

Client:	DEF Products, LLC
Contact	Sharon Stegmuller
Address	422 East Barioni Blvd Imperial, CA 02251
Email	<a href="mailto:defproducts@gmail.com">defproducts@gmail.com</a>
Phone	760 355 7997
Report Date	3/10/2021

Enalytic ID	E2103026-002
Batch Number	303052021P
Train Number	GATX225164
Sample ID	DEF 32.3%
Date Sampled	3/5/2021
Date Received	3/9/2021
ISO 17025	Certificate Number: AT-2956

## Certificate of Analysis

Diesel Exhaust Fluid Analytical ISO-22241

Client ID: 32.3% DEF Batch# 303052021P Train# GATX225164

Test Parameter/Method	Units	Test Method (ISO) <sup>1</sup>	Acceptable Limit <sup>2</sup>	Results	Chemist	Analysis Date	Pass/Fail
Urea Content <sup>3</sup>	wt%	22241-2 Annex C	31.8-33.4	<b>32.4</b>	SPT	3/10/2021	Pass
Refractive Index @ 20degC	N <sub>D</sub> <sup>20</sup>	22241-2 Annex C	1.3814-1.3843	<b>1.3828</b>	ALB	3/9/2021	Pass
Alkalinity as NH <sub>3</sub>	%	22241-2 Annex D	<0.2	<b>0.06</b>	ALB	3/9/2021	Pass
Biuret	%	22241-2 Annex E	<0.3	<b>0.18</b>	ALB	3/9/2021	Pass
Aldehyde	mg/kg	22241-2 Annex F	<5.0	<b>&lt;1.0</b>	ALB	3/9/2021	Pass
Insolubles	mg/kg	22241-2 Annex G	<20	<b>&lt;2.0</b>	ALB	3/9/2021	Pass
Phosphate as P by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<b>&lt;0.25</b>	PEN	3/9/2021	Pass
Calcium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<b>&lt;0.05</b>	PEN	3/9/2021	Pass
Iron by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<b>&lt;0.05</b>	PEN	3/9/2021	Pass
Copper by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<b>&lt;0.02</b>	PEN	3/9/2021	Pass
Zinc by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<b>&lt;0.02</b>	PEN	3/9/2021	Pass
Chromium by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<b>0.06</b>	PEN	3/9/2021	Pass
Nickel by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<b>&lt;0.02</b>	PEN	3/9/2021	Pass
Aluminum by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<b>&lt;0.05</b>	PEN	3/9/2021	Pass
Magnesium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<b>&lt;0.05</b>	PEN	3/9/2021	Pass
Sodium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<b>&lt;0.05</b>	PEN	3/9/2021	Pass
Potassium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<b>&lt;0.05</b>	PEN	3/9/2021	Pass
<b>Miscellaneous Secondary Unregulated Quality Standards</b>							
Identify by FTIR (attached) <sup>3</sup>	Spectra	22241-2 Annex J	Control Match	<b>Match</b>	ALB	3/9/2021	---
Density @ 20degC	g/cm <sup>3</sup>	3675	Not Applicable	<b>1.0898</b>	ALB	3/9/2021	---

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.

Note 3: ISO 17025 accreditation not applied for.

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Certification Approval \_\_\_\_\_

Laboratory Director: Anthony J Scala



Date: 3/10/2021

Client:	DEF Products, LLC
Contact	Sharon Stegmuller
Address	422 East Barioni Blvd Imperial, CA 02251
Email	<a href="mailto:defproducts@gmail.com">defproducts@gmail.com</a>
Phone	760 355 7997
Report Date	3/10/2021

Enalytic ID	E2103026-001
Batch Number	303042021M
Train Number	GATX222481
Sample ID	DEF 32.3%
Date Sampled	3/4/2021
Date Received	3/9/2021
ISO 17025	Certificate Number: AT-2956

