

SAP Doc # : 0000423950
Date of Issue : 09.11.2023

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Certificate of Quality

Tank: TK3914
Sample Date/Time: 06.11.2023/17:00:00
Blend: 391423B01
Sample ID: 870960

Product: 134599 GASOHOL BASE 91
Formula: AMTHRGB91 GASOHOL BASE 91

Customer: A9020004 Thai Petroleum Pipeline Co Ltd
Address: 2/8 M.11, LADSAWAI
LUMLUKKA, PATHUMTHANI,
12150

Ship Date: 09.11.2023
Customer Order No: E0B-051-000

PROPERTY	TEST METHOD	SPEC (Min-Max)	RESULT	UNITS
Appearance	VISUAL	B & C	B & C	
Aromatic	ASTM_D6839	<=38	30	vol%
Benzene	ASTM_D6839	<=1.1	0.8	vol%
Olefins	ASTM_D6839	<=20	19	vol%
Corrosion Silver Strip (3hrs @50C)	ASTM_D7671-PROA	<=1	0	
Density @ 15C	ASTM_D4052		0.7410	g/ml
Diatillation 10% evaporated	ASTM_D86	<=70	57	deg_C
Diatillation 50% evaporated	ASTM_D86	90-110	94	deg_C
Diatillation 90% evaporated	ASTM_D86	<=170	142	deg_C
Final boiling point	ASTM_D86	<=200	176	deg_C
Residue	ASTM_D86	<=2.0	1.0	vol%
** Solvent Washed Gum	ASTM_D381	<=4	<0.5	mg/hml
** Lead Content	ASTM_D5059	<=0.005	<0.003	g/l
Research Octane Number	ASTM_D2699	>=87.0	89.9	
Motor Octane Number	ASTM_D2700	>=78.0	80.3	
** Oxidation Stability(induction period)	ASTM_D525	>=360	>=360	min
Sulfur Content	ASTM_D2622	<=0.0050	0.0008	wt%
Vapor Pressure @37.8C	ASTM_D6378	<=54.5	53.9	kPa
Water content	ASTM_E203	<=0.7	0.0	wt%
MON of GASOHOL BASE 91 with 19.0%Ethanol	ASTM_D2700	>=84.0	84.5	

Responsible Party: PENNAPA SUPHATTHARASARAKUN, LABORATORY MANAGER

Released by: Prasit Promnoi, Laboratory technician

Note 1: GC-On-Line TQI (ALT), bias corrected to ASTM D 6293-98
Reference method: ASTM D 5580-02

Note 2: Benzene(ALT), bias corrected to reference method: ASTM D 5580-02

Note 3: Oxygenated Compound (ALT), bias corrected to Reference method
ASTM D 4815

Note 4: Vapor Pressure on-line TQI, bias corrected to ASTM D 6378
Reference method: ASTM D 4593

Note 5: DVPE calculated by equation 7 ASTM D 6378

Remark:

- Color, dye will be on-line injected during loading/transferring to pipe line or vessel while releasing product from refinery
- For Sriracha terminal, a performance additive (HITECH 6421) and dye will be injected at loading rack via truck
- FBP have to be related according to manufacturing release limit of FBP=195 C max

- Test marked (*) are tested by third party.
- Test marked (**) are periodic values only. They are not tested each batch.

- MOD indicates modified test method. Tests conducted according to this Standard Test Method are routinely verified to be in compliance with the lasted published versions. Minor changes may be made which have been assessed to have no material impact on test results and are necessitated by reasons such as safety, environmental standards and method effectiveness.

- ALT indicates alternate test method. The test methods included in this specification are those used to verify the quality of the production batches against the specification limits. These methods have been bias-corrected to the reference method in accordance with the principles in ASTM D 6708, calculated in accordance with ASTM D 6624 (for TQI values), verified in accordance with ASTM D 3764 to give essentially equivalent results versus those included in the standard reference test method. In case of arbitration, the methods included in Standard reference are to be used.

The above product is certified by an Authorised Laboratory personnel though the normal security of a computer system.

This report is certified only the tested sample(s). It shall not be reproduced or copied without written approval from the authorised personnel.

For purpose of reporting and determining conformance with this specification, an observed value or a calculated value shall be rounded 'to the nearest unit' in accordance with the rounding method of ASTM practice E29, using Significant Digits in Test Data to Determine Conformance with Specifications.