



By Tom Glenn

# The Power of Oil Analysis

Jobbers World would like to take this opportunity to welcome Mark Minges as a contributing writer. As you will see from the bio in his column on page 9, he has extensive experience in the lubricants industry and in the use of oil analysis for predictive and preventive maintenance. In addition to this experience, he draws from the experience of his company, Polaris, which is one of the leading independent oil analysis laboratories in the business. We are confident the information and insights presented in his column will be of high value to lubricant marketers and will assist them to better serve their customers.

As you may know, oil analysis is a subject near and dear to my heart. This is because I got my start in the lubricants business back in 1979 working for an oil analysis laboratory as a data analyst, and eventually a laboratory manager. It was at an oil analysis

laboratory that I learned about the practical use of inductively coupled plasma spectrometers, gas chromatographs, infrared spectrometers, viscometers, titrators, cold crank simulators, particle counters, and other analytical test equipment. It was while working at a laboratory that I learned about the chemistry of base stocks, detergents and dispersants, extreme pressure and antiwear additives, antioxidants, antifoam, and other performance additives. In addition, my work in an oil analysis laboratory also taught me about the metallurgy, wear patterns, and lubrication requirements of 3208 Cats, 6V92TA Detroit Diesels, MT730 Allison transmissions, EMDs and head end power units on locomotives, Eaton differentials, Pratt & Whitney gas turbines, Vickers and Denison hydraulic pumps, Dunham Bush reciprocating

hermetic seal refrigeration compressors, and virtually every other type of mechanical system requiring lubrication. And most importantly, work at an oil analysis laboratory taught me about the importance of customer service, rapidly responding to end-user needs and inquiries, and yes, even how to deal with very angry clients that want to know why the engine in their \$50 million dragline just “cratered.”

Oil analysis certainly teaches one a good deal about the lubricants business, tribology, and how to communicate with equipment maintenance managers. And for those fortunate enough to enter the world of lubricant sales with a background in oil analysis, they know it can be an incredibly valuable selling tool. Although there are many examples of how oil analysis can sell, the first that comes to my mind concerns an plastic injection molding company I called on

when I was selling lubricants for a marketer back in the mid 1980s. The prospect was a very large plant with rows of Nissei injection molding machines stretching across a cavernous factory floor. The maintenance manager called us in because he needed some NLGI 000 grease for an automatic oiler on only one of his machines. This certainly was not a big order. In fact, we actually met his volume needs by requesting a sample from our supplier.

### ***Now for the part about oil analysis.***

In speaking with the maintenance manager, he mentioned that he was a relatively new in the position and his predecessor was let go because the company was not pleased with the downtime it had experienced over the past two years. The new maintenance manager went on to say that he had been charged with reducing downtime and would certainly welcome any thoughts our company might have to help. In an effort to get a sense for how we might assist, I suggested we randomly sample oil from 12 units. The samples were sent to an independent testing laboratory; when the result came back it was clear they had a problem. To start, although all the machines tested were the same make and model, the oil in each machine sampled was very different. The test results indicated that the lubricant

in use in several machines was a mixture of at least two types—and one type was likely engine oil. In addition to the results showing the presence of a relatively high concentration of calcium sulfonate detergent and ZDP, the lubricant also had a significant level of molybdenum. Again, however, none of the lubricants were the same; some were close to what they should be and others were nowhere close to specs in terms of viscosity and/or additives. A second issue apparent from the results was that the oil in several of the units appeared to be operating with a high level of silicon. Although it was certainly possible that the silicon was related to an overtreat of antifoam, the high level of wear in these units indicated by iron and copper in the spectrographic analysis suggested the source was more likely dust and dirt (abrasives). And finally, two of the units that had what appeared to be the appropriate lubricant for the application had Total Acid Numbers well above an acceptable level.

Rather than sending the reports to the customer or reviewing the results over the phone, we met to go over the finding. Part of this review included a primer on oil analysis, additives, viscometrics, and wear. Whereas the maintenance manager certainly understood the primer and valued the comments about TAN, abrasives, and viscosity, he was particularly interested

in hearing more about there being a mixture of lubricants in his machines. As a result, more time was spent educating him on the function classes of additives, their chemistries, and what a typical additive package looks like. In fact, I also showed him the spectrographic analysis for a typical lubricant considered appropriate for use in a Nissei injection molding machine of his type. Although the data supporting the variability of the lubricant in his machines was certainly compelling, the turning point in the conversation occurred when I simply said, “What this all means is that you have a witch’s brew of lubricants in your machines.” On that note he picked up the phone, had a chat with the VP, came back, and asked me to replace the oil in every machine in the factory. That was one big step in the right direction for the end user and one big sale for the distributor. Granted, today that account is likely on a major’s paper because it’s been dubbed a national account, but back then the distributor was very pleased, to say the least. And it’s very unlikely that sale would have happened without the use of oil analysis.

So keep an eye on Mark Minges column. Write to Jobbers World with question and issues you would like to see him address. Because oil analysis is a very powerful selling tool. It gets customers and helps you keep them.



**Mark Minges**  
Chief Operating Officer  
POLARIS Laboratories, LLC

## Make Friends and Influence Customers The Power of Selling Oil Analysis

Oil analysis can turn the average marketer into a solutions provider – a provider interested in identifying and solving problems, maximizing efficiency and saving the customer money. It's a competitive edge for the marketer who believes information and knowledge increases sales and it gives you a whole lot more to talk about than the price of today's almighty gallon. But most of your customers won't even know it exists if you don't communicate its benefits.

Customers buy from people they like – people they trust to have the best products at competitive prices. And successful salespeople have figured out that building customer relationships based on trust and respect increases sales. Customers are more likely to buy when they believe the salesperson truly has the customer's best interests in mind – when that salesperson comes to the table prepared to offer solutions to problems and advice on improving operations.

