



SHELL HELPS THAI PAPER MILL TO EXTEND TURBINES' OIL-DRAIN INTERVAL

TOTAL REPORTED ANNUAL CUSTOMER SAVING

US\$25,932



COMPANY: Paper manufacturer

COUNTRY: Thailand

APPLICATION: Steam turbines

SAVING: US\$25,932 total reported customer saving

KEY EDGE: Shell Turbo CC 46, Shell LubeAnalyst, LubeAdvisor service

A Thai paper manufacturer had been using Shell Turbo CC 46 in its steam turbines, but was concerned about varnish forming in the lubrication systems and causing a film on internal surfaces. The company considered switching to a competitor's product. However, it was reluctant to incur the costs of changing lubricant, so turned to Shell for advice.

Shell recommended that the company should continue to use Shell Turbo CC 46 and should top up the lubrication system with fresh lubricant and use electrostatic filtration to extend the oil-drain interval. Shell provided the Shell LubeAnalyst service to assess the condition of the used oil and the Shell LubeAdvisor service for technical support.

By following Shell's advice, the company has extended its turbines' oil-drain Interval from five to six years. It made savings by not having to refill the tank with a replacement lubricant and avoiding the cost of flushing out the old oil. As a result, the company has reported a total saving of US\$25,932.



1

CHALLENGE

A Thai paper manufacturer had been using Shell Turbo CC 46 in its steam turbines, but was concerned about varnish forming in the lubrication systems and causing a film on internal surfaces.

2

SOLUTION

Shell recommended that the company should continue to use Shell Turbo CC 46 and should top up the lubrication system with fresh lubricant and use electrostatic filtration to extend the oil-drain interval. Shell provided the Shell LubeAnalyst and Shell LubeAdvisor services.

3

OUTCOME

By following Shell's advice, the company has extended its oil-drain interval from five to six years. It made savings by not having to refill the tank with replacement lubricant and avoided the cost of flushing out the old oil.

4

VALUE

As a result of not having to refill the tank with replacement lubricant or flush out the old oil, the company has reported a total saving of US\$25,932.¹

¹The savings indicated are specific to the calculation date and mentioned site. These calculations may vary from site to site and from time to time, depending on, for example, the application, the operating conditions, the current products being used, the condition of the equipment and the maintenance practices.



SHELL TURBO CC

PREMIUM-QUALITY INDUSTRIAL GAS, STEAM AND COMBINED-CYCLE TURBINE OILS

Shell Turbo CC oils have been developed to meet the severe demands imposed by modern, heavy-duty turbine applications and exceed equipment manufacturers' specifications for both gas and steam turbines. A patented, metal-free additive technology ensures that these products offer substantially improved performance over conventional turbine oils. The unique combination of excellent oxidation and thermal stability, resistance to the formation of deposits and varnish, sludge control and surface properties make Shell Turbo CC an excellent lubricant choice for combined-cycle turbine technology and gas and steam turbine plants.



Applications

- Power generation combined-cycle turbines
- Industrial steam turbines
- Industrial gas turbines

Performance features and benefits

- Superior oxidation and thermal stability. Modern combined-cycle and stationary gas turbines that operate at high power outputs can be very stressful for the oxidation and thermal stability of the turbine oil. Lubricant stability failure can create operational problems, system deposits and the formation of varnish in critical areas. Shell Turbo CC oils are especially designed to cope with these conditions. Their oxidation and thermal stability, coupled with their resistance to forming deposits and varnish, reduces the possibility of unplanned outages. The result is extended oil life and less maintenance and downtime.
- Rapid air release and high resistance to foaming. High oil flows contribute to the possibility of entrapped air, which can lead to pump cavitation, premature oil oxidation and excessive wear. Shell Turbo CC oils exhibit excellent surface properties, minimal foam formation and

rapid air-release, which minimises air entrapment and reduces the effects of high oil flows to a minimum.

- Excellent water-shedding properties. Water contamination is commonplace in steam turbines and causes corrosion and affects bearing lubrication. Because of Shell Turbo CC oils' good demulsibility, water can be drained easily from the lubrication system to protect the installation against corrosion and premature wear.
- Good load carrying capacity. Shell Turbo CC's ashless, non-zinc anti-wear system reduces excessive gear-tooth and turbine-component wear, which makes the lubricant suitable for use in turbines with highly loaded gears. It minimises downtime and maintenance costs.

Specifications and approvals

Shell Turbo CC exceeds the major gas and steam turbine manufacturers lubricant specifications, including General Electric GEK 28143A, GEK 32568F, GEK 46506E, GEK 101941A and GEK 107395A; Siemens-Westinghouse 21 T0591 and 55125Z3; Siemens/Mannesmann Demag 800 037 98 TD 32/TD 46; Solar ES 9-224W Class II; DIN 51515 Part 1 L-TD and Part 2 L-TG; ISO 8068 LTGB and LTGSB; GEC Alstom NBA P50001A; JIS K-2213 Type 2; ASTM D 4304-06a Types I, II and III; and BS 489-1999. It is approved by the equipment manufacturers for Siemens TLV 9013 04 and Alstom HTGD 90-117.

Complementary products

Application	Lubricants
Steam turbine control systems	Shell Turbo DR 46 fire-resistant EHC fluid
Transmission systems	Shell Diala electrical oils
Coal pulverisers	Shell Omala gear oils