# KELZYME

# RESOURCES



# **OMRI Listed®**

The following product is OMRI Listed. It may be used in certified organic production or food processing and handling according to the USDA National Organic Program Rule.

#### Product

Kelzyme® Soil Conditioner & Plant Stimulator

# Company

Environmental Health Science, LLC
Mr. Milton Christensen
P.O. Box 548
Provo, UT 84603

Status

Allowed

Category

NOP: Mined Minerals - unprocessed

Issue date

27-May-98

Product number

ehs-8028

Class

Crop Fertilizers and Soil Amendments

Expiration date

01-Jun-2015

Restrictions

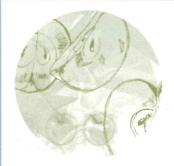
Not Applicable.

Executive Director

Product review is conducted according to the policies in the current OMRI Policy Manual<sup>®</sup> and based on the standards in the current OMRI Standards Manual<sup>®</sup>. To verify the current status of this or any OMRI Listed product, view the most current version of the OMRI Products List<sup>®</sup> at OMRI.org. OMRI listing is not equivalent to organic certification and is not a product endorsement. It cannot be construed as such. Final decisions on the acceptability of a product for use in a certified organic system are the responsibility of a USDA accredited certification agent. It is the operator's responsibility to properly use the product, including following any restrictions.



Organic Materials Review Institute P.O. Box 11558, Eugene, OR 97440-3758, USA 541.343.7600 - fax 541.343.8971 - info@omri.org - www.omri.org



# **OMRI Listed®**

The following product is OMRI Listed. It may be used in certified organic production or food processing and handling according to the USDA National Organic Program Rule.

# Product

Kelzyme® (For Large Animals)

# Company

Environmental Health Science, LLC Mr. Milton Christensen P.O. Box 548 Provo, UT 84603

Status

Allowed with Restrictions

Category

NOP: Minerals - feed

Issue date

22-Sep-06

Product number

ehs-0381

Class

Livestock Feed Ingredients

**Expiration date** 

01-Jun-2015

# Restrictions

May not be fed in amounts above those needed for adequate nutrition and health maintenance for the species at its specific stage in life.

Executive Director

Product review is conducted according to the policies in the current OMRI Policy Manual<sup>®</sup> and based on the standards in the current OMRI Standards Manual<sup>®</sup>. To verify the current status of this or any OMRI Listed product, view the most current version of the OMRI Products List<sup>®</sup> at OMRI.org. OMRI listing is not equivalent to organic certification and is not a product endorsement. It cannot be construed as such. Final decisions on the acceptability of a product for use in a certification system are the responsibility of a USOA accredited certification agent. It is the operator's responsibility to properly use the product, including following any restrictions.



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# STATE OF CALIFORNIA DEPARTMENT OF FOOD AND AGRICULTURE FEED, FERTILIZER, AND LIVESTOCK DRUGS REGULATORY SERVICES 1220 N STREET SACRAMENTO, CA 95814

# CERTIFICATE OF REGISTRATION FOR ORGANIC INPUT MATERIALS

NON TRANSFERABLE



FIRM NO.

295256

#### Firm

KELZYME RESEARCH & DEVELOPMENTCENTER LLC 1000 HIGHWAY 400 MILL CITY, NV 89418

is authorized to manufacture, deliver or sell in California the products listed below. Registration is not an endorsement by the Department of Food and Agriculture of any product or any claim made for it. No reference may be made to the State of California Department of Food and Agriculture in labeling or advertisements. Registration may be canceled after hearing at any time for just cause. The composition of each product and the label used on it must be the same as those submitted by the registrant.

# Organic Input Material

- 1. 100% NATURAL FERTILIZER. Issued: Nov 7, 2014. Expires: Dec 31, 2015.
- 2. MICRONIZED 100% NATURAL FERTILIZER. Issued: Nov 7, 2014. Expires: Dec 31, 2015.

# STATE OF CALIFORNIA DEPARTMENT OF FOOD AND AGRICULTURE FEED, FERTILIZER, AND LIVESTOCK DRUGS REGULATORY SERVICES 1220 N STREET SACRAMENTO, CA 95814

## CERTIFICATE OF REGISTRATION FOR FERTILIZING MATERIALS

NON TRANSFERABLE

FIRM NO.

