

Client:	DEF Products, LLC
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Analytic ID:	E1712021-001
Batch Number	312052017
Sample ID	DEF 32.8%
Date Sampled	12/5/2017
Date Received	12/11/2017
Report Date	12/14/2017

Certificate of Analysis

Diesel Exhaust Fluid Analytical ISO-22241

Client ID: 32.8% DEF Batch# 312052017

Test Parameter/Method	Units	Test Method (ISO)	Acceptable Limit	Results	Chemist	Analysis Date	Pass/Fail
Urea Content	wt%	22241-2 Annex C	31.8-33.2	32.5	SPT	12/21/2017	Pass
Density @ 20degC	g/cm ³	3675	1.0870-1.0930	1.0920	CLB	12/21/2017	Pass
Refractive Index @ 20degC	N _D ²⁰	22241-2 Annex C	1.3814-1.3843	1.3826	CLB	12/21/2017	Pass
Alkalinity as NH ₃	%	22241-2 Annex D	<0.2	<0.01	CLB	12/11/2017	Pass
Biuret	%	22241-2 Annex E	<0.3	<0.1	CLB	12/12/2017	Pass
Aldehyde	mg/kg	22241-2 Annex F	<5	<1.0	CLB	12/13/2017	Pass
Insolubles	mg/kg	22241-2 Annex G	<20	3.0	CLB	12/12/2017	Pass
Phosphate	mg/kg	22241-2 Annex H	<0.5	<0.25	CLB	12/12/2017	Pass
Calcium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<0.05	BDK	12/14/2017	Pass
Iron by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<0.05	BDK	12/14/2017	Pass
Copper by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<0.02	BDK	12/14/2017	Pass
Zinc by ICP-OES	mg/kg	22241-2 Annex I	<0.2	0.04	BDK	12/14/2017	Pass
Chromium by ICP-OES	mg/kg	22241-2 Annex I	<0.2	0.05	BDK	12/14/2017	Pass
Nickel by ICP-OES	mg/kg	22241-2 Annex I	<0.2	<0.02	BDK	12/14/2017	Pass
Aluminum by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<0.05	BDK	12/14/2017	Pass
Magnesium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	0.18	BDK	12/14/2017	Pass
Sodium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	<0.05	BDK	12/14/2017	Pass
Potassium by ICP-OES	mg/kg	22241-2 Annex I	<0.5	0.11	BDK	12/14/2017	Pass
Identity by FTIR (attached)	Spectra	22241-2 Annex J	Match	Reference Match	BDK	12/13/2017	Pass

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

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



Certification Approval _____

Laboratory Director: Anthony J Scala

Analytic FDA Reg. Number: 02-636-0096

Date: _____ 12/21/2017

Search results for: E1712021-001
Date: Wed Dec 13 11:33:32 2017 (GMT-05:00)
Search algorithm: Search Expert
Regions searched: 2600.00-450.00

