TRANSFORMER DIELECTRIC FLUIDS MAINTENANCE.

Transformer dielectric fluids have two essential functions:

- To provide electrical isolation.
- To make possible the evacuation of the heat caused by the core and winding losses.

While the transformer is operating, dielectric fluids suffer strain and stress which cause long and medium term damages to their insulating and/or cooling properties.

When this happens, breakdown risk increases.

Intense electric fields and heating originate this stress.

Providing a suitable ventilation to transformers and not exceding the specified load conditions, are the best measures to slow down fluid deterioration.

Nevertheless, progressive deterioration is inevitable, so periodic monitoring of the state of dielectric fluids is imperative.

S.T.&M.'s laboratory performs appropriate analysis to determine the state of these fluids and to make the recommendations, as preventive maintenance routine and as a demand of our clients.

In spite of good practices in the use of transformers, the deterioration of fluid properties is evident as time passes, and it is clear that incipient deteriorations can be easily corrected.

If important damages, still reparable, are resulting from lack of control; the necessary repairs will be more serious and certainly costlier.

First levels of deterioration correspond to the presence of gases, humidity and particles in fluids. In this case, the solution is filtering and desgasification.

Besides, this process, performed in vacuum, also dehydrates dielectric fluids.

When deterioration resulting from fluid oxidation is more severe, it is necessary to recover the initial properties by **regeneration**, applying a Diatomaceous Earth-based treatment.

All byproducts produced during oxidation adheres to Diatomaceous Earth filters by adsorption.

The procedure is completed by similar **reconditioning** methods.

It should be noted that S.T.&M. performs both treatments on any power operating transformers, while they remain in service, so the impact on production processes is insignificant.