

Transformer Dryouts & Oil Processing

Dryer Transformers = Longer Asset Life



Waukesha Service is ready to respond when your transformer is ready for oil or needs to be dried out. And we can handle not just Waukesha® units, but also those of most other transformer suppliers worldwide. From draining, storing, vacuum degasifying, dehydrating and reclaiming oil to pulling vacuum on a transformer, Waukesha Service has the equipment and personnel you can trust with one of your most important assets!

TRANSFORMER INSULATION DRYOUTS

A variety of factors can cause higher than normal amounts of water to condense in a transformer's paper insulation. Over time, this excess moisture can cause transformer failure.

About 99% of water in a transformer is held in the paper, very little in the oil. Paper (cellulose) insulation is made up of long chains of hydrocarbon molecules. Water, acid and oxygen can cause these chains to break into shorter chains (paper degradation) with less tensile strength. When paper degrades, water becomes a by-product as do furanic compounds—higher furanic content in oil indicates greater degree of paper aging/degradation. The higher the moisture content in paper, the faster it degrades. The faster it degrades, the more water is generated. As this process repeats, the aging rate of the paper insulation greatly increases.

Elevated temperatures due to higher ambients and higher loads also act as a catalyst to accelerate the rate of paper degradation caused by water and oxygen. At higher temperatures, water comes out of paper insulation and can form visible bubbles, often in high dielectric stress areas. These bubbles have less dielectric strength than the oil, leading to higher stress on the remaining oil gap which can cause a higher probability of failure.

Dryer transformers have longer insulation life (all else being equal) which means longer asset life. And dryer transformers have less risk of dielectric failure during periods of high temperatures which means lower SAIFI and SAIDI.

Waukesha Service has the equipment and experience to test for high moisture content and dry out the transformer if necessary.

**Contact Us for Additional Information or to
Schedule Your Oil Processing or Dryout Project:**

call 800-758-4384

visit www.WaukeshaService.com



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OIL PROCESSING

Waukesha's oil processing rigs can vacuum degasify and get new oil ready for installation, pull vacuum on a transformer and complete the vacuum oil-filling process using customer specifications, the transformer supplier's specifications or Waukesha specifications.

Waukesha's 13 vacuum processing rigs located throughout the United States possess characteristics other service providers may not offer:

- Totally Self-Contained Rigs
- 350 KW Generator with 490 Gallons of Fuel Storage
- Air-Conditioned Control Room for Instrumentation and Operators
- Oil Processing Capability at Rates up to 2400 Gallons/Hour
- Ability to De-Gas Oil to Less than 1% Total Dissolved Gas
- Beyond Standard Vacuum Level, Flow Rate and Temperature Monitoring, the Majority of Waukesha Equipment includes On-Line Process Instrumentation that Measures Content of Oil, Dewpoint of Vacuum Exhaust and Total Gas Content
- 96–190 KW of Heater Capacity Capable of Elevating Oil Temperature to 70 Degrees C in a Single Pass at Rated Flow Rate
- Inlet Oil Filtered at 10 Microns; Outlet Oil Filtered at 0.5 Microns
- High Vacuum Capability with Two 171 SCFM Vacuum Pumps and One 1449 SCFM Booster

Complementary to the vacuum processing rigs, Waukesha oil tank trucks are available for on-site oil storage or hauling.

ADDITIONAL SERVICES

In addition to oil processing and dryouts, Waukesha Electric Systems possesses the equipment, experience and capabilities to complete other repairs and/or upgrades you may elect to perform on your transformers while drained of oil. These services include regasketing, bushing replacements, LTC repairs/upgrades and internal inspections. Our highly trained technicians located nationwide offer years of industry experience and an outstanding field service record for professional handling of your service needs.

Emergency Service Available 24/7/365: 888-365-24X7

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