The **benefits** offered by



TOTAL ANAC INDUS

is an in-service oil monitoring solution to help you optimize drain intervals and extend the service life of your equipment.

This solution aims to improve the reliability and performance of your equipment.



For turbines, in particular, Total Lubrifiants offers **ANAC TURBINE** standard to help you monitor the key parameters that are critical for their operation:

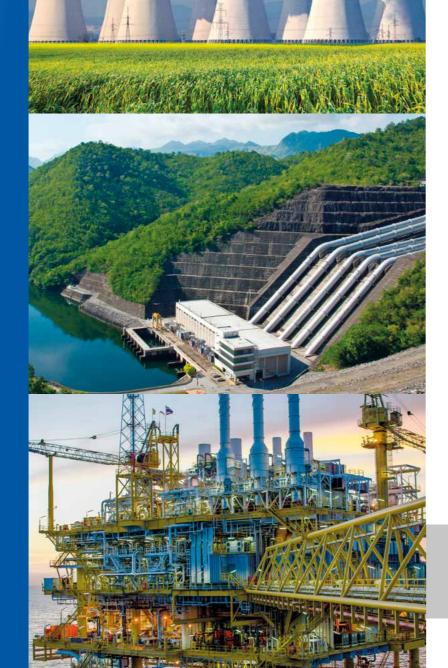
- Water content (Karl Fischer Method) from 10ppm to detect accidental water pollution, ideal for hydro, steam, or gas turbines operating in a humid environment.
- AIR option (air release and foaming) to prevent wear and control malfunctions caused by air contamination in oil, regardless of turbine type.
- MPC option (Membrane Patch Colorimetry) to detect the presence of degradation byproducts, varnishes and lacquers on critical components of gas turbines.



Our teams are dedicated to assisting you with turbine oil monitoring and commissioning:

- Flushing and first fill of your turbine
- Oil filtration
- Particle counting and monitoring of oil cleanliness classes
- Water contamination treatment
- Prevention of varnish build-up
- Waste oil management





A major player

With our production, supply chain and commercial presence in more than 150 countries, we deliver a full range of lubricants.

References & OEMs

Total Lubrifiants cooperates with equipment manufacturers to create high-technology products for optimal performance and production of your machinery.

Quality and environment

Total Lubrifiants ISO 9001 certification is the guarantee of a long term commitment to quality. From the initial design stage, our R&D teams seek to develop products that minimize toxicity risks and environmental impact.

Safety Data Sheets are available at quickfds.com **lubricants.total.com**



Support and partnership

Thanks to local technical presence, we provide a high level of service to optimize your Total cost of Ownership.

good reasons for choosing TOTAL

Innovation & Research

Total invests in biotechnologies to find the most suitable components to reach energy efficiency through formulations designed in our Research Centers.



PRESLIA Power up your performance with our turbine oils



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For over 40 years, Total Lubrifiants has been designing and developing innovative and highperformance products.

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With the benefit of our extensive experience with original equipment manufacturers, **Total Lubrifiants offers** you a complete range of lubricants and services for all turbine types: hydro, steam, gas, combined-cycle, or aeroderivative gas turbines.

RAMP UP TO FULL CAPACITY WITH PRESLIA!



A local player, a worldwide presence.

Total Lubrifiants Experience means you benefit from our locally based expert support and strong know-how.

It also means you have direct access to our high value-added services for turbines, including oil monitoring and implementation of our onsite turbine filling package.

You can rely on logistics support and personal assistance from our 150 affiliates to carry out your projects.

Total Lubrifiants Commitment means you can count on us to continually produce more innovative and efficient products that respect people and the environment. By choosing Total, you share in our commitment to better energy.

A full range of products for all your needs.

Total Lubrifiants closely monitors technological developments and new turbine operating profiles. We have developed a range of advanced, cutting-edge oils to cover all your needs:

- Oil drain interval extension with PRESLIA GT

By choosing Total Lubrifiants, you are assured of manufacturer-approved products that have a proven track record in the field.

DOOSAN SKODA, ANSALDO ...

MINERAL

PRESLIA EVO PRESLIA PRESLIA GT Prevents equipment wear. Excellent oxidation resistance. Suitable for all types of power stations. Long-life oil. Use under severe conditions. BENEFITS **BENEFITS** BENEFITS > Superior equipment protection. Reduction in maintenance costs. Did you know? Suitable for combined-cycle power plants and modern land-based gas turbines. Air contamination in the oil can seriously damage your equipment and cause pressure drops in pumps Did you know? due to the cavitation effect. When oil ages, it inevitably loses its air release properties. That is why it is crucial PRESLIA GT has demonstrated excellent oxidation Did you know? to formulate ultra-high-quality turbine oils with optimal air resistance, achieving a result significantly higher than release capacity from the start. 10,000 hours TOST life (Turbine Oxidation Stability Test). The TOST test is directly related to the oil lifetime. 2 *** 0 0 **OPERATING** CONDITIONS **BIOPRESLIA HT PRESLIA SE JET PRESLIA SE HTS** Aeroderivative gas turbines requiring Aeroderivative gas turbines requiring Eco-compatible ⁽¹⁾ MIL PRF 23699 G class fluid. MIL PRF 23699 G HTS class fluid. Ultra-high-temperature resistance. Long-life oil. Prevents deposit build-up. **BENEFITS** circuits. BENEFITS BENEFITS Superior equipment availability Designed for turbines subject to high and reliability, even under extreme thermal stress or facing premature oil conditions. degradation. Did you know? Did you know? Did you know? Total also operates aeroderivative gas turbines on its own oil rigs. PRESLIA SE JET fully meets Total's reliability Due to its low coking tendency, PRESLIA SE HTS and operational excellence requirements. has a 20 % longer service life than fluids of the same in natural environments. category. 0 A IAI