## Certificate of Analysis

Diesel Exhaust Fluid Analytical ISO-22241

Client ID: **32.3% DEF** Batch# 303042021M Train# GATX222481

Test Parameter/Method	Units	Test Method (ISO) <sup>1</sup>	Acceptable Limit <sup>2</sup>	Results	Chemist	Analysis Date	Pass/Fail
Urea Content <sup>3</sup>	wt%	22241-2 Annex C	31.8-33.4	<b>32.5</b>	SPT	3/10/2021	Pass
Refractive Index @ 20degC	N <sub>D</sub> <sup>20</sup>	22241-2 Annex C	1.3814-1.3843	<b>1.3829</b>	ALB	3/9/2021	Pass
Alkalinity as NH <sub>3</sub>	%	22241-2 Annex D	<0.2	<b>0.03</b>	ALB	3/9/2021	Pass
Biuret	%	22241-2 Annex E	<0.3	<b>0.11</b>	ALB	3/9/2021	Pass
Aldehyde	mg/kg	22241-2 Annex F	<5.0	<b>&lt;1.0</b>	ALB	3/9/2021	Pass
Insolubles	mg/kg	22241-2 Annex G	<20	<b>2.4</b>	ALB	3/9/2021	Pass
Phosphate as P by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<b>&lt;0.25</b>	PEN	3/9/2021	Pass
Calcium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<b>&lt;0.05</b>	PEN	3/9/2021	Pass
Iron by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<b>&lt;0.05</b>	PEN	3/9/2021	Pass
Copper by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<b>&lt;0.02</b>	PEN	3/9/2021	Pass
Zinc by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<b>&lt;0.02</b>	PEN	3/9/2021	Pass
Chromium by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<b>0.08</b>	PEN	3/9/2021	Pass
Nickel by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<b>&lt;0.02</b>	PEN	3/9/2021	Pass
Aluminum by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<b>&lt;0.05</b>	PEN	3/9/2021	Pass
Magnesium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<b>&lt;0.05</b>	PEN	3/9/2021	Pass
Sodium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<b>&lt;0.05</b>	PEN	3/9/2021	Pass
Potassium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<b>&lt;0.05</b>	PEN	3/9/2021	Pass
<b>Miscellaneous Secondary Unregulated Quality Standards</b>							
Identify by FTIR (attached) <sup>3</sup>	Spectra	22241-2 Annex J	Control Match	<b>Match</b>	ALB	3/9/2021	---
Density @ 20degC	g/cm <sup>3</sup>	3675	Not Applicable	<b>1.0898</b>	ALB	3/9/2021	---

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.

Note 3: ISO 17025 accreditation not applied for.

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Certification Approval \_\_\_\_\_

Laboratory Director: Anthony J Scala



Date: 3/10/2021

Client:	DEF Products, LLC
Contact	Sharon Stegmuller
Address	422 East Barioni Blvd Imperial, CA 02251
Email	<a href="mailto:defproducts@gmail.com">defproducts@gmail.com</a>
Phone	760 355 7997
Report Date	3/17/2021

Enalytic ID	E2103038-001
Batch Number	303082021M
Train Number	TILX265220
Sample ID	DEF 32.5%
Date Sampled	3/8/2021
Date Received	3/15/2021
ISO 17025	Certificate Number: AT-2956

