Fluid Testing Capabilities

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Staveley Services Fluids Analysis supplies comprehensive testing services for lubricants, fuels, coolants, and metalworking fluids through its laboratory network in the United States and Canada. In business since 1961, Staveley is part of the ALS Laboratory Group, a diversified and highly successful analytical organization with 105 laboratories in more than 41 countries serving a broad spectrum of industries.

Lubricant Analysis

There are several reasons routine oil analysis should be performed, one of which is to ensure that lubricants meet the specifications required by the original equipment manufacturer (OEM). Systems with large intervals between oil changes should be checked for lubricant serviceability to determine if oils are contaminated or have lost their ability to perform at acceptable levels. The wear condition is also assessed to provide maintenance personnel with information they need to maintain equipment availability.

Routine analysis as well as more in-depth testing is available from Staveley Services. In addition to many other testing measures, the company can provide over 100 ASTM test procedures. Lubricant testing varies from such basic analysis as viscosity, spectrochemical, particle count, water, and acid or base numbers to more advanced testing such as analytical ferrography, rotating pressure vessel oxidation tests (RPVOT), varnish potential, and water separability. *The following are commonly requested test procedures:

- Acid number
- Ash content or sulfated residue
- Base number
- Blending compatibility
- Flash and fire point
- Foaming 1, 2, & 3
- Infrared spectroscopy
- Fuel dilution
- Fuel soot
- Spectrochemical
- ISO particle count
- Pour point
- Rust test
- Sulfur
- Viscosity
- Water concentration
- Analytical ferrography
- Direct reading ferrography
- Wear debris analysis
- RPVOT
- Water separability
- Varnish potential

Fuel Analysis

In recent years, fuels have undergone a transformation. Ultra low sulfur diesel and biodiesel fuels have been introduced and, in some cases, legislatively mandated. Knowing the conditions of these fuels is imperative to maintaining optimal performance and equipment reliability.

Staveley Services can test and quantify the sulfur in your fuel to make sure it meets the Ultra Low Sulfur Diesel (ULSD) standards. This testing is currently required for all over-the-road diesel fuels and by 2010 will be required for all diesel fuels. Determining the biodiesel blend percentage (e.g., B11) is routine, as is determining the fuel’s characteristics at low temperature.

Our diesel fuel service packages include specification and contamination testing as
well as winter performance examination. Also available is a comprehensive long-term storage test package that includes accelerated stability with response testing. *Additional diesel fuel test procedures include:

- Ash content
- Bacteria test
- Btu calculation per lb or gal
- Carbon residue
- Cetane index
- Cloud point
- Cold filter plugging point
- Copper strip corrosion
- Distillation, boil points
- Spectrochemical
- Particulate contamination
- Pour point
- Sulfur
- Ultra low sulfur
- Water & sediment in fuel oils

Coolant Analysis

Engine coolants and coolant testing have become more critical as exhaust gas recirculation (EGR) engines are placing increasingly more stress on the cooling systems to meet environmental mandates. This stress includes higher engine operating temperatures and more heat transfer components that challenge coolant formulations. With the increased use of organic additive technology (OAT), analytical testing of antifreeze coolants (aka Extended Life Coolants, ELC) for organic additive depletion has also been challenged – until now. The Staveley Services Technical Resource R&D team has recently developed methodology for very rapid high performance liquid chromatography (HPLC) qualitative and quantitative OAT testing to determine if the ELC coolant additive package is sufficiently robust for continued service or if it requires an extender boost – and this testing is affordable.

Coolant testing monitors the condition of the cooling system to ensure proper operation. Early detection of potential problems allows you to better determine when additives are needed in order to maintain necessary corrosion protection levels. Laboratory coolant testing removes all the uncertainty, and regular testing allows you to closely monitor your system for optimal performance.

*Staveley Services offers the following test capabilities for conventional, hybrid and organic coolants:

- Boiling point
- Specific gravity
- Freezing point
- Nitrates
- Chlorides
- Nitrites
- Sulfates
- Phosphates
- pH
- Percent glycol
- Total dissolved solids
- Water concentration
- Corrosion metals
- Organic additive percent
  (cumulative or individually)
“Quality test results are important, but being able to quickly view and use the data is where online reports and other data mining tools allow maintenance personnel and other employees to quickly identify problems and take action to maintain reliability.”

Metal Working Fluid Analysis
Contaminated and degraded metalworking fluid can cause serious health, environmental, tooling, and product quality problems. Manufacturers and users of metalworking fluids are faced with the challenges of maintaining a healthy environment for workers and reducing the amount of waste to be treated while maintaining product quality at a reasonable cost. Properly maintained metalworking systems will prolong the fluid’s life and optimize the performance of the fluid and the tool.

Knowing the condition of your fluid is an important factor in maintaining product quality and extending tool life. The right combination of testing will supply you valuable information to help maintain the highest level of fluid performance and long fluid life. Our testing capabilities include:

- Alkalinity
- Total oil/tramp oil determination
- Chloride
- Cobalt measurement
- Conductivity
- Dirt level
- Fatty acids
- pH
- Microbial count
- Rust test (cast iron chips)
- Quaternary biocide (NH4+)
- Refractometer
- Water hardness
- BZT and TTZ quantity
- Acid number
- Quench time
- Chlorine
- Copper corrosion
- Spectrochemical

نوال: Flash point (COC)
- Sediment in quench solutions
- Specific gravity/API gravity
- Sulfonate content
- Sulfur
- Viscosity
- Volatile Organic Content (VOC)

Web-Based Reporting & Management Tools
Quality test results are important, but being able to quickly view and use the data is where online reports and other data mining tools allow maintenance personnel and other employees to quickly identify problems and take action to maintain reliability. “Some features of Praxis™, our web-based data management system include:

- Quick and easy sample searches
- Condition history
- Sample summary
- Delinquent samples
- Fluid age and condition
- Component watch
- Transit time
- Advanced queries
- Condition analysis
- Equipment comparison
- Statistical analysis

*NOTE: These are not comprehensive lists of the services available. Staveley laboratories offer many more testing and analytical procedures to serve your needs.

Conclusion
Staveley Services Fluids Analysis offers extensive fluids testing and analysis across North America. All laboratories follow stringent, documented quality assurance procedures, and select locations are accredited to ISO17025 standards.

Staveley has eight laboratories in North America. Six labs are in the U.S. (Atlanta, Georgia; Cleveland, Ohio; Kansas City, Kansas; Phoenix, Arizona; Portland, Oregon; and Reno, Nevada), and two are in Canada (Burlington, Ontario, and Edmonton, Alberta). Visit our website at www.staveleyfa.com to learn more about the various services Staveley offers or email us at info.staveley-na.com to discuss your specific needs.