



RESA Service, LLC

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RESA Service, LLC Transformer Oil Testing Laboratory conducts all analytical tests in accordance with ASTM Standard Test Procedures and diagnostic recommendations are based on IEEE Standard Guidelines.

Dissolved Gas Analysis (ASTM D3612C) – Dissolved Gas Analysis is to determine if the insulating fluid in transformer and electrical equipment is operating normal to fault conditions including thermal and/or electrical faults. Different gasses will dissolve in the fluid that will indicate types of thermal and electrical faults occurring within the equipment.

Moisture Test (ASTM D1533B) – Moisture test is measurement of water content in insulating fluid which can affect dielectric strength.

Interfacial Tension (IFT) Test (ASTM D971) – IFT is a measurement of impurities in the transformer insulating fluid including presence of polar contaminants ie, paints and varnishes and also oxidation by-products.

Acid Test (ASTM D974) – Acid test measures the content of acids formed in insulating fluid by oxidation process. Temperature, atmospheric gases and other contaminants can produce acidic compounds and to formation of sludge.

Color Test (ASTM D1500) – Monitoring the color level of the insulating fluid. Noticeable darkening of the fluid indicates contamination and fluid deterioration.

Visual Examination Test (ASTM D1524) – Visual appearance of an insulating fluid is to determine transparency and identify contaminants. Contamination of the fluid is exhibited by poor transparency, cloudiness and or observation of sediment matters.

Dielectric Breakdown Test (ASTM D1816) & (ASTM D877) – Dielectric breakdown is measurement of the voltage at which the insulating fluid begins to conduct. Low dielectric breakdown voltage is an indicative of the amount of contaminant, usually moisture and foreign matters in insulating fluid.

Specific Gravity Test (ASTM D1298) – Specific Gravity determines the density, relative density of insulating fluid by use of hydrometer at a reference temperature (room temp). High specific gravity indicates the oil's ability to suspend in water.

Power Factor Test (ASTM D924) –Power Factor measures dielectric losses in an electrical insulating liquid when used in an alternating electrical field and of the energy dissipated as heat. Low power factor indicates low ac dielectric losses.



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Oxidation Inhibitor Test (ASTM D2668) – Oxidation inhibitor measures the amount of inhibitor content/preservative remaining after oxidation has reduced its concentration in service aged fluid. Inhibitors in insulating fluid will increase the service life of the fluid.

Furan Test (ASTM D5837) – Furanic compounds are generated by degradation of cellulosic material used in solid insulation system used in electrical equipment. High concentrations of or unusual increase in the concentrations of furanic compounds in oil may indicate cellulose degradation from aging.

Metals Test (ASTM D5185M) – Metals test method covers rapid determination of elements in used and unused insulating fluid in electrical equipment. Dissolved metals could originate from overheating or arcing and a portion of the particulate metals that may have originated from mechanical wear.

Corrosive Sulfur Test (ASTM D1275) – Corrosive Sulfur test method describes the detection of corrosive sulfur compounds in transformer insulating fluid. Sulfur compounds may cause corrosion under certain condition of use and this method is designed to detect corrosive sulfur compounds by subjecting copper or silver to contact with insulating liquid under certain conditions.

Resistivity Test (ASTM D1169) – Resistivity test method covers determination of specific resistance applied to electrical insulating fluid. A low resistivity indicates a high content of free ions and ion-forming particles in the insulating fluids.

Particle Count Test (ASTM D6786) – Particle Count method covers the determination particle concentration and particle size distribution in electrical equipment insulation fluids. RESA reports particle sizes in 6 different particle ranges in microns.

Flash and Fire Point Test (ASTM D92) – Flash and Fire Point test method measures the minimum temperature at which the heated insulating fluid will produce enough vapor to form a flammable condition in air.

Viscosity Test (ASTM D445) – Viscosity test of insulating fluid is very important for the estimation of optimal usage in electrical equipment. Different climate regions will need to consider using proper type of insulating fluid with optimal fluid viscosity.

PCB Test (EPA 8082) – Method describes a quantitative determination of the concentration of Polychlorinated biphenyl (PCB) in electrical equipment insulating fluids. PCB is measured in parts per million (ppm).