## Certificate of Analysis

Diesel Exhaust Fluid Analytical ISO-22241

Client ID: **32.5% DEF** Batch# **303082021M** Train# **TILX265220**

Test Parameter/Method	Units	Test Method (ISO) <sup>1</sup>	Acceptable Limit <sup>2</sup>	Results	Chemist	Analysis Date	Pass/Fail
Urea Content <sup>3</sup>	wt%	22241-2 Annex C	31.8-33.4	<b>32.7</b>	SPT	3/16/2021	Pass
Refractive Index @ 20degC	N <sub>D</sub> <sup>20</sup>	22241-2 Annex C	1.3814-1.3843	<b>1.3832</b>	ALB	3/15/2021	Pass
Alkalinity as NH <sub>3</sub>	%	22241-2 Annex D	<0.2	<b>0.02</b>	ALB	3/15/2021	Pass
Biuret	%	22241-2 Annex E	<0.3	<b>0.15</b>	ALB	3/15/2021	Pass
Aldehyde	mg/kg	22241-2 Annex F	<5.0	<b>&lt;1.0</b>	ALB	3/16/2021	Pass
Insolubles	mg/kg	22241-2 Annex G	<20	<b>8.0</b>	ALB	3/15/2021	Pass
Phosphate as P by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<b>&lt;0.25</b>	PEN	3/16/2021	Pass
Calcium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<b>0.06</b>	PEN	3/16/2021	Pass
Iron by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<b>&lt;0.05</b>	PEN	3/16/2021	Pass
Copper by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<b>&lt;0.02</b>	PEN	3/16/2021	Pass
Zinc by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<b>&lt;0.02</b>	PEN	3/16/2021	Pass
Chromium by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<b>0.09</b>	PEN	3/16/2021	Pass
Nickel by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<b>&lt;0.02</b>	PEN	3/16/2021	Pass
Aluminum by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<b>0.09</b>	PEN	3/16/2021	Pass
Magnesium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<b>&lt;0.05</b>	PEN	3/16/2021	Pass
Sodium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<b>0.06</b>	PEN	3/16/2021	Pass
Potassium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<b>&lt;0.05</b>	PEN	3/16/2021	Pass
<b>Miscellaneous Secondary Unregulated Quality Standards</b>							
Identify by FTIR (attached) <sup>3</sup>	Spectra	22241-2 Annex J	Control Match	<b>Match</b>	ALB	3/15/2021	---
Density @ 20degC	g/cm <sup>3</sup>	3675	Not Applicable	<b>1.0908</b>	ALB	3/15/2021	---

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Note 3: ISO 17025 accreditation not applied for.

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Certification Approval \_\_\_\_\_

Laboratory Director: Anthony J Scala



Date: 3/17/2021

Client:	DEF Products, LLC
Contact	Sharon Stegmuller
Address	422 East Barioni Blvd Imperial, CA 02251
Email	<a href="mailto:defproducts@gmail.com">defproducts@gmail.com</a>
Phone	760 355 7997
Report Date	3/17/2021

Enalytic ID	E2103038-002
Batch Number	303092021M
Train Number	UTLX647970
Sample ID	DEF 32.5%
Date Sampled	3/9/2021
Date Received	3/15/2021
ISO 17025	Certificate Number: AT-2956

## Certificate of Analysis

Diesel Exhaust Fluid Analytical ISO-22241

Client ID: **32.5% DEF** Batch# 303092021M Train# UTLX647970

Test Parameter/Method	Units	Test Method (ISO) <sup>1</sup>	Acceptable Limit <sup>2</sup>	Results	Chemist	Analysis Date	Pass/Fail
Urea Content <sup>3</sup>	wt%	22241-2 Annex C	31.8-33.4	<b>32.4</b>	SPT	3/16/2021	Pass
Refractive Index @ 20degC	N <sub>D</sub> <sup>20</sup>	22241-2 Annex C	1.3814-1.3843	<b>1.3829</b>	ALB	3/15/2021	Pass
Alkalinity as NH <sub>3</sub>	%	22241-2 Annex D	<0.2	<b>0.04</b>	ALB	3/15/2021	Pass
Biuret	%	22241-2 Annex E	<0.3	<b>0.19</b>	ALB	3/15/2021	Pass
Aldehyde	mg/kg	22241-2 Annex F	<5.0	<b>&lt;1.0</b>	ALB	3/16/2021	Pass
Insolubles	mg/kg	22241-2 Annex G	<20	<b>&lt;2.0</b>	ALB	3/15/2021	Pass
Phosphate as P by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<b>&lt;0.25</b>	PEN	3/16/2021	Pass
Calcium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<b>0.06</b>	PEN	3/16/2021	Pass
Iron by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<b>&lt;0.05</b>	PEN	3/16/2021	Pass
Copper by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<b>&lt;0.02</b>	PEN	3/16/2021	Pass
Zinc by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<b>&lt;0.02</b>	PEN	3/16/2021	Pass
Chromium by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<b>0.08</b>	PEN	3/16/2021	Pass
Nickel by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<b>&lt;0.02</b>	PEN	3/16/2021	Pass
Aluminum by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<b>&lt;0.05</b>	PEN	3/16/2021	Pass
Magnesium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<b>&lt;0.05</b>	PEN	3/16/2021	Pass
Sodium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<b>0.06</b>	PEN	3/16/2021	Pass
Potassium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<b>&lt;0.05</b>	PEN	3/16/2021	Pass
<b>Miscellaneous Secondary Unregulated Quality Standards</b>							
Identify by FTIR (attached) <sup>3</sup>	Spectra	22241-2 Annex J	Control Match	<b>Match</b>	ALB	3/15/2021	---
Density @ 20degC	g/cm <sup>3</sup>	3675	Not Applicable	<b>1.0898</b>	ALB	3/15/2021	---

