

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

Enalytic ID	E2101043-001
Batch Number	301202021M
Train Number	GATX224275
Sample ID	DEF 32.4%
Date Sampled	1/20/2021
Date Received	1/22/2021
Report Date	1/27/2021

Certificate of Analysis

Diesel Exhaust Fluid Analytical ISO-22241

Client ID: **32.4% DEF** Batch# **301202021M** Train # **GATX224275**

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	32.4	SPT	1/27/2021	Pass
Refractive Index @ 20degC	N _D ²⁰	22241-2 Annex C	1.3814-1.3843	1.3827	ALB	1/25/2021	Pass
Alkalinity as NH ₃	%	22241-2 Annex D	<0.2	0.04	ALB	1/26/2021	Pass
Biuret	%	22241-2 Annex E	<0.3	0.17	AEC	1/26/2021	Pass
Aldehyde	mg/kg	22241-2 Annex F	<5.0	<1.0	AEC	1/27/2021	Pass
Insolubles	mg/kg	22241-2 Annex G	<20	<2.0	ALB	1/25/2021	Pass
Phosphate as P by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<0.25	PEN	1/25/2021	Pass
Calcium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<0.05	PEN	1/25/2021	Pass
Iron by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<0.05	PEN	1/25/2021	Pass
Copper by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<0.02	PEN	1/25/2021	Pass
Zinc by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<0.02	PEN	1/25/2021	Pass
Chromium by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<0.02	PEN	1/25/2021	Pass
Nickel by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<0.02	PEN	1/25/2021	Pass
Aluminum by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<0.05	PEN	1/25/2021	Pass
Magnesium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<0.05	PEN	1/25/2021	Pass
Sodium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<0.05	PEN	1/25/2021	Pass
Potassium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	0.11	PEN	1/25/2021	Pass


Miscellaneous Secondary Unregulated Quality Standards

Identify by FTIR (attached)	Spectra	22241-2 Annex J	Control Match	Match	SPT	1/22/2021	---
Density @ 20degC	g/cm ³	3675	Not Applicable	1.0898	ALB	1/25/2021	---

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

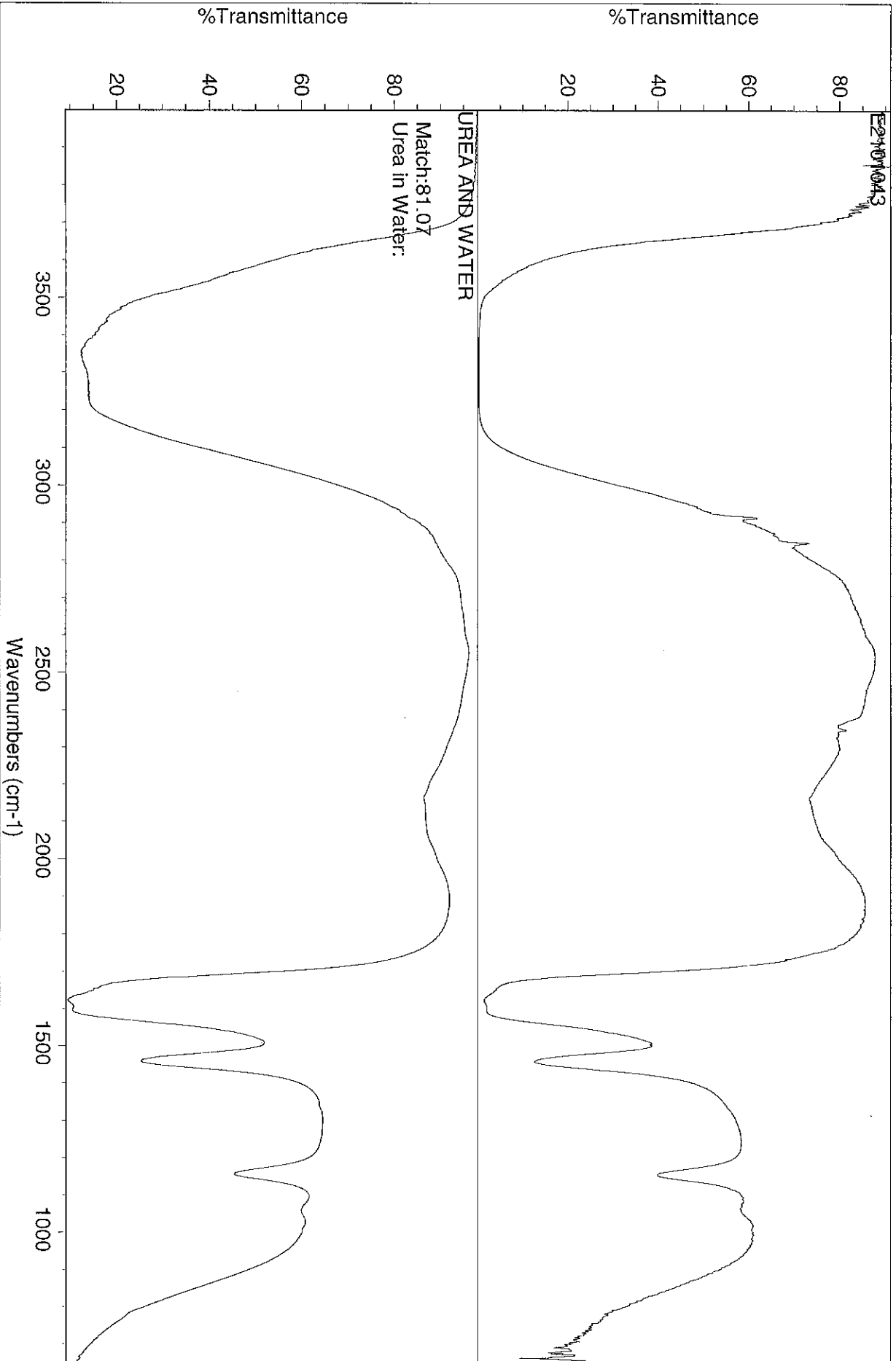
Note 2: The acceptable values are based on the standard 32.5% unless otherwise stated, and are less than or equal to the values shown.

