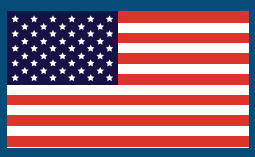
DAUBERT®
CHEMICAL COMPANY, INC.

DAUBERT® STEEL

ADVANCED OILS, COATINGS AND LUBRICANTS FOR THE STEEL INDUSTRY

LEADING SOLUTIONS FOR MAXIMIZING STEEL MILL PERFORMANCE

FOR MORE THAN 90 YEARS, DAUBERT® CHEMICAL HAS MANUFACTURED HIGH-PERFORMANCE PRODUCTS THAT HAVE OPTIMIZED OPERATIONS AND REDUCED DOWNTIME FOR STEEL MILL OPERATIONS. WE LEVERAGE OUR RICH HISTORY AND SPECIALIZED EXPERTISE TO DEVELOP ADVANCEMENTS THAT FUEL YOUR SUCCESS.



MADE IN THE USA

GREASES

LUBRICANTS

COATINGS

TECPLEX
HIGH-PERFORMANCE GREASE

CALCIUM SULFONATE GREASES FORMULATED FOR DEMANDING STEEL MILL APPLICATIONS

In the increasingly competitive manufacturing landscape, steel mills are challenged with optimizing productivity and efficiency while complying with stringent environmental standards. To accomplish this, today's mills leverage sophisticated equipment and highly automated processes. Therefore, it's more important than ever to use high quality lubricants designed specifically to handle rigorous applications, such as wet environments, extreme temperatures and heavy loads.

That's why Daubert® Chemical offers TECPLEX®, a line of calcium sulfonate greases that outperform most other alternatives in these application environments to ensure equipment reliability and smooth operation.

WHY CHOOSE DAUBERT®'S CALCIUM SULFONATE GREASES?

TECPLEX® calcium sulfonate greases offer distinct advantages across a variety of extreme industrial applications. They provide long-lasting protection to critical components without relying on polymers or solid additives that can clog lines, or chemical additives that deplete at high temperatures and can result in eventual bearing wear after sustained use.

TECPLEX® CALCIUM SULFONATE GREASES ARE IDEAL FOR USE IN APPLICATIONS FACING:

HEAVY LOADS: TECPLEX® leverages Daubert®'s state-of-the-art nanoparticle technology to create a thin layer of solid lubricant that can protect in boundary lubrication regime.

HIGH TEMPERATURES: Calcium sulfonate greases like TECPLEX® have exceptionally high dropping points in excess of 600°F to help improve performance.

CORROSIVE ENVIRONMENTS: Calcium sulfonate can act as a military-grade rust preventive compound. The greases made from it have inherent rust preventive properties, enabling them to absorb water and prevent contact with metal gears and bearings.

SIGNIFICANT WATER INTRUSION: Calcium sulfonate greases have a natural attraction to metal surfaces and are capable of absorbing up to 2x their weight in water, allowing them to function in the wettest conditions.

TARGET APPLICATION AREAS FOR CALCIUM SULFONATE GREASES

Below are the best target application areas for TECPLEX® greases:

- ELECTRIC ARC FURNACES
- BASIC OXYGEN FURNACES
- COKE MAKING
- ELECTRIC MOTORS
- CASTERS
- HOT MILLS
- COLD MILLS
- PICKLE LINES
- COATING LINES
- WORK ROLL BEARINGS
- BACKUP BEARINGS
- COILER MANDRELS
- COUPLING GREASE
- FURNACE EXTRACTOR GEARBOX
- PUSHERS

TECPLEX®
HIGH-PERFORMANCE GREASE

DELIVERING PROTECTION
FOR EXTREME ENVIRONMENTS

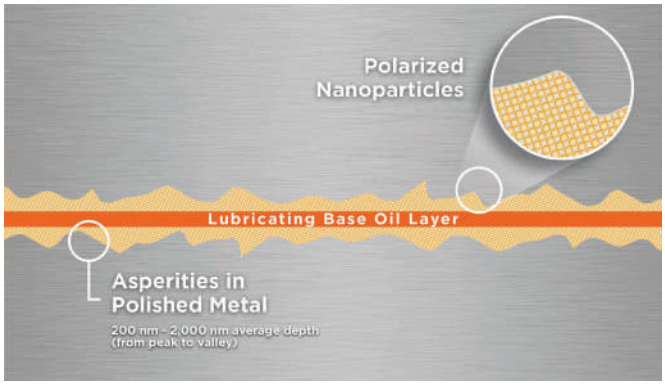
TECPLEX® 1460 A REVOLUTIONARY NEW GREASE FOR STEEL MILLS

TECPLEX® 1460 is the flagship product in the TECPLEX® line. This grease was designed with the sole purpose of withstanding the challenging conditions of steel manufacturing environments.