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.

Note 3: ISO 17025 accreditation not applied for.

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Certification Approval \_\_\_\_\_

Laboratory Director: Anthony J Scala



Date: 3/17/2021

Client:	DEF Products, LLC
Contact	Sharon Stegmuller
Address	422 East Barioni Blvd Imperial, CA 02251
Email	<a href="mailto:defproducts@gmail.com">defproducts@gmail.com</a>
Phone	760 355 7997
Report Date	3/17/2021

Enalytic ID	E2103037-001
Batch Number	303112021M
Train Number	TILX264928
Sample ID	DEF 32.5%
Date Sampled	3/11/2021
Date Received	3/15/2021
ISO 17025	Certificate Number: AT-2956

## Certificate of Analysis

Diesel Exhaust Fluid Analytical ISO-22241

Client ID: **32.5% DEF** Batch# **303112021M** Train# **TILX264928**

Test Parameter/Method	Units	Test Method (ISO) <sup>1</sup>	Acceptable Limit <sup>2</sup>	Results	Chemist	Analysis Date	Pass/Fail
Urea Content <sup>3</sup>	wt%	22241-2 Annex C	31.8-33.4	<b>32.4</b>	SPT	3/16/2021	Pass
Refractive Index @ 20degC	N <sub>D</sub> <sup>20</sup>	22241-2 Annex C	1.3814-1.3843	<b>1.3828</b>	ALB	3/15/2021	Pass
Alkalinity as NH <sub>3</sub>	%	22241-2 Annex D	<0.2	<b>0.03</b>	ALB	3/15/2021	Pass
Biuret	%	22241-2 Annex E	<0.3	<b>0.20</b>	ALB	3/15/2021	Pass
Aldehyde	mg/kg	22241-2 Annex F	<5.0	<b>&lt;1.0</b>	ALB	3/16/2021	Pass
Insolubles	mg/kg	22241-2 Annex G	<20	<b>3.0</b>	ALB	3/15/2021	Pass
Phosphate as P by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<b>&lt;0.25</b>	PEN	3/16/2021	Pass
Calcium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<b>&lt;0.05</b>	PEN	3/16/2021	Pass
Iron by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<b>&lt;0.05</b>	PEN	3/16/2021	Pass
Copper by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<b>&lt;0.02</b>	PEN	3/16/2021	Pass
Zinc by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<b>&lt;0.02</b>	PEN	3/16/2021	Pass
Chromium by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<b>0.07</b>	PEN	3/16/2021	Pass
Nickel by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<b>&lt;0.02</b>	PEN	3/16/2021	Pass
Aluminum by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<b>&lt;0.05</b>	PEN	3/16/2021	Pass
Magnesium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<b>&lt;0.05</b>	PEN	3/16/2021	Pass
Sodium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<b>&lt;0.05</b>	PEN	3/16/2021	Pass
Potassium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<b>&lt;0.05</b>	PEN	3/16/2021	Pass

### Miscellaneous Secondary Unregulated Quality Standards

Identify by FTIR (attached) <sup>3</sup>	Spectra	22241-2 Annex J	Control Match	<b>Match</b>	ALB	3/15/2021	---
Density @ 20degC	g/cm <sup>3</sup>	3675	Not Applicable	<b>1.0898</b>	ALB	3/15/2021	---

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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.

Note 3: ISO 17025 accreditation not applied for.

