



CLEAN OIL
BRIGHT IDEAS

Transformer Oil

Alstom Transformer 60 MVA, Power Supply, Railway

CJC™ Application Study

Application Study
written by:

Roland Bouzon
C.C.JENSEN France
France

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CUSTOMER

SNCF for RFF (RFF is the French Railway owner), high speed line Paris / London. Power supply for 80 km lines.

SYSTEM

Alstom Transformer, 60 MVA, 250kV/25kV, outdoor installation.
Oil volume: 24 m³ of Diala B dried.

PROBLEM

The transformer oil contained too much moisture, which reduces oil and transformer life vastly. The oil was dried, but the dielectric resistance became dangerous again a few months after degassing. Further testing shows that the paper insulation on the windings had high water content. It became necessary to either find a way to recover the compliant dielectric resistance for a longer period of time or be forced to redo the copper windings and complete paper insulation.

SOLUTION

A CJC™ Fine Filter HDU 427/108 MZ 32-4 with 16 x CJC™ ANK 27/27 inserts was installed, circulating 1,920 l/h of oil, suction point at the lowest point of the bulk. The oil filter operates continuously while the transformer is on load. The treatment was set to run 18 months in order to give the CJC™ ANK Filter Inserts time to absorb the moisture from the oil and thus draw the moisture out of the insulating paper.

RESULT

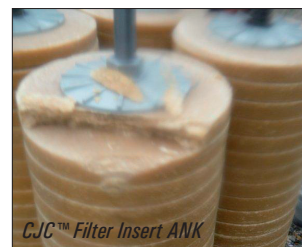
All the time, during the treatment, the dielectric resistance remained > 70 kV and the moisture in the oil < 10 ppm. The treatment ended after 18 months and the CJC™ Oil Filter was unplugged. Five months later, the dielectric resistance was still > 70kV and the moisture in oil stayed < 10 ppm. The treatment was a success!

CONCLUSION

The laboratory results show evidence of the deep treatment achievement: The insulation paper on the windings in the transformer bulk has been dried. The time given to balance the water from the insulating paper surface to the oil and then absorbed from the oil to the CJC™ Filter Insert ANK is long. However, this technology is neutral for the oil, and from the very beginning the conditions are compliant with a safe use.

BENEFITS

The benefit from this long-duration treatment under load was that the costs of redoing the windings were avoided. Finally, as this technology leaves the gas in the oil, the customer can monitor the lifetime extension of the transformer with accuracy.



RESULT

