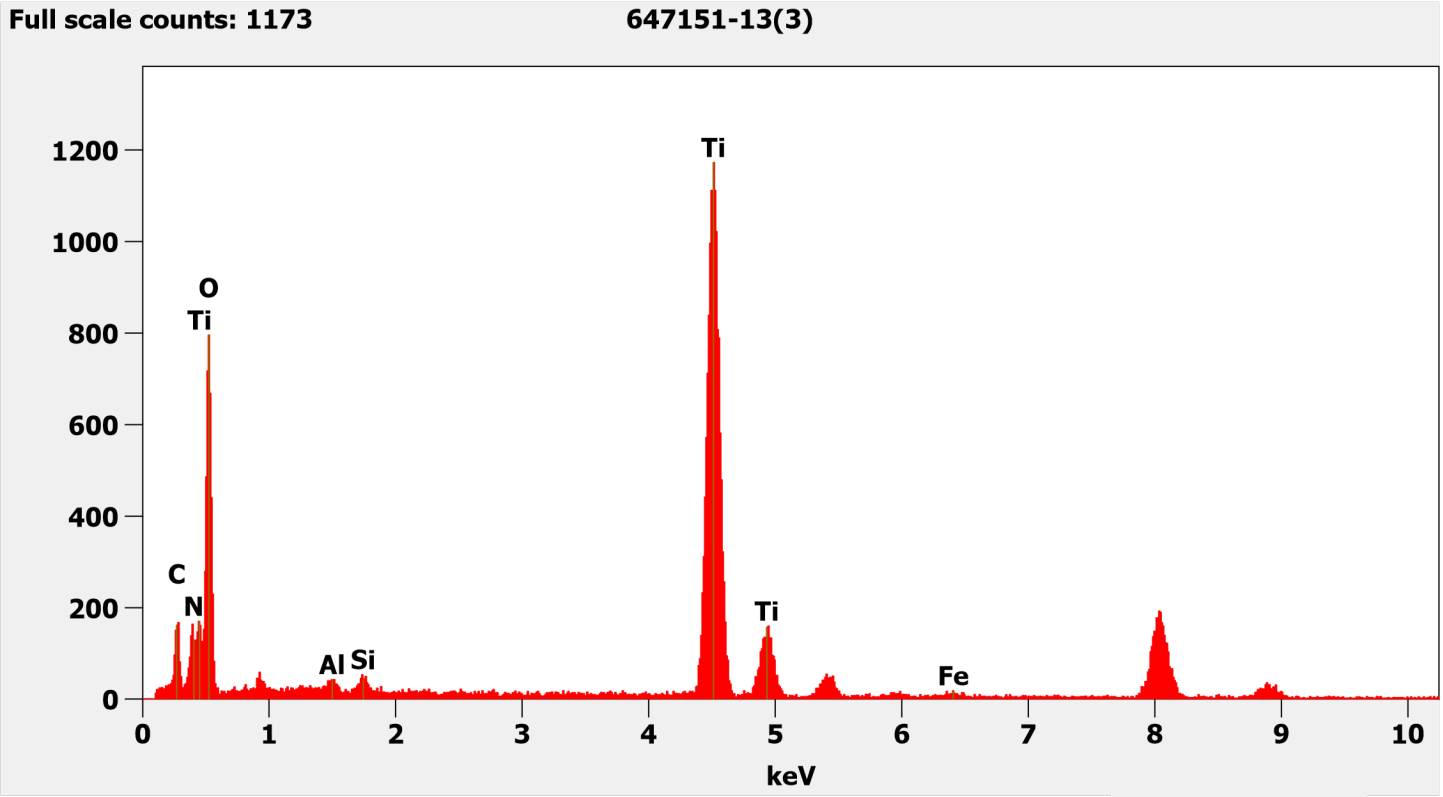


647151 FDA_130.jpg
647151-13
Ti Particles

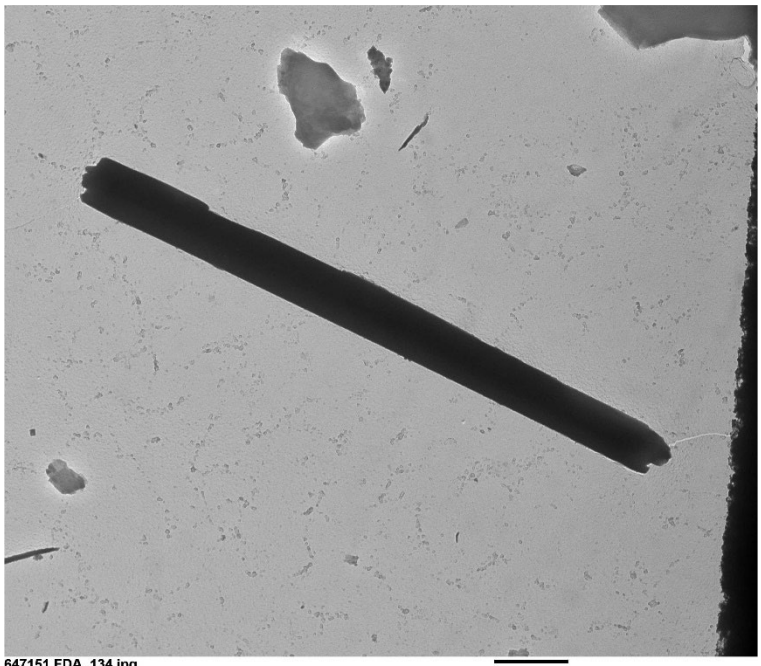
Cal: 0.001905 µm/pix
10:46 2023-07-25
TEM Mode: Diffraction
Microscopist (b) (6)
Camera: NS6, Exposure: 500 (ms) x 3 std. frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

0.2 Å⁻¹
HV=80kV
Cam Len: 0.2000 m

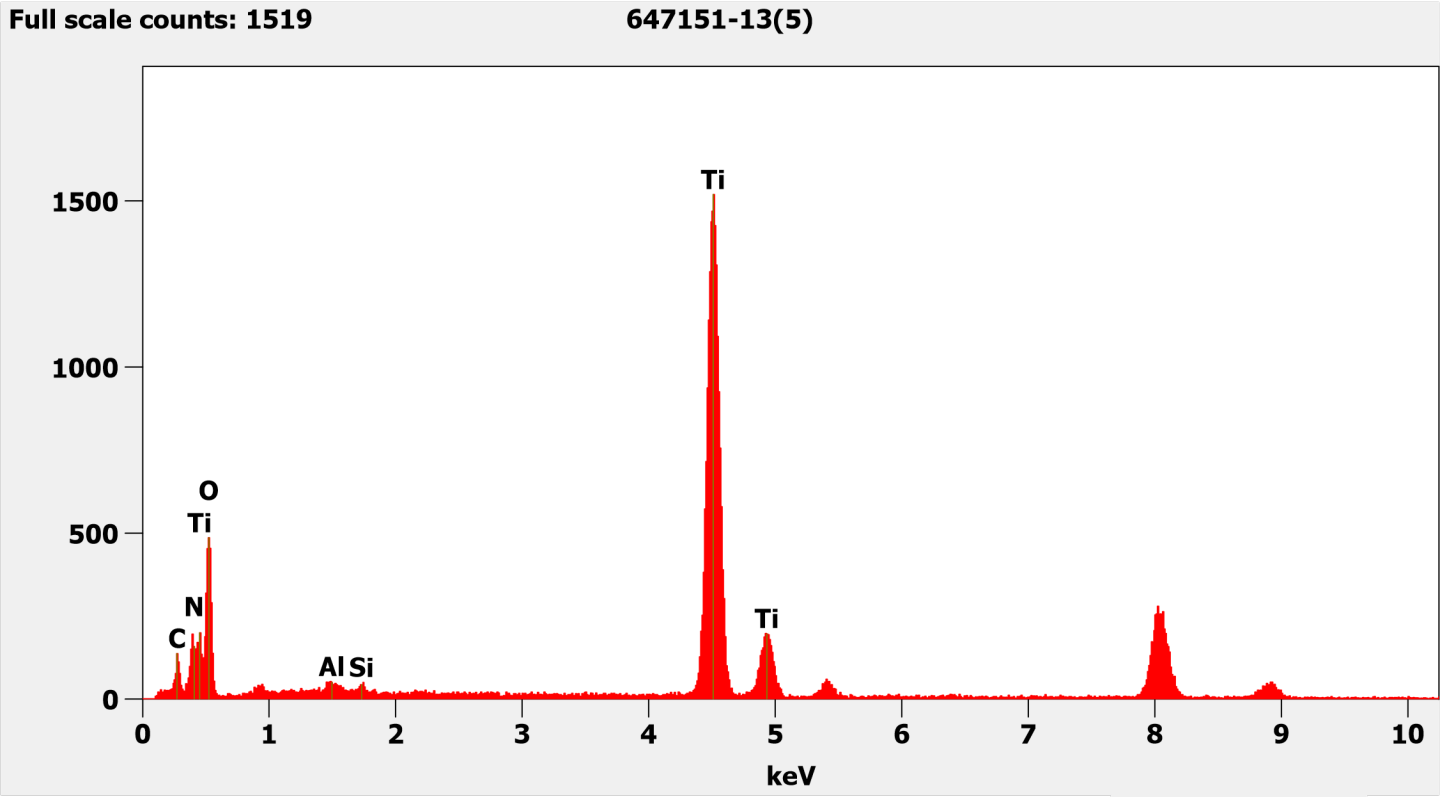
Chemistry from the Titanium Particles Pictured Above



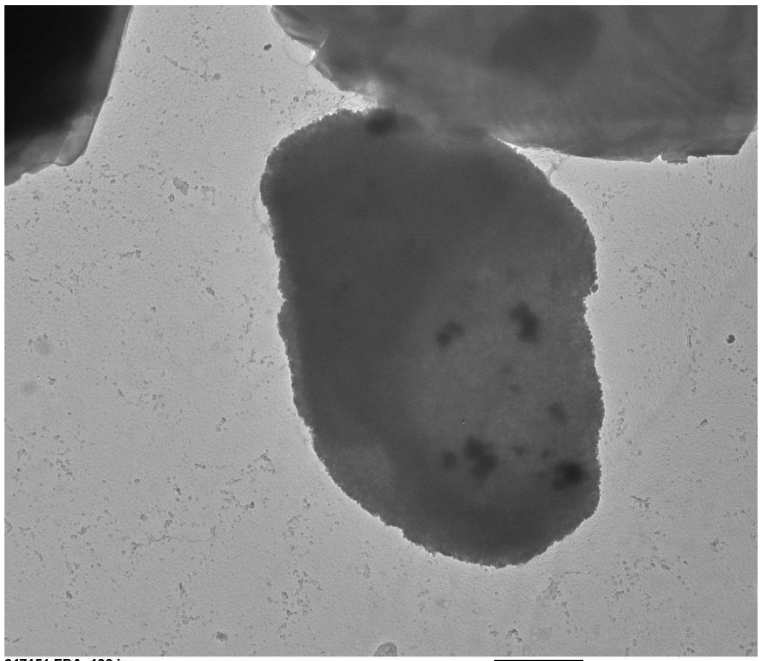
647151-13, Titanium Fiber



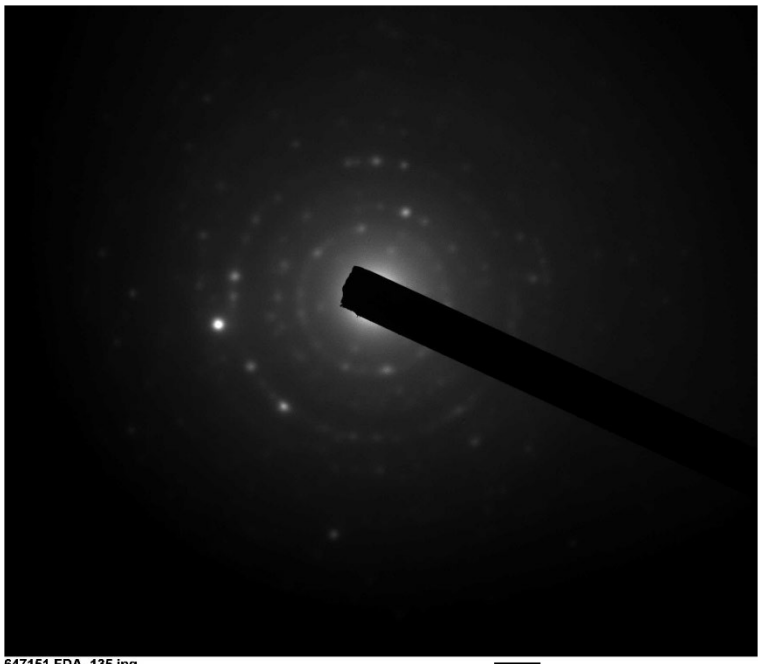
Chemistry from the Titanium Fiber Pictured Above



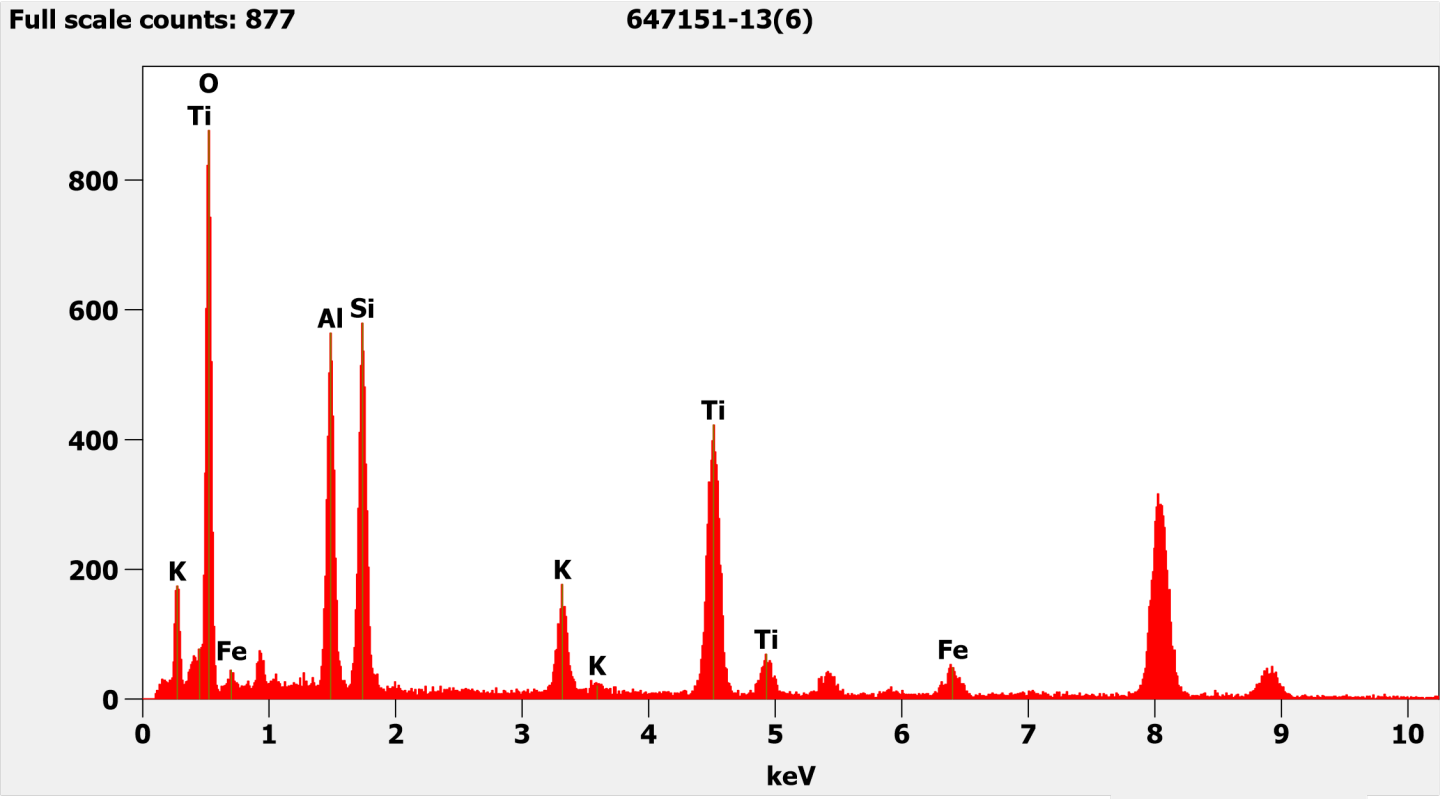
647151-13, Mica Particle with Titanium



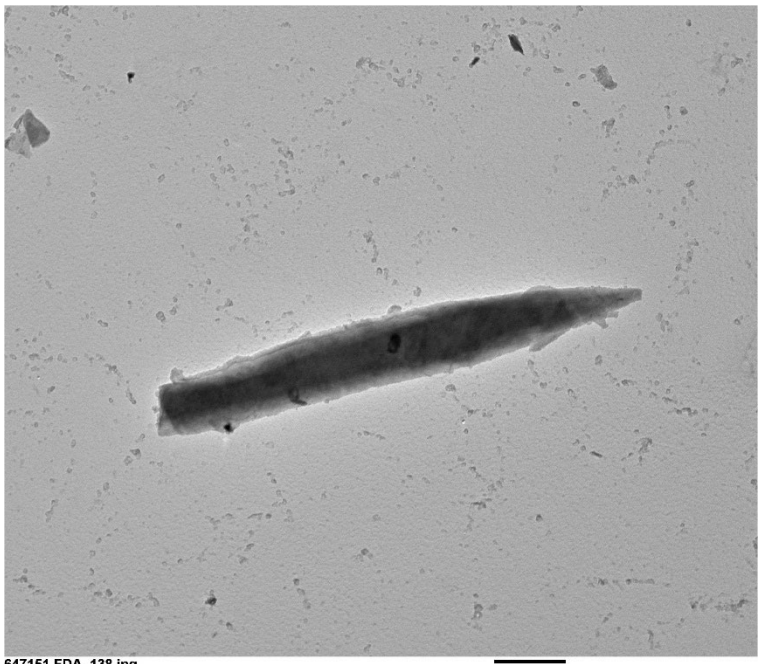
Diffraction Pattern from the Mica Particle with Titanium Pictured Above



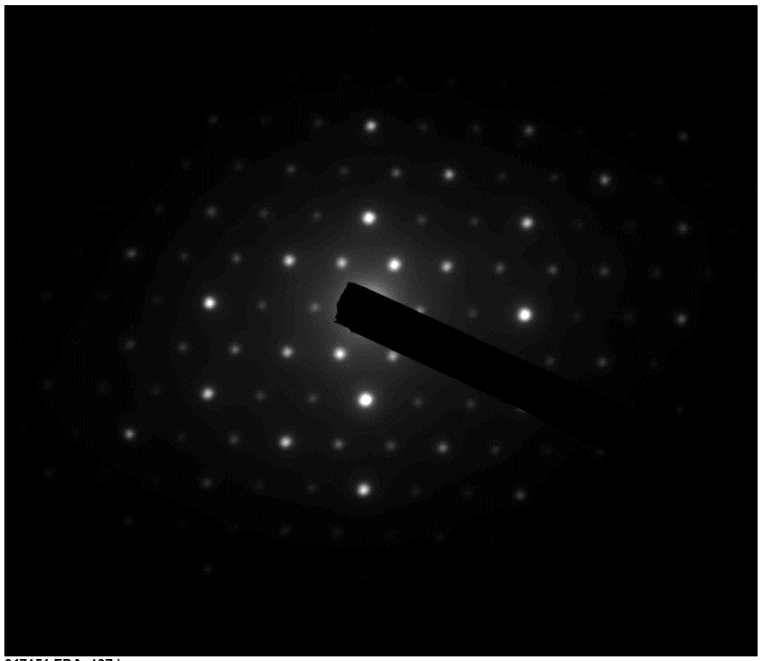
Chemistry from the Mica Particle with Titanium Pictured Above



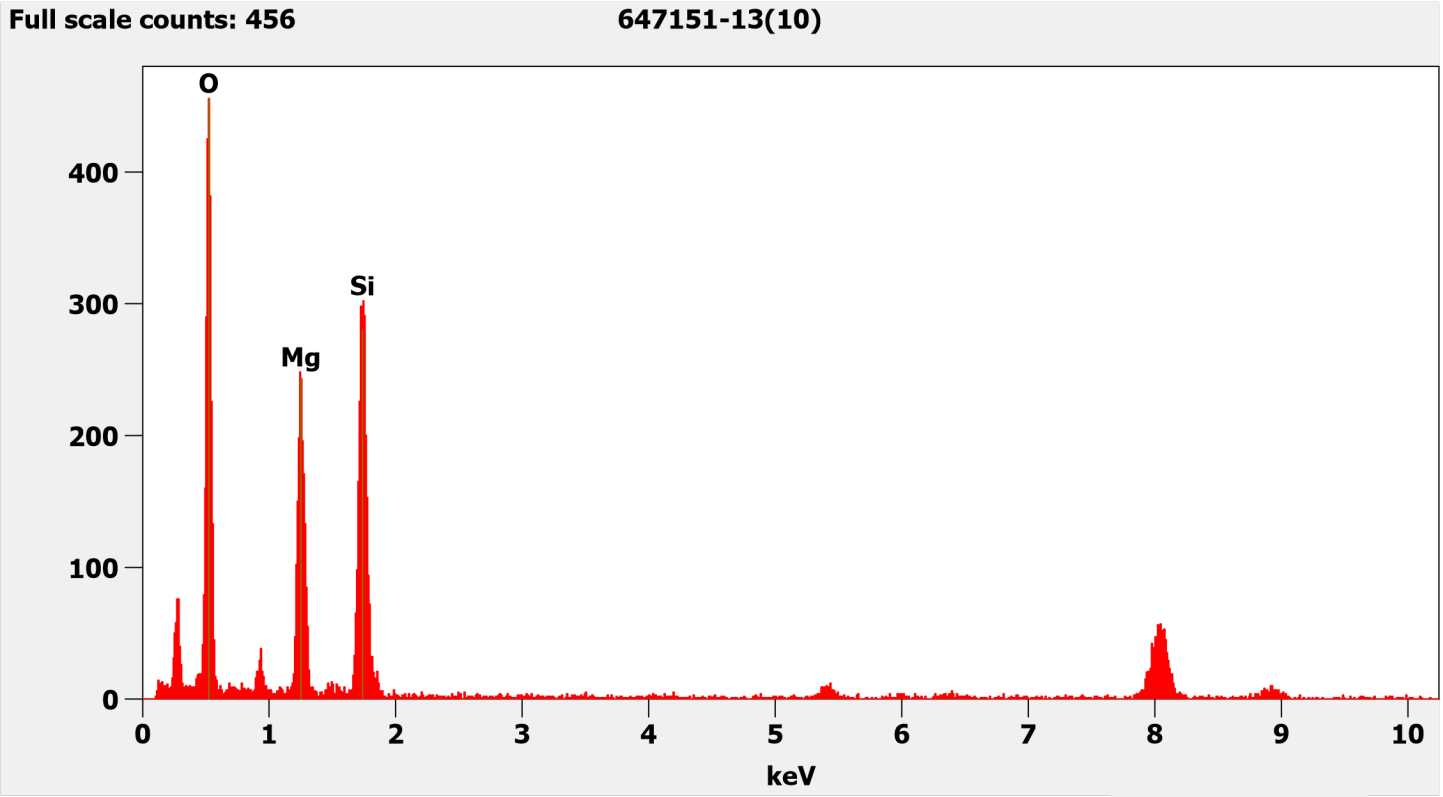
647151-13, Elongated Talc Particle



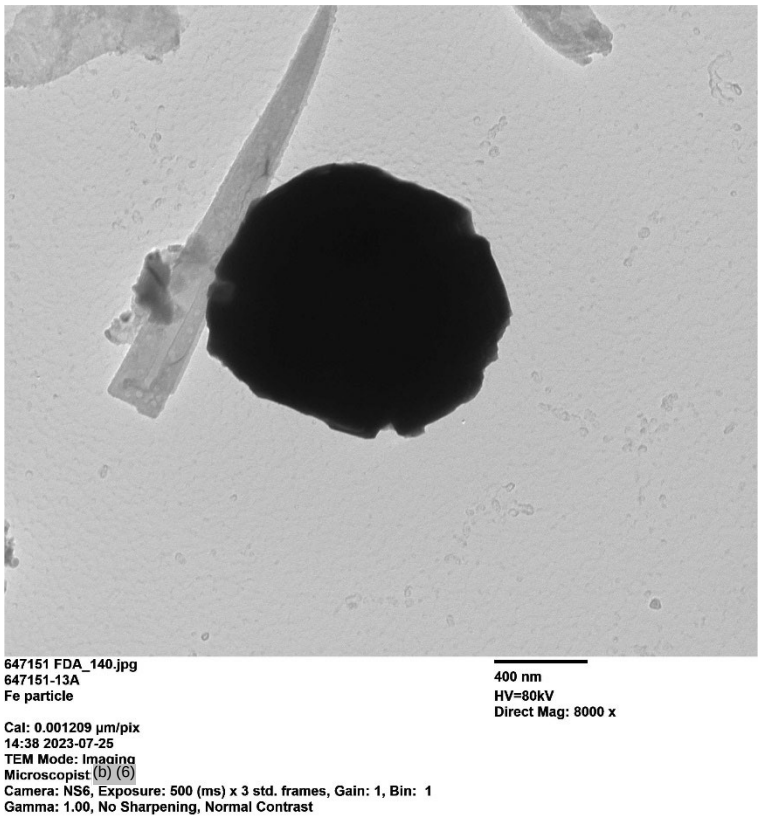
Hexagonal Diffraction Pattern from the Elongated Talc Particle Pictured Above



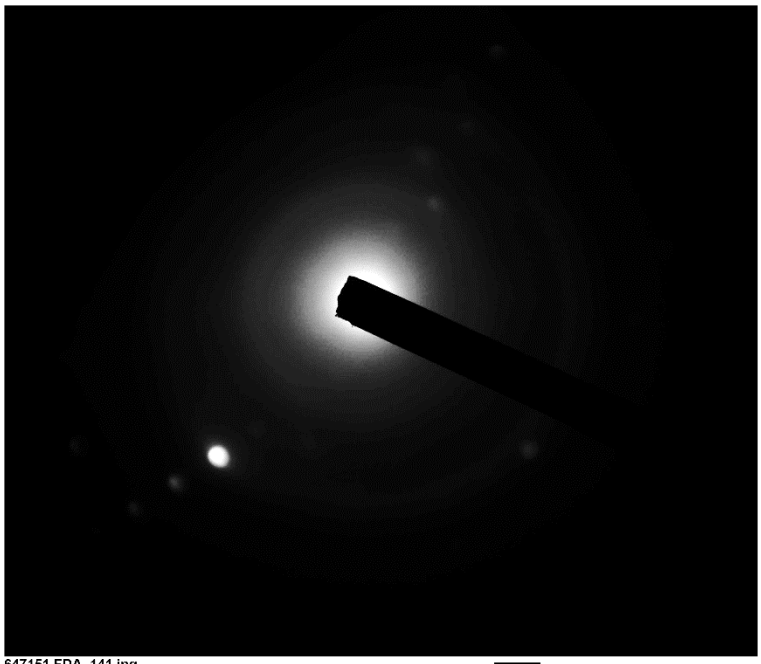
Chemistry from the Elongated Talc Particle Pictured Above



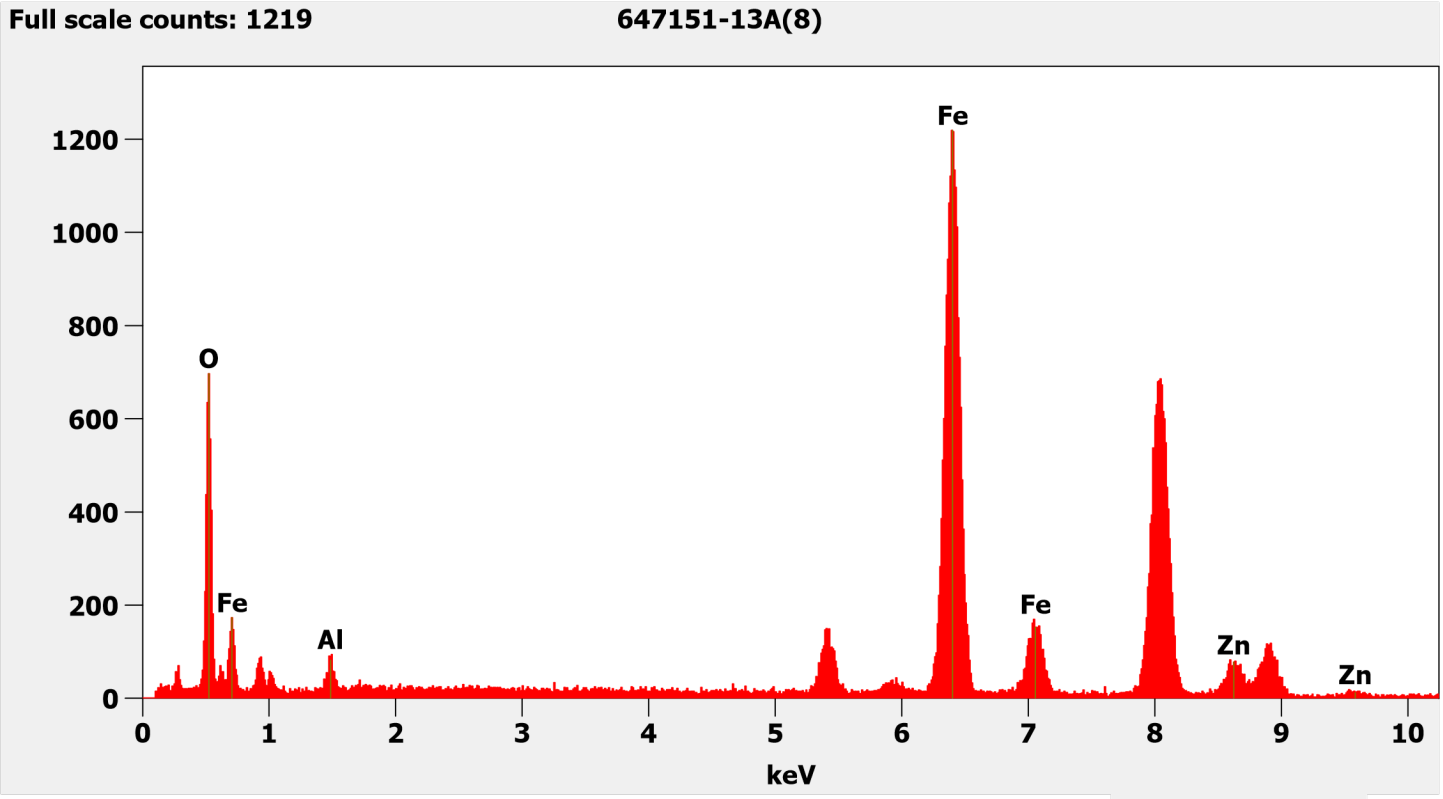
647151-13A, Iron Particle



Diffraction Pattern from the Iron Particle Pictured Above



Chemistry from the Iron Particle Pictured Above



647151-14, 14A, 14B/Client Sample: 04252023-14

PLM

All three aliquots of sample 04252023-14 were analyzed by (b) (6) on July 31, 2023. No asbestos or non-asbestos amphibole variants were observed during analysis. The results were calculated using the equations detailed in the *Calculations* section above.

