

Client:	DEF Products, LLC
Contact	Joe Servin, General Manager
Address	422 East Barioni Blvd Imperial, CA 02251
Email	defproducts@gmail.com
Phone	760 355 7997

Analytic ID	E1904026-001
Batch Number	304102019
Train Number	GATX224304
Sample ID	DEF 32.6%
Date Sampled	4/10/2019
Date Received	4/15/2019
Report Date	4/18/2019

Certificate of Analysis

Diesel Exhaust Fluid Analytical ISO-22241

Client ID: 32.6% DEF Batch# 304102019 Train# GATX224304

Test Parameter/Method	Units	Test Method (ISO) ¹	Acceptable Limit ^{2,3}	Results	Chemist	Analysis Date	Pass/Fail
Urea Content	wt%	22241-2 Annex C	(31.6-33.4)	33.3	SPT	4/18/2019	Pass
Refractive Index @ 20degC	N _D ²⁰	22241-2 Annex C	1.3814-1.3843	1.3841	CND	4/15/2019	Pass
Alkalinity as NH ₃	%	22241-2 Annex D	<0.2	<0.01	CND	4/15/2019	Pass
Biuret	%	22241-2 Annex E	<0.3	0.18	BDK	4/16/2019	Pass
Aldehyde	mg/kg	22241-2 Annex F	<5	<1.0	BDK	4/17/2019	Pass
Insolubles	mg/kg	22241-2 Annex G	<20	<2.0	BDK	4/16/2019	Pass
Phosphate	mg/kg	22241-2 Annex H	<0.5	<0.25	CND	4/16/2019	Pass
Calcium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<0.05	CLB	4/16/2019	Pass
Iron by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<0.05	CLB	4/16/2019	Pass
Copper by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<0.02	CLB	4/16/2019	Pass
Zinc by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<0.02	CLB	4/16/2019	Pass
Chromium by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<0.02	CLB	4/16/2019	Pass
Nickel by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<0.02	CLB	4/16/2019	Pass
Aluminum by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<0.05	CLB	4/16/2019	Pass
Magnesium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<0.05	CLB	4/16/2019	Pass
Sodium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<0.05	CLB	4/16/2019	Pass
Potassium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<0.05	CLB	4/16/2019	Pass

Miscellaneous Secondary Unregulated Quality Standards


Identity by FTIR (attached)	Spectra	22241-2 Annex J	Control Match	Match	BDK	4/15/2019	---
Density @ 20degC	g/cm ³	3675	Not Applicable	1.0950	CND	4/15/2019	---

Note 1: All ISO standards are up to date with the latest revisions.

Note 2: The acceptable values are based on the standard 32.5% unless otherwise stated, and are less than or equal to the values shown.