ADVANCED NANOPARTICLE TECHNOLOGY:

TECPLEX® 1460 is fortified with Daubert®'s internally developed nanoparticle technology, unique among all greases. These particles are orders of magnitude smaller than conventional solid lubricants used in other greases. Thanks to their incredibly small size, Daubert®'s polarized nanoparticles are able to fill in microscopic valleys between asperities on the steel surface of a gear or bearing. This helps prevent metal-on-metal contact, while further providing a more uniform surface for the lubricating base oil component in TECPLEX®, which in turn keeps the surfaces effectively separated. The benefits were measured in a series of tests using the industry-leading FE-8 bearing wear test rig using conditions designed to approximate those found in a steel mill.

TECPLEX® IS DESIGNED FOR FULL FLUID-FILM LUBRICATION



TECPLEX® 1460 utilizes Daubert®'s nanotechnology to withstand intense heat from the extreme pressures of working with heavy loads in steel production.

BENEFIT 1: VIRTUALLY ELIMINATES WEAR

Daubert®'s nanotechnology provides a generational leap in bearing protection. TECPLEX® 1460 was shown to virtually eliminate wear on bearing races and rolls.

	BEARING WEIGHT LOSS	
	Ki12.1	Ki12.2
outer ring (cup)	31	24
inner ring (cone)	132	135
cage	82	104
rollers	156	173

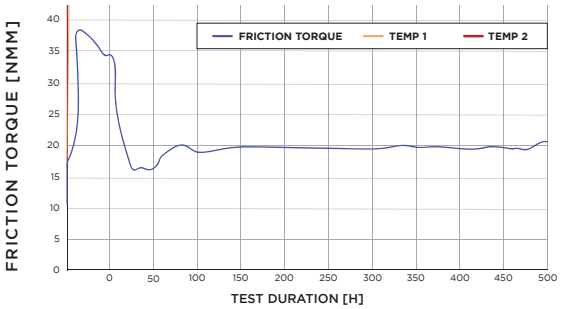
COMPETITOR WITH 3% MOLY

	BEARING WEIGHT LOSS	
	Ki10.1	Ki10.2
outer ring (cup)	<2	<2
inner ring (cone)	<2	<2
cage	50	74
rollers	6	2

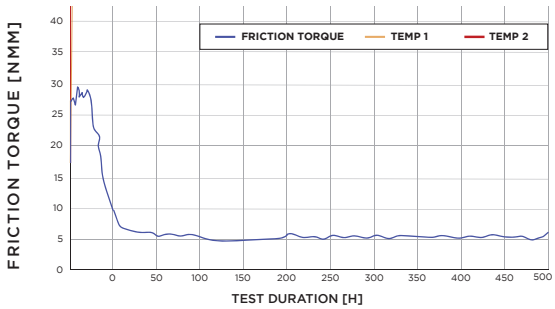
TECPLEX® 1460

BENEFIT 2: REDUCED ENERGY LOSS FROM FRICTION

The improvements to our thickener design result in reduced energy loss from friction, which can drain energy efficiency. In FE-8 testing versus competitive calcium sulfonate greases in steel mills, friction torque can be reduced by up to 75% by switching to TECPLEX® 1460.



COMPETITOR WITH 3% MOLY



TECPLEX® 1460

TECPLEX
HIGH-PERFORMANCE GREASE

DESIGNED TO RESIST OXIDATION

Daubert®'s advancements in corrosion and oxidation resistance has provided TECPLEX® 1460 with the industry's leading technology for prolonging the life of a lubricating grease. With some of the country's most recognizable steel mills running TECPLEX® 1460, the resistance to oxidation has been proven out time and again. These properties are easily recognizable when running a side-by-side comparison of TECPLEX® 1460 versus other greases. The data below was collected from a large steel mill in North America.

OBSERVATION 1: THE "EYE TEST"

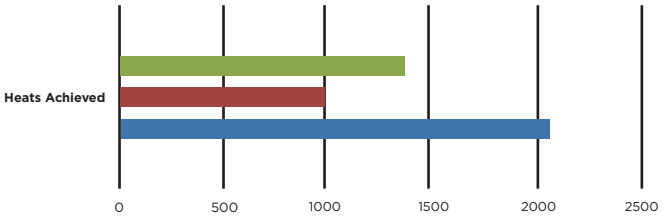
What's immediately noticeable about TECPLEX® 1460 is that after use, it will still be significantly lighter in color than common greases (including other calcium sulfonate greases). In fact, many steel mills often significantly reduce their consumption of grease when switching to TECPLEX®.

