

To Whom It May Concern

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Certificate of Quality

Report number : **10901/00013860.16/L/19** Date of sampling : 2019-01-22
Main Object : SANTA LUCIA Place of sampling : Enemed Installation
Report Date : 2019-01-30 Date received : 2019-01-23
Date of issue : 2019-01-30 Date completed : 2019-01-30
Sample object : 1 Sample number : 7689679
Sample type : Sampled
Sample submitted as : ULSD 10 ppm
Marked : Shore tank 1 single tank field composite for analysis only

| NAME | METHOD | UNIT | SPECS | | RESULT |
|--|--------------------|--------------------|--------|-------|-----------|
| | | | Min | Max | |
| Derived Cetane Number (DCN) | EN 16715 | - | 51 | | 55.3 |
| Flash point Q | ASTM D 93 | °C | 55 | | 60.0 |
| Cetane Index | ASTM D 4737 | - | 46.0 | | 52.6 |
| Copper Strip Corrosion (3 hrs / 50 °C) Q | ASTM D 130 | - | | 1 | 1B |
| Sulphur Q | ASTM D 2622 | mg/kg | | 10 | 6.3 |
| Density at 15 °C Q | ASTM D 4052 | kg/L | 0.830 | 0.845 | 0.8331 |
| Micro Carbon Residue (10% bot.) Q | ASTM D 4530 / D 86 | mass % | | 0.30 | <0.1 |
| Cold Filter Plugging Point Q | IP 309 | °C | | 5 | -13 |
| Viscosity at 40°C | ASTM D 445 | mm ² /s | 2.00 | 4.50 | 2.587 |
| Ash Q | ASTM D 482 | mass % | | 0.01 | <0.001 |
| Distillation | ASTM D 86 | | | | |
| Initial boiling point | | °C | Report | | 160.3 |
| 10% Recovered | | °C | Report | | 202.0 |
| 50% Recovered | | °C | Report | | 367.2 |
| 90% Recovered | | °C | Report | | 337.2 |
| 95% Recovered | | °C | | 360 | 354.2 |
| Final boiling point | | °C | Report | | 362.7 |
| Residue | | vol % | Report | | 1.0 |
| Loss | | vol % | Report | | 0.7 |
| Recovered at 250 °C | | vol % | | 65 | 39.8 |
| Recovered at 350 °C | | vol % | 85 | | 94.5 |
| Oxidation Stability (**) | ASTM D 2274 | g/m ³ | | 25 | 14 |
| FAME (iii) | EN 14078 | vol % | Nil | | Below 0.5 |
| Water | ASTM E 1064 | mg/kg | | 200 | 99 |
| Lubricity Q | ASTM D 6079 | micron | | 380 | 375 |
| Particulate matter | IP 440 | mg/kg | | 24 | 12 |

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. 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 | |
| P.A.H. | IP 391 | mass % | 11 | 1.3 | |

Test comments:

Derived Cetane Number (DCN) (EN 16715): Performed By Third Party Laboratory

Lab comments:

The results are referred to the tested sample.

Q Analysis accredited by NAB-MALTA. Testing laboratory Reg No 007.

All tests are reported according to the latest method version available.

If required, estimated expanded uncertainty U with coverage factor=2 corresponding to level of probability of about 95%, can be provided.

Sampling performed according to ASTM D4057-12.

(*) Climatically dependent specification.

(**) Tested for 20hrs if FAME is above 2%vol.

(iii) 'Not detected' or 'below 0.05%' results are also acceptable.

Signed by: Clifton Friggieri - Laboratory Manager
Issued by: Saybolt Malta Ltd
Place and date of issue: Kalafrana - 2019-01-30

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