Analytical Report for:

Testing of Official Samples of Talc Containing Cosmetics for Asbestiform Fibers

Contract Number: 75F40119P10689

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

US FDA
Office of Cosmetics & Colors
4300 River Road
College Park, MD 20740
<table>
<thead>
<tr>
<th>AMA Sample ID</th>
<th>Client Sample ID</th>
<th>% Chrysolite by TFM</th>
<th>% Trehalite by TFM</th>
<th>% Total Chrysolite &amp; Trehalite by TFM</th>
<th>Asbestos by PLM</th>
</tr>
</thead>
<tbody>
<tr>
<td>635B10-1A</td>
<td>0382022-1</td>
<td>0.000000039%</td>
<td>0.000000039%</td>
<td>&lt; 0.00001%</td>
<td>ND</td>
</tr>
<tr>
<td>635B10-1B</td>
<td>0382022-1</td>
<td>0.000000039%</td>
<td>0.000000039%</td>
<td>&lt; 0.00001%</td>
<td>ND</td>
</tr>
<tr>
<td>635B10-1C</td>
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<td>0.000000039%</td>
<td>&lt; 0.00001%</td>
<td>ND</td>
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<tr>
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<tr>
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<td>&lt; 0.00001%</td>
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<td>ND</td>
</tr>
</tbody>
</table>

4475 Forbes Boulevard • Lanham, MD 20706 • (301) 435-2640/(800) 840-0651 • www.amalab.com

Page 1 of 2
**SUMMARY OF ANALYSIS**

<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td>635810-1B</td>
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<td>0.000000868%</td>
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<td>&lt; 0.00001%</td>
<td>ND</td>
<td>47.20%</td>
<td>1.38%</td>
<td>50.99%</td>
<td>results reported on a dry weight basis</td>
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<td>03102022-12</td>
<td>0.000006094%</td>
<td>0.000000375%</td>
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<td>ND</td>
<td>&lt; 0.00001%</td>
<td>ND</td>
<td>46.35%</td>
<td>1.35%</td>
<td>52.49%</td>
<td>results reported on a dry weight basis</td>
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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 FLAP 159.6  
TEM by Modified NY FLAP 156.4/ASTM D5756

**Analyte(s):**  
(b) (6)  
Andreas Saldivar

**Technical Director:** Andreas Saldivar

All results are to be considered preliminary and subject to change unless signed by the Technical Director or Deputy.
Login Sheet .......................................................................................................................... Error! Bookmark not defined.
Analytical Balance Verification Log...................................................................................... Error! Bookmark not defined.
Daily PLM Scope Verification Log ................................................................. Error! Bookmark not defined.
Refractive Index Oil Verification Log ........................................................................ Error! Bookmark not defined.
Daily TEM Scope Verification Log(s) ....................................................................... Error! Bookmark not defined.
QC Results Summary ....................................................................................................... Error! Bookmark not defined.
NB (Matrix) Blank Preparation Log ................................................................................ Error! Bookmark not defined.
RB (Reference Sample) Analytical Bench Sheet(s) .................................................. Error! Bookmark not defined.
EB (TEM Grid) Blank Preparation Log .......................................................................... Error! Bookmark not defined.
EB (TEM Grid) Blank Analytical Bench Sheet(s) ..................................................... Error! Bookmark not defined.
Duplicate & Replicate QC Charts ............................................................................ Error! Bookmark not defined.
PLM Gravimetric Reduction Bench Sheet(s) .............................................................. Error! Bookmark not defined.
TEM Gravimetric Reduction/Filtration Bench Sheet(s) ........................................ Error! Bookmark not defined.
Analytical Bench Sheets .............................................................................................. Error! Bookmark not defined.

635810-1A, 1B, 1C/03302022-1.................................................................................. Error! Bookmark not defined.
635810-2A, 2B, 2C/03302022-2.................................................................................. Error! Bookmark not defined.
635810-3A, 3B, 3C/03302022-3.................................................................................. Error! Bookmark not defined.
635810-4A, 4B, 4C/03302022-4.................................................................................. Error! Bookmark not defined.
635810-5A, 5B, 5C/03302022-5.................................................................................. Error! Bookmark not defined.
635810-6A, 6B, 6C/03302022-6.................................................................................. Error! Bookmark not defined.
635810-7A, 7B, 7C/03302022-7.................................................................................. Error! Bookmark not defined.
635810-8A, 8B, 8C/03302022-8.................................................................................. Error! Bookmark not defined.
635810-9A, 9B, 9C/03302022-9.................................................................................. Error! Bookmark not defined.
635810-10A, 10B, 10C/03302022-10.......................................................................... Error! Bookmark not defined.
635810-12A, 12B, 12C/03302022-12.1, 12.3, 12.5 (PLM) & 12.2, 12.4, 12.6 (TEM) ........ Error! Bookmark not defined.
Duplicate QC Analytical Bench Sheets...................................................................... Error! Bookmark not defined.
365810-14DQC (635810-11AA/03302022-11).......................................................... Error! Bookmark not defined.
Replicate QC Analytical Bench Sheet(s).................................................................... Error! Bookmark not defined.
635810-15RQC (635810-4A/03302022-4)................................................................. Error! Bookmark not defined.
635810-16RQC (635810-10A/03302022-10)............................................................... Error! Bookmark not defined.