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Certification Approval \_\_\_\_\_

Laboratory Director: Anthony J Scala



Date: 3/17/2021

Client:	DEF Products, LLC
Contact	Sharon Stegmuller
Address	422 East Barioni Blvd Imperial, CA 02251
Email	<a href="mailto:defproducts@gmail.com">defproducts@gmail.com</a>
Phone	760 355 7997
Report Date	3/17/2021

Enalytic ID	E2103037-002
Batch Number	303122021M
Train Number	GATX224320
Sample ID	DEF 32.5%
Date Sampled	3/12/2021
Date Received	3/15/2021
ISO 17025	Certificate Number: AT-2956

## Certificate of Analysis

Diesel Exhaust Fluid Analytical ISO-22241

Client ID: **32.5% DEF** Batch# 303122021M Train# GATX224320

Test Parameter/Method	Units	Test Method (ISO) <sup>1</sup>	Acceptable Limit <sup>2</sup>	Results	Chemist	Analysis Date	Pass/Fail
Urea Content <sup>3</sup>	wt%	22241-2 Annex C	31.8-33.4	<b>32.4</b>	SPT	3/16/2021	Pass
Refractive Index @ 20degC	N <sub>D</sub> <sup>20</sup>	22241-2 Annex C	1.3814-1.3843	<b>1.3828</b>	ALB	3/15/2021	Pass
Alkalinity as NH <sub>3</sub>	%	22241-2 Annex D	<0.2	<b>0.04</b>	ALB	3/15/2021	Pass
Biuret	%	22241-2 Annex E	<0.3	<b>0.19</b>	ALB	3/15/2021	Pass
Aldehyde	mg/kg	22241-2 Annex F	<5.0	<b>&lt;1.0</b>	ALB	3/16/2021	Pass
Insolubles	mg/kg	22241-2 Annex G	<20	<b>5.0</b>	ALB	3/15/2021	Pass
Phosphate as P by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<b>&lt;0.25</b>	PEN	3/16/2021	Pass
Calcium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<b>&lt;0.05</b>	PEN	3/16/2021	Pass
Iron by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<b>&lt;0.05</b>	PEN	3/16/2021	Pass
Copper by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<b>&lt;0.02</b>	PEN	3/16/2021	Pass
Zinc by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<b>&lt;0.02</b>	PEN	3/16/2021	Pass
Chromium by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<b>0.08</b>	PEN	3/16/2021	Pass
Nickel by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<b>&lt;0.02</b>	PEN	3/16/2021	Pass
Aluminum by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<b>&lt;0.05</b>	PEN	3/16/2021	Pass
Magnesium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<b>&lt;0.05</b>	PEN	3/16/2021	Pass
Sodium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<b>&lt;0.05</b>	PEN	3/16/2021	Pass
Potassium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<b>&lt;0.05</b>	PEN	3/16/2021	Pass

### Miscellaneous Secondary Unregulated Quality Standards

Identify by FTIR (attached) <sup>3</sup>	Spectra	22241-2 Annex J	Control Match	<b>Match</b>	ALB	3/15/2021	---
Density @ 20degC	g/cm <sup>3</sup>	3675	Not Applicable	<b>1.0898</b>	ALB	3/15/2021	---

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.

Note 3: ISO 17025 accreditation not applied for.

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Certification Approval \_\_\_\_\_

Laboratory Director: Anthony J Scala

Date: 3/17/2021

Client:	DEF Products, LLC
Contact	Sharon Stegmuller
Address	422 East Barioni Blvd Imperial, CA 02251
Email	<a href="mailto:defproducts@gmail.com">defproducts@gmail.com</a>
Phone	760 355 7997
Report Date	3/24/2021

Enalytic ID	E2103058-002
Batch Number	303182021P
Train Number	UTLX647702
Sample ID	DEF 32.5%
Date Sampled	3/18/2021
Date Received	3/22/2021
ISO 17025	Certificate Number: AT-2956