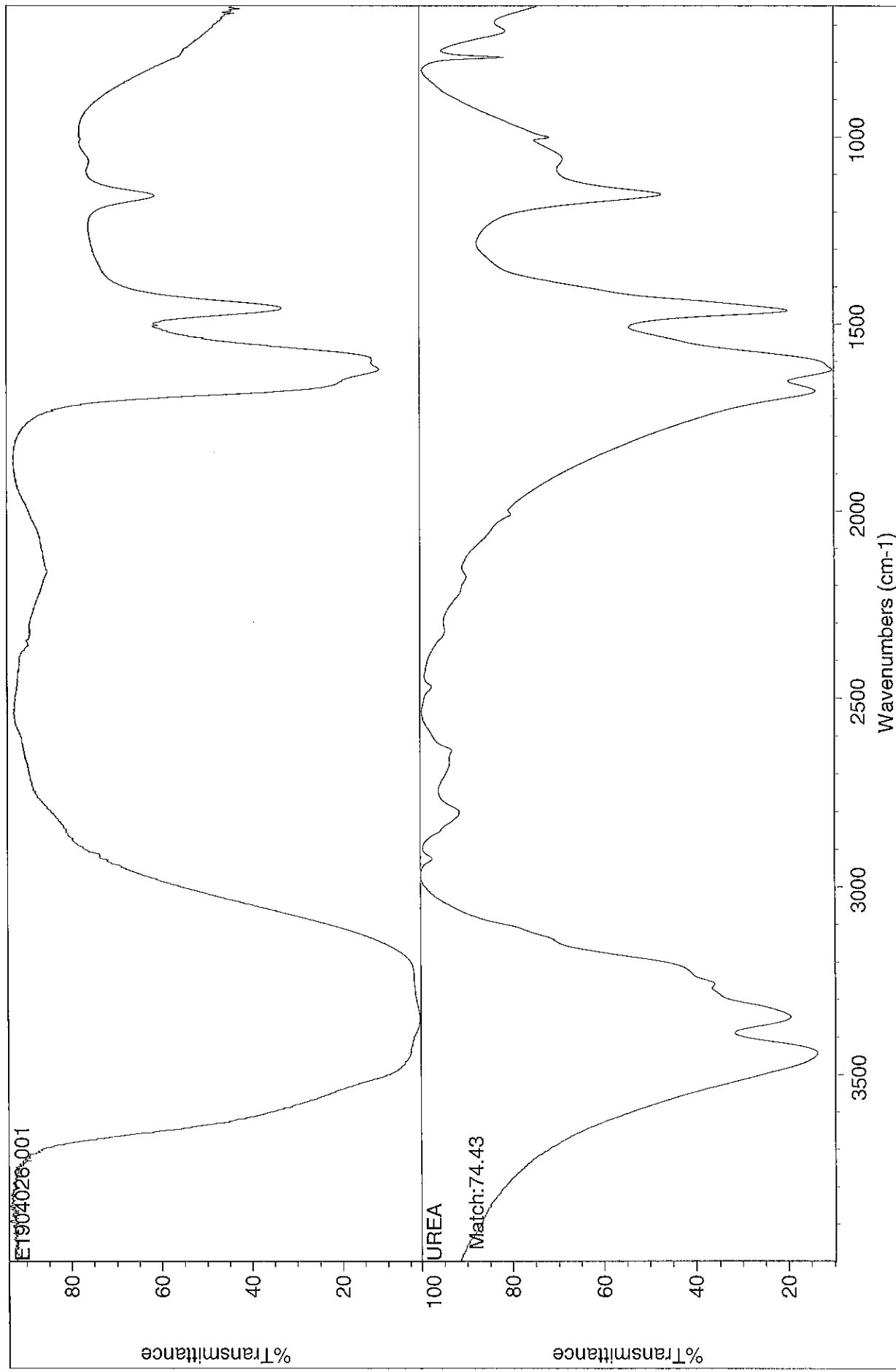
Note 3: The API's expanded range acceptable limits for Urea Content are shown in parentheses.

"The undersigned certifies that the value(s) reported have met the highest analytical quality control standards."

Certification Approval 
 Laboratory Director: Anthony J Scala

Date: 4/18/2019

Search results for: E1904026-001
Date: Mon Apr 15 14:57:39 2019 (GMT-04:00)
Search algorithm: Search Expert
Regions searched: 2600.00-450.00



Client:	DEF Products, LLC
Contact	Joe Servin, General Manager
Address	422 East Barioni Blvd Imperial, CA 02251
Email	defproducts@gmail.com
Phone	760 355 7997

Enalytic ID	E1904031-001
Batch Number	304112019
Train Number	GATX225123
Sample ID	DEF 32.6%
Date Sampled	4/11/2019
Date Received	4/16/2019
Report Date	4/22/2019

Certificate of Analysis

Diesel Exhaust Fluid Analytical ISO-22241

Client ID: 32.6% DEF Batch# 304112019 Train# GATX225123

Test Parameter/Method	Units	Test Method (ISO) ¹	Acceptable Limit ²	Results	Chemist	Analysis Date	Pass/Fail
Urea Content	wt%	22241-2 Annex C	31.8-33.2	32.3	SPT	4/22/2019	Pass
Refractive Index @ 20degC	N _D ²⁰	22241-2 Annex C	1.3814-1.3843	1.3826	CND	4/16/2019	Pass
Alkalinity as NH ₃	%	22241-2 Annex D	<0.2	<0.01	BDK	4/17/2019	Pass
Biuret	%	22241-2 Annex E	<0.3	0.20	BDK	4/16/2019	Pass
Aldehyde	mg/kg	22241-2 Annex F	<5	<1.0	BDK	4/17/2019	Pass
Insolubles	mg/kg	22241-2 Annex G	<20	<2.0	BDK	4/22/2019	Pass
Phosphate	mg/kg	22241-2 Annex H	<0.5	<0.25	BDK	4/22/2019	Pass
Calcium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<0.05	CLB	4/16/2019	Pass
Iron by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<0.05	CLB	4/16/2019	Pass
Copper by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<0.02	CLB	4/16/2019	Pass
Zinc by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<0.02	CLB	4/16/2019	Pass
Chromium by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<0.02	CLB	4/16/2019	Pass
Nickel by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<0.02	CLB	4/16/2019	Pass
Aluminum by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<0.05	CLB	4/16/2019	Pass
Magnesium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<0.05	CLB	4/16/2019	Pass
Sodium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<0.05	CLB	4/16/2019	Pass
Potassium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<0.05	CLB	4/16/2019	Pass


Miscellaneous Secondary Unregulated Quality Standards

Identity by FTIR (attached)	Spectra	22241-2 Annex J	Control Match	Match	CND	4/18/2019	---
Density @ 20degC	g/cm ³	3675	Not Applicable	1.0920	CND	4/16/2019	---

Note 1: All ISO standards are up to date with the latest revisions.

