

# Gas and steam turbine analysis



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► This service monitors turbine and lubricant conditions to detect premature wear and contamination

## Description

This service is designed to help you detect premature wear and lubricant contamination before they result in costly downtime or expensive repairs. Turbine analysis is applicable for gas and steam turbines operating in continuous or intermittent service. It includes testing to help improve turbine reliability by monitoring system cleanliness and lubricant performance.

## 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

## Analysis options: Gas turbine

	Essential ◆	Enhanced ◆◆
Viscosity	✓	✓
Water (pass/fail)	✓	
Water vol. % Karl Fischer (KF)		✓
Oxidation	✓★	✓★
Total acid number (TAN)	✓	✓
Particle count		✓
Particle quantifier (PQ) index		✓
Metals	✓	✓

## Analysis options: Steam turbine

	Essential ◆	Enhanced ◆◆
Viscosity	✓	✓
Water vol. % Karl Fischer (KF)	✓	✓
Oxidation	✓★	✓★
Total acid number (TAN)	✓	✓
Particle count		✓
Particle quantifier (PQ) index		✓
Metals	✓	✓

### Key

✓ Included test

★ TAN in lieu of oxidation for synthetic products

# Mobil Serv<sup>SM</sup> Lubricant Analysis: Gas and steam turbine analysis

Test	Purpose	Importance of test
<b>Metals</b>	To determine the presence and levels of metallic content in the oil, including contaminants and wear particles	The level of wear metals helps determine if equipment components are wearing or if harmful contamination has entered the oil. The level of metals that are part of the additive chemistry is also reported.
<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 turbine oil systems.</li> <li>• Debris can interfere in the fine tolerances of the systems, pumps, and valves or cause premature wear.</li> </ul>
<b>Particle quantifier (PQ) index</b>	To determine ferrous metal fatigue failures and metal-to-metal contact not usually detectable with some spectrographic analysis	The PQ index can detect at an early stage: <ul style="list-style-type: none"> <li>• Antifriction 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>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 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 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 benefited from our knowledge of Mobil™ 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.