

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	E1905024-001
Batch Number	305092019
Train Number	GATX223466
Sample ID	DEF 32.5%
Date Sampled	5/9/2019
Date Received	5/10/2019
Report Date	5/21/2019

Certificate of Analysis

Diesel Exhaust Fluid Analytical ISO-22241

Client ID: 32.5% DEF Batch# 305092019 Train# GATX223466

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	33.0	SPT	5/13/2019	Pass
Refractive Index @ 20degC	N _D ²⁰	22241-2 Annex C	1.3814-1.3843	1.3836	CND	5/13/2019	Pass
Alkalinity as NH ₃	%	22241-2 Annex D	<0.2	<0.01	BDK	5/14/2019	Pass
Biuret	%	22241-2 Annex E	<0.3	0.15	CND	5/10/2019	Pass
Aldehyde	mg/kg	22241-2 Annex F	<5	<1.0	BDK	5/14/2019	Pass
Insolubles	mg/kg	22241-2 Annex G	<20	<2.0	CND	5/13/2019	Pass
Phosphate	mg/kg	22241-2 Annex H	<0.5	<0.25	CND	5/14/2019	Pass
Calcium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<0.05	CLB	5/10/2019	Pass
Iron by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<0.05	CLB	5/10/2019	Pass
Copper by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<0.02	CLB	5/10/2019	Pass
Zinc by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<0.02	CLB	5/10/2019	Pass
Chromium by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<0.02	CLB	5/10/2019	Pass
Nickel by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<0.02	CLB	5/10/2019	Pass
Aluminum by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<0.05	CLB	5/10/2019	Pass
Magnesium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<0.05	CLB	5/10/2019	Pass
Sodium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	0.07	CLB	5/10/2019	Pass
Potassium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<0.05	CLB	5/10/2019	Pass

Miscellaneous Secondary Unregulated Quality Standards

Identity by FTIR (attached)	Spectra	22241-2 Annex J	Control Match	Match	CLB	5/21/2019	---
Density @ 20degC	g/cm ³	3675	Not Applicable	1.0935	CND	4/29/2019	---

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.