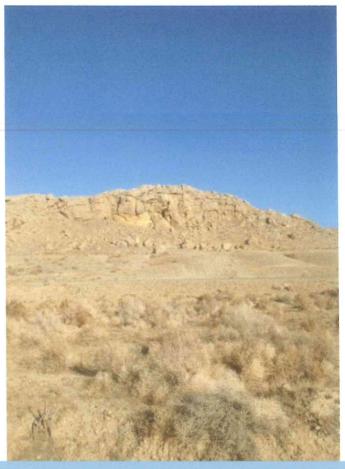
295256

#### Firm

KELZYME RESEARCH & DEVELOPMENTCENTER LLC 1000 HIGHWAY 400 MILL CITY, NV 89418

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Please note that Bulk Agricultural Mineral and Commercial Fertilizer product labels that may be listed below are NOT registered, but have been reviewed, and their labeling is in accordance with the requirements of Section 14631 of the Food and Agricultural Code and Sections 2300 through 2312 of the California Code of Regulations.



10/10/2014

Kelzyme Research and Development Center LLC 1000 State Route 400 Mill City NV 89418

An overview of the mining practices and processes in extracting and packaging Kelzyme@ at the mine site in Mill City Nevada

#### DESCRIPTION OF DEPOSIT:

The deposit holding the aggregate marketed as Kelzyme is approximately 80 million years old, deposited during the period of an inland sea. The deposit known as Kelzyme contains high levels of calcium and trace minerals. The deposit occurs in layers of varying thicknesses directly related to the evaporative cycles of the ancient inland sea. The deposit of Kelzyme contains fossilized sea kelp. The deposit known as Kelzyme also contains evidence of volcanic hydrothermic activity in the form of mineralized vents and fissures inside the formation. The surface area of the deposit currently under development encompasses approximately 900 meters square and extends in depth to approximately

500 meters.

#### DESCRIPTION OF MINING PROCEDURE:

Kelzyme is a mined aggregate product. The Kelzyme Research and Development Center LLC is located at 1000 State Route 400 approximately 2.33 km E of the Mill City, Nevada (town site as surveyed in 1862).

Kelzyme is extracted in a standard surface mining operation in which soil and rock overlying the mineral deposit (the overburden) are removed. It is the opposite of underground mining, in which the overlying rock is left in place, and the mineral removed through shafts or tunnels. The exact method of extracting Kelzyme would be called contour stripping which involves removing the overburden above the mineral seam near the outcrop in hilly terrain, where the mineral outcrop usually follows the contour of the land. Contour stripping is often followed by auger mining into the hillside, to remove more of the mineral. This method commonly leaves behind terraces in mountainsides.

The order of the processes in extracting Kelzyme are as follows:

## DRILLING:

The 6 x 6 drill pattern used for extracting Kelzyme was found to be optimum for the hardness and stratification of the material. 4" holes were bored to 20' in depth.



#### BLASTING:

The above described bores are then loaded with a series of blue sausage like explosive packs. The packs contain approximately 25 lbs of Fortrell Pro X blasting agent which consists of Ammonium Nitrate. Once loaded these charges are electronically detonated using high explosive caps. This detonation initiates the rapid oxidation of the blasting agent which shatters the rock into manageable sizes of approximately 2' minus. With an Ammonium Nitrate only blasting agent there is no residue left over from the oxidation process.

# MUCKING:

The process of removing the aggregate after the blast and moving it away from the high-wall is called mucking. During the initial crushing run at the Kelzyme mine site this was done with a Komatsu PC 220 excavator.



## TRAMMING:

The process of moving the mucked material from the muck pile to the crusher for processing is called "Tramming". During the initial run at Kelzyme Research and Development Center this was performed using a CAT 980 C Loader with an 8 cubic yard bucket.



## CRUSHING:

Once trammed to the crusher ore bin the 2' minus material is gravity fed from the wheel loader bucket into a rotary type crusher where it is reduced to 2" minus. The specific machine used in the initial production of Kelzyme was a diesel powered Terex 7100.



