



## Multilec® Industrial Oil (6801-6807)

### *Versatile Oil Provides Superior Long-Term Anti-Wear Protection in Variety of Applications*

Multilec® Industrial Oil is a heavy-duty oil designed to prolong equipment life by combating the effects of high temperatures, water, contaminants and heavy loads that accelerate wear. Available in seven different viscosity grades, this multipurpose lubricant is ideally suited for use in all types of air compressors, hydraulics, oil circulating systems, industrial turbines, and R & O industrial and gear applications.

This long-lasting, nonfoaming, turbine-quality oil provides superior resistance to heat, oxidation and moisture. It also provides peace of mind by ensuring that your equipment works when it is needed, whether you run it intermittently or continuously. Multilec Industrial Oil features a balanced blend of premium base oils and robust additive technology, including rust and oxidation inhibitors and Monolec, LE's exclusive wear-reducing additive. This formulation delivers a powerful combination of performance and versatility that far exceeds that of other lubricants on the market – both synthetic and petroleum.



### Beneficial Qualities

#### *Provides Long-Lasting Protection*

- Provides long oil service life under high heat conditions
- Extends oil drains by four to six times vs. ordinary oils
- Reduces maintenance costs
- Makes it easier to trace leaks due to red color
- Prolongs equipment life

#### *Reduces Wear, Operating Temps & Energy Use*

- Possesses exceptional film strength, protecting moving parts from wear and scuffing
- Minimizes viscosity changes as temps vary, resulting in better separation of metal surfaces
- Maintains uniform lubricant layer due to highly effective foam suppressant that breaks up air bubbles as they form
- Eliminates overheating and automatic shutdowns

- Reduces frictional drag, lowering power consumption

#### *Protects Against Water, Rust & Corrosion*

- Separates rapidly from water, allowing excess water to accumulate for easy drain-off
- Provide exceptional resistance to moisture, particularly effective during periods of shutdown when cooling may cause condensation
- Protects metal surfaces against rust and corrosion, even in sensitive silver, copper and copper-lead bearings

#### *Minimizes Carbon, Varnish & Sludge*

- Inhibits carbon formation and deposits
- Reduces acids and insoluble products caused by oil oxidation
- Prevents sludging during service
- Keeps systems clean and operating smoothly

### Proprietary Additive

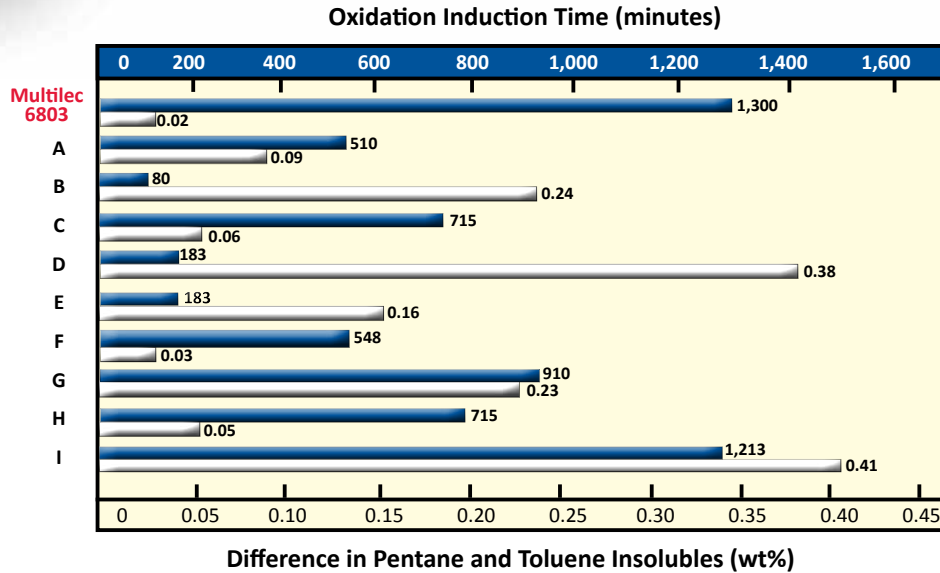
LE's proprietary additives are used exclusively in LE lubricants. Multilec® Industrial Oil contains Monolec.

**Monolec®** wear-reducing additive creates a single molecular lubricating film on metal surfaces, vastly increasing oil film strength without affecting clearances. An invaluable component in LE's engine oils, industrial oils and many of its other lubricants, Monolec allows opposing surfaces to slide by one another, greatly reducing friction, heat and wear.



