

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	E2009007-001
Batch Number	309012020L
Train Number	TILX265266
Sample ID	DEF 32.5%
Date Sampled	9/1/2020
Date Received	9/3/2020
Report Date	9/8/2020

Certificate of Analysis

Diesel Exhaust Fluid Analytical ISO-22241

Client ID: 32.5% DEF Batch# 309012020L Train # TILX265266

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	32.3	BDK	9/8/2020	Pass
Refractive Index @ 20degC	N _D ²⁰	22241-2 Annex C	1.3814-1.3843	1.3826	BDK	9/3/2020	Pass
Alkalinity as NH ₃	%	22241-2 Annex D	<0.2	0.04	BDK	9/8/2020	Pass
Biuret	%	22241-2 Annex E	<0.3	0.13	BDK	9/8/2020	Pass
Aldehyde	mg/kg	22241-2 Annex F	<5.0	<1.0	ALB	9/8/2020	Pass
Insolubles	mg/kg	22241-2 Annex G	<20	<2.0	BDK	9/8/2020	Pass
Phosphate by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<0.25	CLB	9/8/2020	Pass
Calcium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<0.05	CLB	9/8/2020	Pass
Iron by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<0.05	CLB	9/8/2020	Pass
Copper by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<0.02	CLB	9/8/2020	Pass
Zinc by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<0.02	CLB	9/8/2020	Pass
Chromium by ICP-OES	mg/kg	22241-2 Annex I	<0.2	0.13	CLB	9/8/2020	Pass
Nickel by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<0.02	CLB	9/8/2020	Pass
Aluminum by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<0.05	CLB	9/8/2020	Pass
Magnesium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<0.05	CLB	9/8/2020	Pass
Sodium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<0.05	CLB	9/8/2020	Pass
Potassium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<0.05	CLB	9/8/2020	Pass
Miscellaneous Secondary Unregulated Quality Standards							
Identify by FTIR (attached)	Spectra	22241-2 Annex J	Control Match	Match	BDK	9/8/2020	---
Density @ 20degC	g/cm ³	3675	Not Applicable	1.0907	BDK	9/3/2020	---

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: 9/8/2020

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	E2009007-003
Batch Number	309022020L
Train Number	TILX265214
Sample ID	DEF 32.5%
Date Sampled	9/2/2020
Date Received	9/3/2020
Report Date	9/8/2020

Certificate of Analysis

Diesel Exhaust Fluid Analytical ISO-22241

Client ID: 32.5% DEF Batch# 309022020L Train # TILX265214

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	32.3	BDK	9/8/2020	Pass
Refractive Index @ 20degC	N _D ²⁰	22241-2 Annex C	1.3814-1.3843	1.3827	BDK	9/3/2020	Pass
Alkalinity as NH ₃	%	22241-2 Annex D	<0.2	0.09	BDK	9/8/2020	Pass
Biuret	%	22241-2 Annex E	<0.3	0.18	BDK	9/8/2020	Pass
Aldehyde	mg/kg	22241-2 Annex F	<5.0	<1.0	ALB	9/8/2020	Pass
Insolubles	mg/kg	22241-2 Annex G	<20	3.6	BDK	9/8/2020	Pass
Phosphate by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<0.25	CLB	9/8/2020	Pass
Calcium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<0.05	CLB	9/8/2020	Pass
Iron by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<0.05	CLB	9/8/2020	Pass
Copper by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<0.02	CLB	9/8/2020	Pass
Zinc by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<0.02	CLB	9/8/2020	Pass
Chromium by ICP-OES	mg/kg	22241-2 Annex I	<0.2	0.07	CLB	9/8/2020	Pass
Nickel by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<0.02	CLB	9/8/2020	Pass
Aluminum by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<0.05	CLB	9/8/2020	Pass
Magnesium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<0.05	CLB	9/8/2020	Pass
Sodium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<0.05	CLB	9/8/2020	Pass
Potassium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<0.05	CLB	9/8/2020	Pass
Miscellaneous Secondary Unregulated Quality Standards							
Identify by FTIR (attached)	Spectra	22241-2 Annex J	Control Match	Match	BDK	9/8/2020	---
Density @ 20degC	g/cm ³	3675	Not Applicable	1.0904	BDK	9/3/2020	---

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Certification Approval 
Laboratory Director: Anthony J Scala

