



Low Tox[®] Hydraulic Oil (6603)

Provides reduced toxicity without reduced performance

LE's Low Tox[®] Hydraulic Oil (6603) provides superior performance – equivalent to premium hydraulic oils – with long oil life and excellent wear protection, while providing lower toxicity than biodegradable hydraulic oils. Its advanced technology formulation – with highly refined mineral oil and specially selected ashless additives – offers low toxicity, but it does not sacrifice lubrication performance or necessitate shortening of lubricant change intervals; there is no worry of premature oxidation or failure of the lubricant as there is with most vegetable oil-based products.

Beneficial Qualities

Environmentally Friendly

- Exhibits very low toxicity as compared to conventional and biodegradable hydraulic oils

Premium Long-Lasting Performance

- Performs better than conventional antiwear hydraulic oils
- Can be used without having to lower the rated pressures of hydraulic equipment
- Provides good rust and corrosion protection
- Resists hydrolysis better than vegetable or synthetic ester-based oils
- Exhibits excellent demulsibility
- Is compatible with seals

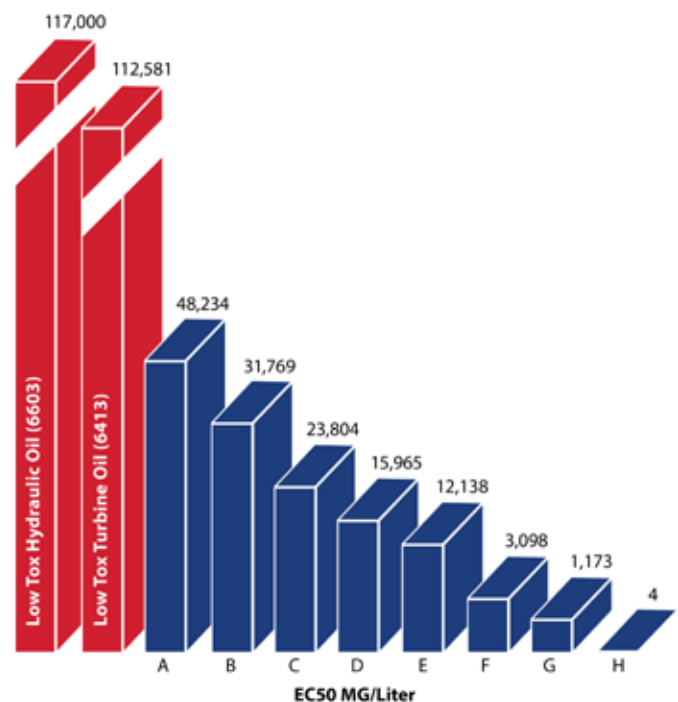
Available Grade

- ISO 68

Why Low Toxicity?

One question confronting scientists in environmental risk assessment is whether it is better for a material to be quickly biodegraded and possess relatively high toxicity or be low in toxicity and biodegrade at a slightly slower rate. Lubrication Engineers believes that the latter option provides the best protection of the environment because it minimizes overall impact on the ecosystem.

Microtox Luminescent Bacteria Bioassay Test Higher EC50 Values Indicate Lower Toxicity



EC 50: Effective concentration measured in milligrams of product per liter of water. Tells you the effective concentration of the product being measured and what quantity it takes to reduce bacterial luminescence metabolic activity by 50%. EC values are applicable to compounds that are not soluble in water, including oils.

LE's Low Tox Hydraulic and Turbine Oils (6603 and 6413) are less toxic to the environment than other conventional and biodegradable products (A-H). A further concern is the toxic effect on the environment of a lubricant during the time that biodegradation is taking place. LE's Low Tox oils are 55 percent biodegradable in 28 days and have the lowest toxicity of all competitive hydraulic and turbine products, as shown by the test results above.



Low Tox[®] Hydraulic Oil

	6603
Color	Straw
ISO VG	68
Relative Density @ 60°F/60°F, ASTM D1298	0.885
Viscosity @ 100°C, cSt, ASTM D445	8.90
Viscosity @ 40°C, cSt, ASTM D445	68.0
Viscosity Index ASTM D2270	≥100
Flash Point °C (°F), (COC), ASTM D92	230 (446)
Pour Point °C (°F), ASTM D97	-18 (0)
Microtox Bioassay, mg/L EC50	>70,000
Rust Test 4 hrs @ 60°C, Sea H₂O, ASTM D665B	Pass
Copper Corrosion 3 hrs @ 100°C, ASTM D130	1b
Dielectric Strength, Kv, ASTM D877	≥35
Emulsion Characteristics @ 54°C, oil-water-emulsion/minutes, ASTM D1401	40-40-0/10

Performance Requirements Met or Exceeded

- Eaton Brochure 03-401-2010
- Parker (formerly Denison) HF-0

Typical Applications

- Hydroelectric facilities
- Flood control structures
- Offshore installations
- Locks on rivers
- Dredging equipment
- Forestry and logging equipment
- Construction equipment
- Water and wastewater treatment plants
- Paper mills
- Mining
- Other applications where low toxicity and minimal environmental impact is desirable.

