

# **AZOMITE Mineral Products, Inc.**

PO BOX 21 • 1078 West 5300 South • Nephi, UT USA  
Phone: (435) 623-8007 • Fax: (435) 623-8009 • www.azomite.com

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July 2, 2014

RE: AZOMITE® Radioactivity

To whom it may concern:

As part of our on-going commitment to provide the best product in the marketplace, ALS Life Sciences Division has recently completed a Gross Alpha/Beta Analysis on the AZOMITE® Ore crushed and stockpiled at the mine in April-May 2014. The results of the analysis are included in this transmittal. The report concludes, "While there was detectable activity in the sample, the levels are below what we would consider radioactive".

A brief explanation of this document:

- Page 1 – Cover Letter
- Page 2-3 – Copy of the Emails from Julie Ellingson, Project Manager ALS Life Sciences Division
- Pages 4 thru 11 ALS Report 1406183
  - Page 4 – Case Narrative
  - Pages 5-8 –Chain of Custody Documentation
  - Pages 9-10 – Equipment Verification
    - Page 9 – Results from a "Blank sample"
    - Page 10 – Results from the known "spiked" sample
- Page 11 – Results AZOMITE® sample

The results from this report are typical of all of the radiation testing we have done at AZOMITE® Mineral Products, Inc.

Sincerely,



James D. Phillips  
Executive Vice President

## Jim Phillips

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**From:** Julie Ellingson <Julie.Ellingson@ALSGlobal.com>  
**Sent:** Thursday, July 03, 2014 12:05 PM  
**To:** Julie Ellingson; jim@azomite.com; clint@azomite.com  
**Subject:** RE: ALS report 1406183  
**Attachments:** 1406183\_Cover.pdf; 1406183\_GAB.PDF; Invoice 63720.pdf

Attached is the ALS report 1406183 and invoice for sample received on 06/10/14. While there was detectable activity in the sample, the levels are below what we would consider radioactive. Average soils ranges between 10 to 20 pCi/g of K-40 and typically have less than 1% potassium. This product is approximately 5% potassium and the slight levels of activity that is seen can be contributed to this.

This sample has less activity than milk. Milk ranges between 100 and 150 pCi/l of K-40 activity.

Regards,  
Julie

Take our short online customer [survey](#) for a chance to win a FREE iPad!

## Julie Ellingson

**Project Manager / DOE-DOD Coordinator**  
**ALS Life Sciences Division | Environmental**

225 Commerce Drive  
Fort Collins, CO 80524 USA

D +1 970 490 1511 X241

T +1 800 443 1511

F +1 970 490 1522

[www.alsglobal.com](http://www.alsglobal.com)



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# Gross Alpha/Beta Case Narrative

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## AZOMITE Mineral Products, Inc. Radiation

Work Order Number: 1405183

1. This report consists of the analytical results for one solid sample received by ALS on 06/10/14.
2. The sample was prepared according to the current revision of SOP 702.
3. The sample was analyzed for gross alpha and beta activity by gas flow proportional counting according to the current revision of SOP 724. The analysis was completed on 06/23/14. Gross alpha results are referenced to  $^{241}\text{Am}$ . Gross beta results are referenced to  $^{90}\text{Sr/Y}$ .
4. The analysis results for this sample are reported on an 'As Received' basis in units of pCi/gram.
5. The sample and the QC samples were flamed, as prescribed in the current revision of SOP 702 for solid sample analyses. This could reduce the beta activity if the samples contained  $^{137}\text{Cs}$ , or other beta emitters, that may be volatile under the conditions associated with flaming.
6. No anomalous situations were encountered during the preparation or analysis of this sample. All quality control criteria were met.

The data contained in the following report have been reviewed and approved by the personnel listed below. In addition, ALS certifies that the analyses reported herein are true, complete and correct within the limits of the methods employed.

  
\_\_\_\_\_  
Linda Arend  
Radiochemistry Primary Data Reviewer

06/24/14  
Date

  
\_\_\_\_\_  
Audie E. Ellinger  
Radiochemistry Final Data Reviewer

06/25/14  
Date

# ALS Environmental -- FC

## Sample Number(s) Cross-Reference Table

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**OrderNum:** 1406183

**Client Name:** AZOMITE Mineral Products, Inc.

**Client Project Name:** Radiation

**Client Project Number:**

**Client PO Number:**

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| Client Sample Number | Lab Sample Number | COC Number | Matrix | Date Collected | Time Collected |
|----------------------|-------------------|------------|--------|----------------|----------------|
| AZOMITE 1            | 1406183-1         |            | SOLID  | 09-Jun-14      |                |

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ALS Environmental - Fort Collins  
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: Azonite