Record Changes Report

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<th>Date</th>
<th>Description</th>
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<tbody>
<tr>
<td>9/23/2022</td>
<td>1) p. 32, corrected small typo (removed extraneous &quot;f&quot;) in first paragraph on page</td>
</tr>
<tr>
<td></td>
<td>2) p. 32, added preparation steps for liquid samples</td>
</tr>
<tr>
<td></td>
<td>3) p. 34, in calculations section, specified that for liquid samples, the value for W1 in gravimetric reduction percentages is the dry weight mass</td>
</tr>
</tbody>
</table>
Chain of Custody

CHAIR OF CUSTODY
Asbestos in Talc/Cosmetics

Sample Information:

<table>
<thead>
<tr>
<th>Sample Number</th>
<th>No. of Aliquots to Prepare &amp; Analyze</th>
<th>Sample Description (ie, color, container size, etc.)</th>
<th>Comments/Restrictions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Item #1 thru 13</td>
<td>3</td>
<td>11.1-oz glass jars submitted in pink vacuum sealed plastic bags and 12 (6/sample) 50-mL plastic centrifuge tubes in pink vacuum sealed plastic bags with custody seals intact (sealed by M. Schwartz 4/13/2022-4/19/2022)</td>
<td>See attached FDA COC for additional details</td>
</tr>
</tbody>
</table>

Sample Type

- FDA Modified Procedures for PGM-HAP V1.0 & TEM-HAP V1.0 (Level III) (2 x 3) (QTY)

Mailing/Billing Information:

Client Name: US Food & Drug Administration Office of Cosmetics and Colors
Address: 4500 River Road
City: College Park, MD 20740
Phone: __________ Fax: __________

Submitted Information:

Job Name: Assignment DFPG #22-08
Job Location: Batch 3 (No. 03302022)
Job #: CLIN 1001
Date #: 75F40119P10889
Print of Contact: John Gasper
Cell #: 240-402-1133
Collected by: __________

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

TURN AROUND TIME (TAT):

<table>
<thead>
<tr>
<th>After Hours Service is not provided for Asbestos in Talc/Cosmetics Analysis</th>
<th>Normal Business Hours</th>
<th>REPORT TO:</th>
</tr>
</thead>
<tbody>
<tr>
<td>(b) (6)</td>
<td>3-4 Weeks</td>
<td><a href="mailto:john.gasper@fda.hhs.gov">john.gasper@fda.hhs.gov</a></td>
</tr>
<tr>
<td>(b) (6)</td>
<td>(b) (6)</td>
<td>steven.wolfgang.fda.hhs.gov</td>
</tr>
<tr>
<td>4-6 Weeks</td>
<td>5/31/2022</td>
<td>Email CC 1</td>
</tr>
</tbody>
</table>

*All samples received in good condition unless otherwise noted.

Sample Description (ie, color, container size, etc.): 11.1-oz glass jars submitted in pink vacuum sealed plastic bags and 12 (6/sample) 50-mL plastic centrifuge tubes in pink vacuum sealed plastic bags with custody seals intact (sealed by M. Schwartz 4/13/2022-4/19/2022) See attached FDA COC for additional details.

Shipment Information:

Type of Shipment: (b) (6)
Date: 4/25/2022
Time: 11:05

AMA Analytical Services, Inc.
4475 Forbes Blvd, Largo, MD 20706
(301) 450-2464 (800) 346-0061 Fax: (301) 450-2543
www.ama-analysis.com
April 19, 2022

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

Re: Samples for Asbestos Analysis, Batch #03302022

Dear (b) (6)

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

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

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

Best regards,

Martha H. Schwartz
Chemist
Chemistry Branch
Denver Laboratory
Office of Regulatory Affairs
U.S. Food and Drug Administration
T: 303-236-9053
martha.schwartz@fda.hhs.gov

Enclosure: Chain of custody
Batch No: 03302022
Submitter: Martha H. Schwartz
Assignment No./Contract No.: DFGP #22-08 / #75F40119P10689
AMA COC No.: 
Date Sealed: 4/20/2021 Sample Type: Official Samples

<table>
<thead>
<tr>
<th>Description of Evidence</th>
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<tbody>
<tr>
<td>Item #</td>
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<tr>
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<tr>
<td>03302022-13.1-13.6</td>
</tr>
</tbody>
</table>


For the most current and official copy, check QMiS
### Cosmetic Talc Sample Chain-of-Custody Form

#### Chain of Custody

<table>
<thead>
<tr>
<th>Item #</th>
<th>Date</th>
<th>Released by</th>
<th>Released by</th>
<th>Comments/Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-13</td>
<td>4/20/22</td>
<td><strong>Martha H. Schwartz</strong></td>
<td><strong>Martha H. Schwartz</strong></td>
<td>ORS / DENL</td>
</tr>
<tr>
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</table>

#### Chain of Custody

<table>
<thead>
<tr>
<th>Item #</th>
<th>Date/Time</th>
<th>Received by</th>
<th>Received by</th>
<th>Comments/Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-13</td>
<td>4/20/22</td>
<td></td>
<td></td>
<td><strong>(b) (6)</strong></td>
</tr>
<tr>
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</tr>
</tbody>
</table>

#### Final Disposal Authority

**Authorization for Disposal**

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

- [ ] Return to Submitter  
- [ ] Destruction

Name of Authorizing Official: ___________________________ Date: __________

Signature: ___________________________________________

---


For the most current and official copy, check QMiS
<table>
<thead>
<tr>
<th>Witness to Destruction of Evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Item(s) #: __________ on this document were destroyed by (Name) ____________________________ in my presence on (date) ____________________________ . Name of Witness to destruction: ____________________________ Signature: ____________________________ Date: ____________________________</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Release to Lawful Owner</th>
</tr>
</thead>
<tbody>
<tr>
<td>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: ____________________________</td>
</tr>
</tbody>
</table>

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.


