



**PTT GLOBAL CHEMICAL PUBLIC COMPANY LIMITED**

**LABORATORY OPERATION SERVICES, Laboratory Operations III**

Branch 6 : 8, I-8 Road, Map Ta Phut Industrial Estate, Map Ta Phut, Mueang Rayong, Rayong 21150

TEL : +66 (0) 3897-1111 , 1669 FAX : +66 (0) 3897-1083



NSC-TISI-TIS 17025

TESTING No. 0325

Page 1 of 4

<b>CERTIFICATE OF QUALITY</b>		<b>Report No. : COQ-RLB-2311-00665</b>	
<b>6013 JET A-1 THAPPLINE</b>		<b>Job No. : -</b>	
		<b>Replacement for Report No. :-</b>	
<b>Information from customers</b>			
<b>Customer / Requester :</b> <i>Movement and Dispatching Operations</i>		<b>For :</b> -	
<b>Address :</b> -			
<b>Telephone :</b> +66(0)3897-1000	<b>Fax :</b> +66(0)3899-4111		
<b>Contact Name :</b> -	<b>Email :</b> -		
<b>Sample Name :</b> <i>6013 Jet A-1 Thappline</i>	<b>Sampling Point :</b> <i>T5258</i>		
<b>Sampling Date/Time :</b> <i>November 11, 2023 / 10:30</i>	<b>Sampling By :</b> <i>Operation MO</i>		
<b>Lot No./Batch No.:</b> <i>6013/58/009</i>			
<b>Sample ID :</b> REF-RLB-F-2311018095			
<b>Received Date :</b> November 11, 2023 / 12:19	<b>Test Date :</b> November 11, 2023		
<b>Sample Condition :</b> Clear , Colorless Liquid			
<b>Sampling By :</b> -			

Test Item	Test Method	Unit	Specification	Result	Note
<b>Appearance:</b>					
Appearance	Visual	-	Pass (1)	Pass	#
Color, Saybolt	ASTM D6045-20	-	Report	+30	#
Particulate Contamination	ASTM D5452-23	mg/L	1.0 max	0.02	#
<b>Particulate, at point of manufacture</b>	ASTM D7619-22				
>=4 um(c):Cumulative count		Count/mL	Report	21	#
>=6 um(c):Cumulative count		Count/mL	Report	8	#
>=14 um(c):Cumulative count		Count/mL	Report	1	#
>=21 um(c):Cumulative count		Count/mL	Report	0	#
>=25 um(c):Cumulative count		Count/mL	Report	0	#
>=30 um(c):Cumulative count		Count/mL	Report	0	#
>=4 um(c):ISO Coding		-	19 max	12	#
>=6 um(c):ISO Coding		-	17 max	10	#
>=14 um(c):ISO Coding		-	14 max	7	#
>=21 um(c):ISO Coding		-	Report	3	#
>=25 um(c):ISO Coding		-	Report	3	#
>=30 um(c):ISO Coding		-	13 max	0	#
<b>Composition:</b>					
Total Acidity	ASTM D3242-11(Reapproved 2017)	mg KOH/g	0.015 max	0.004	#
Total Aromatics	ASTM D6379-21	% vol	26.5 max	18.3	#
Sulfur Content	ASTM D2622-16	mass %	0.0950 max	0.0392	#
Sulfur Mercaptan	ASTM D3227-23	wt %	0.0030 max	0.0007	#
<b>Refinery Components at point of manufacture:</b>					
Quantity of Fuel in Batch	-	m <sup>3</sup>	Report	16804	#
Non Hydroprocessed Components in batch	-	% vol	Report	68.9	#

**Remark :**

- Reported results are as-received sample which is in good conditions, no contamination and shall be drawn using appropriate sampling procedure by non-laboratory staff except mentioned in the reference document.
- This test report is valid only when approved by authorized person and shall not be reproduced except in full, without written approval of PTT Global Chemical Public Company Limited authorized person.
- In this test report, the Italic font is to identify information provided by the customer, \* Indicates changed or additional result(s), \*\* indicates tested by outside, and (!) indicates Inhouse method.
- For purposed of determining conformance with these specifications, an observed of a calculated result shall be rounded, in accordance with the rounding method of ASTM Practice E29, for Using Significant Digits in Test Data to Determine Conformance with Specifications.
- Opinions and Interpretations are not included in the Scope of ISO/IEC 17025 Accreditation except required by the test method
- # in this certificate are not included in the TISI Accreditation Scope.