COMPETITOR

Black, oxidized grease

DAUBERT® - TECPLEX® 1460

Bright, light brown grease — minimal oxidation



	Heats Achieved
Competitor A	1400
Competitor B	1000
TECPLEX® 1460	2080

OBSERVATION 2: BEARING EVALUATIONS

This steel mill ran three calcium sulfonate greases side by side to judge performance and repeated the test three times. In every test, bearings lubricated with TECPLEX® 1460 lasted on average twice as long as bearings lubricated with other industry-leading calcium sulfonate greases.

Outer race of a bearing used in a continuous caster after over 2,000 heats. The bearing was lubricated with TECPLEX® 1460 and still shows much of the original cross-hatching on the race surface.

TECPLEX®
HIGH-PERFORMANCE GREASE

ADDITIONAL TECPLEX® GREASES FOR STEEL MILLS

Utilizing Daubert® Chemical's state-of-the art nanoparticle technology, the TECPLEX® line of multi-purpose, calcium sulfonate greases is a true differentiator for steel mills that depend upon maximizing operational efficiency.

STEEL MILL PRODUCTS

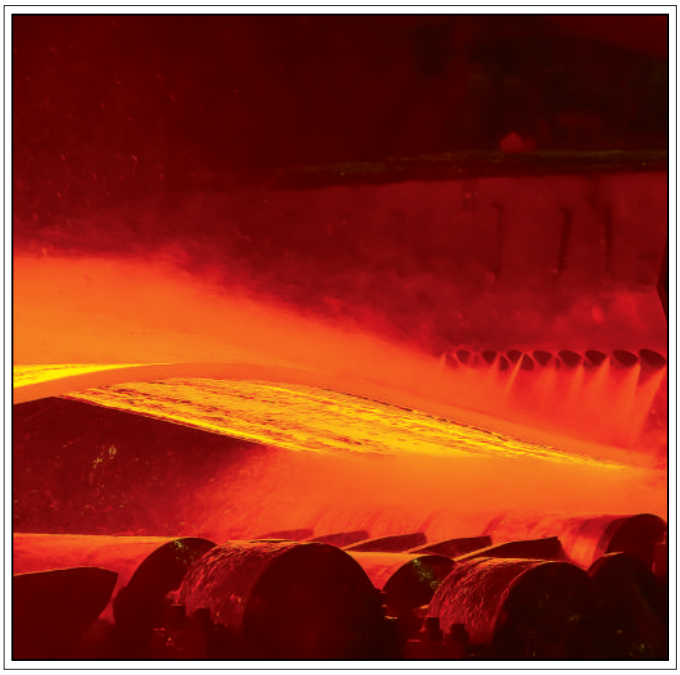
TECPLEX® 2460 features a thicker consistency, making it suitable for high-speed couplings. It also resists fling-off from centrifugal forces.

TECPLEX® 2046S-HI is a grease like no other, combining the purity of a food-grade lubricant with the performance of a fully synthetic calcium sulfonate grease. Designed specifically for the high speeds and extreme loads generated in wind turbine applications, this grease provides long-lasting protection from wear and corrosion, while minimizing the risk profile of lubricant contamination from turbines co-located near crops and waterways.

Regardless of the thickener type or base oil chosen, the ideal grease in an electric motor bearing application must be able to withstand high speeds and temperature for extended periods. Typical additives for such grease impart antioxidant, anti-wear and anti-corrosion properties. By choosing a calcium sulfonate grease, many performance requirements are inherently fulfilled. Although typical calcium sulfonate thickener contents may prove too high for many motor bearing applications from other grease manufacturers.

DAUBERT® CHEMICAL'S PROPRIETARY PROCESS OF MANUFACTURING CALCIUM SULFONATE HAS FOUND A NEW APPLICATION AND IS IN CURRENT USE WITH ELECTRIC MOTORS WITHIN THE STEEL INDUSTRY.

TECPLEX® 2040S-HI is 100% synthetic and offers the highest temperature resistance of the TECPLEX® product family. It's the top choice for the most extreme environments.



SUPPORTING EQUIPMENT PRODUCTS

TECPLEX® FLOW is a multi-purpose, semi-fluid grease that's suitable for leaky gearboxes that need oil with extra viscosity.

TECPLEX® 00150HP is a moly-based, open-gear lubricant featuring a non-asphalt-based formulation to ensure a safer working environment.

TECPLEX® 1150HP / 2150HP is a CAT-spec compliant grease with 5% moly that's used to lubricate pins and bushings in off-road equipment.

TECPLEX® THREAD SEAL is an anti-seize paste fortified with copper to prevent nuts and bolts from welding during exposure to high heat and stresses.

TECPLEX® LEADS IN DELIVERING PROTECTION FOR EXTREME ENVIRONMENTS TO KEEP YOUR OPERATION MOVING

PROCESS & MILL OILS

PROMOTING BETTER HUMAN HEALTH, PROCESSING AND BEHAVIOR

Daubert® Chemical's process and mill oils are formulated with metalworking fluids that add value in a variety of ways. Our process and mill oils increase occupational safety, improve working conditions, allow for easier maintenance of aspiration systems, extend oil and cleaning bath life, and feature excellent behavior with low fogging and volatilization. These products are suited for milling, turning, grinding, heading, stamping, casting and drawing.