For the most current and official copy, check QMiS
Proof of Delivery

Dear Customer,

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

Tracking Number
1ZA4995A0390429360

Weight
5.00 LBS

Service
UPS Ground

Shipped / Billed On
04/20/2022

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

Delivered To
LANHAM, MD, US

Received By
(b) (6)

Left At
Reception

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

Sincerely,

UPS

Tracking results provided by UPS: 05/04/2022 5:36 P.M. EST
Please see below for package information and current transit status.

**Scheduled Delivery Date:** Monday, 04/25/2022

**UPS My Choice for home**

---

**Shipment Details**

**Tracking Detail**

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

**Tracking Number:** 1ZA4995A0390429360

**Status:** Delivered

**Scheduled Delivery:** 04/25/2022

**Shipped To:** LANHAM, MD, US

**UPS Service:** UPS Ground

**Number of Packages:** 1

**Weight:** 5.0 LBS

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**Package Progress**

<table>
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<tr>
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<th>Date</th>
<th>Local Time</th>
<th>Description</th>
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<tbody>
<tr>
<td>LANHAM, MD, US</td>
<td>04/25/2022</td>
<td>11:05 AM</td>
<td>DELIVERED</td>
</tr>
<tr>
<td>Landover, MD, United States</td>
<td>04/25/2022</td>
<td>9:22 AM</td>
<td>Out For Delivery Today</td>
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<tr>
<td>Landover, MD, United States</td>
<td>04/23/2022</td>
<td>7:07 AM</td>
<td>Processing at UPS Facility</td>
</tr>
<tr>
<td>Landover, MD, United States</td>
<td>04/22/2022</td>
<td>7:59 PM</td>
<td>Arrived at Facility</td>
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<td>Laurel, MD, United States</td>
<td>04/22/2022</td>
<td>7:25 PM</td>
<td>Departed from Facility</td>
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<tr>
<td>Location</td>
<td>Date</td>
<td>Time</td>
<td>Event</td>
</tr>
<tr>
<td>------------------------</td>
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<tr>
<td>Laurel, MD, United States</td>
<td>04/22/2022</td>
<td>11:49 AM</td>
<td>Arrived at Facility</td>
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<tr>
<td>Harrisburg, PA, United States</td>
<td>04/22/2022</td>
<td>9:45 AM</td>
<td>Departed from Facility</td>
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<td>Harrisburg, PA, United States</td>
<td>04/22/2022</td>
<td>9:16 AM</td>
<td>Arrived at Facility</td>
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<tr>
<td>Commerce City, CO, United States</td>
<td>04/21/2022</td>
<td>4:16 AM</td>
<td>Departed from Facility</td>
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<td>Commerce City, CO, United States</td>
<td>04/20/2022</td>
<td>6:47 PM</td>
<td>Origin Scan</td>
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<tr>
<td>Commerce City, CO, United States</td>
<td>04/20/2022</td>
<td>3:35 PM</td>
<td>Pickup Scan</td>
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<tr>
<td>United States</td>
<td>04/20/2022</td>
<td>6:23 AM</td>
<td>Shipper created a label, UPS has not received the package yet.</td>
</tr>
</tbody>
</table>

