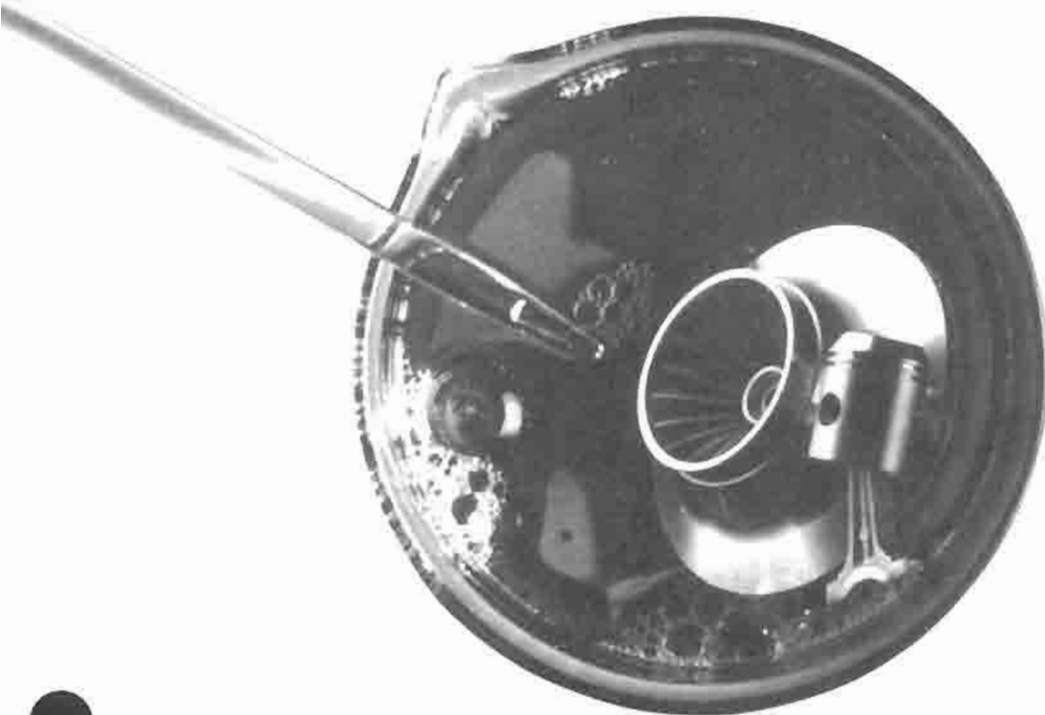


Why YORK® Oil Analysis Is The Best Diagnostic Window Into Your Chiller's Condition



Regular laboratory analysis of your chiller's oil is an invaluable aid in assessing its internal condition. Oil analysis can allow you to "peek" inside your chiller without the inconvenience and expense of a diagnostic teardown. And YORK makes it inexpensive, quick, and easy.

Analysis reveals the presence and extent of rust-causing moisture, harmful acids, corrosion products, and metal particles indicating abnormal mechanical wear. It can even pinpoint potential causes of problems, making remedies easier to accomplish. Conditions can be corrected before they become expensive to repair.

Oil analysis gives you peace of mind, by assuring you that your chiller is operating at peak efficiency.

YORK Comprehensive Analysis

YORK oil analysis is comprehensive, combining YORK chiller expertise with evaluation methods best suited to meaningful results. We'll report not only on the condition of the oil, but also what that condition means to your chiller – any chiller from any manufacturer.



The Chem Lab Oil Sample Kit contains everything you need to sample your chiller's oil and send it to YORK for analysis.

Tests include appearance, color, moisture content, acidity, and sediment analysis. The tests are performed and interpreted by YORK professionals, chiller experts who specialize in refrigeration system chemical analysis.

Wet Chemical Analysis for Comprehensive Results

Commonly used spectrographic analysis can only identify the chemical elements found in the oil. It cannot distinguish between compounds and elements, between normally occurring corrosion products such as metal oxides and wear-indicating metal particles. Nor can it measure organic substances, such as oil breakdown deposits, waxes, and plastics. In short, spectroscopy gives only partial analysis – useful but not comprehensive.

