

# System analysis



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► This service monitors hydraulic, circulating, gear and compressor oils for premature wear, contamination and oil condition

## Description

System analysis can help you optimize your lubrication program and detect equipment problems before they cause expensive outages. This analysis is applicable for hydraulic systems, gear drives, compressors and circulating systems.

Precision hydraulic systems depend on system cleanliness and lubricant deposit control to operate at peak efficiency. Elite hydraulic analysis includes advanced tests to monitor system health and further optimize Mobil DTE™ Series hydraulic oil performance.

## Analysis options – System analysis

	Essential ◆	Enhanced ◆◆	Elite ◆◆◆ (Hydraulic Only)
Viscosity	✓	✓	✓
Water	✓	✓	✓
Oxidation	✓★	✓★	✓★
Total Acid Number (TAN)	★	★	★
Particle Count		✓	✓
Particle Qualification (PQ) Index		✓	✓
Metals	✓	✓	✓

### For compressors add

Coolant Indicator	✓	✓	
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### For hydraulic add

Nitration			✓
Ultra Centrifuge Rating			✓

### Key

- ✓ Included test
- ★ TAN in lieu of oxidation for synthetic products

## Potential benefits



Improved equipment reliability by identifying potential failures before they occur



Increased productivity through reduction of unscheduled downtime



Reduced parts replacement and labor costs



Minimized lubricant consumption and disposal with optimized drain interval

# Mobil Serv<sup>SM</sup> Lubricant Analysis – System analysis

Test	Purpose	Importance of test
<b>Coolant Indicator</b>	To determine the level of sodium, potassium and boron in the compressor oil	Indicative of a coolant leak into the compressor
<b>Metals</b>	To determine the presence and levels of metallic content in the oil, including contaminants and wear particles	The level of metals helps determine if equipment components are wearing or if harmful contamination is entering the oil. The level of metals that are part of the additive chemistry are also reported
<b>Nitration</b>	To measure the amount of nitrogen by-products in hydraulic oil	In high-pressure pumps, nitration results from the rapid compression of entrained air. As a result, if unchecked, nitrogen and oxidation precursors might form sticky varnishes, which may lead to valve sticking
<b>Oxidation</b>	To determine the level of lubricant oxidation and deterioration	Oxidation can mean: <ul style="list-style-type: none"> <li>▪ Increased wear and corrosion</li> <li>▪ Shorter equipment life</li> <li>▪ Increased viscosity</li> <li>▪ Excessive deposits and plugging</li> </ul>
<b>Particle Count Analysis</b>	To measure the level of particulate contaminants in the oil	<ul style="list-style-type: none"> <li>▪ Cleanliness is a critical factor in the running of hydraulic and circulating oil systems</li> <li>▪ Debris can interfere in the fine tolerances of the system's pumps and valves or cause premature wear</li> </ul>
<b>Particle Qualification (PQ) Index</b>	To determine ferrous metal fatigue failures and metal-to-metal contact not usually detectable with some spectrographic analysis	PQ Index can detect at an early stage: <ul style="list-style-type: none"> <li>▪ Anti-friction bearing wear</li> <li>▪ Plain bearing wear</li> <li>▪ Gear wear</li> </ul>
<b>Total Acid Number (TAN)</b>	To measure acidic oil oxidation by-products	An elevated Total Acid Number may indicate increased oil acidity resulting from increased oil oxidation
<b>Ultra Centrifuge</b>	To measure varnish deposit formation in hydraulic oil	Elevated deposit formation can indicate potential for varnish formation
<b>Viscosity</b>	To determine the oil's resistance to flow	<ul style="list-style-type: none"> <li>▪ An increase in viscosity may be due to high insoluble content, water contamination, or admixture with higher viscosity fuel or lubricant</li> <li>▪ A decrease in viscosity may be due to water contamination, or admixture with lower viscosity lubricant</li> <li>▪ Both high or low viscosity may result in premature equipment wear</li> </ul>
<b>Water</b>	To detect presence of water contamination	Water contamination may cause severe corrosion and subsequent wear, poor oil film thickness or hydrogen embrittlement

## Mobil Serv<sup>SM</sup> Lubricant Analysis

When your sample is processed, the laboratory handles each bottle as a unique and important item. Each sample is coded, labeled and tracked through the entire process. By the time test results are available, your equipment sample has directly benefitted from our knowledge of Mobil<sup>TM</sup> lubricants, decades of OEM relationships and a strong heritage of hands-on application expertise. Sample comments are provided, as required, to help identify potential problems, list possible causes and recommend actions for follow-up.



Industrial  
Lubricants



**Advancing  
Productivity™**

By helping you enhance equipment life and reliability – which minimizes maintenance costs and downtime – our expert services can help you achieve your safety, environmental care and productivity goals.