Tracking results provided by UPS 05/04/2022 5:37 P.M. Eastern Time

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# Case Narrative

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

<table>
<thead>
<tr>
<th>AMA Sample No.</th>
<th>Client Sample No.</th>
<th>Sample Description</th>
<th>Analytical Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>635810-1A</td>
<td>03302022-1</td>
<td>Very pale pink colored, slightly clumpy powder with a matte appearance</td>
<td>Mod. PLM ELAP 198.6/TEM ELAP 198.4</td>
</tr>
<tr>
<td>635810-1B</td>
<td>03302022-1</td>
<td>Off-white colored, slightly clumpy powder with a matte appearance</td>
<td>Mod. PLM ELAP 198.6/TEM ELAP 198.4</td>
</tr>
<tr>
<td>635810-1C</td>
<td>03302022-1</td>
<td>Off-white colored, slightly clumpy powder with a matte appearance</td>
<td>Mod. PLM ELAP 198.6/TEM ELAP 198.4</td>
</tr>
<tr>
<td>635810-2A</td>
<td>03302022-2</td>
<td>Cream colored, slightly clumpy powder with a matte appearance</td>
<td>Mod. PLM ELAP 198.6/TEM ELAP 198.4</td>
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<td>635810-2B</td>
<td>03302022-2</td>
<td>Cream colored, slightly clumpy powder with a matte appearance</td>
<td>Mod. PLM ELAP 198.6/TEM ELAP 198.4</td>
</tr>
<tr>
<td>635810-2C</td>
<td>03302022-2</td>
<td>Cream colored, slightly clumpy powder with a matte appearance</td>
<td>Mod. PLM ELAP 198.6/TEM ELAP 198.4</td>
</tr>
<tr>
<td>635810-3A</td>
<td>03302022-3</td>
<td>Pale tan colored, slightly clumpy powder with a matte appearance</td>
<td>Mod. PLM ELAP 198.6/TEM ELAP 198.4</td>
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<tr>
<td>635810-3B</td>
<td>03302022-3</td>
<td>Pale tan colored, slightly clumpy powder with a matte appearance</td>
<td>Mod. PLM ELAP 198.6/TEM ELAP 198.4</td>
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<tr>
<td>635810-3C</td>
<td>03302022-3</td>
<td>Pale tan colored, slightly clumpy powder with a matte appearance</td>
<td>Mod. PLM ELAP 198.6/TEM ELAP 198.4</td>
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<tr>
<td>635810-4A</td>
<td>03302022-4</td>
<td>Cream colored, slightly clumpy powder with a matte appearance</td>
<td>Mod. PLM ELAP 198.6/TEM ELAP 198.4</td>
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<tr>
<td>635810-4B</td>
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<td>635810-4C</td>
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<td>Mod. PLM ELAP 198.6/TEM ELAP 198.4</td>
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<tr>
<td>635810-5A</td>
<td>03302022-5</td>
<td>Cream colored, slightly clumpy powder with a matte appearance</td>
<td>Mod. PLM ELAP 198.6/TEM ELAP 198.4</td>
</tr>
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<td>Client Sample No.</td>
<td>Sample Description</td>
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<td>Mod. PLM ELAP 198.6/TEM ELAP 198.4</td>
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<tr>
<td>635810-6A</td>
<td>03302022-6</td>
<td>Lime green colored, slightly clumpy powder with a matte appearance</td>
<td>Mod. PLM ELAP 198.6/TEM ELAP 198.4</td>
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<tr>
<td>635810-6B</td>
<td>03302022-6</td>
<td>Mod. PLM ELAP 198.6/TEM ELAP 198.4</td>
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<td>635810-6C</td>
<td>03302022-6</td>
<td>Mod. PLM ELAP 198.6/TEM ELAP 198.4</td>
<td></td>
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<tr>
<td>635810-7A</td>
<td>03302022-7</td>
<td>Off-white colored, fine powder with a matte appearance</td>
<td>Mod. PLM ELAP 198.6/TEM ELAP 198.4</td>
</tr>
<tr>
<td>635810-7B</td>
<td>03302022-7</td>
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<td>635810-7C</td>
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<td>635810-8A</td>
<td>03302022-8</td>
<td>Nude colored, slightly clumpy powder with a matte appearance</td>
<td>Mod. PLM ELAP 198.6/TEM ELAP 198.4</td>
</tr>
<tr>
<td>635810-8B</td>
<td>03302022-8</td>
<td>Mod. PLM ELAP 198.6/TEM ELAP 198.4</td>
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<tr>
<td>635810-8C</td>
<td>03302022-8</td>
<td>Mod. PLM ELAP 198.6/TEM ELAP 198.4</td>
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<tr>
<td>635810-9A</td>
<td>03302022-9</td>
<td>Pale yellow colored, fine powder with a matte appearance</td>
<td>Mod. PLM ELAP 198.6/TEM ELAP 198.4</td>
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<td>635810-9B</td>
<td>03302022-9</td>
<td>Mod. PLM ELAP 198.6/TEM ELAP 198.4</td>
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<tr>
<td>635810-9C</td>
<td>03302022-9</td>
<td>Mod. PLM ELAP 198.6/TEM ELAP 198.4</td>
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<tr>
<td>635810-10A</td>
<td>03302022-10</td>
<td>Brown colored, slightly clumpy powder with a matte appearance</td>
<td>Mod. PLM ELAP 198.6/TEM ELAP 198.4</td>
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<tr>
<td>635810-10B</td>
<td>03302022-10</td>
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<tr>
<td>635810-10C</td>
<td>03302022-10</td>
<td>Mod. PLM ELAP 198.6/TEM ELAP 198.4</td>
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<tr>
<td>635810-11A</td>
<td>03302022-11</td>
<td>Dark burgundy colored, slightly clumpy powder with a pearlescent appearance</td>
<td>Mod. PLM ELAP 198.6/TEM ELAP 198.4</td>
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<tr>
<td>635810-11B</td>
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<td>Sample Description</td>
<td>Analytical Method</td>
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<tr>
<td>635810-11C</td>
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<tr>
<td>635810-12A</td>
<td>03302022-12.1 (PLM) 03302022-12.2 (TEM)</td>
<td>Tan colored, opaque liquid</td>
<td>Mod. PLM ELAP 198.6/TEM ELAP 198.4</td>
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<td>635810-12B</td>
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<td>635810-12C</td>
<td>03302022-12.5 (PLM) 03302022-12.6 (TEM)</td>
<td></td>
<td>Mod. PLM ELAP 198.6/TEM ELAP 198.4</td>
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<tr>
<td>635810-13A</td>
<td>03302022-13.1 (PLM) 03302022-13.2 (TEM)</td>
<td>Off-white colored, opaque liquid</td>
<td>Mod. PLM ELAP 198.6/TEM ELAP 198.4</td>
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<tr>
<td>635810-13B</td>
<td>03302022-13.3 (PLM) 03302022-13.4 (TEM)</td>
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<td>Mod. PLM ELAP 198.6/TEM ELAP 198.4</td>
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<td>635810-13C</td>
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<td>Mod. PLM ELAP 198.6/TEM ELAP 198.4</td>
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</tbody>
</table>

Summary of Samples Received

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

Sample Receipt Description

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

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

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

Sample preparation for powder materials consisted of the following steps:

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

Sample preparation for liquid materials consisted of the following steps:

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

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

1. Less than 50% of the carbon coating was intact
2. The grid was too dark due to incomplete dissolution of the filter
3. Heavy particulate loading in excess of 25%
4. Light particulate loading below 10%
5. Uneven distribution of particulate
Problems Encountered During Preparation & Resolutions:
No problems were encountered during preparation. All gravimetric data was consistent among each group of aliquots and all TEM grid preparations were deemed acceptable for analysis.

