

## Product Description

FORCE GREASE CALCIUM SULFONATE are a premium family of greases formulated with advanced calcium sulfonate thickener technology. The calcium sulfonate thickener carries both inherent rust protection and extreme pressure(EP) properties. Compared to conventional soap-base thickeners (i.e. lithium, aluminum, calcium soaps), the calcium sulfonate thickener used in FORCE GREASE CALCIUM SULFONATE in water saturated environments, providing rust protection between long re-lubrication intervals. The inherent EP properties exhibit great stability in the presence of water, allowing a balance between wear protection and resistance to corrosion. It is characterized by an extremely high load carrying capability, superior resistance to water and exemplary performance in high temperature applications.

FORCE GREASE CALCIUM SULFONATE will continue to lubricate under complete immersion or high water washout applications that no ordinary grease can endure.

FORCE GREASE CALCIUM SULFONATE are particularly well suited to meet the demanding lubrication requirements of steel mill and paper machine equipment. FORCE GREASE CALCIUM SULFONATE provide a balanced combination of water washout and water spray-off resistance, as well as excellent corrosion protection, in these severely wet environments. The calcium sulfonate thickeners used are also able to maintain their consistency and EP protection characteristics even with high levels of water contamination.

## Features and Benefits

FORCE GREASE CALCIUM SULFONATE are of lubricating products recognized for their high quality and reliability, as well as performance capabilities. This family of products is manufactured to the strictest quality standards. A key feature for this product family is its reputation for reliability and consistency, as well as its ability to handle tough applications. FORCE GREASE CALCIUM SULFONATE are formulated with high-performance calcium sulfonate thickener technology and are specifically designed for steel and papermill applications. FORCE GREASE CALCIUM SULFONATE offer the following benefits:

- Excellent extreme-pressure protection and load-carrying ability for equipment protection under heavy and shock loading
- Excellent high temperature oil bleed control
- Reliable bearing lubrication for operations up to 232 C (450 F) with proper re-greasing intervals
- An advanced polymer additive package which resists water washout
- Ability to absorb free water, without losing thickener consistency
- Extended re-grease intervals, reducing grease consumption

## Applications

FORCE GREASE CALCIUM SULFONATE are recommended for heavily loaded and water saturated applications in the steel and paper mill environments. Specific examples of such applications include:

- Ladle turret bearings
- Continuous casters
- Hot rolling work roll bearings
- Roll necks
- Couch, press and breast rolls
- Wood pellet mill roll bearings

## Typical Properties

FORCE GREASE CALCIUM SULFONATE		
NLGI Grade	1	2
Thickener Type	Calcium Sulfonate Complex	Calcium Sulfonate Complex
Color	Light Brown	Light Brown
Dropping Point, ASTM D 2265, °C	> 300	> 300
Worked Penetration, ASTM D 217, mm/10 @25°C	325	280
Water Washout @ 79°C, ASTM D 1264, wt%	0.43	0.52
Copper Corrosion, ASTM D 4048, Rating	1a	1a
Four Ball Weld, ASTM D 2596, kgf	500	500
Oil Separation @ 100°C after 30 hours, ASTM D 6184, wt%	0.33	0.63
Anti Wear, ASTM D 2566, mm	0.40	0.37