647151-14	No Asbestos Detected
647151-14A	No Asbestos Detected
647151-14B	No Asbestos Detected

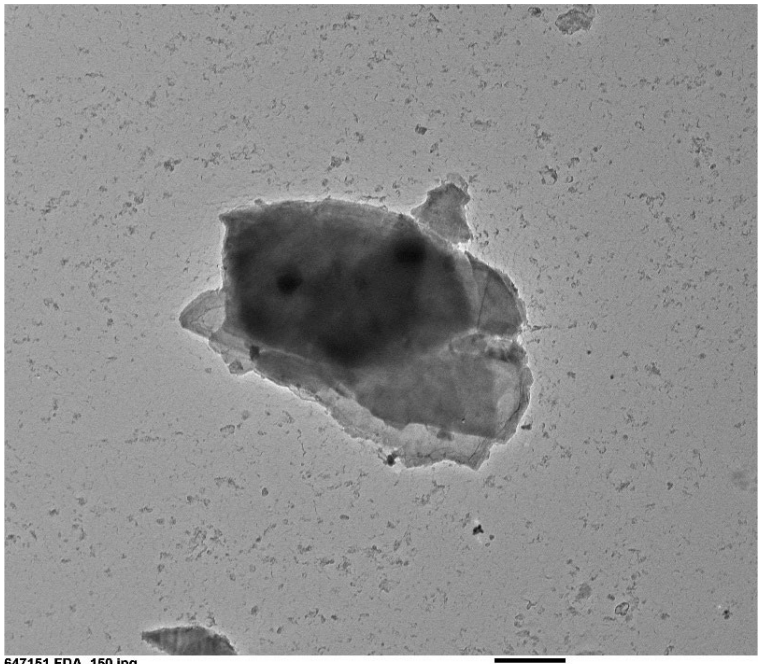
TEM

(b) (6) analyzed aliquot 14 on July 26, 2023. (b) (6) analyzed aliquots 14A and 14B on July 31, 2023. The primary particles observed were talc and mica; iron particles and silica spheres were also observed along with talc ribbons/fibers and titanium 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.

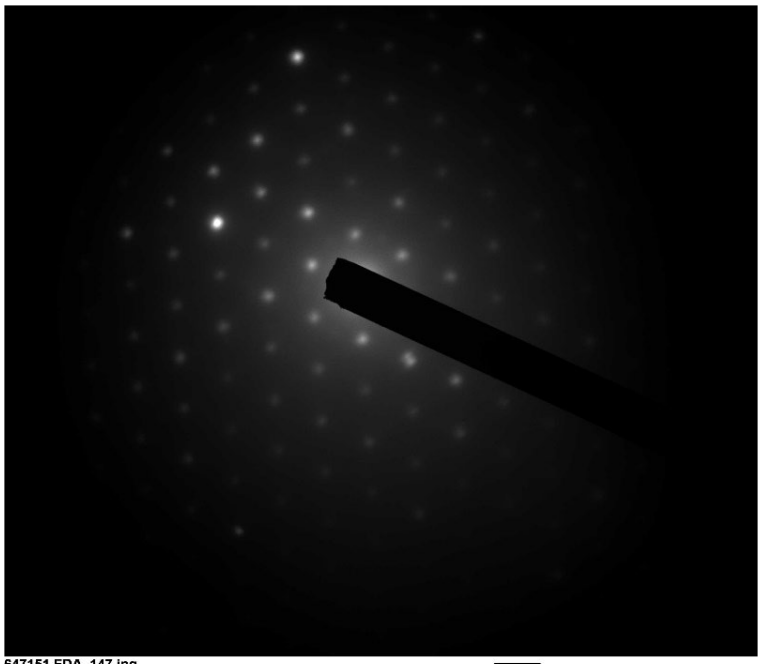
647151-14	No Asbestos Detected
647151-14A	No Asbestos Detected
647151-14B	No Asbestos Detected

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.

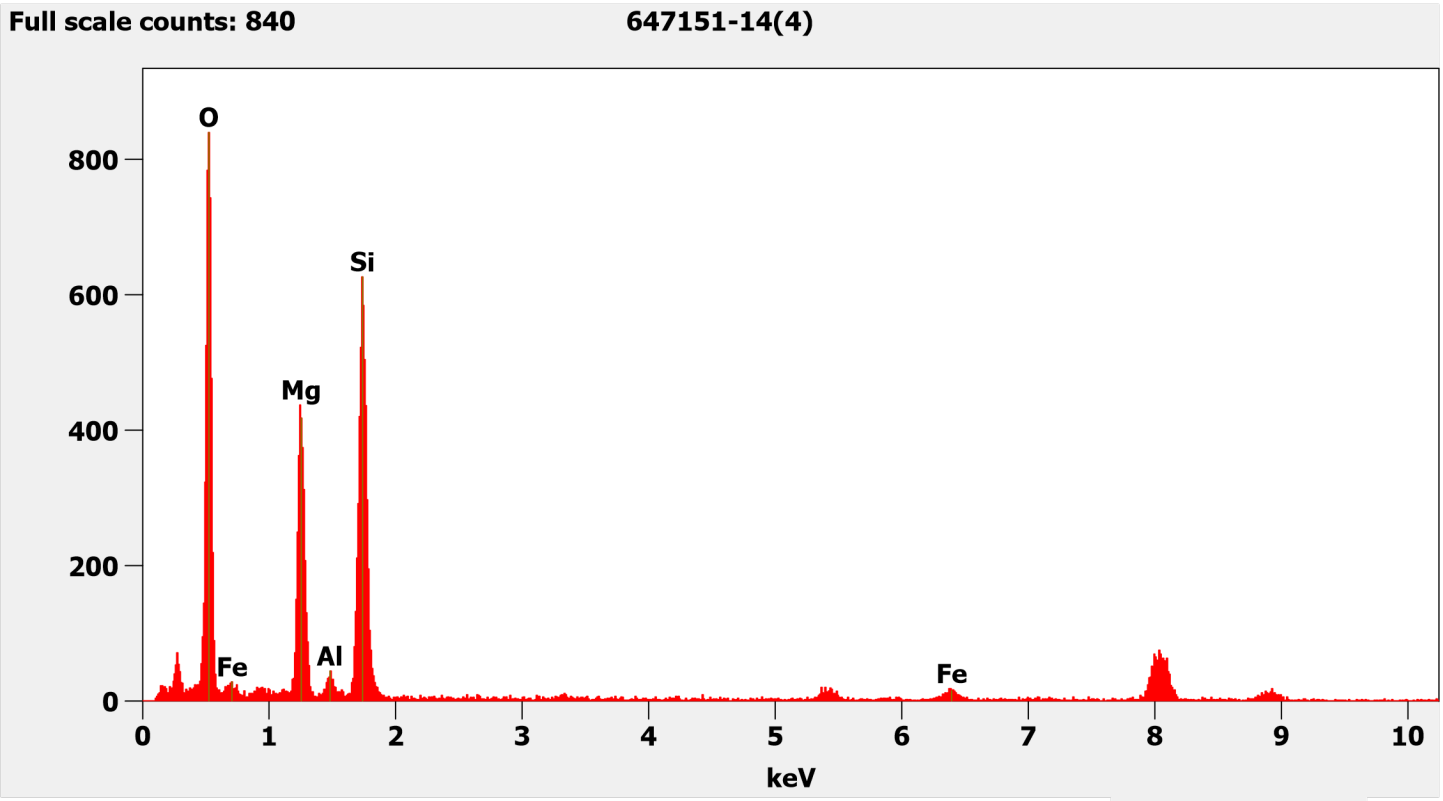
647151-14, Talc Particle



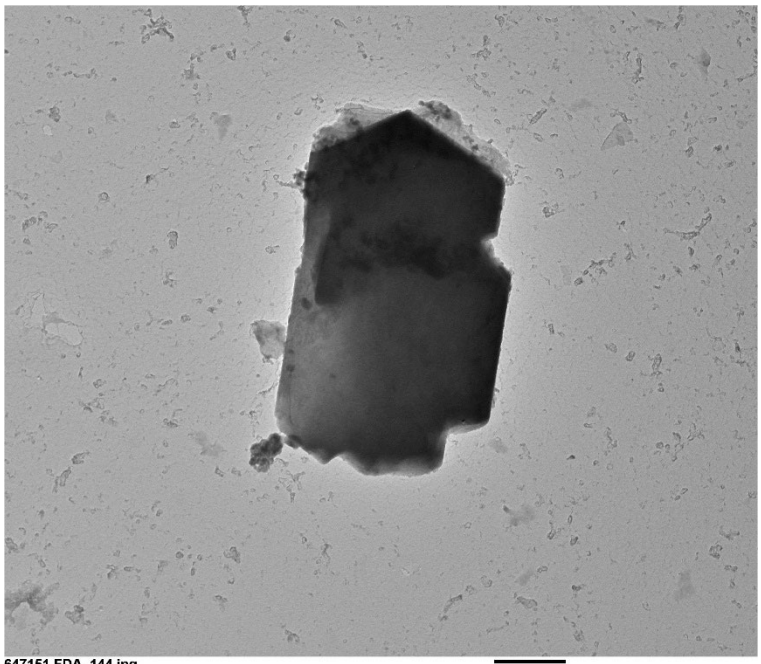
Hexagonal Diffraction Pattern from the Talc Particle Pictured Above



Chemistry from the Talc Particle Pictured Above



647151-14, Mica Particle

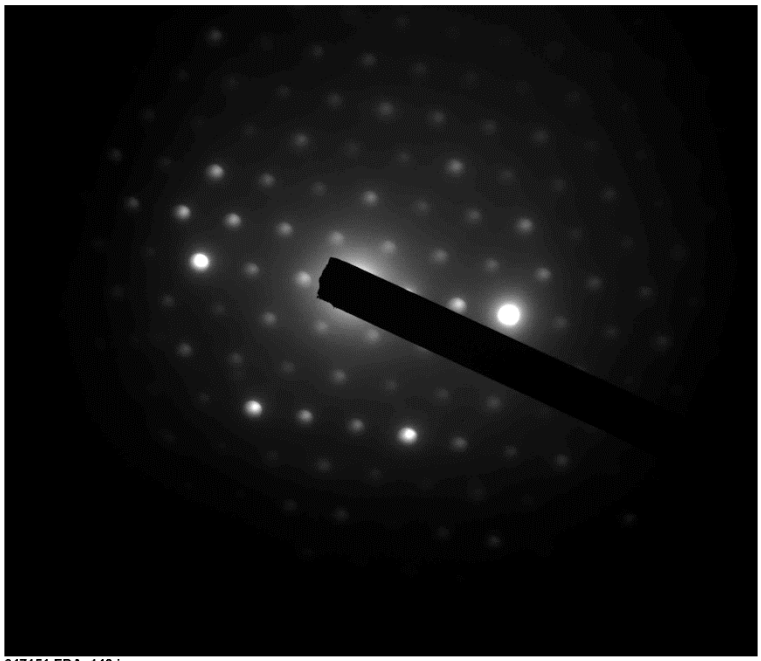


647151 FDA_144.jpg
647151-14
Mica particle

Cal: 0.002387 µm/pix
11:16 2023-07-26
TEM Mode: Imaging
Microscopist: (b) (6)
Camera: NS6, Exposure: 500 (ms) x 3 std. frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

600 nm
HV=80kV
Direct Mag: 4000 x

Hexagonal Diffraction Pattern from the Mica Particle Pictured Above

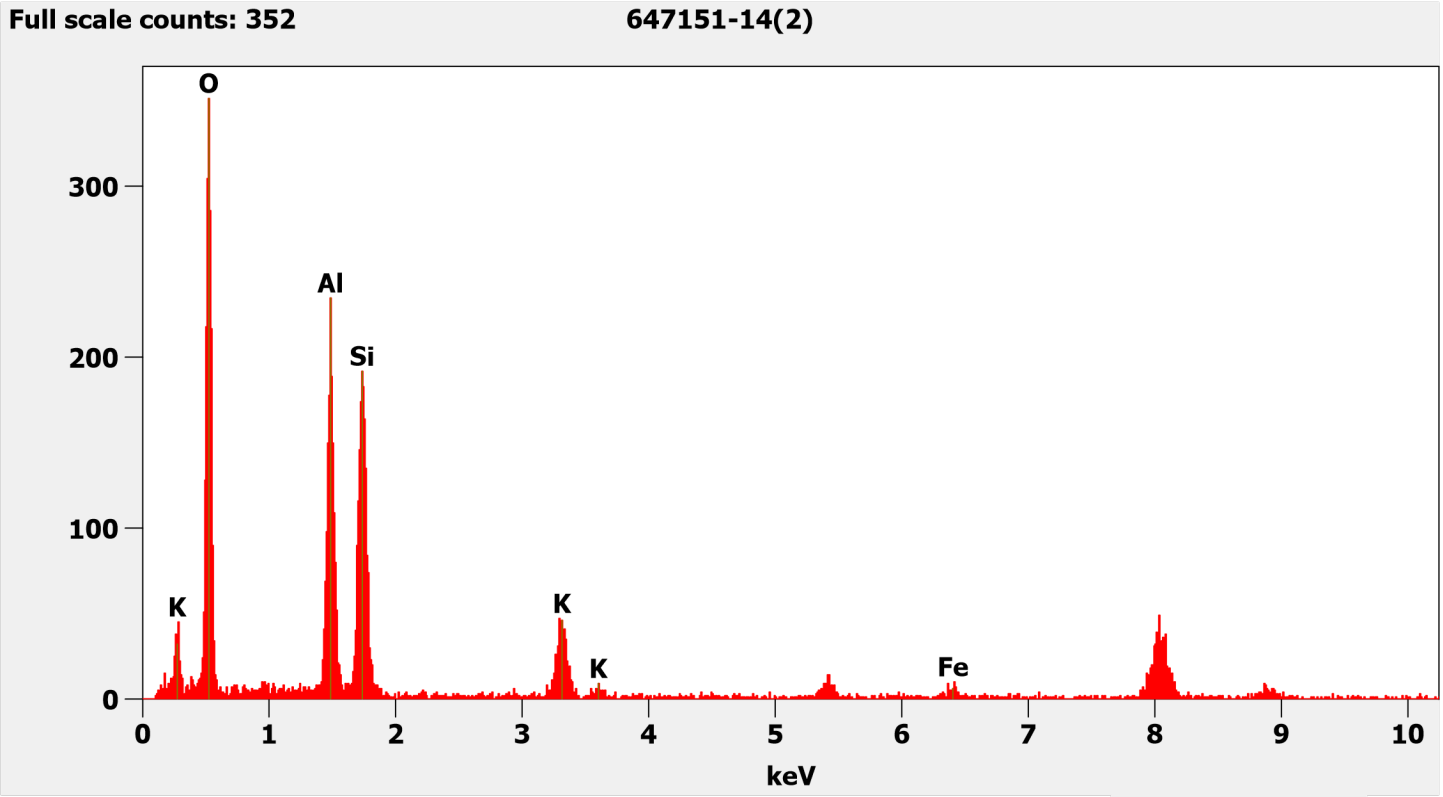


647151 FDA_143.jpg
647151-14
Mica particle

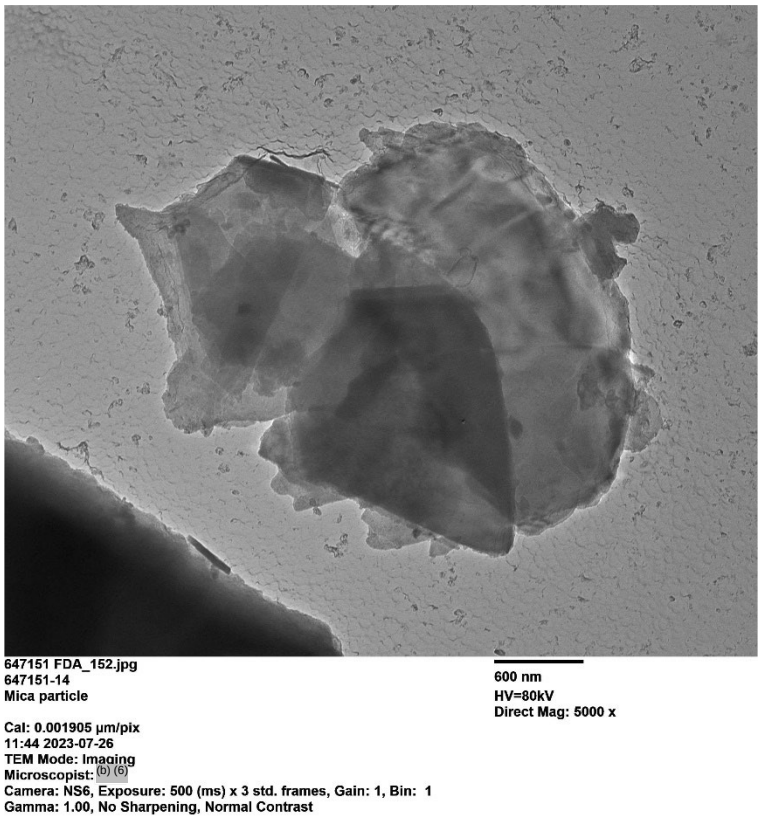
Cal: 0.001905 µm/pix
11:10 2023-07-26
TEM Mode: Diffraction
Microscopist: (b) (6)
Camera: NS6, Exposure: 500 (ms) x 3 std. frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

0.2 Å⁻¹
HV=80kV
Cam Len: 0.2000 m

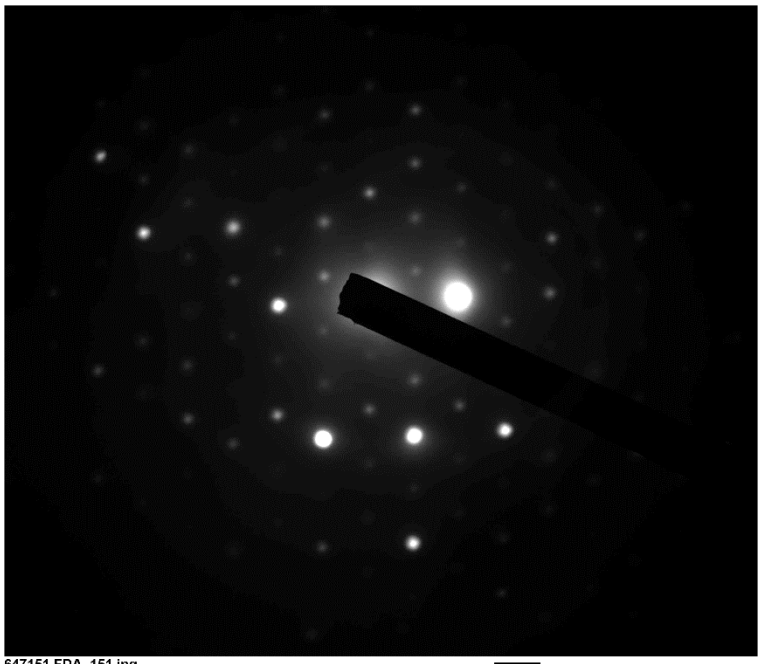
Chemistry from the Mica Particle Pictured Above



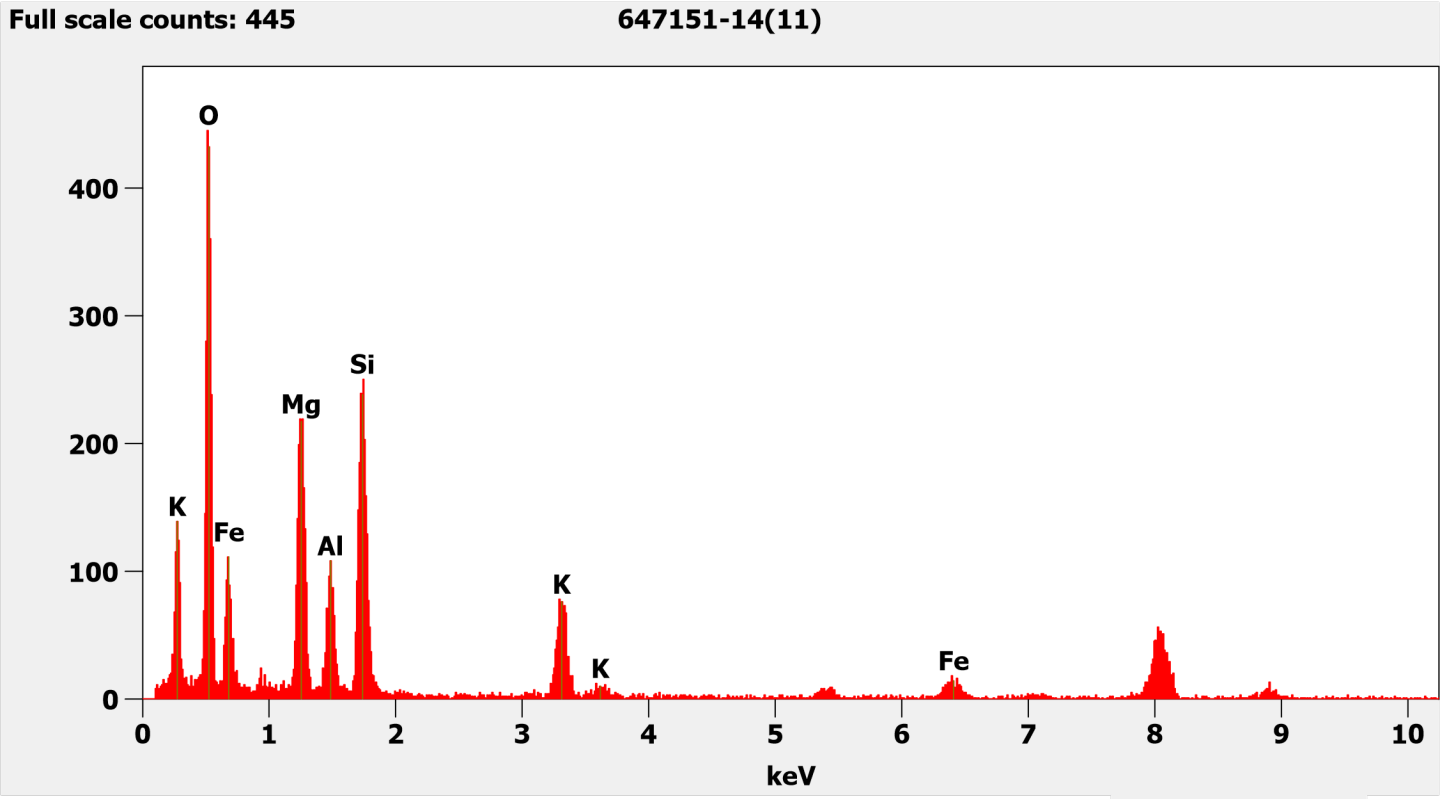
647151-14, Mica Particle



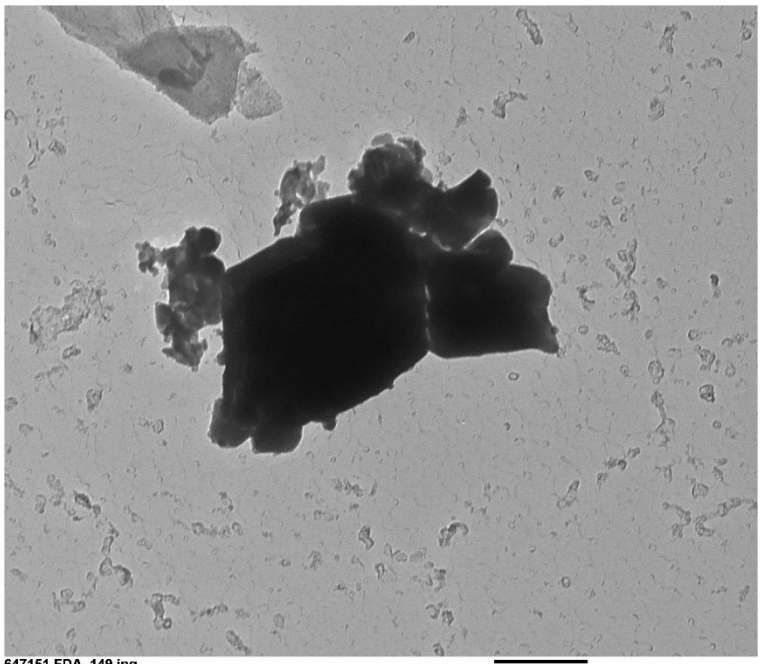
Hexagonal Diffraction Pattern from the Mica Particle Pictured Above



