

7 Steps for Establishing an Effective Oil Analysis Program



1. Determine Your Primary Objectives

Oil analysis can be applied to equipment and lubricant utilization, maintenance and management.

Utilization

- Decrease unscheduled downtime
- Increase overall component lifespan
- Control lube consumption and oil disposal costs
- Assist product selection, comparison and verification

Maintenance

- Identify and measure lube contamination along with component wear for targeted corrective action
- Reduce in-service failures and field repairs
- Establish proper lubricant service intervals

Management

- Improve reliability, product quality and productivity
- Improve cost control for equipment, labor and materials
- Eliminate needless inspections or repairs
- Control spares and replacement costs

2. Carefully Consider Your Best Choice for an Oil Analysis Provider

Your oil analysis laboratory must be equipped to help you achieve the primary goals and objectives of your testing program. The laboratories you consider should:

- Be well-established, well-equipped and staffed with well-trained, experienced technicians and data analysts that can be available to address your questions
- Meet the requirements of ISO 17025 – the quality standard for testing and calibration laboratories
- Provide 24-hour turnaround time for routine test results
- Provide test reports with clear, actionable maintenance recommendations
- Offer a full range of data management tools for sample submission, printing labels, report retrieval, equipment management, trend graphing and results communication

3. Build a Strong Program Foundation Before Testing Begins

Providing as much relevant, accurate machine information to the laboratory is imperative for receiving quality, in-depth analysis of the test data. Laying the proper groundwork dramatically increases the value of an oil analysis program.

- Identify all critical units to be tested
- Collect and provide the laboratory with all relevant unit identification information
- Determine sampling points and sampling intervals
- Confirm test packages
- Train all maintenance personnel involved in program implementation

4. Establish Consistent Oil Analysis Baseline Information

Initial equipment registration is easily accomplished by furnishing the laboratory with a consolidated equipment list based on a thorough survey of the machines and systems you intend to sample or by completing an individual registration form the first time each unit is sampled. The following sample information and operating data should always be provided:

- Unit identification (serial number or company ID)
- Unit make, model & manufacturer
- Component identification
- Time since new or last overhaul
- Time since oil was changed
- Oil type
- Oil consumption or make-up oil (oil added)
- Sump capacity

5. Understand the Laboratory's Data Interpretation and Maintenance Recommendations

Sample severity assessments are relative and are assigned using both trend analysis and condemning limits. In the trend analysis of wear elements, threshold values are developed to identify the boundary areas between normal and abnormal results.

For wear metals, these threshold values vary for different types of components, but are usually specific and consistent for each individual model of a given application. The values do not provide sharp lines of "normal/abnormal" interpretations. Instead, they indicate ranges of increased likelihood that a problem has developed to a particular point.

- Ask for clarification of the test results or data analysis if you don't understand them
- Familiarize yourself with the laboratory's severity levels so that you know which units you can continue to monitor and which units need immediate maintenance attention
- Establish alarm limits specific to your equipment needs, if necessary
- Act on maintenance recommendations in a timely manner

6. Provide the Laboratory with Feedback

The accuracy of interpretation guidelines is verified by comparing the laboratory's maintenance recommendations with actual conditions confirmed by inspection and data interpretations are continually refined by practical experience. Client feedback can be noted on the sample information form or recorded in the laboratory's data management system. The following information is helpful:

- Abnormal lubricant or component conditions that you suspect are present
- The findings of any inspection performed as a result of oil analysis program recommendations
- The discovery of abnormal machine conditions that were not previously indicated by oil analysis
- Notification of servicing and/or maintenance performed
- Information concerning operating environment or equipment application changes

7. Measure Program Cost Effectiveness

Routine oil analysis can achieve substantial savings in maintenance and repair costs by detecting small problems before they develop into serious or catastrophic maintenance events. Many of the economic savings from oil analysis can be calculated by comparing:

- Parts and labor expenses for component repair, overhaul or replacement
- Losses in revenue during downtime
- Reductions in consumable items, such as lubricants or fuels
- Increases in productivity levels