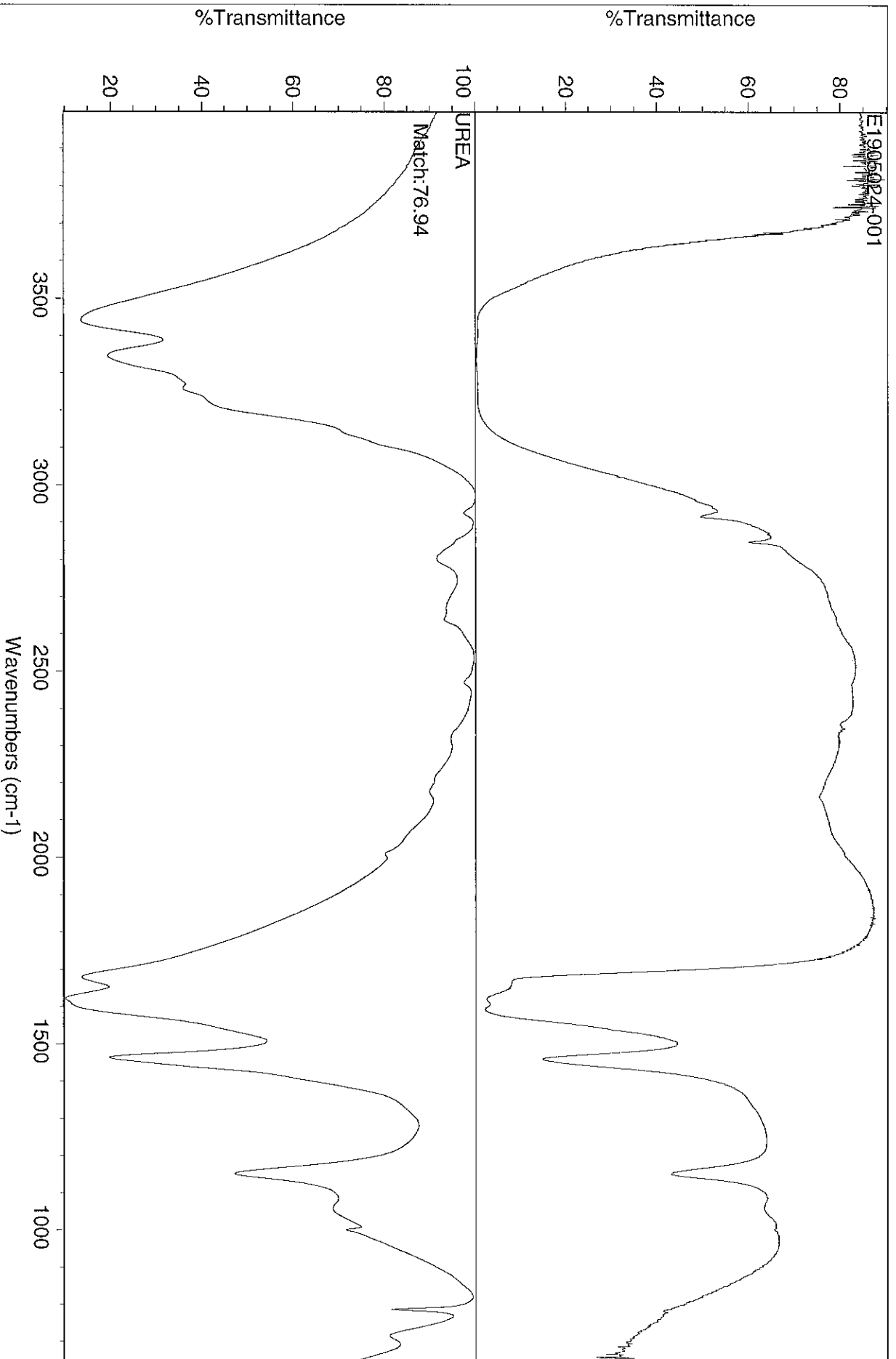
"The undersigned certifies that the value(s) reported have met the highest analytical quality control standards."

Certification Approval _____

Laboratory Director: Anthony J Scala

Date: 5/21/2019

Search results for: E1905024-001
Date: Tue May 21 10:13:45 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: DEF Products, LLC		Phone #: (760) 355-7997		Location (City/State): 422 E. Barioni Blvd., Imperial CA		Project # Project Name: ISO 22241 DEF Testing		Number of Containers		Remarks																															
Client Contact: Sharon Stegmuller		Date: 5/9/2019		Time: N/A		Matrix: Liquid		Grab or Comp: Comp		Lab Internal Use Only: E1905024		1		2		3		4		5		6		7		8		9		10		Product Testing Certificate of Analysis									
Batch # 305092019		Train # GATX223466		PERCENT DEF 32.5%																																					
Parameter and Method		Sample bottle:		Type		Size		Preservative		Sampled by (Print) Client		Company: DEF Products, LLC		Date		Time		Name of Courier																							
1 Urea Content		HDPE		500 ml		None		Lois Telles DEF Products, LLC		Date		Time		Received by: (sign)																											
2 Refractive Index @ 20degC								Relinquished by: (sign)		Date		Time		Received by: (sign)																											
3 Density @ 20degC								Relinquished by: (sign)		Date		Time		Received by: (sign)																											
4 Alkalinity (as NH3)								Relinquished by: (sign)		Date		Time		Received by: (sign)																											
5 Buret								Relinquished by: (sign)		Date		Time		Received by: (sign)																											
6 Aldehydes								Relinquished by: (sign)		Date		Time		Received by: (sign)																											
7 Insolubles								Relinquished by: (sign)		Date		Time		Received by: (sign)																											
8 Phosphate								Relinquished by: (sign)		Date		Time		Received by: (sign)																											
9 Total Metals: Al, Ca, Cr, Cu, Fe, K, Mg, Ni, Na, Zn.								Relinquished by: (sign)		Date		Time		Received by: (sign)																											
10 FTIR								Relinquished by: (sign)		Date		Time		Received by: (sign)																											

