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LINING UNDERNEATH POWER

TRANSFORMERS

TECHNICAL PROBLEMS

A break in a transformer seal will cause coolant liquid to flow or spurt out. This dielectric cooling liquid (PCB or other) can then penetrate the floor and the ground underneath. From there, it can pollute the soil and the water table, where it will accumulate (it isn't biodegradable).

In the event of a serious incident (overheating, the transformer bursting and catching fire), PCB may be decomposed by the heat and generate toxic gases (dioxin type gases), which pose a real threat to the environment. For this reason, the room in which the transformers are kept must be properly confined, and an effective gas seal must be in place. If this is the case, then the gases will only be able to flow out through the extraction ducts, being released into zones where they pose less of a risk to people and the environment.

SOUPLETHANE TECHNIQUE

Creating a retention tank which uses the entire floor surface in a transformer room allows to:

- contain the dielectric liquid and avoid, if the collection basin is protected, any liquid seeping through the floor. The liquid can then be recovered and destroyed in a suitable treatment centre. The retention tank can then be decontaminated.

- the large surface area of the floor ensures that all the oil splashed or projected by an explosion can be contained. The benefits:

 SOUPLETHANE offers very high resistance to PCB (tested by ALSTHOM, Unelec, EDF)

• SOUPLETHANE is not porous and will not be chemically altered by PCB, ensuring that the coating can be fully and completely decontaminated.

• In the event of an accident with PCB flowing out of the transformer, it may create the conditions required for the concrete substrate to crack. A sudden thermal shock caused by contact by hot PCB (often greater than 100°C) on roomtemperature concrete will cause the concrete to crack.

• A test conducted by the Bridges and Roads Laboratory (simulating a thermal shock at more than 140°C, with hot bitumen poured on SOUPLETHANE to test the seal for bridges) demonstrated that the seal provided by SOUPLETHANE remained unaffected by heat and remained able to bridge concrete cracks of up to 2mm wide.

• SOUPLETHANE is highly resistant to mechanical shocks and impacts, allowing to replace the transformer with no danger to the floor coating.

If it becomes damaged for any reason, it can easily be repaired.

Anticorrosion



SPECIFICATION

• The containment tank itself: the tank can be formed by the construction of a low breeze-block wall, which would form the perimeter of the retention basin.

These breeze-blocks must be glued to the floor and to each other with SOUPLETHANE (a waterproof adhesive). The support must first be brushed, sanded or screeded if necessary.

The corners must be rounded off using glass fabric glued with SOUPLETHANE.

Cable pathways can be treated in the following way: cables should be sealed with SOUPLETHANE PUTTY

Gutters:

lay plywood on the gutters

• cover the plywood/concrete joint in fabric. If an intervention in the gutter is required, cut through the seal with a strong blade. The seal must then be reconstituted using the same technique: by covering the substrate with glass fabric.

• use a roller to apply SOUPLETHANE on all the surfaces, in a layer no thinner than 1.5mm (in two coats).

TESTS AND CERTIFICATIONS

• Bridges and Roads Laboratory: bridging cracks up to 2mm wide and thermal shocks.

- CEA: decontaminability = 99 % PV n° 860611
- CSTB: fire resistance category Bfl-S1

WORK REFERENCES

- EDF Lyon: installed by EDF
- EDF Vienne: installed by the Gabriel Company in Bollen
- EDF Nice: installed by SAPS
- DOT: Grenoble, Paris, Lille etc.