**PTT GLOBAL CHEMICAL PUBLIC COMPANY LIMITED**

**LABORATORY OPERATION SERVICES, Laboratory Operations III**

Branch 6 : 8, I-8 Road, Map Ta Phut Industrial Estate, Map Ta Phut, Mueang Rayong, Rayong 21150

TEL : +66 (0) 3897-1111 , 1669 FAX : +66 (0) 3897-1083



NSC-TISI-TIS 17025

TESTING No. 0325

Page 2 of 4

<b>CERTIFICATE OF QUALITY</b>		<b>Report No. : COQ-RLB-2311-00665</b>	
<b>6013 JET A-1 THAPLINE</b>		<b>Job No. : -</b>	
		<b>Replacement for Report No. :-</b>	
<b>Information from customers</b>			
<b>Customer / Requester :</b> <i>Movement and Dispatching Operations</i>		<b>For :</b> -	
<b>Address :</b> -			
<b>Telephone :</b> +66(0)3897-1000		<b>Fax :</b> +66(0)3899-4111	
<b>Contact Name :</b> -		<b>Email :</b> -	
<b>Sample Name :</b> <i>6013 Jet A-1 Thapline</i>		<b>Sampling Point :</b> <i>T5258</i>	
<b>Sampling Date/Time :</b> <i>November 11, 2023 / 10:30</i>		<b>Sampling By :</b> <i>Operation MO</i>	
<b>Lot No./Batch No.:</b> <i>6013/58/009</i>			
<b>Sample ID :</b> REF-RLB-F-2311018095			
<b>Received Date :</b> November 11, 2023 / 12:19		<b>Test Date :</b> November 11, 2023	
<b>Sample Condition :</b> Clear , Colorless Liquid			
<b>Sampling By :</b> -			

Test Item	Test Method	Unit	Specification	Result	Note
Severely Hydroprocessed Components in batch	-	% vol	Report	9.9	#
Synthetic Components in batch	-	% vol	Report	Nil	#
<b>Incidental Materials:</b>					01
<b>Volatility:</b>					
<b>Distillation, Automated method:</b>	ASTM D86-23				
Initial Boiling Point		°C	Report	152.0	#
10% Recovered		°C	205.0 max	164.8	#
50% Recovered		°C	Report	176.9	#
90% Recovered		°C	Report	203.6	#
Final Boiling Point		°C	300.0 max	228.8	#
Residue		% vol	1.5 max	1.1	#
Loss		% vol	1.5 max	1.4	#
Flash Point	IP 170-14	°C	38.0 min	39.5	
Density at 15 °C	ASTM D4052-18a	g/mL	0.7750-0.8400	0.7883	
<b>Fluidity:</b>					
Freezing Point	ASTM D7153 – 22ae1	°C	-47.0 max	-67.0	#
Kinematic viscosity at -20 °C	ASTM D445-19a	mm <sup>2</sup> /s	8.000 max	2.709	
<b>Combustion:</b>					
Specific Energy, net	ASTM D3338–09(Reapproved 2014) e2	MJ/kg	42.80 min	43.291	#
Smoke Point, AND	ASTM D1322-22	mm	18.0 min	23.6	#
Naphthalenes	ASTM D1840-22	% vol	3.00 max	0.20	#
<b>Corrosion:</b>					
Corrosion, Copper, Classification (2 hr. at 100 °C)	ASTM D130-19	number	1 max	1a	#
<b>Stability:</b>					
	ASTM D3241-23				

**Remark :**

- Reported results are as-received sample which is in good conditions, no contamination and shall be drawn using appropriate sampling procedure by non-laboratory staff except mentioned in the reference document.
- This test report is valid only when approved by authorized person and shall not be reproduced except in full, without written approval of PTT Global Chemical Public Company Limited authorized person.
- In this test report, the Italic font is to identify information provided by the customer, \* Indicates changed or additional result(s), \*\* indicates tested by outside, and (!) indicates Inhouse method.
- For purposed of determining conformance with these specifications, an observed of a calculated result shall be rounded, in accordance with the rounding method of ASTM Practice E29, for Using Significant Digits in Test Data to Determine Conformance with Specifications.
- Opinions and Interpretations are not included in the Scope of ISO/IEC 17025 Accreditation except required by the test method
- # in this certificate are not included in the TISI Accreditation Scope.