Chemistry from the Mica Particle Pictured Above



647151-14, Iron Particle

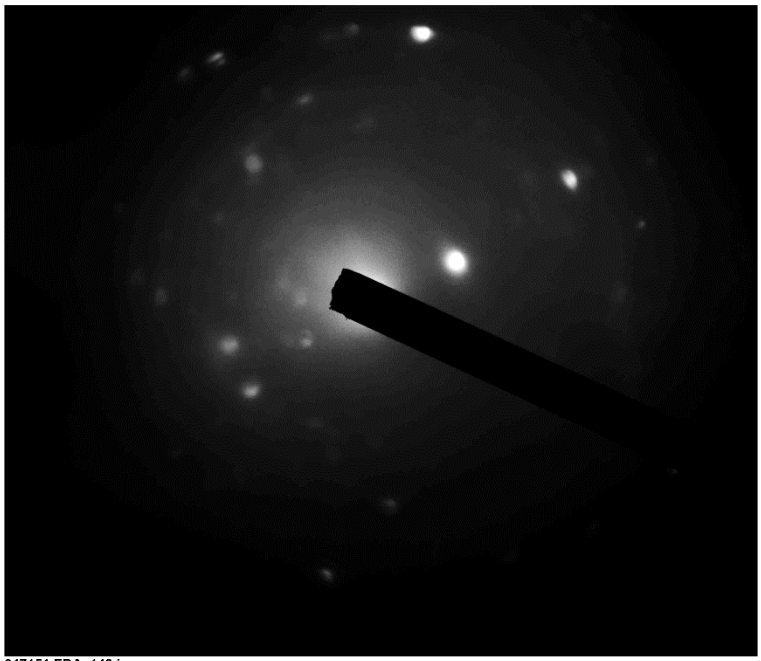


647151 FDA_149.jpg
647151-14
Fe particle

Cal: 0.001209 µm/pix
11:27 2023-07-26
TEM Mode: Imaging
Microscopist: (b) (6)
Camera: NS6, Exposure: 500 (ms) x 3 std. frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

400 nm
HV=80kV
Direct Mag: 8000 x

Diffraction Pattern from the Iron Particle Pictured Above

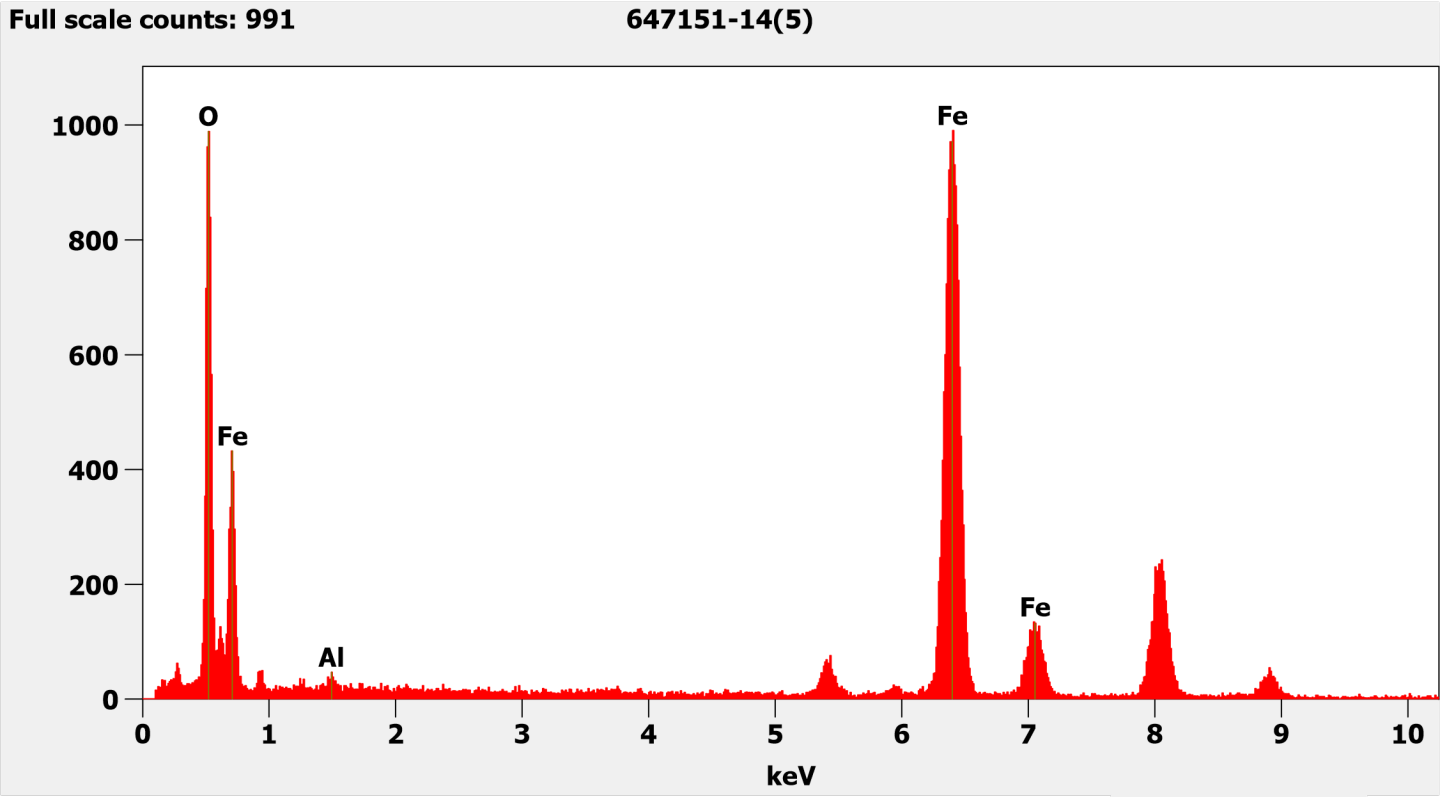


647151 FDA_148.jpg
647151-14
Fe particle

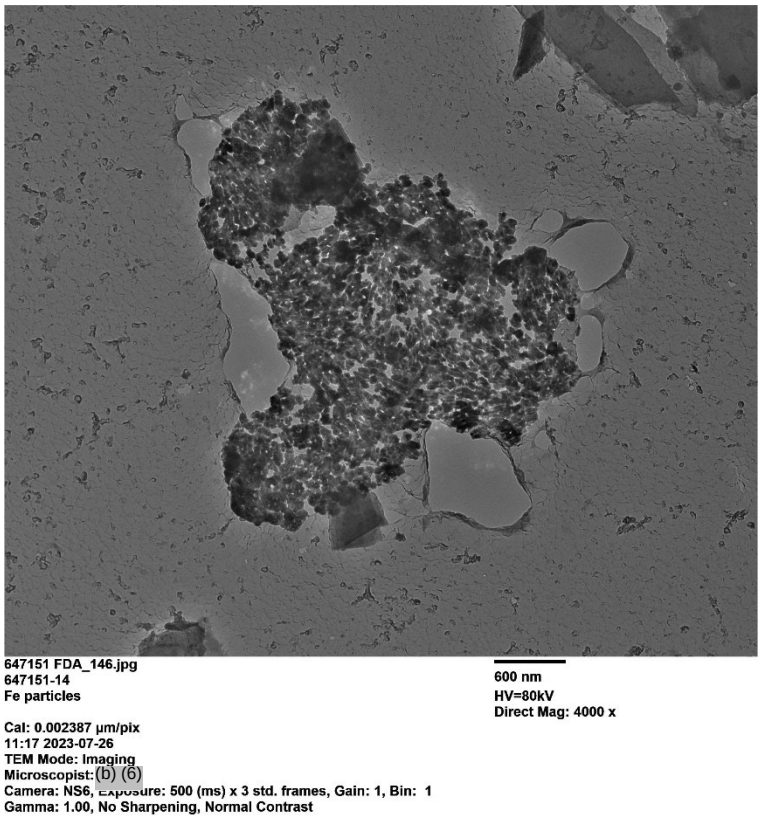
Cal: 0.002387 µm/pix
11:26 2023-07-26
TEM Mode: Diffraction
Microscopist: (b) (6)
Camera: NS6, Exposure: 500 (ms) x 3 std. frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

0.2 Å⁻¹
HV=80kV
Cam Len: 0.2000 m

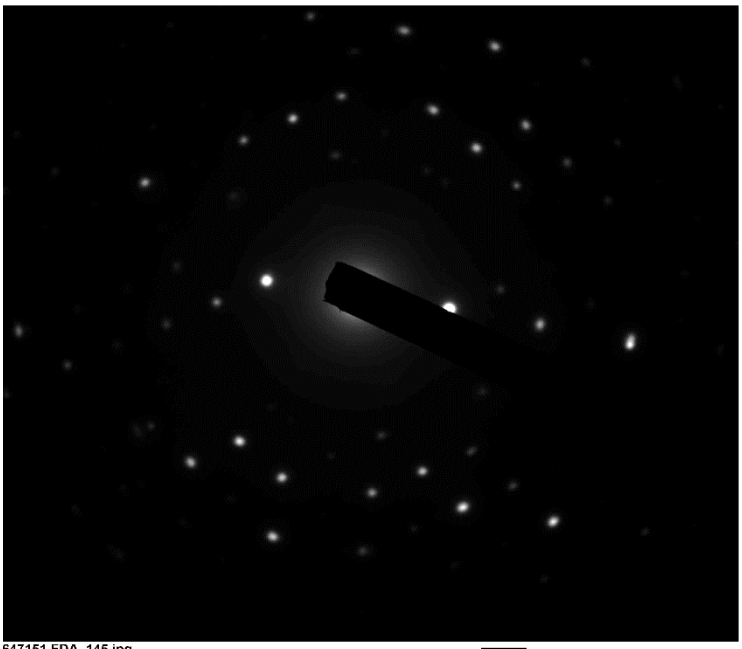
Chemistry from the Iron Particle Pictured Above



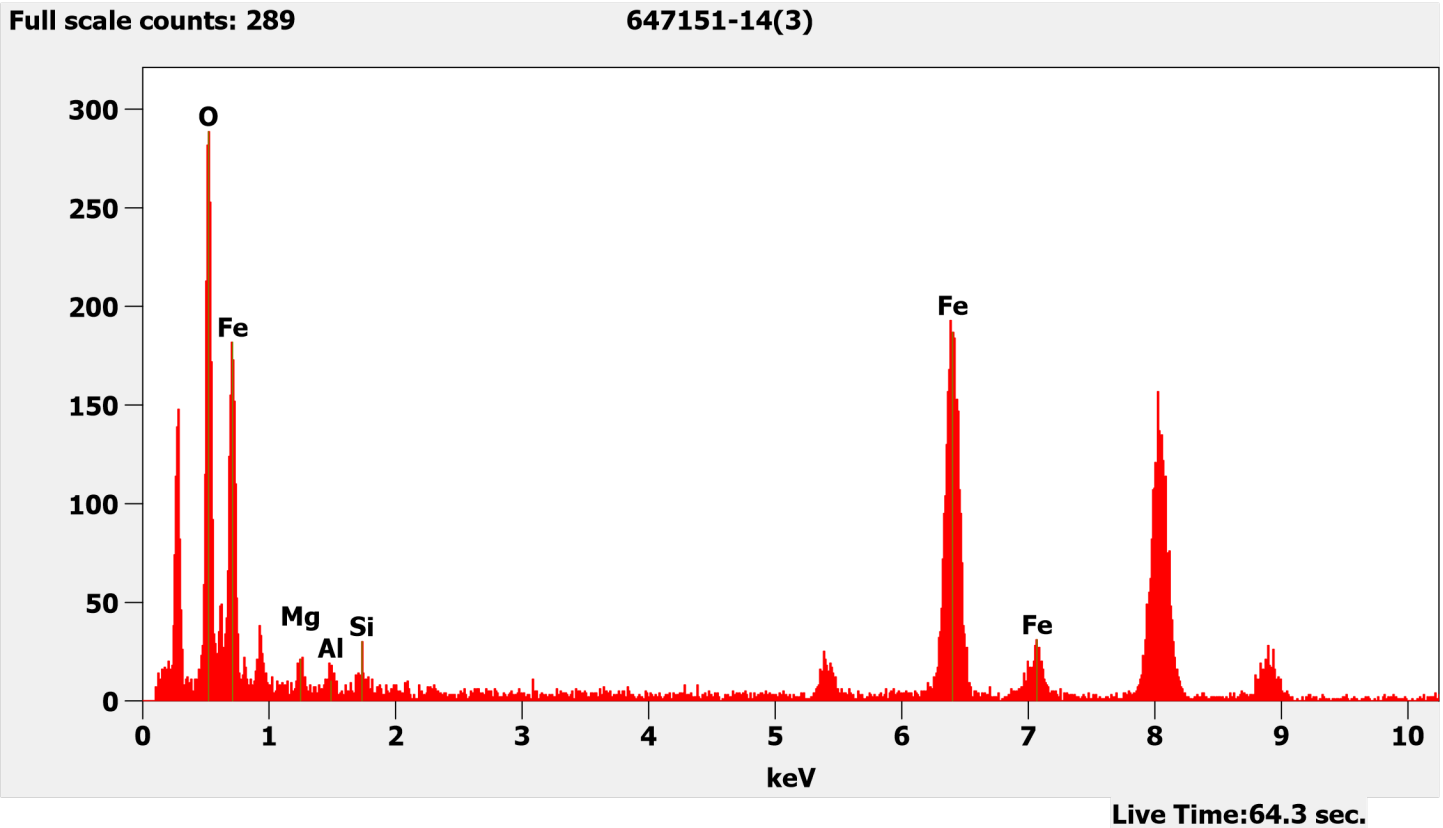
647151-14, Iron Particles



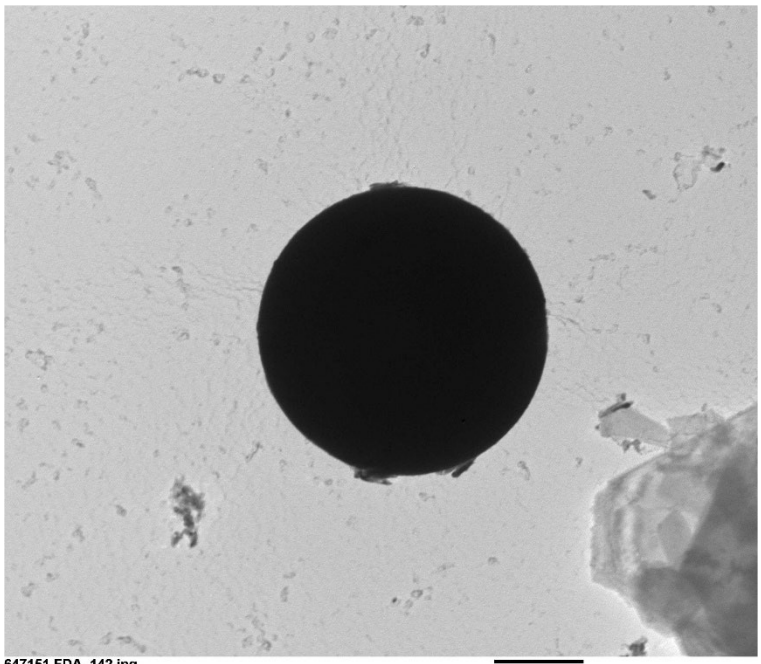
Diffraction Pattern from the Iron Particles Pictured Above



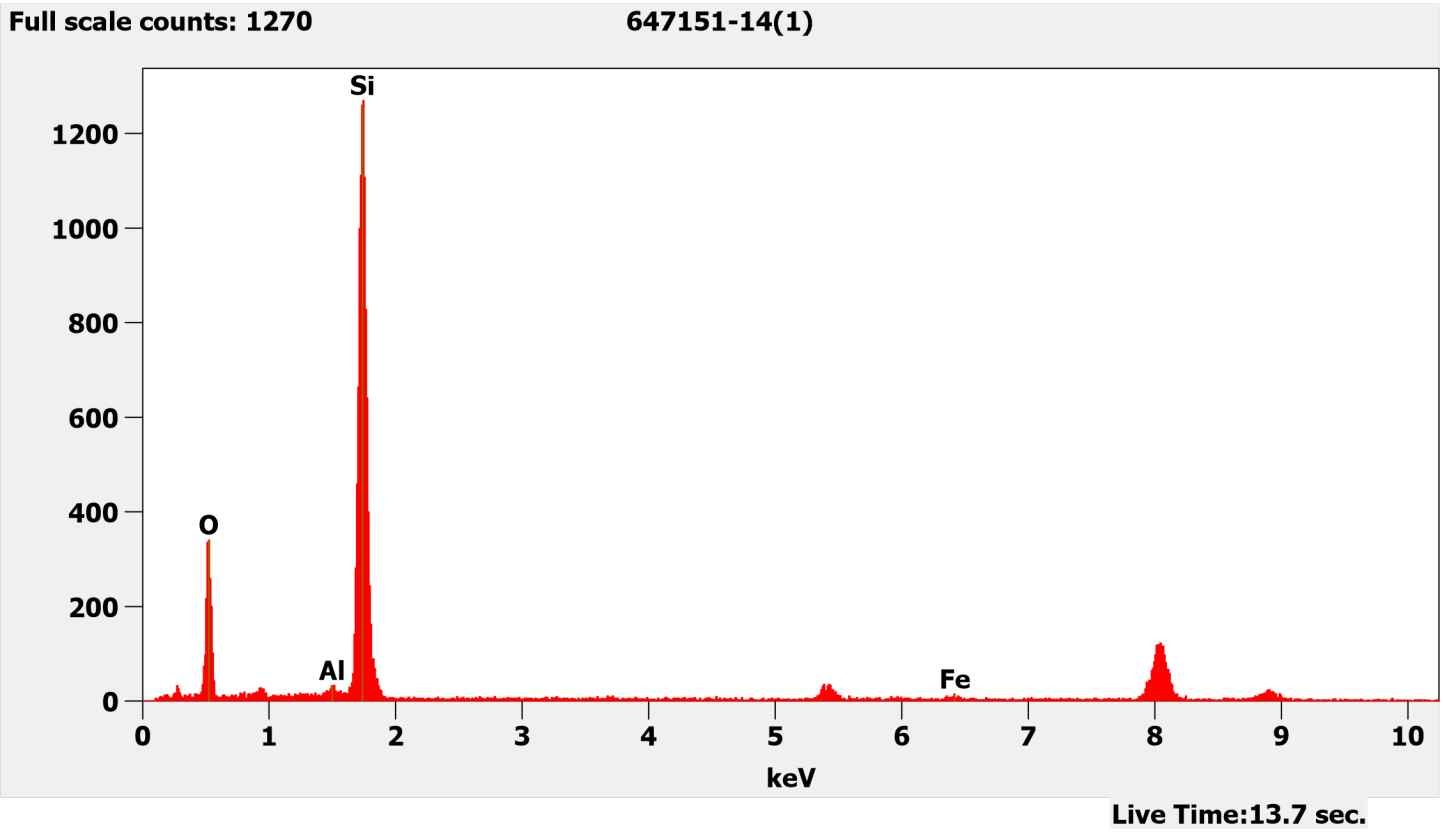
Chemistry from the Iron Particles Pictured Above



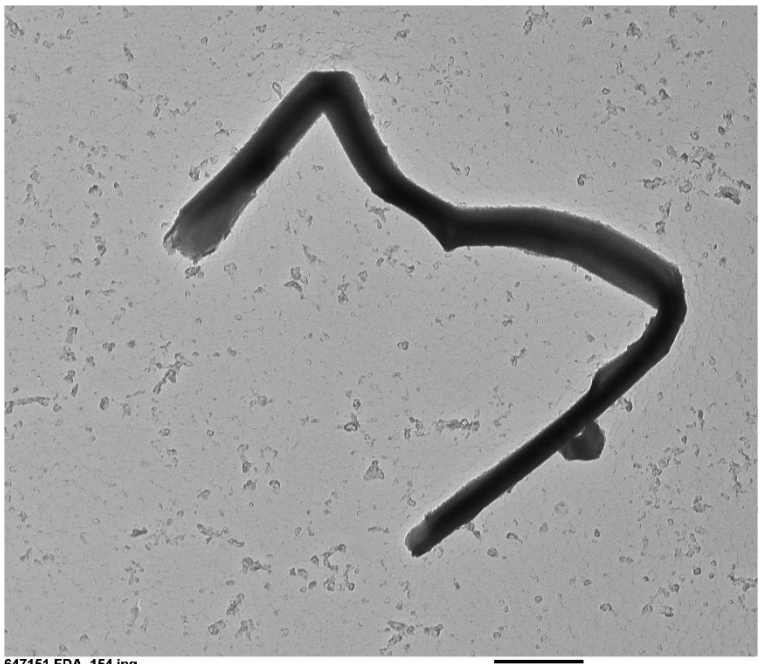
647151-14, Silica Sphere



Chemistry from the Silica Sphere Pictured Above



647151-14, Talc Ribbon

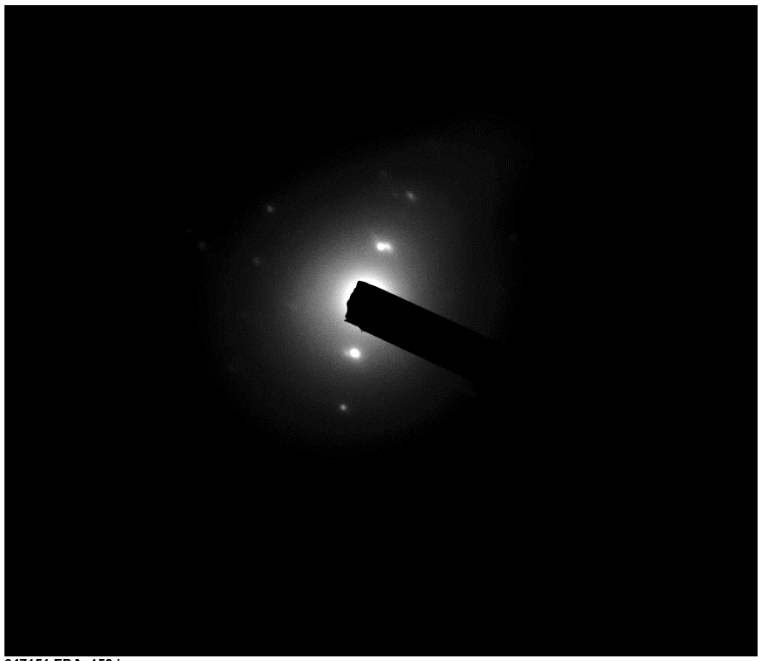


647151 FDA_154.jpg
647151-14
Talc Ribbon

Cal: 0.001905 µm/pix
11:48 2023-07-26
TEM Mode: Imaging
Microscopist (b) (6)
Camera: NS6, Exposure: 500 (ms) x 3 std. frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

600 nm
HV=80kV
Direct Mag: 5000 x

Diffraction Pattern from the Talc Ribbon Pictured Above

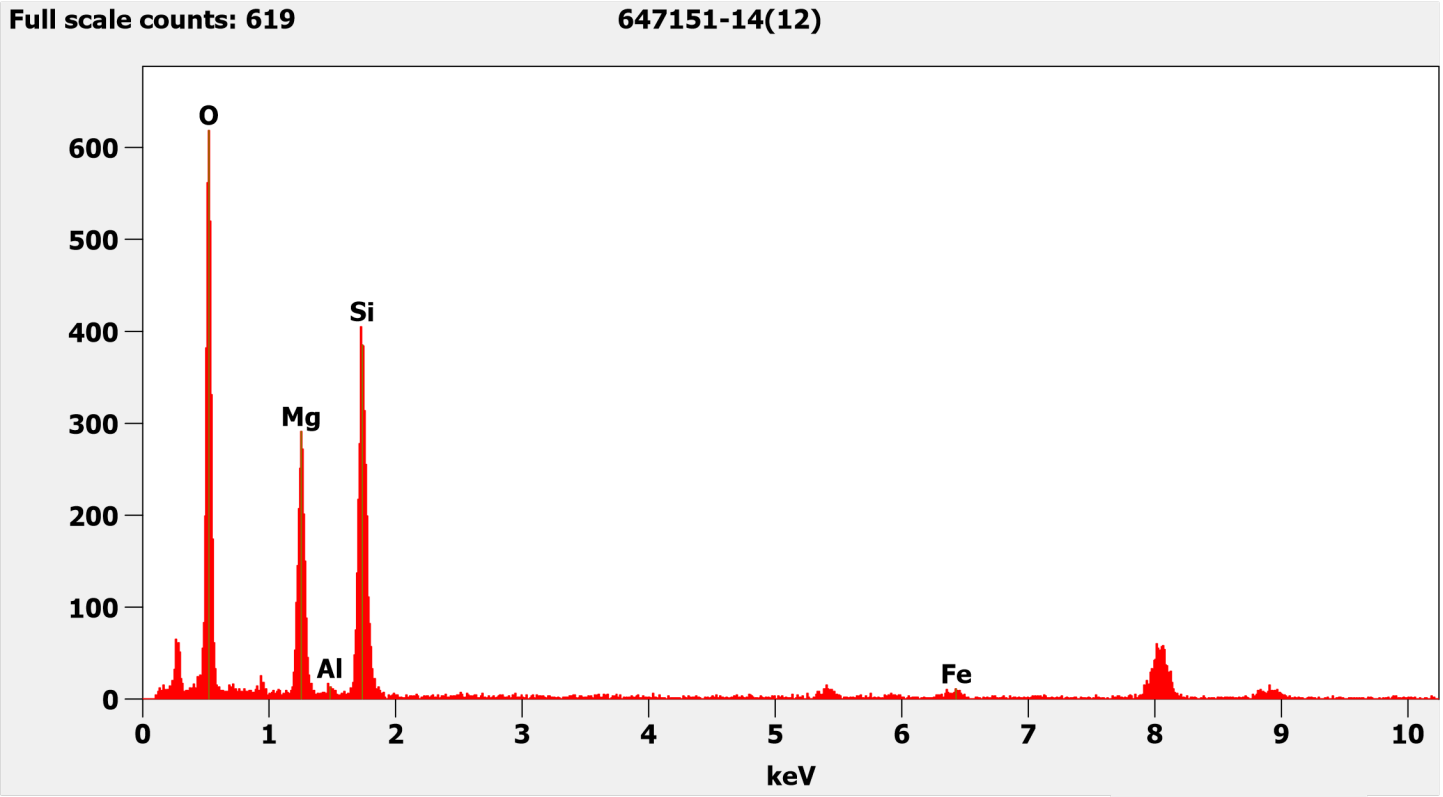


647151 FDA_153.jpg
647151-14
Talc Ribbon

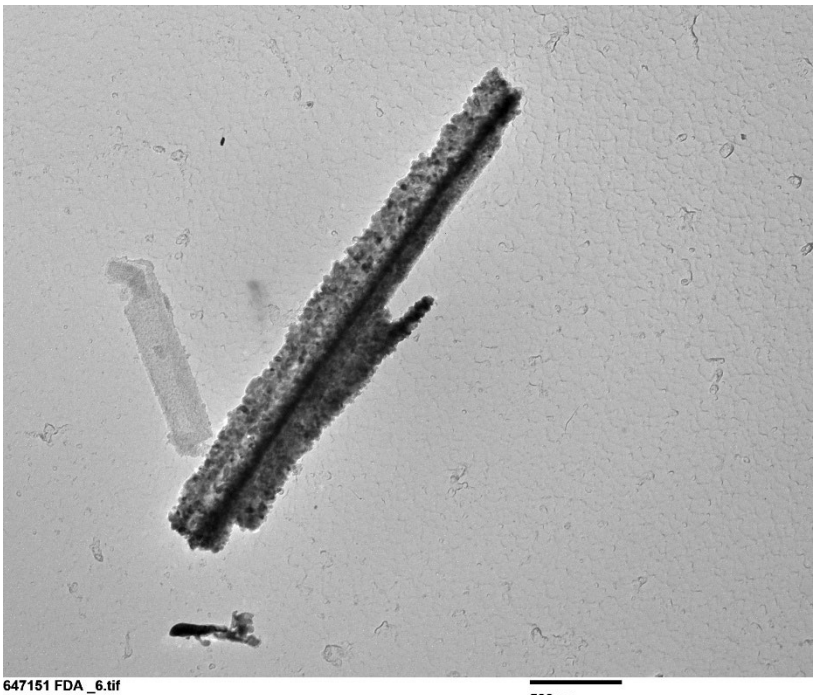
Cal: 0.001905 µm/pix
11:48 2023-07-26
TEM Mode: Diffraction
Microscopist (b) (6)
Camera: NS6, Exposure: 500 (ms) x 3 std. frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

