



ELOTEC SAVES ON TRANSFORMER MAINTENANCE BY UPGRADING TO SHELL DIALA S3 ZX-I*

TOTAL REPORTED ANNUAL CUSTOMER SAVING

US\$11,382



COMPANY: Elotec TDZ GmbH & Co. KG

COUNTRY: Germany

APPLICATION: Transformers

SAVING: US\$11,382 total reported annual customer saving

KEY EDGE: Shell Diala S3 ZX-I, Shell LubeAnalyst

Elotec TDZ GmbH & Co. KG (Elotec) in Molbergen, Germany, specialises in industrial transformers, which it maintains and services, including overhauling and refilling them.

After filling a maintained transformer, Elotec measures the breakdown voltage (the voltage level at which insulation failure occurs) of the insulating oil. Depending on the results, and when required by its customers, Elotec needs to apply a drying process to the insulating oil to achieve the required breakdown voltage. However, this process was lengthy and delayed servicing projects.

The Shell Lubricants technical team examined the situation and suggested that Elotec should upgrade to Shell Diala S3 ZX-I, a dried insulating oil whose drying time, if any, is shorter than that of a non-dried oil. The lubricant also has a longer service life than the previous Shell Diala D product, which would enable Elotec to offer its customers longer maintenance intervals for their transformers. In addition, the company could use the same lubricant for all transformer applications and avoid stocking different products. Elotec also took advantage of Shell LubeAnalyst, a service that monitors the condition of the oil and equipment.

The company has made savings through having a shorter oil drying time, and enjoys the advantages of scale that come with ordering larger volumes of a single lubricant. These benefits have delivered reported annual savings of US\$11,382.



ITS00013

1

CHALLENGE

Transformer specialist Elotec needed to dry the insulating oil in its customers' transformers to achieve the required breakdown voltage. The drying process was time-consuming and delayed servicing projects. The company also used different lubricants for different applications.

2

SOLUTION

Shell technical experts recommended that the company should upgrade its insulating lubricant to Shell Diala S3 ZX-I and take advantage of the Shell LubeAnalyst oil and equipment condition monitoring service.

3

OUTCOME

Since upgrading to Shell Diala S3 ZX-I, Elotec has reduced the length of its drying process. The company can also use the same lubricant for all transformer applications and avoid stocking different products. The new lubricant has a longer oil-drain interval than the previous one, which enables Elotec to offer a longer maintenance cycle for transformers.

4

VALUE

The reduced oil drying time and the advantages of scale from ordering larger volumes of a single lubricant have delivered reported annual savings of US\$11,382.¹

¹The savings indicated are specific to the calculation date and mentioned site. These calculations may vary from site to site, depending on the application, the operating conditions, the current products being used, the condition of the equipment and the maintenance practices.



SHELL DIALA S3 ZX-I

PREMIUM INHIBITED ELECTRICAL INSULATING OIL

Shell Diala S3 ZX-I is a premium inhibited electrical insulating oil manufactured from specially refined mineral oils with an ultra-low-sulphur content. It offers very high oxidation stability and excellent dielectric and low-temperature properties. Shell Diala S3 ZX-I meets both the established and the new industry copper corrosion tests.

Applications

- Transformers: all power transformer types and applications, for example, generator transformers, shunt reactors and distribution transformers
- Electrical equipment: components such as rectifiers, circuit breakers and switchgears

Performance features and benefits

- Extended oil life: Shell Diala S3 ZX-I is a fully inhibited oil that gives outstanding oxidation performance and extended oil life. It is also suitable for use in highly loaded applications.
- Transformer protection: Shell Diala S3 ZX-I is manufactured from an ultra-low-sulphur base oil, which makes it intrinsically non-corrosive towards copper without passivation. Shell Diala S3 ZX-I passes all the relevant tests for copper corrosion: the established DIN 51353 (silver strip test) and ASTM D1275 tests, and the latest, more-severe IEC 62535 and ASTM D1275B tests.
- System efficiency: The oil's good low-temperature properties help to facilitate proper heat transfer inside the transformer, even at very low start-up temperatures.



Specifications and approvals

IEC 60296 (2003): Table 2 Transformer Oil (I) (Inhibited oil) Section 7.1 (Higher oxidation stability)

Baader oxidation test of (obsolete) DIN 57370-1 (1978)

Complementary products

Equipment	Lubricants
Diesel engine oils	Shell Rimula
Gear oils	Shell Corena
Hydraulic fluids	Shell Tellus