Workorder No: 1406183

Project Manager: JME

Initials: JLR Date: 6-10-14

|   |  |                                      |                                     |
|---|--|--------------------------------------|-------------------------------------|
| 1. Does this project require any special handling in addition to standard ALS procedures?   |  | YES                                  | <input checked="" type="radio"/> NO |
| 2. Are custody seals on shipping containers intact?   | <input checked="" type="radio"/> NONE      | YES                                  | NO                                  |
| 3. Are Custody seals on sample containers intact?   | <input checked="" type="radio"/> NONE      | YES                                  | NO                                  |
| 4. Is there a COC (Chain-of-Custody) present or other representative documents?   |  | <input checked="" type="radio"/> YES | NO                                  |
| 5. Are the COC and bottle labels complete and legible?  |  | <input checked="" type="radio"/> YES | NO                                  |
| 6. Is the COC in agreement with samples received? (IDs, dates, times, no. of samples, no. of containers, matrix, requested analyses, etc.)                    |  | <input checked="" type="radio"/> YES | NO                                  |
| 7. Were airbills / shipping documents present and/or removable?   | DROP OFF                                   | <input checked="" type="radio"/> YES | NO                                  |
| 8. Are all aqueous samples requiring preservation preserved correctly? (excluding volatiles)  | <input checked="" type="radio"/> N/A       | YES                                  | NO                                  |
| 9. Are all aqueous non-preserved samples pH 4-9?  | <input checked="" type="radio"/> N/A       | YES                                  | NO                                  |
| 10. Is there sufficient sample for the requested analyses?  |  | <input checked="" type="radio"/> YES | NO                                  |
| 11. Were all samples placed in the proper containers for the requested analyses?  |  | <input checked="" type="radio"/> YES | NO                                  |
| 12. Are all samples within holding times for the requested analyses?  |  | <input checked="" type="radio"/> YES | NO                                  |
| 13. Were all sample containers received intact? (not broken or leaking, etc.)   |  | <input checked="" type="radio"/> YES | NO                                  |
| 14. Are all samples requiring no headspace (VOC, GRO, RSK/MEE, Rx CN/S, radon) headspace free? Size of bubble: ___ < green pea ___ > green pea                | <input checked="" type="radio"/> N/A       | YES                                  | NO                                  |
| 15. Do any water samples contain sediment? Amount<br>Amount of sediment: ___ dusting ___ moderate ___ heavy   | <input checked="" type="radio"/> N/A       | YES                                  | NO                                  |
| 16. Were the samples shipped on ice?  |  | YES                                  | <input checked="" type="radio"/> NO |
| 17. Were cooler temperatures measured at 0.1-6.0°C? IR gun used*: #2 #4   | <input checked="" type="radio"/> RAIN ONLY | YES                                  | <input checked="" type="radio"/> NO |
| Cooler #: <u>1</u>  |  |                                      |                                     |
| Temperature (°C): <u>AMB</u>  |  |                                      |                                     |
| No. of custody seals on cooler: <u>0</u>  |  |                                      |                                     |
| External µR/hr reading: <u>13</u>   |  |                                      |                                     |
| Background µR/hr reading: <u>12</u>   |  |                                      |                                     |
| Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? <input checked="" type="radio"/> YES / NO / NA (If no, see Form 008.) |  |                                      |                                     |

Additional Information: PROVIDE DETAILS BELOW FOR A NO RESPONSE TO ANY QUESTION ABOVE, EXCEPT #1 AND #16.

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If applicable, was the client contacted? YES / NO / NA Contact: \_\_\_\_\_ Date/Time: \_\_\_\_\_

Project Manager Signature / Date: JLR 6/11/14

Form 201r24.xls (06/04/2012) \*IR Gun #2: Oakton, SN 29922500201-0066 \*IR Gun #4: Oakton, SN 2372220101-0002

1406183

Ship Date: 09 JUN 14  
ActWgt: 3.0 LB  
CAD: 2725109/NET3490

Delivery Address Bar Code



13  
-A

Ref #  
Invoice #  
PO #  
Dept #

TUE - 10 JUN AA  
STANDARD OVERNIGHT

TRK# 7702 3990 6758

0201

80524  
CO-US  
DEN  
**XH FTCA**



522366804F20



Origin ID: VELA

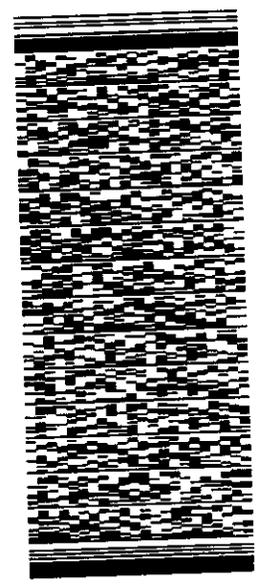
From: (435) 623-8007  
Vina Steele  
ZOMITE Mineral Products, Inc.  
17 South Main Street  
Nephi, UT 84648

J14101402070325

BILL SENDER

SHIP TO: (970) 490-1511  
Julie Ellingson  
ALS Laboratory Group  
225 Commerce Drive

FORT COLLINS, CO 80524



# Gross Alpha/Beta Analysis by GFPC

PAI 724 Rev 11

## Method Blank Results

Lab Name: ALS Environmental -- FC

Work Order Number: 1406183

Client Name: AZOMITE Mineral Products, Inc.

