

## StaSo Transformer Oil I

### Applications:

**StaSo Transformer Oil I** is a high quality, inhibited transformer and insulating oil for transformers of all categories as well as for other electrical equipment such as circuit breakers or tap changers.

**StaSo Transformer Oil I** is based on naphthenic base oils, which are produced by MSR-Technology in Germany.

### Characteristics / Qualifications:

**StaSo Transformer Oil I** meets the general requirements of Table 2 for new mineral insulating oils for transformers and switchgears of the IEC 60296: 2012 and the specific requirements of chapter 7.1 relating to a higher oxidation stability and a low sulfur content.

**StaSo Transformer Oil I** is analytically proved non corrosive and does not contain DBDS, no passivators and no pour point depressants. **StaSo Transformer Oil I** is characterized by a very good low-temperature performance, excellent oxidation stability and gets delivered dried with a very high breakdown voltage.

### Typical Characteristics:

	Unit	Test method	Guaranteed data		Typical data StaSo Transformer Oil I
			IEC 60296, Tab 2 + (7.1)		
		IEC	Min	Max	
<b>1.Function</b>					
Viscosity, 40°C	mm <sup>2</sup> /s	ISO 3104		12,0	9,8
Viscosity, -30°C	mm <sup>2</sup> /s	ISO 3104		1800	800
Pour point	°C	ISO 3016		-40	-50
Water content (drum, IBC)	mg/kg	IEC 60814		40	7
Water content (bulk)	mg/kg	IEC 60814		30	7
Breakdown voltage					
-Before treatment	kV	IEC 60156	30		40-70
-After treatment	kV		70		>75
Density, 20°C	kg/m <sup>3</sup>	ISO 12185		895	870
Dielectric dissipation factor (DDF) at 90°C		IEC 60247		0,005	0,001
Particle counting		IEC 60970			16 / 14 / 10

Provided data are typical of current production, variations in given characteristics may occur, final determination of suitability of the product for the application contemplated by the user is solely their responsibility, for further information contact +49(0)4661-93495-0, info@transformeroil.de or [www.transformeroil.de](http://www.transformeroil.de)

## Technical Data Sheet

	Unit	Test method	Guaranteed data		Typical data
			IEC 60296, Tab 2 + (7.1)		StaSo Transformer oil I
			IEC	Min	Max
<b>2. Refining / stability</b>					
Appearance		IEC 60296	Clear, free from sediment		complies
Acidity	mg KOH/g	IEC 62021		0,01	<0,01
Interfacial tension	mN/m	ISO 6295	40		45
Corrosive sulphur		DIN 51353	non corrosive		non corrosive
Corrosive sulphur		ASTM D 1275 B	non corrosive		non corrosive
Corrosive sulphur		IEC 62535	non corrosive		non corrosive
Total sulphur content	mg/kg	ISO 14596		(500)	400
DBDS		IEC 62697-1		5	not detectable
Inhibitors	Wt %	IEC 60666	0,08	0,40	0,38
	Unit	Test method	Guaranteed data		Typical data
			IEC 60296, Tab 2 + (7.1)		StaSo Transformer oil I
		IEC	Min	Max	
Metal passivator additives	mg/kg	IEC 60666	not detectable		not detectable
- TTAA (metal passivator Irgamet 39®)		IEC 60666		5	not detectable
- TAA (metal passivator Irgamet 30®)		UPLC-MS/MS		5	not detectable
- BTA (metal passivator)		IEC 60666		5	not detectable
- TTA (metal passivator)		IEC 60666		5	not detectable
Pour Point depressant		IEC 60666	not detectable		not detectable
2-Furfural content	mg/kg	IEC 61198		0,05	<0,05
<b>3. Performance</b>					
Oxidation stability					
At 120°C, 500 h					
Total acidity	mg KOH/g	1.9.4. of IEC 61125		1,2 (0,30)	0,04
Sludge	Wt %	1.9.1. of IEC 61125		0,8 (0,05)	<0,02
DDF/90°C		1.9.6. of IEC 61125		0,500 (0,05)	0,020
<b>4. Health, safety and environment (HSE)</b>					
Flash point, PM	°C	ISO 2719	135		145
PCA content	Wt %	IP 346		3	<3
PCB content	Wt %	IEC 61619		2	not detectable
<b>5. Other</b>					
Structural analysis					
- Aromativ hydrocarbons		IEC 60590/ Brandes			9
- Paraffinic hydrocarbons					52
- Naphthenic hydrocarbons					39

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