



GST Advantage™ EP with VARTECH™ Technology

Industrial Gas and Steam Turbine Oil

Product Data Sheet

Customer benefits

- **Exceptional Oxidation and Thermal Stability** for long service life at severe temperatures with **Minimal Deposit Formation**
- **Low Varnish Potential** ensure varnish formation are minimized to protect the equipment
- **Enhance gear protection** with anti-wear additives system to protect loaded gear tooth
- **Outstanding Rust and Corrosion Protection**
- **High Viscosity Index** helps ensure minimum viscosity change when variations in temperature occur
- **Minimum Foaming** helps prevent sump overflow or erratic governor operation
- **Fast Air Release** minimizes possibility of pump cavitation in systems with high circulation rates and lesser resonance time
- **Rapid Water Separation** facilitates water removal
- **Air Compressor Lubricant** for systems requiring an ISO 32/46 viscosity, R&O oil and anti-wear performance

Applications

- Geared and non-geared gas, steam and hydroelectric turbines
- Rotating machinery in gas and steam combined-cycle cogeneration units
- Air compressors, turbo-blowers and centrifugal pumps requiring a rust and oxidation inhibited oil
- Marine reduction gears where R&O oils are specified
- Industrial applications requiring R&O type circulating oils with extended service capability

Do not use in high pressure systems in the vicinity of flames, sparks and hot surfaces. Use only in well ventilated areas. Keep container closed.



VARTECH Technology:

GST Advantage EP is formulated with VARTECH Technology which is advanced chemistry that helps:

- Improve oxidation stability
- Reduce oil degradation
- Extend oil life by limiting harmful precursors that can lead to varnish formation

VARTECH Technology inhibits varnish formation to help maintain peak performance, reliability and productivity.

Product features:

- **GST Advantage EP** turbine oil has exceptional thermal and oxidative stability. It is suitable for use in geared and non-geared gas and steam turbines where extreme temperatures are experienced and require circulation systems with exceptional high temperature stability
- **GST Advantage EP** turbine oil combines highly refined group II base stocks and unique additive package minimizing the formation of deposits in reservoirs, high temperature bearings and other hot areas of the turbine

Typical key properties

GST ADVANTAGE EP	TEST METHOD ASTM	TYPICAL RESULTS			
ISO Grade		32	46	68	100
Product Code		520034	520039	520095	520096
Air Release @ 50°C, mins	D 3427	1.0	2.0	3.0	4.0
Flash Point, COC, °C	D 92	226	234	248	262
TOST life, hrs to 2.0 Acid Num	D 943	10,000	10,000	10,000	10,000
RPVOT, Mins	D 2272	2200	2100	1800	1700
Pour Point, °C	D 97	-36	-34	-32	-32
Kin. Viscosity @ 40°C, mm ² /s	D 445	34.2	42.4	68	100
@ 100°C, mm ² /s	D 445	5.813	6.55	8.9	11.6
Viscosity Index	D 2270	112	105	104	104
FZG, Fail Load Stage	D 5182	10	10	10	10

The information given in the typical data does not constitute a specification but is an indication based on current production and can be affected by allowable production tolerances. The right to make modifications is reserved. This supersedes all previous editions and information contained in them.

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Performance standards

GST Advantage EP pending for approval of the following specifications:

- Ansaldo Energia G-HTCT 689029
- Ansaldo Energia TG02-0171-E00000/C, AE94.3 A & AE94.2: ISO 32, 46
- GE HTGD 90117 V0001 AC
- MAN Energy Solutions 10000494596 rev. 2 – Approved ISO 32, 46
- Siemens TLV 9013 04 and TLV 9013 05 for turbosets with and without gearboxes – Approved ISO 32, 46

GST Advantage EP meets requirements of the following specifications:

- Doosan Skoda TP0010P (ISO 32, 46)
- Fiat AVIO TS 5001 (ISO 32)
- General Electric: GEK 32568k (ISO 32), GEK 28143b (ISO 32,46,68), GEK 46506e (ISO 32), GEK27070 (ISO 32), GEK 107395A (ISO 32), GEK 101941A (ISO 32)
- GE Oil and Gas ITN 52220.02 (ISO 32, 46,68,100), ITN 52220.03 (ISO 32,46)
- GEC Alstom NBA P5001A (ISO 32,46), P50003A (ISO 32,46)
- Siemens MAT 812101, 812106, 812108 (ISO 32); MAT 81202, 81209 (ISO 46)
- Siemens Westinghouse M Spec 55125Z3 (ISO 32)
- Solar Turbine ES9-224 Class II (ISO 32, 46)
- Toshiba LST-GMH-XUTW2-0005 (ISO 32)
- ANSI/ AGMA 9005-E02-R&O / EP
- ASTM D4304-Type I,II and III, ASTM D 6158-HL
- British Standard BS 489:1999
- DIN 51515-1, DIN 51515-2 and DIN51524/1 HL
- GB 1120-2011 L-TSA (Type A & B) & L-TGA, L-TGE, L-TSE (Type A)
- ISO 8068-L-TSA & L-TGA; L-TGE & L-TSE; AR, B
- ISO 11158-HM
- JIS K-2213 Type II



Service considerations

Premium quality turbine oils must be capable of lubricating and cooling bearings while protecting the system against rust, corrosion and harmful deposits. Since the turbine equipment is normally used in key applications, the reliability of rotating machinery and its lubricant is critical.

Periodic monitoring of the oil in service is recommended to assure satisfactory performance of the turbine. The principal reasons for monitoring are two folds: firstly, to determine the conditions of the used oil and secondly, to disclose environmental or operational problems within the equipment. The oil should be visually inspected by the operator at frequent intervals for contamination and/or appearance changes. Refer to ASTM D4378 for guidance on sampling and testing frequency. Samples should be taken from discharge side of the oil pump while system is circulating.

During service, effective purification of the lubricating oil is recommended for the removal of contaminants such as water and solids.

Care should be taken to ensure against top-up and/or contamination from other products, as this can reduce the performance characteristics of GST Advantage EP. Carefully observe recommended flushing procedures on start-up of new equipment to avoid contamination with temporary corrosion protection materials.

GST Advantage EP is not intended for use in aero-derivative gas turbines.

Must not be used in breathing air compressors.

ENVIRONMENT, HEALTH and SAFETY

Information is available on this product in the Material Safety Data Sheet (MSDS) and Customer Safety Guide. Customers are encouraged to review this information, follow precautions and comply with laws and regulations concerning product use and disposal. To obtain a MSDS for this product, visit www.caltex.com.

This bulletin was prepared in good faith from the best information available at the time of issue. While the values and characteristics are considered representative, some variation, not affecting performance, can be expected. It is the responsibility of the user to ensure that the products are used in the applications for which they are intended.

Produced by:
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– Asia Pacific