

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	1/20/2022

Enalytic ID	E2201026-001
Batch Number	301142022M
Train Number	TILX265257
Sample ID	DEF 32.5%
Date Sampled	1/14/2022
Date Received	1/17/2022
ISO 17025	Certificate Number: AT-2956

## Certificate of Analysis

Diesel Exhaust Fluid Analytical ISO-22241

Client ID: **32.5% DEF** Batch # **301142022M** Train # **TILX265257**

Test Parameter/Method	Units	Test Method (ISO) <sup>1</sup>	Acceptable Limit <sup>2</sup>	Results	Chemist	Analysis Date	Pass/Fail
Urea Content	wt%	22241-2 Annex C	31.8-33.4	<b>32.7</b>	SPT	1/19/2022	Pass
Refractive Index @ 20degC	N <sub>D</sub> <sup>20</sup>	22241-2 Annex C	1.3814-1.3843	<b>1.3832</b>	ALB	1/18/2022	Pass
Alkalinity as NH <sub>3</sub>	%	22241-2 Annex D	<0.2	<b>0.02</b>	MDC	1/19/2022	Pass
Biuret	%	22241-2 Annex E	<0.3	<b>0.12</b>	ALB	1/19/2022	Pass
Aldehyde	mg/kg	22241-2 Annex F	<5.0	<b>&lt;1.0</b>	ALB	1/19/2022	Pass
Insolubles	mg/kg	22241-2 Annex G	<20	<b>3.7</b>	MDC	1/18/2022	Pass
Aluminum by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<b>&lt;0.05</b>	DSD	1/19/2022	Pass
Calcium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<b>&lt;0.05</b>	DSD	1/19/2022	Pass
Chromium by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<b>0.070</b>	DSD	1/19/2022	Pass
Copper by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<b>&lt;0.02</b>	DSD	1/19/2022	Pass
Iron by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<b>&lt;0.05</b>	DSD	1/19/2022	Pass
Magnesium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<b>&lt;0.05</b>	DSD	1/19/2022	Pass
Nickel by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<b>&lt;0.02</b>	DSD	1/19/2022	Pass
Phosphate by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<b>&lt;0.25</b>	DSD	1/19/2022	Pass
Potassium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<b>&lt;0.05</b>	DSD	1/19/2022	Pass
Sodium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<b>&lt;0.05</b>	DSD	1/19/2022	Pass
Zinc by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<b>&lt;0.02</b>	DSD	1/19/2022	Pass

### Miscellaneous Secondary Unregulated Quality Standards

Identify by FTIR (attached) <sup>3</sup>	Spectra	22241-2 Annex J	Control Match	<b>Match</b>	ALB	1/18/2022	---
Density @ 20degC	g/cm <sup>3</sup>	3675	Not Applicable	<b>1.0908</b>	ALB	1/18/2022	---

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: 1/20/2022

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	1/27/2022

Enalytic ID	E2201041-001
Batch Number	301172022M
Train Number	KLRX243052
Sample ID	DEF 32.5%
Date Sampled	1/17/2022
Date Received	1/25/2022
ISO 17025	Certificate Number: AT-2956

