# HB-1170

## TURBINE OIL

### ISO Grades 32, 68, 100

**DESCRIPTION:**

- Developed for use with steam, water and gas turbines
- Parallels latest design advancement requirements of these types of equipment
- In most in-stances the source of energy in electric turbo-generators does not change the lubrication requirement. Steam, water and gas turbines all place similar demands on the lubricant.

**COMPOSITION:**

- Blended with superior quality 100 VI base oils obtained through complex solvent refining and de-waxing and the following additives:
- Antioxidants - Air and moisture inevitably present in the lubrication system, operating temperatures which have risen with the increasingly compact design, using steam at higher pressures and temperatures, and constant contact of the oil with metals such as copper and iron place heavy demands on the oxidation stability of the lubricant. Exhibits over 2 1/2 times the oxidation-inhibitor life required for most applications.
- Rust Inhibitors - Prevents rust formation on those areas normally bathed by the oil. Since it is practically impossible to eliminate all moisture and air which gain entrance to the turbine lubrication oil, the interior surfaces of a turbine lubrication system are a source of rust unless protected.
- Anti-Foam Agent - Foaming, brought about by the presence of entrapped air in the oil, reduces oil flow to the bearings and causes erratic governor operation. Manufactured to free itself of air very rapidly.
- Pour Depressants - Can be used in equipment which operates outside at low temperatures
- Anti-Wear Agents - Meets and increasing need for turbine oils with a higher load carrying capacity such as in marine service where steam turbine and reduction gears are lubricated from a common oil system

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## PERFORMANCE CHARACTERISTICS:

- Lubricates bearings of prime mover and electrical generator, main and thrust bearings
- Serves as a coolant
- Serves as a hydraulic fluid in governor and other control gears
- Lubricates reduction gears
- Acts as a sealing medium to prevent loss of hydrogen from hydrogen-cooled generators.
- Prevents the formation of rust corrosion and sludge within the confines of lubricating systems
- Allows rapid separation of water and solids to aid purification system
- Resists foaming

## USES:

May be used as a turbine oil, circulating oil, or electric motor oil to provide long life, minimize rusting and foaming, and withstand extreme pressures.

## APPLICATIONS:

May be used in steam, water and gas turbines. High viscosity index and low pour point allow outdoor use at cold temperatures. Oxidation inhibitors provide stability at high pressures.

## SPECIFICATIONS:

| Typical Tests are: ISO Grade | 32 | 68 | 100 |
|---|---|---|---|
| Viscosity, SSU@100°F | 150 | 250 | 420 |
| Viscosity, SSU@210°F | 44 | 50 | 60 |
| Viscosity Index | 1 10 | 105 | 105 |
| Flash, C.O.C. °F | 405 | 440 | 470 |
| Pour Point, °F | -25 | -20 | -20 |
| Gravity, A.P.I. | 32 | 31 | 29.0 |
| Total Acid Number, mg KOH/g | 1.3 | 1.3 | 1.3 |
| Copper Strip, 3 hr/212°F | 1 | 1 | 1 |
| Conradson Carbon, % | .25 | .25 | .25 |
| Aniline Point, °F | 222 | 235 | 245 |
| Demulsibility at 130°F Separation Minutes | 15 | 15 | 15 |
| Foam, Tendency/Stability Sequence I, ml | 25/0 | 25/0 | 25/0 |
| Sequence II, ml | 25/0 | 25/0 | 25/0 |
| Sequence III, ml | 25/0 | 25/0 | 25/0 |
| Rust, Distilled Water | Pass | Pass | Pass |
| Rust, Synthetic Sea Water | Pass | Pass | Pass |
| Oxidation Stability, hrs | 2800 | 2700 | 2600 |
| 4 - Ball Wear Scar, mm | .35 | .35 | .35 |