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

Certification Approval 
 Laboratory Director: Anthony J Scala

Date: 1/27/2021

Search results for: E2101043
Date: Fri Jan 22 14:28:33 2021 (GMT-05:00)
Search algorithm: Search Expert
Regions searched: 2600.00-450.00



analytic

Analytical Testing Laboratories

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 #	ISO 22241 DEF Testing		Project #/Project Name											
Client Contact: Sharon Stegmuller		(760) 355-7997	422 E. Barioni Blvd., Imperial CA		Location (City/State)											
Sample ID	Date	Time	Matrix	Grab or Comp	Lab Internal Use Only	Number of Containers										Remarks Product Testing Certificate of Analysis
Batch # 301202021M	1/20/2021	N/A	Liquid	Comp	E2101043	1	2	3	4	5	6	7	8	9	10	
Train # GATX224275						X	X	X	X	X	X	X	X	X	X	
PERCENT DEF 32.4%																
Parameter and Method																
1 Urea Content	Sample bottle:	Type	Size	Preservative	Sampled by (Print)										Name of Courier	
2 Refractive Index @ 20degC		Plastic	500 mL	None	Company: DEF Products, LLC										FedEx Express	
3 Density @ 20degC					Relinquished by: (sign)										Received by: (sign)	
4 Alkalinity (as NH3)					DEF Products, LLC											
5 Buret					Relinquished by: (sign)										Received by: (sign)	
6 Aldehydes					Relinquished by: (sign)											
7 Insolubles					Date										Time	
8 Phosphate					Date										Time	
9 Total Metals: Al, Ca, Cr, Cu, Fe, K, Mg, Ni, Na, Zn.					Date										Time	
10 FTIR					Date										Time	
					Relinquished by: (sign)										Received for Lab by:	

Date 1-22-2021
 Time 10:13 AM
 Rec'd for Lab by: *[Signature]*

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

Enalytic ID	E2102001-001
Batch Number	301262021L
Train Number	TILX 265562
Sample ID	DEF 32.4%
Date Sampled	1/26/2021
Date Received	2/1/2021
Report Date	2/4/2021