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

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

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

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

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

Modifications to the NY ELAP 198.4 Method were:
1) The residue was not placed in alcohol and prepared using the quick drop method. To obtain a more uniform preparation, the residue was placed in a jar and filled with 100mL of deionized water. The jar was sonicated, and a portion of the solution was filtered onto a 47mm 0.22µm MCE filter.
2) Any amphibole or chrysotile particle(s) observed were not quantified by visual estimation. The length and width of the observed particle(s) were measured, and the mass of each amphibole and chrysotile particle was calculated using the ASTM D5756 method.
3) All particles identified as amphibole were included with the counts/concentrations, regardless of size and aspect ratio.
The results of this analysis are detailed below in the Discussion and Interpretation of Analytical Findings section for each individual sample.

Calculations

**TEM ASTM D5756 Mass:**

\[ M = \frac{\pi}{4} L \times W^2 \times D \times 10^{-12} \]

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

**Gravimetric Reduction Percentages:**

- Organic: \( ((W1 - W2) \times 100) / W1 \)
- Acid Soluble: \( ((W2 - W3) \times 100) / W1 \)
- Other*: \( ((W3 / W1) \times 100) - \text{Calculated Asbestos} \%

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

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

For liquid samples, the value for W1 is the dry weight mass.

**Asbestos Percent Calculation:**

**TEM**

\[ \text{EFA(mm}^2\text{)} \times 100ml \times \text{MA(g)} \times \text{RW(g)} \]

**PLM**

\( (\text{ASB} \times W3)/W1 \)

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

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

**Limit of Detection and Quantification**

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

**Discussion and Interpretation of Analytical Findings**

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

PLM

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

- 635810-1A: No Asbestos Detected
- 635810-1B: No Asbestos Detected
- 635810-1C: No Asbestos Detected
analyzed aliquots 1A and 1B on May 12, 2022, and aliquot 1C on May 16, 2022. The primary particles observed were talc and mica; silica spheres and silicon particles were also observed along with talc ribbons, and elongated talc particles. No asbestos or non-asbestos amphibole variants were observed during analysis. The results were calculated using the equations detailed in the Calculations section above.

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

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

635810-1A, Talc Particle

Hexagonal Diffraction Pattern from the Talc Particle Pictured Above
Chemistry from the Talc Particle Pictured Above

635810-1A, Mica Particle
Diffraction Pattern from the Mica Particle Pictured Above
Chemistry from the Mica Particle Pictured Above

635810-1A, Silica Sphere
Chemistry from the Silica Sphere Pictured Above
635810-1A, Silicon Particles

Chemistry from the Silicon Particle Pictured Above
635810-1A, Talc Ribbon Diffraction Pattern
Chemistry from the Talc Ribbon Referenced Above

635810-1A, Elongated Talc Particle
Hexagonal Diffraction Pattern from the Elongated Talc Particle Pictured Above
Chemistry from the Elongated Talc Particle Pictured Above

**PLM**

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

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

**TEM**

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

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

Below are pictures, diffraction patterns, and chemistry from some of the observed particles. The copper peaks in the chemistry spectra are from the TEM grid. The unidentified (and some identified) peaks in the chemistry spectra are zinc and carbon from the TEM specimen holder.
635810-2A, Mica Particle

Hexagonal Diffraction Pattern from the Mica Particle Pictured Above
Chemistry from the Mica Particle Pictured Above
635810-2A, Talc Particle

Hexagonal Diffraction Pattern from the Talc Particle Pictured Above
Chemistry from the Talc Particle Pictured Above
635810-2A, Elongated Mica Particle

Hexagonal Diffraction Pattern from the Elongated Mica Particle Pictured Above
Chemistry from the Elongated Mica Pictured Above
635810-2A, Elongated Talc Particle

Hexagonal Diffraction Pattern from the Elongated Talc Particle Pictured Above
Chemistry from the Elongated Talc Particle Pictured Above
All three aliquots of sample 03302022-3 were analyzed by (b) (6) on June 2, 2022. No asbestos or non-asbestos amphibole variants were observed during analysis. The results were calculated using the equations detailed in the Calculations section above.

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

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

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

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

635810-3A, Talc Particle
Hexagonal Diffraction Pattern from the Talc Particle Pictured Above

Chemistry from the Talc Particle Pictured Above
635810-3A, Particle Containing Magnesium, Aluminum, and Silicon
Hexagonal Diffraction Pattern from the Particle Containing Magnesium, Aluminum, and Silicon Pictured Above

Chemistry from the Particle Containing Magnesium, Aluminum, and Silicon Pictured Above
635810-3A, Talc Ribbon
Diffraction Pattern from the Talc Ribbon Pictured Above

Chemistry from the Talc Ribbon Pictured Above
635810-3A, Elongated Talc Particle
Hexagonal Diffraction Pattern from the Elongated Talc Particle Pictured Above

Chemistry from the Elongated Talc Particle Pictured Above
PLM
All three aliquots of sample 03302022-4 were analyzed on June 2, 2022. No asbestos or non-asbestos amphibole variants were observed during analysis. The results were calculated using the equations detailed in the Calculations section above.

