



## Pyroshield® Syn Open Gear Grease (5182, 5180 & 5100)

### Heavy-Duty Synthetic Grease Provides Extreme Protection

Pyroshield Syn Open Gear Grease is a heavy-duty synthetic lubricant developed for large unshrouded open gears in the mining, mineral processing and cement industries, and for other severe service applications that require a lubricant with superior wear protection, exceptional load-carrying ability, outstanding tackiness and ease of application at various temperatures. It also works well for applications in which gears experience high point-of-contact temperatures of 327°C (620°F) and above.

A product of advanced lubricant technology providing boundary lubrication, unmatched performance and versatility, Pyroshield Syn Open Gear Grease is formulated with high-viscosity 100 percent synthetic base oil, a non-melting thickening system and LE's proprietary heat stable additives. It contains a synergistic mix of Almasol®, LE's exclusive wear-reducing additive, and a unique combination of extreme pressure additives.



#### Beneficial Qualities

- **Increases uptime**
- **Lengthens equipment life**
- **Lowers lubricant consumption**
- **Reduces maintenance**

#### Superior Performance

- Outperforms similar products in wear protection and load-carrying ability (see test results on pages 2 and 3)
- Carries 90-lb Timken OK load
- Resists shock loading
- Provides excellent oxidation resistance and rust protection
- Reduces noise in large open gears

#### Outstanding Tackiness

- Clings tenaciously to surfaces
- Resists removal by water, heat and other severe conditions

#### Wide Temperature Range

- Does not thin or run at high temperatures
- Has no dropping point (will not melt)
- 5180 remains pumpable at low temperatures

#### Versatility

- Works for open gears and heavily loaded sliding applications
- Comes in grades 0 and 2 to meet the needs of manual and automatic systems
- Also available in aerosol

#### Available Grades

- NLGI 2 applied, 2 in use (5182)
- NLGI 0 applied, 2 in use (5180)
- Aerosol as applied, 2 in use (5100)

#### Proprietary Additive

LE's proprietary additives are used exclusively in LE lubricants. Pyroshield Syn Open Gear Grease contains Almasol.

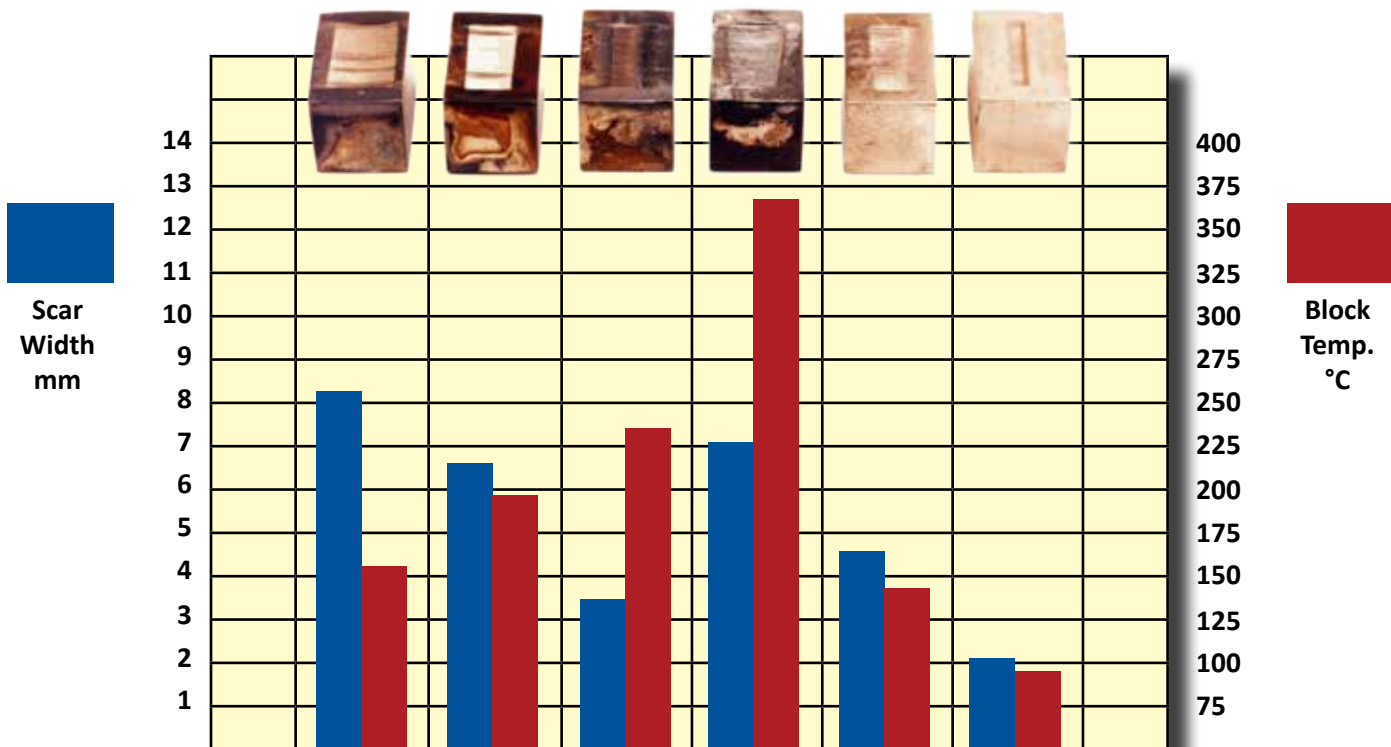
**Almasol®** solid wear-reducing additive is able to withstand extremely heavy loads, chemical attack and temperatures up to 1,900°F (1,038°C). It is attracted to metal surfaces, forming a microscopic layer but not building on itself or affecting clearances. Almasol minimizes metal-to-metal contact and the resulting friction, heat and wear.