## Certificate of Analysis

Diesel Exhaust Fluid Analytical ISO-22241

Client ID: **32.5% DEF** Batch# **303182021P** Train# **UTLX647702**

Test Parameter/Method	Units	Test Method (ISO) <sup>1</sup>	Acceptable Limit <sup>2</sup>	Results	Chemist	Analysis Date	Pass/Fail
Urea Content <sup>3</sup>	wt%	22241-2 Annex C	31.8-33.4	<b>32.4</b>	SPT	3/24/2021	Pass
Refractive Index @ 20degC	N <sub>D</sub> <sup>20</sup>	22241-2 Annex C	1.3814-1.3843	<b>1.3829</b>	ALB	3/23/2021	Pass
Alkalinity as NH <sub>3</sub>	%	22241-2 Annex D	<0.2	<b>0.05</b>	ALB	3/22/2021	Pass
Biuret	%	22241-2 Annex E	<0.3	<b>0.18</b>	ALB	3/23/2021	Pass
Aldehyde	mg/kg	22241-2 Annex F	<5.0	<b>&lt;1.0</b>	ALB	3/23/2021	Pass
Insolubles	mg/kg	22241-2 Annex G	<20	<b>&lt;2.0</b>	ALB	3/22/2021	Pass
Phosphate as P by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<b>&lt;0.25</b>	PEN	3/23/2021	Pass
Calcium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<b>&lt;0.05</b>	PEN	3/23/2021	Pass
Iron by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<b>&lt;0.05</b>	PEN	3/23/2021	Pass
Copper by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<b>&lt;0.02</b>	PEN	3/23/2021	Pass
Zinc by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<b>&lt;0.02</b>	PEN	3/23/2021	Pass
Chromium by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<b>0.09</b>	PEN	3/23/2021	Pass
Nickel by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<b>&lt;0.02</b>	PEN	3/23/2021	Pass
Aluminum by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<b>&lt;0.05</b>	PEN	3/23/2021	Pass
Magnesium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<b>&lt;0.05</b>	PEN	3/23/2021	Pass
Sodium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<b>&lt;0.05</b>	PEN	3/23/2021	Pass
Potassium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<b>&lt;0.05</b>	PEN	3/23/2021	Pass
<b>Miscellaneous Secondary Unregulated Quality Standards</b>							
Identify by FTIR (attached) <sup>3</sup>	Spectra	22241-2 Annex J	Control Match	<b>Match</b>	ALB	3/23/2021	---
Density @ 20degC	g/cm <sup>3</sup>	3675	Not Applicable	<b>1.0893</b>	ALB	3/23/2021	---

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.

Note 3: ISO 17025 accreditation not applied for.

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Certification Approval \_\_\_\_\_

Laboratory Director: Anthony J Scala



Date: 3/24/2021

Client:	DEF Products, LLC
Contact	Sharon Stegmuller
Address	422 East Barioni Blvd Imperial, CA 02251
Email	<a href="mailto:defproducts@gmail.com">defproducts@gmail.com</a>
Phone	760 355 7997
Report Date	3/24/2021

Enalytic ID	E2103058-003
Batch Number	303192021C
Train Number	TIMX400156
Sample ID	DEF 32.5%
Date Sampled	3/19/2021
Date Received	3/22/2021
ISO 17025	Certificate Number: AT-2956