Date: 5/10/19
 Time: 10:53 am
 Recd for Lab by: C. Scala

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	E1905032-001
Batch Number	305142019
Train Number	TILX264886
Sample ID	DEF 32.6%
Date Sampled	5/14/2019
Date Received	5/15/2019
Report Date	5/20/2019

Certificate of Analysis

Diesel Exhaust Fluid Analytical ISO-22241

Client ID: **32.6% DEF** Batch# **305142019** Train# **TILX264886**

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	33.0	SPT	5/20/2019	Pass
Refractive Index @ 20degC	N _D ²⁰	22241-2 Annex C	1.3814-1.3843	1.3836	CND	5/17/2019	Pass
Alkalinity as NH ₃	%	22241-2 Annex D	<0.2	<0.01	CND	5/17/2019	Pass
Biuret	%	22241-2 Annex E	<0.3	0.13	BDK	5/15/2019	Pass
Aldehyde	mg/kg	22241-2 Annex F	<5	<1.0	BDK	5/17/2019	Pass
Insolubles	mg/kg	22241-2 Annex G	<20	<2.0	BDK	5/15/2019	Pass
Phosphate	mg/kg	22241-2 Annex H	<0.5	<0.25	BDK	5/17/2019	Pass
Calcium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<0.05	CLB	5/16/2019	Pass
Iron by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<0.05	CLB	5/16/2019	Pass
Copper by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<0.02	CLB	5/16/2019	Pass
Zinc by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<0.02	CLB	5/16/2019	Pass
Chromium by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<0.02	CLB	5/16/2019	Pass
Nickel by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<0.02	CLB	5/16/2019	Pass
Aluminum by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<0.05	CLB	5/16/2019	Pass
Magnesium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<0.05	CLB	5/16/2019	Pass
Sodium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<0.05	CLB	5/16/2019	Pass
Potassium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<0.05	CLB	5/16/2019	Pass

Miscellaneous Secondary Unregulated Quality Standards

Density @ 20degC	g/cm ³	3675	Not Applicable	1.0930	CND	5/17/2019	---
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Note 1: All ISO standards are up to date with the latest revisions.

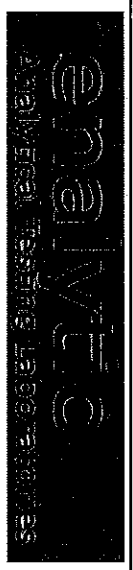
Note 2: The acceptable values are based on the standard 32.5% unless otherwise stated, and are less than or equal to the values shown.

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



Certification Approval _____
 Laboratory Director: Anthony J Scala

Date: 5/20/2019



Chain of Custody Record

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

Quote Number:

Client: DEF Products, LLC		Phone #	Project #/Project Name		ISO 22241 DEF Testing											
Client Contact: Sharon Stegmuller		(760) 355-7997	Location (City/State)		422 E. Baroni Blvd., Imperial CA											
Sample ID	Date	Time	Matrix	Grab or Comp	Lab Internal Use Only	Number of Containers										Remarks Product Testing Certificate of Analysis
Batch # 305142019	5/14/2019	N/A	Liquid	Comp	E1905032	1	2	3	4	5	6	7	8	9	10	
Train # TILX264886						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) Client											Name of Courier
1 Urea Content		HDPE	500 ml	None	DEF Products, LLC											FedEx Express
2 Refractive Index @ 20degC					Company: DEF Products, LLC											Received by: (sign)
3 Density @ 20degC					Relinquished by: (sign) Lois Telles											Received by: (sign)
4 Alkalinity (as NH3)					DEF Products, LLC											Received by: (sign)
5 Buret					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)											Recd for Lab by:
10 FTIR					Date 5/15/19 Time 8:55 AM											C. Scella

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	E1905050-001
Batch Number	305222019
Train Number	TILX265014
Sample ID	DEF 32.5%
Date Sampled	5/22/2019
Date Received	5/23/2019
Report Date	5/29/2019

