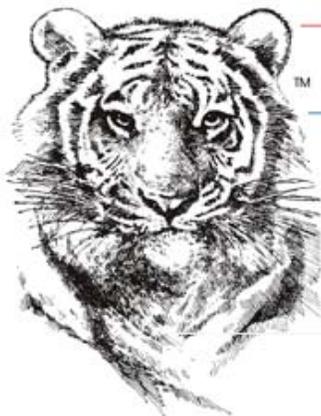


TERESSO TURBINE OIL

PREMIUM TURBINE QUALITY R&O CIRCULATING OILS

December, 2003



TERESSO* is the brand name for a line of long service life circulating oils. TERESSO oils offer the following features and benefits:

- ◆ Long oil life and rust inhibition
- ◆ Excellent demulsibility, air release and foam control
- ◆ Designed for the long service demanded of oils for steam and hydraulic turbine circulating systems
- ◆ Recommended for use in circulating splash, bath and ring oiled systems supplying lubricant for bearings and gears of industrial machinery
- ◆ Excellent fluid media in hydraulic systems that do not require an anti-wear additive.

Primary Applications

Steam and Hydraulic Turbines

Oil requirements of stationary steam and hydraulic turbines and turbine reduction gears are most rigid. Even a slight sacrifice in quality may make it impossible for the oil to render the extremely long periods of continuous service demanded. The use of inferior oils results in rapid oxidation, the development of harmful deposits, persistent emulsions, and sludge in the oiling system, which may lead to sluggish governor operation or even bearing and gear failure.

TERESSO oils have proven their superiority over decades of use in both the largest turbines in thermal and hydraulic generating plants, as well as nuclear power plants, and the smaller standby units for emergency power generating or water pumping. The TERESSO Turbine Oils are used chiefly for turbines with circulating oil systems, the exact grade depending on speed, temperature, and design. Manufacturers' viscosity recommendations should be referred to when choosing the correct grade of TERESSO oil.

For higher viscosity circulating oils, please see the TERESSTIC CIRCULATING OIL Product Data Sheet

Hydraulics

TERESSO oils are recommended for hydraulic systems where the pump manufacturer requires a mineral type oil that does not contain anti-wear additives such as those containing silver plated components. NUTO H oils are recommended

where anti-wear properties are required by the hydraulic pump manufacturer.

The lower viscosity grades of TERESSO oils have been found to be suitable as heat transfer fluids for systems operating up to 130°C.

Performance Features

Long Oil Life

By employing highest quality solvent extracted paraffinic type oils, free from undesirable components and with high natural stability plus carefully selected inhibitors, long life is provided without the formation of harmful sludges or acids. TERESSO oils easily surpass the sludge formation tendency specifications required by many utilities as an addition to passing oxidation tests.

Foam Resistance

Prevents faulty lubrication and loss of lubricant due to excessive foaming.

Rust Protection

All grades protect metal surface from damage by inhibiting rust.

Good Demulsibility

Entrained water separates readily from all grades.

Wide Choice of Viscosity

The correct grade can be chosen to satisfy each application.

Precautions

TERESSO oils are manufactured from quality petroleum base stocks, blended with selected additives. As with all petroleum products, good personal hygiene and careful handling should always be practiced. Avoid prolonged contact with the skin, splashing into the eyes, ingestion, or vapour inhalation. Please refer to the Esso Material Safety Data Sheet for further information.

Note: This product is NOT controlled under the Canadian WHMIS legislation.

Typical Properties

| | Viscosity cSt @40°C | Viscosity cSt @100°C | Pour Point °C | Flash Point °C | Density @15°C | Oxidation Life hrs | Rust Test (2) | C.C.R Residue | AGMA Number |
|------------|---------------------------|----------------------------|---------------------|----------------------|------------------|--------------------------|---------------------|------------------|----------------|
| TERESSO 32 | 32 | 5.13 | -18 | 204 | .868 | 3500 | Pass | 0.02 | -- |
| TERESSO 46 | 46 | 6.36 | -18 | 212 | .873 | 3000 | Pass | 0.02 | 1 |
| TERESSO 68 | 68 | 8.26 | -18 | 226 | .876 | 3000 | Pass | 0.03 | 2 |

NOTE (1) ASTM Oxidation Life Test is not applicable to oils of high viscosity
(2) 24 hours @ 69°C, synthetic sea water.

The values shown here are representative of current production. Some are controlled by manufacturing specifications while others are not. All may vary within modest ranges.