#### FINE CRUSHING:

The Terex Model crusher that feeds the 2" Minus aggregate to a cone crusher via conveyor belt for reduction to 3/16" minus. The Model of Cone Crusher used in the initial production run of Kelzyme was a Terex Pegson 1300 Max Trax.



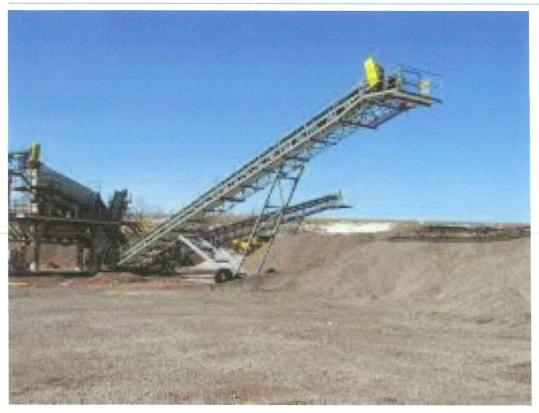
# CLASSIFICATION:

Once processed by the Terex Pegson 1400 Cone Crusher the 3/16" minus aggregate is classified according to size using a Terex Powerscreen. The specific model used during this process was a Terex Powerscreen Chieftan 1400 S. During the initial production run of Kelzyme only two classifications of aggregate were produced on the mine site. These were 3/16" minus and 3/8" screen reject which is commonly referred to as fractured pea gravel.



#### STOCKPILING:

The 3/16" minus aggregate used in Kelzyme is transported by the discharge belt of the Power Screen 1400 and then gravity fed onto a secondary discharge conveyor commonly referred to as a stacker. The material then accumulates a height 7 feet below the head pulley of the stacker per MSHA regulations. When this elevation has been attained the stacker is moved away from the accumulated pile and the process begins anew. Once the full width of the stacker footprint is used the aggregate is pushed into a singular pile via Dozer. The machine used during the initial production run of Kelzyme was a CAT D9H. The screen reject IE: 3/8" pea gravel was transported to a secondary stockpile using the CAT 980 C wheel loader. Once the initial production run was completed the 3/16" minus stockpile was covered for protection from the elements and to avoid contamination with a poly tarp at the Kelzyme Research and Development mine site.



#### OFF-SITE PROCESSING:

220 Tons of the 3/16" minus aggregate was loaded into 20 cubic yard end dump trailers using the CAT 980 C wheel loader. The material was then transported via Interstate 80 by semi-truck approximately 30 miles east to Winnemucca, NV where it was stockpiled. It was then reduced to 325 mesh by a milling contractor and packaged the 325 mesh material into poly bulk bags for storage. A Raymond milling process was used to reduce the Kelzyme to 325 mesh. At this time the 325 material is stored in 2000 lb poly bulk bags awaiting distribution or packaging into smaller sized bags.

The material bagged in 2000 lb Poly bags was then transported to a storage facility at 6066 Old Jungo Rd in Winnemucca, Nevada.

It was offloaded by forklift on pallets and carried inside the warehouse for storage until the product is distributed or packaged into smaller sized bags. Currently there is no system in place to package Kelzyme. Kelzyme does not degrade in storage and there is no pre-determined time the product is stored inside the warehouse. It is stored until sold. There are no other products stored in the warehouse with the bagged Kelzyme.

# **Material Safety Data Sheet**

May be used to comply with OSHA's Hazard Communication Standard, 29 CFR 1910.1200. Standard must be consulted for specific requirements.

# U.S. Department of Labor

Occupational Safety and Health Administration (Non-Mandatory Form) Form Approved OMB No. 1218-0072



IDENTITY (As Used on Label and List)	Note: Blank spaces are not permitted. If any item
Kelzyme	is not applicable, or no information is available,
	the space must be marked to indicate that.