SYNTHETIC

Protection against varnish and degradation by-products with PRESLIA EVO

Respect for the environment and aquatic systems with BIOPRESLIA HT

Customers who trust our products include: GENERAL ELECTRIC, ALSTOM, SIEMENS,



MINERAL

Excellent thermal stability.

Prevents varnish formation and deposits.

Extends critical components service life by preventing the varnishing of bearings and servo-valves. Suited to modern highefficiency gas turbines, **flex systems** and peaking power plants.

This new generation oil has proved to be effective in preventing deposits, with outstanding results in specific trials under high thermal stress (Dry TOST and MAN LTAT).



S

- Highly stable in the event of accidental water intake.
- Multifunctional for hydro turbines and hydraulic



Environmentally friendly. Product rationalization.

1 liter of oil can pollute 1,000,000 liters of water. That is why it is important to use biodegradable lubricants



AZOLLA AF

- Good filterability.
- Prevents build-up deposits when accidentally contaminated by water.
- Excellent oxidation resistance.

BENEFITS

Optimizes the **reliability** of the electro-hydraulic control system in steam turbines.

Did you know?

Manufacturers recommend zinc-free hydraulic oil for use in steam turbines. Zinc-based additives can degradate in the presence of water and form build-up deposits.



HYDRANSAFE FR EHC

- Turbines requiring phosphate ester fluids (HFDR class).
- No toxicity for operators.
- Highly fire-resistant.

> BENEFITS

Safe for your facilities and operators.

Did you know?

Conventional HFDR fluids may contain carcinogenic, mutagenic and reprotoxic substances. Total prohibits the use of these compounds, preferring a safer, more healthfriendly fluid: Hydransafe FR EHC.



OEMs SPECIFICATIONS

PRESLIA

For steam, gas, combined-cycle turbines and turbocompres

ANDRITZ DOOSAN GENERAL ELECTRIC GEK 27070, GEK 28143, GEK 46506, GEK 32568 MAN ENERGIE ME-TTS 001/18/92 SIEMENS Turbo AB - MAT 812101/02/ SIEMENS Turbomachinery 1CW0047915 VOITH HYDRO

ALSTOM HTGD 9011 ALSTOM HYDRO HTWT 600050 ANSAL DO DOOSAN SKODA, TURBINY PLZEN FUJI ELECTRIC steam turbine HTC Handhzou steam turbine MAN Turbo SPD 10000494596 SIEMENS POWER TLV 901304 & 05 SOLAR FS 9-224W Class II OSHIBA steam turbine

PRESLIA GT

For gas, combined-cycle turbines and turbocompressors

GENERAL ELECTRIC GEK 27070, GEK 28143, GEK 46506, GEK 32568 GEK 107395, GEK 101941 MAN ENERGIE ME-TTS 001/18/92 SIEMENS Turbo AB - MAT 812101/02/ SIEMENS Turbomachinery 1CW0047915

ALSTOM HTGD 90117 ANSAL DO DOOSAN SKODA, TURBINY PLZEN MAN Turbo SPD 10000494596

NANJING TURBINE (NTC) SIEMENS POWER TLV 901304 & 05 SOLAR ES 9-224 W Class II

PRESLIA EVO

For gas, combined-cycle turbines and turbocompresso

GENERAL ELECTRIC GEK 27070, GEK 28143, GEK 46506, GEK 32568, GEK 107395, GEK 101941 SIEMENS Turbo AB - MAT 812101/02/ 06/07/08/09

ALSTOM HTGD 90117 MAN Turbo SPD 10000494596 SIEMENS POWER TLV 901304 & 05



ANDRITZ ALSTOM HYDRO VOITH HYDRO ISO 15380 (HEES fluids)



PRESLIA SE JET For aeroderivative gas turbines

GENERAL ELECTRIC LM series



SIEMENS / ROLLS-ROY(501-K, RB 211, Avon

GENERAL ELECTRIC LM series

SIEMENS / ROLLS-ROYU 501-K



For EHC systems in steam and combined-cycle turbi

Meets most OEMs specifications

SIEMENS zinc free hydraulic oils

HYDRANSAFE FR EHC For EHC systems in steam and combined-cycle turbines

Meets most OEMs specifications

ALSTOM HTGD 690 GE GEK 46357 SIEMENS - TLV 90102

SYNTHETIC