

ROTATING MACHINERY

Assessing wear and oil contamination

WHAT?

Regular analysis of the oil circuits of rotating machinery.

WHY?

To determine contamination—internal or external—of the lubrication oil circuit.

Contamination of oil by metal particles can indicate equipment wear. External contamination can be caused by the entry of dust into the oil, topping-up with dirty oil or the wrong oil type, or water infiltration. This can lead to corrosion, improper lubrication, oil degradation, and other negative conditions.

To improve availability of rotating machinery.

To more accurately plan maintenance actions, oil replacements, and/or oil filtrations.

HOW?

Contamination and equipment wear can be accurately assessed by combining the results of several oil analyses. We always determine the most appropriate analysis package.

If oil contamination is observed, we check the impact of the contaminants on crucial oil properties (for instance desaeration, desemmulsibility, viscosity, and flash point) to ensure safe operation of the machinery.

Frequency of analysis: every 3 to 12 months



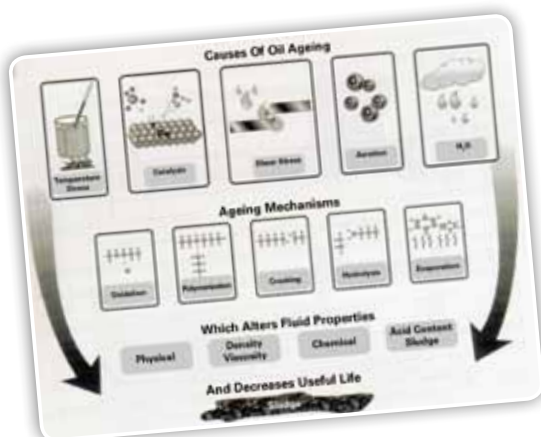
Filtering the oil in a 0.8µm filter is a routine trending analysis that helps to determine oil varnishing, external contamination, or machinery wear.



Our Inductively Coupled Plasma-Atomic Emission Spectroscopy (ICP-AES) devices enable our experts to determine the concentration of more than twenty wear or additive atoms in a lubricant or hydraulic oil.



If the ICP-AES analysis indicates an increased amount of wear metals, a specific Scanning Electron Microscope/Energy Dispersive X-ray spectroscopy analysis (SEM-EDX) can be performed to determine the exact composition, quantity, shape, and origin of these contaminants.



ANALYSIS	METHOD	REQUIRED OIL VOLUME
Density (**)	ASTM D4052	50 ml
Filtration (0.8 µm)	ASTM D4055	200 ml
Particle counting (**)	ISO 4406 (1987)/NAS 1638	100 ml
Particle counting (**)	ISO 4406 (1999)/SAE AS4059	100 ml
SEM/EDX (*)	Laborelec method	100 ml
Water content	ASTM D1744	25 ml
Wear particles	ASTM D5185	50 ml



(*): Scanning Electron Microscope/Energy Dispersive X-ray spectroscopy
(**): Analyses performed under ISO 17025 accreditation - Measurement uncertainties available on demand