

RE: 318/2020
Date of Issue: Aug. 17th 2020
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and replaces
copy 2**
Applicant/Contact: Logitec Assessoria em Logística Ltda / Wilson José Romão and Venâncio Alvarenga Gomes

Address: Av. das Américas, 2480, bl 02, sl 314, Barra da Tijuca, Rio de Janeiro, RJ.



Sample: DIESEL TYPE B - S10 **Entry Lab Date:** April 15th. 2020

Client Identif.: Sample with Green Plus additive. **Date of Collection/Samp.:** April 15th. 2020

NOTE: - **Date of service:** April 13th. 2020

Assay	Unit	Method	Result	Date of test	Specification, where applicable <i>Inform which was used:</i> RANP #50 of 2013	Uncertainty (U) or Limit of Indeterminacy (LI), if applicable <i>Inform which was used:</i> LI*** (F-221)
Aspect	-	ASTM D 4176-04 (2014)	Clear and free from impurities	April 29 th . 2020	Clear and free from impurities	-
Color	-	Visual-IT-LEC-00-11 rev. 14	Yellow	April 29 th . 2020	-	-
ASTM Color	-	ASTM D 1500-12 (2017)	L 1,5	April 29 th . 2020	Max 3.0	±1 color unit
Biodiesel content	% v/v	EN 14078-2014	13,2	May 04 th . 2020	10,5 to 15,5	10,0 to 16,2
Sulphur content	mg/kg	ASTM D5453-19a	4,9	May 07 th . 2020	Max. 10	±2
Specific mass at 15°C	kg/m ³	ASTM D 4052-18a	844,5	April 17 th . 2020	-	-
Specific mass at 20°C	kg/m ³	ASTM D 4052-18a	841,0	April 17 th . 2020	815 to 853	±0.3 kg/m3
Flash Point	°C	ASTM D 93-19	54,1	April 16 th . 2020	> 38	±1,6
Viscosity	mm ² /s	ASTM D 445-19	2,753	April 23 rd . 2020	2,0 a 4,5	1,974 to 4,559
Cold Filter Plugging Point	°C	ASTM D 6371-17a	-6,0	April 22 nd . 2020	Max. 7 (month of April in MG)	±1
Micro Carbon Residue	% m/m	ASTM D4530-15	0,05	April 27 th . 2020	-	-
Ramsbottom Carbon Residue	% m/m	ASTM D 524-15	0,1	May 05 th . 2020	Max. 0.25	± 0,04
Ash	% m/m	ASTM D 482-13	0,0000	April 29 th . 2020	Max. 0.010	±0,005
Copper Corrosivity at 50.6°C, 3h	-	ASTM D 130-19	1b	April 24 th . 2020	Max. 1	-
Water content	mg/kg	ASTM D 6304-16e1	147	April 16 th . 2020	Max. 200	±239
Total Contamination	mg/kg	EN 12662-2014	6,9	April 30 th . 2020	Max. 24	±5
Acidity Index	mgKOH/g	ASTM D 664-18e2	0,06	April 16 th . 2020	-	-
Lubricity	µm	ASTM D 6079-18	159	April 27 th . 2020	Max. 520	±47
Oxidation Stability	h	EN 15751-2014	31,72	April 23 rd . 2020	-	-
Cetane Index	-	ASTM D4737-10(2016) Procedure A	49,3	April 24 th . 2020	-	-
Higher Calorific Value	MJ/kg	ASTM D240-17	44,955	April 24 th . 2020	-	-

Lower Calorific Value	MJ/Kg	ASTM D240-17	42,213	Aug. 17 th , 2020	-	-
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 <p>LEC Laboratório de Ensaios de Combustíveis-UFMG</p> <p>Antônio Carlos, 6627-Campus Pampulha-Belo Horizonte/MG-Brazil -zip code :31.270-901 Phone:+55(31) 3409-6650 / 6651 / 7578</p>	<h2>Test Report</h2>	
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Address: Av. das Américas, 2480, bl 02, sl 314, Barra da Tijuca, Rio de Janeiro, RJ.
Sample: DIESEL TYPE B - S10 **Entry Lab Date:** April 15th, 2020
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Carbon*	% m/m	Elementary Analysis	82,06	July 31 st , 2020	-	-
Hydrogen*	% m/m	Elementary Analysis	12,92	July 31 st , 2020	-	-
Nitrogen*	% m/m	Elementary Analysis	<0,0017	July 31 st , 2020	-	-
T 10% of distillation	°C	ASTM D 86-18	191,8	April 16 th , 2020	Min. 180	±2,3
T 50% of distillation	°C	ASTM D 86-18	279,6	April 16 th , 2020	245 to 295	±1,8
T 85% of distillation	°C	ASTM D 86-18	331,0	April 16 th , 2020	-	-
T 95% of distillation	°C	ASTM D 86-18	350,7	April 16 th , 2020	Max. 370	±5,6
Final Boiling Point	°C	ASTM D 86-18	359,8	April 16 th , 2020	-	±4,2
Distillation residue	mL	ASTM D 86-18	1,3	April 16 th , 2020	-	-

Sampling or collection plan:
The S10 Diesel fuel was collected by the LEC UFMG (Fuel testing laboratory Federal University of Minas Gerais) in previously cleaned drums. At the time of collection the drum was washed with the fuel itself, this portion was discarded and later a new aliquot was sampled.

Procedural deviations:
 NA

NOTE:
 * Subcontracted testing.
 Preparation:
 The GREEN PLUS fuel + additive mixture was prepared in the concentration requested by the customer of 30 mL to 100 L (300 microliters to 1 liter), using the following material:
 ● Class A volumetric flask, BVL 214, nominal capacity 1000 mL, calibrated by a laboratory belonging to RBC (Engecal) (Brazilian Labs Calibration Network - Certified by INMETRO), CER58906/18, calibration validity 08/2028.
 ● Micropipette, adjustable volume, MCP 585, nominal capacity 0.1 to 1 mL, calibrated by a laboratory belonging to the RBC (Engecal), CER18795/19, calibration validity 05/2021.


The results presented in this report refer exclusively to the sample cited.

Report: Sample complies with ANP(National Petroleum Agency) specifications for the characteristics evaluated.

Decision rule of the report : ANP Resolution 50/2013 and ***ANP Indeterminacy Limits (0.59 x Repro norms - ISO4259).

Interpretation:
 NA

NA or - : Not Applicable.


 Carolina do Carmo Souza
 Responsible Chemist for Regular Tests
 Nº CRO (Chemistry Regional Council) Number : 02101288
Elaboration of the form: Carolina C. Souza
Final document.