

# CASE STUDY



**PROJECT:** Mining transformers retrofill | Australia

**ESTER TYPE:** MIDEL 7131 synthetic ester

**PURPOSE:** Improve fire safety for underground operations

## [ OVERVIEW ]

One of the world's largest natural resource companies in Australia includes in its portfolio copper mining and processing operations in North Queensland. It is one of Australia's largest industrial complexes extracting both copper and zinc-lead-silver, and contributing \$1 billion to Queensland's economy annually.

With over 3,000 workers operating in one of the world's most expansive network of underground mines, as well as being Australia's deepest underground copper mine at 1,900 m, safety at this location is paramount.

Note: insurance companies, such as FM Global, acknowledge that all transformers are at risk of failure, which can result in fire or environmental damage, and can adversely affect business continuity (a critical factor in the mining sector). They regularly advise their clients to retrofill mineral oil transformers with ester fluids, such as MIDEL.



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## [ SITUATION ]

Committed to mine safety as part of a risk mitigation programme, the company identified mineral oil-filled transformers below ground at its copper mine as a potential fire risk. The transformers were flagged for further investigation.

The mining company invited the MIDEL team on-site to present options for reducing the risk posed by the transformers, and opted to refill the first transformer using MIDEL's 7131 biodegradable, synthetic transformer fluid.

MIDEL 7131 is a K-class insulating fluid with a high fire point (316°C) and offers unrivaled fire safety benefits, particularly for sites with enclosed spaces where smoke can be more deadly than the fire itself. By refilling with a synthetic transformer fluid, the fire risk posed by the transformers was almost entirely eliminated.

## [ RESULT ]

The benefits of switching to MIDEL's synthetic ester include what the mine's superintendent termed a 'vast improvement' in transformer fire safety, which means new units require no concrete fire walls.

Transformers can also be placed closer together, creating substantial substation space savings.

Additional operational benefits include improved moisture tolerance compared with that of mineral oil, which keeps the insulating paper in a better condition for longer and thus helps to extend transformer asset life. As MIDEL fluid is also fully oxygen stable, maintenance crews can handle it in exactly the same way as mineral oil.

Producers looking to improve their license to operate can also leverage the environmental and sustainability benefits of synthetic ester, as it is fully biodegradable.

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“Physically moving the transformer would be very costly and disruptive, so refilling with an oxygen-stable fluid gave our customer great peace of mind.”

David Sowden,  
Business Development Manager, MIDEL ANZ

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