# Oxidation Resistance

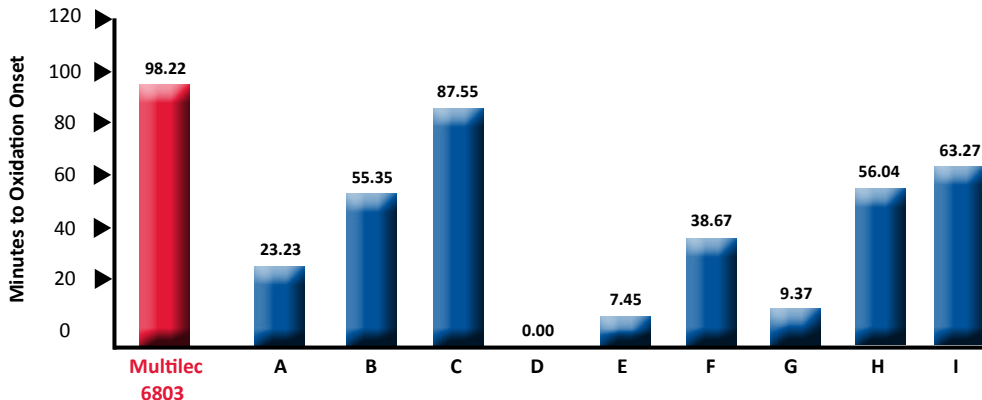
## Rotary Pressure Vessel Oxidation Test



The Oxidation by RPVOT test (ASTM D2272) illustrates the superior oxidation resistance of Multilec as compared to various other compressor and industrial oils. In this test, a sample of the oil is placed in a sealed container with water and a copper catalyst. It is pressurized with 90 psi of oxygen and heated to 150°C (302°F). The time is measured to a 25 psi drop in pressure. This signifies a significant reaction has occurred between the lubricant and the oxygen – oxidation.

**Result:** Multilec Industrial Oil had a longer oxidation life and lower insoluble levels than any other oil tested – petroleum or synthetic.

## Pressure Differential Scanning Calorimetry



Confirming data for the superior oxidation resistance of Multilec Industrial Oil comes from the PDSC test. This computer-operated thermal analysis can accurately detect any exothermic (heat-releasing) or endothermic (heat-absorbing) chemical or physical changes that occur in the sample under evaluation. The graph above illustrates the time to the onset of oxidation for a number of oils at a temperature of 195°C (383°F) and an oxygen pressure of 500 psi.

**Result:** Multilec Industrial Oil had a longer oxidation life than any other oil tested – petroleum or synthetic.

## Typical Applications

- Air compressors
- Air line oilers
- Bearings
- Blowers
- Circulating & splash systems
- Cranes
- Gearboxes
- Hydraulics
- Industrial turbines
- Vacuum pumps



*Air Compressors*



*Industrial Turbines*



*Hydraulic Units*



*Cranes*





## Multilec® Industrial Oil

	<b>6801</b>	<b>6802</b>	<b>6803</b>	<b>6804</b>	<b>6805</b>	<b>6806</b>	<b>6807</b>
<b>Color</b>	Red	Red	Red	Red	Red	Red	Red
<b>ISO VG / SAE Grade</b>	32 / –	46 / –	68 / 20	100 / 30	150 / 40	220 / 50	320 / 60
<b>AGMA Grade</b>	–	1	2	3	4	5	6
<b>Relative Density ASTM D1298</b>	32.0	31.7	31.2	30.1	29.7	29.6	28.8
<b>Viscosity @ 100°C, cSt, ASTM D445</b>	5.49	6.79	8.57	11.27	14.83	18.90	24.99
<b>Viscosity @ 40°C, cSt, ASTM D445</b>	32.35	45.19	64.66	98.59	150.1	217.2	335.2
<b>Viscosity Index ASTM D2270</b>	95	95	95	95	95	95	95
<b>Flash Point °C (°F), (COC), ASTM D92</b>	210 (410)	224 (435)	218 (425)	224 (435)	224 (435)	218 (425)	216 (420)
<b>Pour Point °C (°F), ASTM D97</b>	-33 (-27)	-36 (-33)	-30 (-22)	-27 (-17)	-24 (-11)	-24 (-11)	-21 (-6)
<b>Rust Test 4 hrs @ 60°C, Sea H<sub>2</sub>O, ASTM D665B</b>	Pass	Pass	Pass	Pass	Pass	Pass	Pass
<b>Copper Corrosion 3 hrs @ 100°C, ASTM D130</b>	1b	1b	1b	1b	1b	1b	1b
<b>Oxidation by RPVOT @ 150°C, minutes, ASTM D2272</b>	1,300	1,300	1,300	1,300	1,300	1,300	1,300
<b>Universal Oxidation Test</b> 121°C, 10 L/hr, extrapolated hours to acid number = 2.0, ASTM D5846	>20,000	>20,000	>20,000	>20,000	>20,000	>20,000	>20,000
<b>Four-Ball Wear @ 75°C, 1,200 rpm, 40 kgf, 60 minutes, mm wear, ASTM D4172</b>	0.45	0.45	0.45	0.45	0.45	0.45	0.45
<b>Emulsion Characteristics @ 54°C, oil-water-emulsion/minutes, ASTM D1401</b>	40-40-0/10	40-40-0/10	40-40-0/10				
<b>Emulsion Characteristics @ 82°C, oil-water-emulsion/minutes, ASTM D1401</b>				40-40-0/10	40-40-0/10	40-40-0/10	40-40-0/10
<b>Dielectric Strength kV minimum, ASTM D877</b>	35	35	35	35	35	35	35
<b>Scuffing Load Capacity</b> (FZG visual method), Load Stage Pass, ASTM D5182						10	10

### Performance Requirements Met or Exceeded

- AGMA 9005-E02
- Cincinnati-Machine
  - P-68 6801
  - P-70 6802
- Denison
- Eaton-Vickers
  - Industrial
  - Mobile
- USDA H2
- US Steel 126