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

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

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

Below are pictures, diffraction patterns, and chemistry from some of the observed particles. The copper peaks in the chemistry spectra are from the TEM grid. The unidentified (and some identified) peaks in the chemistry spectra are zinc and carbon from the TEM specimen holder.
Hexagonal Diffraction Pattern from the Talc Particle Pictured Above
Chemistry from the Talc Particle Pictured Above
635810-4A, Talc Ribbon

Diffraction Pattern from the Talc Ribbon Pictured Above
Chemistry from the Talc Ribbon Pictured Above
Hexagonal Diffraction Pattern from the Particle Containing Magnesium, Aluminum, Silicon, and Iron Pictured Above
Chemistry from the Particle containing Magnesium, Aluminum, Silicon, and Iron Pictured Above
635810-4C, Titanium Particles

Diffraction Pattern from the Titanium Particles Pictured Above
Chemistry from the Titanium Particles Pictured Above
635810-4A, Mica Particle with Titanium

Diffraction Pattern from the Mica Particle with Titanium Pictured Above
Chemistry from the Mica Particle with Titanium Particle Pictured Above

Full scale counts: 1296

Element: O, Ti, Al, Si, K, Mg, Fe

keV: 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10
635810-4A, Iron Particle

Diffraction Pattern from the Iron Particle Pictured Above
Chemistry from the Iron Particle Pictured Above
635810-4B, Calcium Particle

**Diffraction Pattern from the Calcium Particle Pictured Above**
Chemistry from the Calcium Particle Pictured Above
635810-4A, Elongated Talc Particle

Hexagonal Diffraction Pattern from the Elongated Talc Particle Pictured Above
Chemistry from the Elongated Talc Particle Pictured Above
All three aliquots of sample 03302022-5 were analyzed by [PLM] on June 2, 2022. No asbestos or non-asbestos amphibole variants were observed during analysis. The results were calculated using the equations detailed in the Calculations section above.

<table>
<thead>
<tr>
<th>Sample</th>
<th>Result</th>
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<tbody>
<tr>
<td>635810-5A</td>
<td>No Asbestos Detected</td>
</tr>
<tr>
<td>635810-5B</td>
<td>No Asbestos Detected</td>
</tr>
<tr>
<td>635810-5C</td>
<td>No Asbestos Detected</td>
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</table>

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

<table>
<thead>
<tr>
<th>Sample</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>635810-5A</td>
<td>No Asbestos Detected</td>
</tr>
<tr>
<td>635810-5B</td>
<td>No Asbestos Detected</td>
</tr>
<tr>
<td>635810-5C</td>
<td>No Asbestos Detected</td>
</tr>
</tbody>
</table>

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

635810-5A, Talc Particle
Hexagonal Diffraction Pattern from the Talc Particle Pictured Above

Chemistry from the Talc Particle Pictured Above
635810-5A, Silica Sphere
Chemistry from the Silica Sphere Pictured Above

635810-5A, Talc Ribbon
Diffraction Pattern from the Talc Ribbon Pictured Above
Chemistry from the Talc Ribbon Pictured Above

635810-5A, Elongated Particle Containing Magnesium, Aluminum, and Silicon
Hexagonal Diffraction Pattern from the Elongated Particle Containing Magnesium, Aluminum, and Silicon Pictured Above
Chemistry from the Elongated Particle Containing Magnesium, Aluminum, and Silicon Pictured Above

635810-5A, Elongated Talc Particle
Hexagonal Diffraction Pattern from the Elongated Talc Particle Pictured Above
PLM
All three aliquots of sample 03302022-6 were analyzed on June 2, 2022. No asbestos or non-asbestos amphibole variants were observed during analysis. The results were calculated using the equations detailed in the Calculations section above.

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

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

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

Below are pictures, diffraction patterns, and chemistry from some of the observed particles. The copper peaks in the chemistry spectra are from the TEM grid. The unidentified (and some identified) peaks in the chemistry spectra are zinc and carbon from the TEM specimen holder.
Hexagonal Diffraction Pattern from the Talc Particle Pictured Above
Chemistry from the Talc Particle Pictured Above
635810-6A, Chromium Particle

Diffraction Pattern from the Chromium Particle Pictured Above
**Chemistry from the Chromium Particle Pictured Above**

![Graph showing the chemical composition of the particle with peaks for O, Cr, and Si.](635810-6A(1))

**Graph Details:**
- **Full scale counts:** 1047
- **Channels:** 0 to 10 keV
- **Peaks:**
  - **O**
  - **Cr**
  - **Si**

**Technical Details:**
- **Image Name:** 635810 FDA _447.jpg
- **Image Details:**
  - **Date:** 6/18/2015
  - **Microscope:** NanoSEM
  - **Exposure:** 5 std. frames, Gain: 1, Bin: 1
  - **Gamma:** 1.00, No Sharpening, Normal Contrast

**Additional Notes:**
- **High Voltage (HV):** 100 eV
- **Cam Lens:** 6.2200 m
- **Analysis:** Cr particles with identified oxides and silicon.
635810-6A, Talc Ribbon

Diffraction Pattern from the Talc Ribbon Pictured Above
Chemistry from the Talc Ribbon Pictured Above
Hexagonal Diffraction Pattern from the Mica Particle Pictured Above
Chemistry from the Mica Particle Pictured Above
Hexagonal Diffraction Pattern from the Elongated Talc Particle Pictured Above
Chemistry from the Elongated Talc Pictured Above
PLM
All three aliquots of sample 03302022-7 were analyzed by on June 2, 2022. No asbestos or non-asbestos amphibole variants were observed during analysis. The results were calculated using the equations detailed in the Calculations section above.