Date: 9/8/2020

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

Analytic ID	E2009027-001
Batch Number	309082020M
Train Number	GATX223470
Sample ID	DEF 32.5%
Date Sampled	9/8/2020
Date Received	9/9/2020
Report Date	9/14/2020

Certificate of Analysis

Diesel Exhaust Fluid Analytical ISO-22241

Client ID: 32.5% DEF Batch# 309082020M Train # GATX223470

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	32.8	BDK	9/11/2020	Pass
Refractive Index @ 20degC	N _D ²⁰	22241-2 Annex C	1.3814-1.3843	1.3834	BDK	9/11/2020	Pass
Alkalinity as NH ₃	%	22241-2 Annex D	<0.2	0.07	BDK	9/10/2020	Pass
Biuret	%	22241-2 Annex E	<0.3	0.2	BDK	9/11/2020	Pass
Aldehyde	mg/kg	22241-2 Annex F	<5.0	<1.0	ALB	9/10/2020	Pass
Insolubles	mg/kg	22241-2 Annex G	<20	<2.0	BDK	9/10/2020	Pass
Phosphate by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<0.25	CLB	9/11/2020	Pass
Calcium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	0.09	CLB	9/11/2020	Pass
Iron by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<0.05	CLB	9/11/2020	Pass
Copper by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<0.02	CLB	9/11/2020	Pass
Zinc by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<0.02	CLB	9/11/2020	Pass
Chromium by ICP-OES	mg/kg	22241-2 Annex I	<0.2	0.07	CLB	9/11/2020	Pass
Nickel by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<0.02	CLB	9/11/2020	Pass
Aluminum by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<0.05	CLB	9/11/2020	Pass
Magnesium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<0.05	CLB	9/11/2020	Pass
Sodium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<0.05	CLB	9/11/2020	Pass
Potassium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<0.05	CLB	9/11/2020	Pass

Miscellaneous Secondary Unregulated Quality Standards

Identify by FTIR (attached)	Spectra	22241-2 Annex J	Control Match	Match	BDK	9/11/2020	---
Density @ 20degC	g/cm ³	3675	Not Applicable	1.0916	BDK	9/11/2020	---

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Certification Approval



Laboratory Director: Anthony J Scala

Date: 9/14/2020

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	E2009032-001
Batch Number	309092020L
Train Number	UTLX680534
Sample ID	DEF 32.5%
Date Sampled	9/9/2020
Date Received	9/11/2020
Report Date	9/15/2020

Certificate of Analysis

Diesel Exhaust Fluid Analytical ISO-22241

Client ID: 32.5% DEF Batch# 309092020L Train # UTLX680534

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	32.6	SPT	9/15/2020	Pass
Refractive Index @ 20degC	N _D ²⁰	22241-2 Annex C	1.3814-1.3843	1.3830	ALB	9/14/2020	Pass
Alkalinity as NH ₃	%	22241-2 Annex D	<0.2	<0.01	ALB	9/14/2020	Pass
Biuret	%	22241-2 Annex E	<0.3	0.17	ALB	9/15/2020	Pass
Aldehyde	mg/kg	22241-2 Annex F	<5.0	<1.0	ALB	9/14/2020	Pass
Insolubles	mg/kg	22241-2 Annex G	<20	<2.0	SPT	9/14/2020	Pass
Phosphate by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<0.25	CLB	9/11/2020	Pass
Calcium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<0.05	CLB	9/11/2020	Pass
Iron by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<0.05	CLB	9/11/2020	Pass
Copper by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<0.02	CLB	9/11/2020	Pass
Zinc by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<0.02	CLB	9/11/2020	Pass
Chromium by ICP-OES	mg/kg	22241-2 Annex I	<0.2	0.07	CLB	9/11/2020	Pass
Nickel by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<0.02	CLB	9/11/2020	Pass
Aluminum by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<0.05	CLB	9/11/2020	Pass
Magnesium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<0.05	CLB	9/11/2020	Pass
Sodium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<0.05	CLB	9/11/2020	Pass
Potassium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<0.05	CLB	9/11/2020	Pass
Miscellaneous Secondary Unregulated Quality Standards							
Identify by FTIR (attached)	Spectra	22241-2 Annex J	Control Match	Match	ALB	9/15/2020	---
Density @ 20degC	g/cm ³	3675	Not Applicable	1.0900	ALB	9/14/2020	---

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