

INTRODUCING...THIXOGREASE, A REVOLUTIONARY NEW GENERATION OF MULTI-PURPOSE GREASE

Thixogrease

POWER UP
LUBRICANTS

Superior Film Strength Protection in High Pressure Applications

Thixogrease, the new generation, multi purpose grease from Power Up, provides superior protection in the boundary lubrication regime. **Thixogrease** is ideal for applications where high loads, extreme pressure or high temperature cause serious metal to metal contact and wear. Superior water wash resistance and rust corrosion inhibition allow **Thixogrease** to excel in areas where conventional greases fail. **Thixogrease** is made of a unique base which offers minimal oil separation or hardening and demonstrates excellent compatibility with many traditional soap oil greases.

The primary benefit of **Thixogrease** is to reduce the friction caused by asperity (metal to metal) contact in the boundary lubrication regime. It is designed for grease filled applications where high temperature, extreme pressure, water and corrosion are common conditions.

Primary Benefits of Thixogrease:

- *Thixogrease reduces ultrasonic wear noise which relates directly to lower component wear*
- *The high dropping point (570°F) and temperature pumpability of Thixogrease allow for a wide operating temperature range of 0°F to 480°F (-18°C to 250°C)*
- *Thixogrease is formulated with rust and corrosion inhibitors to withstand contamination and protect critical components*
- *Exceptional water wash resistance allows Thixogrease to work in marine, pulp and paper, and similar applications*
- *Thixogrease has outstanding shear stability, minimizing relubrication requirements*
- *Thixogrease is ideal for use in centralized lubricating systems due to its excellent pumpability*

This new product from Power Up Lubricants is formulated entirely of a Thixotropic complex and unlike conventional grease, offers virtually no chance of oil separation or hardening.

SUPERIOR PERFORMANCE IN MAXIMUM TEMPERATURE RANGE APPLICATIONS



Thixogrease will not melt down into fluid at temperatures approaching 570°F (300°C), outperforming most soap-based greases by 20%. It maintains its soft, smooth and greasy texture even when cooled and will not harden. It remains highly effective at 0°F (-18°C) and withstands low temperature torque tests to -40°F (-40°C).



Reduced Equipment Wear

Comparison tests of pressure performance and wear protection show **Thixogrease** to have unsurpassed EP lubricating properties, withstanding over 5 times greater pressure and up to a 45% reduction in scoring of metal surface, maximizing life expectancy of bearings. A microscopic layer of **Thixogrease** has proven effective in heavy unit loading up to **200,000 PSI**, which means exceptional protection.

"We were losing a bearing a month on our wet plant conveyors. Each time a bearing went bad it would take us two to three hours to replace, depending on the location of the bearing. It is calculated to cost us \$1,500 an hour each time we have to shut down the wet plant for repair. In June of 2006 we started utilizing the Power Up Thixogrease and have not experienced a failure in the three years since, thanks to the Thixogrease."
Louie Figueroa, Cemex Plant Manager, Cortaro Plant, Arizona



Call today for more information **1-800-897-6937**
or visit us online at **www.powerupusa.net**



