

CASE STUDY

[MIDEL®]
SAFETY INSIDE

PROJECT: Cold start 420kV transformer | Germany

ESTER TYPE: MIDEL eN 1204 natural ester (rapeseed/canola)

PURPOSE: To demonstrate robust cold start capability

[OVERVIEW]

German transmission system operator TransnetBW tasked leading OEM Siemens with supplying a power transformer featuring two critical elements; namely, the transformer was to be filled with natural ester fluid rather than mineral oil. In addition, the transformer had to demonstrate robust cold start capability.

A supplemental requirement was for the natural ester fluid to be made from European-grown crops.

Siemens was already familiar with the characteristics of natural ester transformer fluids, specifically those made from soya and rapeseed crops, having used soya-based ester fluid in a power transformer unit in 2014.

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CASE STUDY



[SITUATION]

The transformer manufacturer independently acknowledged the superior cold weather performance of rapeseed ester fluid with its pour point of -31°C. This critical performance factor made soya ester unsuitable as a fluid option, and prompted the choice of MIDEL eN 1204 rapeseed-based fluid.

In addition to this performance advantage, the use of rapeseed ester MIDEL eN 1204 satisfied the local authority's mandate for the transformer materials to be locally sourced – MIDEL's aggregated source for the rapeseed being central Europe. Using MIDEL eN 1204 also supports sustainable land use, as the yield per hectare for rapeseed is greater than for soya. The transformer for TransnetBW used over 100 tonnes of MIDEL fluid.

[RESULT]

The use of MIDEL eN 1204 in the TransnetBW unit reflects the growing uptake at this level of EHV transformers. Leading utilities such as Con Ed and National Grid are also producing greener transformers by using MIDEL ester transformer fluids.

MIDEL eN 1204 delivered clear benefits in this project; the fluid has a high fire point (K class fluid = >300°C fire point) and is readily/fully biodegradable. Its superior performance over soybean natural ester fluid was a critical factor for the customer, enabling the transformer to withstand cold starts after any periods of outage downtime.

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“The innovative cold start technology in this transformer demonstrates Siemens’ expertise in combining industry leading innovations with eco-friendly solutions for the benefits of our customers and society.”

Dr. Beatrix Natter, CEO
Siemens Energy Transmission

The use of MIDEL ester fluids in this project supports the following UN Sustainable Development Goals:

