



TECHNICAL DATA BULLETIN

6411-6414 LOW TOX[®] TURBINE OIL

DESCRIPTION:

Low toxicity turbine oil designed with advanced product technology that exceeds the performance of premium turbine oils, yet affords low eco-toxicity to address environmental concerns. Has a low order of toxicity compared to standard commercial turbine oils and biodegradable turbine oil. LE's Low Tox Turbine Oils meet or exceed OEM requirements for many generators, turbines and governors.

PHYSICAL CHARACTERISTICS – TYPICAL:

| | <u>6411</u> | <u>6412</u> | <u>6413</u> | <u>6414</u> |
|----------------------|-------------|-------------|-------------|-------------|
| ISO Grade | 32 | 46 | 68 | 100 |
| SAE Grade | -- | -- | 20 | 30 |
| Gravity, °API | 31.9 | 32.3 | 31.3 | 30.9 |
| Viscosity | | | | |
| SUS @ 100°F | 153.9 | 203.8 | 306.8 | 472.3 |
| SUS @ 210°F | 43.7 | 47.8 | 54.2 | 64.6 |
| cSt @ 40°C | 32.9 | 45.9 | 66.3 | 102.3 |
| cSt @ 100°C | 5.4 | 6.6 | 8.64 | 11.61 |
| Viscosity Index, min | 95 | 95 | 95 | 95 |
| Color | Amber | Amber | Amber | Amber |
| Flash Point, °F (°C) | 400 (204) | 455 (235) | 460 (238) | 500 (260) |
| Pour Point, °F (°C) | -5 (-21) | 0 (-18) | 5 (-15) | 5 (-15) |

TEST RESULTS:

| | | | | |
|---|--------------|--------------|--------------|--------------|
| Copper Corrosion, ASTM D-130 | 1a | 1a | 1a | 1a |
| Salt Water Rust Test, 48 hrs., ASTM D-665B | Pass | Pass | Pass | Pass |
| Oxidation Stability, ASTM D-943 % Sludge @ 1,000 hrs. | <0.1 | <0.1 | <0.1 | <0.1 |
| Rotary Bomb Oxidation Test, min. ASTM D-2272 | 875 | 875 | 560 | 560 |
| Water Separation, ASTM D-1401 ml oil-ml water-ml emulsion (min.) | 40-40-0-(20) | 40-40-0-(20) | 40-40-0-(20) | 40-40-0-(20) |
| Microtox [®] Bioassay, EC 50, mg/L.min. | >100,000 | >100,000 | >100,000 | >100,000 |

MEETS PERFORMANCE REQUIREMENTS OF:

General Electric Generators GEH527j
General Electric Vertical Waterwheels GE-TPP-77904-1
Governors

Voith Allis Hydro Hydraulic Turbines
Woodward Hydraulic Turbine

APPLICATION:

Designed for use where environmental concerns require the use of a very low toxicity turbine oil. Especially suited for use in hydroelectric facilities and flood control structures requiring lubricants. Provides reduced eco-toxicity without reduced performance.

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LUBRICATION ENGINEERS, Inc.