

AVIATION TURBINE FUEL JET A1³

USE: AS FUEL FOR JET ENGINES

| PROPERTY | MU | LIMITS | | TEST METHOD |
|--|-----------------------------|---|----------------|--|
| | | Min. | Max. | |
| ASPECT | | | | |
| Visual inspection | | clear, without impurities in suspension | | ASTM D 4176-04 – procedure 1 |
| Saybolt color | | to be reported | | ASTM D 156-07 ¹ |
| Particulate contamination | mg/l | - | 1 | ASTM D 5452-08 |
| Particulate, at point of manufacture, cumulative channel particle counts | | | | IP 565 |
| ≥ 4 μm(c) | | | to be reported | |
| ≥ 6 μm(c) | | | to be reported | |
| ≥ 14 μm(c) | | | to be reported | |
| ≥ 21 μm(c) | | | to be reported | |
| ≥ 25 μm(c) | | | to be reported | |
| ≥ 30 μm(c) | | | to be reported | |
| COMPOSITION | | | | |
| Total acidity | mg KOH/g | - | 0,015 | STAS 5639-88 / ASTM D 3242-08 |
| Aromatics | % (v/v) | - | 25 | ASTM D 1319-08 ¹ / ASTM D 6379-04 |
| Sulphur, Total | % (m/m) | - | 0,30 | ASTM D 2622-08 ¹ / ASTM D 5453-09 SR EN ISO 20884-04 ¹ / ISO 20884-04 SR EN ISO 20846-04 ¹ / ISO 20846-04 |
| Sulphur, Mercaptan | % (m/m) | - | 0,003 | STAS 8042-83 ¹ / ASTM D 3227-04a ¹ |
| Non Hydroprocessed Components | % (v/v) | to be reported | | |
| Hydroprocessed Components | % (v/v) | to be reported | | |
| Severely hydroprocessed Components | % (v/v) | to be reported | | AFQRJOS – Bulletin no 45/May 2011 |
| Synthetic Components | % (v/v) | to be reported | | |
| VOLATILITY | | | | |
| Distillation: | | | | ASTM D 86-09 ¹ / SR EN ISO 3405:03 ¹ |
| Initial boiling point | °C | to be reported | | |
| 10 % (v/v) | °C | - | 205 | |
| 50 % (v/v) | °C | to be reported | | |
| 90 % (v/v) | °C | to be reported | | |
| Final boiling point | °C | - | 300 | |
| Residue | % (v/v) | - | 1,5 | |
| Loss | % (v/v) | - | 1,5 | |
| Flash point, TAG | °C | 40 | - | ASTM D 56-05 ¹ |
| Density at 15 °C | kg/m ³ | 775 | 840 | ASTM D 4052-09 ¹ / ASTM D 1298-99(05) ¹ SR EN ISO 3675:02 ¹ / SR EN ISO 3675:02/ C91-05 SR EN ISO 12185:02 ¹ |
| FLUIDITY | | | | |
| Freezing point | °C | - | -47 | ASTM D 2386-06 / IP 528 / ASTM D 7154 |
| Kinematic viscosity at - 20 °C | cSt (mm ² /s) | - | 8 | SR EN ISO 3104:02 ¹ / SR EN ISO 3104:02/AC:02 ¹ ASTM D 445-09 ¹ |

| COMBUSTION | | | | |
|---|----------|--------|------------------|--|
| Combustion net energy | kJ/kg | 42800 | - | ASTM D 3338-09 ¹ |
| | kcal/kg | 10 200 | - | |
| Smoke point | mm | 25 | - | ASTM D 1322-08 ¹ |
| CORROSION | | | | |
| Copper strip corrosion rating | | - | Class 1 | ASTM D 130-04 ¹ / SR EN ISO 2160-02 ¹ |
| THERMAL STABILITY | | | | |
| Thermal stability JFTOT (at min 260°C) | | | | |
| - filter pressure drop | mmHg | - | 25 | ASTM D 3241-09 ¹ |
| - visual rating of the tube | | - | <3 | |
| CONTAMINANTS | | | | |
| Existent gums (after solvents wash) | mg/100ml | - | 7 | ASTM D 381-09 ¹ / SR EN ISO 6246:00 ¹ IP 540-06 |
| Microseparometer (MSEP), rating | | | | |
| - With Static Dissipator Additive | | 70 | - | ASTM D 3948-08 |
| CONDUCTIVITY | | | | |
| Electrical conductivity | pS/m | 50 | 600 ² | ASTM D 2624-07a ¹ / SR ISO 6297:02 ¹ |
| ADDITIVES | | | | |
| The product is additivated with: | | | | |
| - Static Dissipator (Stadis 450) type RDE/A/621 | mg/l | - | 3 | |
| - Antioxidant, Ionol CP (2,6-ditertiary-butyl-4-methyl phenol), tip RDE/A/607 | mg/l | 17 | 24 | |

NOTES: 1) Accredited test by RENAR 2) at delivery, after electrical conductivity additive injection 3) The product meets all the requirements of check-list AFQRJOS 25/05.05.2011 and ASTM D 1655.

Quality control: control is done on lot.

It is certified that the samples have been tested using the Test Methods stated and that the Batch represented by the samples conforms with ASTM D 1655 (latest issue) and AFQRJOS Checklist Issue 25.

Each batch will have max. 1600 tones for delivery in tank wagons or tank capacity for pipelines. The lot will have product of same type.

During testing, the product must comply with all parameters depicted in standard specification for corresponding product/type. If not, the batch is rejected.

In case of litigious, the quality control will be done using the samples kept for these cases, sampling being done in accordance with the sampling procedure.

NOTE: A sample is analyzed in the supplier laboratory and the second is kept for three months after delivery, at buyer's disposal, for an eventual control.

Sampling procedure: according to SR EN ISO 3170:2004 / SR EN ISO 3170:2004/C91:05/ASTM D 4057- 06

Informations about handling, transportation and storage: according to "Safety Data Sheet" FDS-2.4 T.

Quality-environment-safety integrated Management System is certified by Germanischer Lloyd Certification

according to the following standards:

- ISO 9001:2008
- ISO 14001:2004
- BS OHSAS 18001:2007

The test lab is accredited by RENAR, in compliance with SR EN ISO/CEI 17025:2005.

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