## LE Modified Timken Test

**Specimens:** Aluminum-Bronze Block (Alloy No. 61300), 32-rms micro inch steel race

**Conditions:** 20-lb lever arm load, 800 rpm, 2 hour, 1 lb of lubricant



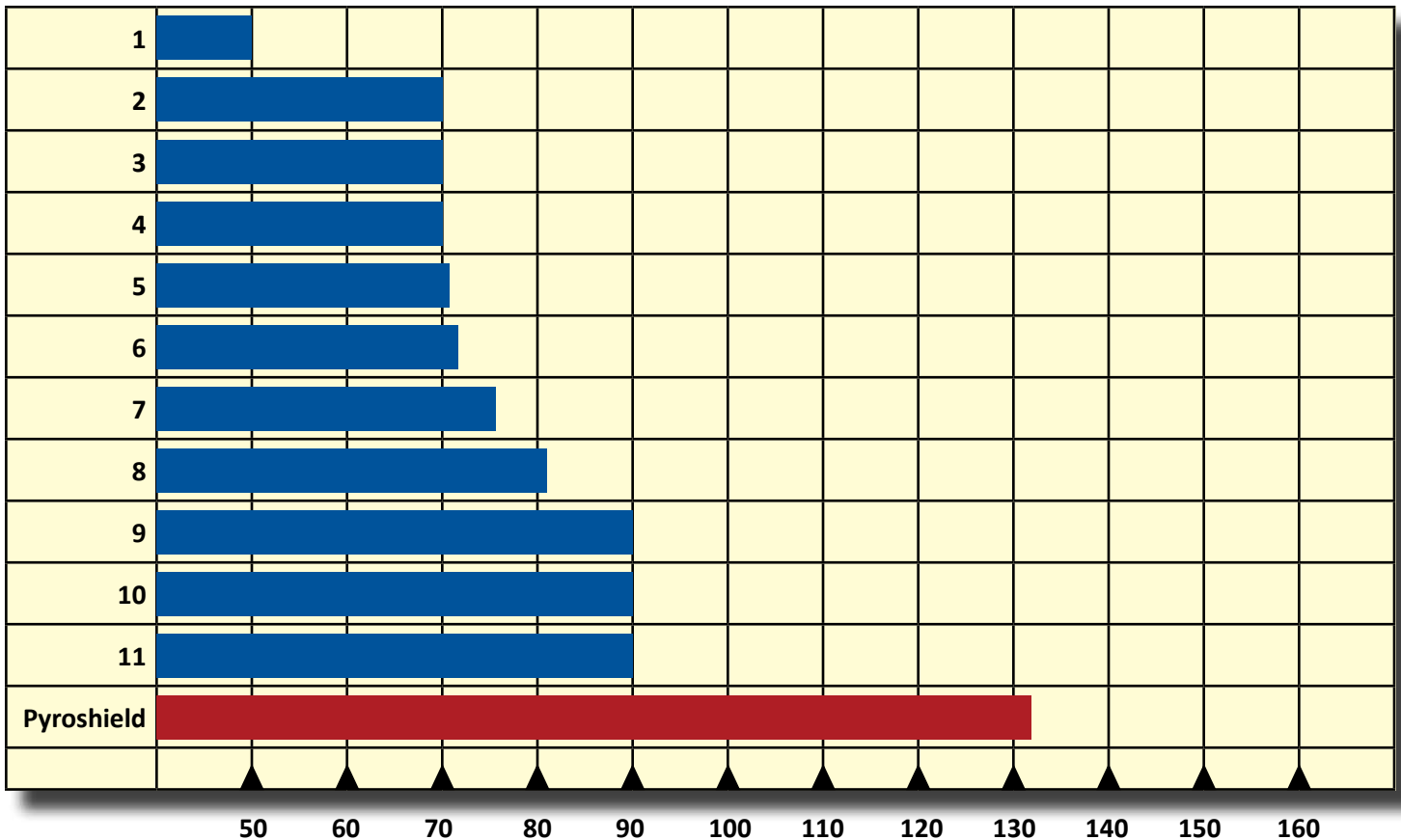
Lubricants Tested:	A	B	C	D	E	Pyroshield
Scar Width - mm:	8.25*	9.5*	3.3	7*	4.5*	2.0*
Block Temp. °C:	151	193	234	369	136	90