## Certificate of Analysis

Diesel Exhaust Fluid Analytical ISO-22241

Client ID: 32.5% DEF Batch # 301172022M Train # KLRX243052

Test Parameter/Method	Units	Test Method (ISO) <sup>1</sup>	Acceptable Limit <sup>2</sup>	Results	Chemist	Analysis Date	Pass/Fail
Urea Content	wt%	22241-2 Annex C	31.8-33.4	32.5	SPT	1/27/2022	Pass
Refractive Index @ 20degC	N <sub>D</sub> <sup>20</sup>	22241-2 Annex C	1.3814-1.3843	1.3830	ALB	1/26/2022	Pass
Alkalinity as NH <sub>3</sub>	%	22241-2 Annex D	<0.2	0.02	ALB	1/26/2022	Pass
Biuret	%	22241-2 Annex E	<0.3	0.14	ALB	1/27/2022	Pass
Aldehyde	mg/kg	22241-2 Annex F	<5.0	<1.0	ALB	1/26/2022	Pass
Insolubles	mg/kg	22241-2 Annex G	<20	<2.0	MDC	1/26/2022	Pass
Aluminum by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<0.05	DSD	1/25/2022	Pass
Calcium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<0.05	DSD	1/25/2022	Pass
Chromium by ICP-OES	mg/kg	22241-2 Annex I	<0.2	0.094	DSD	1/25/2022	Pass
Copper by ICP-OES	mg/kg	22241-2 Annex I	<0.2	0.13	DSD	1/25/2022	Pass
Iron by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<0.05	DSD	1/25/2022	Pass
Magnesium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<0.05	DSD	1/25/2022	Pass
Nickel by ICP-OES	mg/kg	22241-2 Annex I	<0.2	0.049	DSD	1/25/2022	Pass
Phosphate by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<0.25	DSD	1/25/2022	Pass
Potassium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	0.22	DSD	1/25/2022	Pass
Sodium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	0.11	DSD	1/25/2022	Pass
Zinc by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<0.02	DSD	1/25/2022	Pass

### Miscellaneous Secondary Unregulated Quality Standards

Identify by FTIR (attached) <sup>3</sup>	Spectra	22241-2 Annex J	Control Match	Match	ALB	1/26/2022	---
Density @ 20degC	g/cm <sup>3</sup>	3675	Not Applicable	1.0913	ALB	1/26/2022	---

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

Laboratory Director: Anthony J Scala

Date: 1/27/2022

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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	1/27/2022

Enalytic ID	E2201042-001
Batch Number	301202022L
Train Number	TILX265233
Sample ID	DEF 32.5%
Date Sampled	1/20/2022
Date Received	1/25/2022
ISO 17025	Certificate Number: AT-2956

## Certificate of Analysis

Diesel Exhaust Fluid Analytical ISO-22241

Client ID: 32.5% DEF Batch # 301202022L Train # TILX265233

Test Parameter/Method	Units	Test Method (ISO) <sup>1</sup>	Acceptable Limit <sup>2</sup>	Results	Chemist	Analysis Date	Pass/Fail
Urea Content	wt%	22241-2 Annex C	31.8-33.4	32.6	SPT	1/27/2022	Pass
Refractive Index @ 20degC	N <sub>D</sub> <sup>20</sup>	22241-2 Annex C	1.3814-1.3843	1.3831	ALB	1/26/2022	Pass
Alkalinity as NH <sub>3</sub>	%	22241-2 Annex D	<0.2	0.03	ALB	1/26/2022	Pass
Biuret	%	22241-2 Annex E	<0.3	0.11	ALB	1/27/2022	Pass
Aldehyde	mg/kg	22241-2 Annex F	<5.0	<1.0	ALB	1/26/2022	Pass
Insolubles	mg/kg	22241-2 Annex G	<20	<2.0	MDC	1/26/2022	Pass
Aluminum by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<0.05	DSD	1/25/2022	Pass
Calcium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<0.05	DSD	1/25/2022	Pass
Chromium by ICP-OES	mg/kg	22241-2 Annex I	<0.2	0.10	DSD	1/25/2022	Pass
Copper by ICP-OES	mg/kg	22241-2 Annex I	<0.2	0.20	DSD	1/25/2022	Pass
Iron by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<0.05	DSD	1/25/2022	Pass
Magnesium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<0.05	DSD	1/25/2022	Pass
Nickel by ICP-OES	mg/kg	22241-2 Annex I	<0.2	0.070	DSD	1/25/2022	Pass
Phosphate by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<0.25	DSD	1/25/2022	Pass
Potassium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	0.31	DSD	1/25/2022	Pass
Sodium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	0.15	DSD	1/25/2022	Pass
Zinc by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<0.02	DSD	1/25/2022	Pass

### Miscellaneous Secondary Unregulated Quality Standards

Identify by FTIR (attached) <sup>3</sup>	Spectra	22241-2 Annex J	Control Match	Match	ALB	1/26/2022	---
Density @ 20degC	g/cm <sup>3</sup>	3675	Not Applicable	1.0913	ALB	1/26/2022	---

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

Laboratory Director: Anthony J Scala

Date: 1/27/2022

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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	1/28/2022