0.2 Å⁻¹
HV=80kV
Cam Len: 0.2000 m

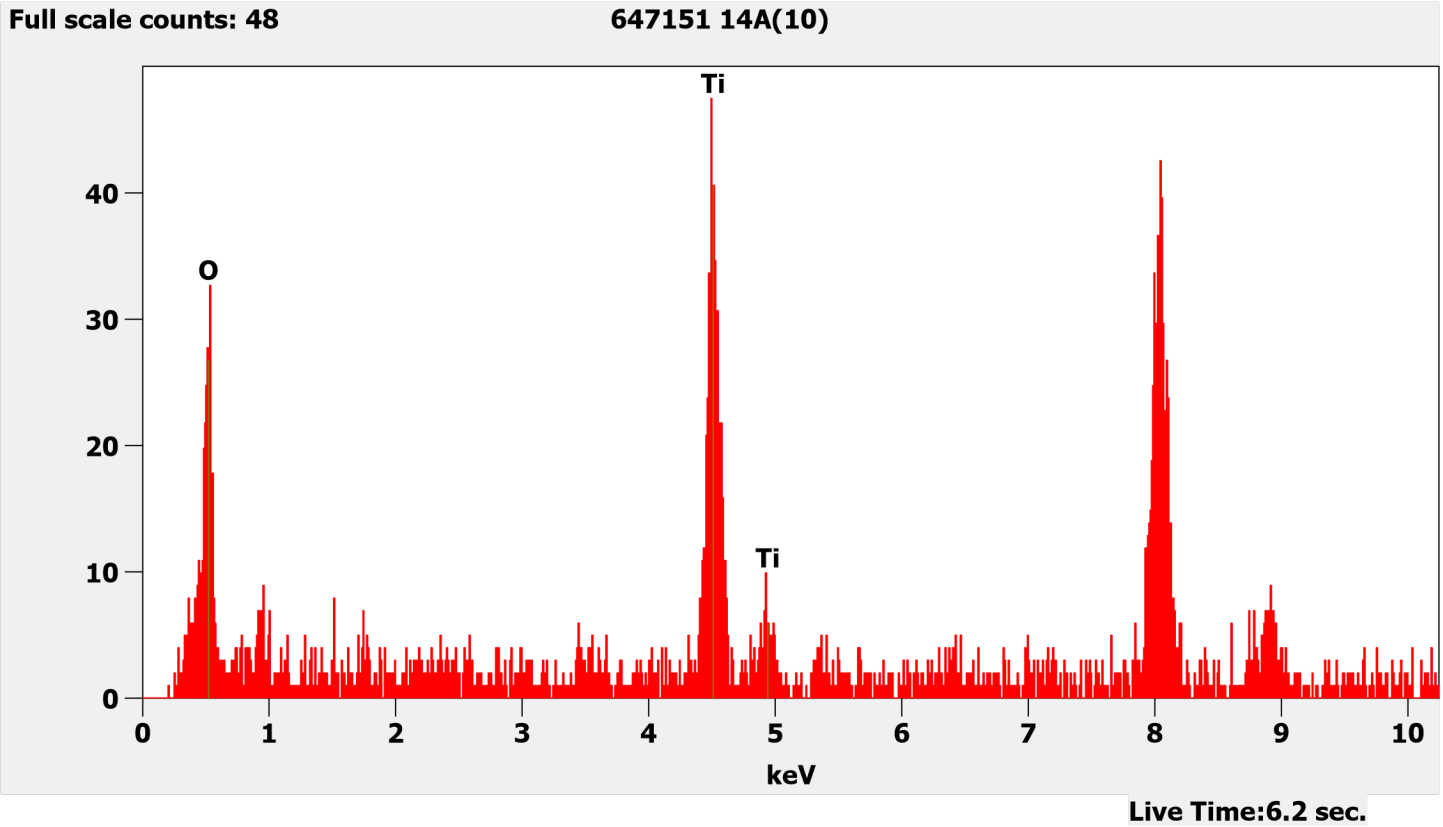
Chemistry from the Talc Ribbon Pictured Above



647151-14A, Elongated Titanium Particle



Chemistry from the Elongated Titanium Particle Pictured Above



647151-15, 15A, 15B/Client Sample: 04252023-15

PLM

All three aliquots of sample 04252023-15 were analyzed by (b) (6) on July 31, 2023. No asbestos or non-asbestos amphibole variants were observed during analysis. The results were calculated using the equations detailed in the *Calculations* section above.

647151-15	No Asbestos Detected
647151-15A	No Asbestos Detected
647151-15B	No Asbestos Detected

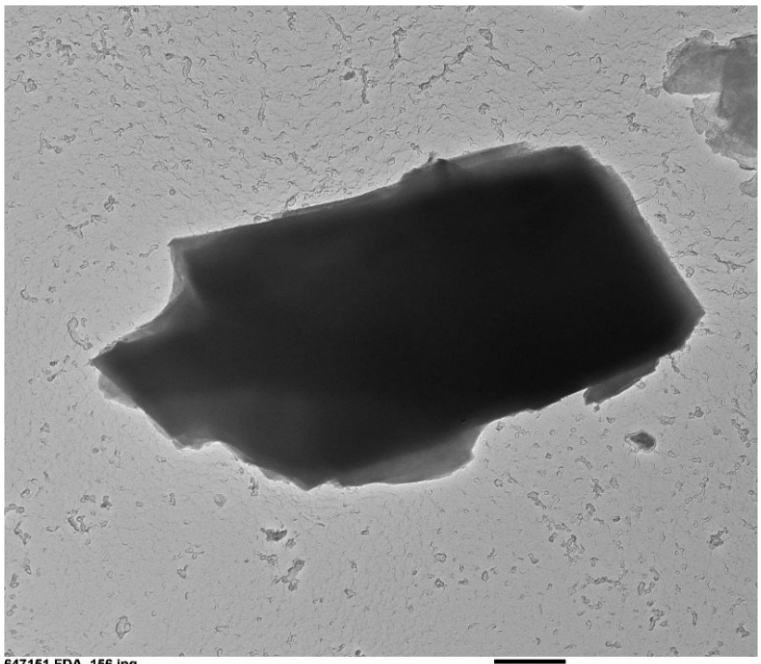
TEM

(b) (6) analyzed aliquots 15 on July 26, 2023, and aliquot 15A on July 28, 2023. (b) (6) analyzed aliquot 15B on July 31, 2023. The primary particle observed was talc; carbon and iron particles were also observed along with silica spheres and talc ribbons/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.

647151-15	No Asbestos Detected
647151-15A	No Asbestos Detected
647151-15B	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.

647151-15, Talc Particle

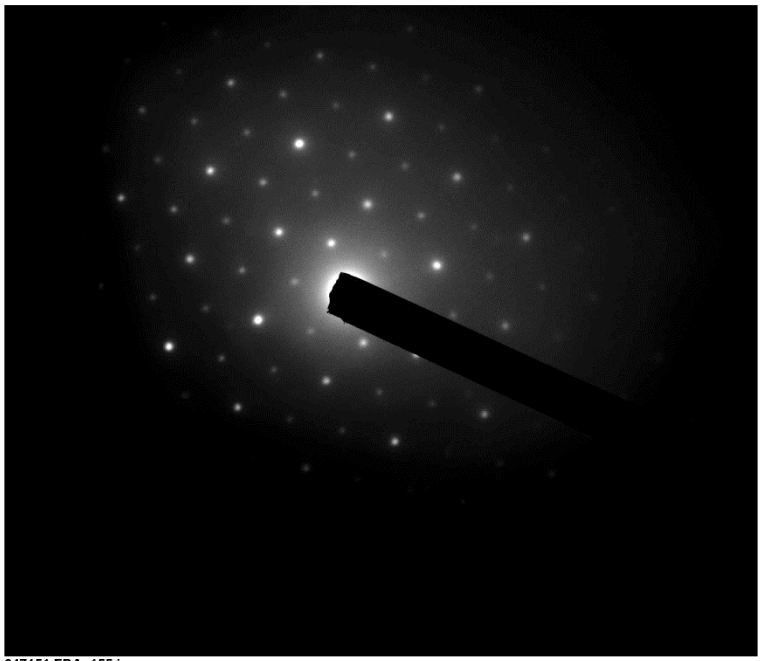


647151 FDA_156.jpg
647151-15
Talc Particle

Cal: 0.002387 µm/pix
17:17 2023-07-26
TEM Mode: Imaging
Microscopist: (b) (6)
Camera: NS6, Exposure: 500 (ms) x 3 std. frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

600 nm
HV=80kV
Direct Mag: 4000 x

Hexagonal Diffraction Pattern from the Talc Particle Pictured Above

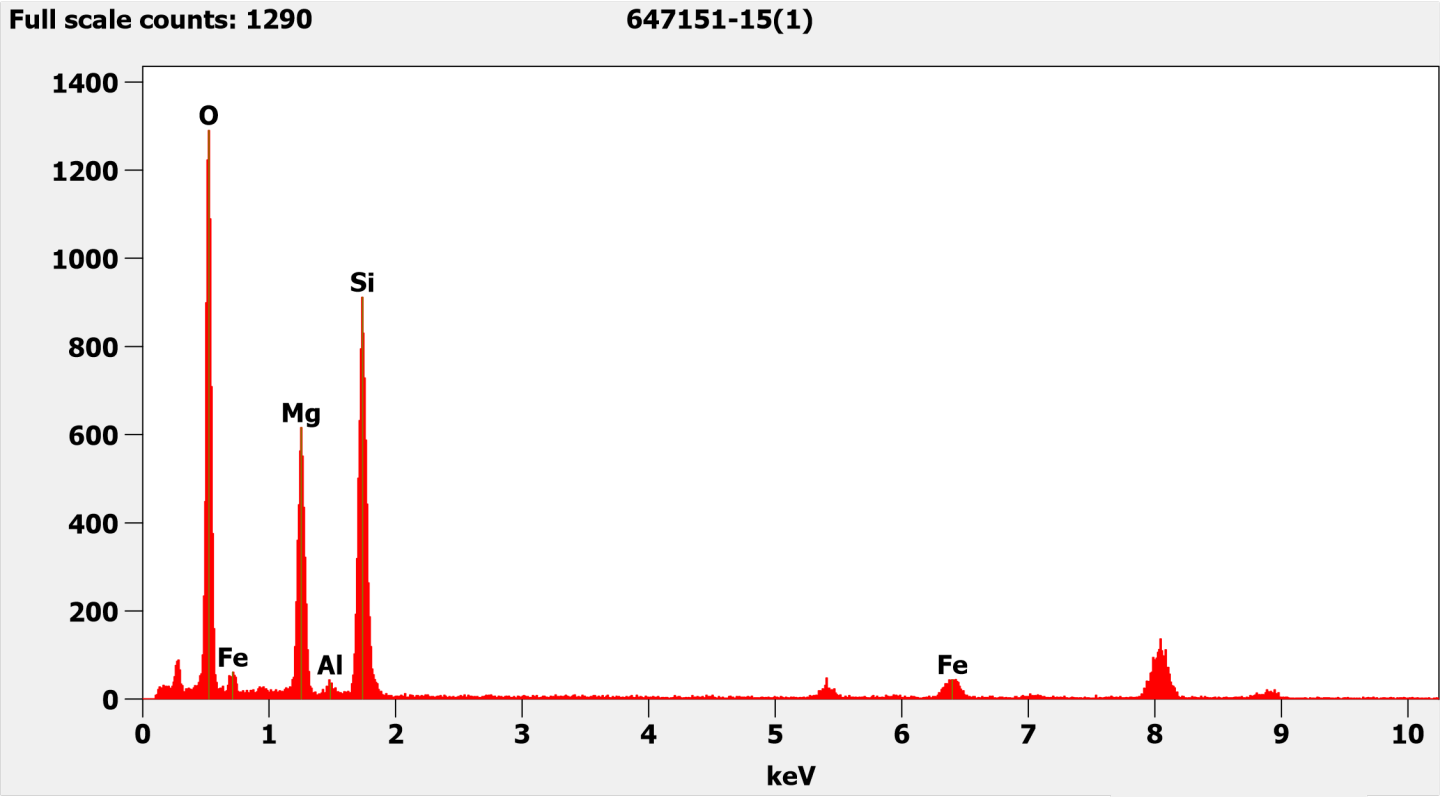


647151 FDA_155.jpg
647151-15
Talc Particle

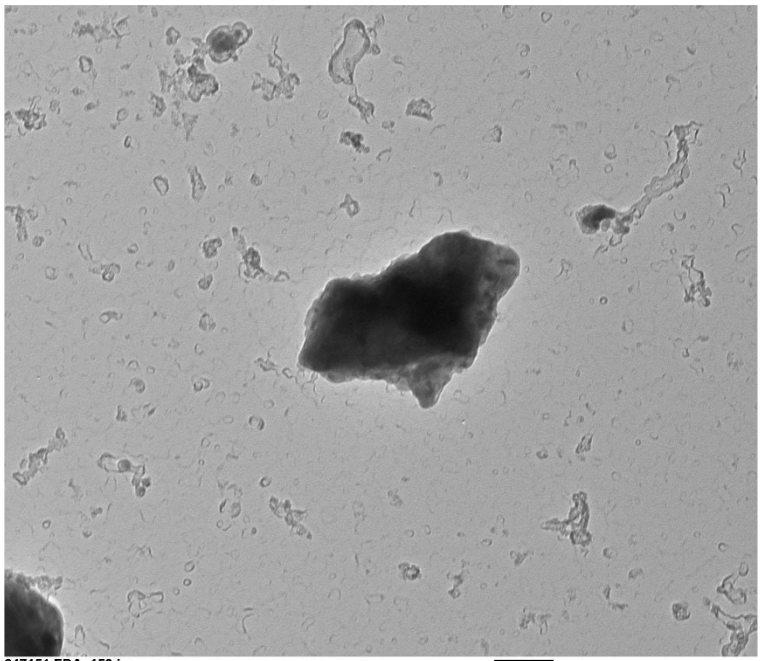
17:16 2023-07-26
TEM Mode: Diffraction
Microscopist: (b) (6)
Camera: NS6, Exposure: 500 (ms) x 3 std. frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

0.2 Å⁻¹
HV=80kV
Cam Len: 0.2000 m

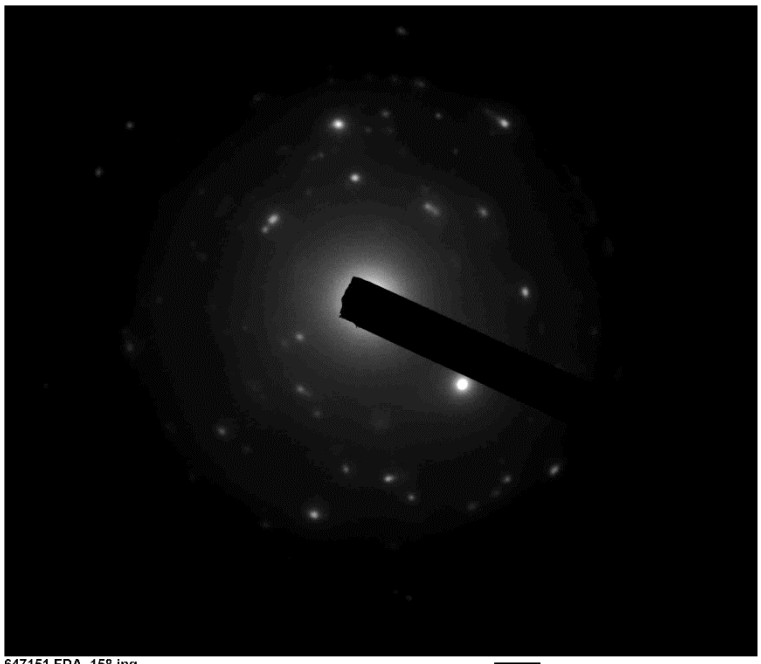
Chemistry from the Talc Particle Pictured Above



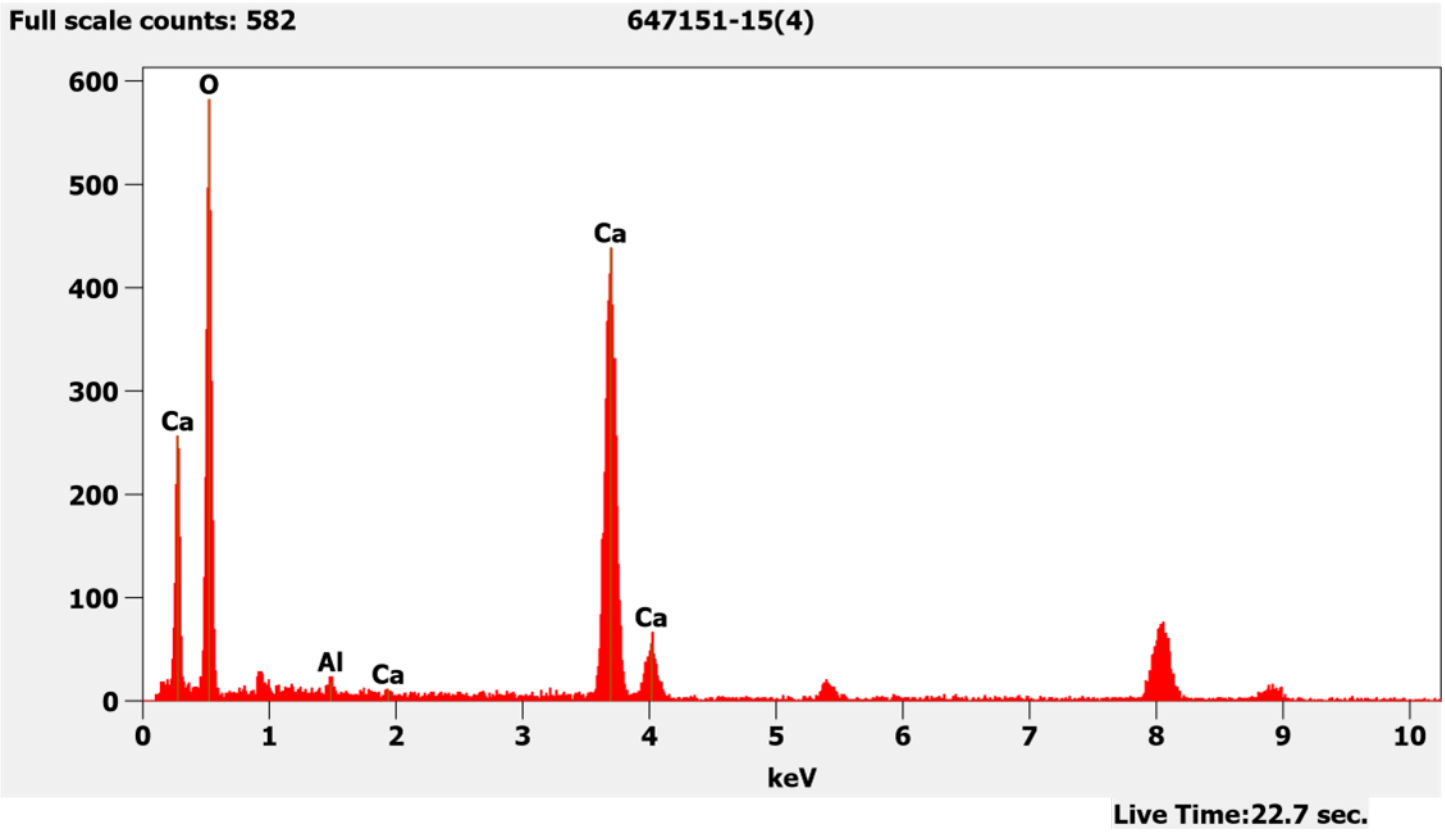
647151-15, Calcium Particle



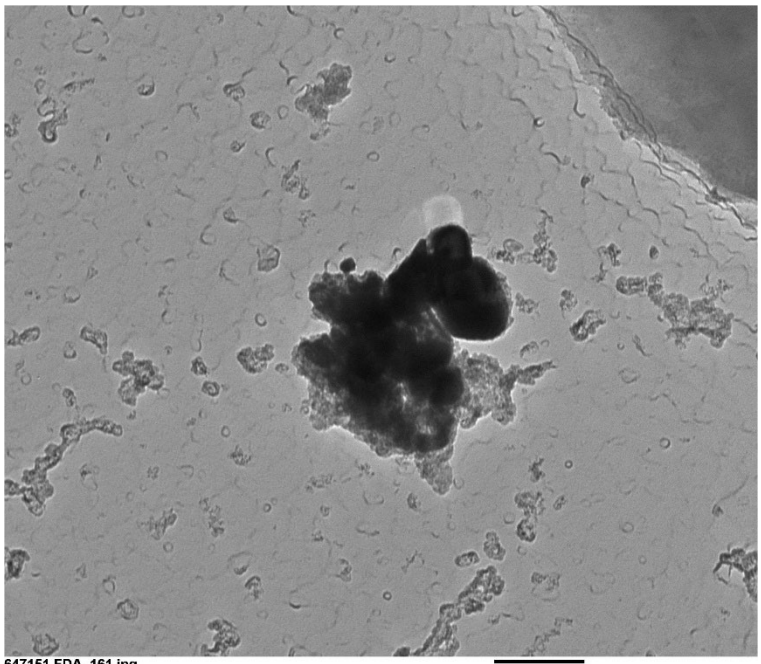
Diffraction Pattern from the Calcium Particle Pictured Above



Chemistry from the Calcium Particle Pictured Above



647151-15, Iron Particle

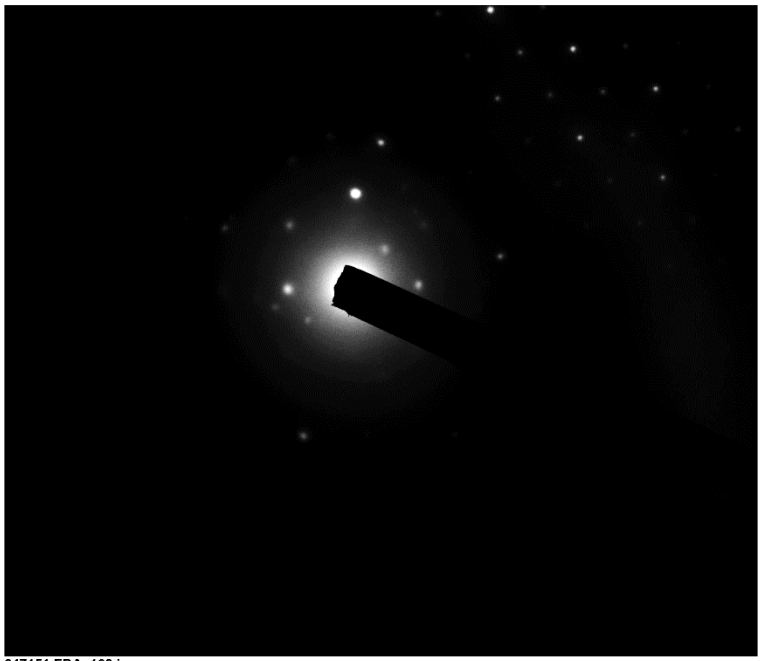


647151 FDA_161.jpg
647151-15
Fe particles

Cal: 0.000626 µm/pix
17:30 2023-07-26
TEM Mode: Imaging
Microscopist: (b) (6)
Camera: NS6, Exposure: 500 (ms) x 3 std. frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