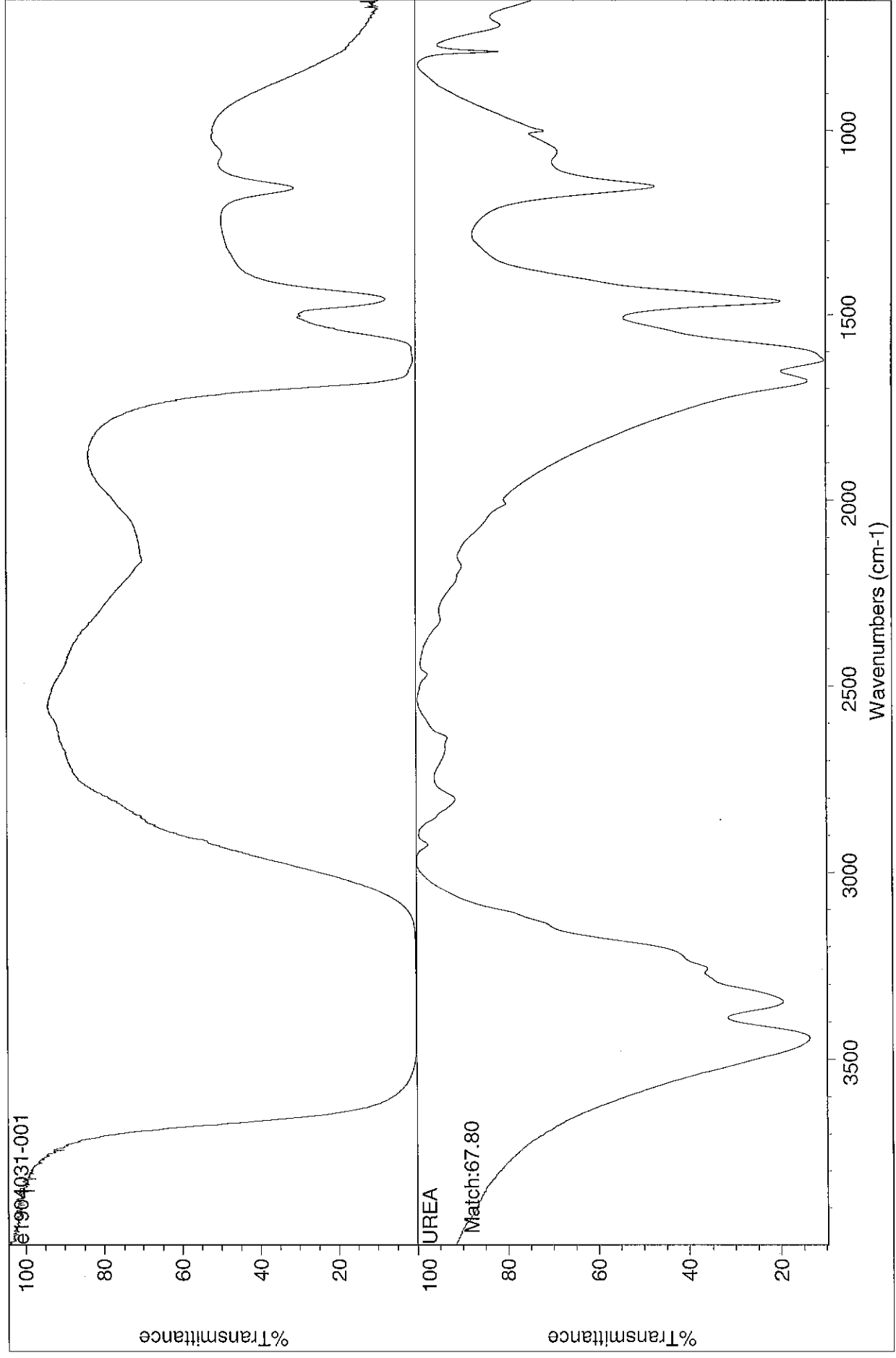
Note 2: The acceptable values are based on the standard 32.5% unless otherwise stated, and are less than or equal to the values shown.