GIVE YOUR EQUIPMENT THE ADVANTAGE OF THE LATEST IN GREASE TECHNOLOGY

Thixogrease



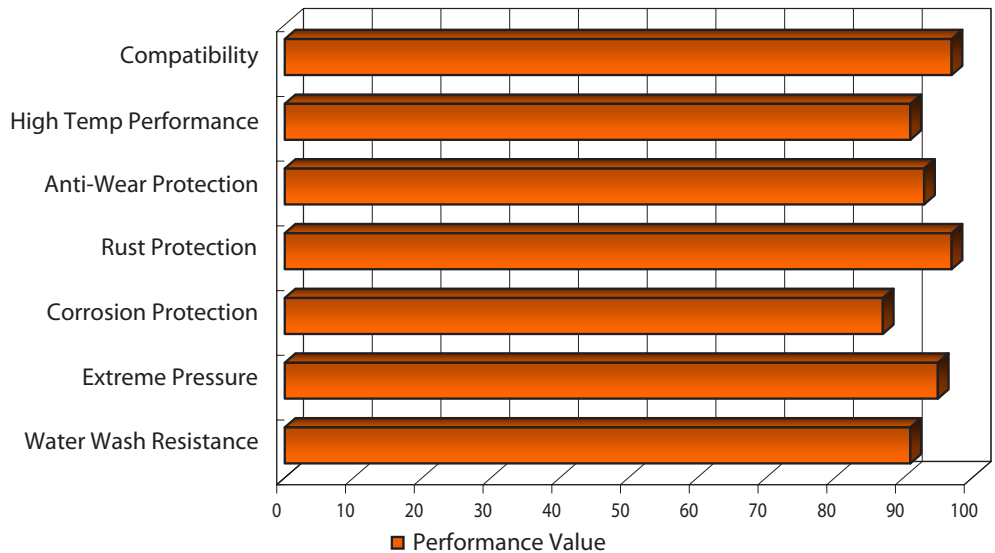
Superior Grease Performance

These graphs illustrate that Power Up **Thixogrease** (right) and its' proprietary Overbased Calcium Sulfinate formula outperforms Aluminum, Lithium, Calcium, Bentonite (clay), and Poly Urea base or complex greases (below) in all major categories of compatibility, high temp performance, anti-wear protection, rust protection, corrosion protection, extreme pressure and resistance to water wash.

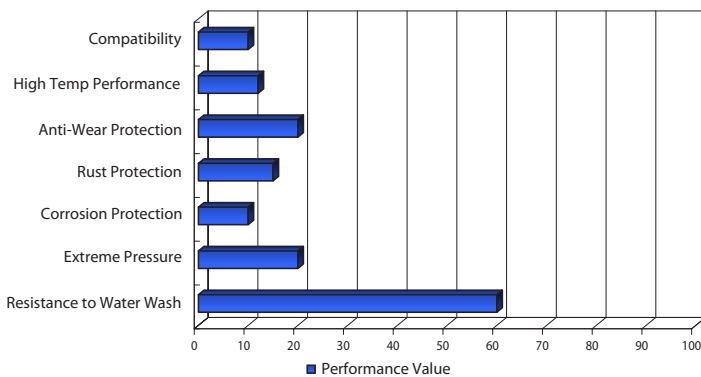
Power Up **Thixogrease** gives you the flexibility of using a complete formulated multi-purpose grease no matter what the application.