200 nm
HV=80kV
Direct Mag: 15000 x

Diffraction Pattern from the Iron Particle Pictured Above

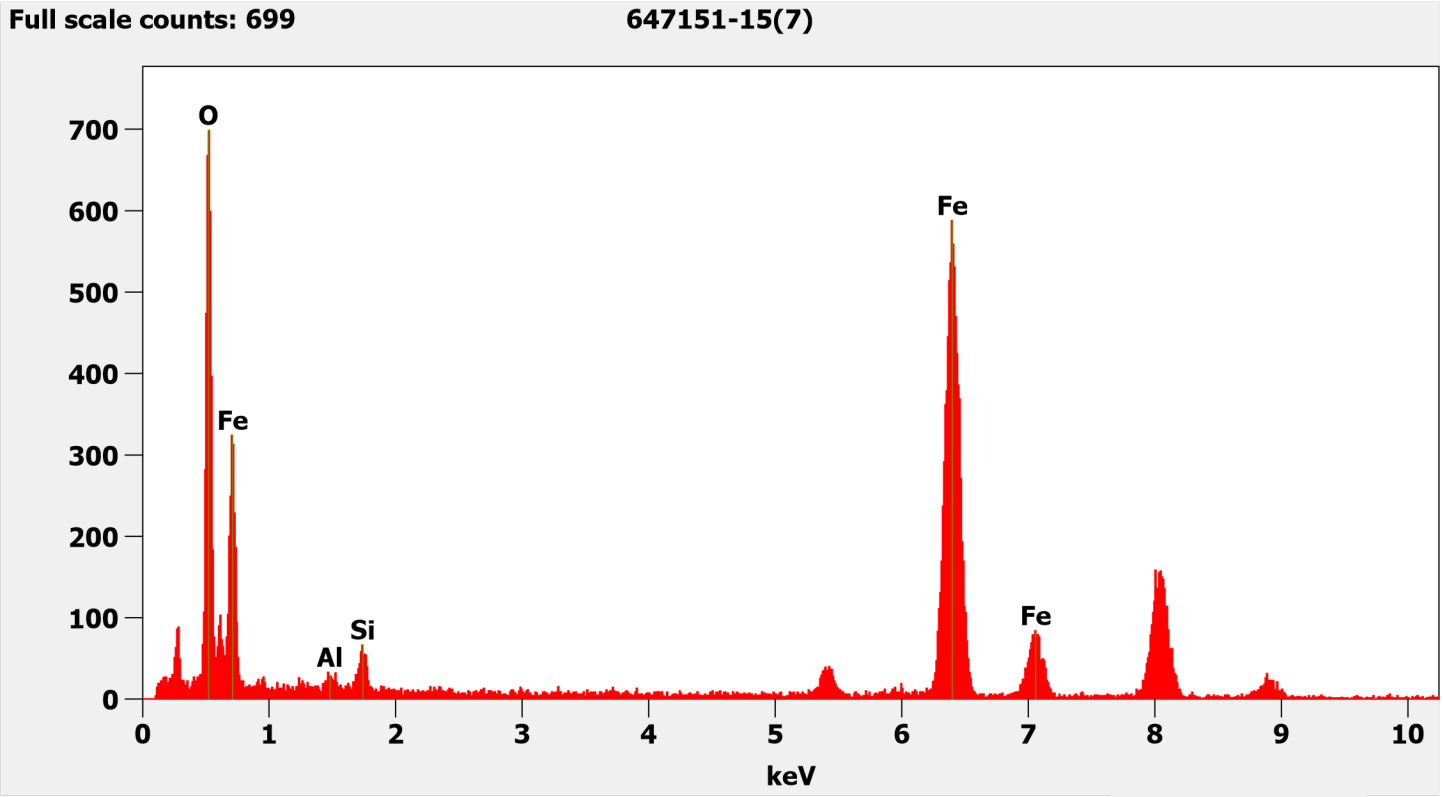


647151 FDA_160.jpg
647151-15
Fe particles

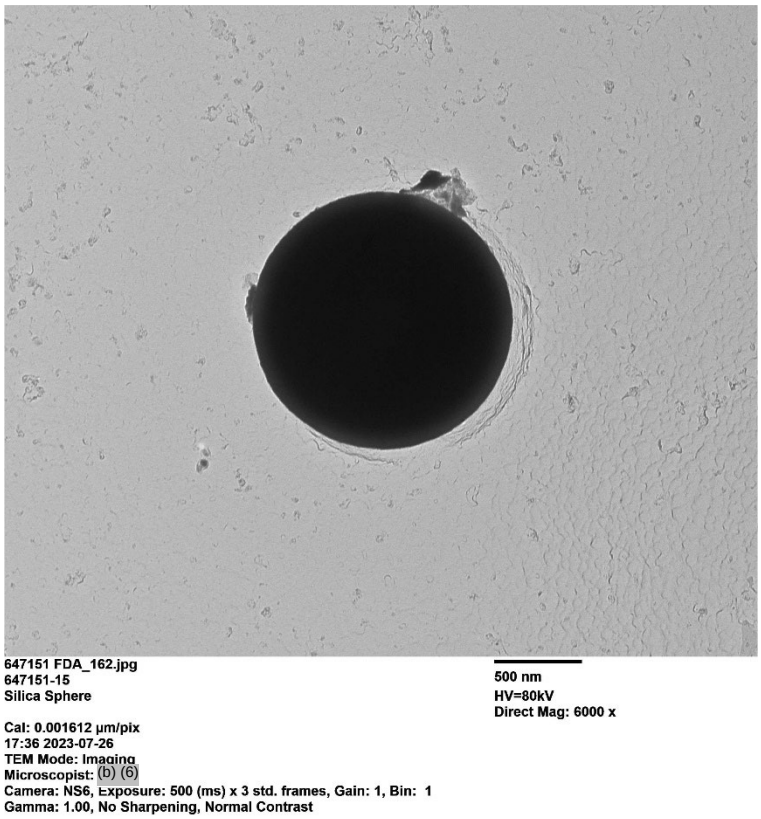
Cal: 0.000955 µm/pix
17:29 2023-07-26
TEM Mode: Diffraction
Microscopist: (b) (6)
Camera: NS6, Exposure: 500 (ms) x 3 std. frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

0.2 Å⁻¹
HV=80kV
Cam Len: 0.2000 m

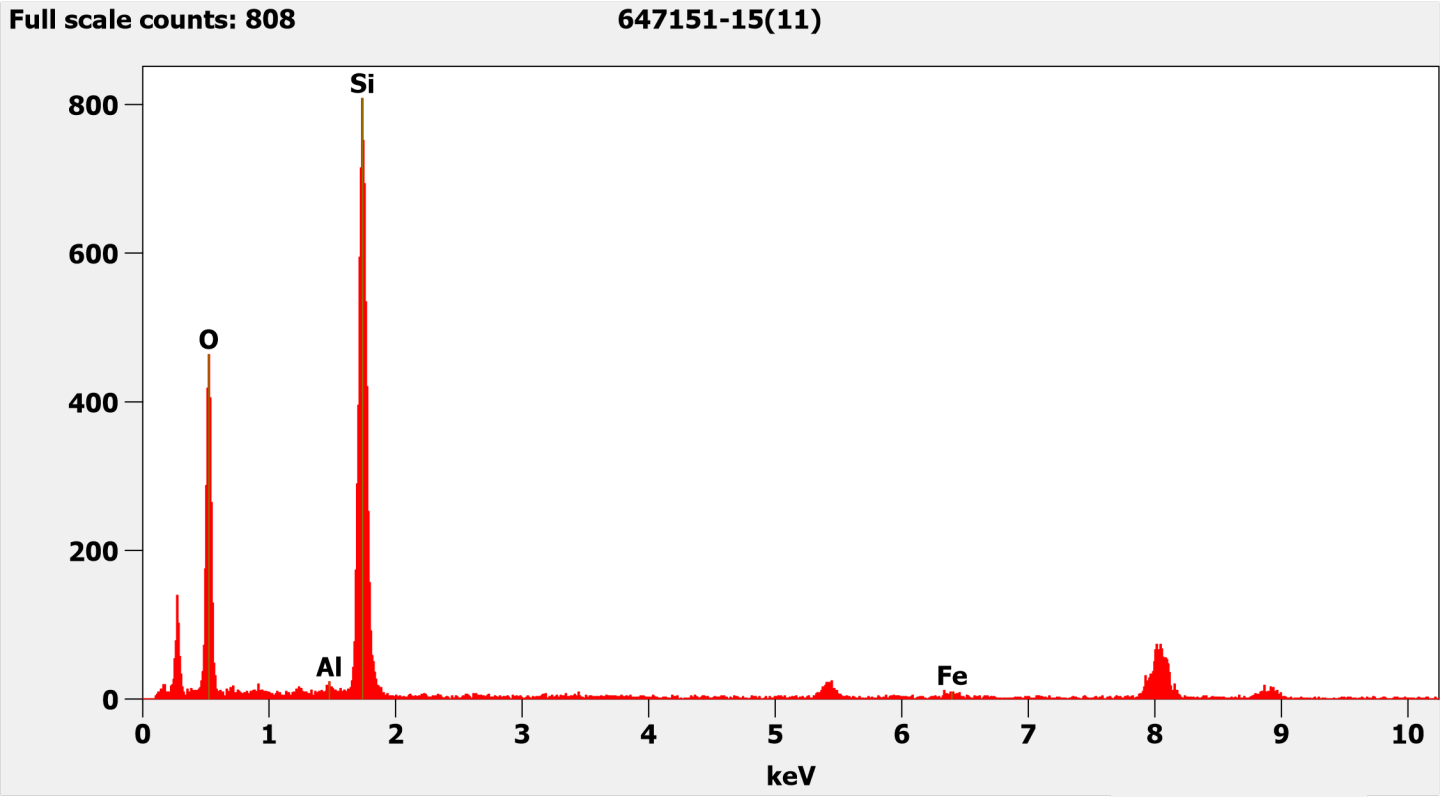
Chemistry from the Iron Particle Pictured Above



647151-15, Silica Sphere

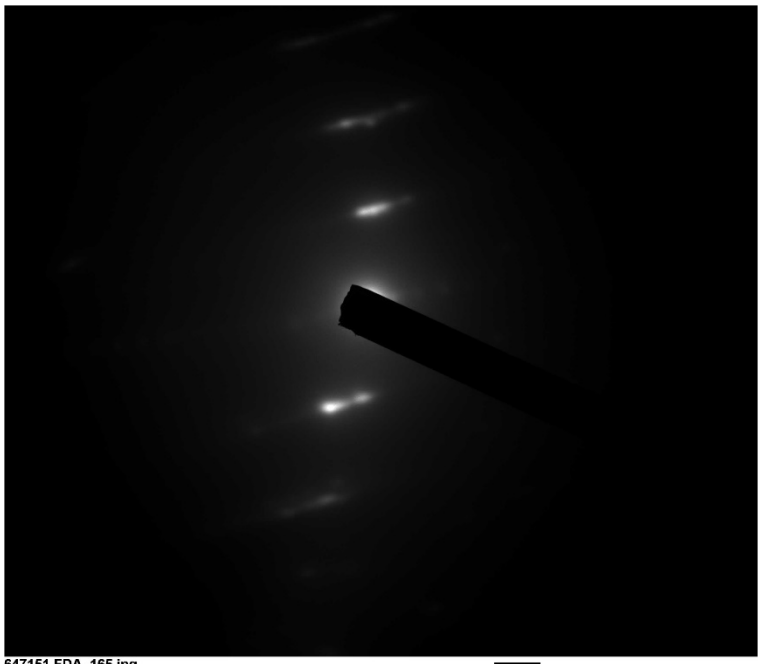


Chemistry from the Silica Sphere Pictured Above

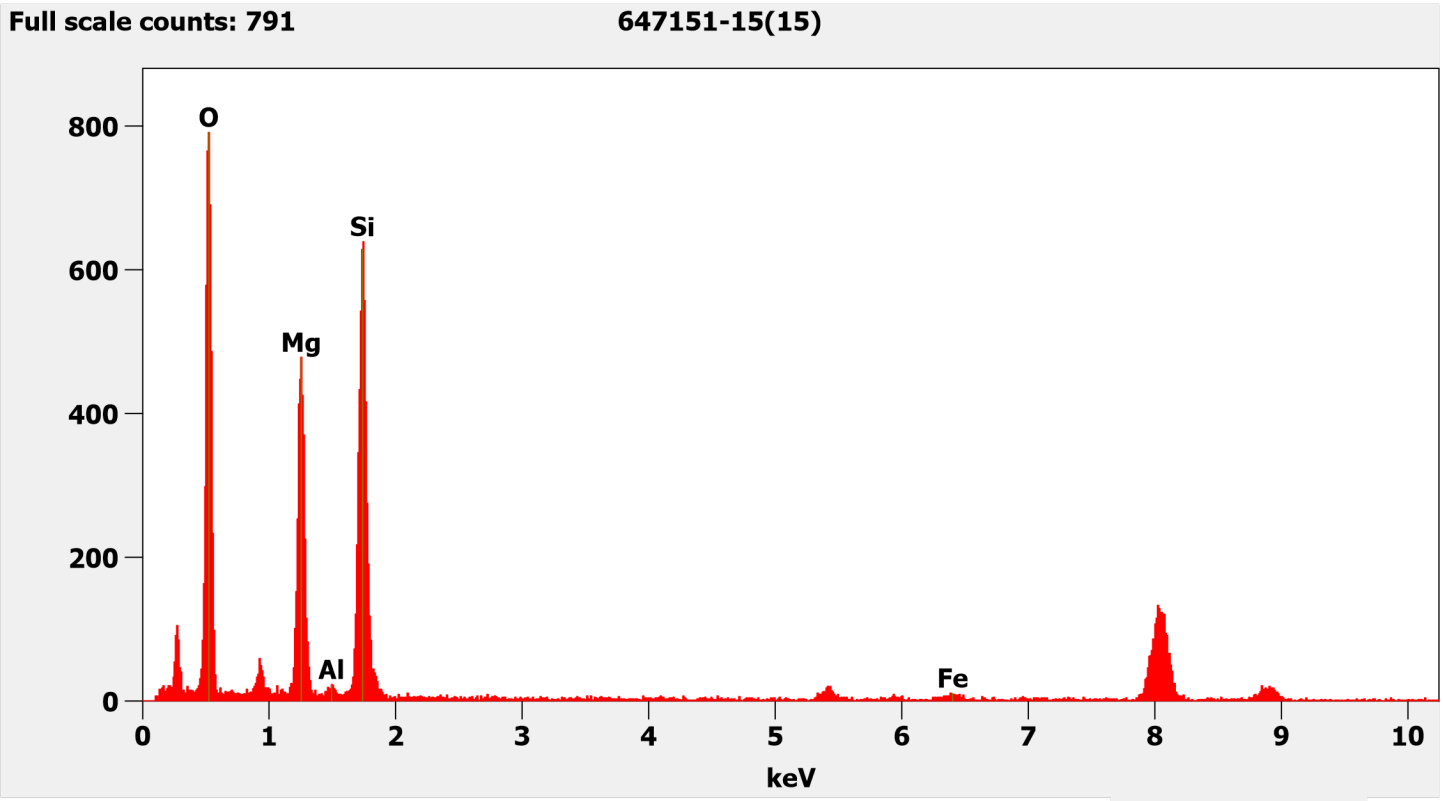


647151-15, Talc Ribbon

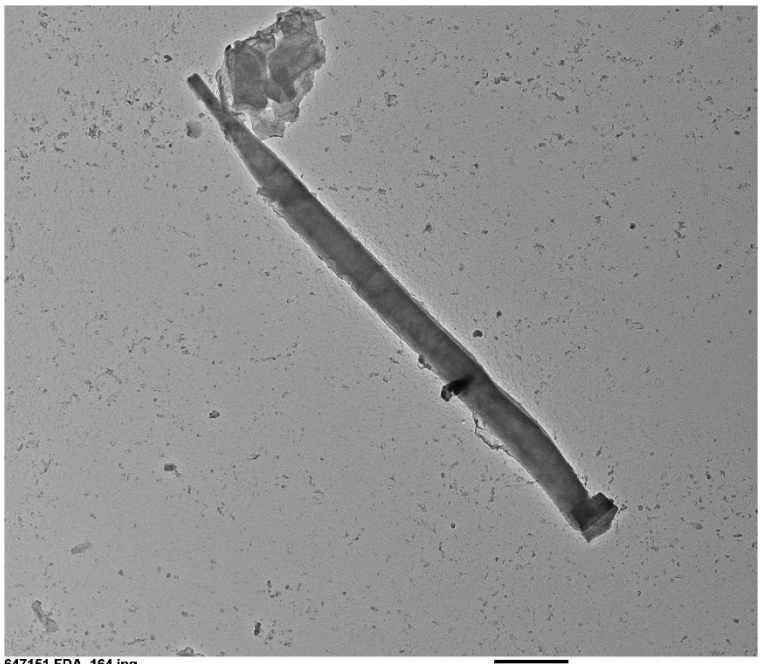
Diffraction Pattern from the Talc Ribbon Pictured Above



Chemistry from the Talc Ribbon Pictured Above



647151-15, Elongated Talc Particle

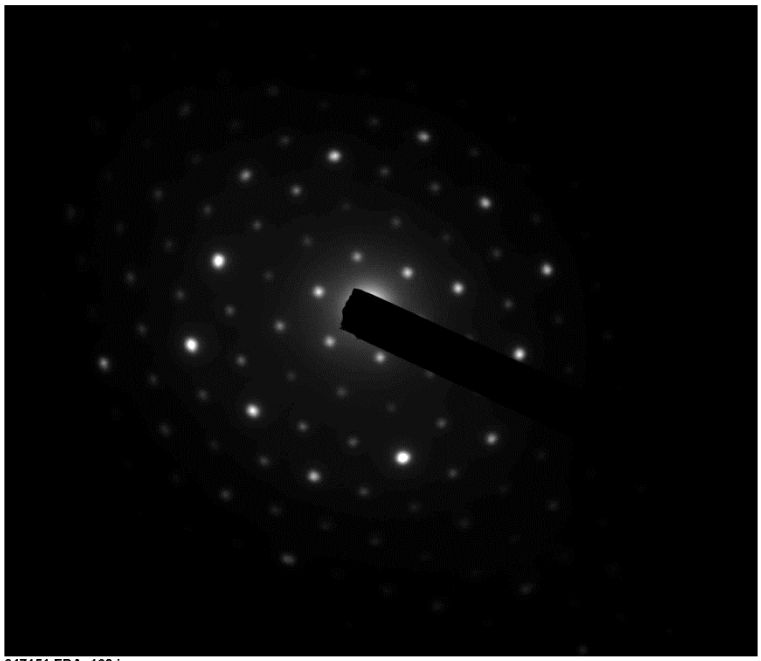


647151 FDA_164.jpg
647151-15
Talc Fiber

Cal: 0.003819 µm/pix
17:54 2023-07-26
TEM Mode: Imaging
Microscopist: (b) (6)
Camera: NS6, Exposure: 500 (ms) x 3 std. frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

1 µm
HV=80kV
Direct Mag: 2500 x

Hexagonal Diffraction Pattern from the Elongated Talc Particle Pictured Above

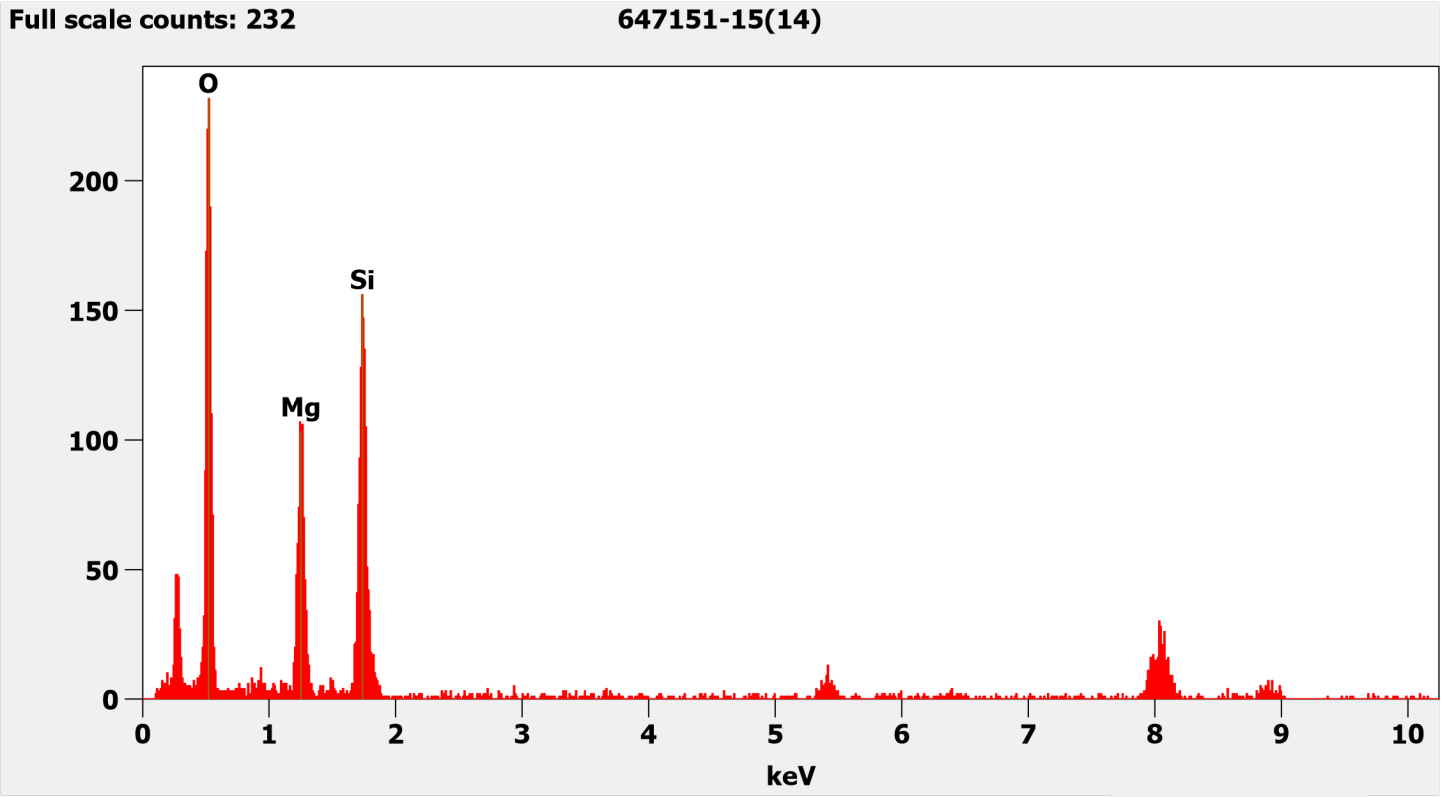


647151 FDA_163.jpg
647151-15
Talc Fiber

Cal: 0.001612 µm/pix
17:53 2023-07-26
TEM Mode: Diffraction
Microscopist: (b) (6)
Camera: NS6, Exposure: 500 (ms) x 3 std. frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

0.2 Å⁻¹
HV=80kV
Cam Len: 0.2000 m

Chemistry from the Elongated Talc Particle Pictured Above



647151-16, 16A, 16B/Client Sample: 04252023-16

PLM

All three aliquots of sample 04252023-16 were analyzed by (b) (6) on July 31, 2023. No asbestos or non-asbestos amphibole variants were observed during analysis. The results were calculated using the equations detailed in the *Calculations* section above.

647151-16	No Asbestos Detected
647151-16A	No Asbestos Detected
647151-16B	No Asbestos Detected

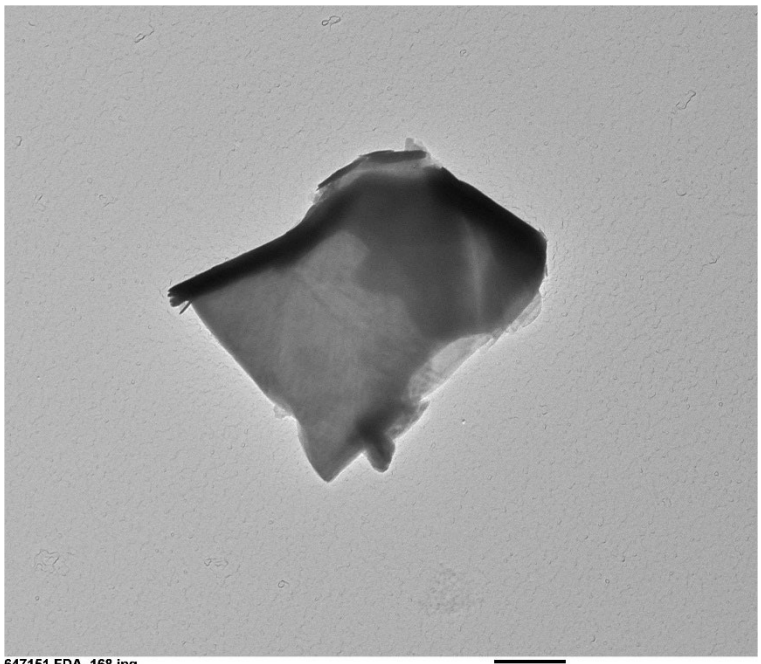
TEM

(b) (6) analyzed aliquot 16 on July 27. 2023 and aliquots 16A and 16B on July 28, 2023. The primary particle observed was talc; mica particles and particles containing magnesium, aluminum, and silicon were also observed along with silica spheres, and talc ribbons/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.

647151-16	No Asbestos Detected
647151-16A	No Asbestos Detected
647151-16B	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.

