

WIND ENERGY MARKET

Wind

Improve the maintenance and **reliability** of your **wind equipment**.

Gears, greases and hydraulics under control, backed by **TRIBO-LABS**, our lubricant analysis laboratory.

Wind energy is kinetic energy produced by air currents: **renewable, clean** and an alternative to fossil fuels. The global need to generate emission-free power has driven steady growth in the wind energy market over the last decade.

Controlling the fluids in rotating systems is essential to improve each turbine's reliability and get the best return on investment. A wind turbine has several lubrication points: gearboxes, planetary gear multipliers, yaw systems, hydraulic systems and generator lubrication. Each requires specific lubricants: gear oils, hydraulic oils and greases.



How it **works**



01

Take the sample with the system running at operating temperature.



02

Fill out the TRIBO-LABS form for the corresponding test.



03

Send the sample to the laboratory for analysis.



04

TRIBO-LABS logs and analyzes the sample and generates an e-report.



05

You receive the report by email and review the recommendations.



24-48 h

Turnaround time once the sample is logged.

100%

TRIBO-LABS focuses on ensuring that 100% of the fluids in your wind installation meet requirements, through frequent monitoring of each fluid.

TRIBO-LABS test packages



Grease *lubrication*

TRIBO 11 Grease analysis test

Sample volume: syringe

- FdM in-house method
- Color ASTM D6045
- FTIR
- Water % by crackle in-house method

Gear *system*

TRIBO 1 Basic industrial oil test

Sample volume: 100 ml

- 24 elemental metals by ICP ASTM D5185
- Water % by crackle in-house method
- Viscosity at 40 °C or 100 °C ASTM D445
- Acid number ASTM D664
- Oxidation / Nitration ASTM E2412
- ISO particle count ISO 4406:99

Hydraulic *systems*

TRIBO 1 Basic industrial oil test

Sample volume: 100 ml

- 24 elemental metals by ICP ASTM D5185
- Water % by crackle in-house method
- Viscosity at 40 °C or 100 °C ASTM D445
- Acid number ASTM D664
- Oxidation / Nitration ASTM E2412
- ISO particle count ISO 4406:99

TRIBO 2 Advanced industrial oil test

Sample volume: 100 ml

- 24 elemental metals by ICP ASTM D5185
- Water % by Karl Fischer ASTM D6304C
- Viscosity at 40 °C or 100 °C ASTM D445
- Acid number ASTM D664
- Oxidation / Nitration ASTM E2412
- ISO particle count ISO 4406:99



Which test do we *recommend*?

GEARBOXES

TRIBO 1

Basic package for the oil that lubricates gearboxes.

GREASES

TRIBO 11

Routine evaluation comparing used grease with new grease.

BLADE PITCH CONTROL

TRIBO 2

For the hydraulic fluids that control blade pitch.

Standard *monitoring frequency*

500 h

Wind turbines: every 500 hours

Our specialists will recommend the ideal monitoring frequency based on the industry and application. As a general rule, the frequency shown is the standard parameter.

For more information,
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