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DATA SHEET 53007

Trust Affirma lubricant analysis

Benefits

- **Streamlined data collection:** with three sampling options the system adapts to your analysis needs
- **Guided methods, minimal training:** graphical interface that steps you through sample analysis to ensure compliance with industry standard methods for answers you can trust
- **Low-cost of ownership:** unmatched combination of warranty, service and technical support worldwide ensure years of worry-free system operation

Affirma iS5 In-service Lubricant Analysis System-Horizontal Transmission

You need reliable data to make critical decisions—fast. Building on our 30 years of experience in developing infrared spectrometers for used oil monitoring, we created the Thermo Scientific™ Affirma™ In-service Lubricant Analysis System to provide a comprehensive FTIR-based, condition monitoring solution.

Our combination of user-friendly hardware and software provides accurate answers to ensure confidence in your results. Whether you manufacture lubricants, manage fleets of vehicles or provide contract lubricant testing services, rely on Affirma analysis to confirm the status of your equipment and lubricants.

Why perform lubricant analysis using infrared spectroscopy?

A vital tool for minimizing machinery downtime and extending drain intervals is the analysis of lubricants used to run the machinery. Like a blood test in medical diagnostics, regular testing of in-service lubricating fluids provides useful data that informs actions and decisions. As a key component of predictive maintenance, an effective lubricant analysis program helps machinery owners detect potential failures early to prevent costly mechanical damage. At the same time, routine lubricant analysis can help save money by allowing lubricants to be changed less frequently.

Multiple analytical techniques are used to evaluate critical lubricant and mechanical system parameters. These methods are part of a lubricant condition monitoring program to alert users when there is a potential problem (e.g., breakdown, contamination) that could lead to a mechanical failure. Infrared spectroscopy is a rapid test that gives detailed chemical information about the lubricant, which allows users to identify the source of potential mechanical failures (Table 1). In addition, FTIR spectrometers can be used as a general tool for material identification and verification for product development and quality control.

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Table 1. Problems identified with FTIR-based in-service lubricant monitoring.

Lubricant Problem	Infrared Measurement	Out-of-Range Consequences
Additive Depletion	Phosphate anti-wear (combustion)	May result in increased wear
	Phenolic antioxidant (turbine, electrical)	Accelerated oxidation
Breakdown	Oxidation, nitration, sulfation	Decreased lubricity leads to potential damage to metal surfaces
Contamination	Water, glycol, fuel	Possible mechanical problem
	Soot (diesel only)	May lead to clogged filters or excess wear

Methods you know, software you will love

The Affirma in-service lubricant analyzer provides turnkey operation and delivers the results you expect based on industry-standard methods including: ASTM D2668, D7412, D7414, D7415, D7418, D7624, E2412; JOAP; DIN 51452, DIN 51453. Powered by push-button Thermo Scientific™ OMNIC™ Schema Software, the Affirma system provides ready-to-use solutions for monitoring in-service lubricants with:

- **Minimal training:** modern, easy-to-use graphical interface allows even operators with little experience to measure samples
- **Easy set-up:** complete quick-start guides and on-screen instructions step you through installation and operation in minutes
- **Automated reporting and connectivity:** method-specific reports are quickly generated, and results can be printed or sent directly to your LIMS or to colleagues

Be confident in Affirma results to make critical decisions that affect your budget and your operations.

Examples of Affirma guided analysis workflows

Sampling options

Combine the market-leading Thermo Scientific™ Nicolet™ iS5 or Nicolet iS10 FTIR Spectrometer with a liquid sampling accessory, guided graphical workflow software and industry-standard methods to create a complete in-service lubricant analysis system. Three sampling options are available that allow you to choose the configuration best suited to your sample processing needs (Table 2).

Table 2. Affirma sampling configurations.

Affirma FTIR Spectrometer System	Horizontal Transmission	Flow-Through Transmission	Horizontal Attenuated Total Reflectance (HATR)
Nicolet iS5 Spectrometer			
Nicolet iS10 Spectrometer			

Find out more at **thermofisher.com/affirma**

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