



# SYNTHETIC ESTERS

**TO COMPLEMENT OUR TRANSFORMER SUPPLY, WILSON POWER SOLUTIONS STOCKS A RANGE OF ALTERNATIVE COOLANTS USED TO REPLACE MINERAL OIL IN LIQUID FILLED TRANSFORMERS.**

## WHY SHOULD I USE SYNTHETIC ESTERS?

Synthetic esters are alternative coolants used to replace mineral oil in liquid filled transformers. The main advantages of using synthetic ester instead of mineral oil are higher standards of safety and reduced environmental risks. They have a significantly higher fire point than mineral oil that reduces flammability, are non-hazardous to the environment, fully biodegradable and provide a performance that is comparable to mineral oil.

## WHAT SYNTHETIC ESTERS CAN YOU PROVIDE?

Wilson Power Solutions are able to provide either Synthetic Ester A (SE-A), a high performance coolant selected as our default choice, or Midel 7131, which can be provided upon request. Both coolants are suitable for use in our transformers and provide near-identical performance. They both share high fire points of over 300°C and both are biodegradable, meaning they do not affect the water table. Both SE-A and Midel 7131 meet IEC 61099:2010 regulations and are interchangeable in their safety standards.



- Fully biodegradable
- Non hazardous

- Reduced flammability
- Fire point higher than 300°C

**SEE OVERLEAF FOR FULL TECHNICAL DETAILS**

## COOLANT PERFORMANCE OVERVIEW

DIALECT FLUID	SPECIFICATION	ENVIRONMENTALLY FRIENDLY	FIRE SAFETY	LOW TEMPERATURE CAPABILITY	HIGH T° OXIDATION STABILITY	MOISTURE TOLERANCE
Naphetic Oils	IEC 60296	●	●	●	●	●
Silicone Oils	IEC 60836	●	●	●	●	●
Vegetable Oils	IEC 62770	●	●	●	●	●
Synthetic Ester A (SE-A)	IEC 61099	●	●	●	●	●
Midel 7131	IEC 61099	●	●	●	●	●

## COMPARISON OF COOLANT CHARACTERISTICS

MEASUREMENT	UNIT	IEC 61099	MINERAL OIL	SE-A	MIDEL 7131
Appearance	-	Clear, free from water and suspended matter and sediment	Clear	Clear	Clear
Colour	Hazen	Max 200	0.5	50	125
Density at 20°C	kg/dm <sup>3</sup>	Max. 1	0.88	0.969	0.97
Kinetic Viscosity:	mm <sup>2</sup> /2				
At 40°C		Max. 35	8.7	27.2	29
At -20°C		Max. 3000	70	1150	1440
Pour Point	°C	Max. -45	-50	-60	-56
Flash Point	°C	Min. 250	150	266	260
Fire Point	°C	Min. 300	170	310	316
Water Content	mg/kg	Max. 200	10	30	50
Acid Value	Mg KOH/g	Max. 0.03	<0.01	0.01	<0.03
Oxidation stability –					
Total Acid	Mg KOH/g	Max. 0.3	1.2	0.04	0.02
Total Deposit/Sludge	%	Max. 0.01	0.8	0.002	<0.01
Breakdown voltage	kV	Min. 45	>70	80	>75
Dielectric dissipation factor 90°C and 50Hz	-	Max 0.03	<0.001	0.006	<0.008
Biodegradability, 28 days	%	70	N/A	84	89