# Section I

Manufacturer's Name Kelzyme Research and Development Center	Emergency Telephone Number
Address (Number, Street, City, State, and ZIP Code)	Telephone Number for Information 801-368-7822
1000 400 Unionville Road	Date Prepared 10/28/2013
Imlay, Nevada 89418	Signature of Preparer (optional)

# Section II - Hazardous Ingredients/Identity Information

Hazardous Components (Specific Chemical Identity; Common Name(s))	OSHA PEL	ACGIH TLV	Other Limits Recommended	%(optional)
No hazardous components		eveniment of the Voltage of the second secon		
Calcium mineral	N/A	N/A	N/A	98%

# Section III - Physical/Chemical Characteristics

Appearance and Odor	White/ta	n odorless material.	and the second s
Solubility in Water			
Vapor Density (AIR = 1)	N/A	Evaporation Rate (Butyl Acetate = 1)	N/A
Vapor Pressure (mm Hg)	N/A	Melting Point	N/A
Boiling Point	N/A	Specific Gravity (H <sub>2</sub> O = 1)	2.5

# **Section IV - Fire and Explosion Hazard Data**

Flash Point (Method Use	ed) N/A	Flammable Limits N/A	LEL N/A	UEL N/A
Extinguishing Media	N/A		,	
Special Fire Fighting Pro	cedures:	None		ı
Unusual Fire and Explos	ion Hazard	ds: None		

(Reproduce locally)

OSHA 174, Sept. 1985

# **Section V - Reactivity Data**

Stability	Stable		Conditions to Avoid:	None	
Incompatibil	ity (Materials to	o Avoid):	None		
Hazardous D	Decomposition of	or Byproducts:	None		
Hazardous P	olymerization	Will Not Occur	Conditions to Avoid:	None	<u> </u>

1

# Section VI - Health Hazard Data

		•	
Route(s) of Entry:	Inhalation? N/A	Skin? N/A	Ingestion? N/A
Health Hazards (Acute	and Chronic): None	•	
Carcinogenicity:	NTP? N/A	IARC Monographs? N/A	OSHA Regulated? N/A
Signs and Symptoms	of Exposure: None	-	
Medical Conditions Ge	nerally Aggravated by Ex	posure: None	
Emergency and First A	Aid Procedures: None		

# **Section VII - Precautions for Safe Handling and Use**

Steps to Be Taken in Case Material is Released or Spilled: No special requirements		-
Precautions to Be taken in Handling and Storing: No special requirements. Keep material dry for product quality.		
Other Precautions: No special Precautions	 	

# **Section VIII - Control Measures**

Respiratory Prote	ction (Specify Type):	lo special requiremer	
Ventilation: N/A	Local Exhaust: N/A	Specia	i: N/A
Mechanical (Gen	eral): N/A	Other:	N/A
Protective Gloves	: No special requirements	Eye Protection:	No special requirements
Other Protective	Clothing or Equipment: No s	pecial equipment req	uired
Work/Hygienic Pr	actices: No special requir	ements	



# Gross Alpha/Beta Case Narrative

# Kelzyme Research and Development Ctr LLC

Kelzyme Mine Site Rad Test -- KELZYME070214-1

Work Order Number: 1407114

- 1. This report consists of the analytical results for five solid samples received by ALS on 07/08/14.
- 2. These samples were prepared according to the current revision of SOP 702.
- 3. The samples were analyzed for gross alpha and beta activity by gas flow proportional counting according to the current revision of SOP 724. The analyses were completed on 07/16/14. Gross alpha results are referenced to <sup>241</sup>Am. Gross beta results are referenced to <sup>90</sup>Sr/Y.
- The analysis results for these samples are reported on an 'As Received' basis in units of pCi/gram.
- The samples and the associated 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 <sup>137</sup>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 these samples. 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.

