

**RE: 322/2020**
**Date of Issue: Aug 17<sup>th</sup>, 2020**
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and replaces  
Copy 2**
**Applicant/Contact:** Logitech Assessoria em Logística Ltda / Wilson José Romão and Venâncio Alvarenga Gomes

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

**Sample:** MARINE DIESEL

**Entry Lab Date:** April  
15<sup>th</sup>, 2020

**Client Identif.:** Sample with Green Plus additive.

**Date of Collection /Samp.:** March 12<sup>th</sup>, 20  
20

**NOTE:** -

**Date of service:** April  
13<sup>th</sup>, 2020

Assay	Unit	Method	Result	Date of test	Specification, where applicable <i>Inform which was used:</i>	Uncertainty (U) or Limit of Indeterminac y (LI), if applicable <i>Inform which was used:</i>
Aspect	-	ASTM D 4176-04 (2014)	Clear and free from impurities	April 29 <sup>th</sup> , 2020	Note down  <i>RANP #52 of 2010</i>	-  <i>LJ*** (F-221)</i>
Color	-	Visual-IT-LEC-00-11 rev. 14	Brown	April 29 <sup>th</sup> , 2020	-	-
Biodiesel content	% v/v	EN 14078-2014	0,1	April 05 <sup>th</sup> , 2020	Max. 0.1	±0,02
Sulphur content	% m/m	ASTM D5453-19a	0,3391	April 23 <sup>rd</sup> , 2020	Max. 0.5	±0,04
Specific mass at 15°C	kg/m <sup>3</sup>	ASTM D 4052-18a	854,1	April 17 <sup>th</sup> , 2020	-	-
Specific mass at 20°C	kg/m <sup>3</sup>	ASTM D 4052-18a	850,7	April 17 <sup>th</sup> , 2020	Max. 896.8	±0.3 kg/m3
Flash Point	°C	ASTM D 93-19	69,2	April 16 <sup>th</sup> , 2020	Min. 60°C	±1,6
Viscosity	mm <sup>2</sup> /s	ASTM D 445-19	3,763	April 24 <sup>th</sup> , 2020	Max. 11.0	±0,145
Cold Filter Plugging Point	°C	ASTM D 6371-17a	0,0	April 22 <sup>nd</sup> , 2020	-	-
Carbon Micro Residue	% m/m	ASTM D4530-15	0,06	April 27 <sup>th</sup> , 2020	Max. 0.30	±0,09
Ramsbottom Carbon Residue	% m/m	ASTM D 524-15	0,12	May 05 <sup>th</sup> , 2020	Max. 0.30	±0,09
Ash	% m/m	ASTM D 482-13	0,0003	April 30 <sup>th</sup> , 2020	Max. 0.010	±0,005
Copper Corrosivity at 50.6°C, 3h	-	ASTM D 130-19	1b	April 27 <sup>th</sup> , 2020	-	-
Water content	mg/kg	ASTM D 6304-16e1	67	April 16 <sup>th</sup> , 2020	Max. 0.30	±0,12
Total Contamination	mg/kg	EN 12662-2014	1,8	April 30 <sup>th</sup> , 2020	-	-
Acidity Index	mgKOH/g	ASTM D 664-18e2	0,01	April 30 <sup>th</sup> , 2020	Max 2.5	±0,15
Lubricity	µm	ASTM D 6079-18	355	April 28 <sup>th</sup> , 2020	-	-
Oxidation Stability	h	EN 15751-2014	>48 ATYPICAL, NO BREAK POINT	-	-	-
Cetane Index	-	ASTM D4737- 10(2016) Method A	49,7	April 24 <sup>th</sup> , 2020	Min 35	-
Higher Calorific Value	MJ/kg	ASTM D240-17	45,338	April 29 <sup>th</sup> , 2020	-	-
Lower Calorific Value	MJ/Kg	ASTM D240-17	42,509	Aug 17 <sup>th</sup> , 2020	-	-

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

**Sample:** **MARINE DIESEL** **Entry Lab Date:** April 15<sup>th</sup>, 2020

**Client Identif.:** Sample with **Green Plus** additive. **Date of Collection/Samp.:** March 12<sup>th</sup>, 2020

**NOTE:** - **Date of Service:** April 13<sup>th</sup>, 2020

Carbon*	% m/m	Elementary Analysis	84,96	July 31 <sup>st</sup> , 2020	-	-
Hydrogen*	% m/m	Elementary Analysis	13,33	July 31 <sup>st</sup> , 2020	-	-
Nitrogen*	% m/m	Elementary Analysis	<0,0017	July 31 <sup>st</sup> , 2020	-	-
T 10% of distillation	°C	ASTM D 86-18	225,0	April 22 <sup>nd</sup> , 2020	-	-
T 50% of distillation	°C	ASTM D 86-18	288,0	April 22 <sup>nd</sup> , 2020	-	-
T 85% of distillation	°C	ASTM D 86-18	346,8	April 22 <sup>nd</sup> , 2020	-	-
T 95% of distillation	°C	ASTM D 86-18	382,2	April 22 <sup>nd</sup> , 2020	-	-
Final Boiling Point	°C	ASTM D 86-18	397,0	April 22 <sup>nd</sup> , 2020	-	-
Distillation residue	mL	ASTM D 86-18	1,5	April 22 <sup>nd</sup> , 2020	-	-

**Sampling or collection plan:**

Sampling and/or collection carried out by the client. Sampler: CB - QI Nascimento. Procedure not reported. The results reported herein apply to the sample as received.

**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 52/2010 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

CRQ (Chemistry Regional Council Number) NUMBER : 02101288