647151-16, Talc Particle

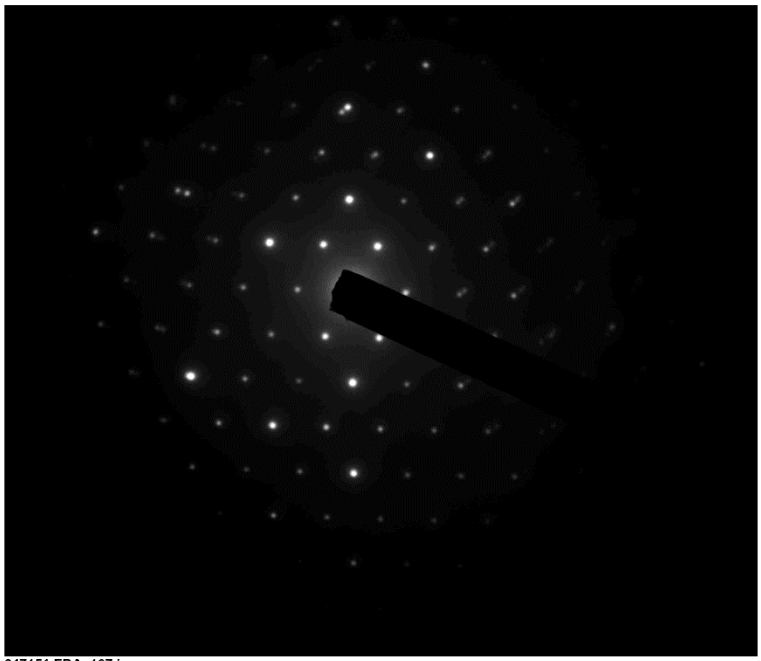


647151 FDA_168.jpg
647151-16
Talc Particle

Cal: 0.002387 µm/pix
10:43 2023-07-27
TEM Mode: Imaging
Microscopist: (b) (6)
Camera: NS6, Exposure: 500 (ms) x 3 std. frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

600 nm
HV=80kV
Direct Mag: 4000 x

Hexagonal Diffraction Pattern from the Talc Particle Pictured Above

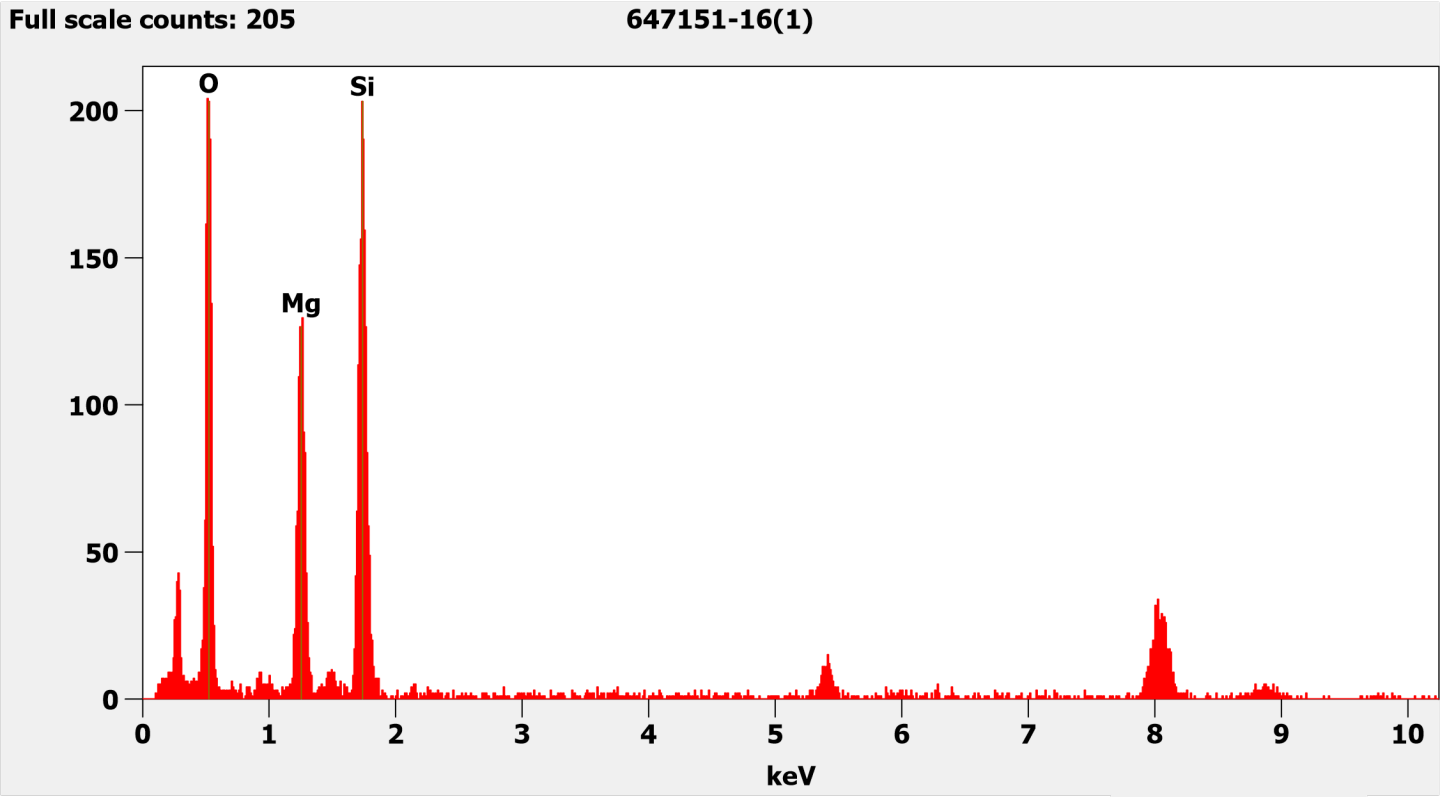


647151 FDA_167.jpg
647151-16
Talc Particle

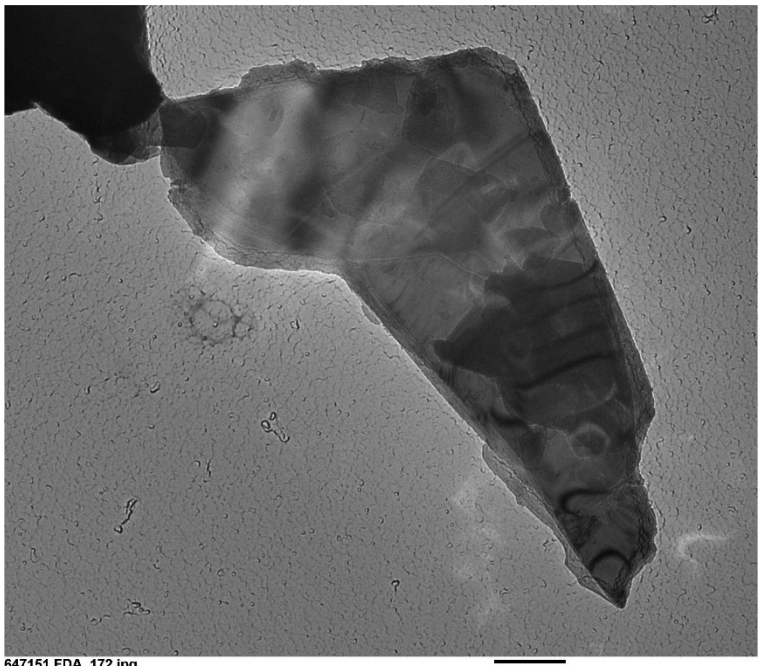
10:42 2023-07-27
TEM Mode: Diffraction
Microscopist (b) (6)
Camera: NS6, Exposure: 500 (ms) x 3 std. frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

0.2 Å⁻¹
HV=80kV
Cam Len: 0.2000 m

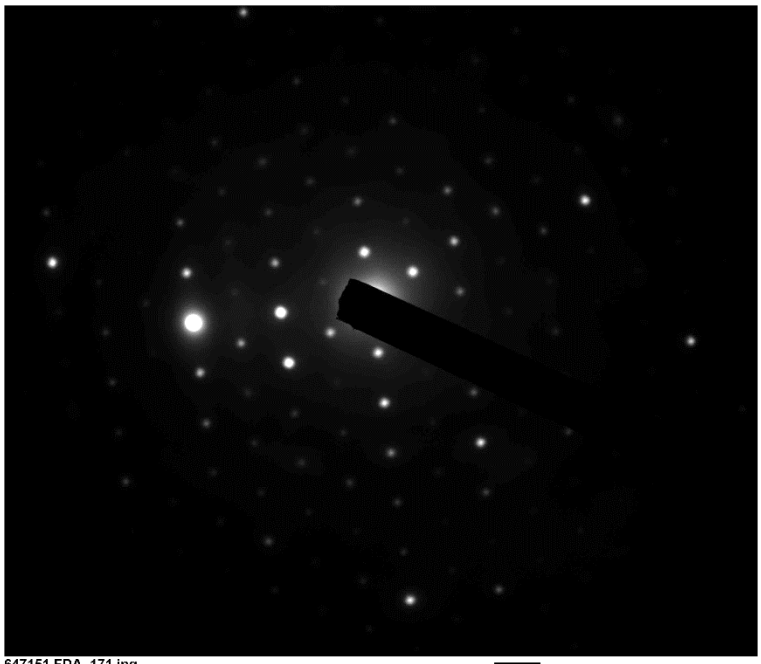
Chemistry from the Talc Particle Pictured Above



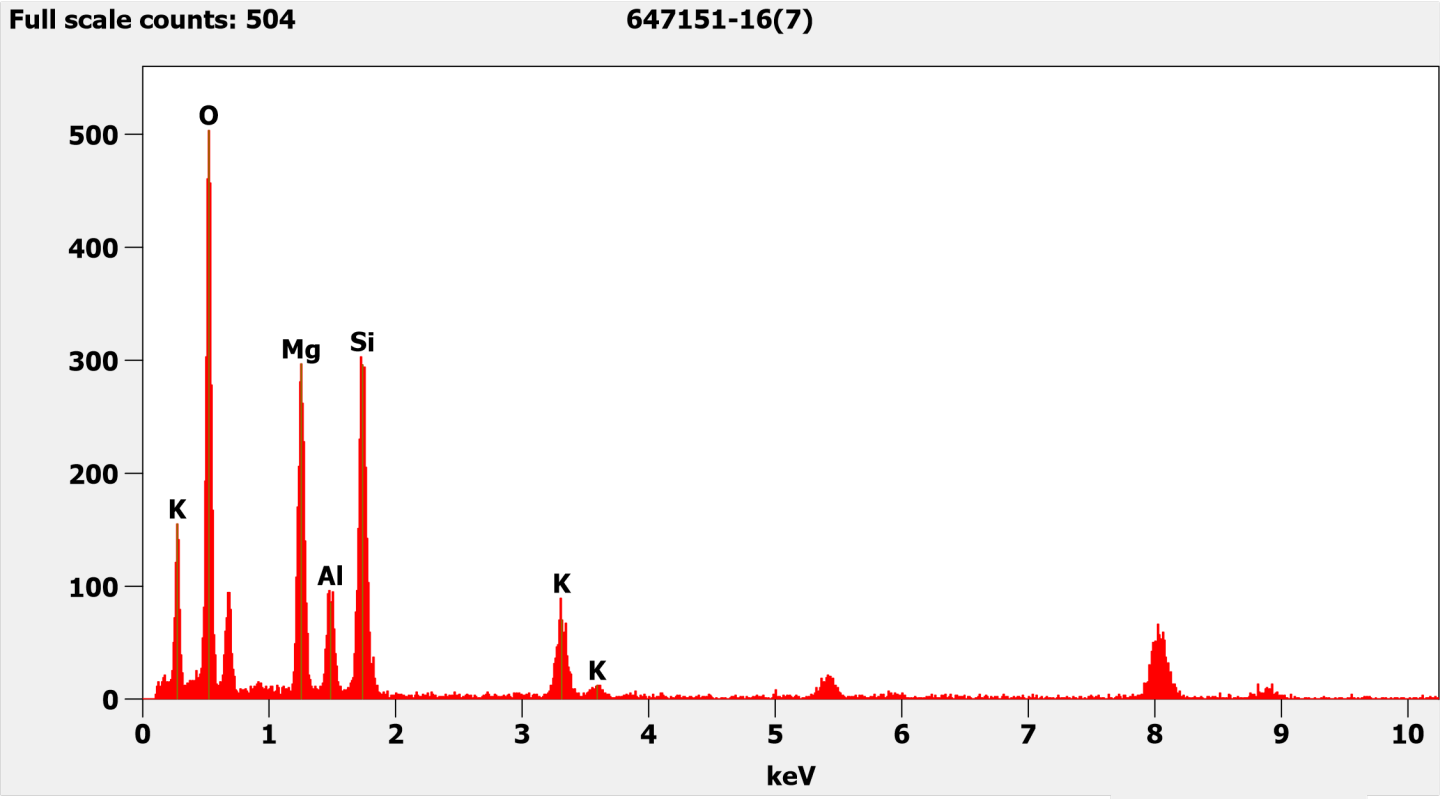
647151-16, Mica Particle



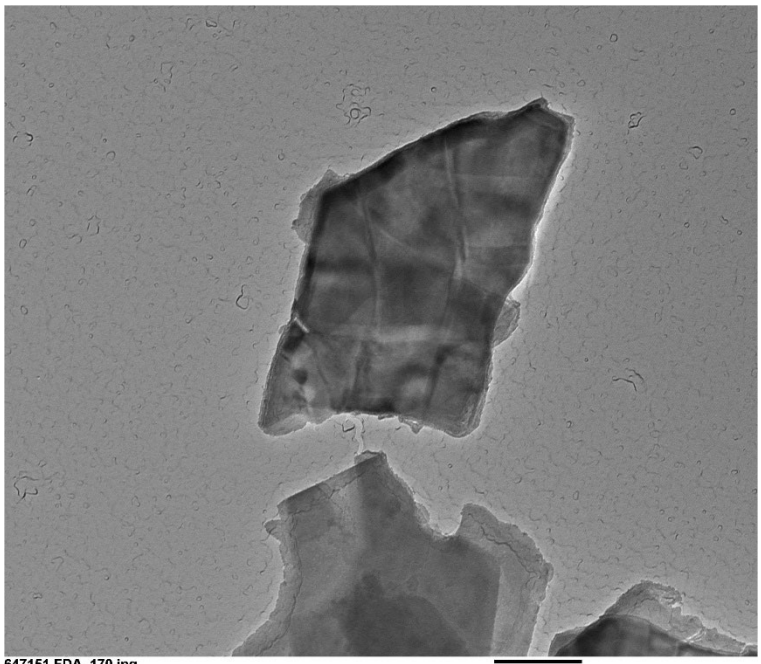
Hexagonal Diffraction Pattern from the Mica Particle Pictured Above



Chemistry from the Mica Particle Pictured Above



647151-16, Particle Containing Magnesium, Aluminum, and Silicon

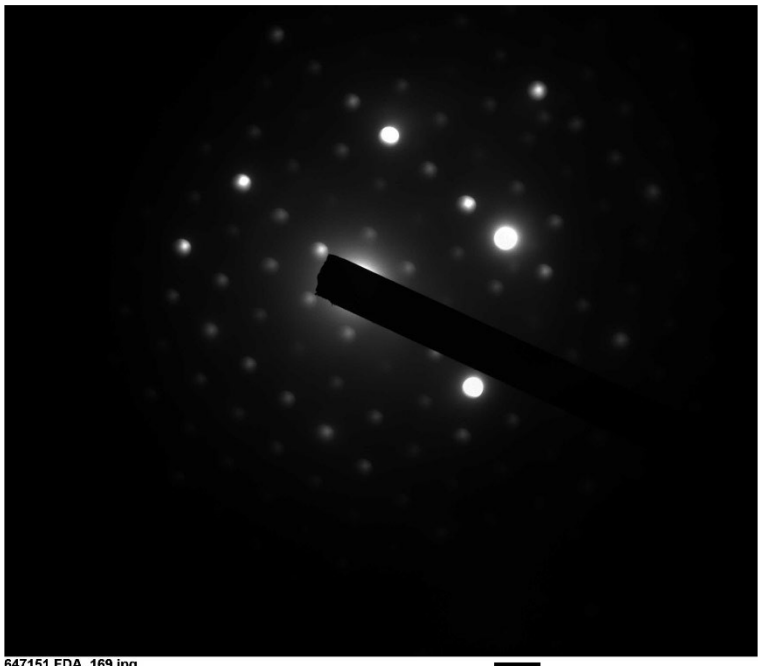


647151 FDA_170.jpg
647151-16
Mg,Al,Si Particle

Cal: 0.001612 µm/pix
10:47 2023-07-27
TEM Mode: Imaging
Microscopist: (b) (6)
Camera: NS6, Exposure: 500 (ms) x 3 std. frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

500 nm
HV=80kV
Direct Mag: 6000 x

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

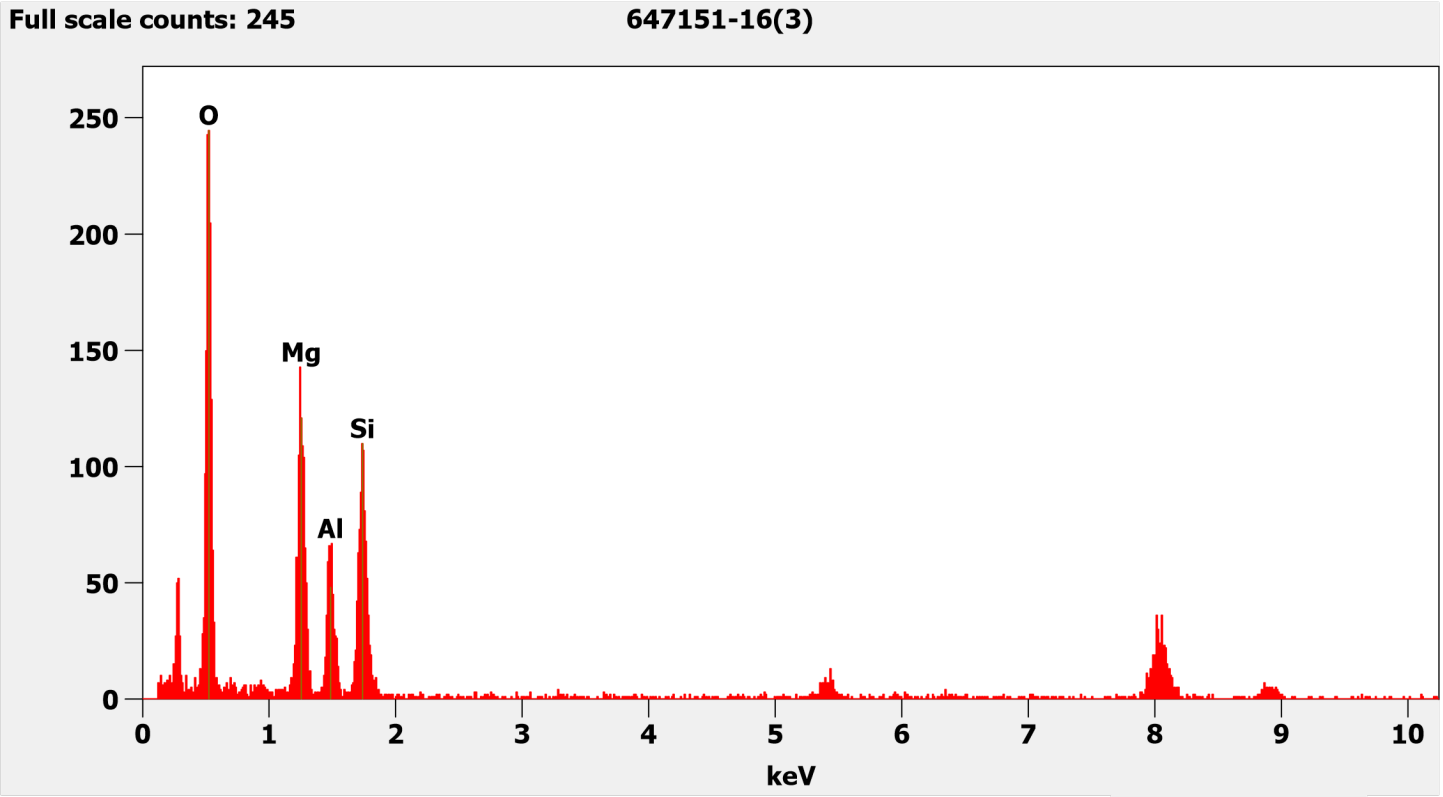


647151 FDA_169.jpg
647151-16
Mg,Al,Si Particle

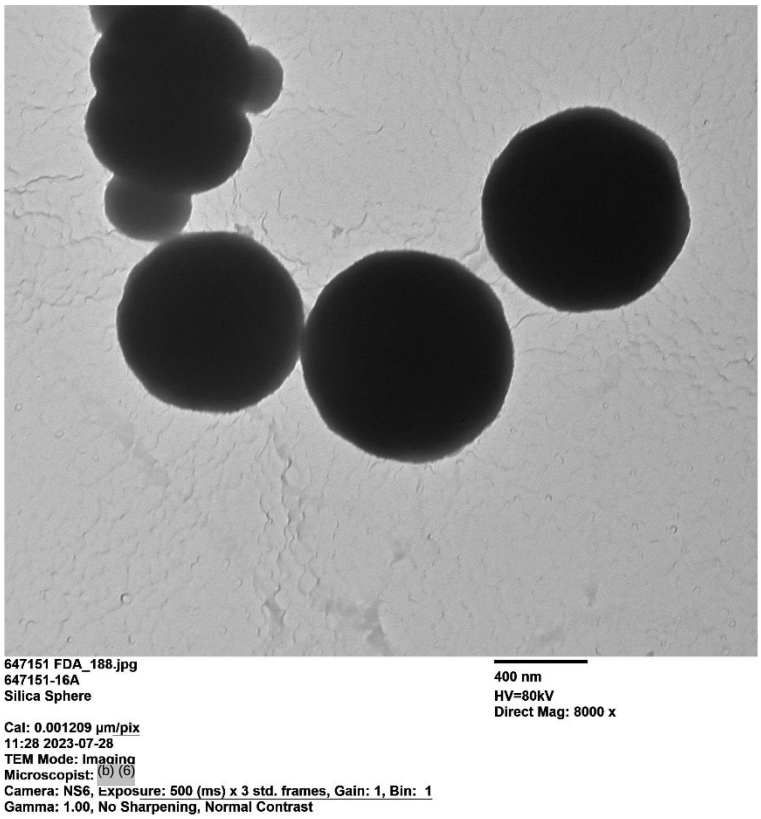
Cal: 0.002387 µm/pix
10:46 2023-07-27
TEM Mode: Diffraction
Microscopist: (b) (6)
Camera: NS6, Exposure: 500 (ms) x 3 std. frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

0.2 Å⁻¹
HV=80kV
Cam Len: 0.2000 m

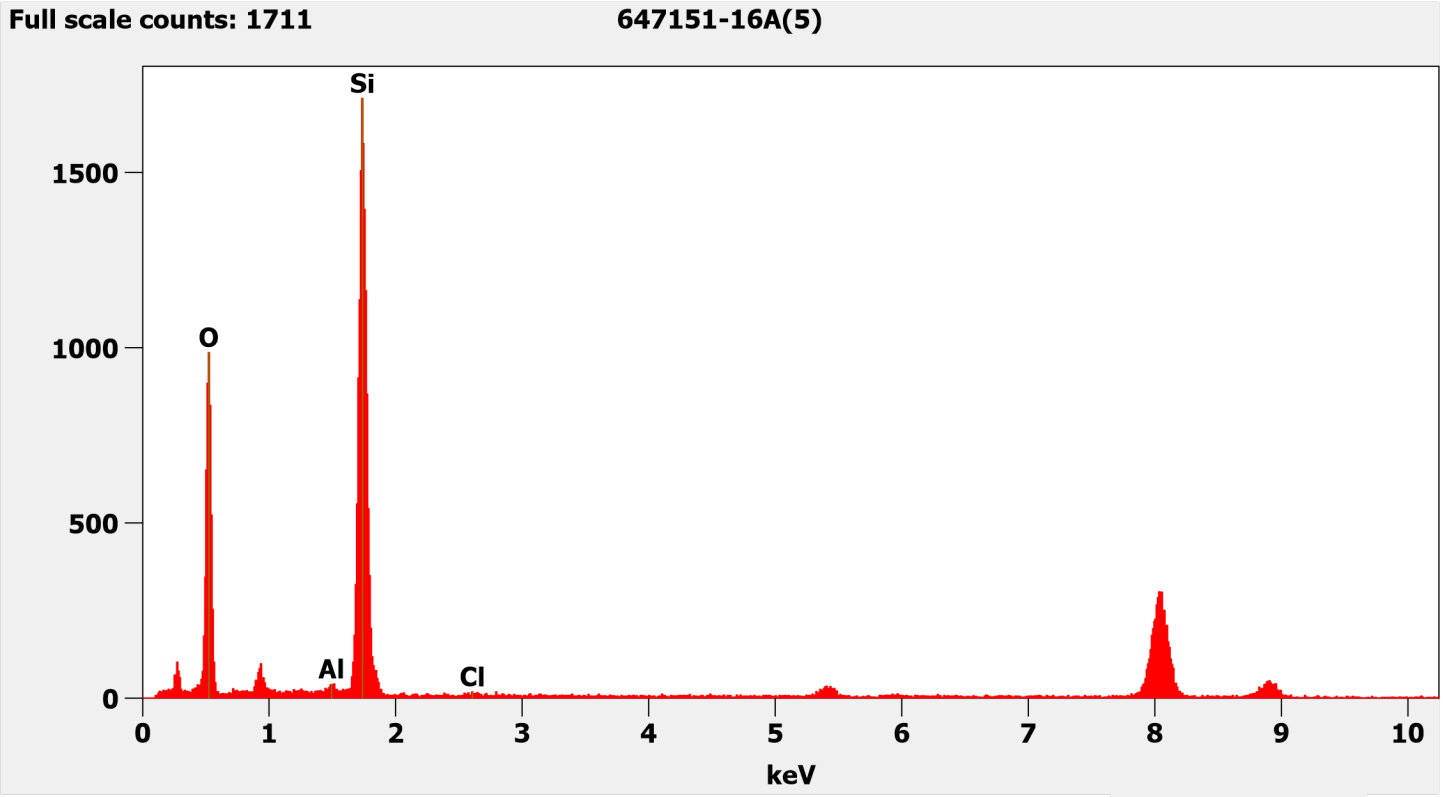
Chemistry from the Particle Containing Magnesium, Aluminum, and Silicon Pictured Above



647151-16A, Silica Spheres

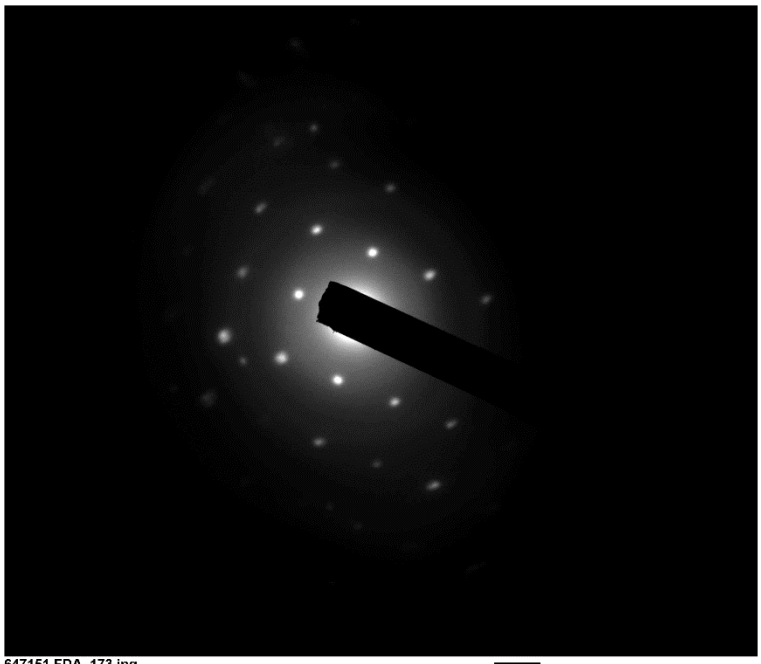


Chemistry from the Silica Spheres Pictured Above

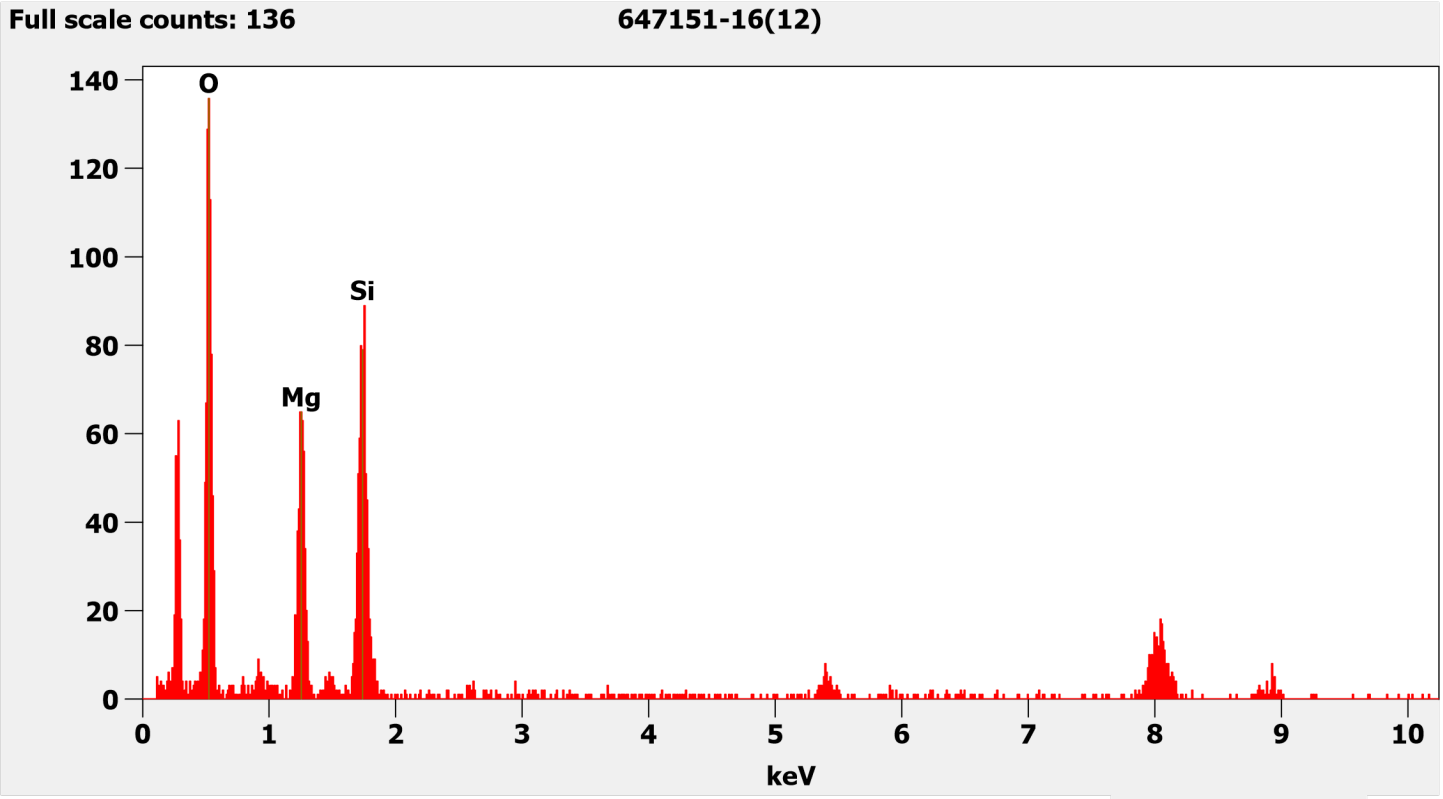


647151-16, Talc Ribbon

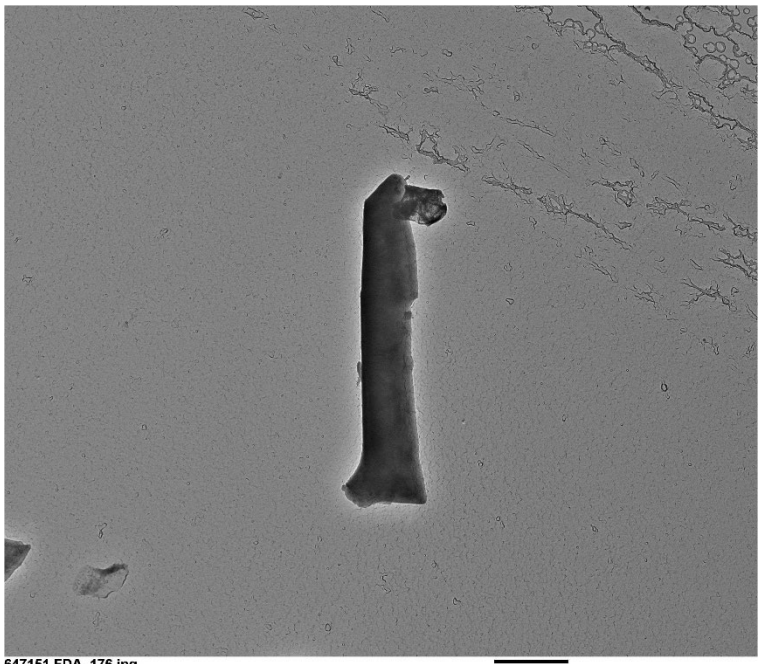
Diffraction Pattern from the Talc Ribbon Pictured Above