**PTT GLOBAL CHEMICAL PUBLIC COMPANY LIMITED**

**LABORATORY OPERATION SERVICES, Laboratory Operations III**

Branch 6 : 8, I-8 Road, Map Ta Phut Industrial Estate, Map Ta Phut, Mueang Rayong, Rayong 21150

TEL : +66 (0) 3897-1111 , 1669 FAX : +66 (0) 3897-1083



NSC-TISI-TIS 17025

TESTING No. 0325

Page 3 of 4

<b>CERTIFICATE OF QUALITY</b>		<b>Report No. : COQ-RLB-2311-00665</b>	
<b>6013 JET A-1 THAPPLINE</b>		<b>Job No. : -</b>	
		<b>Replacement for Report No. :-</b>	
<b>Information from customers</b>			
<b>Customer / Requester :</b> <i>Movement and Dispatching Operations</i>		<b>For :</b> -	
<b>Address :</b> -			
<b>Telephone :</b> +66(0)3897-1000	<b>Fax :</b> +66(0)3899-4111		
<b>Contact Name :</b> -	<b>Email :</b> -		
<b>Sample Name :</b> <i>6013 Jet A-1 Thappline</i>	<b>Sampling Point :</b> <i>T5258</i>		
<b>Sampling Date/Time :</b> <i>November 11, 2023 / 10:30</i>	<b>Sampling By :</b> <i>Operation MO</i>		
<b>Lot No./Batch No.:</b> <i>6013/58/009</i>			
<b>Sample ID :</b> REF-RLB-F-2311018095			
<b>Received Date :</b> November 11, 2023 / 12:19	<b>Test Date :</b> November 11, 2023		
<b>Sample Condition :</b> Clear , Colorless Liquid			
<b>Sampling By :</b> -			

Test Item	Test Method	Unit	Specification	Result	Note
Control Temperature	ASTM D3241-23	°C	260 min	260	#
Filter Pressure Differential	ASTM D3241-23	mmHg	25.0 max	0	#
Visual Tube Rater (VTR)	ASTM D3241-23	-	Pass (2)	0	#
<b>Contaminates:</b>					
Existent Gum	IP 540-08(Reapproved 2014)	mg/100 mL	7 max	<1	#
Fuel with Static Dissipator Additive	ASTM D3948-20	-	70 min	99	#
<b>Conductivity:</b>					
Electrical Conductivity at 35 °C	ASTM D2624-22	pS/m	260-600	298	#
<b>Lubricity:</b>					
BOCLE wear scar diameter	ASTM D5001-10(Reapprove 2014)	mm	0.85 max	Not Tested	#
<b>Additive:</b>					
<b>Antioxidant (RDE/ A/ 609)</b>					
In Hydroprocessed Fuel	-	mg/L	Report	22.44	#
In final batch (Optional)	-	mg/L	24.0 max	7.0	#
<b>Metal Deactivator (Optional)</b>					
First Doping	-	mg/L	2.0 max	Nil	#
Cumulative concentration after field re-doping	-	mg/L	5.7 max	Nil	#
<b>Static Dissipator (RDE/ A/ 621)</b>					
First Doping	-	mg/L	3.0 max	0.49	#
Cumulative concentration after field re-doping	-	mg/L	5.0 max	Nil	#

**Remark :**

- Reported results are as-received sample which is in good conditions, no contamination and shall be drawn using appropriate sampling procedure by non-laboratory staff except mentioned in the reference document.
- This test report is valid only when approved by authorized person and shall not be reproduced except in full, without written approval of PTT Global Chemical Public Company Limited authorized person.
- In this test report, the Italic font is to identify information provided by the customer, \* Indicates changed or additional result(s), \*\* indicates tested by outside, and (!) indicates Inhouse method.
- For purposed of determining conformance with these specifications, an observed of a calculated result shall be rounded, in accordance with the rounding method of ASTM Practice E29, for Using Significant Digits in Test Data to Determine Conformance with Specifications.
- Opinions and Interpretations are not included in the Scope of ISO/IEC 17025 Accreditation except required by the test method
- # in this certificate are not included in the TISI Accreditation Scope.