\*Value is an average of widest and narrowest widths for scars that are not parallel to the block edge.

### Conclusion

The results of the comparative product testing demonstrate the outstanding load-carrying capacity of Pyroshield Syn Open Gear Grease. It outperformed every competitive product that was tested. Pyroshield had a narrower wear scar and a lower block temperature than all the other lubricants. The test blocks of the competitive products experienced higher temperatures as a result of friction due to poor lubrication. The difference is easily visible in the amount of discoloration of the test blocks.

## Pyroshield vs Competitive Open Gear Lubricants LWI



### Conclusion

The graph above clearly shows the outstanding preventive wear performance that Pyroshield Syn Open Gear Grease provides as compared to competitive products. Load Wear Index (LWI) is a measure of lubricant's ability to carry a load and minimize wear. The higher the value, the better the lubricant does in preventing wear.





## Pyroshield® Syn Open Gear Grease

	<u>5182*</u>	<u>5180</u>
<b>Thickener Type</b>	Bentone	Bentone
<b>Texture</b>	Smooth/Tacky	Smooth/Tacky
<b>Color</b>	Purple	Purple
<b>NLGI Grade as applied</b>	2	0
<b>NLGI Grade in service</b>	2	2
<b>Worked 60 Penetration ASTM D217</b>	275	365
<b>Worked 10K Penetration ASTM D217</b>	+14	+14
<b>Worked 100K Penetration ASTM D217</b>	+28	+28
<b>Dropping Point °C (°F), ASTM D2265</b>	Non-melt	Non-melt
<b>Base Fluid Characteristics</b>		
<b>Flash Point °C (°F), ASTM D92</b>	224 (435)	110 (230)
<b>Viscosity @ 100°C, cSt, ASTM D445</b>	690	690 (in service)
<b>Viscosity @ 40°C, cSt, ASTM D445</b>	26,180	26,180 (in service)
<b>Pour Point °C (°F), ASTM D97</b>	3 (37)	3 (37)
<b>Oxidation drop in psi @ 100 hrs, ASTM D942</b>	3	3
<b>Corrosion Prevention DI H2O, ASTM D1743</b>	Pass	Pass
<b>Timken OK Load lbs, ASTM D2509</b>	90	90
<b>Four-Ball EP Weld Point kgf, ASTM D2596</b>	500	620
<b>Four-Ball EP Load Wear Index kgf, ASTM D2596</b>	116	136
<b>Four-Ball Wear @ 75°C(167°F), 1200 rpm, 40 kgf, 60 minutes, mm wear, ASTM D2266</b>	0.71	0.71
<b>Water Spray-off % loss, ASTM D4049</b>	<2.0	<2.0
<b>Copper Corrosion 24 hrs @ 100°C, ASTM D4048</b>	1b	1b

\* An aerosol version of Pyroshield 5182 – Pyroshield 5100 – will have the same physical characteristics as 5182 once in service. The convenient spray cans, which contain no chlorofluorocarbons, are ideal for use with open gears, chains and slides.

### Recommendations

- For best results when switching to Pyroshield Syn Open Gear Grease, first clean the area of application with LE's Duolec® Vari-Purpose Gear Lubricant (1609).

### Using Pyroshield 5100 & 5180

- Use adequate ventilation if used indoors. These lubricants contain a safe, non-chlorinated solvent for improved pumpability and ease of application at low temperatures.
- After application, the solvent evaporates. The resulting lubricant is an NLGI grade 2 grease.
- 5180 should not be further diluted with solvent, even if partial evaporation has occurred, as the functional characteristics could be altered.

### Performance Requirements Met or Exceeded

- 5180: Metso Mineral Grinding

### Typical Applications

- Various applications in the mining and mineral processing industry
- Open gears and slides
- Ball mill open gears
- Kiln open gears
- Bar screens
- Dipper sticks
- Circle rails

