Sampling, Analyzing, Cleaning, Flushing & Filling

A field TAN (Total Acid Number) test can be a quick first alert that your lubricant may be beginning to oxidize and degrade. A dropper full of oil is all that is required to affect a change in the color of the chemical in the test vile indicating whether the oil is still viable or should be replaced.

In addition to field testing, lab analysis of oil samples provides much more detailed information including the precise Total Acid Number, the presence of water or other contaminants, changes in viscosity and whether trace elements are present that can indicate machine wear or other problems. Regular sampling and data analysis provide trend information that may be helpful in establishing oil change intervals, forecasting machine life and avoiding failures.

A Total Acid Number that is 2.0 points above that of new oil indicates that the oil needs to be changed. Elevated TAN may be accompanied by the formation of varnish or sludge deposits on the machine's internal components (rotary screws, bearings etc.). If the oil is replaced at this TAN level, cleaning will be helpful but flushing may not be immediately necessary. However, for higher TAN results, flushing should be performed to avoid contaminating new oil.

Example:

A sample compressor has an oil capacity of 50 liters (13.2 gallons), and the lab reports the TAN for the used oil in it is 6.0. When the oil is drained there will be a residual amount of the old oil left in the machine. This can be as much as 10% of capacity in many machines. If the oil is just drained and re-filled, there will be approximately 5 liters of old oil that has a TAN of 6.0 mixing with the 45 liters of new oil that has a TAN of approximately 0.2. The mixture of new and old oil now have a TAN of 2.4. The new oil is condemnable as soon as it is installed. The acidic residual oil contaminates the fresh fill. This contamination can be avoided.

Recommended Procedure:

- 1. Perform a Field TAN Test.
- 2. If the results indicate an oil change, *collect a* full oil sample to send to the lab for analysis prior to draining the oil (lab turn-around time is usually a matter of a few days).
- 3. If the lab analysis indicates a TAN of 6.0 as in the example above:
 - Drain one gallon of oil and replace it with one gallon of VRS-LSC Varnish Remover and Lubrication System Cleaner.
 - Allow the machine to run in normal service for 20 30 hours
 - Drain while the oil is warm and replace filters.
 - Re-fill with Pan American Lubricants SYSTEM FLUSH
 - Run the machine for 15 minutes with no load and drain while the oil is warm.
 - Change filters again and refill with fresh Pan American Lubricant of the appropriate type and viscosity.

3. Monitor and continue to perform periodic field TAN tests and collect full samples for lab analysis at scheduled intervals.