Chemistry from the Talc Ribbon Pictured Above



647151-16, Elongated Talc Particle

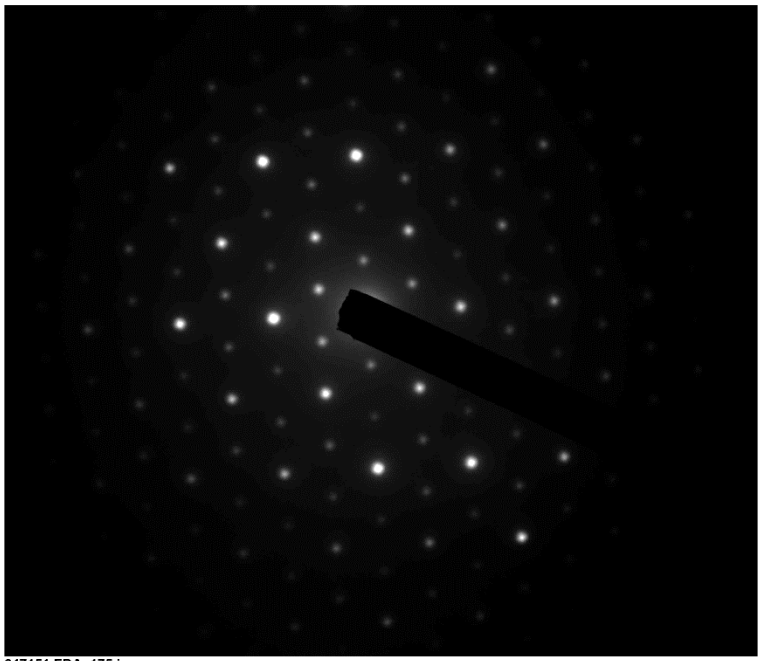


647151 FDA_176.jpg
647151-16
Talc Fiber

Cal: 0.003819 µm/pix
11:34 2023-07-27
TEM Mode: Imaging
Microscopist: (b) (6)
Camera: NS6, Exposure: 500 (ms) x 3 std. frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

1 µm
HV=80kV
Direct Mag: 2500 x

Hexagonal Diffraction Pattern from the Elongated Talc Particle Pictured Above

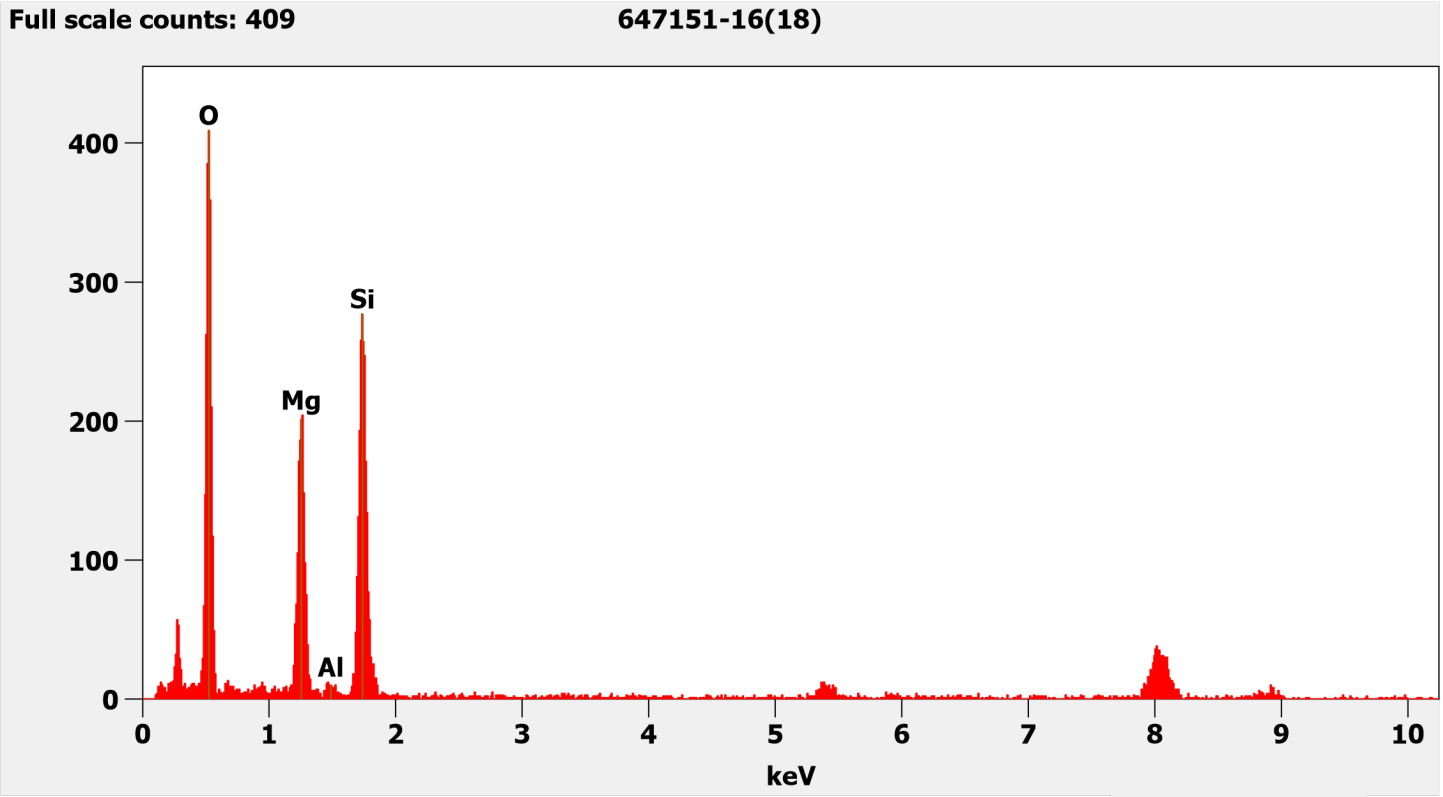


647151 FDA_175.jpg
647151-16
Talc Fiber

Cal: 0.002387 µm/pix
11:34 2023-07-27
TEM Mode: Diffraction
Microscopist: (b) (6)
Camera: NS6, Exposure: 500 (ms) x 3 std. frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

0.2 $Å^{-1}$
HV=80kV
Cam Len: 0.2000 m

Chemistry from the Elongated Talc Particle Pictured Above



647151-17, 17A, 17B/Client Sample: 04252023-13

PLM

All three aliquots of sample 04252023-17 were analyzed by (b) (6) on July 31, 2023. No asbestos or non-asbestos amphibole variants were observed during analysis. The results were calculated using the equations detailed in the *Calculations* section above.

647151-17	No Asbestos Detected
647151-17A	No Asbestos Detected
647151-17B	No Asbestos Detected

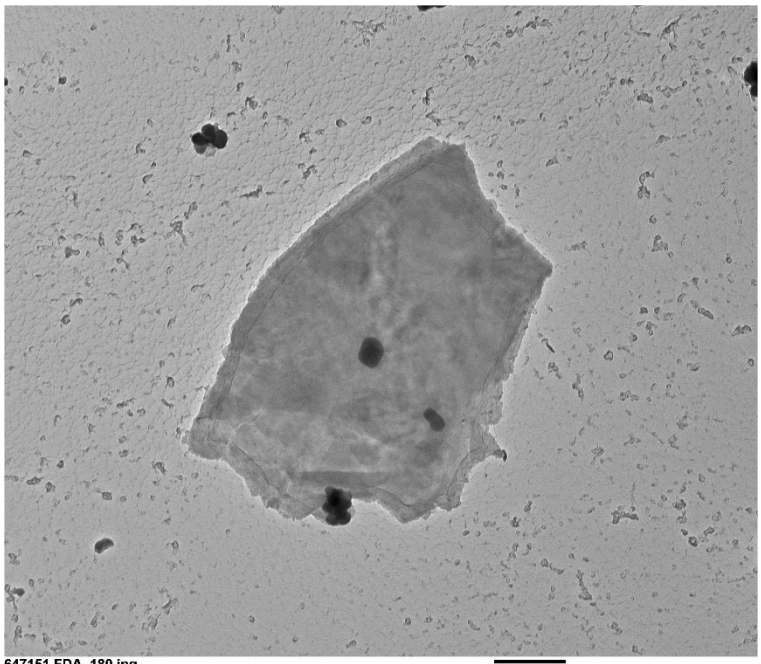
TEM

(b) (6) analyzed aliquots 17 and 17A on July 27. 2023, and aliquot 17B on July 28, 2023. The primary particles observed were talc and titanium; mica particles were also observed along with talc ribbons/fibers and 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.

647151-17	No Asbestos Detected
647151-17A	No Asbestos Detected
647151-17B	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.

647151-17, Talc Particle

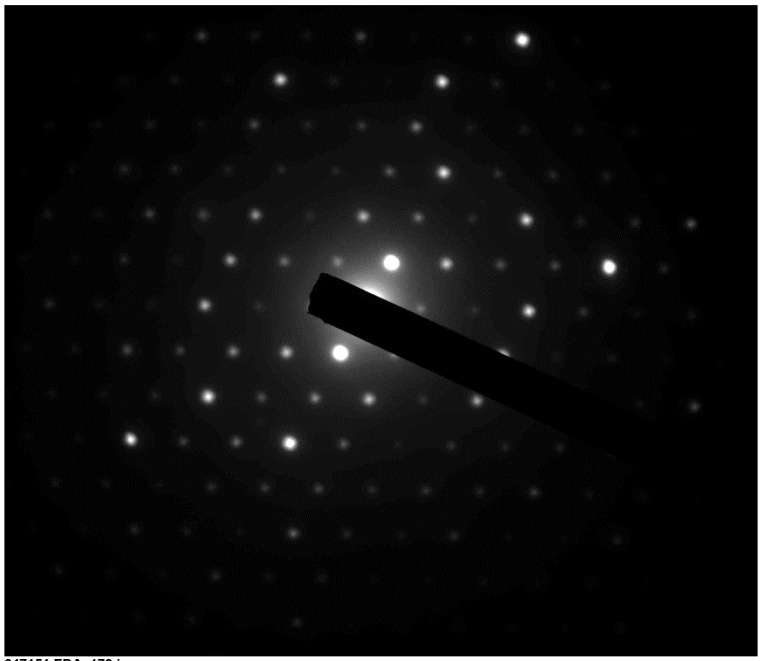


647151 FDA_180.jpg
647151-17
Talc particle

Cal: 0.002387 µm/pix
11:58 2023-07-27
TEM Mode: Imaging
Microscopist: (b) (6)
Camera: NS6, Exposure: 500 (ms) x 3 std. frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

600 nm
HV=80kV
Direct Mag: 4000 x

Hexagonal Diffraction Pattern from the Talc Particle Pictured Above

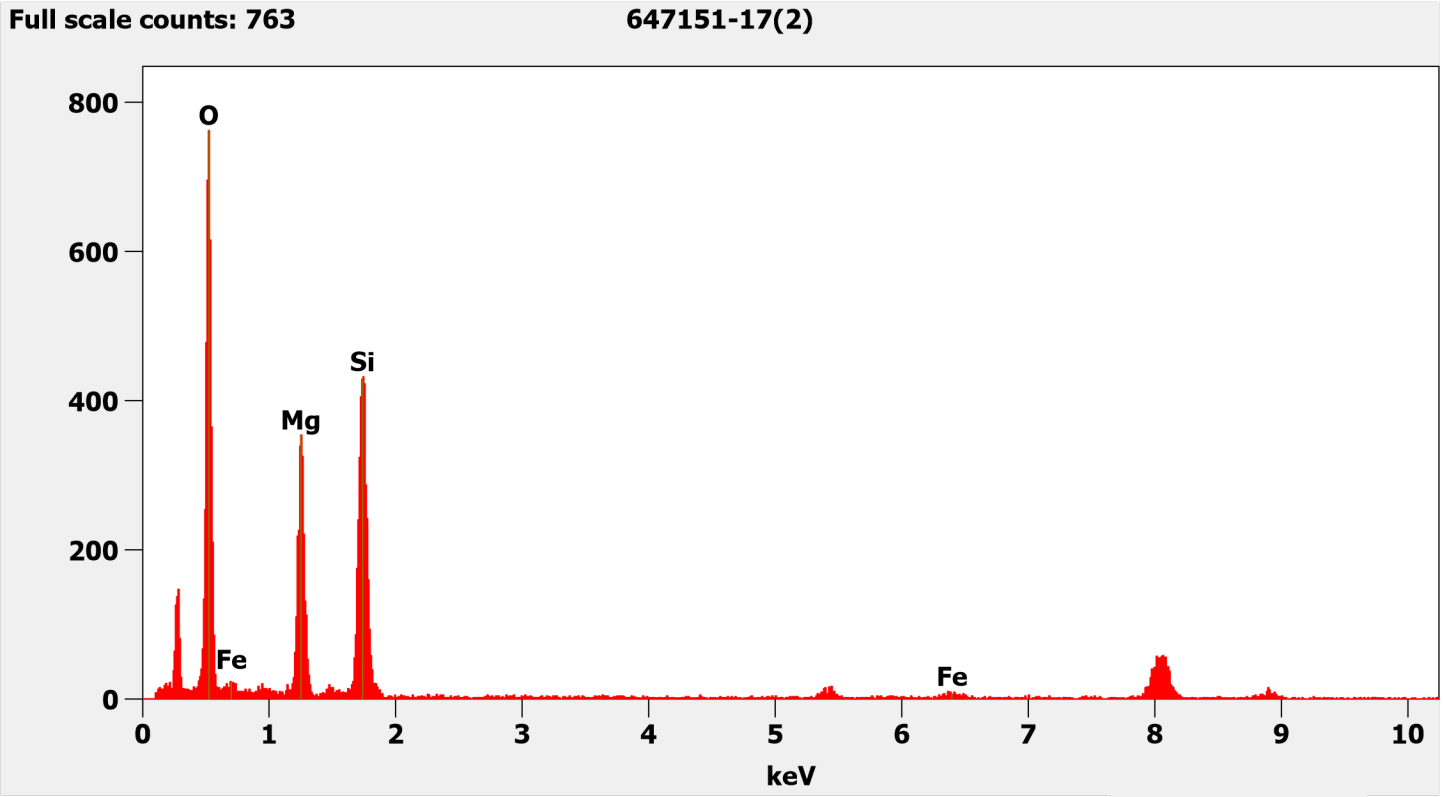


647151 FDA_179.jpg
647151-17
Talc particle

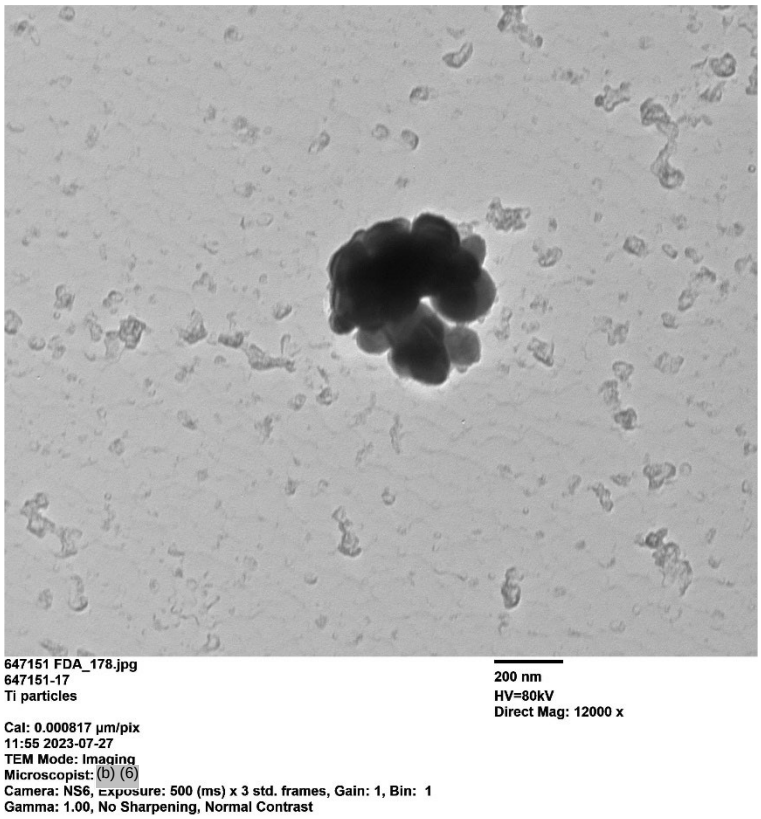
Cal: 0.000817 µm/pix
11:57 2023-07-27
TEM Mode: Diffraction
Microscopist (b) (6)
Camera: NS6, Exposure: 500 (ms) x 3 std. frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

0.2 Å⁻¹
HV=80kV
Cam Len: 0.2000 m

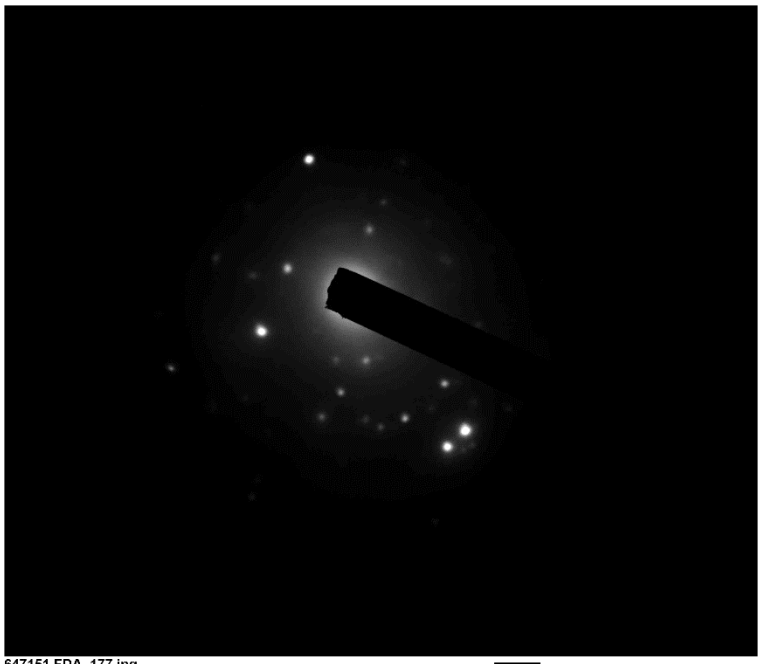
Chemistry from the Talc Particle Pictured Above



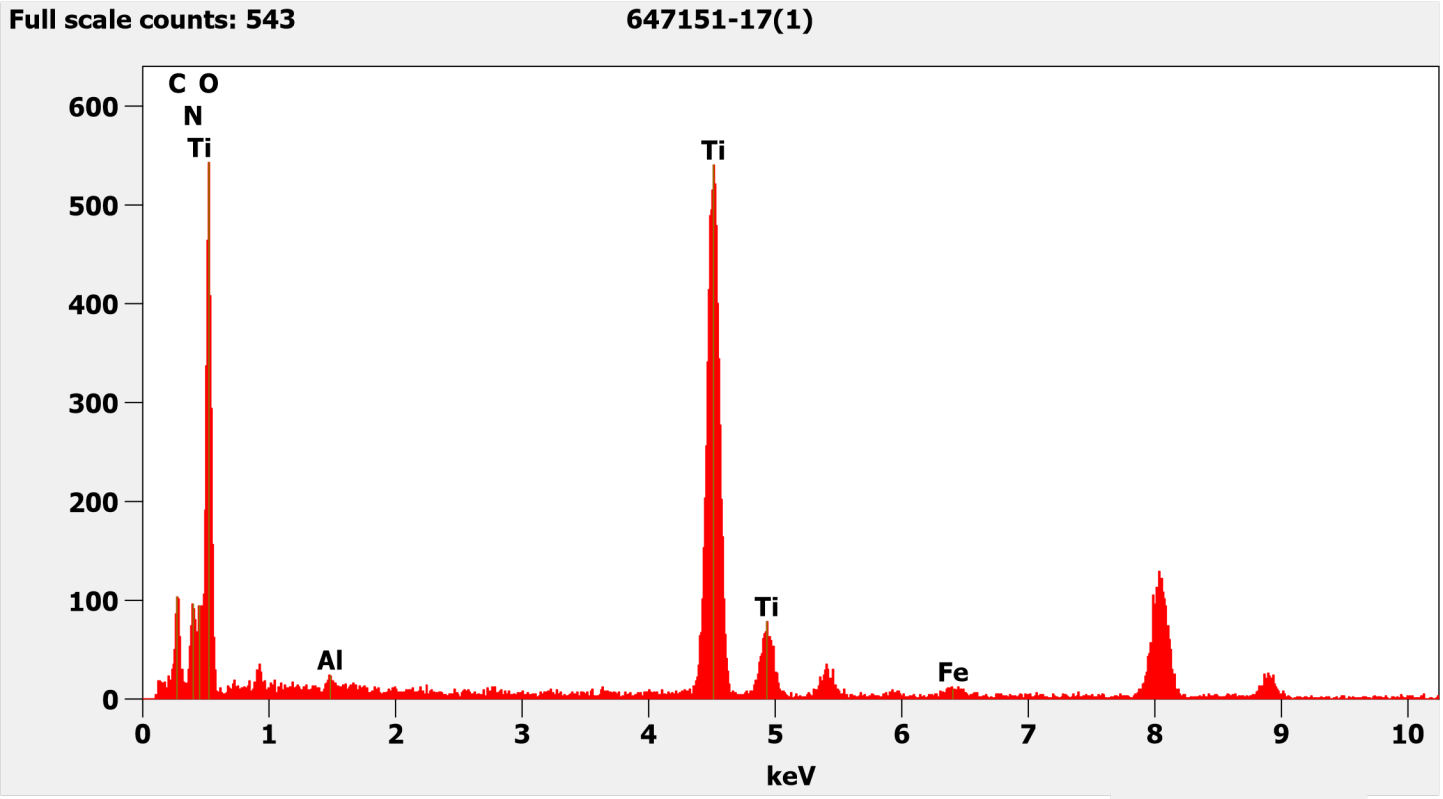
647151-17, Titanium Particles



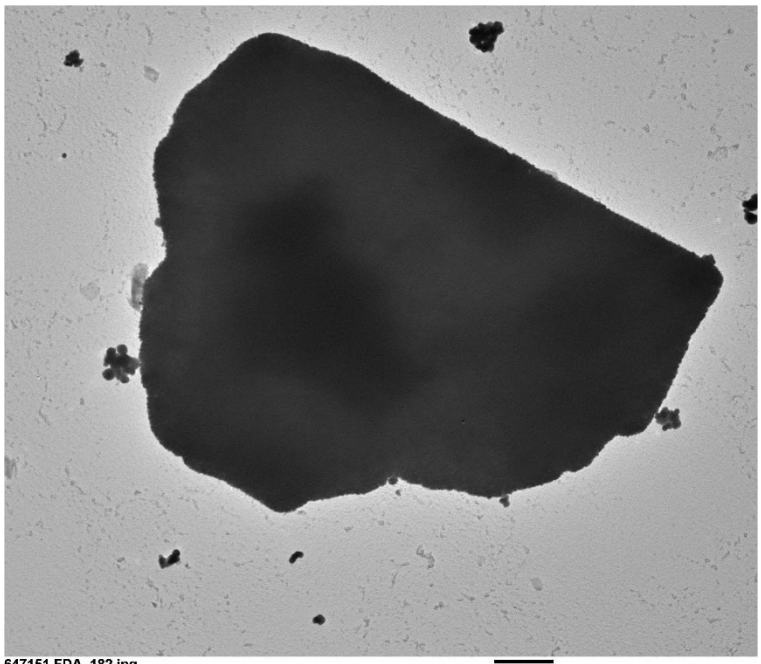
Diffraction Pattern from the Titanium Particles Pictured Above



Chemistry from the Titanium Particles Pictured Above



647151-17, Mica Particle with Titanium

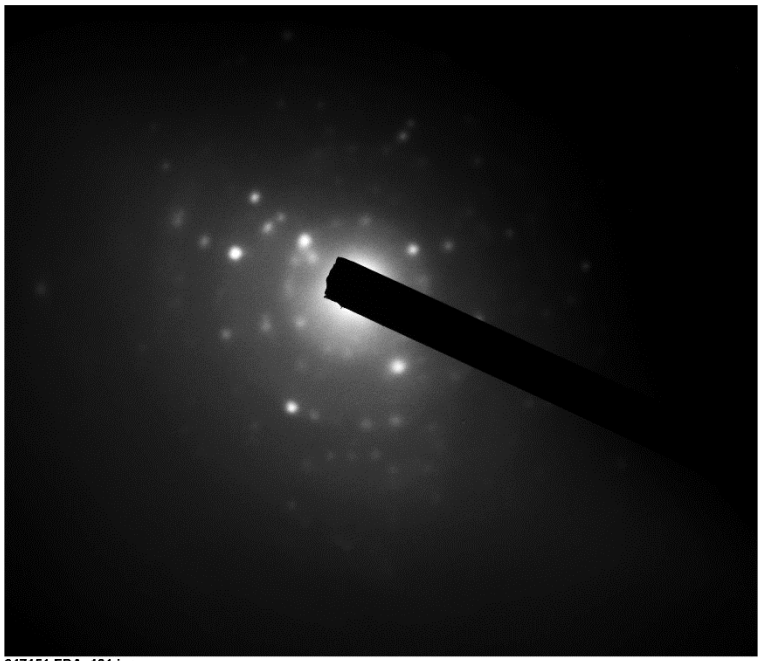


647151 FDA_182.jpg
647151-17
Mica w/Ti

Cal: 0.004774 µm/pix
12:01 2023-07-27
TEM Mode: Imaging
Microscopist: (b) (6)
Camera: NS6, Exposure: 500 (ms) x 3 std. frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

