

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

Analytic ID	E2011027-001
Batch Number	311122020M
Train Number	TILX265207
Sample ID	DEF 32.6%
Date Sampled	11/12/2020
Date Received	11/13/2020
Report Date	11/17/2020

## Certificate of Analysis

Diesel Exhaust Fluid Analytical ISO-22241

Client ID: 32.6% DEF Batch # 311122020M Train # TILX265207

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	11/17/2020	Pass
Refractive Index @ 20degC	N <sub>D</sub> <sup>20</sup>	22241-2 Annex C	1.3814-1.3843	<b>1.3828</b>	AEC	11/16/2020	Pass
Alkalinity as NH <sub>3</sub>	%	22241-2 Annex D	<0.2	<b>0.03</b>	AEC	11/16/2020	Pass
Biuret	%	22241-2 Annex E	<0.3	<b>0.13</b>	AEC	11/17/2020	Pass
Aldehyde	mg/kg	22241-2 Annex F	<5.0	<b>&lt;1.0</b>	AEC	11/16/2020	Pass
Insolubles	mg/kg	22241-2 Annex G	<20	<b>4.9</b>	AEC	11/16/2020	Pass
Phosphate by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<b>&lt;0.25</b>	CLB	11/16/2020	Pass
Calcium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<b>&lt;0.05</b>	CLB	11/16/2020	Pass
Iron by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<b>&lt;0.05</b>	CLB	11/16/2020	Pass
Copper by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<b>&lt;0.02</b>	CLB	11/16/2020	Pass
Zinc by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<b>&lt;0.02</b>	CLB	11/16/2020	Pass
Chromium by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<b>0.09</b>	CLB	11/16/2020	Pass
Nickel by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<b>&lt;0.02</b>	CLB	11/16/2020	Pass
Aluminum by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<b>&lt;0.05</b>	CLB	11/16/2020	Pass
Magnesium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<b>&lt;0.05</b>	CLB	11/16/2020	Pass
Sodium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<b>&lt;0.05</b>	CLB	11/16/2020	Pass
Potassium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<b>&lt;0.05</b>	CLB	11/16/2020	Pass

### Miscellaneous Secondary Unregulated Quality Standards

Identify by FTIR (attached)	Spectra	22241-2 Annex J	Control Match	<b>Match</b>	AEC	11/16/2020	---
Density @ 20degC	g/cm <sup>3</sup>	3675	Not Applicable	<b>1.0923</b>	AEC	11/16/2020	---

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: 11/17/2020

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>
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Analytic ID	E2011047-001
Batch Number	311172020M
Train Number	TILX265008
Sample ID	DEF 32.6%
Date Sampled	11/17/2020
Date Received	11/23/2020
Report Date	11/30/2020

## Certificate of Analysis

Diesel Exhaust Fluid Analytical ISO-22241

Client ID: 32.6% DEF Batch # 311172020M Train # TILX265008

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	32.7	SPT	11/30/2020	Pass
Refractive Index @ 20degC	N <sub>D</sub> <sup>20</sup>	22241-2 Annex C	1.3814-1.3843	1.3832	AEC	11/23/2020	Pass
Alkalinity as NH <sub>3</sub>	%	22241-2 Annex D	<0.2	0.04	AEC	11/25/2020	Pass
Biuret	%	22241-2 Annex E	<0.3	0.17	AEC	11/24/2020	Pass
Aldehyde	mg/kg	22241-2 Annex F	<5.0	<1.0	AEC	11/23/2020	Pass
Insolubles	mg/kg	22241-2 Annex G	<20	<2.0	AEC	11/24/2020	Pass
Phosphate by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<0.25	CLB	11/24/2020	Pass
Calcium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<0.05	CLB	11/24/2020	Pass
Iron by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<0.05	CLB	11/24/2020	Pass
Copper by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<0.02	CLB	11/24/2020	Pass
Zinc by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<0.02	CLB	11/24/2020	Pass
Chromium by ICP-OES	mg/kg	22241-2 Annex I	<0.2	0.07	CLB	11/24/2020	Pass
Nickel by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<0.02	CLB	11/24/2020	Pass
Aluminum by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<0.05	CLB	11/24/2020	Pass
Magnesium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<0.05	CLB	11/24/2020	Pass
Sodium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<0.05	CLB	11/24/2020	Pass
Potassium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<0.05	CLB	11/24/2020	Pass

### Miscellaneous Secondary Unregulated Quality Standards

Identify by FTIR (attached)	Spectra	22241-2 Annex J	Control Match	Match	AEC	11/25/2020	---
Density @ 20degC	g/cm <sup>3</sup>	3675	Not Applicable	1.0933	AEC	11/25/2020	---

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

Laboratory Director: Anthony J Scala

Date: 11/30/2020

Client:	DEF Products, LLC
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Address:	422 East Barioni Blvd Imperial, CA 02251
Email:	<a href="mailto:defproducts@gmail.com">defproducts@gmail.com</a>
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Enalytic ID	E2012013-001
Batch Number	311302020M
Train Number	TILX264865
Sample ID	DEF 32.9%
Date Sampled	11/30/2020
Date Received	12/4/2020
Report Date	12/8/2020

## Certificate of Analysis

Diesel Exhaust Fluid Analytical ISO-22241


Client ID: 32.9% DEF Batch # 311302020M Train # TILX264865

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	12/7/2020	Pass
Refractive Index @ 20degC	N <sub>D</sub> <sup>20</sup>	22241-2 Annex C	1.3814-1.3843	<b>1.3834</b>	AEC	12/4/2020	Pass
Alkalinity as NH <sub>3</sub>	%	22241-2 Annex D	<0.2	<b>0.07</b>	ALB	12/7/2020	Pass
Biuret	%	22241-2 Annex E	<0.3	<b>0.15</b>	AEC	12/7/2020	Pass
Aldehyde	mg/kg	22241-2 Annex F	<5.0	<b>&lt;1.0</b>	AEC	12/7/2020	Pass
Insolubles	mg/kg	22241-2 Annex G	<20	<b>&lt;2.0</b>	AEC	12/4/2020	Pass
Phosphate by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<b>&lt;0.25</b>	CLB	12/7/2020	Pass
Calcium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<b>&lt;0.05</b>	CLB	12/7/2020	Pass
Iron by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<b>&lt;0.05</b>	CLB	12/7/2020	Pass
Copper by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<b>&lt;0.02</b>	CLB	12/7/2020	Pass
Zinc by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<b>&lt;0.02</b>	CLB	12/7/2020	Pass
Chromium by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<b>0.08</b>	CLB	12/7/2020	Pass
Nickel by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<b>&lt;0.02</b>	CLB	12/7/2020	Pass
Aluminum by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<b>&lt;0.05</b>	CLB	12/7/2020	Pass
Magnesium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<b>&lt;0.05</b>	CLB	12/7/2020	Pass
Sodium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<b>&lt;0.05</b>	CLB	12/7/2020	Pass
Potassium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<b>&lt;0.05</b>	CLB	12/7/2020	Pass
Miscellaneous Secondary Unregulated Quality Standards							
Identify by FTIR (attached)	Spectra	22241-2 Annex J	Control Match	<b>Match</b>	AEC	12/4/2020	---
Density @ 20degC	g/cm <sup>3</sup>	3675	Not Applicable	<b>1.0933</b>	AEC	12/4/2020	---

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

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Certification Approval   
 Laboratory Director: Anthony J Scala

Date: 12/8/2020