

RE: 1657/19

Date of Issue: **Dec 16th 2019**

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and replaces
copy 1**

Applicant/Contact: **Logitec Assessoria em Logística Ltda / Wilson José Romão and Venâncio AlvarengaGomes**

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

Sample: **TYPE C GASOLINE - REGULAR** **Entry Lab Date:** Nov 21st, 2019

Client Identif.: **Sample with Green Plus additive.** **Date of Collection/Samp.:** Nov 21st, 2019

NOTE: - **Date of service:** Oct 30th, 2019

Assay	Unit	Method	Result	Date of test	Specification, where applicable <i>Inform which was used:</i> RANP No. 40 of 2013	Uncertainty (U) or Limit of Indeterminacy (LI), if applicable <i>Inform which was used:</i> LI
Aspect	-	ASTM D 4176-04 (2014)	Clear and free from impurities	Dec 11 th , 2019	Clear and free from impurities	-
Color	-	Visual-IT-LEC-00-11 rev.14	Orange	Dec 11 th , 2019	Except blue	-
Content of Anhydrous Ethanol Fuel	% v/v	NBR 13992-2015	27	Dec 09 th , 2019	26 to 28	25 to 29
Specific mass at 20°C	kg/m ³	ASTM D 4052-18a	749,0	Nov 29 th , 2019	-	-
Vapor Pressure at 37.8°C	kPa	ASTM D 5191-19	53,3	Dec 05 th , 2019	Max. 69	-
Current Washed Gum, max	mg/100 mL	ASTM D 381-12 (2017)	1,4	Dec 09 th , 2019	Max. 5	-
Induction Period	min	ASTM D 525-12a	> 360	Dec 09 th , 2019	Min. 360	-
Copper Corrosivity at 50°C, 3h	-	ASTM D 130-19	1b	Dec 09 th , 2019	Max. 1	-
Sulphur content	mg/kg	ASTM D 5453-19	39	Dec 04 th , 2019	Max. 50	63
T 10% of distillation	°C	ASTM D 86-18	55,0	Nov 29 th , 2019	Max. 65	66,9
T 50% of distillation	°C	ASTM D 86-18	72,1	Nov 29 th , 2019	Max. 80	81,1
T 90% of distillation	°C	ASTM D 86-18	158,1	Nov 29 th , 2019	Max. 190	193,1
Final Boiling Point	°C	ASTM D 86-18	217,5	Nov 29 th , 2019	Max 215	219,7
Distillation residue	mL	ASTM D 86-18	1,1	Nov 29 th , 2019	Max. 2	2,2
Methanol content	% v/v	NBR 16041-2015	< 0,1	Dec 03 rd , 2019	Max. 0.5	-
Lead*	g/L	ICP / OES	< 0,00001	Dec 05 th , 2019	Max. 0.005	-
Phosphorus	g/L	ASTM D3231-18	0,60	Dec 10 th , 2019	Max. 1.3	-
Hydrogen Content*	%	Elementary Analysis	-	-	-	-
Higher Calorific Value	MJ/kg	ASTM D 240-17	39,812	Dec 09 th , 2019	-	-
Lower Calorific Value	MJ/kg	ASTM D 240-17	-	-	-	-
Acidity Index	mgKOH/g	ASTM D 664-18e2	< 0,01	Dec 03 rd , 2019	-	-

Sampling or collection plan:

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Sample: **TYPE C GASOLINE - REGULAR** **Entry Lab Date:** Nov 21st, 2019

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The Common Gasoline fuel was collected at the fuel distribution base, located in Betim-MG, in 1L glass bottles, previously cleaned. At the time of collection the bottles were washed with the fuel itself, this portion was discarded and later a new aliquot was sampled. The bottles were capped and sent to the LEC/UFMG. (Fuel testing laboratory Federal University of Minas Gerais)

Procedural deviations:

NA

NOTE:

*Subcontracted testing.

Preparation:

The fuel type Regular Gasoline was transferred to a previously cleaned amber glass flask with a 4L capacity in order to adequately homogenize the entire volume.

1 L was separated in a high density PET bottle, previously cleaned to be analyzed as fuel without additive (reference for mixtures with additive).

The **GREEN PLUS** fuel + additive mixture was prepared at the client's requested concentration of 0.038% by volume (23 mL for 60 L) 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 768, nominal capacity 0.1 to 1 mL, calibrated by a laboratory belonging to the RBC (Engecal), CER18795/19, expiry date 05/2021.

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

Report: **Sample according to the ANP (National Petroleum Agency) specifications for the evaluated characteristics.**

Decision rule of the report : *RANP No. 40 of 2013 and ANP Indeterminacy Limits.*

Interpretation:

NA

NA or - : Not Applicable.



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CRQ (Chemistry Regional Council) NUMBER: 02101288

Final document.