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Certification Approval 
 Laboratory Director: Anthony J Scala

Date: 4/22/2019

Search results for: e1904031-001
Date: Thu Apr 18 10:59:56 2019 (GMT-04:00)
Search algorithm: Search Expert
Regions searched: 2600.00-450.00



Chain of Custody Record

6034 Corporate Drive, East Syracuse, NY 13057
 Phone: 315.437.0255 Fax: 315.437.1209

Quote Number:

Client: **enavtic**
ANALYTICAL TESTING LABORATORIES

Client: DEF Products, LLC		Phone #	Project # / Project Name		Quote Number:										Remarks	
Sharon Stegmuller		(760) 355-7987	ISO 22241 DEF Testing												Product Testing Certificate of Analysis	
Sample ID		Date	Location (City/State)	Lab Internal Use Only												
Batch # 304112019		4/11/2019	422 E. Barioni Blvd., Imperial CA	E1904031	1	2	3	4	5	6	7	8	9	10		
Train # GATX225123				-001	2	X	X	X	X	X	X	X	X	X		
PERCENT DEF 32.6%																
Parameter and Method		Sample bottle:	Type	Size	Preservative	Sampled by (Print)										Name of Courier
1 Urea Content		HDPE	500 ml	None	Client: DEF Products, LLC										FedEx Express	
2 Refractive Index @ 20degC					Company: DEF Products, LLC										Received by: (sign)	
3 Density @ 20degC					Relinquished by: (sign)										Lois Telles	
4 Alkalinity (as NH3)					Relinquished by: (sign)										DEF Products, LLC	
5 Biuret					Relinquished by: (sign)										Received by: (sign)	
6 Aldehydes					Relinquished by: (sign)										Received by: (sign)	
7 Insolubles					Relinquished by: (sign)										Received by: (sign)	
8 Phosphate					Relinquished by: (sign)										Received by: (sign)	
9 Total Metals: Al, Ca, Cr, Cu, Fe, K, Mg, Ni, Na, Zn.					Relinquished by: (sign)										Rec'd for Lab by:	
10 FTIR					Relinquished by: (sign)										Date: 4/16/19 Time: 11:54 Pro	

C. Della

Client:	DEF Products, LLC
Contact	Joe Servin, General Manager
Address	422 East Barioni Blvd Imperial, CA 02251
Email	defproducts@gmail.com
Phone	760 355 7997

Enalytic ID	E1904056-001
Batch Number	304232019
Train Number	UTLX680524
Sample ID	DEF 32.4%
Date Sampled	4/23/2019
Date Received	4/24/2019
Report Date	4/29/2019

Certificate of Analysis

Diesel Exhaust Fluid Analytical ISO-22241

Client ID: 32.4% DEF Batch# 304232019 Train# UTLX680524

Test Parameter/Method	Units	Test Method (ISO) ¹	Acceptable Limit ²	Results	Chemist	Analysis Date	Pass/Fail
Urea Content	wt%	22241-2 Annex C	31.8-33.2	32.8	SPT	4/29/2019	Pass
Refractive Index @ 20degC	N _D ²⁰	22241-2 Annex C	1.3814-1.3843	1.3832	CND	4/29/2019	Pass
Alkalinity as NH ₃	%	22241-2 Annex D	<0.2	<0.01	CND	4/24/2019	Pass
Biuret	%	22241-2 Annex E	<0.3	0.16	CND	4/29/2019	Pass
Aldehyde	mg/kg	22241-2 Annex F	<5	<1.0	BDK	4/29/2019	Pass
Insolubles	mg/kg	22241-2 Annex G	<20	<2.0	BDK	4/26/2019	Pass
Phosphate	mg/kg	22241-2 Annex H	<0.5	<0.25	BDK	4/25/2019	Pass
Calcium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<0.05	CLB	4/26/2019	Pass
Iron by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<0.05	CLB	4/26/2019	Pass
Copper by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<0.02	CLB	4/26/2019	Pass
Zinc by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<0.02	CLB	4/26/2019	Pass
Chromium by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<0.02	CLB	4/26/2019	Pass
Nickel by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<0.02	CLB	4/26/2019	Pass
Aluminum by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<0.05	CLB	4/26/2019	Pass
Magnesium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<0.05	CLB	4/26/2019	Pass
Sodium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<0.05	CLB	4/26/2019	Pass
Potassium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<0.05	CLB	4/26/2019	Pass

Miscellaneous Secondary Unregulated Quality Standards

Identity by FTIR (attached)	Spectra	22241-2 Annex J	Control Match	Match	BDK	4/26/2019	---
Density @ 20degC	g/cm ³	3675	Not Applicable	1.0930	CND	4/29/2019	---

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Certification Approval _____

Laboratory Director: Anthony J Scala

Date: 4/29/2019

Search results for: E1904056-001
Date: Fri Apr 26 13:46:27 2019 (GMT-04:00)
Search algorithm: Search Expert
Regions searched: 2600.00-450.00