	7/18/14
Linda Arend	Date
Radiochemistry Primary Data Reviewer	
Radiochemistry Final Data Reviewer	Date

# **ALS Environmental -- FC**

# Sample Number(s) Cross-Reference Table

**OrderNum:** 1407114

Client Name: Kelzyme Research and Development Ctr LLC

Client Project Name: Kelzyme Mine Site Rad Test

Client Project Number: KELZYME070214-1

Client PO Number: SK070214

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
1BOHSE	1407114-1		SOLID	02-Jul-14	13:48
2TOHSW	1407114-2		SOLID	02-Jul-14	14:57
3TOHNE	1407114-3		SOLID	02-Jul-14	15:15
4TOHNW	1407114-4		SOLID	02-Jul-14	16:32
5WWHPACK	1407114-5		SOLID	02-Jul-14	18:48

Date Printed: Friday, July 18, 2014

# **ALS Laboratory Group**

225 Commerce Drive, Fort Collins, Colorado 80524 TF: (800) 443-1511 PH: (970) 490-1511 FX: (970) 490-1522

Chain-of-Custody

WORKORDER | 4071114

Form 202rB

1							-	-	-				
(ALS)			SAMPLER Warre	Warren Warnick		DATE		70214	PAGE	-	of	-	
PROJECT NAME	PROJECT NAME   Kelzyme Mine Site Rad Test		SITE ID 10008	1000SR40089418	TURN	TURNAROUND	٠		DISPOSAL	By Labor		Return to Client	ent
PROJECT No.	PROJECT No. KELZYME070214-1		EDD FORMAT								<u></u>		
		PUI	PURCHASE ORDER SK070214	0214							***************************************		
COMPANY NAME	Kelzyme Research and Development Ctr LLC	116	BILL TO COMPANY COD Call for Payment	Call for Payment									
SEND REPORT TO	Susie Kassal	×	INVOICE ATTN TO Susie								***************************************		
ADDRESS	250 Greenpoint		ADDRESS 250 G	250 Greenpoint Ave							*************		-
CITY / STATE / ZIP	Brooklyn, NY 11222	ס	CITY / STATE / ZIP Brook	Brooklyn, NY 89418	eta								
PHONE	516-770-4996		PHONE 516-770-4996	70-4996	B/sdo								
FAX			FAX		ilA s				 ***********				
E-MAIL	susie@kelzyme.com		E-WAIL SUSIE	susie@kelzyme.com	eo1Đ								
Lab ID	Field ID	Matrix	Sample Date	Sample #Bc	# Bottles		at the state of th				MALE AND ADDRESS OF THE ADDRESS OF T		
<u>e</u>	1BOHSE	s	70214	13:48:00	-								
0	2TOHSW	S	70214	14:57:00									
<u></u>	3TOHNE	S	70214	15:15:00	_								
T	4TOHNW	S	70214	16:32:00		•						,	
(A)	SWWHPACK	s	70214	18:48:00	-						*******		
		THE REAL PROPERTY AND ADDRESS OF THE PERSON	MANANA	And the second s									
			The state of the s										
"Time Zone (Circle)"	FST CST MST PST Mainx: O = oil S = soil NS = non-soil solid W = water L = liquid	soil solid W = wale	or L = liquid E = extract F = filter	F = filter									

"Time Zone (Circle): EST CST MST PST Matrix: O = oil S = soil NS = non-soil soild W = water L = liquid E = extract F = filter

For metals or anions, please detail analytes below.

Comments:								QC PAC	QC PACKAGE (check below)
<u>ากกักกับกับกากกลากสิกคณากกกกกกกกกกกกกกกกกกกกกกกกกกกกกกกกกกก</u>	กับกทกก	nununun	กากกากกาก	החחחחחוו	ากตกกดดกกด กุกตกกดกกกก	חחחחחחו	nanna		LEVEL II (Standard OC)
									LEVEL III (Std QC + forms)
									LEVEL IV (Sid QC + forms + raw data)
4 0									
Progervative Key: 1-HCI 2-HNO3 3-H2SO4 4-NaOH 5-NaHSO4 7-Other 8-4 degrees C 9-5035	1-HCI	2-HN03	3-H2SO4	4-NaOH	5-NaHSO4	7-Other	8-4 degre	ses C	9-5035
3									

1230 DATE Jocop (6090x) PRINTED NAME SIGNATURE SHED BY RECEIVE D BY SHED BY RECEIVE D BY RELINQUI SHED BY RECEIVE D BY RELINGUI



