

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	E1911063-001
Batch Number	311082019M
Train Number	UTLX647593
Sample ID	DEF 32.5%
Date Sampled	11/16/2019
Date Received	11/22/2019
Report Date	11/27/2019

Certificate of Analysis

Diesel Exhaust Fluid Analytical ISO-22241

Client ID: **32.5% DEF** Batch# **311082019M** Train# **UTLX647593**

Test Parameter/Method	Units	Test Method (ISO) ¹	Acceptable Limit ²	Results	Chemist	Analysis Date	Pass/Fail
Urea Content	wt%	22241-2 Annex C	31.8-33.4	33.2	SPT	11/26/2019	Pass
Refractive Index @ 20degC	N _D ²⁰	22241-2 Annex C	1.3814-1.3843	1.3839	CND	11/26/2019	Pass
Alkalinity as NH ₃	%	22241-2 Annex D	<0.2	<0.01	BDK	11/25/2019	Pass
Biuret	%	22241-2 Annex E	<0.3	0.16	BDK	11/26/2019	Pass
Aldehyde	mg/kg	22241-2 Annex F	<5.0	1.0	BDK	11/22/2019	Pass
Insolubles	mg/kg	22241-2 Annex G	<20	<2.0	BDK	11/27/2019	Pass
Phosphate	mg/kg	22241-2 Annex H	<0.5	<0.25	BDK	11/25/2019	Pass
Calcium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<0.05	CLB	11/27/2019	Pass
Iron by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<0.05	CLB	11/27/2019	Pass
Copper by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<0.02	CLB	11/27/2019	Pass
Zinc by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<0.02	CLB	11/27/2019	Pass
Chromium by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<0.02	CLB	11/27/2019	Pass
Nickel by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<0.02	CLB	11/27/2019	Pass
Aluminum by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<0.05	CLB	11/27/2019	Pass
Magnesium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<0.05	CLB	11/27/2019	Pass
Sodium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	0.13	CLB	11/27/2019	Pass
Potassium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<0.05	CLB	11/27/2019	Pass
Miscellaneous Secondary Unregulated Quality Standards							
Identify by FTIR (attached)	Spectra	22241-2 Annex J	Control Match	Match	BDK	11/22/2019	---
Density @ 20degC	g/cm ³	3675	Not Applicable	1.0920	CND	11/26/2019	---

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."