## Certificate of Analysis

Diesel Exhaust Fluid Analytical ISO-22241

Client ID: **32.5% DEF** Batch# **303192021C** Train# **TIMX400156**

Test Parameter/Method	Units	Test Method (ISO) <sup>1</sup>	Acceptable Limit <sup>2</sup>	Results	Chemist	Analysis Date	Pass/Fail
Urea Content <sup>3</sup>	wt%	22241-2 Annex C	31.8-33.4	<b>32.4</b>	SPT	3/24/2021	Pass
Refractive Index @ 20degC	N <sub>D</sub> <sup>20</sup>	22241-2 Annex C	1.3814-1.3843	<b>1.3828</b>	ALB	3/23/2021	Pass
Alkalinity as NH <sub>3</sub>	%	22241-2 Annex D	<0.2	<b>0.04</b>	ALB	3/22/2021	Pass
Biuret	%	22241-2 Annex E	<0.3	<b>0.20</b>	ALB	3/23/2021	Pass
Aldehyde	mg/kg	22241-2 Annex F	<5.0	<b>&lt;1.0</b>	ALB	3/23/2021	Pass
Insolubles	mg/kg	22241-2 Annex G	<20	<b>&lt;2.0</b>	ALB	3/22/2021	Pass
Phosphate as P by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<b>&lt;0.25</b>	PEN	3/23/2021	Pass
Calcium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<b>&lt;0.05</b>	PEN	3/23/2021	Pass
Iron by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<b>&lt;0.05</b>	PEN	3/23/2021	Pass
Copper by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<b>&lt;0.02</b>	PEN	3/23/2021	Pass
Zinc by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<b>&lt;0.02</b>	PEN	3/23/2021	Pass
Chromium by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<b>&lt;0.02</b>	PEN	3/23/2021	Pass
Nickel by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<b>&lt;0.02</b>	PEN	3/23/2021	Pass
Aluminum by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<b>&lt;0.05</b>	PEN	3/23/2021	Pass
Magnesium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<b>&lt;0.05</b>	PEN	3/23/2021	Pass
Sodium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<b>&lt;0.05</b>	PEN	3/23/2021	Pass
Potassium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<b>&lt;0.05</b>	PEN	3/23/2021	Pass

### Miscellaneous Secondary Unregulated Quality Standards

Identify by FTIR (attached) <sup>3</sup>	Spectra	22241-2 Annex J	Control Match	<b>Match</b>	ALB	3/23/2021	---
Density @ 20degC	g/cm <sup>3</sup>	3675	Not Applicable	<b>1.0888</b>	ALB	3/23/2021	---

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.

Note 3: ISO 17025 accreditation not applied for.

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Certification Approval \_\_\_\_\_

Laboratory Director: Anthony J Scala

Date: 3/24/2021

Client:	DEF Products, LLC
Contact	Sharon Stegmuller
Address	422 East Barioni Blvd Imperial, CA 02251
Email	<a href="mailto:defproducts@gmail.com">defproducts@gmail.com</a>
Phone	760 355 7997
Report Date	4/1/2021

Enalytic ID	E2103071-001
Batch Number	303262021M
Train Number	TILX23252
Sample ID	DEF 32.5%
Date Sampled	3/26/2021
Date Received	3/30/2021
ISO 17025	Certificate Number: AT-2956

## Certificate of Analysis

Diesel Exhaust Fluid Analytical ISO-22241

Client ID: **32.5% DEF** Batch# **303262021M** Train# **TILX23252**

Test Parameter/Method	Units	Test Method (ISO) <sup>1</sup>	Acceptable Limit <sup>2</sup>	Results	Chemist	Analysis Date	Pass/Fail
Urea Content <sup>3</sup>	wt%	22241-2 Annex C	31.8-33.4	<b>32.3</b>	ALB	3/31/2021	Pass
Refractive Index @ 20degC	N <sub>D</sub> <sup>20</sup>	22241-2 Annex C	1.3814-1.3843	<b>1.3827</b>	ALB	3/31/2021	Pass
Alkalinity as NH <sub>3</sub>	%	22241-2 Annex D	<0.2	<b>0.06</b>	ALB	3/31/2021	Pass
Biuret	%	22241-2 Annex E	<0.3	<b>0.18</b>	ALB	3/30/2021	Pass
Aldehyde	mg/kg	22241-2 Annex F	<5.0	<b>&lt;1.0</b>	ALB	3/31/2021	Pass
Insolubles	mg/kg	22241-2 Annex G	<20	<b>&lt;2.0</b>	ALB	3/30/2021	Pass
Phosphate as P by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<b>&lt;0.25</b>	PEN	3/30/2021	Pass
Calcium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<b>&lt;0.05</b>	PEN	3/30/2021	Pass
Iron by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<b>&lt;0.05</b>	PEN	3/30/2021	Pass
Copper by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<b>&lt;0.02</b>	PEN	3/30/2021	Pass
Zinc by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<b>&lt;0.02</b>	PEN	3/30/2021	Pass
Chromium by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<b>0.05</b>	PEN	3/30/2021	Pass
Nickel by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<b>&lt;0.02</b>	PEN	3/30/2021	Pass
Aluminum by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<b>&lt;0.05</b>	PEN	3/30/2021	Pass
Magnesium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<b>&lt;0.05</b>	PEN	3/30/2021	Pass
Sodium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<b>&lt;0.05</b>	PEN	3/30/2021	Pass
Potassium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<b>&lt;0.05</b>	PEN	3/30/2021	Pass

