

# Technical Data Sheet

## Eastman™ Turbo Oil 2389

### Applications

- Aerospace
- Aviation turbine oil (ATO)

### Key Attributes

- 3 cSt synthetic lubricant
- Cold weather

### Product Description

Eastman Turbo Oil 2389™ is a low viscosity gas turbine oil, offering exceptional cold-start capability.

Many large commercial airlines use Turbo Oil 2389 in their auxiliary power units (APUs), because of the reliability it affords this equipment when starting after long, cold-soaks at altitude. Turbo Oil 2389 is the only MIL-PRF-7808 Grade 3 qualified oil that is fully approved in all Honeywell and UTC Aerospace Systems APUs. Turbo Oil 2389 is formulated from synthetic base stocks and advanced technology additives, to provide the combined thermal and oxidation stability properties of commercial Type II lubricants, with the low temperature fluidity characteristics of a 3 cSt oil. It also has load-carrying ability equal to, or better than, other approved MIL-PRF-7808 Grade 3 oils.

### Typical Properties

| Property                                     | Test Method       | Typical Value, Units     |
|----------------------------------------------|-------------------|--------------------------|
| <b>General</b>                               |                   |                          |
| Density<br>@ 15°C                            | ASTM D 1298       | 0.9511 kg/L              |
| Viscosity, Kinematic<br>@ 100°C              | ASTM D 445        | 3.19 mm <sup>2</sup> /s  |
| @ 40°C                                       | ASTM D 445        | 12.46 mm <sup>2</sup> /s |
| @ -51°C after 3 hours                        | ASTM D 2532       | 7,800 mm <sup>2</sup> /s |
| Pour Point                                   | ASTM D 97         | -60 °C                   |
| Flash Point                                  | ASTM D92          | 220 °C                   |
| Total Acid Number (Average)                  | ASTM D 664        | 0.20 mg KOH/g            |
| Deposition Test <sup>a</sup>                 |                   |                          |
| Acid Number Change                           | FED-STD-791, 5003 | 11.2 mg KOH/g            |
| Average Viscosity Change                     | FED 5003          | 17.77 %                  |
| Oil Consumption                              | FED-STD-791, 5003 | 100 ml                   |
| Evaporation Loss<br>6.5 hrs @ 205°C          | ASTM D 972        | 20.0 %                   |
| Foaming Volume <sup>b</sup>                  |                   |                          |
| 110°C @ 1000 cc/min                          | FED-STD-791, 3214 | 20/8 ml/sec              |
| 110°C @ 1500 cc/min                          | FED-STD-791, 3214 | 55/8 ml/sec              |
| 110°C @ 2000 cc/min                          | FED-STD-791, 3214 | 170/18 ml/sec            |
| 80°C @ 1000 cc/min                           | FED-STD-791, 3214 | 15/8 ml/sec              |
| 80°C @ 1500 cc/min                           | FED-STD-791, 3214 | 45/8 ml/sec              |
| 80°C @ 2000 cc/min                           | FED-STD-791, 3214 | 105/15 ml/sec            |
| Corrosion & Oxidative Stability <sup>c</sup> |                   |                          |
| Aluminium Weight Change                      | FED-STD-791, 5307 | 0.00 mg/cm <sup>2</sup>  |
| Bronze Weight Change                         | FED-STD-791, 5307 | 0.04 mg/cm <sup>2</sup>  |
| Iron Weight Change                           | FED-STD-791, 5307 | 0.02 mg/cm <sup>2</sup>  |
| M-50 Weight Change                           | FED-STD-791, 5307 | -0.02 mg/cm <sup>2</sup> |
| Magnesium Weight Change                      | FED-STD-791, 5307 | -0.02 mg/cm <sup>2</sup> |

|                         |                   |                          |
|-------------------------|-------------------|--------------------------|
| Neut. No                | FED-STD-791, 5307 | 0.96                     |
| Silver Weight Change    | FED-STD-791, 5307 | -0.02 mg/cm <sup>2</sup> |
| Titanium Weight Change  | FED-STD-791, 5307 | 0.00 mg/cm <sup>2</sup>  |
| Viscosity Change @ 40°C | FED-STD-791, 5307 | 9.5 %                    |

<sup>a</sup>Average deposition rating = 0.59

<sup>b</sup>Dynamic foaming characteristics

<sup>c</sup>96 hrs @ 200°C

## Comments

Properties reported here are typical of average lots. Eastman makes no representation that the material in any particular shipment will conform exactly to the values given.

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