Certificate of Analysis

Diesel Exhaust Fluid Analytical ISO-22241

Client ID: 32.5% DEF Batch# 305222019 Train# TILX265014

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	33.1	SPT	5/29/2019	Pass
Refractive Index @ 20degC	N _D ²⁰	22241-2 Annex C	1.3814-1.3843	1.3837	CND	5/28/2019	Pass
Alkalinity as NH ₃	%	22241-2 Annex D	<0.2	<0.01	BDK	5/24/2019	Pass
Biuret	%	22241-2 Annex E	<0.3	0.18	BDK	5/23/2019	Pass
Aldehyde	mg/kg	22241-2 Annex F	<5	1.0	BDK	5/23/2019	Pass
Insolubles	mg/kg	22241-2 Annex G	<20	<2.0	BDK	5/24/2019	Pass
Phosphate	mg/kg	22241-2 Annex H	<0.5	<0.25	BDK	5/29/2019	Pass
Calcium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<0.05	CLB	5/28/2019	Pass
Iron by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<0.05	CLB	5/28/2019	Pass
Copper by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<0.02	CLB	5/28/2019	Pass
Zinc by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<0.02	CLB	5/28/2019	Pass
Chromium by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<0.02	CLB	5/28/2019	Pass
Nickel by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<0.02	CLB	5/28/2019	Pass
Aluminum by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<0.05	CLB	5/28/2019	Pass
Magnesium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<0.05	CLB	5/28/2019	Pass
Sodium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<0.05	CLB	5/28/2019	Pass
Potassium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<0.05	CLB	5/28/2019	Pass

Miscellaneous Secondary Unregulated Quality Standards

Identify by FTIR (attached)	Spectra	22241-2 Annex J	Control Match	Match	CND	5/28/2019	---
Density @ 20degC	g/cm ³	3675	Not Applicable	1.0935	CND	5/28/2019	---

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.

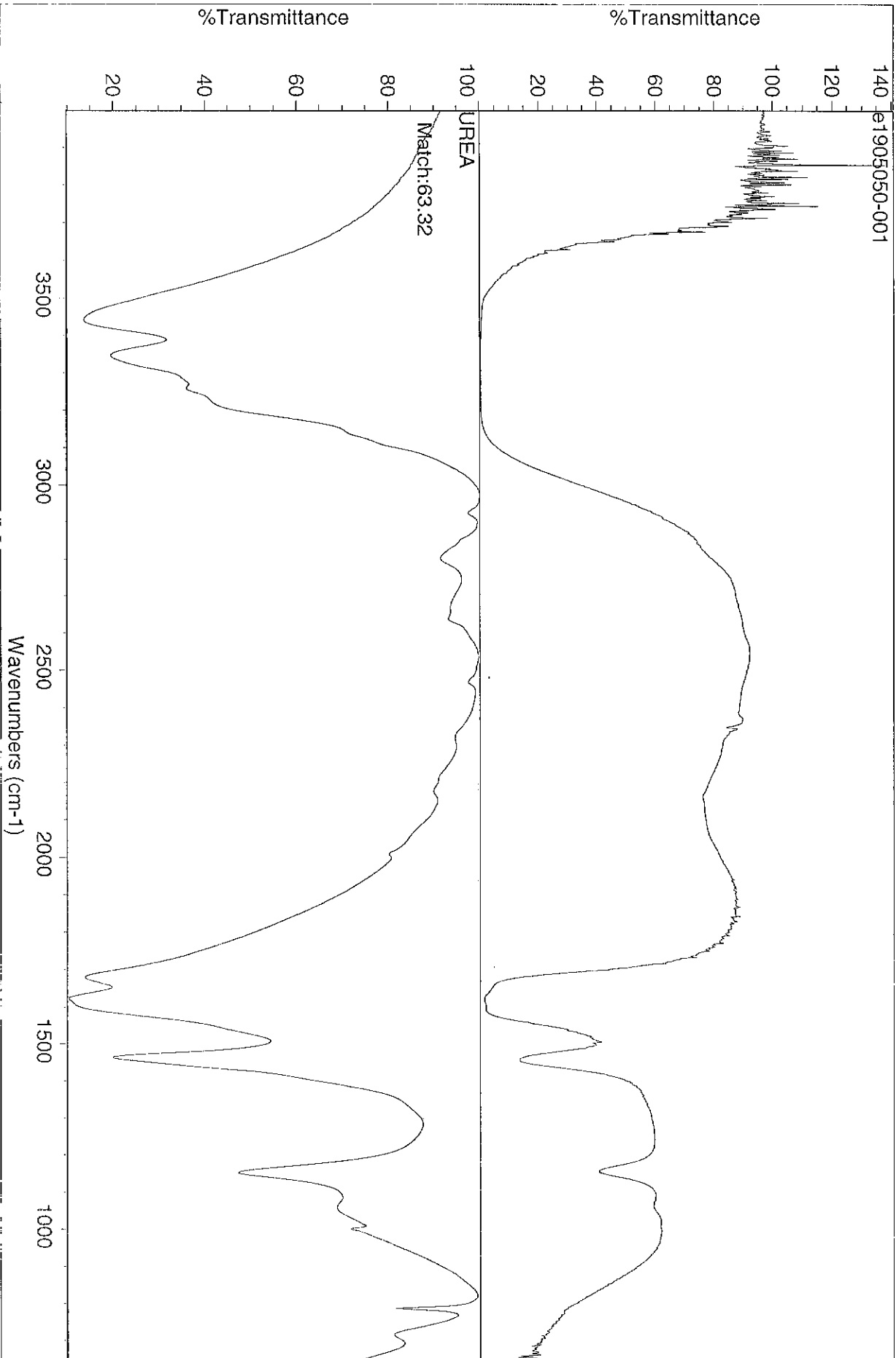
"The undersigned certifies that the value(s) reported have met the highest analytical quality control standards."