### Miscellaneous Secondary Unregulated Quality Standards

Identify by FTIR (attached) <sup>3</sup>	Spectra	22241-2 Annex J	Control Match	<b>Match</b>	ALB	3/31/2021	---
Density @ 20degC	g/cm <sup>3</sup>	3675	Not Applicable	<b>1.0888</b>	ALB	3/31/2021	---

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.

Note 3: ISO 17025 accreditation not applied for.

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Certification Approval   
Laboratory Director: Anthony J Scala

Date: 4/1/2021

Client:	DEF Products, LLC
Contact	Sharon Stegmuller
Address	422 East Barioni Blvd Imperial, CA 02251
Email	<a href="mailto:defproducts@gmail.com">defproducts@gmail.com</a>
Phone	760 355 7997
Report Date	4/1/2021

Enalytic ID	E2103071-003
Batch Number	303292021M
Train Number	UTLX682257
Sample ID	DEF 32.5%
Date Sampled	3/29/2021
Date Received	3/30/2021
ISO 17025	Certificate Number: AT-2956

## Certificate of Analysis

Diesel Exhaust Fluid Analytical ISO-22241

Client ID: 32.5% DEF Batch# 303292021M Train# UTLX682257

Test Parameter/Method	Units	Test Method (ISO) <sup>1</sup>	Acceptable Limit <sup>2</sup>	Results	Chemist	Analysis Date	Pass/Fail
Urea Content <sup>3</sup>	wt%	22241-2 Annex C	31.8-33.4	<b>32.4</b>	ALB	3/31/2021	Pass
Refractive Index @ 20degC	N <sub>D</sub> <sup>20</sup>	22241-2 Annex C	1.3814-1.3843	<b>1.3828</b>	ALB	3/31/2021	Pass
Alkalinity as NH <sub>3</sub>	%	22241-2 Annex D	<0.2	<b>0.07</b>	ALB	3/31/2021	Pass
Biuret	%	22241-2 Annex E	<0.3	<b>0.18</b>	ALB	3/30/2021	Pass
Aldehyde	mg/kg	22241-2 Annex F	<5.0	<b>&lt;1.0</b>	ALB	3/31/2021	Pass
Insolubles	mg/kg	22241-2 Annex G	<20	<b>4.2</b>	ALB	3/30/2021	Pass
Phosphate as P by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<b>&lt;0.25</b>	PEN	3/30/2021	Pass
Calcium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<b>&lt;0.05</b>	PEN	3/30/2021	Pass
Iron by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<b>&lt;0.05</b>	PEN	3/30/2021	Pass
Copper by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<b>&lt;0.02</b>	PEN	3/30/2021	Pass
Zinc by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<b>&lt;0.02</b>	PEN	3/30/2021	Pass
Chromium by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<b>0.04</b>	PEN	3/30/2021	Pass
Nickel by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<b>&lt;0.02</b>	PEN	3/30/2021	Pass
Aluminum by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<b>&lt;0.05</b>	PEN	3/30/2021	Pass
Magnesium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<b>&lt;0.05</b>	PEN	3/30/2021	Pass
Sodium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<b>&lt;0.05</b>	PEN	3/30/2021	Pass
Potassium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<b>&lt;0.05</b>	PEN	3/30/2021	Pass
<b>Miscellaneous Secondary Unregulated Quality Standards</b>							
Identify by FTIR (attached) <sup>3</sup>	Spectra	22241-2 Annex J	Control Match	<b>Match</b>	ALB	3/31/2021	---
Density @ 20degC	g/cm <sup>3</sup>	3675	Not Applicable	<b>1.0903</b>	ALB	3/31/2021	---

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.

Note 3: ISO 17025 accreditation not applied for.

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Certification Approval \_\_\_\_\_

Laboratory Director: Anthony J Scala



Date: 4/1/2021