# ALS Environmental - Fort Collins CONDITION OF SAMPLE UPON RECEIPT FORM

Client: KPZYME Workorder No: 1407	114		
Project Manager: TWE Initials: TVL	Date:	7-8-11	1
Does this project require any special handling in addition to standard ALS procedures?		YES	(NO)
2. Are custody seals on shipping containers intact?	NONE	YES	NO
3. Are Custody seals on sample containers intact?	NONE	YES	NO
4 Is there a COC (Chain-of-Custody) present or other representative documents?		(YE)s	NO
5. Are the COC and bottle labels complete and legible?		Œs	NO
6. Is the COC in agreement with samples received? (IDs, dates, times, no. of samples, no. of containers, matrix, requested analyses, etc.)		(E3)	NO
7. Were airbills / shipping documents present and/or removable?	OROP OFF	YE)S	NO
8. Are all aqueous samples requiring preservation preserved correctly? (excluding volatiles)	(N/A)	YES	NO
9. Are all aqueous non-preserved samples pH 4-9?	N/A	YES	NO
10. Is there sufficient sample for the requested analyses?		(YE)S	NO
11. Were all samples placed in the proper containers for the requested analyses?		YES	NO
12. Are all samples within holding times for the requested analyses?		(E)	NO
13. Were all sample containers received intact? (not broken or leaking, etc.)		(ES	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	(V/A)	YES	ИО
Is. Do any water samples contain sediment?  Amount of sediment: dusting moderate heavy	N/A	YES	NO
16. Were the samples shipped on ice?		YES	(MØ
17. Were cooler temperatures measured at 0.1-6.0°C?  IR gun used*: #2 #4	RAD	YES	(N)0
Cooler #:	SUMMIT I		Ť
Temperature (°C): Ans			
No. of custody seals on cooler:	-		
COT Survey/ Acceptance External μR/hr reading: [2		-	
Background μR/hr reading: (2	Npotts/espectorous-assudants		
Were external μR/hr readings ≤ two times background and within DOT acceptance criteria? (ES / NO / NA (If no, see F	form 008.)		
Additional Information: PROVIDE DETAILS BELOW FOR A NO RESPONSE TO ANY QUESTION ABOVE, EXC		ND #16.	
		90074	
		***************************************	***************************************
If applicable, was the client contacted? YES / NO /(NA) Contact:	Date/Ti	me·	
7 1 7 1 2 1 2 1 2 1	, Dutt/ III		
Project Manager Signature / Date:	<del></del>		
18 Gun #2: Oakton SN 20022500201-0066			

Form 201r24.xls (06/04/2012)

fR Gun #2: Oakton, SN 29922500201-0066 \*IR Gun #4: Oakton, SN 2372220101-0002

KELZYME RESEARCH & DEVELOPMENT 7753022588 KELZYME RESEARCH AND DEVELOPME 1000 HIGHWAY 400 MILL CITY NV 89418 1 LBS DWT: 8,8,6 FOLD HERE SHIP TO: ALS LABORATORY GROUP 225 COMMERCE DR. FORT COLLINS CO 80524 TRACKING #: 1Z R73 707 03 9076 6962 ZR737070390766962 OTTH- NULL 9050 HIP 14.3.1 INT4420 BILLING: P/P

ယ nearest you, please visit the 'Find Locations' Quick link at ups.com. Return Services(SM) (jacluding via Ground) are also accepted at Drop Boxes. To find the location Alliances (Office Depot® or Staples®) or Authorized Shipping Outlet near you. Items sent via UPS Take your package to any location of The UPS Store®, UPS Drop Box, UPS Customer Center, UPS Hand the package to any UPS driver in your area. Schedule a same day or future day Pickup to have a UPS driver pickup all of your Internet Shipping GETTING YOUR SHIPMENT TO UPS UPS locations include the UPS Store<sup>®</sup>, UPS drop boxes, UPS customer centers, authorized shipping tape over the entire label. label in a UPS Shipping Pouch. If you do not have a pouch, affix the folded label using clear plastic ייריייש ישףים. איט ווסו cover any seams or closures on the package with the label. Place the

Your driver will pickup your shipment(s) as usual

Customers with a Daily Pickup

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# **PAI 724 Rev 11 Method Blank Results**