Certification Approval _____

Laboratory Director: Anthony J Scala

Date: 5/29/2019

Search results for: e1905050-001
Date: Tue May 28 09:56:34 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:

DEF Products, LLC

Client Contact:

Sharon Stegmuller

Phone #

(760) 355-7997

Project #/Project Name

ISO 22241 DEF Testing

Location (City/State)

422 E. Barioni Blvd., Imperial CA

Sample ID

Date

Time

Matrix

Grab or Comp

Lab Internal Use Only

Number of Containers		1	2	3	4	5	6	7	8	9	10			
Batch # 305222019	5/22/2019	N/A	Liquid	Comp	E1905050	2	X	X	X	X	X	X	X	X
Train # TILX265014														
PERCENT DEF 32.5%														

Product Testing Certificate of Analysis

Remarks

Parameter and Method	Sample bottle:	Type	Size	Preservative	Sampled by (Print)	Client	Relinquished by (Print)	Date	Time	Received by (Print)	Client
1 Urea Content		HDP E	500 ml	None	Company: DEF Products, LLC	Client: DEF Products, LLC	Lois Telles				DEF Products, LLC
2 Refractive Index @ 20degC											
3 Density @ 20degC											
4 Alkalinity (as NH3)											
5 Biuret											
6 Aldehydes											
7 Insolubles											
8 Phosphate											
9 Total Metals: Al, Ca, Cr, Cu, Fe, K, Mg, Ni, Na, Zn.											
10 FTIR											

Relinquished by: (sign) Date 5/23/19 Time 8:13 am Recd for Lab by: Peter F. Friccans

Name of Courier FedEx Express

Received by: (sign)

Received by: (sign)

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	E1905061-001
Batch Number	305242019
Train Number	GATX223424
Sample ID	DEF 32.5%
Date Sampled	5/24/2019
Date Received	5/28/2019
Report Date	5/31/2019

