Product Information

Pyroshield® Syn Hvy & XHvy Open Gear Lubricants (9000 & 9011)

Synthetic Oil Provides Extreme Protection

Pyroshield Syn Hvy & XHvy Open Gear Lubricants are heavy-duty synthetic fluids designed to provide outstanding protection for high-load, heavy-shock applications, such as large shrouded open gears used in the mining, mineral processing and cement industries. Pyroshield Syn Open Gear Lubricants are non-asphaltic and feature a synergistic mix of Almasol®, LE's exclusive wear-reducing additive, and a unique combination of extreme pressure additives.



Beneficial Qualities

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

Superior Gear Protection

- Exhibits exceptionally high film strength, helpful for withstanding high-load, heavy-shock applications
- Carries 95-lb Timken OK load
- Achieves 14th stage pass in FZG gear test
- Creates a film on metal surfaces, preventing destructive metal-to-metal contact
- Reduces gear temperatures by 5-15%
- Clings tenaciously to metal surfaces, without accumulating

Environmentally Friendly

- Contains no lead
- Can be disposed of like any other nonhazardous petroleum oil
- Reduces waste disposal

Easy To Use

- Appears translucent in use, facilitating visual inspection of open gears
- Does not require equipment to be shut down during conversion from old lubricant to new
- Can be applied manually or through automatic spray systems
- Eliminates cleanup-related downtime

Cost Effective

- Performs better and lasts longer than competitive lubricants
- Ensures trouble-free operation, fewer failures and less downtime
- Reduces maintenance costs for repairs, parts and labor
- Reduces lubricant consumption by up to 80%
- Reduces energy consumption

Proprietary Additive

LE's proprietary additives are used exclusively in LE lubricants. Pyroshield Syn Hvy & XHvy Open Gear Lubricants contain 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 Offers Pyroshield's Advanced Technology as Solution for Large Shrouded Open Gears

Lubrication Engineers developed Pyroshield Syn Hvy and XHvy Open Gear Lubricants to meet the specific requirements for the lubrication of large shrouded open gears, and to address the main problems associated with traditional lubricants for these gears.

These traditional open gear lubricant problems, along with the accompanying Pyroshield solution, include:

Wear / Downtime

Some lubricants commonly used for open gear systems are identified only as "cushioning compounds," thus providing poor lubrication, which could result in excessive wear, frequent downtime for repairs, malfunctioning and high operating temperatures.

Pyroshield Solution

Pyroshield Open Gear Lubricants contain a synergistic mix of Almasol®, LE's exclusive wear-reducing additive, and a unique combination of extreme pressure additives. They exhibit exceptionally high film strength that helps them to withstand heavy loads and cushion shock loading in applications where commercial grade lubricants would fail. They also prevent the metal-to-metal contact that can lead to high operating temperatures and destructive wear.

Run-off / Housekeeping / Consumption / Cost

Because many lubricants for open gear systems are not sufficiently tacky, they have to be applied in excessive amounts to provide a thick coating. It is not uncommon for the amount of lubricant applied to far exceed the amount recommended by the American Gear Manufacturers Association. In fact, some operators routinely use two to three times more than the recommended amount. Much of these lubricants will then run off, requiring extensive cleanup and waste disposal. Because of product run-off and the need for a thick layer, many traditional lubricants have to be purchased, used and disposed of in excessive amounts.

Pyroshield Solution

Pyroshield Syn Open Gear Lubricants are extremely tacky. LE's proprietary formulation allows the Pyroshield to cling tenaciously to metal surfaces, without build-up. The use of Pyroshield Syn Open Gear Lubricants has been shown to reduce lubricant consumption by up to 80 percent.

Build-up / Damage

Some traditional lubricants are tacky enough to adhere to the metal and not run off, but they cause another problem – they build up in the roots of the gear teeth, which can result in bearing stress and damage, as well as possible damage to foundations. In addition to possible damage, the removal of build-up can be messy and time-consuming.

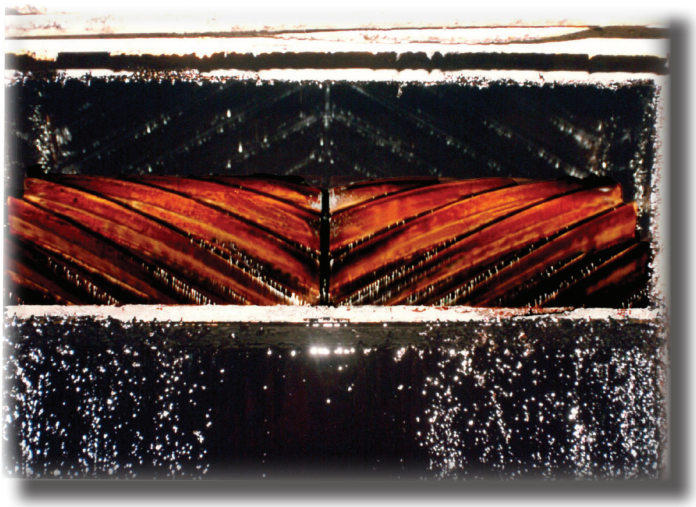
Pyroshield Solution

Unlike these traditional lubricants that experience accumulation requiring periodic removal, LE's Pyroshield Syn Hvy and XHvy Open Gear Lubricants are fluid and will not accumulate. Cleanup is not required, and the use of Pyroshield Lubricants eliminates the possibility of expensive gear damage from unchecked accumulations.

