

CASE STUDY



PROJECT: Timber sawmill transformer | Canada

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

PURPOSE: Upgrade safety and performance

[OVERVIEW]

The Canadian province of Saskatchewan is home to the country's largest First Nations-owned sawmill. The lumber operation produces spruce, pine and fir stud lumber for markets in Canada, the United States and overseas.

The site comprises a sawmill with three log breakdown lines, a wood yard, and four dry kilns. The mill's production capacity is currently in excess of 140 million board feet of lumber annually. The sawmill company has a strong commitment to the environment, sustainably managing 1.8 million hectares of boreal forest.

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CASE STUDY

[SITUATION]

As a sawmill, NorSask's future insurance eligibility required fire and blast mitigation strategies in its transformer substation. NorSask faced considerable challenges - the sawmill contains 6-12 inches of dry sawdust buildup in the substation and throughout the area of operations, meaning a fire safety option was a top priority. The absence of blast or fire barrier structures also dictated a need for a fire-safe transformer insulating fluid.

NorSask needed to install a new transformer and retrofill an existing transformer - both units rated 72kV. When the time came to complete a lifecycle extension, NorSask chose MIDELEn 1204, a renewable, canola-based natural ester as the optimal insulating fluid. NorSask contracted with Dynamo Electric, a MIDELEn Service Partner, to perform the retrofill operation.

[RESULT]

The benefits of switching to MIDELEn 1204 included the fluid's low pour point of -31°C, which meant it could still operate at the cold temperatures typical of the Saskatchewan province.

As a K-class fluid, its high fire point (greater than 350°C) greatly increased fire safety for the NorSask transformers and reduced the need for fire protection equipment. These characteristics are in sharp contrast to legacy insulating fluids like mineral oil that has a much lower fire point of 170°C.

Finally, MIDELEn 1204 appealed to NorSask for its environmentally friendly nature - it is both sustainably sourced and readily biodegradable.

NorSask was able to complete the retrofilling project within 3 business days, resulting in greatly increased fire safety and a more environmentally friendly footprint by using MIDELEn 1204.

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“Retrofilling transformers with a fire-safe fluid was a top priority for NorSask’s 2020 remodel of its sawmill facility. MIDELEn 1204 delivered a cost-effective solution that assured fire safety and environmental protection for the lumber mill’s transformers.”

Anthony Coker,
Senior VP, MIDELEn Americas

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