Certificate of Analysis

Diesel Exhaust Fluid Analytical ISO-22241

Client ID: 32.5% DEF Batch# 305242019 Train# GATX223424

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	32.7	SPT	5/31/2019	Pass
Refractive Index @ 20degC	N _D ²⁰	22241-2 Annex C	1.3814-1.3843	1.3831	CND	5/30/2019	Pass
Alkalinity as NH ₃	%	22241-2 Annex D	<0.2	<0.01	CND	5/30/2019	Pass
Biuret	%	22241-2 Annex E	<0.3	0.18	CND	5/31/2019	Pass
Aldehyde	mg/kg	22241-2 Annex F	<5	<1.0	BDK	5/29/2019	Pass
Insolubles	mg/kg	22241-2 Annex G	<20	<2.0	BDK	5/29/2019	Pass
Phosphate	mg/kg	22241-2 Annex H	<0.5	<0.25	BDK	5/29/2019	Pass
Calcium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<0.05	CLB	5/28/2019	Pass
Iron by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<0.05	CLB	5/28/2019	Pass
Copper by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<0.02	CLB	5/28/2019	Pass
Zinc by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<0.02	CLB	5/28/2019	Pass
Chromium by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<0.02	CLB	5/28/2019	Pass
Nickel by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<0.02	CLB	5/28/2019	Pass
Aluminum by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<0.05	CLB	5/28/2019	Pass
Magnesium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<0.05	CLB	5/28/2019	Pass
Sodium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<0.05	CLB	5/28/2019	Pass
Potassium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<0.05	CLB	5/28/2019	Pass


Miscellaneous Secondary Unregulated Quality Standards

Identify by FTIR (attached)	Spectra	22241-2 Annex J	Control Match	Match	SPT	5/31/2019	---
Density @ 20degC	g/cm ³	3675	Not Applicable	1.0920	CND	5/30/2019	---

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.

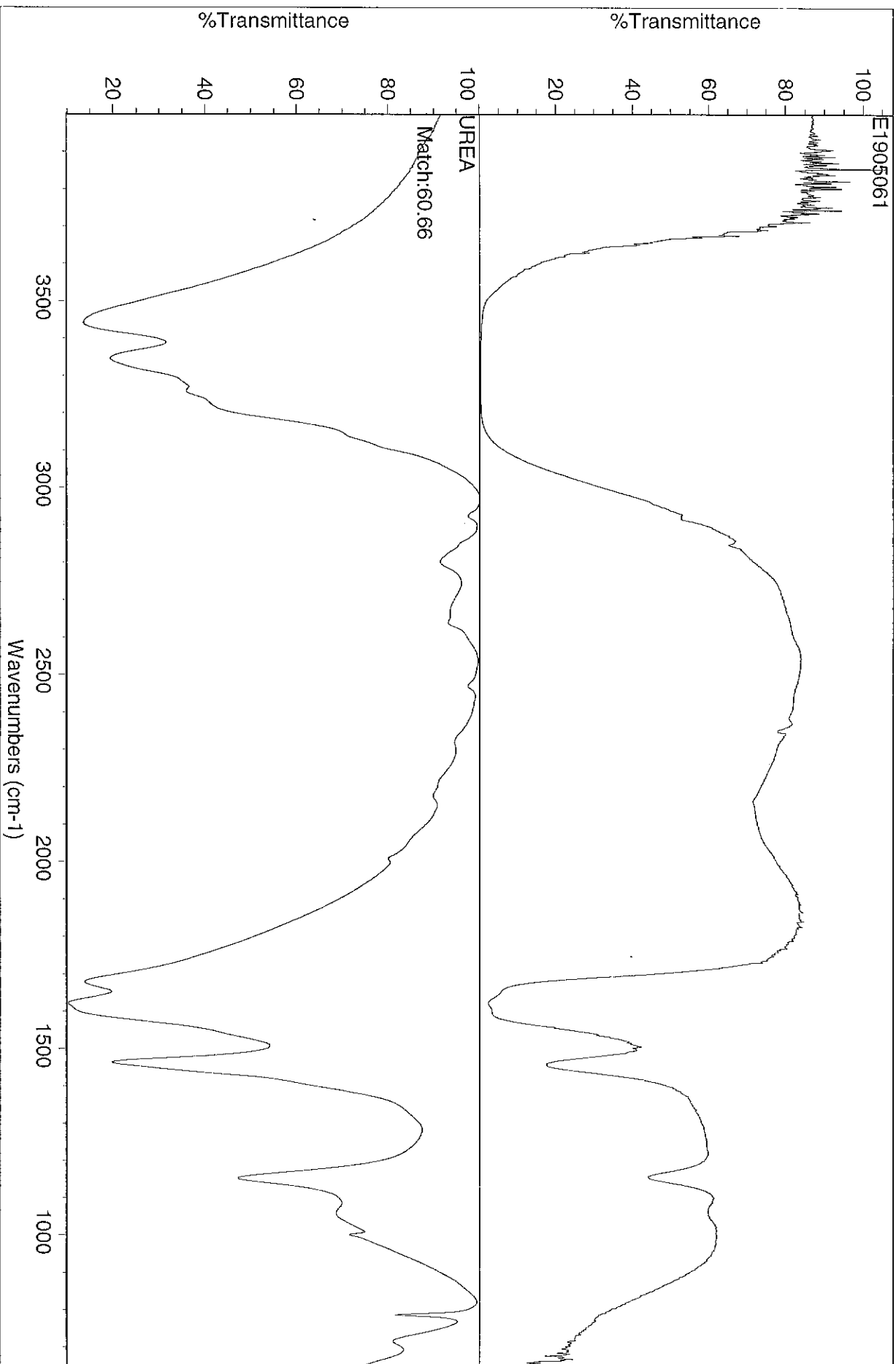
"The undersigned certifies that the value(s) reported have met the highest analytical quality control standards."

