Omega®
The Ultimate Lubricant

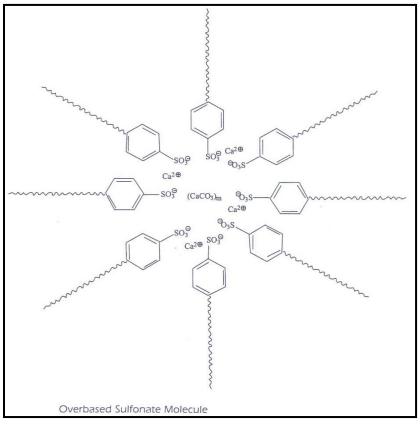
78

NSF
Nonfood Compounds
Category Code : H1
Registration Number : 133895

DESCRIPTION:

Omega 78 Food Grade Anti-Corrosion Grease was developed based on the most advanced calcium sulfonate grease technology. It belongs to the latest and revolutionary generation of lubrication solutions engineered by Omega Division

Application areas include steel mills, pulp and paper mills, off-road and construction equipment, mining and marine equipment, fresh & sea water shipping, nuclear plants, electricity generation, automotive and general manufacturing. Omega 78 is characterized by its sustainable high performance under extreme conditions, particularly heat, water and high and shock loads.


Overbased Sulfonate Molecule

KEY PROPERTIES & BENEFITS:

Omega 78 features the following key properties and benefits:

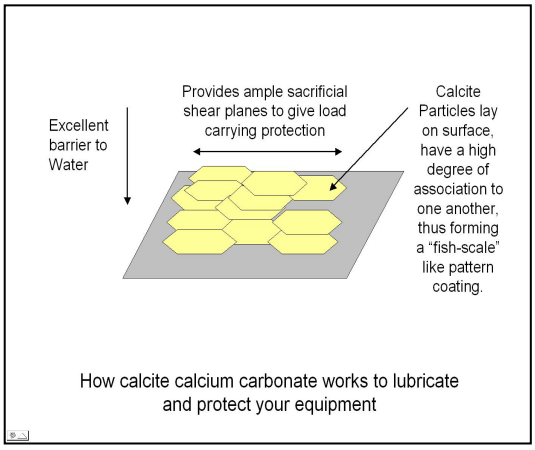
- Superior corrosion resistance originating from strong polar action of the sulfonate ion
- Excellent EP (extreme pressure) and AW (antiwear) without the use of additives due to the unique calcite crystal structure of the thickener
- Excellent oxidation resistance and response to antioxidants
- Excellent mechanical stability both in the presence of water and at elevated temperatures
- High dropping point typically in excess of 300°C
- Promising low temperature properties
- Fit for use in centralized pumping systems

THE UNIQUE CRYSTALLINE CALCITE CALCIUM PROTECTION:

One of the typical targets of the calcium sulfonate technology is to solve problems found in the lubrication of motor operated steam valves where protection against heat, moisture, and loads, among other stresses, is critical.

The primary building block of the grease – the crystalline calcite calcium carbonate provides excellent AW, EP, and anti-corrosion properties due to the method by which it adheres to the rubbing surface.

The calcite wafer-like platelets orient parallel to the surface in a fish-scale like pattern, providing an excellent barrier to water and a sacrificial wear surface. When the grease is fully complexed, a very high dropping point and excellent mechanical stability under a wide range of conditions result.



How calcite calcium carbonate works to lubricate and protect your equipment

This technology has inherent advantages without the use of added performance additives. Omega 78 does not require the use of heavy metals, sulfur, chlorine compounds or other EP additives, to give the high EP/AW performance.

FOOD MACHINERY APPLICATIONS:

Greases used in a food-processing environment are usually needed to seal out contaminants, to reduce misting or dripping, to lubricate heavily loaded or slow moving bearings, and to lubricate bearings that see extremes in heat.

Key applications include cleansing, sterilizing, homogenizing, blending, mixing, stirring, baking, freezing, chilling, frying, cooking, cutting, slicing, packaging, canning, and bottling.

Under the effect of heat and usual elevated temperatures, grease performance is critical in food-processing equipment. Bearings can be subjected to heat in baking and cooking applications, in loaded bearings, electric motors, and in equipment during sterilization.

The base oil chosen for Omega 78 is a premium product, greatly extending the life of the grease. Under a special formulation, Omega 78 has considerably outperformed competing products in enhancing bearing life performance. Omega 78 works exceptionally well under dynamic conditions.

Taking advantage of a more advanced thickener technology, Omega 78 has low oil bleed tendencies. Such low oil bleed and good mechanical stability at elevated temperatures is important to maximize lubricant life and to reduce contamination of the food being processed.

AUTOMOTIVE APPLICATIONS:

Omega 78 provides superior oxidation resistance leading to longer service life for CV joints. Bearing life can also be largely extended by 100% to even 200%. Together with the excellent corrosion resistance, elastomer compatibility, low fretting wear, and EP performance, all without the use of environmentally hazardous compounds, Omega 78 is ideal for greasing CV joints.

PAPER MILL APPLICATIONS:

Only the highest quality grease will satisfy the most stringent requirement of Paper mills. Omega 78 fulfills all such requirements with its super corrosion resistance, high EP, shear stability in the presence of water, and extended operating life under elevated temperatures. Calcium sulfonate technology is ideally suited to this environment particularly for its high resistance to corrosion.