Thixogrease

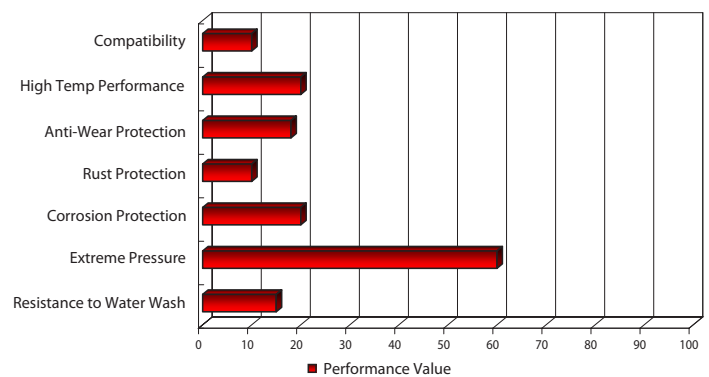
A FULLY FORMULATED MULTI-PURPOSE GREASE



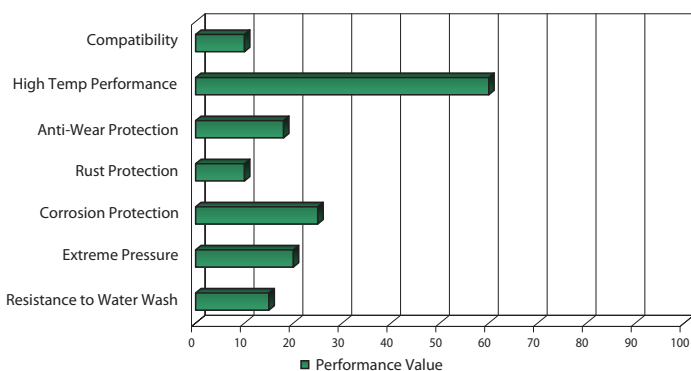
Special Purpose Marine Grease



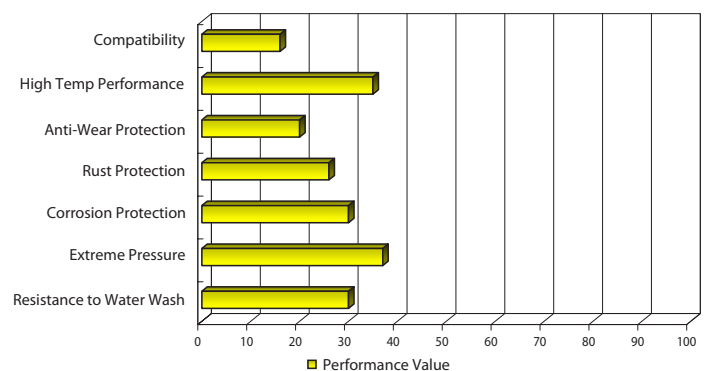
Extreme Pressure Grease



Extreme Temperature Grease



Multi-Purpose Grease



THIXOGREASE PROVEN THROUGH INDEPENDENT TESTING TO BE THE SUPERIOR GREASE SOLUTION

Thixogrease

Independent tests have concluded **Thixogrease** to be superior in all categories. These tests were regulated by NLGI, the National Lubricating Grease Institute and ASTM, the American Society for Testing Materials. They confirmed that **Thixogrease** is highly efficient for use in centralized grease systems and offered superior performance in applications including industrial, automotive, marine, farming and mining.

Thixogrease has the unique ability to maintain its integrity and effectiveness even in the presence of contaminating soap-based greases. Results from ASTM's Salt Spray test showed water resistance of up to 20 times greater than conventional greases.

Test results prove it!

- *Proven effective in heavy unit loading up to 200,000 PSI*
- *Superior performance at elevated temperatures*
- *Maintains consistency over extended use, extreme pressure and heat*
- *Highly compatible with residual greases*
- *Excellent resistance to water and oxidation*
- *Minimal contamination risk*



Resistance to Water			
Grease Type	Thixogrease	Lithium* Complex	Poly* Urea
NLGI Grade	2	2	2
100,000 with 50% Water 60X	+5	N/A	N/A
Water Wash Out D1264 at 70°C Loss	2.7	N/A	N/A
Shell Roll D1831 as Received	290	N/A	N/A
After 2 Hours Rolling with 50% Water (77°F)	279	N/A	N/A
Rust Test D1743 Rating	Pass	Pass	Pass
ASTM B117-73 Salt Spray Test Hours to Failure at 1.5 mil	950	48	48

High Temperature Capabilities				
Grease Type	Thixogrease	Lithium* Complex	Aluminum* Complex	Poly* Urea
NLGI Grade	2	2	2	2
Dropping Point D566	570+°F (300+°C)	570°F (300°C)	550°F (288°C)	463°F (239°C)
Wheel Bearing Leakage D1273 Modified at 163°C Grams	0.2	3.1	1.2	0.8
Lubrication Life D3336 at 300°F (149°C), No. 204 Bearing, 10,000 RPM Hrs. to Failure	800	580	97	420
Reversibility	Yes	No	Yes	No

*Data reprinted from Lubrication Engineering

Shear Stability				
Grease Type	Thixogrease	Lithium* Complex	Aluminum* Complex	Poly* Urea
NLGI Grade	2	2	2	2
Pen at 25°F, D217mm/10 Pen Worked 10,000 60X	+1	+10	+15	+15
100,000 60X	+2	+30	+45	+60
Roll Stability D1831				
Worked Penetration as Received	290	N/A	N/A	N/A
After 2 Hours at Ambient	302	Liquified	Liquified	Liquified
After 100 Hours at 150°F	296	Liquified	Liquified	Liquified

