

**DESIGNED TO KEEP
ON DELIVERING.**

**JUST LIKE OUR
ELECTRICAL INSULATING
OILS – SHELL DIALA.**

DESIGNED TO MEET CHALLENGES



EVERY PART OF YOUR MACHINE OR PROCESS HAS BEEN METICULOUSLY ENGINEERED, SO YOU WANT TO BE SURE THAT YOU CHOOSE A LUBRICANT THAT HAS BEEN DESIGNED TO ENSURE THAT YOUR EQUIPMENT IS WELL PROTECTED AND WORKS EFFICIENTLY.

A RANGE OF ELECTRIC

To meet the challenges of a wide range of applications, Shell has designed a portfolio of fluids that meet your specific requirements and operational needs.

The Shell Diala range of electrical oils has been developed to enable equipment manufacturers and power companies to select the oil that will deliver optimum value to their operations through enhanced equipment protection, long oil life and high system efficiency.

EQUIPMENT PROTECTION

An electrical insulating oil lies at the heart of your transformer. The Shell Diala range of electrical insulating oils offers a number of options, including the latest fully inhibited, ultra-low-sulphur technology that meets all the current IEC and ASTM standards for copper corrosion, and is designed to ensure the best possible protection for your high-value assets. Shell also offers special gas-absorbing insulating oils for use in high-electrical-stress applications such as those found in high-voltage, direct-current (HVDC) transformers.

OIL LIFE

A long and predictable oil life is critical to transformer performance. The Shell Diala range of oils includes inhibited and uninhibited electrical insulating oils to give you a choice of performance profiles to match your requirements. Shell's latest products meet the IEC 60296 high level of oxidation performance and exceed the 500-hour oxidation test limit.

SYSTEM EFFICIENCY

To help your transformer perform to its design standards, an electrical insulating oil must maintain its characteristics over a wide range of operating temperatures. All the Shell Diala electrical oils are designed to offer excellent heat transfer and dielectric properties, even at the lowest start-up operating temperatures. In addition, Shell Diala oils offer excellent resistance to the effects of ageing, sludge formation and deposit build-up.

THE SHELL DIALA STANDARD AP



INCREASINGLY EFFICIENT PROTECTION



Shell Diala S3

- Extra performance
- Meets IEC 60296: high oxidation stability and low sulphur

Shell Diala S2

- Reliable performance
- Meets IEC 60296

Shell Diala S2

- Reliable performance
- Meets ASTM D3487



CORROSIVENESS TO COPPER

All Shell Diala products meet the industry standards for copper corrosion: IEC 62535, ASTM D1275B and DIN 51353.

In addition, Shell is committed to minimising insulating-oil-related copper corrosion in transformers. The organisation works with equipment manufacturers, utility companies and specifying technical committees to understand the causes of corrosion and to reduce or even eliminate sulphur levels in its electrical insulating oils.



SPECIALIST OILS TO MEET YOUR NEEDS

A range of equipment designs and applications, Shell has developed products that enable you to choose a product to match your technical requirements.

PRODUCT-NAME SUFFIX KEY

- A** = Conforms to ASTM specifications
- G** = Gas absorbing
- I** = Conforms to IEC specifications
- U** = Uninhibited
- X** = Fully inhibited
- Z** = Insulating oil

APPLICATION ICON KEY

-  Transformer applications
-  Power station applications

THE SHELL DIALA RANGE FOR SPECIAL APPLICATIONS

THE SHELL DIALA RANGE FOR SPECIAL APPLICATIONS

ZX-I

High oxidation
stability



ZU-I



ZX-A

Type II



Shell Naturelle Transformer Oil S4 I

SYNTHETIC

- Low flammability
- Readily biodegradable
- Meets IEC 61099 T1



Shell Diala S3 ZX-IG

- Extra gas-absorbing performance
- Meets IEC 60296



Shell Diala Switchgear Oil

- Extra long oil life
- Inhibited oil to IEC 60296 (switchgear)



SPECIALIST APPLICATIONS

Shell offers several products designed for specialist applications. These include

- Shell Naturelle Transformer Oil S4 I. This is a synthetic-ester-based product that offers excellent low-flammability characteristics. It has a flashpoint of 275°C, is fully biodegradable and meets European Union Ecolabel requirements
- Shell Diala Switchgear Oil, which is designed for switchgear applications and is highly suitable for applications likely to operate at very low temperatures without additional heating.



Product	Category descriptor	Benefits	Technology	Specifications and approvals (Full details of approvals for all products can be obtained from your Shell representative; approvals and claims will vary by viscosity grade.)
Shell Diala S3 ZXHG	Premium inhibited electrical insulating oil	<ul style="list-style-type: none"> ■ Extra gas-absorbing performance ■ Meets IEC 60296 	Inhibited	Meets the requirements of or is approved by most leading equipment manufacturers and utility companies Industry standards: IEC 60296 (2003), Table 2 Transformer Oil (I) (Inhibited oil); Baader oxidation test (obsolete) DIN 57370-1 (1978)
Shell Diala S3 ZXI	Premium inhibited electrical insulating oil	<ul style="list-style-type: none"> ■ Extra performance ■ Meets IEC 60296: high oxidation stability and low sulphur content 	Inhibited	Meets the requirements of or is approved by most leading equipment manufacturers and utility companies Industry standards: IEC 60296 (2003), Table 2 Transformer Oil (I) (Inhibited oil), Section 7.1 ("Higher oxidation stability"); Baader oxidation test (obsolete) DIN 57370-1 (1978)
Shell Diala S2 ZUH	Uninhibited electrical insulating oil	<ul style="list-style-type: none"> ■ Reliable performance ■ Meets IEC 60296 	Uninhibited	Meets the requirements of or is approved by most leading equipment manufacturers and utility companies Industry standards: IEC 60296 (2003), Table 2 Transformer Oil (U) (Uninhibited oil)
Shell Diala S2 ZX-A	Inhibited electrical insulating oil	<ul style="list-style-type: none"> ■ Reliable performance ■ Meets ASTM D3487 Type II 	Inhibited	Meets the requirements of or is approved by most leading equipment manufacturers and utility companies Industry standards: ANSI/ASTM D3487 Type II; NEMA TR-P8-1975
Speciality grades				
Shell Diala Switchgear Oil	Inhibited electrical insulating oil	<ul style="list-style-type: none"> ■ Reliable performance ■ Meets IEC 60296 (switchgear) 	Inhibited	Industry standards: IEC 60296 for low-temperature switchgear oil
Shell Naturelle Transformer Oil S4 I	Advanced synthetic electrical insulating oil	<ul style="list-style-type: none"> ■ Extra performance ■ Meets IEC 61099 T1 	Synthetic ester	Industry standards: IEC 61099 Type T1; European Ecolabel requirements for low-environmental-impact-products; UBA for classification as no hazard to water (NWVG)

COMPREHENSIVE PRODUCT AND SERVICE PROVISION

Shell Lubricants is the number one lubricants supplier (Kline & Company, 2008) and has a 60-year history of innovation. We are constantly investing to develop better lubrication solutions, as demonstrated by

- Shell Turbo GT – a fully synthetic top-tier industrial gas turbine oil
- Shell Mysella XL – for the most-demanding, natural-gas-powered generator sets.

In addition, Shell provides the world-leading Shell LubeAnalyst oil condition monitoring service, which is designed to help you improve your business performance.

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



For more information, please contact

shell.com/lubricants