As a marketer, you also want your products foremost in a customer's mind 24-7. You want more face time. You want

to sell more oil. Oil analysis has the power to do all of this – **if** you know how to sell it. Consider the following scenarios.

**Scenario #1:** John Smith is using a medium-quality diesel engine oil and thinks he can save money by extending drain intervals. To prevent potential failure and avoid compromising equipment life, you caution him to investigate first by suggesting oil analysis. The test results confirm your reservations - the customer's current product doesn't have the base number or additive package to safely allow an extension.

Of the 10 samples randomly taken from the fleet, 3 have a TBN of less than 2 and two of these units are not scheduled for oil changes until they rack up another 3,000 miles. Adding to concerns about extending drain intervals is the fact that four of the units due for oil changes within the next 30 days already have soot levels above an acceptable level. Based on this and other data, rather than extending drain intervals, the results point to the contrary. The customer may need to reduce the time between drains if it plans to

continue using medium quality oil.

Armed with these facts, a marketer is now in an excellent position to sell credible solutions to this fleet operator by offering a higher quality engine oil that can handle the desired extension. And rather than simply telling the customer this product will do the trick, the marketer once again sets up a field test on the new product whereby oil analysis sells rather than the tells the quality story. Now, you're no longer "the salesman." You're a valuable resource for managing maintenance costs – a solutions provider focused on saving the customer money.

**Scenario #2:** Dave White has been sampling his trucking fleet for just a few months but isn't convinced the cost of oil analysis is justified. You notice that one of Dave's recent oil analysis reports identified a significant coolant leak. Fortunately for Dave although the unit clearly has a coolant leak, it appears to be a very recent event since the levels of copper, lead and tin in the oil suggest only limited bearing wear. In bringing the

report to Dave's attention, he tells you he did in fact respond to the laboratory's recommendations by performing a leak down test, which ultimately indicated a need to replace the head gasket. The problem was quickly corrected. Great news because that tells you he's using the data he's paying for.

But the value-focused salesperson goes one step further by crediting oil analysis with a major save. And a quick comparison of replacement costs versus the price of the analysis easily justifies maintaining a testing program – yet another benefit you've brought to the table. A \$10-\$15 test package saves the customer thousands of dollars in unnecessary maintenance, replacement costs and downtime and you walk away with the credit and the credibility of being a solutions provider instead of simply just another salesman peddling oil.

Most customers won't deny that they would much rather identify a problem when its small and pay for something as simple as replacing a head gasket than do away with oil analysis and risk having to pay for a much larger repair or replacement which, in the above scenario, would have been failed main/rod bearings, possibly the crankshaft and eventually total catastrophic failure due to lubrication starvation had the coolant leak gone undetected. Coolant causes a chemical reaction in engine oil that drastically increases viscosity, which plugs lube galleys and prevents lubricant from reaching bearings, bushings, shafts and other sensitive components. Eventually, excessive friction will cause the

engine to overheat and seize.

Effectively communicating the benefits of oil analysis, and even more importantly, the consequences of excluding it from everyday maintenance practices, can mean as much as an 18:1 return on a customer's investment in testing.

For example, oil analysis saves one of our larger fleet customers an average of 1 in every 10 of the 9,000 components they sample. That means oil analysis is responsible for preventing somewhere in the neighborhood of 900 failures annually. At an average component repair, replacement and downtime cost of around \$6,000 each, the fleet's \$300,000 testing program translates to a savings of about \$5.4 million in replacement and/or repair costs – or an ROI of 18:1.

Don't ever hesitate to ask your laboratory for help in setting up an oil analysis program focused on meeting a customer's maintenance goals. Work with the laboratory to hone your problem solving skills. Become a solution's provider. The benefits realized will forever be tied to you - the marketer – not the laboratory.

Oil analysis also presents numerous opportunities for both conversion and consolidation. What better way to convince customers to try your products than by using oil analysis to compare them to others. Monitoring wear, contamination and additive performance establishes product quality and adds credibility to the sale.

Oil analysis can determine whether or not a single lubricant can be used across multiple units.

Strengthening customer buying power through consolidation has incredible benefits. Purchasing in bulk earns the customer bigger discounts. It reduces his storage and disposal costs. And the possibility of lube mixing or topping off with the wrong lubricant – which can be staggeringly expensive to correct in some applications – is significantly lower. Bottom line - lube consolidation eliminates waste, improves efficiency and means less pay out by the customer. And sales go up.

Communicating the benefits of oil analysis and educating the customer on how to use it to affect change in his daily maintenance practices provides a solution for reducing costs and puts money back in the customer's pocket. It places you, their lubricant supplier, in the role of business partner and it tells your customers you care about more than just getting the order – and it sells oil.

*Mark Minges has been involved in oil analysis for over 27 years. His experience ranges from owning and operating a small fleet of Class-A trucks to repairing and maintaining off-shore drilling platforms in the Gulf of Mexico.*

*Minges began his career with POLARIS as Vice-president of Sales and Marketing, moving to Chief Operating Officer three years ago to capitalize on his strengths as a data analyst and technical consultant. He's conducted laboratory testing, sold testing services and now works with OEM's and design engineers to continually improve POLARIS' auto-commenting, flagging and severity limits.*

*Minges is a member of the Society of Tribologists and Lubrication Engineers (STLE), the American Society of Mechanical Engineers (ASME), as well as the Technical Maintenance Council (TMC). More information is available at [www.polarislabs.com](http://www.polarislabs.com) or contact Mark directly at [mminges@polarislabs.com](mailto:mminges@polarislabs.com).*