



# MAKER ELECTRA 3

## Description

Light oil specially recommended for use as an insulating fluid in electrical equipment. It is formulated from highly refined and treated bases that ensure the absence of solid matter, polar compounds and precipitate products at low temperatures. Likewise, the absence of humidity is ensured by means of a rigorous manufacturing and packaging procedure.

It is specially suited for transformers, circuit breakers, rheostats, etc. In general, it can be used in all kinds of electrical devices that need oil bath which acts as a dielectric or cooling agent.

## Properties

- High dielectric power
- Great heat evacuating capacity
- High oxidation stability
- Insignificant dielectric losses (Tg  $\delta$ )
- Absence of dampness and solids in suspension
- Minimal formation of sludge during use
- Low aromatic content
- Totally free of PCBs and PCTs

## Quality levels, approvals and recommendations

- EDF\*
- ENDESA\*
- ABB
- BS 148 Class II
- IEC 60296 type B <<STANDARD GRADE>>
- EDP\*
- SIEMENS: TUN 901293\*
- ASTM D3487 type I
- IBERDROLA
- \*Formal approval

## Technical specifications

	UNIT	METHOD	VALUE
Kinematic viscosity at 40 °C	cSt	ASTM D445	9.98
Kinematic Viscosity at -30 °C	cSt	ASTM D445	925.85
Density at 20 °C	g/mL	ASTM D4052	0.839
Flash point, closed cup	°C	ASTM D93	176
Pour point	°C	ASTM D97	-48
Breakdown voltage, untreated	kV	UNE EN 60156	46
Dielectric loss factor at 90 °C	-	UNE EN 60247	0.00198
Interfacial tension	mN/m	ASTM D971	43
Oxidative stability, 164 h:			
- Total acidity	mg KOH/g	IEC 61125	0.42
- Total sludge	% in weight	IEC 61125	0.05
- Dielectric dissipation factor at 90 °C		IEC 61125	0.120

The above mentioned characteristics are typical values and should not be considered product specifications.