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

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

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

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

635810-7A, Talc Particle
Hexagonal Diffraction Pattern from the Talc Particle Pictured Above

Chemistry from the Talc Particle Pictured Above
635810-7A, Particle Containing Magnesium, Aluminum, and Silicon
Hexagonal Diffraction Pattern from the Particle Containing Magnesium, Aluminum, and Silicon Pictured Above

Chemistry from the Particle Containing Magnesium, Aluminum, and Silicon Pictured Above
635810-7A, Talc Ribbon
Diffraction Pattern from the Talc Ribbon Pictured Above

Chemistry from the Talc Ribbon Pictured Above
635810-7A, Elongated Talc Particle
Hexagonal Diffraction Pattern from the Elongated Talc Particle Pictured Above

Chemistry from the Elongated Talc Particle Pictured Above
All three aliquots of sample 03302022-8 were analyzed by on June 2, 2022. No asbestos or non-asbestos amphibole variants were observed during analysis. The results were calculated using the equations detailed in the Calculations section above.

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

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

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

Below are pictures, diffraction patterns, and chemistry from some of the observed particles. The copper peaks in the chemistry spectra are from the TEM grid. The unidentified (and some identified) peaks in the chemistry spectra are zinc and carbon from the TEM specimen holder.
Hexagonal Diffraction Pattern from the Talc Particle Pictured Above
Chemistry from the Talc Particle Pictured Above
Hexagonal Diffraction Pattern from the Mica Particle Pictured Above
Chemistry from the Mica Particle Pictured Above
635810-8A, Titanium Particles

Diffraction Pattern from the Titanium Particles Pictured Above
Chemistry from the Titanium Particle Pictured Above
635810-8A, Iron Particle

Diffraction Pattern from the Iron Particle Pictured Above
Chemistry from the Iron Particle Pictured Above
635810-8A, Talc Ribbon

Diffraction Pattern from the Talc Ribbon Pictured Above
Chemistry from the Talc Ribbon Pictured Above
635810-8A, Particle Containing Magnesium, Aluminum, Silicon, and Iron

Diffraction Pattern from the Particle Containing Magnesium, Aluminum, Silicon, and Iron Pictured Above
Chemistry from the Particle Containing Magnesium, Aluminum, Silicon, and Iron Pictured Above
PLM
All three aliquots of sample 03302022-9 were analyzed on June 2, 2022. No asbestos or non-asbestos amphibole variants were observed during analysis. The results were calculated using the equations detailed in the Calculations section above.

<table>
<thead>
<tr>
<th>Sample</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>635810-9A</td>
<td>No Asbestos Detected</td>
</tr>
<tr>
<td>635810-9B</td>
<td>No Asbestos Detected</td>
</tr>
<tr>
<td>635810-9C</td>
<td>No Asbestos Detected</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Sample</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>635810-9A</td>
<td>No Asbestos Detected</td>
</tr>
<tr>
<td>635810-9B</td>
<td>No Asbestos Detected</td>
</tr>
<tr>
<td>635810-9C</td>
<td>No Asbestos Detected</td>
</tr>
</tbody>
</table>

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

635810-9A Hexagonal Diffraction a Mica Particle
Chemistry from the Mica Particle Referenced Above
635810-9A, Particle Containing Aluminum and Silicon

Diffraction Pattern from the Particle Containing Aluminum and Silicon Pictured Above
Chemistry from the Particle Containing Aluminum and Silicon Pictured Above
Hexagonal Diffraction Pattern from the Talc Particle Pictured Above
Chemistry from the Talc Particle pictured above
35810-9A, Particle Containing Magnesium, Aluminum, Silicon, and Iron

Diffraction Pattern from the Particle Containing Magnesium, Aluminum, Silicon, and Iron Pictured Above
Chemistry from the Particle Containing Magnesium, Aluminum, Silicon, and Iron Pictured Above
35810-9A, Particle Containing Sodium, Aluminum, and Silicon

Diffraction Pattern from the Particle Containing Sodium, Aluminum, and Silicon Pictured Above
Chemistry from the Particle Containing Sodium, Aluminum, and Silicon Pictured Above
635810-9A, Silicon Particle

Chemistry from the Silicon Particle pictured above
All three aliquots of sample 03302022-10 were analyzed by PLM on June 2, 2022. No asbestos or non-asbestos amphibole variants were observed during analysis. The results were calculated using the equations detailed in the Calculations section above.

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

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

635810-10A No Asbestos Detected
635810-10B No Asbestos Detected
635810-10C No Asbestos Detected
Below are pictures, diffraction patterns, and chemistry from some of the observed particles. The copper peaks in the chemistry spectra are from the TEM grid. The unidentified (and some identified) peaks in the chemistry spectra are zinc and carbon from the TEM specimen holder.