Press rolls are located at the second step in removing water from the freshly formed paper prior to the paper entering the drying section. These rolls, up to 10 meters in length and weighing more than 30 tonnes, are supported by large double row spherical roller bearings approximately 1 meter in diameter. The bearing rpm is usually under 350 rpm.

Withstanding high EP conditions, water washout and mechanical stability while mixing with mill water, Omega 78 outperforms all other technologies. What's more is Omega 78's high resistance to the tendency to soften under the impact of water mixing and shearing at elevated temperatures.

Omega 78 also handles the lubrication needs outstandingly at the Felt Roll Tensioning Roll. Omega 78 exceptional properties withstand the adverse operating conditions here, including degradation due to heat and mechanical action through extended periods of operation without re-lubrication.

ELECTRICITY GENERATION:

One of the typical applications in various types of power plants including nuclear plants is the grease lubricated Motor Operated Valve (MOV) which is used to raise and lower steam control gates. The challenge is to have a single and truly multipurpose grease that can be used in all of the components of MOV units, including main gear box, a limit switch gear box, and a stem/stem nut section. The EP and AW characteristics of Omega 78 are excellent without the use of additives and its exceptional corrosion resistance have been proven as an ideal solution.

The absence of EP agents such as sulfur and chlorine compounds in Omega 78 rules out the risk of stress corrosion cracking of the stainless steel stem.

Omega 78 also provides good friction characteristics, corrosion resistance, oxidation resistance, and resistance to radiation induced damage if located in the radiated area of a nuclear plant.

Omega 78 possesses excellent resistance to changes in consistency during long periods of inactivity at elevated temperatures. This is particular critical as changes in consistency will lead to changes in friction coefficient which in turn lead to the system operating outside the friction range that was used to set the limit switch.

MARINE APPLICATIONS:

The genuine multipurpose nature of Omega 78 definitely renders it ideal as a deck grease in the lubrication of bearings, gears, and wire ropes.

Omega 78 surpasses all the significant properties required for a premium quality deck grease: resistance to washout and wash-off, resistance to corrosion in a salt water environment, resistance to softening at elevated temperatures, resistance to aging in service, and excellent EP and AW characteristics

STEEL MILL:

Omega 78 is ideally suited for use in steel mills particularly in areas of elevated temperatures, shock loading and where water may be mixed with the grease. The significantly increased life expectancy dramatically reduces grease consumption and down-time costs. Experienced steel mills have observed reductions of grease consumption in the order of 40 to 50% in such areas as hot strip mills and in roll neck bearings.

Omega 78 has been proven to work successfully in spherical roller bearings of cold rolling mills and in tapered roller bearings of hot rolling mills.

Omega 78 provides excellent properties such as resistance to quench water washout, corrosion protection, mechanical stability, pumpability, low oil separation, and high EP. Omega 78's excellent oxidation resistance coupled with good mechanical stability provides much longer bearing life over conventional grease products.

MINING:

In the past, diamond drill rod protection was typically lubricated using fibrous barium complex grease, use of which is diminishing due to environmental concerns. In contrast, Omega 78, fortified for water and abrasion resistance, was developed to meet this common application in mining. Omega 78, when applied properly, will form an adherent coating on each drill rod. The grease lubricates the rod during drilling and effectively remains as a film after removal from the hole, to act as a corrosion barrier until its next use.

Besides all the above-mentioned applications, Omega 78 is also ideal for flexible couplings which are important components for the transmission of rotary motion. Omega 78 is highly capable of resisting oil separation under high centrifugal forces, and with the ability to minimize fretting wear.

In sum, Omega 78's revolutionary grease technology has been demonstrated to deliver outstanding EP/AW, corrosion resistance, mechanical stability, oxidation resistance, water spray-off resistance and washout resistance. All these unique and excellent properties have combined to provide a superior multipurpose grease for industrial, automotive, marine, and a great variety of innovative uses.

TYPICAL DATA:

TEST	ASTM TEST METHOD	TEST RESULT
Base Oil		
Viscosity, cSt at 40°C	D-445	100
Viscosity, cSt at 100°C	D-445	11.0
Viscosity Index	D-2270	94
Flash Point, °C	D-92	260
Pour Point, °C	D-97	-10
Dropping Point, °C	D-2265	318
Worked Penetration	D-217	
60 Strokes		280
10,000 Strokes, % change		-1.0
Timken OK Load, Lbs	D-2509	60 Lbs
Four Ball, EP		
Weld Point, Kg	D-2596	500
Load Wear Index (LWI)	D-2596	62
Four Ball Wear, mm	D-2266	0.45
Rust Prevention Rating	D-1743	Pass
Copper Strip Corrosion Rating	D-4048	1B
Salt Fog Corrosion, 1 mil d.f.t., hours	B-117	>300
Water Washout @ 80°C, % loss	D-1264	2.7
Wheel Bearing Leakage, gm	D-1263	1.0
Roll Stability, 50% water, % change in pen	D-1831	2.1
Bearing Life Performance, hours	D-3527	180
Bomb Oxidation, psi drop after 1000 hours	D-942	6.0
Oil Separation, % loss	D-1742	0.1
Low Temperature Torque, -18°C, g-cm	D-1478	
Start		1404
60 minutes		247
Mobility @150 psi, -18°C, g/minute	US Steel Method	19.3
NLGI Grade	D-217	#2
Operating Temperature Range, °C	-	-18 to 180
Texture	Visual	Smooth
Color	Visual	Tan

The characteristics given above are typical of current production only and slight batch to batch variations should be expected.