

FBK TURBINE GT32

Long-Life Gas Turbine Oil

Compared with steam turbines, gas turbines operate under more severe temperature conditions, so they require heat-resistant turbine oils that have excellent oxidation stability even at high temperatures. **FBK Turbine GT32** is the first amine-type long-life gas turbine oil in Japan to meet General Electric's GEK-32568 turbine oil specifications.

● **Special Features**

1. Excellent Thermal Stability

Compared with steam turbines, gas turbines are exposed to much higher thermal loads. The combustion temperatures in gas turbines are typically between 1,000 and 1,300°C, and they can reach as high as 1,500°C in high-efficiency units for the latest combined-cycle generating systems. The surface temperatures of bearings in gas turbines are also higher than in steam turbines, and the radiant heat can cause the oil temperature in the bearings to reach 100 to 120°C. As a result, thermal resistance is a particularly important feature of gas turbine oils, so amine oxidation inhibitors with excellent thermal resistance are widely used. **FBK Turbine GT32** is blended with amine oxidation inhibitors specially self-developed, giving this gas turbine oil outstanding sludge resistance.

2. Outstanding Oxidation Stability

Unlike most other lubricants, turbine oils are used for as long as 10 years, with make-up oil being added periodically during regular maintenance. Gradual degradation of the turbine oil can cause sludge to form, thus interfering with machinery operation.

FBK Turbine GT32 is made with highly refined hydrocracked base oil that provides outstanding oxidation stability even under severe conditions for long periods of time. As a result, this oil was adopted early on by electric power companies for many of their combined cycle and gas turbine power stations, where it has demonstrated its outstanding performance.

3. Excellent Rust Prevention

If water enters a lubrication system, it not only can interfere directly with machine operation; it may also cause rust to form inside the system, thus keeping the machinery from operating smoothly. Therefore it is essential that all

water be removed from the oil.

FBK Turbine GT32 is blended with powerful rust preventive agents that provide excellent rust prevention performance. As a result, it keeps rust from forming inside the lubricating system even during long periods of continuous use.

4. Outstanding Antifoaming Properties

Foaming may occur in lubricating oil or hydraulic fluid for several reasons. Oil and air may be mixed together violently; air may be drawn into the system through poor seals in the pipes; or air and other gases dissolved in the oil may suddenly separate, forming bubbles. Of course, the best solution to foaming problems is to identify the causes and eliminate them, but it is also desirable that the oil be able to quickly eliminate any foam that does appear.

Antifoaming agents are added to **FBK Turbine GT32**, thus ensuring excellent defoaming performance during actual use.

5. Very Good Emulsion Resistance and Moisture Separation Properties

If water is present in a lubricating oil or hydraulic fluid, it can emulsify with the oil and cause unstable operation. Oils should thus be resistant to emulsification and have good water separation properties.

Thanks to the excellent water separation properties of **FBK Turbine GT32**, this oil prevents emulsification problems if water becomes mixed with the oil.

6. Excellent Viscosity-Temperature and Low-Temperature Characteristics

FBK Turbine GT32 undergoes little change due to temperature changes and it has a low pour point, so it also provides excellent performance as a hydraulic fluid.

● Applications

Thanks to its outstanding performance, **FBK Turbine GT32** can be used for the lubrication of a wide range of industrial machinery, including:

- (1) Gas turbines, including advanced gas turbines used in combined cycle systems
- (2) All types of electrical generators and motors
- (3) Air blowers, pumps, and mid-sized and small compressors
- (4) Low-load gear transmissions, machine tools, and all other types of industrial machinery
- (5) All types of hydraulic devices

● Packaging

200-liter drums and 20-liter cans

● Important Note

This oil might acquire a reddish color during storage. This color change is caused by the amine-type oxidation inhibitors. It has no effect on the antioxidation performance, and the colored oil can be used as usual.

● Typical Properties of FBK Turbine GT32

| | FBK Turbine GT32 | GEK-32568E |
|--------------------------------------------------------|------------------|------------|
| Color (ASTM) | L0.5 | 2 max. |
| Density (15°C), g/cm ³ | 0.844 | — |
| Kinematic viscosity(40°C), mm ² /s | 31.9 | 32 ± 10% |
| Kinematic viscosity (100°C), mm ² /s | 5.9 | — |
| Viscosity index | 131 | 95 min. |
| Flash point (COC), °C | 230 | 215 min. |
| Pour point, °C | -17.5 | -12 max. |
| Acid number, mgKOH/g | 0.10 | 0.20 max. |
| Pour point, °C | -17.5 | -12 max. |
| Copper strip corrosion (100°C, 3 h) | 1 | 1b max. |
| Rust prevention (artificial seawater, 24 h) | No rust | No rust |
| RBOT(ASTM D 2272), min | 1,900 | 500 min. |
| Modified RBOT(ASTM D 2272), %(time in unmodified test) | 97 | 85 min. |
| TOST(ASTM D 943, 95°C), h | 10,000 min. | 3,000 min. |

Note: The typical properties may be changed without notice. (July 2011)



Handling Precautions

▼ Follow these precautions when handling this product.

| | |
|----------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Composition : | Base Oil, Additives |
| Precautionary pictograms: | Not applicable |
| Signal word: | Not applicable |
| Hazard Statement: | Not applicable |
| Precautionary Statements: | |
| Prevention | <ul style="list-style-type: none">• Do not handle until all safety precautions have been read and understood.• Wear protective gloves/protective clothing/eye protection/face protection.• Do not allow the eyes to become exposed to the product. Do not swallow the product.• Wash hands thoroughly after handling.• Do not eat, drink or smoke when using this product. |
| Response | <ul style="list-style-type: none">• IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.• IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.• If the eyes are exposed to the product: Rinse the eyes with plenty of running water and immediately contact a physician.• IF ON SKIN: Wash with plenty of soap and water. |
| Storage | <ul style="list-style-type: none">• The product must be stored in a cool, well-ventilated location where it will not be exposed to direct sunlight.• Containers that have been opened must be tightly sealed. |
| Disposal | <ul style="list-style-type: none">• Dispose of contents/container in accordance with local/regional/national/international regulations.• If there are any doubts about proper methods of handling the product, contact the point of purchase before proceeding with usage. |