Enalytic ID	E2201043-001
Batch Number	301252022L
Train Number	TILX265175
Sample ID	DEF 32.5%
Date Sampled	1/25/2022
Date Received	1/26/2022
ISO 17025	Certificate Number: AT-2956

## Certificate of Analysis

Diesel Exhaust Fluid Analytical ISO-22241

Client ID: **32.5% DEF** Batch # **301252022L** Train # **TILX265175**

Test Parameter/Method	Units	Test Method (ISO) <sup>1</sup>	Acceptable Limit <sup>2</sup>	Results	Chemist	Analysis Date	Pass/Fail
Urea Content	wt%	22241-2 Annex C	31.8-33.4	<b>32.4</b>	SPT	1/27/2022	Pass
Refractive Index @ 20degC	N <sub>D</sub> <sup>20</sup>	22241-2 Annex C	1.3814-1.3843	<b>1.3828</b>	MDC	1/26/2022	Pass
Alkalinity as NH <sub>3</sub>	%	22241-2 Annex D	<0.2	<b>0.03</b>	ALB	1/26/2022	Pass
Biuret	%	22241-2 Annex E	<0.3	<b>0.12</b>	ALB	1/27/2022	Pass
Aldehyde	mg/kg	22241-2 Annex F	<5.0	<b>&lt;1.0</b>	ALB	1/26/2022	Pass
Insolubles	mg/kg	22241-2 Annex G	<20	<b>&lt;2.0</b>	MDC	1/26/2022	Pass
Aluminum by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<b>&lt;0.05</b>	DSD	1/27/2022	Pass
Calcium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<b>&lt;0.05</b>	DSD	1/27/2022	Pass
Chromium by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<b>0.060</b>	DSD	1/27/2022	Pass
Copper by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<b>&lt;0.02</b>	DSD	1/27/2022	Pass
Iron by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<b>&lt;0.05</b>	DSD	1/27/2022	Pass
Magnesium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<b>&lt;0.05</b>	DSD	1/27/2022	Pass
Nickel by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<b>&lt;0.02</b>	DSD	1/27/2022	Pass
Phosphate by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<b>&lt;0.25</b>	DSD	1/27/2022	Pass
Potassium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<b>&lt;0.05</b>	DSD	1/27/2022	Pass
Sodium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<b>&lt;0.05</b>	DSD	1/27/2022	Pass
Zinc by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<b>&lt;0.02</b>	DSD	1/27/2022	Pass

### Miscellaneous Secondary Unregulated Quality Standards

Identify by FTIR (attached) <sup>3</sup>	Spectra	22241-2 Annex J	Control Match	<b>Match</b>	MDC	1/26/2022	---
Density @ 20degC	g/cm <sup>3</sup>	3675	Not Applicable	<b>1.0908</b>	MDC	1/26/2022	---

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

Laboratory Director: Anthony J Scala

Date: 1/28/2022

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	1/28/2022

Enalytic ID	E2201043-002
Batch Number	301252022M
Train Number	KLRX243029
Sample ID	DEF 32.5%
Date Sampled	1/25/2022
Date Received	1/26/2022
ISO 17025	Certificate Number: AT-2956