That's why YORK uses wet chemical analysis, microscopy, and scanning electron microscopy in addition to spectroscopy. The resulting ability to distinguish between compounds and elements gives a much clearer picture of your chiller's condition. The difference between aluminum compounds and elemental aluminum, for example, can be the difference between normal corrosion and abnormal parts wear. Interpreted by a skilled YORK technician, analysis results can allow better recommendations to increase the reliability of your chiller system.

Comprehensive Reports

After analysis, YORK provides you with a meaningful report based on your chiller and its history and operating requirements.

The comprehensive report includes:

System Information

1 System Manufacturer and Model:

The type of chiller system you're using, so results reflect its special requirements.

2 Oil and Refrigerant Type:

Analysis takes into account the characteristics of the oil and refrigerant used.

3 Service History:

Are there any unusual past conditions that could affect analysis? Factors such as chiller age, dates of last filter and oil changes, and recent repairs should be factored into the analysis.

Analysis Results

4 Appearance:

A skilled technician can assess conditions through color difference and presence of sediments.

5 Color:

Comparison to the Gardner Color Standard evaluates oil condition. Atypical or dark colors may indicate oil breakdown or abnormal machine operating conditions.

6 Moisture Content:

This test, measuring moisture in parts per million, can identify possible leaks in the system.

7 Total Acid Number:

This test measures levels of corrosive acids.

8 Oil Filter Sediment:

The YORK Sample Kit includes leak-resistant packaging for

an oil filter. After all, a good oil filter, doing its job, traps debris from your system.

YORK can identify the kinds of sediment present on the filter element, including the important distinction between compounds and elements.

System Evaluation

9 Comments and Recommendations:

Finally, YORK will evaluate the results and, if necessary, suggest corrective action for any abnormal conditions. Suggestions might include changes in operating routine and

maintenance or tear-down and inspection of chiller components.

Results Individualized to Your Chiller

Test results are reported clearly and comprehensively, including comments and recommendations from YORK individualized for your chiller. To make evaluation meaningful, your results are compared to maximum recommended values as well as typical values for new oil.

YORK Oil Analysis – the clearest window for diagnosing your chiller's condition. It's worth looking into.

YORK CHEMICAL AND METALLURGICAL LABORATORY			
YORK INTERNATIONAL CORPORATION			
OIL ANALYSIS RESULTS			
TO:	York District Service Manager	DATE:	01/01/XX
INSTALLATION:	XYZ Building	JOB #:	123-45678
SYSTEM MODEL:	Any Chiller	MODEL:	XYZ-123 S/N: ABC01234
OIL TYPE:	Any Refrigerant Oil	DATE OF LAST OIL CHANGE:	1 Year Ago
REFRIGERANT TYPE:	R-12	DATE OF LAST OIL FILTER CHANGE:	1 Year Ago
SERVICE HISTORY:	1200 hours of operation on this oil change. Serviced annually. Inspected monthly.		
	<u>ANALYSIS RESULTS</u>	<u>MAXIMUM LIMITS</u>	<u>TYPICAL NEW OIL</u>
APPEARANCE -----	amber, clear	N/A	Lt. amber, clear
COLOR, GARDNER SCALE ----	15	14	4
MOISTURE CONTENT, ppm ---	73	100	<25
TOTAL ACID NUMBER (TAN) -	0.05	0.12	0.01
SEDIMENT -----	Trace	N/A	None
OIL FILTER -----	Filter is clean but contains some black colored flakes of iron and copper corrosion products.		
COMMENTS AND RECOMMENDATIONS:			
This oil's color exceeds the recommended maximum. AN OIL CHANGE IS RECOMMENDED. Moisture content and TAN are satisfactorily low. The sediment on the filter is the result of corrosion within the machine. CHANGE FILTER AS NECESSARY.			

