

Oil Leak Repair on a Transformer Using Belzona Surface-Tolerant System

ID: 10298

Industry: Power
Application: VPF-Valves, Pipes and Fittings
Substrate: Carbon steel
Products: Belzona 1161 (Super UW-Metal), Belzona 5831 (ST-Barrier)

Customer Location: New South Wales, Australia
Application Date: April 2026

Problem

An energy distributor in New South Wales, Australia reported oil leaking on the transformers in a substation.

These transformers cannot be replaced due to cost and operational constraints.

The ongoing leaks pose environmental, safety, and reliability risks, creating a need for a durable in-situ repair solution that can perform effectively on oil-contaminated surfaces.



The scaffold has been erected around the transformer



The transformer was drained and high-pressure hot washed prior to the applicators' arrival.



Abrasive blasting carried out on areas requiring repairs



Complete application with Belzona 5831 (ST-Barrier) as a protective coating

Application Situation

The leaking transformers required a repair solution that could be applied directly to oil-contaminated surfaces, where residual oil on the substrate made conventional repair materials unsuitable due to poor adhesion.

The combination of Belzona 1161 (Super UW-Metal) and Belzona 5831 (ST-Barrier) was proposed as a solution. Belzona 1161 (UW-metal) was selected because it can bond to oil-contaminated substrates, enabling reliable repairs without extensive surface decontamination. Belzona 5831 (ST-Barrier) was then applied to provide long-term protection as it is formulated specifically for areas where water and oil contamination cannot be effectively removed.

Application Method

1. The transformer was drained, scaffolded, and high-pressure hot washed prior to the applicators' arrival.
2. Abrasive blasting was carried out on the main transformer lid, flange, and bolts, as well as the three individual lids, including their flanges and bolts.
3. The prepared areas were prewashed with FP29 Safe Solvent.
4. All bolts (top and bottom) were sealed using Belzona 1161 (Super UW-Metal).
5. After an overnight cure, the Belzona 1161 (Super UW-Metal) was whip/frost blasted.

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FS 695214
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6. The following day, the main flange was sealed using Belzona 1161 (Super UW-Metal) reinforced with Belzona 9341 Reinforcement Sheet.
7. Belzona 5831 (ST-Barrier) was then applied as a coating to complete the protective system.
8. The repair system was left to cure for 48 hours before the transformer was returned to service.

Belzona Facts

A key advantage of Belzona's surface-tolerant systems is their ability to bond to oil-contaminated surfaces where thorough surface preparation is not possible. This made them the ideal choice for sealing the transformer leaks without extensive cleaning or dismantling. The fast application minimised downtime while providing a durable repair, helping to avoid the higher cost of replacing the aging transformer.

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