## Certificate of Analysis

Diesel Exhaust Fluid Analytical ISO-22241

Client ID: **32.5% DEF** Batch # **301252022M** Train # **KLRX243029**

Test Parameter/Method	Units	Test Method (ISO) <sup>1</sup>	Acceptable Limit <sup>2</sup>	Results	Chemist	Analysis Date	Pass/Fail
Urea Content	wt%	22241-2 Annex C	31.8-33.4	<b>32.6</b>	SPT	1/27/2022	Pass
Refractive Index @ 20degC	N <sub>D</sub> <sup>20</sup>	22241-2 Annex C	1.3814-1.3843	<b>1.3831</b>	MDC	1/26/2022	Pass
Alkalinity as NH <sub>3</sub>	%	22241-2 Annex D	<0.2	<b>0.03</b>	ALB	1/26/2022	Pass
Biuret	%	22241-2 Annex E	<0.3	<b>0.13</b>	ALB	1/27/2022	Pass
Aldehyde	mg/kg	22241-2 Annex F	<5.0	<b>&lt;1.0</b>	ALB	1/26/2022	Pass
Insolubles	mg/kg	22241-2 Annex G	<20	<b>&lt;2.0</b>	MDC	1/26/2022	Pass
Aluminum by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<b>&lt;0.05</b>	DSD	1/27/2022	Pass
Calcium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<b>&lt;0.05</b>	DSD	1/27/2022	Pass
Chromium by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<b>0.074</b>	DSD	1/27/2022	Pass
Copper by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<b>&lt;0.02</b>	DSD	1/27/2022	Pass
Iron by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<b>&lt;0.05</b>	DSD	1/27/2022	Pass
Magnesium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<b>&lt;0.05</b>	DSD	1/27/2022	Pass
Nickel by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<b>&lt;0.02</b>	DSD	1/27/2022	Pass
Phosphate by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<b>&lt;0.25</b>	DSD	1/27/2022	Pass
Potassium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<b>&lt;0.05</b>	DSD	1/27/2022	Pass
Sodium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<b>&lt;0.05</b>	DSD	1/27/2022	Pass
Zinc by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<b>&lt;0.02</b>	DSD	1/27/2022	Pass

### Miscellaneous Secondary Unregulated Quality Standards

Identify by FTIR (attached) <sup>3</sup>	Spectra	22241-2 Annex J	Control Match	<b>Match</b>	MDC	1/26/2022	---
Density @ 20degC	g/cm <sup>3</sup>	3675	Not Applicable	<b>1.0913</b>	MDC	1/26/2022	---

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

Laboratory Director: Anthony J Scala

Date: 1/28/2022



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	2/2/2022

Enalytic ID	E2201044-001
Batch Number	301262022M
Train Number	GAXT223442
Sample ID	DEF 32.5%
Date Sampled	1/26/2022
Date Received	1/28/2022
ISO 17025	Certificate Number: AT-2956

## Certificate of Analysis

Diesel Exhaust Fluid Analytical ISO-22241

Client ID: **32.5% DEF** Batch # **301262022M** Train # **GAXT223442**

Test Parameter/Method	Units	Test Method (ISO) <sup>1</sup>	Acceptable Limit <sup>2</sup>	Results	Chemist	Analysis Date	Pass/Fail
Urea Content	wt%	22241-2 Annex C	31.8-33.4	<b>32.8</b>	SPT	2/1/2022	Pass
Refractive Index @ 20degC	N <sub>D</sub> <sup>20</sup>	22241-2 Annex C	1.3814-1.3843	<b>1.3835</b>	ALB	1/31/2022	Pass
Alkalinity as NH <sub>3</sub>	%	22241-2 Annex D	<0.2	<b>0.09</b>	ALB	1/31/2022	Pass
Biuret	%	22241-2 Annex E	<0.3	<b>0.16</b>	MDC	1/28/2022	Pass
Aldehyde	mg/kg	22241-2 Annex F	<5.0	<b>&lt;1.0</b>	MDC	1/31/2022	Pass
Insolubles	mg/kg	22241-2 Annex G	<20	<b>&lt;2.0</b>	MDC	1/31/2022	Pass
Aluminum by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<b>&lt;0.05</b>	DSD	2/1/2022	Pass
Calcium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<b>0.19</b>	DSD	2/1/2022	Pass
Chromium by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<b>0.049</b>	DSD	2/1/2022	Pass
Copper by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<b>&lt;0.02</b>	DSD	2/1/2022	Pass
Iron by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<b>&lt;0.05</b>	DSD	2/1/2022	Pass
Magnesium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<b>&lt;0.05</b>	DSD	2/1/2022	Pass
Nickel by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<b>&lt;0.02</b>	DSD	2/1/2022	Pass
Phosphate by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<b>&lt;0.25</b>	DSD	2/1/2022	Pass
Potassium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<b>&lt;0.05</b>	DSD	2/1/2022	Pass
Sodium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<b>&lt;0.05</b>	DSD	2/1/2022	Pass
Zinc by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<b>&lt;0.02</b>	DSD	2/1/2022	Pass

### Miscellaneous Secondary Unregulated Quality Standards

Identify by FTIR (attached) <sup>3</sup>	Spectra	22241-2 Annex J	Control Match	<b>Match</b>	ALB	1/31/2022	---
Density @ 20degC	g/cm <sup>3</sup>	3675	Not Applicable	<b>1.0913</b>	ALB	1/31/2022	---

