



The Importance of an Effective Oil Analysis Program

In order to reduce changeover intervals and extend the life of your equipment, implement an oil analysis program, which is a great benchmark to evaluate your lubricant's effectiveness.

■ By Tyler Kuchta

Many factors come into play when you're evaluating lubricant options for your fleet, including: quality, intended application or use, performance, oil life and price. However, there's another very important factor that's often overlooked—how to evaluate lubricant effectiveness once it's in use.

We'll take a deep dive into the importance of an oil analysis program, and highlight best practices that you can apply as you establish your program. If you already have an oil analysis program in place, these best practices are a great benchmark to ensure your program is primed for success.

Benefits of an Oil Analysis Program

Choosing a quality lubricant that meets your needs and is well-suited for your application is essential. However, that is really just the beginning of your journey. By enrolling in an oil analysis program you can expect:

- A detailed breakdown of the lubricant's performance
- More value out of your oil investment
- Maximum performance from your lubricant and your parts
- A proactive program instead of a reactive emergency

- Fewer repairs and equipment downtime
- Potential costs savings

Oil analysis offers a snapshot into how your machinery is operating at a given time. It also allows you to compare samples from previous tests so that you can make necessary adjustments to keep your equipment operating at peak performance and to plan for maintenance in advance.

When you have thousands of parts moving fast and working hard for you, keeping them running smoothly with the right lubricant is smart business. By knowing the condition of the oil in your system and how it is performing, you can adjust changeover intervals as necessary. Oil that is in good condition and working properly can be kept in the system longer, reducing replacement costs.

What is Oil Analysis?

At its most basic, oil analysis is the laboratory analysis of a lubricant's properties, suspended contaminants and wear debris. This analysis is performed by capturing oil samples during routine predictive maintenance in order to provide meaningful and accurate information on lubricant and machine



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condition. By tracking oil analysis sample results over the life of a particular machine, trends can be established which could help extend equipment life and eliminate costly repairs.

Who Performs Oil Analysis?

There is a wide range of oil analysis practices ranging from standardized and routine sampling to ad hoc sampling to performing no analysis whatsoever. Those who are very familiar with the sampling process may have a degree of difficulty analyzing the data because what appears to be straightforward can be very complex. For this reason, data is best analyzed by lubrication engineers and tribologists, who specialize in studying the lubrication and the effect of wear of machinery.

Best Practices for Developing an Effective Oil Analysis Program

Not all oil analysis programs are created equal. Approach your oil analysis the same way you would a business partnership.

Proactive Oil Analysis on A Regular and Consistent Basis

Let's face it—you have bigger things to worry about than the cleanliness of your lubricant, and with all the EPA mandates and regulations, your plate is overflowing. As you evaluate your oil analysis partner, choose one that's going to lead the charge (so you don't have to). They should develop a clear plan of how often (monthly, quarterly) and at what intervals your lubricant should be sampled, as well as provide sampling instructions and information on where to send your sample. You should expect them to remind you of testing needs and deadlines for sample collections, and once a sample is analyzed, to communicate the results and offer recommendations to ensure lubricant optimization.

Use Independent Laboratories for Oil Testing And Analysis

Some oil manufacturers use third-party (or independent) labs to perform their analysis while other manufacturers offer in-house analysis services. Seek out a manufacturer that uses an independent lab. For starters, the lab doesn't have a vested interest in the results, so you have better authenticity with a third party. Secondly, you get results at the same time as the manufacturer, which means quicker access to your results.

Request an In-depth Analysis

You want a manufacturer that serves as a consultant rather than a vendor. The report is very important, but the interpretation from an oil expert plus a corrective action plan is really what you're seeking. You want an industry expert that's actively engaged in analyzing and communicating the results in a way that you understand. Ask to see a sample analysis and make sure it tests for the following:

- **Viscosity @ 40°C and 100°C**—shows that the fluid has stayed in grade
- **Total Acid Number**—shows and monitors useful life of fluid
- **Water**—shows water contamination
- **Elemental Content**—shows petroleum contamination and additive content and wear element
- **Particle Count**—shows particle and dirt contamination within the oil and if filters need to be changed

Look for comprehensive reports that offer a deeper level of analysis in these categories. Lastly, expect reports that provide an overview of the results—including any recommendations to ensure lubricant and machinery optimization.

Don't Be Afraid To Ask About Costs

Oil analysis is a great tool, and if it prevents equipment breakdown and purchasing replacement parts, then it is even more valuable. But how much does oil analysis cost and can we afford it? Great question. The costs can vary from manufacturer to manufacturer and laboratory to laboratory. Some manufacturers offer low-cost or no-cost oil analysis as a value-added service to their customers. With this in mind, there is no reason not to start this type of program. It will allow you to gain important data from your fleet and your program and can save you a great deal of money with minimal investment.

Use the Data

The return on investment in your oil analysis program is directly proportional to the actions taken based on the oil sample results. Failing to take appropriate maintenance actions when the oil sample clearly indicates a situation that requires a correction reduces the ROI of your lubrication program.

Most sample report recommendations are straightforward and designed to consider the cost versus benefit ratio of the maintenance action. Before carrying out a sample report recommendation, ensure that it is practical and cost-effective. It's important to ensure that your maintenance staff understands the requirements and responsibilities and has the authority and support to carry out recommendations. Where it appears significant changes are needed, consult with the analyst to discuss the recommendation and potential alternatives.

Where to Start?

If you are not already doing proactive and detailed oil analysis, the best way to start down that path is to contact your lubricant vendor to determine how they can help and what they might recommend. Some work closely with customers to set up programs unique to their needs and can continue to make recommendations based on regular results.

Benjamin Franklin once said, "An ounce of prevention is worth a pound of cure." The same rings true when it comes to equipment lubrication. Preventative maintenance is less expensive than replacing parts and having your equipment out of commission. Approach your oil analysis like you would a business partnership, and find someone that is just as invested in your success as you are. Lubrication specialists are the experts in the lubricant industry. Let them do their job so you can focus on what's really important—keeping your fleet running and your business profitable. | **WA**

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