Shell Turbo Oils T

High Quality Industrial Steam & Gas Turbine Oils

Shell Turbo Oils T have long been regarded as the industry standard turbine oil. Building on this reputation, Shell Turbo Oils T have been developed to offer improved performance capable of meeting the demands of the most modern steam turbine systems and light duty gas turbines, which require no enhanced anti-wear performance for the gearbox. Shell Turbo Oils T are formulated from high quality hydrotreated base oils and a combination of zinc-free additives that provide excellent oxidative stability, protection against rust & corrosion, low foaming and excellent demulsibility.

Applications

Shell Turbo Oils T are available in ISO grades 32, 46, 68 & 100 suited for application in the following areas:

- Industrial steam turbines & light duty gas turbines which require no enhanced anti-wear performance for the gearbox
- Water turbine lubrication
- Compressor applications
- Numerous applications where strong control over rust and oxidation is required

Features and Benefits

- ***Strong Control of Oxidation***

The use of inherently oxidatively stable base oils together with an effective inhibitor package provides high resistance to oxidative degradation. The result is extended oil life, minimising the formation of aggressive corrosive acids, deposits and sludge, reducing your operating costs.

- ***High Resistance to Foaming and Rapid Air Release***

The oils are formulated with a non-silicone anti-foam additive, which generally controls foam formation. This feature coupled with fast air-release from the lubricant reduces the possibility of problems such as pump cavitation, excessive wear and premature oil oxidation, giving you increased system reliability.

- ***Positive Water-shedding properties***

Robust demulsibility control such that excess water, common-place in steam turbines, can be drained easily from the lubrication system, minimising corrosion and premature wear. Lowering the risk of unplanned maintenance.

- ***Excellent Rust & Corrosion Protection***

Prevents the formation of rust and guards against onset of corrosion ensuring protection for equipment following exposure to humidity or water during operation and during shut-downs, minimising maintenance.

- ***Resistant to reaction with ammonia***

The use of highly refined base oils and specific additives, resistant to attack by ammonia, minimises the possibility of damaging oil soluble/insoluble ammonia compounds being formed in the lubricant. Shell Turbo Oils T mitigates the formation of these deposits, which could impair the reliable operation of bearings and seal oil systems.

Exceeding OEM Specifications

The performance of new Shell Turbo Oils T meets or exceeds a number of major steam and gas turbine manufacturer lubricant specifications including:

- General Electric GEK 28143b – Type I (ISO 32), GEK 28143b – Type II (ISO 46), 46506E
- Siemens - Westinghouse 21T0591 & PD-55125Z3
- DIN 51515 Part 1 & 2
- ISO 8068
- Solar ES 9-224W Class II
- GEC Alstom NBA P50001
- JIS K2213 Type 2
- BS 489-1999
- ASTM D4304, Type I
- Siemens/Mannesmann Demag 800037 98

Approved by OEM against:

- Siemens Power Generation TLV 9013 04 & TLV 9013 05
- Alstom Power Turbo-Systems HTGD 90-117
- Man Turbo SP 079984 D0000 E99
- Cincinnati Approvals: P-38: Turbo T 32, P-55: Turbo T 46, P-54: Turbo T 68
- Skoda: Technical Properties Tp 0010P/97 Turbo Oils T 32 & 46 for use in steam turbines

Health & Safety

New Shell Turbo Oils T are unlikely to present any significant health or safety hazard when properly used in the recommended application, and good standards of industrial and personal hygiene are maintained.

For further guidance on Product Health & Safety refer to the appropriate Shell Product Safety Data Sheet.

Advice

Advice on applications not covered in this leaflet may be obtained from your Shell Representative.

Typical Properties

	ISO VISCOSITY GRADES			
Shell Turbo T	**32**	**46**	**68**	**100**
Viscosity (ASTM D445)				
cSt @ 40°C	32	46	68	100
cSt @ 100°C	5.2	6.6	8.5	11.4
Colour (ASTM D1500)	L 0.5	L 0.5	L 0.5	L 1.0
Pour Point °C (ASTM D97)	<-12	<-12	-9	-9
Flash Point - COC (ASTM D92, °C)	>215	220	240	250
Total Acid Number (ASTM D974, mg KOH/g)	0.05	0.05	0.05	0.05
Foaming (ASTM D892, ml/ml)				
Sequence I	30/Nil	30/Nil	30/Nil	30/Nil
Sequence II	20/Nil	20/Nil	20/Nil	20/Nil
Sequence III	30/Nil	30/Nil	30/Nil	30/Nil
Air Release (ASTM D3427, min)	2	4	6	10
Water Demulsibility (ASTM D1401, min)	15	15	20	20
Steam Demulsibility (DIN 51589, secs)	150	153	183	210
Copper Corrosion (ASTM D130, 100ºC/3hr)	1b	1b	1b	1b
Rust Control (ASTM D665B, after water washing)	Pass	Pass	Pass	Pass
Inertness to ammonia (Modified ASTM D943)	0.04	0.04		
Acid Number (mgKOH/g)	0.004	0.004	NA	NA
Organic Sludge (%)	0	0		
Copper Content (ppm)				
FZG, Fail Load Stage (DIN 51354)	6	7	7	7
Oxidation Control Tests-				
A) TOST Life (modified ASTM D943, hr)	>10,000	>10,000	>10,000	>10,000
B) TOST 1000hr Sludge (ASTM D4310, mg)	30	30	30	30
C) RPVOT (ASTM D2272, min)	>950	>950	>800	>700