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: 2/2/2022

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	2/2/2022

Enalytic ID	E2201044-002
Batch Number	301262022P
Train Number	TILX265596
Sample ID	DEF 32.5%
Date Sampled	1/26/2022
Date Received	1/28/2022
ISO 17025	Certificate Number: AT-2956

## Certificate of Analysis

Diesel Exhaust Fluid Analytical ISO-22241

Client ID: **32.5% DEF** Batch # **301262022P** Train # **TILX265596**

Test Parameter/Method	Units	Test Method (ISO) <sup>1</sup>	Acceptable Limit <sup>2</sup>	Results	Chemist	Analysis Date	Pass/Fail
Urea Content	wt%	22241-2 Annex C	31.8-33.4	<b>32.8</b>	SPT	2/1/2022	Pass
Refractive Index @ 20degC	N <sub>D</sub> <sup>20</sup>	22241-2 Annex C	1.3814-1.3843	<b>1.3834</b>	ALB	1/31/2022	Pass
Alkalinity as NH <sub>3</sub>	%	22241-2 Annex D	<0.2	<b>0.09</b>	ALB	1/31/2022	Pass
Biuret	%	22241-2 Annex E	<0.3	<b>0.16</b>	MDC	1/28/2022	Pass
Aldehyde	mg/kg	22241-2 Annex F	<5.0	<b>&lt;1.0</b>	MDC	1/31/2022	Pass
Insolubles	mg/kg	22241-2 Annex G	<20	<b>&lt;2.0</b>	MDC	1/31/2022	Pass
Aluminum by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<b>&lt;0.05</b>	DSD	2/1/2022	Pass
Calcium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<b>0.21</b>	DSD	2/1/2022	Pass
Chromium by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<b>0.055</b>	DSD	2/1/2022	Pass
Copper by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<b>0.035</b>	DSD	2/1/2022	Pass
Iron by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<b>&lt;0.05</b>	DSD	2/1/2022	Pass
Magnesium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<b>&lt;0.05</b>	DSD	2/1/2022	Pass
Nickel by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<b>&lt;0.02</b>	DSD	2/1/2022	Pass
Phosphate by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<b>&lt;0.25</b>	DSD	2/1/2022	Pass
Potassium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<b>&lt;0.05</b>	DSD	2/1/2022	Pass
Sodium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<b>&lt;0.05</b>	DSD	2/1/2022	Pass
Zinc by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<b>&lt;0.02</b>	DSD	2/1/2022	Pass

### Miscellaneous Secondary Unregulated Quality Standards

Identify by FTIR (attached) <sup>3</sup>	Spectra	22241-2 Annex J	Control Match	<b>Match</b>	ALB	1/31/2022	---
Density @ 20degC	g/cm <sup>3</sup>	3675	Not Applicable	<b>1.0913</b>	ALB	1/31/2022	---

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: 2/2/2022

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	2/2/2022

Enalytic ID	E2201048-001
Batch Number	301272022M
Train Number	UTLX647674
Sample ID	DEF 32.5%
Date Sampled	1/27/2022
Date Received	1/31/2022
ISO 17025	Certificate Number: AT-2956