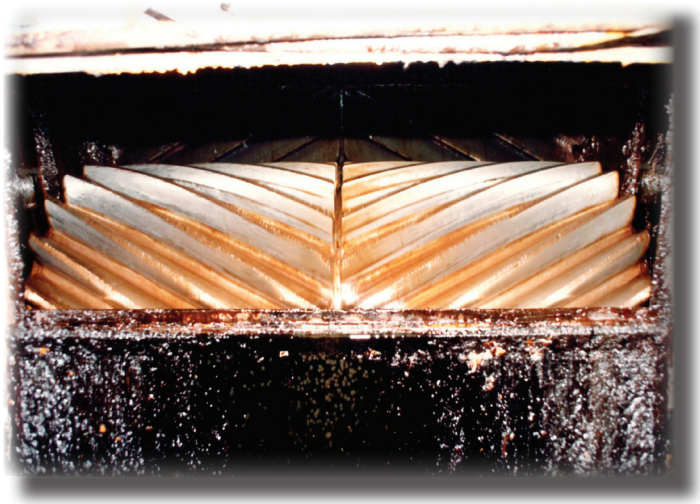
Pyroshield Syn Open Gear Lubricants provide the same outstanding wear protection and reduced consumption provided by LE's Pyroshield 5182, 5180 and 5100 Open Gear Grease, but they have the added ability to flow freely in use. This eliminates the tendency to accumulate on shroud and pinion areas.

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LE operates under an ISO 9001 Certified Quality System.

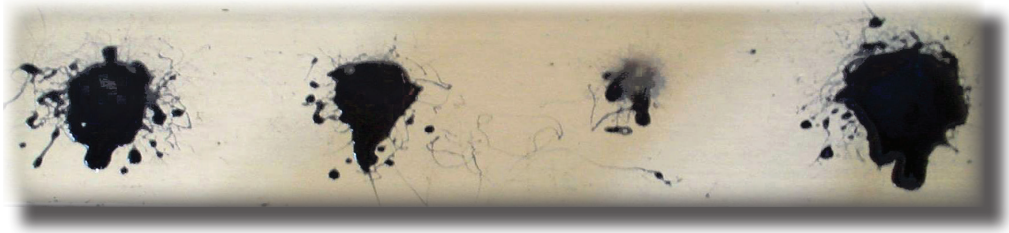
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Open gears lubricated with a commercial grade open gear lubricant. The gears are difficult to inspect underneath an accumulation of thick, dark lubricant.



The same gears after conversion to Pyroshield Syn Open Gear Lubricant. The gears appear shiny and clean, with a thin layer of clear lubricant allowing easy inspection.



Spray pattern using commercial grade lubricant. Traditional asphaltic lubricants cause spray nozzles to clog, leading to poor application of the lubricant and the creation of damaging hot spots on gears.



Spray pattern after converting to Pyroshield Syn Open Gear Lubricant. The spray nozzles do not clog with the Pyroshield fluid lubricant, allowing a more protective, uniform film of lubricant to be applied to the gears.

Technical Data

Pyroshield® Syn Hvy & XHvy Open Gear Lubricants

	9011 XHvy	9000 Hvy
Color	Purple	Purple
Relative Density @ 60°F/60°F, ASTM D1298	0.900	0.909
Viscosity @ 100°C, cSt, ASTM D445	1,104 w/o diluent	880.0
Viscosity @ 40°C, cSt, ASTM D445	36,070 w/o diluent 6,000 w/ diluent	28,980 –
Viscosity @ 40°C, SUS, ASTM D445	5,149 w/o diluent	–
Viscosity Index ASTM D2270	190 w/o diluent	190
Diluent	Yes	No
Flash Point °C (°F) (COC), ASTM D92	196 (385) w/o diluent 112 (235) w/ diluent	196 (385)
Pour Point °C (°F), ASTM D97	0 (32)	12 (54)
Rust Test 4 hrs @ 60°C, DI H2O, ASTM D665A	Pass	Pass
Rust Test 4 hrs @ 60°C, Sea H2O, ASTM D665B	Pass	Pass
Copper Corrosion 3 hrs @ 100°C, ASTM D130	1b	1b
FZG Scuffing ISO 14635-1, A/8.3/90, Fail Stage	>14	>14
FZG Scuffing ISO 14635-3, A/2.8/50, Fail Stage	>12	>12
FZG Wear ISO 14635-3, A/2.8/50, Specific Weight Loss, mg/kWh	<2	<2
Timken OK Load lbs, ASTM D2782	95	95
Four-Ball EP ASTM D2783		
Weld Point, kgf	400	400
Load Wear Index, kgf	95	95

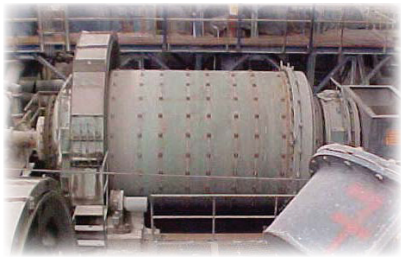
Performance Requirements Met or Exceeded

- AGMA 9005-EO2
- Falk Corporation
- FFE Minerals
- Foster Wheeler
- Fuller Traylor
- Metso
- USDA H2
- Walchandnagar Industries Ltd, India

Typical Applications

Industries where large open gears are in service, including:

- Coal-fired power generation
- Mining (iron, copper and other minerals)
- Sugar beet processing
- Cement
- Ceramics
- Paint
- Glass and sand





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