Lab Name: ALS Environmental -- FC

Work Order Number: 1407114

Client Name: Kelzyme Research and Development Ctr LLC ClientProject ID: Kelzyme Mine Site Rad Test KELZYME070214-1

Lab ID: AB140714-1MB

Sample Matrix: SOLID

Prep Batch: AB140714-1

Final Aliquot: 2.00 g

Prep SOP: PAI 702 Rev 20 Date Collected: 14-Jul-14

QCBatchID: AB140714-1-4 Run ID: AB140714-1A

Result Units: pCi/g

Date Prepared: 14-Jul-14

File Name: ABC0716A

Count Time: 60 minutes

Date Analyzed: 16-Jul-14

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
12587-46-1	GROSS ALPHA	0.05 +/- 0.15	0.35	3	U
12587-47-2	GROSS BETA	0.13 +/- 0.19	0.42	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: AB1407114-1

Date Printed: Friday, July 18, 2014

**ALS Environmental -- FC** 

Page 1 of 1

LIMS Version: 6.718

# **PAI 724 Rev 11 Laboratory Control Sample(s)**

Lab Name: ALS Environmental -- FC

Work Order Number: 1407114

Client Name: Kelzyme Research and Development Ctr LLC ClientProject ID: Kelzyme Mine Site Rad Test KELZYME070214-1

Lab ID: AB140714-1LCS

Sample Matrix: SOLID

Prep Batch: AB140714-1

Final Aliquot: 2.00 g

Prep SOP: PAI 702 Rev 20 Date Collected: 14-Jul-14

QCBatchID: AB140714-1-4 Run ID: AB140714-1A

Result Units: pCi/g File Name: ABC0716A

Date Prepared: 14-Jul-14

Count Time: 60 minutes

Date Analyzed: 16-Jul-14

CASNO	Target Nuclide	Results +/- 2s TPU	MDC	Spike Added	% Rec	Control Limits	Lab Qualifier
12587-46-1	GROSS ALPHA	15.9 +/- 2.8	0.4	13.78	116	70 - 130	Р
12587-47-2	GROSS BETA	16.5 +/- 2.8	0.7	14.35	115	70 - 130	Р

#### 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.

Data Package ID: AB1407114-1

Date Printed: Friday, July 18, 2014

Abbreviations:

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

**ALS Environmental -- FC** 

Page 1 of 1

LIMS Version: 6.718

# **PAI 724 Rev 11** Sample Results

Lab Name: ALS Environmental -- FC

Work Order Number: 1407114

Client Name: Kelzyme Research and Development Ctr LLC ClientProject ID: Kelzyme Mine Site Rad Test KELZYME070214-1

Field ID: 1BOHSE

Lab ID: 1407114-1

Sample Matrix: SOLID

Prep SOP: PAI 702 Rev 20

Date Collected: 02-Jul-14

Date Prepared: 14-Jul-14

Date Analyzed: 16-Jul-14

Report Basis: As Received

Prep Batch: AB140714-1

QCBatchID: AB140714-1-4 Run ID: AB140714-1A

Count Time: 60 minutes

Result Units: pCi/g

File Name: ABC0716

Prep Basis: As Received

Final Aliquot: 0.514 g

Moisture(%): NA

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
12587-46-1	GROSS ALPHA	0.12 +/- 0.54	1.37	3	U
12587-47-2	GROSS BETA	0.81 +/- 0.80	1.71	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.
- $\ensuremath{\mathsf{LT}}$  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: AB1407114-1

Date Printed: Friday, July 18, 2014

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# **PAI 724 Rev 11** Sample Results

Lab Name: ALS Environmental -- FC

Work Order Number: 1407114

Client Name: Kelzyme Research and Development Ctr LLC ClientProject ID: Kelzyme Mine Site Rad Test KELZYME070214-1