1 µm
HV=80kV
Direct Mag: 2000 x

Diffraction Pattern from the Mica Particle with Titanium Pictured Above

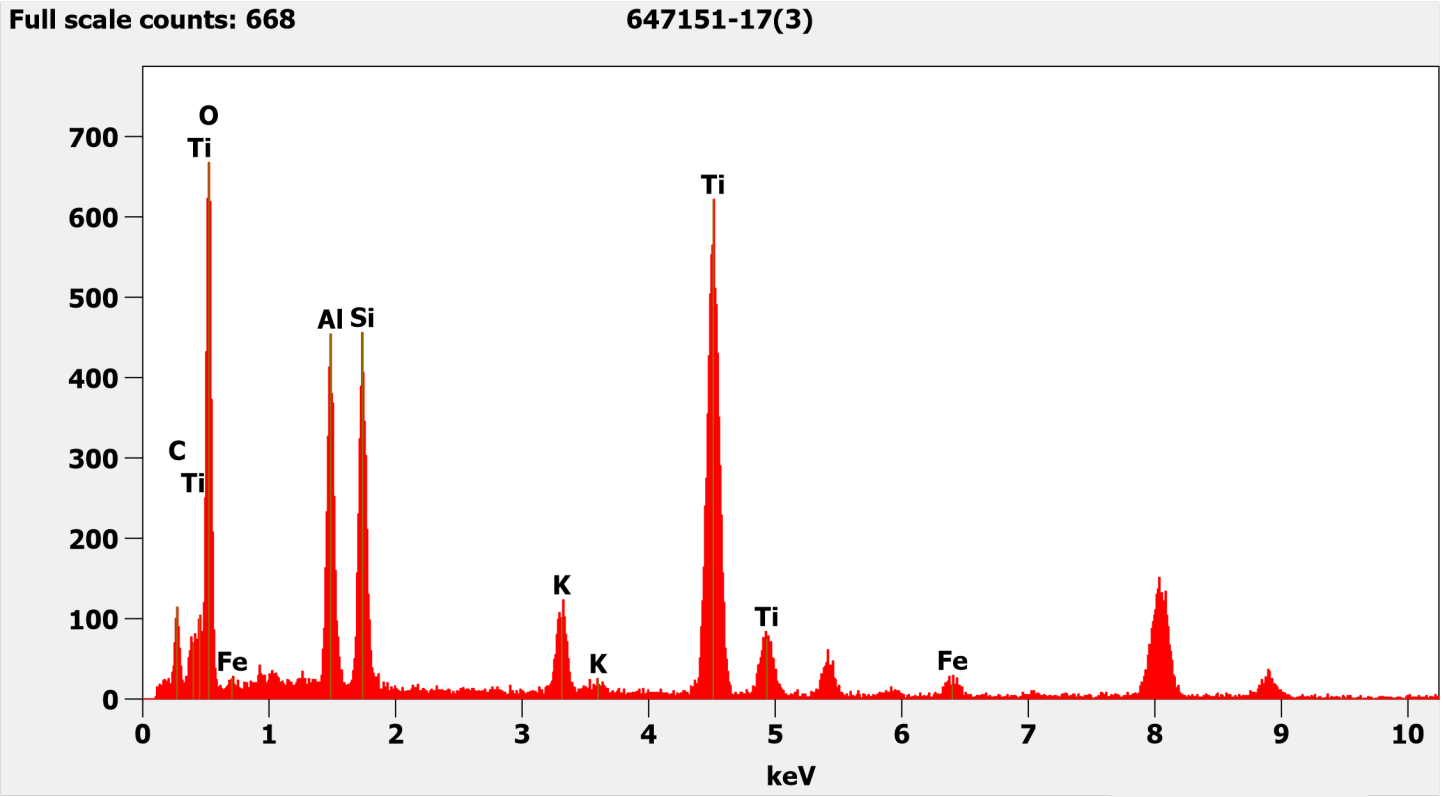


647151 FDA_181.jpg
647151-17
Mica w/Ti

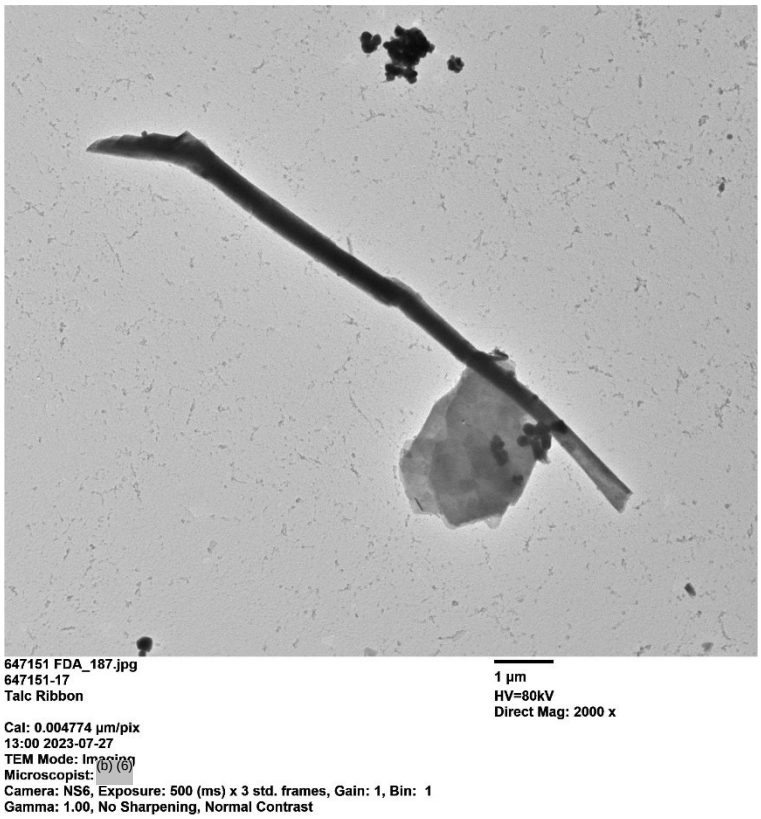
Cal: 0.002387 µm/pix
12:01 2023-07-27
TEM Mode: Diffraction
Microscopist: (b) (6)
Camera: NS6, Exposure: 500 (ms) x 3 std. frames, Gain: 1, Bin: 1
Gamma: 1.00, No Sharpening, Normal Contrast

0.2 Å⁻¹
HV=80kV
Cam Len: 0.2000 m

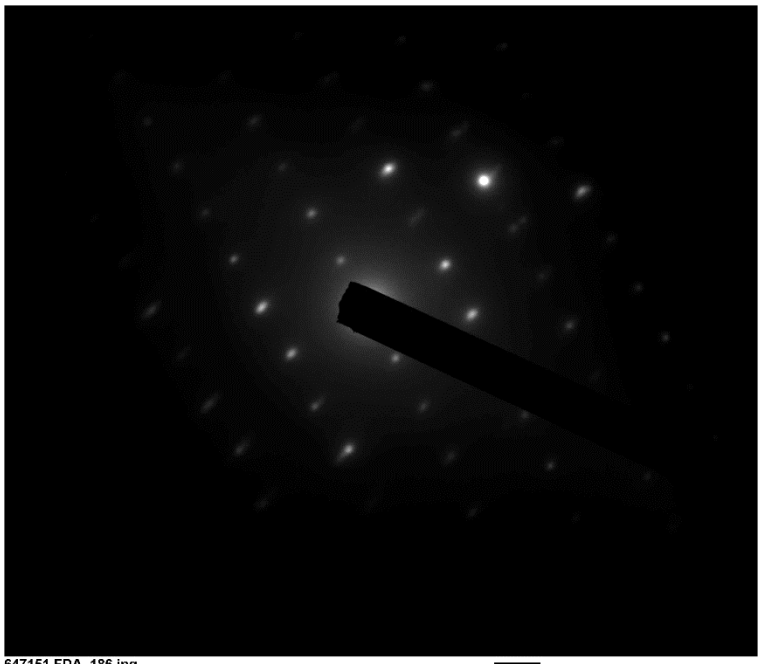
Chemistry from the Mica Particle with Titanium Pictured Above



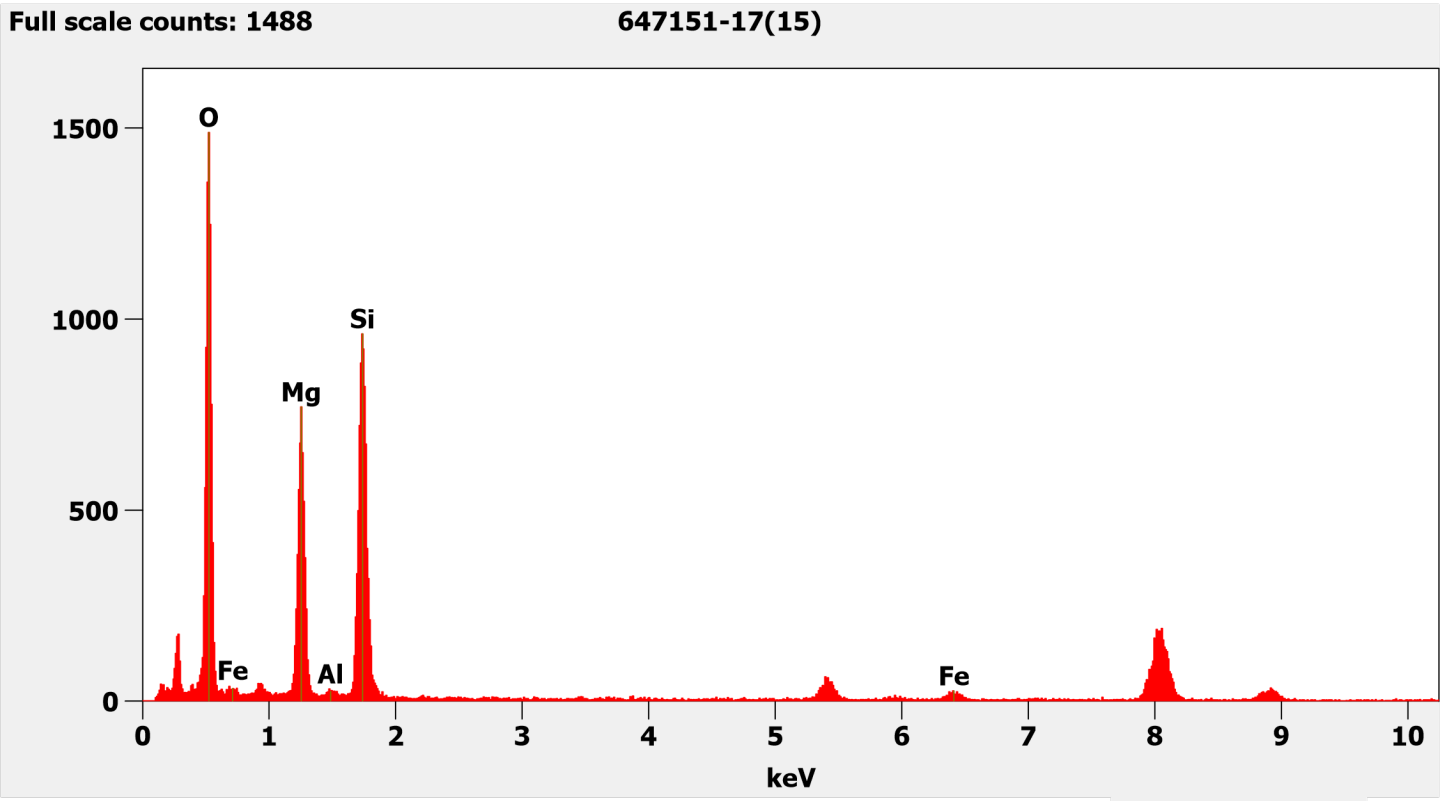
647151-17, Talc Ribbon



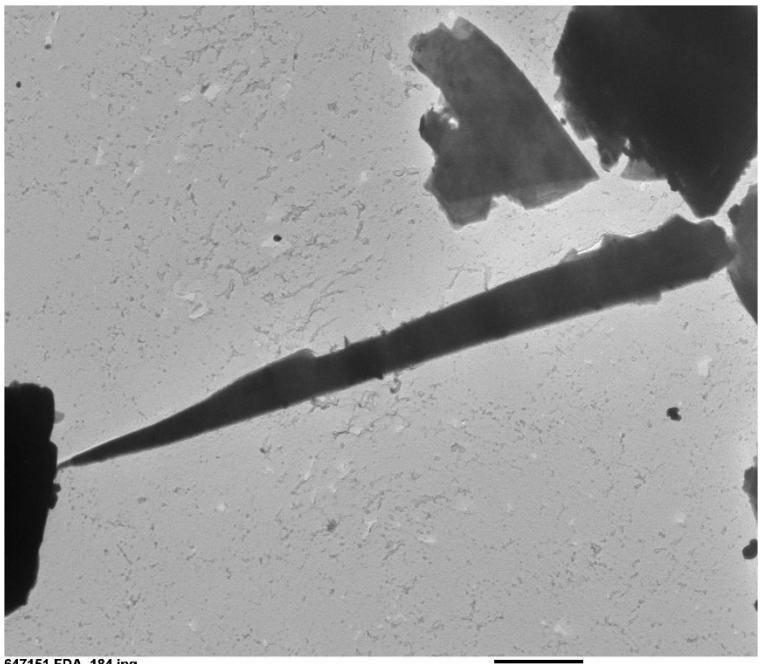
Diffraction Pattern from the Talc Ribbon Particle Pictured Above



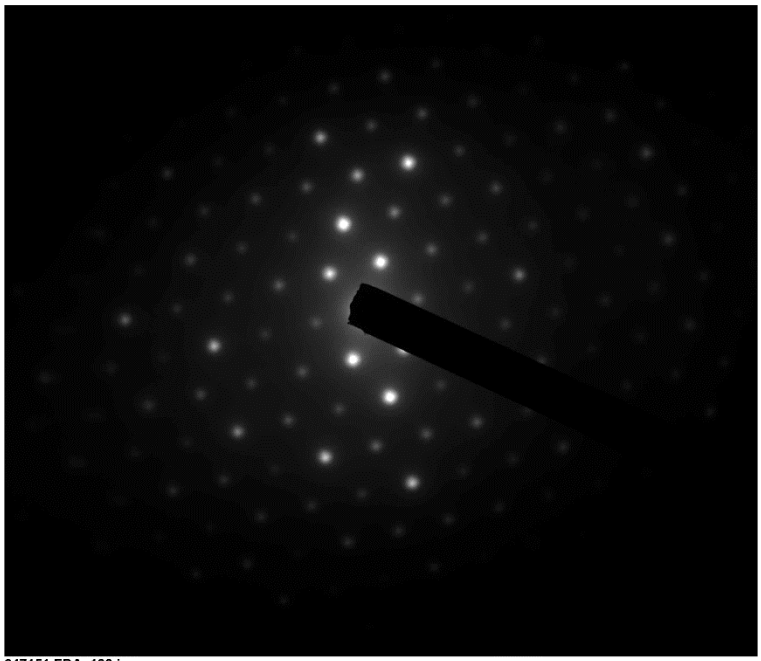
Chemistry from the Talc Ribbon Pictured Above



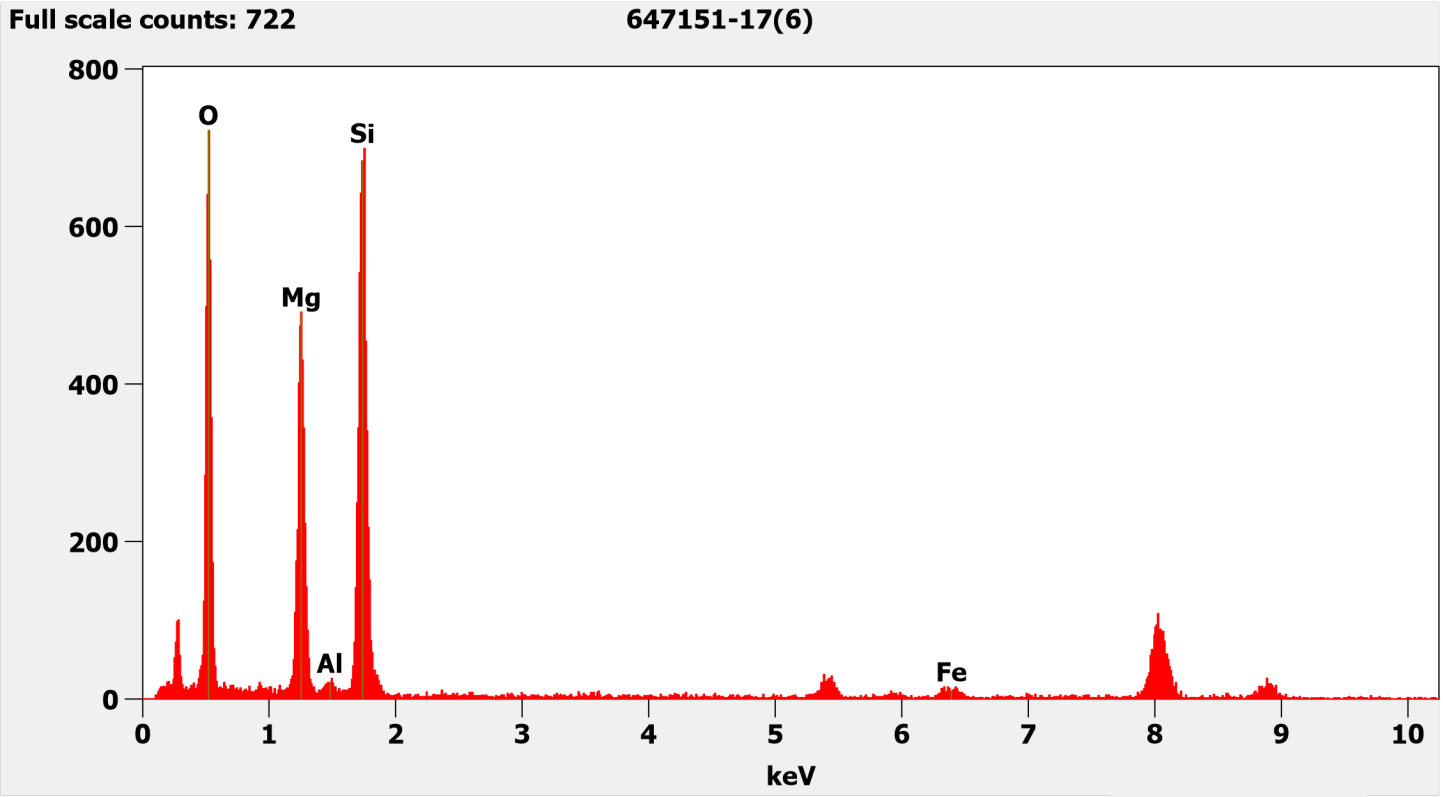
647151-17, Elongated Talc Particle



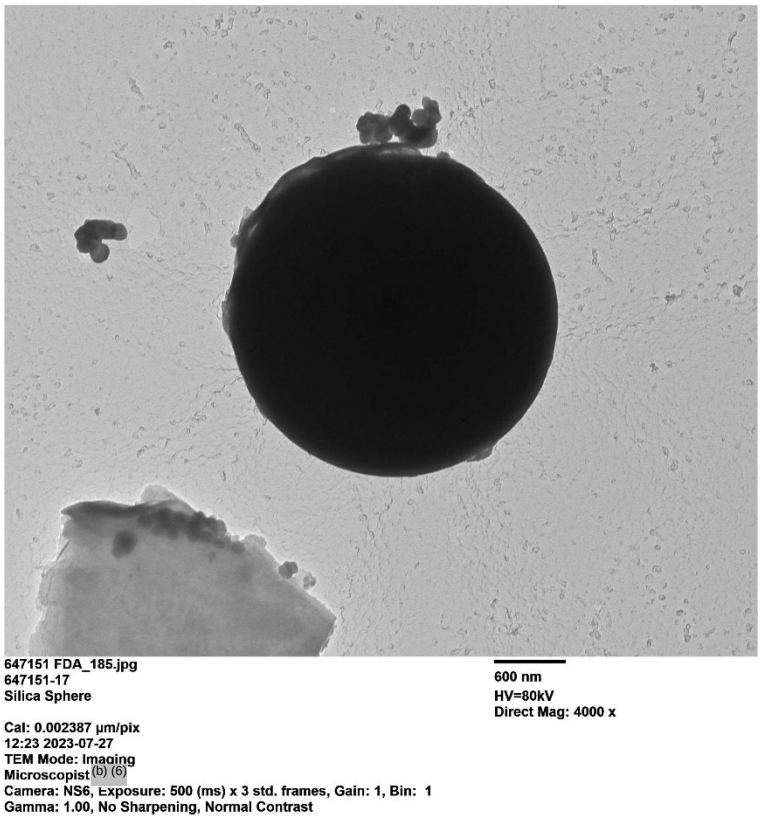
Hexagonal Diffraction Pattern from the Elongated Talc Particle Pictured Above



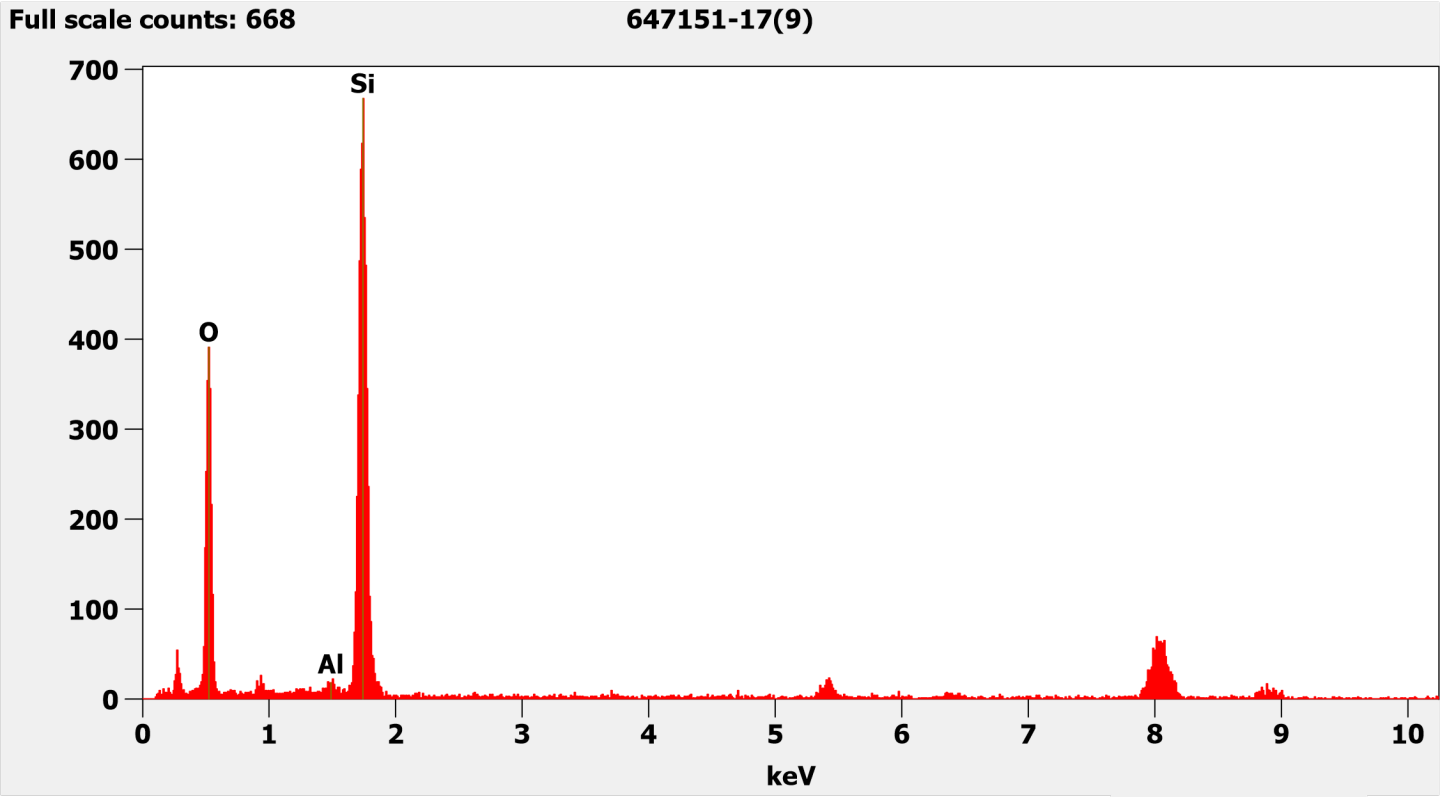
Chemistry from the Elongated Talc Particle Pictured Above



647151-17, Silica Sphere



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 samples, numbers NB23-357/358, NB23-370/371, NB23-385/386, NB23-391-392, and NB23-396/397 were not analyzed since no asbestos was observed on the associated client samples.

A talc reference control sample was randomly selected from our library of TEM grid preparations made from Sigma-Aldrich Talc Powder, <10 micron (Product No. 643604-500G; Batch No. 10830AJ) spiked with various levels of Chrysotile ranging from 0.4%-10%. One (1) reference control sample, sample number 647151-RB1, was analyzed with this set. It was analyzed by Ashley Rose on July 25, 2023, and found to be within acceptable limits.

Filtration blank samples were prepared alongside the client samples with each use of the filtration apparatus. Analysis of these samples was only required on those blanks associated with a client sample on which asbestos, or the non-

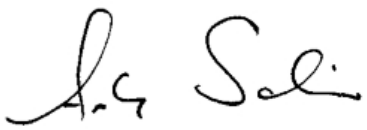
asbestos versions of the regulated minerals, was found unless otherwise noted. Filtration blank sample numbers DI-Blank-01 through DI-Blank-17 were not analyzed since no asbestos was observed on the associated client samples.

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 60530, 60670, 60685, and 60745 were analyzed. (b) (6) analyzed sample EB-60530 on July 17, 2023, and samples EB-60670, EB-60685, and EB-60745 on September 7, 2023. No asbestos was detected on the TEM grid preparation blank samples.

Our laboratory information management system (LIMS) randomly selected sample 647151-11/04252023-11 for additional duplicate QC analysis. Independent preparations were made for the PLM and TEM portions of analysis. The duplicate QC analysis was performed by (b) (6) on July 31, 2023, for PLM and by (b) (6) September 13, 2023, for TEM. The QC results were consistent with the original findings.

Our laboratory information management system (LIMS) randomly selected samples 647151-14/04252023-14 and 647151-12/04252023-12 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 July 31, 2023, for PLM and by (b) (6) on September 7, 2023, 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.



10/6/2023

Andreas Saldivar — Date
President