

WHY IS FILTERALL REGENERATION TECHNOLOGY BETTER?

Oil Regeneration is an important part of regular transformer preventative maintenance. Oil regeneration is better than oil purification, filter processing or retrofilling because it removes dissolved gases and oxidation by-products from both the oil and the cellulose insulation systems.

As oil ages in a transformer, it oxidises and begins to break down. Some of the by-products of this degradation are acids, aldehydes and peroxides. These bind together and form sludge. Sludge attacks the chemical bonds which hold the cellulose insulation together (measured by degree of polymerisation).

When the oil's acid neutralisation number is as low as 0,5 the cellulose insulation is being weakened. Since the cellulose insulation in a transformer can only be replaced at great cost involving a rewind and demanding loss of production of the transformer in question, it makes sense to remove the oxidation by-products before they can do any damage to the cellulose. Since any degradation of the cellulose that occurs can not be reversed, it is best to remove the oxidation by-products as quickly as possible.

Since **the life of the transformer** is the life of the cellulose insulation, you must intervene at an early stage in the oil degradation process. Oil purification methods do not remove the oxidation by-products associated with transformer oil ageing. Only oil regeneration methods are capable of removing the sludges found in aged transformer oil and in cellulose insulation found in the transformer.

Oil regeneration is typically done by passing oxidised transformer oil through absorptive beds of Fullers Earth. Fullers Earth is purified clay that does a very effective job of removing polar contaminants and other oxidation by-products from the transformer oil.

Filterall Regeneration process offers many advantages over traditional regeneration systems. With the old methods, the Fullers Earth beds must be removed and replaced with new Fullers Earth when the beds become saturated and no longer active. With the Filterall process the Fullers Earth beds remain in the unit were they are **reactivated** when their efficiency is reduced. This allows the Fullers Earth to be reused some 300 cycles before replacement need be considered.

This makes transformer oil regeneration very attractive both commercially and practically since it eliminates the need and costs associated with the removal and disposal of spent and contaminated Fullers Earth. Environmental issues make heavy demands on the user if he needs to dispose of oil soaked Fullers Earth.

The Filterall process also reduces oil losses during processing and greatly reduces associated costs of replacement oil.

The special Fullers Earth used in the Filterall process also reduces oil-processing time by offering greater moisture and contaminates absorption and eliminating further processing as required by the old traditional regeneration methods.

To summarise:

- ..The Filterall process is available as a mobile facility and can operate on energised transformers.
- ..The Fullers Earth is permanently installed in the plant..
- ..The plant is fully automatic and suitable for unattended operation.
- ..The plant is controlled and supervised by computer to offer the highest standard of safety and reliability.