FROM PROTECTING TRANSFORMERS TO POWERING NATIONS

SHELL DIALA MAKES IT POSSIBLE

The Shell Diala range of transformer oils helps to protect your equipment and to ensure efficient operation throughout its lifetime.

shell.com/lubricants

SHELL LUBRICANTS
TOGETHER ANYTHING IS POSSIBLE
SPECIALIST APPLICATIONS

Shell offers products designed for specialist applications. Within the Shell Diala range, these include

- **Shell Diala S4 ZX-IG** – which is designed to meet the gas-absorbing challenges presented by high-voltage instrument transformers and bushings, and is effectively sulphur free. It helps to improve transformer reliability compared with conventional mineral oils.

- **Shell Naturelle Transformer Oil S4 I** – this is a synthetic-ester-based product that offers excellent low-flammability characteristics. It has a flash point of 275°C, is readily biodegradable and meets European Union Ecolabel requirements.

ENHANCED PROTECTION

Oil is at the heart of your transformer. The Shell Diala range offers several options for the best possible protection. The new Shell Diala S4 ZX-I exceeds IEC 60296: Ed 4 2012 higher-oxidation stability, low-sulphur specification. In fact, it has essentially zero sulphur (below the detection limits), which means that the risk of oil-related copper corrosion is removed.

LONGER OIL LIFE

Shell Diala transformer oils are designed to last, thereby supporting the extension of your transformer’s lifetime. Shell Diala S4 ZX-I exceeds the 500-hour oxidation test limit and extends oil life through its exceptional resistance to the effects of ageing, sludge formation and deposit build-up.

GREATER EFFICIENCY

For optimum transformer performance, electrical insulating oil must maintain its characteristics over a wide range of operating temperatures. Theoretical modelling predicts that Shell Diala S4 ZX-I could deliver improved operational performance under overload conditions owing to its enhanced thermal properties.

RESISTANCE TO CORROSION

Shell is committed to minimising the possibility of insulating-oil-related corrosive sulphur developing, and the resultant copper corrosion. All Shell Diala products meet the industry standards for corrosive sulphur.

SHELL HAS DESIGNED A PORTFOLIO OF FLUIDS THAT ENABLES YOU TO CHOOSE A PRODUCT TO MATCH YOUR TECHNICAL AND OPERATIONAL NEEDS.
A RANGE OF TRANSFORMER OILS TO MEET YOUR NEEDS

To meet the challenges of a wide range of equipment designs and applications, Shell has designed a portfolio of fluids that enables you to choose a product to match your technical and operational needs.

<table>
<thead>
<tr>
<th>THE SHELL DIALA RANGE FOR STANDARD APPLICATIONS</th>
<th>THE SHELL DIALA RANGE FOR SPECIAL APPLICATIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>TIER 4</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Shell Diala S4 ZX-I</strong></td>
<td><strong>Shell Diala S4 ZX-IG</strong></td>
</tr>
<tr>
<td>■ Effectively zero sulphur</td>
<td>■ Effectively zero sulphur</td>
</tr>
<tr>
<td>■ Extra performance</td>
<td>■ Gas absorbency</td>
</tr>
<tr>
<td>oxidation stability and low sulphur content</td>
<td>oxidation stability and low sulphur content</td>
</tr>
<tr>
<td><strong>Shell Naturelle Transformer Oil S4 I</strong></td>
<td></td>
</tr>
<tr>
<td><strong>SYNTHETIC</strong></td>
<td></td>
</tr>
<tr>
<td>■ Low flammability</td>
<td></td>
</tr>
<tr>
<td>■ Readily biodegradable</td>
<td></td>
</tr>
<tr>
<td>■ Meets IEC 61099 T1</td>
<td></td>
</tr>
</tbody>
</table>

**PRODUCT-NAME SUFFIX KEY**
- **G** = Gas absorbing
- **I** = Conforms to IEC specifications
- **U** = Uninhibited
- **X** = Fully inhibited
- **Z** = Insulating oil

**APPLICATION ICON KEY**
- ♦ = Transformer applications
- ♣ = Power station applications
Shell Lubricants is the number one lubricants supplier (Kline & Company, 2014) and has more than 60 years of innovation. We are constantly investing to develop better lubrication solutions, as demonstrated by Shell Turbo S4 X – a premium, industrial gas turbine oil based on Shell GTL technology for light- and heavy-duty gas turbines, and turbocompressors.

