

# Vibration and oil analysis

Vibration and oil analysis are nonintrusive techniques in monitoring wear and tear in rotating equipment. This analysis allows repairs and replacements to be planned well in advance of expensive and total machine failure.

## Vibration analysis

Vibration analysis is the measurement and interpretation of vibrations generated in any rotating equipment. Our technicians look at vibration trends, waveform, and spectral data to detect many different problems. Common faults include:

- Misalignment
- Bearing wear
- Looseness
- Gear wear
- Imbalance

A vibration program is commonly used to reduce residual machine vibration levels as this leads to improved reliability. Trending the cause of faults helps to improve maintenance practices.

Routine vibration analysis is used on all critical equipment and may include:

- electric motors
- pumps & fans
- compressors
- gearboxes
- screws
- turbines
- refiners



ETEL Services also provides specialist vibration analysis services for

- Analysis of multi-journal bearing machines, such as power generation units
- Animation of complex vibration modes and dynamic modelling of machines
- Installation and commissioning of online and wireless monitoring systems

Using ETEL Services will provide the following benefits:

- ISO 10816-3 based processes and analysis
- Comprehensive reports, emphasising fault severity, fault history and overall vibration level trends
- Technicians trained according to industry (ISO 18436-2) standards

### Oil analysis

Oil analysis is the measurement and interpretation of new and used oil properties. Typical analysis includes measurement of chemical properties, contamination levels and wear debris in the oil.

There are two key benefits in an oil analysis programme:

1. Oil changes are based on the condition of the lubricant. As the oil is changed only when necessary, the cost of replacement oil is reduced, as is the environmental impact of disposing of waste oil.
2. The condition of the machine is well understood. This provides increased reliability through improved oil cleanliness and reduced unplanned downtime. When combined with vibration analysis, the ability to detect faults is greater than 99%.

Routine oil analysis is typically used on the following equipment:

- Critical gearboxes
- Hydraulic systems
- Lubrication systems
- Heating and cooling systems
- Compressors
- Reciprocating machines



Using ETEL Services will provide the following benefits:

- Measurements sourced from contract laboratories compliant to ISO / IEC 17025 & NATA accredited
- Comprehensive reports, emphasising fault severity and history
- Results interpreted alongside vibration analysis to maximise fault warning times