

Specification – Rectifier Oil

Application range

Main field of applications are local main transformers, electric rectifiers and switchgears. The following standards must be fulfilled to use the rectifier oil.

- Class A DIN 57 370 / VDE 0370 Teil 1
- International IEC-Publication 296 (1982)
- english code BS 148

Transformer oil is **Shell Diala S4 ZX-I** or similar uninhibited electrical insulating oil with approvals **IEC 60296**.

It is not advisable to use recycle transformer oil.

Application field:

Main applications include network and local transformers, rectifiers and switchgear.

The following standards must be met to the oil safe to use:

Properties	Method	IEC 60296 Table 2 + section 7.1	Shell Diala S4 ZX-I Typical
Appearance	IEC 60296	Clear, free from sediment and suspended matter	Complies
Density @20°C kg/m ³	ISO 3675	Max. 895	805
Kinematic Viscosity @40°C mm ² /s	ISO 3104	Max. 12	9.6
Kinematic Viscosity @-30°C mm ² /s	ISO 3104	Max. 1 800	382
Flashpoint P.M. °C	ISO 2719	Min. 135	191
Pour Point °C	ISO 3016	Max. -40	-42
Neutralisation value mg KOH/g	IEC 62021-1	Max. 0.01	<0.01
Total Sulphur Content mg/kg	ASTM D5185	Max. 500	<1
Corrosive Sulphur	DIN 51353	Not corrosive	Not corrosive
Potentially Corrosive Sulphur	IEC 62535	Not corrosive	Not corrosive
Corrosive Sulphur	ASTM D1275 B		Not corrosive
Breakdown Voltage Untreated kV	IEC 60156	Min. 30	60
Breakdown Voltage After Treatment kV	IEC 60156	Min. 70	75
Dielectric Dissipation Factor @90°C DDF	IEC 60247	Max 0.005	<0.001
Oxidation Stability 500h / 120°C	IEC 61125 C	Section 7.1 Limits	
Total Acidity mg KOH/g	IEC 61125 C	Max 0.3	0.02
Sludge %m	IEC 61125 C	Max 0.05	<0.01
Dielectric Dissipation Factor (DDF @90°C)	IEC 61125 C	Max 0.05	0.001
Water content (drums and IBC) mg/kg	IEC 60814	Max 40	6
Water content (Bulk) mg/kg	IEC 60814	Max 30	6
2-Furfural and related compounds content mg/kg	IEC 61198	Not detectable	Complies
Metal passivator additives mg/kg	IEC 60666	Not detectable	Complies
Oxidation inhibitor content (DBPC) % mass			0.2
PCA Content % mass	IP346	Max 3	Complies
PCB content mg/kg	IEC 61619	Not detectable	Complies