ClientProject ID: Radiation

Lab ID: AB140619-2MB

Sample Matrix: SOLID  
Prep SOP: PAI 702 Rev 20

Prep Batch: AB140619-2  
QCBatchID: AB140619-2-4

Final Aliquot: 2.00 g  
Result Units: pCi/g  
File Name: ABC0623C

Date Collected: 19-Jun-14  
Date Prepared: 19-Jun-14  
Date Analyzed: 23-Jun-14

Run ID: AB140619-2A  
Count Time: 150 minutes

| CASNO      | Target Nuclide | Result +/- 2 s TPU | MDC   | Requested MDC | Lab Qualifier |
|------------|----------------|--------------------|-------|---------------|---------------|
| 12587-46-1 | GROSS ALPHA    | -0.034 +/- 0.064   | 0.182 | 3             | U             |
| 12587-47-2 | GROSS BETA     | 0 +/- 0.13         | 0.28  | 4             | U             |

### Comments:

#### Qualifiers/Flags:

U - Result is less than the sample specific MDC.  
Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.  
Y2 - Chemical Yield outside default limits.  
LT - Result is less than Requested MDC, greater than sample specific MDC.

#### Abbreviations:

TPU - Total Propagated Uncertainty  
MDC - Minimum Detectable Concentration  
BDL - Below Detection Limit

M - Requested MDC not met.  
B - Analyte concentration greater than MDC.  
B3 - Analyte concentration greater than MDC but less than Requested MDC.

Data Package ID: AB1406183-1

# Gross Alpha/Beta Analysis by GFPC

PAI 724 Rev 11

## Laboratory Control Sample(s)

Lab Name: ALS Environmental -- FC

Work Order Number: 1406183

Client Name: AZOMITE Mineral Products, Inc.

ClientProject ID: Radiation

Lab ID: AB140619-2LCS

Sample Matrix: SOLID  
Prep SOP: PAI 702 Rev 20

Date Collected: 19-Jun-14

Date Prepared: 19-Jun-14

Date Analyzed: 23-Jun-14

Prep Batch: AB140619-2

QCBatchID: AB140619-2-4

Run ID: AB140619-2A

Count Time: 30 minutes

Final Aliquot: 2.00 g

Result Units: pCi/g

File Name: ABC0623A

| CASNO      | Target Nuclide | Results +/- 2s TPU | MDC | Spike Added | % Rec | Control Limits | Lab Qualifier |
|------------|----------------|--------------------|-----|-------------|-------|----------------|---------------|
| 12587-46-1 | GROSS ALPHA    | 15.9 +/- 3.1       | 0.7 | 13.78       | 115   | 70 - 130       | P             |
| 12587-47-2 | GROSS BETA     | 15.9 +/- 2.8       | 1.1 | 14.37       | 110   | 70 - 130       | P             |

### Comments:

#### Qualifiers/Flags:

- U - Result is less than the sample specific MDC.
- LT - Result is less than Requested MDC, greater than sample specific MDC.
- Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
- Y2 - Chemical Yield outside default limits.
- L - LCS Recovery below lower control limit.
- H - LCS Recovery above upper control limit.
- P - LCS Recovery within control limits.
- M - The requested MDC was not met.
- M3 - The requested MDC was not met, but thereported activity is greater than the reported MDC.

#### Abbreviations:

- TPU - Total Propagated Uncertainty
- MDC - Minimum Detectable Concentration

Data Package ID: AB1406183-1

# Gross Alpha/Beta Analysis by GFPC

PAI 724 Rev 11

## Sample Results

Lab Name: ALS Environmental -- FC  
Work Order Number: 1406183  
Client Name: AZOMITE Mineral Products, Inc.  
ClientProject ID: Radiation

|           |           |
|-----------|-----------|
| Field ID: | AZOMITE 1 |
| Lab ID:   | 1406183-1 |

Sample Matrix: SOLID  
Prep SOP: PAI 702 Rev 20  
Date Collected: 09-Jun-14  
Date Prepared: 19-Jun-14  
Date Analyzed: 23-Jun-14

Prep Batch: AB140619-2  
QCBatchID: AB140619-2-4  
Run ID: AB140619-2A  
Count Time: 30 minutes  
Report Basis: As Received

Final Aliquot: 0.509 g  
Prep Basis: As Received  
Moisture(%): NA  
Result Units: pCi/g  
File Name: ABC0623

| CASNO      | Target Nuclide | Result +/- 2 s TPU | MDC | Requested MDC | Lab Qualifier |
|------------|----------------|--------------------|-----|---------------|---------------|
| 12587-46-1 | GROSS ALPHA    | 8.2 +/- 3.2        | 2.7 | 3             |               |
| 12587-47-2 | GROSS BETA     | 33.2 +/- 6.3       | 2.8 | 4             |               |

### Comments:

#### Qualifiers/Flags:

- U - Result is less than the sample specific MDC.
- Y1 - Chemical Yield is in control at 100-110%. Quantitative Yield is assumed.
- Y2 - Chemical Yield outside default limits.
- LT - Result is less than Requested MDC, greater than sample specific MDC.
- M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
- M - The requested MDC was not met.

#### Abbreviations:

- TPU - Total Propagated Uncertainty
- MDC - Minimum Detectable Concentration
- BDL - Below Detection Limit

Data Package ID: AB1406183-1