

ODIN PETROIL S.A. EN REESTRUCTURACIÓN  
 CR 57A 30-399 SEC TRONCAL DEL CARIBE - SAN FRANCISCO.  
 470001, SANTA MARTA  
 Colombia



Attention of : Mr. J. Martinez

## Analysis Report

Report number : 15300/00011044.25/L/22 Date of sampling : 2022-08-30  
 Main Object : Odín Petroil / Análisis Laboratorio Sample submitted at : Saybolt Colombia - Cartagena  
 Report Date : 2022-08-31 Date received : 2022-08-31  
 Date of issue : 2022-09-01 Date completed : 2022-08-31  
 Sample object : Muestras 31-08-22 Sample number : 13643580  
 Sample type : Submitted  
 Sample submitted as : PETROIL 800 HC/G Combustible Industrial 2  
 Marked : PETROIL 800 HC/G Combustible Industrial 2

NAME	METHOD	UNIT	SPECS		RESULT
			Min	Max	
API Gravity at 60 °F	ASTM D 1298-12b (2017)	°API		25.5	10.7
Density at 15 °C	ASTM D 1298-12b (2017)	kg/L		0.901	0.9945
Kinematic Viscosity at 50 °C	ASTM D 445-21e1	cSt		200.0	99.87
CCAI	ISO 8217 (Annex F):2017	-		823.0	871.0
Total Sulfur Content	ASTM D 4294-21	% m/m		0.7890	0.915
Flash Point (PM) - Procedure B	ASTM D 93-20	°C		110.0	<40.0
Total Acid Number - Procedure A	ASTM D 664-18e2	mg KOH/g		0.440	1.165
Pour Point	ASTM D 97-17b	°C		15	0
Vanadium (V) - Procedure B	ASTM D 5863-00a (2016)	mg/kg		205	131
Sodium (Na) - Procedure B	ASTM D 5863-00a (2016)	mg/kg		15.51	1.272
Aluminum (Al) - Method B	ASTM D 5184-12 (2017)	mg/kg		12.30	7
Silicon (Si) - Method B	ASTM D 5184-12 (2017)	mg/kg		<25	11
Aluminum plus Silicon	ASTM D 5184-12 (2017)	mg/kg		<35	18
Calcium (Ca)	IP 470/05	mg/kg		<28	30
Zinc (Zn)	IP 470/05	mg/kg		1.5	3
Phosphorus (P)	IP 500/03	mg/kg		0.86	2.8
Heat of Combustion	ASTM D 4868				
Gross Heat of Combustion		Btu/lb		18782.47	15563
Net Heat of Combustion		Btu/lb		18124.32	14564

All results in this report refer to the sample(s) tested as taken or submitted like specified in this Analysis report. Uncertainties, available on request, apply in the evaluation of the test results. All tests are conducted according to the latest version of the methods, unless another version is specifically indicated. Where available and for convenience purposes, the tested sample has been checked for compliance with supplied specifications, without accepting any liability for the supplied information. In case of dispute or concern, we refer to the interpretation of test results as defined in ASTM D3244, IP 367, ISO 4259 or GOST 33701. This report shall not be partially copied and reproduced without the written permission of the laboratory.

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NAME	METHOD	UNIT	SPECS		RESULT
			Min	Max	
Water by Distillation	ASTM D 4006 / API MPMS chapter 10.2	% v/v			15.0

*Lab comments:*

- La muestra no contiene agua libre.

Signed by: Ronald Vargas Barrios - Laboratory Supervisor I  
Issued by: Saybolt de Colombia SAS  
Place and date of issue: Cartagena - 2022-09-01