Certificate of Analysis

Diesel Exhaust Fluid Analytical ISO-22241

Client ID: 32.4% DEF Batch# 301262021L Train # TILX 265562

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	2/4/2021	Pass
Refractive Index @ 20degC	N _D ²⁰	22241-2 Annex C	1.3814-1.3843	1.3829	AEC	2/1/2021	Pass
Alkalinity as NH ₃	%	22241-2 Annex D	<0.2	0.02	AEC	2/3/2021	Pass
Biuret	%	22241-2 Annex E	<0.3	0.14	AEC	2/3/2021	Pass
Aldehyde	mg/kg	22241-2 Annex F	<5.0	<1.0	AEC	2/3/2021	Pass
Insolubles	mg/kg	22241-2 Annex G	<20	<2.0	AEC	2/3/2021	Pass
Phosphate as P by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<0.25	PEN	2/1/2021	Pass
Calcium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<0.05	PEN	2/1/2021	Pass
Iron by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<0.05	PEN	2/1/2021	Pass
Copper by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<0.02	PEN	2/1/2021	Pass
Zinc by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<0.02	PEN	2/1/2021	Pass
Chromium by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<0.02	PEN	2/1/2021	Pass
Nickel by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<0.02	PEN	2/1/2021	Pass
Aluminum by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<0.05	PEN	2/1/2021	Pass
Magnesium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<0.05	PEN	2/1/2021	Pass
Sodium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<0.05	PEN	2/1/2021	Pass
Potassium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<0.05	PEN	2/1/2021	Pass


Miscellaneous Secondary Unregulated Quality Standards

Identify by FTIR (attached)	Spectra	22241-2 Annex J	Control Match	Match	AEC	2/1/2021	---
Density @ 20degC	g/cm ³	3675	Not Applicable	1.0883	AEC	2/1/2021	---

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

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

Certification Approval 
Laboratory Director: Anthony J Scala

Date: 2/4/2021

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

Enalytic ID	E2102002-002
Batch Number	301262021M
Train Number	TILX 265212
Sample ID	DEF 32.4%
Date Sampled	1/26/2021
Date Received	2/1/2021
Report Date	2/4/2021

Certificate of Analysis

Diesel Exhaust Fluid Analytical ISO-22241

Client ID: **32.4% DEF** Batch# **301262021M** Train # **TILX 265212**

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	32.7	SPT	2/4/2021	Pass
Refractive Index @ 20degC	N _D ²⁰	22241-2 Annex C	1.3814-1.3843	1.3831	AEC	2/1/2021	Pass
Alkalinity as NH ₃	%	22241-2 Annex D	<0.2	0.03	AEC	2/3/2021	Pass
Biuret	%	22241-2 Annex E	<0.3	<0.1	AEC	2/3/2021	Pass
Aldehyde	mg/kg	22241-2 Annex F	<5.0	<1.0	AEC	2/3/2021	Pass
Insolubles	mg/kg	22241-2 Annex G	<20	<2.0	AEC	2/3/2021	Pass
Phosphate as P by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<0.25	PEN	2/1/2021	Pass
Calcium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<0.05	PEN	2/1/2021	Pass
Iron by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<0.05	PEN	2/1/2021	Pass
Copper by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<0.02	PEN	2/1/2021	Pass
Zinc by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<0.02	PEN	2/1/2021	Pass
Chromium by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<0.02	PEN	2/1/2021	Pass
Nickel by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<0.02	PEN	2/1/2021	Pass
Aluminum by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<0.05	PEN	2/1/2021	Pass
Magnesium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<0.05	PEN	2/1/2021	Pass
Sodium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<0.05	PEN	2/1/2021	Pass
Potassium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<0.05	PEN	2/1/2021	Pass

Miscellaneous Secondary Unregulated Quality Standards

Identify by FTIR (attached)	Spectra	22241-2 Annex J	Control Match	Match	AEC	2/1/2021	---
Density @ 20degC	g/cm ³	3675	Not Applicable	1.0893	AEC	2/1/2021	---

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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.