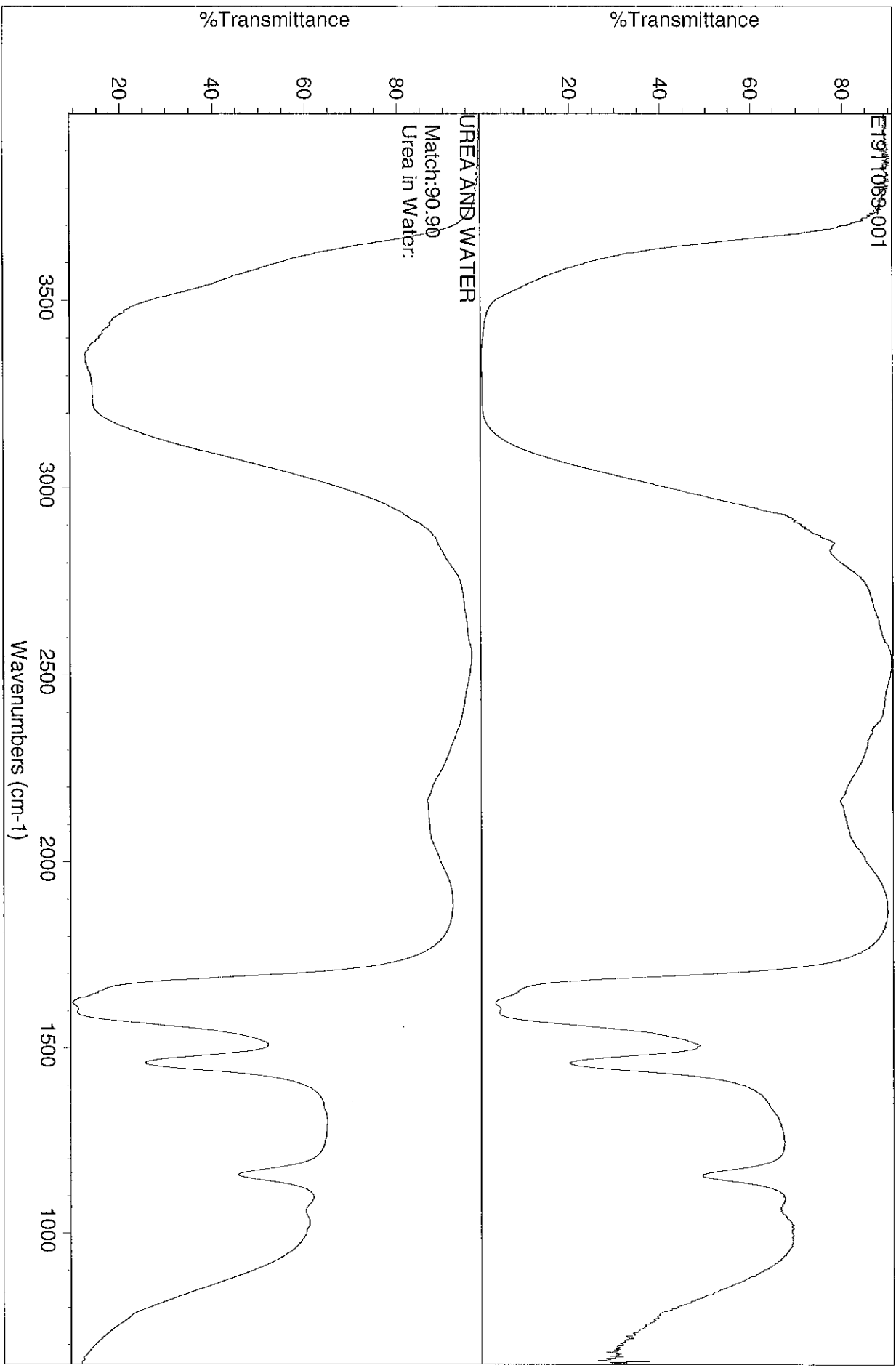
Certification Approval



Laboratory Director: Anthony J Scala

Date: 11/27/2019

Search results for: E1911063-001
Date: Fri Nov 22 14:54:27 2019 (GMT-05:00)
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	E1911040-001
Batch Number	311132019M
Train Number	UTLX682254
Sample ID	DEF 32.5%
Date Sampled	11/13/2019
Date Received	11/14/2019
Report Date	11/19/2019

Certificate of Analysis

Diesel Exhaust Fluid Analytical ISO-22241

Client ID: 32.5% DEF Batch# 311132019M Train# UTLX682254

Test Parameter/Method	Units	Test Method (ISO) ¹	Acceptable Limit ²	Results	Chemist	Analysis Date	Pass/Fail
Urea Content	wt%	22241-2 Annex C	31.8-33.4	32.5	SPT	11/19/2019	Pass
Refractive Index @ 20degC	N _D ²⁰	22241-2 Annex C	1.3814-1.3843	1.3829	BDK	11/18/2019	Pass
Alkalinity as NH ₃	%	22241-2 Annex D	<0.2	<0.01	BDK	11/19/2019	Pass
Biuret	%	22241-2 Annex E	<0.3	0.19	BDK	11/18/2019	Pass
Aldehyde	mg/kg	22241-2 Annex F	<5.0	<1.0	BDK	11/19/2019	Pass
Insolubles	mg/kg	22241-2 Annex G	<20	<2.0	BDK	11/19/2019	Pass
Phosphate	mg/kg	22241-2 Annex H	<0.5	<0.25	BDK	11/19/2019	Pass
Calcium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<0.05	CLB	11/19/2019	Pass
Iron by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<0.05	CLB	11/19/2019	Pass
Copper by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<0.02	CLB	11/19/2019	Pass
Zinc by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<0.02	CLB	11/19/2019	Pass
Chromium by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<0.02	CLB	11/19/2019	Pass
Nickel by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<0.02	CLB	11/19/2019	Pass
Aluminum by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<0.05	CLB	11/19/2019	Pass
Magnesium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<0.05	CLB	11/19/2019	Pass
Sodium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	0.11	CLB	11/19/2019	Pass
Potassium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	0.10	CLB	11/19/2019	Pass
Miscellaneous Secondary Unregulated Quality Standards							
Identify by FTIR (attached)	Spectra	22241-2 Annex J	Control Match	Match	BDK	11/19/2019	---
Density @ 20degC	g/cm ³	3675	Not Applicable	1.0915	BDK	11/18/2019	---

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."

