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# Advanced Greases for Pellet Mills

# TriboCal® XT

## Extreme service calcium sulfonate complex greases.

The pellet mill is the heart of your operation. It's also the most demanding grease application you have. Proper grease selection can reduce lubrication frequency, extend bearing life, and maximize your profitability.

### Pellet mill roll bearings are exposed to severe conditions including:

- High temperatures
- Moisture
- Particulate debris
- Continuous high loads and pressures

### Is your equipment reliability limited by inferior grease?

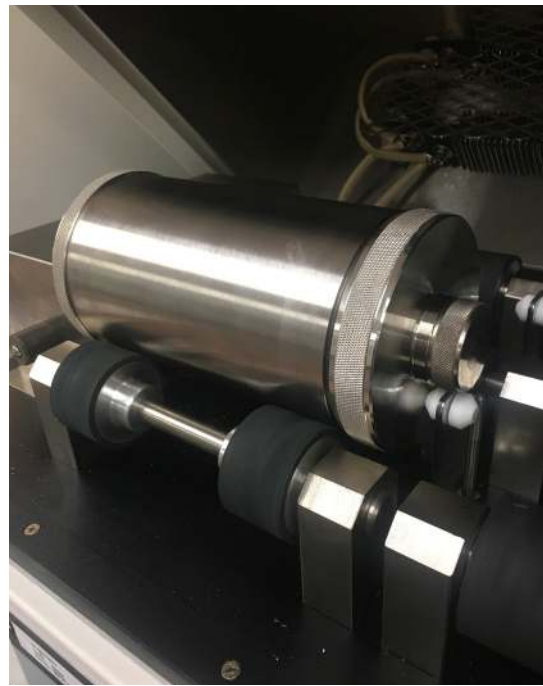
Manufacturer recommendations are not always the best product. In fact, most pellet mill OEMs recommend lithium complex grease simply because it offers adequate protection and is widely available. Test results show that lithium complex grease has diminished performance under real world conditions.

### Grease performance evaluation, real world conditions

The ASTM D1831 roll stability test simulates the action of roller bearing elements and their effect on grease structure. When run with water contamination and at elevated temperatures, you have severe conditions like those found inside a working pellet mill. Mechanical stability is determined by degree of consistency change from new grease.

#### STEP 1:

A 5-pound weighted cylinder is rolled in a shell filled with test grease for 50h at 80°C.



#### STEP 2:

After rolling, grease thickness is measured by dropping a weighted cone into the grease and measuring the depth it is able to penetrate in 0.1mm units.



### Lithium complex, an inferior grease

Mechanical stability, high-temperature capability, and wear protection are all diminished in the presence of water contamination. High feed rates are prescribed by OEMs to combat these issues, increasing grease consumption.

# TriboCal® XT, designed to outperform

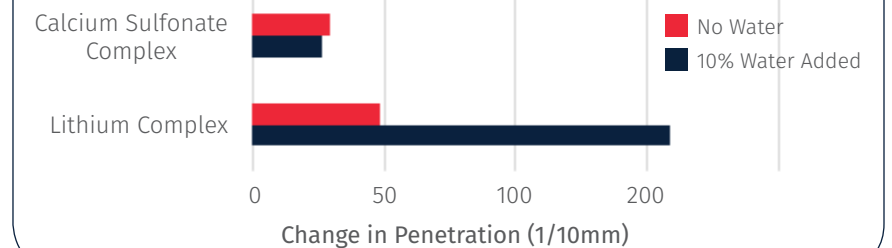
Calcium sulfonate complex grease protects pellet mill roll bearings best. In wet, hot, dirty and highly loaded environments, it protects even when subject to severe contamination. Grease application can be greatly reduced compared to lithium complex greases, saving you money.

### Mechanical stability

The ability of grease to absorb water prevents it from causing corrosion in a bearing. However lithium complex grease also loses structure, softening significantly. Soft grease can leak from the bearing, requiring more frequent grease application. Calcium sulfonate complex greases can absorb water without softening.

#### ASTM D1831 Roll Stability (50h/80°C)

(Increasing values indicate softening)

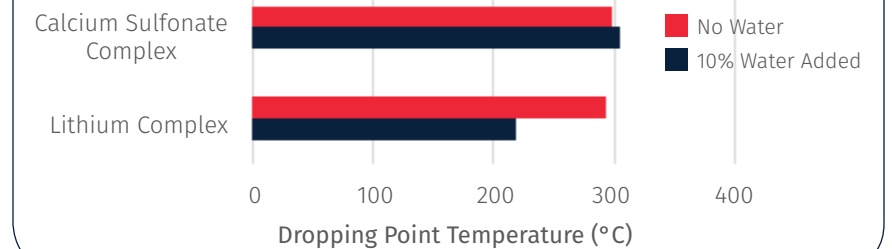


### High-temperature capability

Greases from the roll stability test were evaluated for remaining high temperature capability. ASTM D2265 dropping point test results show water contamination diminishes the ability of the lithium complex grease to withstand high temperatures. In contrast, the water contaminated calcium sulfonate complex grease dropping point remains unchanged.

#### ASTM D2265 Dropping Point

(Higher values are better)

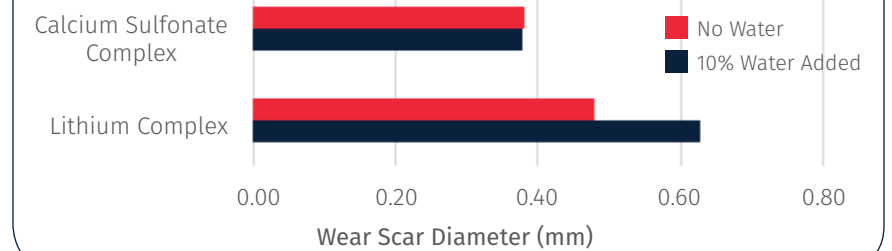


### Wear prevention

Lithium complex grease requires additives to protect against wear and corrosion. Water renders these additives unable to function. Grease with reduced protection for the bearing results in decreased bearing life. Calcium sulfonate complex grease does not rely upon additives, instead its thickener has inherent wear and corrosion protection properties that are not diminished by water contamination.

#### ASTM D2266 Wear Prevention

(Lower values are better)



### Product Range

Industry	Product	Base Oil	Thickener	NLGI Grade	Base Oil Viscosity @ 40°C	Service Temperature Range (°C)	Certificate Compliance
Wood pellet	TriboCal® XT 460-1	Mineral	Calcium Sulfonate Complex	1	460	-20 to +150	
	TriboCal® XT 220-15	Mineral	Calcium Sulfonate Complex	1.5	220	-30 to +150	
Animal feed	TriboCal® XT P220-2 FG	PAO	Calcium Sulfonate Complex	2	220	-40 to +150	NSF-H1, Halal, Kosher