Field ID: 2TOHSW

Sample Matrix: SOLID

Prep SOP: PAI 702 Rev 20

Prep Batch: AB140714-1

Final Aliquot: 0.517 g

Lab ID: 1407114-2

QCBatchID: AB140714-1-4

Prep Basis: As Received

Date Collected: 02-Jul-14

Run ID: AB140714-1A

Moisture(%): NA

Date Prepared: 14-Jul-14

Count Time: 60 minutes

Result Units: pCi/g File Name: ABC0716

Date Analyzed: 16-Jul-14

Report Basis: As Received

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
12587-46-1	GROSS ALPHA	0.27 +/- 0.60	1.40	3	U
12587-47-2	GROSS BETA	0.49 +/- 0.79	1.76	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.
- 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: AB1407114-1

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# **PAI 724 Rev 11** Sample Results

Lab Name: ALS Environmental -- FC

Work Order Number: 1407114

Client Name: Kelzyme Research and Development Ctr LLC ClientProject ID: Kelzyme Mine Site Rad Test KELZYME070214-1

Field ID: 3TOHNE Lab ID: 1407114-3 Sample Matrix: SOLID

Prep SOP: PAI 702 Rev 20 Date Collected: 02-Jul-14

Date Prepared: 14-Jul-14 Date Analyzed: 16-Jul-14 Prep Batch: AB140714-1

QCBatchID: AB140714-1-4 Run ID: AB140714-1A

Count Time: 60 minutes Report Basis: As Received Final Aliquot: 0.501 g Prep Basis: As Received

Moisture(%): NA Result Units: pCi/g File Name: ABC0716

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
12587-46-1	GROSS ALPHA	0.50 +/- 0.69	1.45	3	U
12587-47-2	GROSS BETA	0.80 +/- 0.84	1.81	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.
- M3 The requested MDC was not met, but the reported activity is greater than the reported MDC.
- M The requested MDC was not met.

TPU - Total Propagated Uncertainty

MDC - Minimum Detectable Concentration

BDL - Below Detection Limit

Data Package ID: AB1407114-1

Date Printed: Friday, July 18, 2014

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# **PAI 724 Rev 11** Sample Results

Lab Name: ALS Environmental -- FC

Work Order Number: 1407114

Client Name: Kelzyme Research and Development Ctr LLC ClientProject ID: Kelzyme Mine Site Rad Test KELZYME070214-1

Field ID: 4TOHNW

Sample Matrix: SOLID

Prep SOP: PAI 702 Rev 20

Prep Batch: AB140714-1

Final Aliquot: 0.520 g

Lab ID: 1407114-4

QCBatchID: AB140714-1-4

Prep Basis: As Received

Date Collected: 02-Jul-14

Run ID: AB140714-1A

Moisture(%): NA

Date Prepared: 14-Jul-14

Count Time: 60 minutes

Result Units: pCi/g

Date Analyzed: 16-Jul-14

Report Basis: As Received

File Name: ABC0716

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
12587-46-1	GROSS ALPHA	0.49 +/- 0.70	1.48	3	U
12587-47-2	GROSS BETA	0.26 +/- 0.75	1.72	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.
- 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: AB1407114-1

Date Printed: Friday, July 18, 2014

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# PAI 724 Rev 11 Sample Results

Lab Name: ALS Environmental -- FC

Work Order Number: 1407114

Client Name: Kelzyme Research and Development Ctr LLC
ClientProject ID: Kelzyme Mine Site Rad Test KELZYME070214-1

**Field ID:** 5WWHPACK **Lab ID:** 1407114-5

Sample Matrix: SOLID

Prep SOP: PAI 702 Rev 20

Date Collected: 02-Jul-14

Date Prepared: 14-Jul-14 Date Analyzed: 16-Jul-14 Prep Batch: AB140714-1

QCBatchID: AB140714-1-4 Run ID: AB140714-1A

Count Time: 60 minutes
Report Basis: As Received

Final Aliquot: 0.505 g
Prep Basis: As Received

Moisture(%): NA Result Units: pCi/g File Name: ABC0716

CASNO	Target Nuclide	Result +/- 2 s TPU	MDC	Requested MDC	Lab Qualifier
12587-46-1	GROSS ALPHA	0.03 +/- 0.54	1.47	3	U
12587-47-2	GROSS BETA	0.46 +/- 0.78	1.75	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.
- 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: AB1407114-1

Date Printed: Friday, July 18, 2014

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