Shell Turbo S4 GX – a premium industrial gas turbine oil based on Shell GTL technology for steam, light- and heavy-duty gas and combined-cycle turbines, including geared turbines with load requirements.

Shell Mysella S5 N – which offers extended oil life and extra protection from deposits for demanding stationary gas engines.

Shell Mysella S5 S – a specially designed low-ash oil for sour gas applications providing extra protection against deposits and corrosion.

In addition, Shell provides the Shell LubeAnalyst service, an early-warning system that helps to identify potential oil and equipment failures before they become critical and to extend oil-drain intervals. It is a global platform available in 95 countries and 27 languages, and with more than 75 million data points.

**PRODUCT** | **CATEGORY DESCRIPTION** | **BENEFITS** | **TECHNOLOGY** | **SPECIFICATIONS AND APPROVALS**
--- | --- | --- | --- | ---
Shell Diala S4 ZX-I | Premium, inhibited transformer oil | Extra performance | Inhibited | Meets the requirements of or is approved by most leading equipment manufacturers and utility companies. Industry standards: IEC 60296: 2012 Edition 4, Table 2 Transformer Oil (I) (Inhibited oil), Section 7.1 (“Higher oxidation stability”).

Shell Diala S3 ZX-I | Inhibited transformer oil | Extra performance | Inhibited | Meets the requirements of or is approved by most leading equipment manufacturers and utility companies. Industry standards: IEC 60296: 2012 Edition 4, Table 2 Transformer Oil (I) (Inhibited oil), Section 7.1 (“Higher oxidation stability”).

Shell Diala S2 ZU-I | Uninhibited transformer oil | Reliable performance | Uninhibited | Meets the requirements of or is approved by most leading equipment manufacturers and utility companies. Industry standards: IEC 60296: 2012 Edition 4 Transformer Oil (U) (Uninhibited oil).

**SPECIALITY GRADES**

Shell Diala S4 ZX-IG | Premium, inhibited, gas-absorbing transformer oil | Extra performance | Inhibited | Meets the requirements of or is approved by most leading equipment manufacturers and utility companies. Industry standards: IEC 60296: 2012 Edition 4, Table 2 Transformer Oil (I) (Inhibited oil), Section 7.1 (“Higher oxidation stability”).

Shell Naturelle Transformer Oil S4 I | Advanced, synthetic transformer oil | Extra performance | Synthetic ester | Industry standards: IEC 61099 Type T1; European Ecolabel requirements for low-environmental-impact-products; UBA for classification as no hazard to water (NWG).

**COMPREHENSIVE PRODUCT AND SERVICE PROVISION**

Shell Lubricants is the number one lubricants supplier (Kline & Company, 2014) and has more than 60 years of innovation. We are constantly investing to develop better lubrication solutions, as demonstrated by:

- **Shell Turbo S4 X** – a premium, industrial gas turbine oil based on Shell GTL technology for light- and heavy-duty gas turbines, and turbocompressors.
- **Shell Turbo S4 GX** – a premium industrial gas turbine oil based on Shell GTL technology for steam, light- and heavy-duty gas and combined-cycle turbines, including geared turbines with load requirements.
- **Shell Mysella S5 N** – which offers extended oil life and extra protection from deposits for demanding stationary gas engines.
- **Shell Mysella S5 S** – a specially designed low-ash oil for sour gas applications providing extra protection against deposits and corrosion.

In addition, Shell provides the Shell LubeAnalyst service, an early-warning system that helps to identify potential oil and equipment failures before they become critical and to extend oil-drain intervals. It is a global platform available in 95 countries and 27 languages, and with more than 75 million data points.

- Based on tests compared with a competitor’s product and lower-tier Shell products.

Find out more by visiting www.shell.com/lubricants

’SHELL LUBRICANTS’ refers to the various Shell companies engaged in the lubricant business.