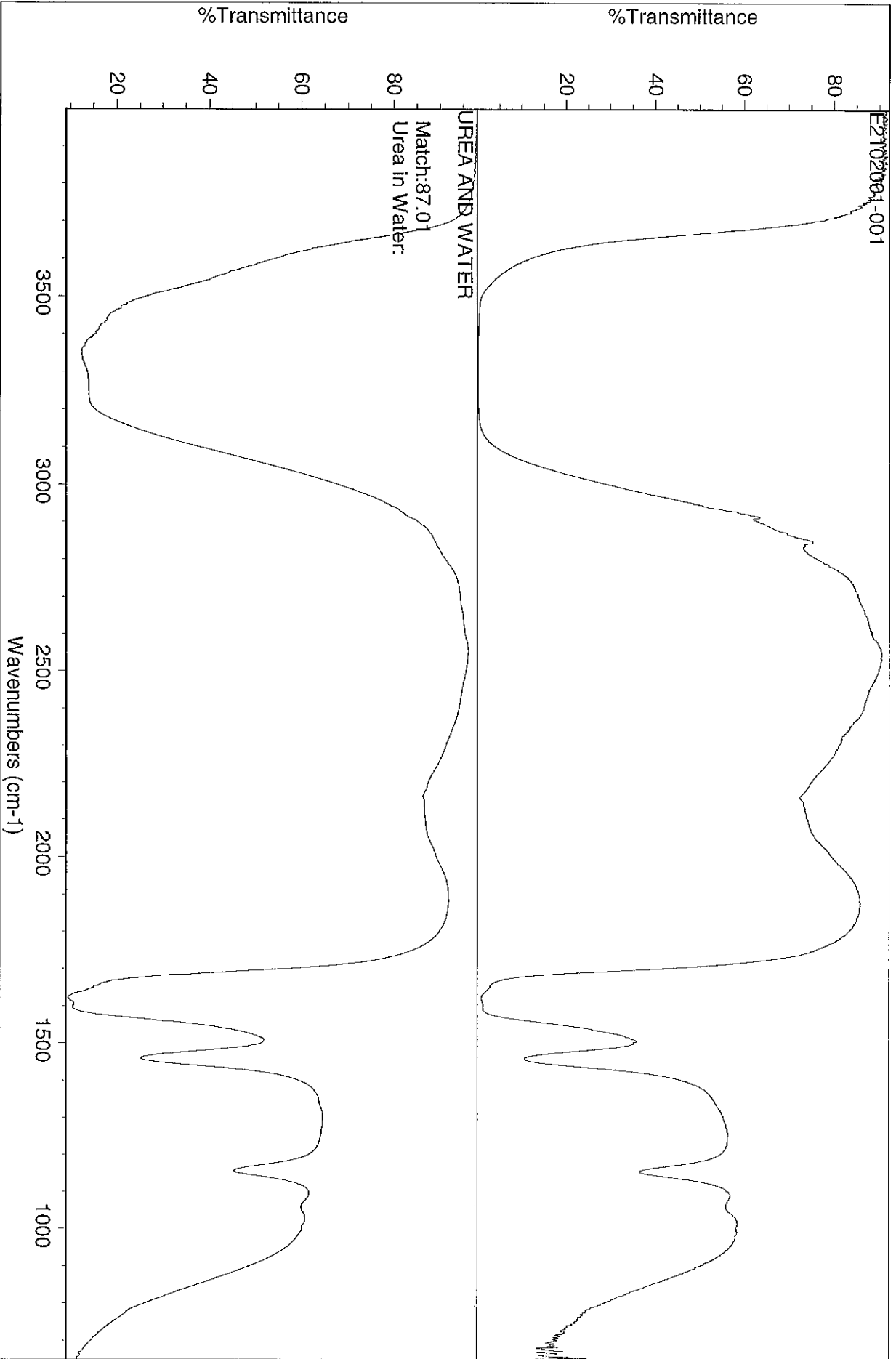
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Certification Approval _____

Laboratory Director: Anthony J Scala

Date: 2/4/2021

Search results for: E2102001-001
Date: Mon Feb 01 14:35:10 2021 (GMT-05:00)
Search algorithm: Search Expert
Regions searched: 2600.00-450.00



Search results for: E2102001-002
Date: Mon Feb 01 14:40:47 2021 (GMT-05:00)
Search algorithm: Search Expert
Regions searched: 2600.00-450.00