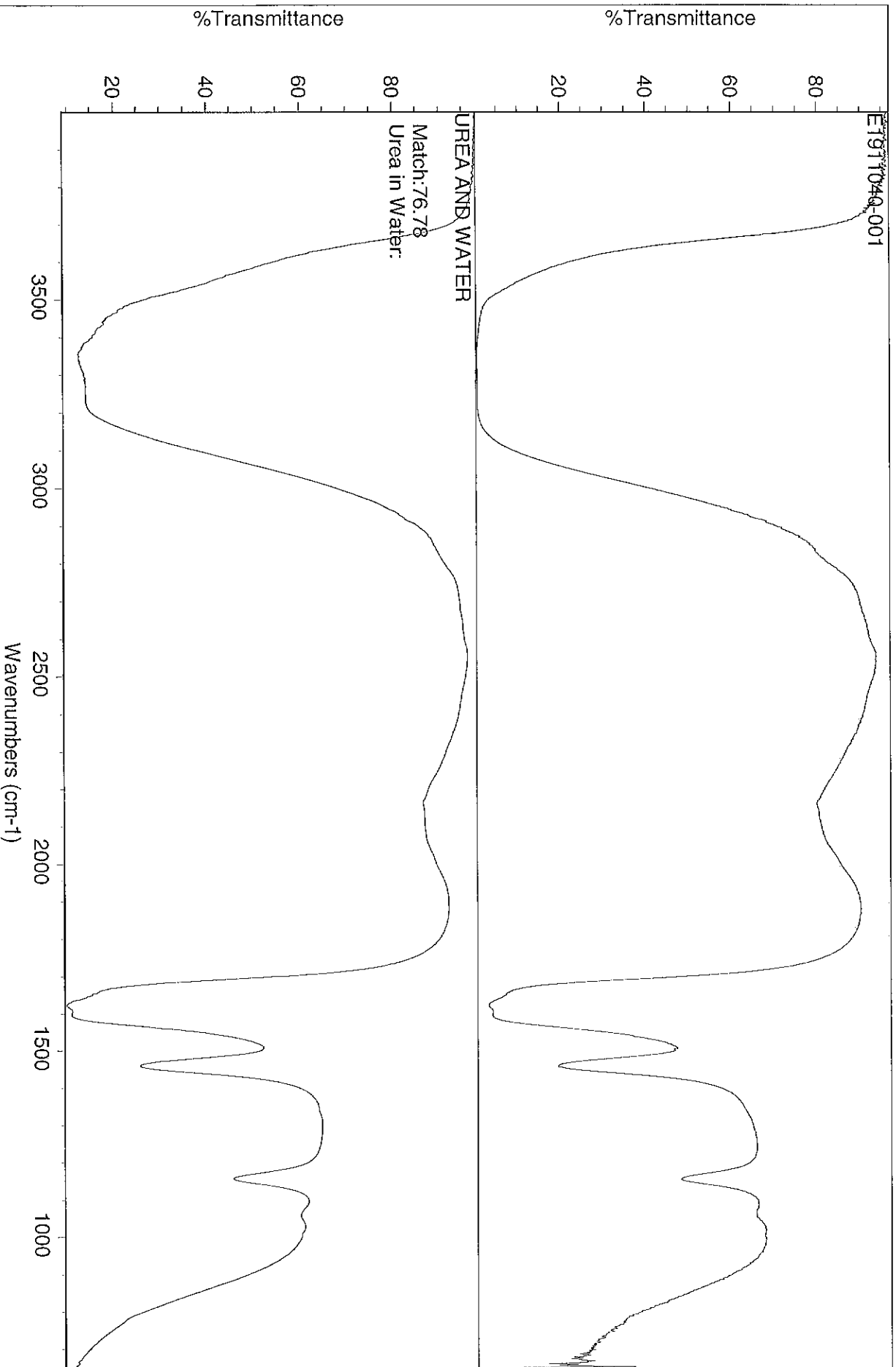


Certification Approval _____

Laboratory Director: Anthony J Scala

Date: 11/19/2019

Search results for: E1911040-001
Date: Tue Nov 19 10:01:51 2019 (GMT-05:00)
Search algorithm: Search Expert
Regions searched: 2600.00-450.00



analytic

Chain of Custody Record

Analytical Testing Laboratories

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

Quote Number:

Client:

DEF Products, LLC

ISO 222241 DEF Testing

Client Contact:

Sharon Stegmuller

Phone # (760) 365-7997

Location (City/State) 422 E. Barioni 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 # 311132019M

11/13/2019

N/A

Liquid

Comp

E1911040

2

Train # UTLX682254

PERCENT DEF 32.5%

1 2 3 4 5 6 7 8 9 10

X X X X X X X X X X

Parameter and Method	Sample bottle:	Type	Size	Preservative	Sampled by (Print)	Date	Time	Name of Courier
1 Urea Content		HDPE	500 ml	None	Company: DEF Products, LLC			FedEx Express
2 Refractive Index @ 20degC					Relinquished by: (sign)			Received by: (sign)
3 Density @ 20degC					DEF Products, LLC			Received by: (sign)
4 Alkalinity (as NH3)					Relinquished by: (sign)			Received by: (sign)
5 Buret								
6 Aldehydes								
7 Insolubles								
8 Phosphate								
9 Total Metals: Al, Ca, Cr, Cu, Fe, K, Mg, Ni, Na, Zn.					Relinquished by: (sign)			Received by: (sign)
10 FTIR						11/14/19	15:15 am	C. Scala