Extreme Pressure Performance and Wear Protection				
Grease Type	Thixogrease	Lithium* Complex	Aluminum* Complex	Poly* Urea
NLGI Grade	2	2	2	2
Timken OK Load D2509 Lbs	270	65	60	70
4-Ball EP Test D2596 LWI Weld Point Kg	>95	45	45	80
4-Ball Wear Test D2266 [mm] Scar 40 Kg, 1200 RPM, 75 °C 1 Hour	0.30	0.50	0.55	0.35

Picture 1: Steel balls welded together in standard 4 ball EP wear with traditional Lithium complex grease

Picture 2: Steel balls coated in Thixogrease remain unmarked and moving freely in 4 ball EP wear test with 4 times the load of the previous test.



THIXOGREASE REDUCES FRICTION CAUSED BY ASPERITY (METAL TO METAL) CONTACT

Typical Properties of Thixogrease		
Property	Method	Result
Color Texture		Brown Smooth, buttery
NLGI Grade		NLGI #2
Penetration	ASTM D217	280
Dropping Point	ASTM D2265	> 570°F (300°C)
Kinematic Viscosity @40°C (104°F) @100°C (212°F)	ASTM D445	130 cSt 13 cSt
Viscosity Index	ASTM D2270	95
Pour Point	ASTM D97	-5°F (-15°C)

Test Data on Thixogrease		
Property	Method	Result
Timken OK Load	ASTM D2509	> 70 lbs (31 kg)
4 Ball E.P. - LWI - Weld Load	ASTM D2596	75 1,100 lbs (500 kg)
4 Ball Wear	ASTM D2266	0.37mm
Corrosion Preventative Properties	ASTM D1743	Pass
Oil Separation	ASTM D1742	0.27%
Water Washout	ASTM D1264	0.10% loss
** Typical Properties and Test Data of NLGI #0 Available on Request		

Special Notations on Thixogrease	
Operating Temperature Range:	Power Up Thixogrease has been proven to be suitable for applications at temperatures from 0°F to 480°F (-18°C to 250°C). It is easily pumpable at extremely low temperatures and has a dropping point greater than 570°F (300°C), allowing its use in applications with brief excursions to 500°F (260°C).
NLGI Specifications:	Power Up Thixogrease meets or exceeds the specifications of the NLGI GB-LB classification for heavy duty chassis lubrication and medium wheel bearing applications.
Compatibility:	Where possible, it is always recommended that the old grease be cleaned out of any bearing prior to the application of a different type or grade of grease. The grease compatibility chart provided is a general guide only and may not be true for all brands of the given greases.



HIGH FILM STRENGTH IN HIGH PRESSURE APPLICATIONS

Thixogrease is currently available in following grades:

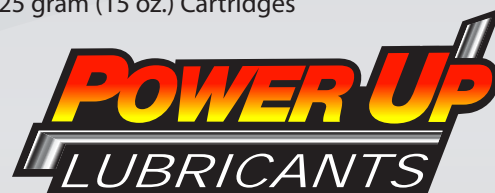
NLGI No. 0 - Most suitable for centralized grease systems, this grease is readily pumpable and will not bleed excessively or age harden.

NLGI No. 2 - A multi-purpose grease when superior lubrication performance is required. **Thixogrease** No. 2 is successfully used in the industrial, automotive, marine, farming, mining, forestry and construction industries.

Thixo Tak 2 - Also available is a tackier version of **Thixogrease** for high speed applications where grease retention is required.

Thixogrease is available in the following convenient sizes:

10 Tube Carton - 425 gram (15 oz.) Cartridges
30 Tube Case - 425 gram (15 oz.) Cartridges
35 lb Pails
120 lb Kegs
400 lb Drums



**THIXOGREASE PROVIDES SUPERIOR PROTECTION
WHERE RELIABILITY IS MOST CRITICAL**

Manufactured by: Maryn International Ltd.
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