## Certificate of Analysis

Diesel Exhaust Fluid Analytical ISO-22241

Client ID: **32.5% DEF** Batch # **301272022M** Train # **UTLX647674**

Test Parameter/Method	Units	Test Method (ISO) <sup>1</sup>	Acceptable Limit <sup>2</sup>	Results	Chemist	Analysis Date	Pass/Fail
Urea Content	wt%	22241-2 Annex C	31.8-33.4	<b>32.5</b>	SPT	2/2/2022	Pass
Refractive Index @ 20degC	N <sub>D</sub> <sup>20</sup>	22241-2 Annex C	1.3814-1.3843	<b>1.3830</b>	ALB	2/2/2022	Pass
Alkalinity as NH <sub>3</sub>	%	22241-2 Annex D	<0.2	<b>0.08</b>	ALB	1/31/2022	Pass
Biuret	%	22241-2 Annex E	<0.3	<b>0.15</b>	MDC	2/1/2022	Pass
Aldehyde	mg/kg	22241-2 Annex F	<5.0	<b>&lt;1.0</b>	MDC	2/2/2022	Pass
Insolubles	mg/kg	22241-2 Annex G	<20	<b>&lt;2.0</b>	MDC	1/31/2022	Pass
Aluminum by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<b>&lt;0.05</b>	DSD	2/1/2022	Pass
Calcium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<b>0.19</b>	DSD	2/1/2022	Pass
Chromium by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<b>0.055</b>	DSD	2/1/2022	Pass
Copper by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<b>0.025</b>	DSD	2/1/2022	Pass
Iron by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<b>&lt;0.05</b>	DSD	2/1/2022	Pass
Magnesium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<b>&lt;0.05</b>	DSD	2/1/2022	Pass
Nickel by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<b>&lt;0.02</b>	DSD	2/1/2022	Pass
Phosphate by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<b>&lt;0.25</b>	DSD	2/1/2022	Pass
Potassium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<b>&lt;0.05</b>	DSD	2/1/2022	Pass
Sodium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<b>&lt;0.05</b>	DSD	2/1/2022	Pass
Zinc by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<b>&lt;0.02</b>	DSD	2/1/2022	Pass

### Miscellaneous Secondary Unregulated Quality Standards

Identify by FTIR (attached) <sup>3</sup>	Spectra	22241-2 Annex J	Control Match	<b>Match</b>	ALB	1/31/2022	---
Density @ 20degC	g/cm <sup>3</sup>	3675	Not Applicable	<b>1.0903</b>	ALB	2/2/2022	---

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

Laboratory Director: Anthony J Scala

Date: 2/2/2022



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	2/2/2022

Enalytic ID	E2201048-002
Batch Number	301292022P
Train Number	UTLX647675
Sample ID	DEF 32.5%
Date Sampled	1/27/2022
Date Received	1/31/2022
ISO 17025	Certificate Number: AT-2956

## Certificate of Analysis

Diesel Exhaust Fluid Analytical ISO-22241

Client ID: 32.5% DEF Batch # 301292022P Train # UTLX647675

Test Parameter/Method	Units	Test Method (ISO) <sup>1</sup>	Acceptable Limit <sup>2</sup>	Results	Chemist	Analysis Date	Pass/Fail
Urea Content	wt%	22241-2 Annex C	31.8-33.4	32.6	SPT	2/2/2022	Pass
Refractive Index @ 20degC	N <sub>D</sub> <sup>20</sup>	22241-2 Annex C	1.3814-1.3843	1.3831	ALB	2/2/2022	Pass
Alkalinity as NH <sub>3</sub>	%	22241-2 Annex D	<0.2	0.09	ALB	1/31/2022	Pass
Biuret	%	22241-2 Annex E	<0.3	0.16	MDC	2/1/2022	Pass
Aldehyde	mg/kg	22241-2 Annex F	<5.0	<1.0	MDC	2/2/2022	Pass
Insolubles	mg/kg	22241-2 Annex G	<20	<2.0	MDC	1/31/2022	Pass
Aluminum by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<0.05	DSD	2/1/2022	Pass
Calcium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	0.21	DSD	2/1/2022	Pass
Chromium by ICP-OES	mg/kg	22241-2 Annex I	<0.2	0.050	DSD	2/1/2022	Pass
Copper by ICP-OES	mg/kg	22241-2 Annex I	<0.2	0.025	DSD	2/1/2022	Pass
Iron by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<0.05	DSD	2/1/2022	Pass
Magnesium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<0.05	DSD	2/1/2022	Pass
Nickel by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<0.02	DSD	2/1/2022	Pass
Phosphate by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<0.25	DSD	2/1/2022	Pass
Potassium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<0.05	DSD	2/1/2022	Pass
Sodium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<0.05	DSD	2/1/2022	Pass
Zinc by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<0.02	DSD	2/1/2022	Pass

### Miscellaneous Secondary Unregulated Quality Standards

Identify by FTIR (attached) <sup>3</sup>	Spectra	22241-2 Annex J	Control Match	Match	ALB	1/31/2022	---
Density @ 20degC	g/cm <sup>3</sup>	3675	Not Applicable	1.0903	ALB	2/2/2022	---

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Date: 2/2/2022