Shell Turbo® S4 X

SETTING A NEW STANDARD

Shell Turbo® S4 X is based on gas-to-liquids (GTL) technology and has been developed to meet the demands of the latest high-efficiency turbine systems. It is designed to offer outstanding, long-term performance under the most severe operating conditions and will help to minimize deposit and sludge formation, even under cyclic peak-loading conditions.

GLOBALLY CONSISTENT

Shell Turbo® S4 X is derived from purified natural gas, which produces a tightly specified hydrocarbon chemical structure. This defined chemistry delivers consistent and reliable performance, unlike crude-based oils that can vary significantly depending on their source and refining process.

The quality of Shell Turbo® S4 X is neither crude oil nor location dependent, and the oil’s long-term availability is assured.

APPLICATIONS

Shell Turbo® S4 X is designed for use in industrial light- and heavy-duty gas turbines, and turbo compressors.

SPECIFICATIONS AND APPROvals

Shell Turbo® S4 X meets and exceeds the specifications and requirements of the major turbine manufacturers, including MAN D&T, Siemens, GE, MHPS and Alstom. It is available in ISO grade 32.

Industry specifications
ASTM 4304-13 Type I and III; GB (China) 11210-2011, LTGA, L-TSA and LTGSB; DIN 51515 Part 1 L-TD and Part 2 L-TG; ISO 8068, L-TGB and LTGSB. GE approved as a Low Varnishing (LV) Fluid.
Shell Turbo® S4 X has outstanding resistance to degradation from oxidation and thermal stresses. In tests, Shell Turbo® S4 X performs twice as well as the industry standard, thereby offering extended service life and reduced maintenance costs when compared with conventional mineral oil technology.

**ASTM D4304, test method ASTM D943 TOST life, hours**

<table>
<thead>
<tr>
<th>Minimum requirement</th>
<th>Shell Turbo® S4 X</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type I, standard performance</td>
<td>2,000 hours</td>
</tr>
<tr>
<td>Type III, higher temperature/thermal stability</td>
<td>7,000 hours</td>
</tr>
</tbody>
</table>

**ASTM D4304, method ASTM D2272 rotating pressure vessel oxidation test, minutes**

<table>
<thead>
<tr>
<th>Minimum requirement</th>
<th>Shell Turbo® S4 X</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type I, standard performance</td>
<td>250 minutes</td>
</tr>
<tr>
<td>Type III, higher temperature/thermal stability</td>
<td>75 minutes</td>
</tr>
</tbody>
</table>

Product data shown is typical of the current product. While future production will conform to Shell’s specification, variations in these characteristics may occur.

**SUPERIOR PERFORMANCE**

Shell’s base oils derived from natural gas using GTL technology have a lower sulphur content and a more uniform structure than crude oil, thus enabling Shell Turbo® S4 X to offer enhanced performance compared with conventional mineral oils.

Shell Turbo® S4 X offers excellent resistance to degradation and provides enhanced equipment protection. It can help to maintain optimum operating conditions even under the most challenging situations.

**FULL PRODUCT AND SERVICE PORTFOLIO**

Whatever your needs or application, we can provide a full range of oils and greases, including synthetic, high-performance products and additional services.

**CONTACT**

Talk to us about the benefits that GTL-based Shell turbine oils could have for your business. Find out more by visiting www.shell.us/power

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