Certification Approval 

Laboratory Director: Anthony J Scala

Date: 5/31/2019

Search results for: E1905061
Date: Fri May 31 14:55:15 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: DEF Products, LLC		Phone # (760) 355-7997	Project # Project Name: ISO 22241 DEF Testing														
Client Contact: Sharon Stegmuller		Location (City/State): 422 E. Barton Blvd., Imperial CA															
Sample ID	Date	Time	Matrix	Grab or Comp	Lab Internal Use Only	Number of Containers											
Batch # 305242019	5/24/2019	N/A	Liquid	Comp	E1905061	1	1	2	3	4	5	6	7	8	9	10	Product Testing Certificate of Analysis
Train # GATX223424																	
PERCENT DEF 32.5%																	
Parameter and Method	Sample bottle:		Type	Size	Preservative	Sampled by (Print)										Name of Courier	
1 Urea Content	HDPE		500 ml	None	Company: DEF Products, LLC										FedEx Express		
2 Refractive Index @ 20degC	Date		Time	Received by: (sign)	Relinquished by: (sign)										Received by: (sign)		
3 Density @ 20degC	Date		Time	Received by: (sign)	DEF Products, LLC										Received by: (sign)		
4 Alkalinity (as NH3)	Date		Time	Received by: (sign)	Relinquished by: (sign)										Received by: (sign)		
5 Biuret	Date		Time	Received by: (sign)	Relinquished by: (sign)										Received by: (sign)		
6 Aldehydes	Date		Time	Received by: (sign)	Relinquished by: (sign)										Received by: (sign)		
7 Insolubles	Date		Time	Received by: (sign)	Relinquished by: (sign)										Received by: (sign)		
8 Phosphates	Date		Time	Received by: (sign)	Relinquished by: (sign)										Received by: (sign)		
9 Total Metals: Al, Ca, Cr, Cu, Fe, K, Mg, Ni, Na, Zn.	Date		Time	Received by: (sign)	Relinquished by: (sign)										Received by: (sign)		
10 FTIR	Date		Time	Received by: (sign)	Relinquished by: (sign)										Received by: (sign)		

Date: 5/23/19 Time: 10:32 am Rec'd for Lab by: Peter Fricano