635810-10A, Talc Particle

Hexagonal Diffraction Pattern from the Talc Particle Pictured Above
Chemistry from the Talc Particle Pictured Above
635810-10A, Mica Particle with Titanium

Diffraction Pattern from the Mica Particle with Titanium Pictured Above
Chemistry from the Mica Particle with Titanium Pictured Above
Chemistry from the Silicon Particles Pictured Above
635810-10A, Particle Containing Magnesium, Aluminum, Silicon, and Iron
Diffraction Pattern from the Particle Containing Magnesium, Aluminum, Silicon, and Iron Pictured Above

Chemistry from the Particle Containing Magnesium, Aluminum, Silicon, and Iron Pictured Above
635810-10A, Calcium Particles
Diffraction Pattern from the Calcium Particles Pictured Above

Chemistry from the Calcium Particles Pictured Above
635810-10B, Particle Containing Nitrogen, Oxygen, Silicon, Phosphorus, Sulfur, and Calcium
Chemistry from the Particle Containing Nitrogen, Oxygen, Silicon, Phosphorus, Sulfur, and Calcium Pictured Above

635810-10A, Elongated Talc Particle
Hexagonal Diffraction Pattern from the Elongated Talc Particle Pictured Above
All three aliquots of sample 03302022-11 were analyzed by **PLM** on June 2, 2022. No asbestos or non-asbestos amphibole variants were observed during analysis. The results were calculated using the equations detailed in the *Calculations* section above.

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

*TEM*

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

- 635810-11A No Asbestos Detected
- 635810-11B No Asbestos Detected
- 635810-11C No Asbestos Detected
Below are pictures, diffraction patterns, and chemistry from some of the observed particles. The copper peaks in the chemistry spectra are from the TEM grid. The unidentified (and some identified) peaks in the chemistry spectra are zinc and carbon from the TEM specimen holder.

635810-11A, Talc Particle

Hexagonal Diffraction Pattern from the Talc Particle Pictured Above
Chemistry from the Talc Particle Pictured Above
635810-11A, Mica Particle

Hexagonal Diffraction Pattern from the Mica Particle Pictured Above
Chemistry from the Mica Particle Pictured Above

Full scale counts: 260

635810-11A, Iron Particle
Diffraction Pattern from the Iron Particle Pictured Above
Chemistry from the Iron Particle Pictured Above

635810-11A, Silicon Particle
Diffraction Pattern from the Silicon Particle Pictured Above
Chemistry from the Silicon Particle Pictured Above

635810-11A, Particle Containing Sodium, Aluminum, and Silicon
Diffraction Pattern from the Particle Containing Sodium, Aluminum, and Silicon Pictured Above
Chemistry from the Particle Containing Sodium, Aluminum, and Silicon Pictured Above

635810-11B, Elongated Titanium Particle
Diffraction Pattern from the Elongated Titanium Particle Pictured Above
Chemistry from the Elongated Titanium Particle Pictured Above

635810-11C, Talc Ribbon
Chemistry from the Talc Ribbon Pictured Above
635810-11A, Elongated Talc Particle

Hexagonal Diffraction Pattern from the Elongated Talc Particle Pictured Above
Chemistry from the Elongated Talc Particle Pictured Above
PLM
Aliquots 033022-12.1, 12.3, and 12.3 were analyzed by on June 2, 2022. No asbestos or non-asbestos amphibole variants were observed during analysis. The results were calculated using the equations detailed in the Calculations section above.

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

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

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

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

635810-12A, Titanium Particle
Diffraction Pattern from the Titanium Particle Pictured Above
Chemistry from the Titanium Particle Pictured Above

635810-12A, Particle Containing Silicon and Iron
Diffraction Pattern from the Particle Containing Silicon and Iron Pictured Above
Chemistry from the Particle Containing Silicon and Iron Pictured Above

635810-12A, Talc Particle
Hexagonal Diffraction Pattern from the Talc Particle Pictured Above
Chemistry from the Talc Particle Pictured Above

635810-12A, Particle Containing Sodium, Aluminum, and Silicon
Diffraction Pattern from the Particle Containing Sodium, Aluminum, and Silicon Pictured Above
Aliquots 03302022-13.1, 13.3, and 13.5 were analyzed by PLM on June 2, 2022. No asbestos or non-asbestos amphibole variants were observed during analysis. The results were calculated using the equations detailed in the Calculations section above.

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

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

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

Below are pictures, diffraction patterns, and chemistry from some of the observed particles. The copper peaks in the chemistry spectra are from the TEM grid. The unidentified (and some identified) peaks in the chemistry spectra are zinc and carbon from the TEM specimen holder.
Diffraction Pattern from the Titanium Particles Pictured Above
Chemistry from the Titanium Particles Pictured Above
635810-13A, Elongated Particle Containing Silicon and Iron

Diffraction Pattern from the Elongated Particle Containing Silicon and Iron Pictured Above
Chemistry from the Elongated Particle Containing Silicon and Iron Pictured Above
635810-13A, Talc Particle

Hexagonal Diffraction Pattern from the Talc Particle Pictured Above
Chemistry from the Talc Particle Pictured Above
635810-13A, Particle Containing Aluminum and Silicon

Diffraction Pattern from the Particle Containing Aluminum and Silicon Pictured Above
Chemistry from the Particle Containing Aluminum and Silicon Pictured Above
Diffraction Pattern from the Talc Ribbon Pictured Above
Chemistry from the Talc Ribbon Pictured Above
QC Discussion

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

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

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

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

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

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

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

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

9/23/2022