



# MAKER ELECTRA 3X PLUS

## Description

Inhibited dielectric oil for special applications. Formulated with isoparaffinic base stock highly hydrogenated. Recommended for use in electrical equipment when high oxidation resistance and very low sulphur content is required.

## Caution

Any type of contamination (humidity, particles, etc.) can negatively affect the properties of the product. Special attention must be paid to avoid polar contaminants.

## Properties

- Excellent cooling properties
- High oxidation stability and high dielectric breakdown voltage
- High resistance to sludge and deposit formation
- Very low sulphur content

## Quality levels, approvals and recommendations

- ASTM D3487 type II
- IEC 60296 type A <<HIGH GRADE>>

## Technical specifications

	UNIT	METHOD	VALUE
PHYSICAL PROPERTIES:			
Appearance	-	Visual	B & T
Density at 20 °C	g/mL	ISO 12185	0.825
Kinematic viscosity at 40 °C	cSt	ASTM D445	8.74
Kinematic Viscosity at -30 °C	cSt	ASTM D445	457.98
Freezing point	°C	ISO 3016	- 65
CHEMICAL PROPERTIES:			
Acidity index	mg KOH/g	IEC 62021	<0.01
Corrosive sulphur		IEC 62535	Non-corrosive
Total sulphur content	%	ASTM D2622	0.0001
Water content	mg/kg	IEC 60814	9.2
Antioxidant additives	% in weight	IEC 60666	0.3
DBDS	mg/kg	IEC 62697-1	n. d. (< 5)
Furfural content	mg/kg	IEC 61198	<0.05
Stray gassing (Air, Cu): Hydrogen	µL/L	ASTM D7150	3
Stray gassing (Air, Cu): Methane	µL/L	ASTM D7150	2



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	UNIT	METHOD	VALUE
Stray gassing (Air, Cu): Ethane	µL/L	ASTM D7150	3
Oxidative stability, 500 h:			
- Total sludge	% in weight	IEC 61125	<0.01
- Total acidity	mg KOH/g	IEC 61125	0.10
- Soluble acidity	mg KOH/g	IEC 61125	0.08
- Dielectric dissipation factor at 90 °C		IEC 61125	0.0005
DIELECTRICAL PROPERTIES:			
Dielectric Breakdown Voltage (Untreated)	kV	IEC 60156	65
Dielectric Breakdown Voltage (Treated)	kV	IEC 60156	>70
Dielectric loss factor at 90 °C		UNE EN 60247	0.00012
Interfacial tension	mN/m	UNE 21320	54
SAFETY AND ENVIROMENT:			
Flash point, closed cup	°C	ASTM D93	175
PCA content	% in weight	IP 346	Undetectable
PCB content	% in weight	IEC 61619	Undetectable

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