PTT GLOBAL CHEMICAL PUBLIC COMPANY LIMITED

LABORATORY OPERATION SERVICES, Laboratory Operations III

Branch 6 : 8, I-8 Road, Map Ta Phut Industrial Estate, Map Ta Phut, Mueang Rayong, Rayong 21150

TEL : +66 (0) 3897-1111 , 1669 FAX : +66 (0) 3897-1083



NSC-TISI-TIS 17025

TESTING No. 0325

Page 4 of 4

<b>CERTIFICATE OF QUALITY</b>		<b>Report No. : COQ-RLB-2311-00665</b>	
<b>6013 JET A-1 THAPLINE</b>		<b>Job No. : -</b>	
		<b>Replacement for Report No. :-</b>	
<b>Information from customers</b>			
<b>Customer / Requester :</b> <i>Movement and Dispatching Operations</i>		<b>For :</b> -	
<b>Address :</b> -			
<b>Telephone :</b> +66(0)3897-1000		<b>Fax :</b> +66(0)3899-4111	
<b>Contact Name :</b> -		<b>Email :</b> -	
<b>Sample Name :</b> <i>6013 Jet A-1 Thapline</i>		<b>Sampling Point :</b> <i>T5258</i>	
<b>Sampling Date/Time :</b> <i>November 11, 2023 / 10:30</i>		<b>Sampling By :</b> <i>Operation MO</i>	
<b>Lot No./Batch No.:</b> <i>6013/58/009</i>			
<b>Sample ID :</b> REF-RLB-F-2311018095			
<b>Received Date :</b> November 11, 2023 / 12:19		<b>Test Date :</b> November 11, 2023	
<b>Sample Condition :</b> Clear , Colorless Liquid			
<b>Sampling By :</b> -			

**Notes From Laboratory :**

Pass (1): Clear, bright and visually free from solid matter and undissolved water at ambient temperature.

Pass (2): Less than 3, no 'Peacock' or 'Abnormal' color deposits.

01 Not Measured - Risk Assessed in accordance with JIG Bulletin 141

It is certified that the samples have been tested using the Test Methods stated and that the Batch represented by the samples conforms with DEF STAN 91-091 Issue 14 dated 07 March 2022 and AFQRJOS Checklist Issue 33 - April 2022.

This Test Report relates specifically to the samples tested which are in good conditions, no contamination and taken by requester according with Movement and Dispatching Operation Product Sampling Procedure.

**Reported By :**

*(Signature)*

(MissPhitchayaporn Pongsookjirawachr)  
(Laboratory Analyst)

**Issued Date :**

November 11, 2023

**Approved By :**

*(Signature)*

(MissJeeraporn Tammasanit)  
(Senior Laboratory Analyst)

**Approved Date :**

November 11, 2023

**Remark :**

1. Reported results are as-received sample which is in good conditions, no contamination and shall be drawn using appropriate sampling procedure by non-laboratory staff except mentioned in the reference document.
2. This test report is valid only when approved by authorized person and shall not be reproduced except in full, without written approval of PTT Global Chemical Public Company Limited authorized person.
3. In this test report, the Italic font is to identify information provided by the customer, \* Indicates changed or additional result(s), \*\* indicates tested by outside, and (!) indicates Inhouse method.
4. For purposed of determining conformance with these specifications, an observed of a calculated result shall be rounded, in accordance with the rounding method of ASTM Practice E29, for Using Significant Digits in Test Data to Determine Conformance with Specifications.
5. Opinions and Interpretations are not included in the Scope of ISO/IEC 17025 Accreditation except required by the test method
6. # in this certificate are not included in the TISI Accreditation Scope.

-End of Report-