



BETA LABORATORY is strongly positioned to supply superior analytical results for your Insulating Oil, Lubricating Oil and Fuel Oil samples. As a provider to fossil, nuclear and alternative fuel generating facilities as well as industrial and commercial businesses, we deliver accurate results in accordance with ASTM Standards, driven by stringent ISO 9001 and nuclear quality control programs. Analyses are performed by highly qualified individuals in strict accordance with procedures. Quality Assurance is regularly demonstrated through proficiency testing. Your samples, analyzed in accordance with all quality program requirements, will provide you with information upon which you can make confident decisions.

Nuclear Safety Related and Commercial Dedication Analyses

BETA Laboratory has a nuclear quality program in accordance with 10CFR50, Appendix B and is qualified to respond to all your safety related or commercial dedication analytical needs on a routine or expedited basis.

Analysis Methods

- Inductively Coupled Plasma Spectrometry (ICP)
- Fourier Transform Infrared Analysis (FTIR)
- Elemental Analysis using Scanning Electron Microscopy (SEM)
- Optical Microscopy
- Inductively Coupled Plasma Mass Spectrometry (ICP-MS)

Lubricating Oil & Grease

To ensure the health of your components, our Lubricating Oil & Grease Laboratory delivers a wide range of analytical capabilities to provide the foundation for predictive maintenance programs that contribute to equipment reliability excellence. We partner with our customers to deliver timely results and consultation from our highly experienced staff.

Lube Oil & Grease Analysis

- Metals Analysis (Spectrographic)
 - ASTM D6595
- Wear Particle Count Ferrography Direct Read
- Viscosity - ASTM D445
- Acid Number - ASTM D664
- Base Number - ASTM D4739
- Particle Count - ISO 4406
- Karl Fischer Moisture - ASTM D6304
- Cone Penetration - ASTM D217
- Dropping Point - ASTM D556
- Compatibility Testing - ASTM D6185
- Other tests available

Insulating Oil

Regular oil analysis is tremendously useful in monitoring the condition of engines, turbines and other lubricated equipment. The same is true for oils used to insulate transformers and other electrical distribution equipment. The analysis of insulating oils provides information about the oil quality and enables the detection of other possible equipment problems.

Dissolved Gas Analysis (DGA)

By quantifying nine key dissolved gases in insulating oil, DGA is a key method to detect signs of incipient faults, early failure, or degradation of materials used in high voltage equipment. BETA Laboratory employs state-of-the-art head space gas chromatography in accordance with ASTM D3612, Method C. Each analysis provides not only the individual gas concentrations, but a report that includes total combustibles, total gas concentration, historical data, interpretation in accordance with IEEE Standards and recommendations.

Insulating Oil Quality

By measuring the physical and chemical properties of insulating oil, a number of problem conditions associated with the oil can be determined. BETA Laboratory offers a comprehensive Insulating Oil Quality Analysis package to determine the condition of your insulating fluids.

Insulating Oil Analysis:

- Interfacial Tension (IFT) - ASTM D2285
- Dielectric Strength - ASTM D877/D1816
- Moisture Analysis (Karl Fischer) - ASTM D6304/D1533
- Neutralization Number - ASTM D664/D974
- Specific Gravity - ASTM D1298
- Color - ASTM D1500
- PCB Content - ASTM D4059
- Dissolved Gas Analysis (GC) - ASTM D3612 Method C
Nine dissolved gases in oil plus:
 - PPM of each gas
 - Historical data
 - Total combustibles
 - Total gas
 - Recommendation

Fuel

BETA Laboratory's 10CFR50 App. B Quality Program has placed us in the position for successful monitoring of Emergency Diesel Generator fuel for the Nuclear Industry. Your fuel oil analytical needs will benefit from the Quality Control/Quality Assurance applied to meet this high standard. BETA's Fuel Laboratory provides routine analytical testing as well as custom analyses.

Fuel Oil Analysis

- Copper Strip Corrosion - ASTM D130
- Distillation - ASTM D86
- Cetane Number - ASTM D976
- Flash Point - ASTM D93
- Cloud Point - ASTM D2500
- Specific Gravity - ASTM D1298
- Micro Carbon Residue - ASTM D4530
- Sulfur (X-Ray Fluorescence) - ASTM D4294
- Ash Content - ASTM D482
- Water & Sediment - ASTM D1796

Additional Testing includes – Filter examination, preparation, debris analysis (SEM, Optical Microscopy, FTIR) Biofuel, Coal and Other Fuels, Biodiesel Detection and Quantification (0.01 % quantification level) FTIR analysis of oxidation products and sludges.