PROCESS OIL PRODUCTS

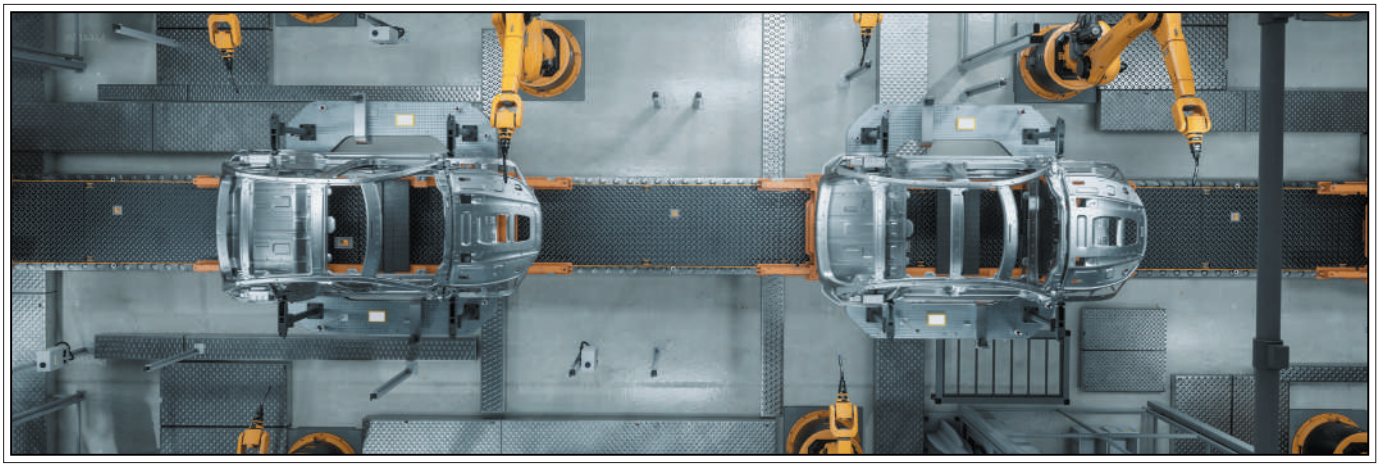
NOX-RUST® 550 HN is a high-performance rolling oil for shaping steel coils and other forms.

COOLFORM® is a drawing and stamping oil excellent at long draws for forming thin steel sheets for automotive applications. **COOLFORM®** is also used as a blank wash and vanishing oil and is compatible with many commercially available rust preventives.

MILL OIL PRODUCTS

NOX-RUST® X-231 is Daubert®'s leading product in the rust preventive coating category that offers tremendous versatility for general rust protection of steel. This next-generation mill oil prevents rust formation on formed steel coils, bars, slabs and various complex shapes in temporary storage. It is ideal for flood, flow, spray and electrostatic applications.

NOX-RUST® X-241 M is a longer-term rust preventive offering increased protection from acidic atmospheres.



RUST PREVENTIVE COATINGS FOR THE STEEL INDUSTRY

BACKED BY A WORLD-CLASS REPUTATION

As a global leader in the coatings market, Daubert® Chemical has manufactured world-class corrosion-resistant metal coatings for the OEM and replacement part markets. Daubert® has also consistently evolved its line of products to meet our customers' changing needs to ensure they always have superior protection. Daubert® offers solvent-based, water-based, solvent-free and hot melt wax coatings, all of which are formulated to meet or exceed industry and mill spec standards.

LIGHT OIL RUST PREVENTIVES

TECTYL® 861SGD is a slushing vanishing oil that is a non-discernible coating that provides rust protection for metal parts without a noticeable film.

TECTYL® 511M features a thin film rust preventive coating ideal for spare parts that are stored indoors for up to 18 months. **TECTYL® 511M** can be easily applied by spray, dip or brush and wipes clean with light solvent or when put directly into service. It's compatible with oils and lubricants once in use and is approved by the U.S. military and listed on QPL **NOX-RUST® THREAD PROTECTOR**.

TECTYL® 900 is a water-displacing, low viscosity lubricating oil and corrosion inhibiting compound that protects ferrous (iron-containing) and non-ferrous (no iron) industrial parts from corrosion during storage and covered transit.

LONGER-TERM RUST PREVENTIVES

NOX-RUST® THREAD PROTECTOR is a semi-fluid rust preventive gel used to protect precision cut threads on steel pipe. It offers an industry-leading 7,000 hours of salt-spray resistance.

NOX-RUST® X-110 is a long-term rust preventive coating for large steel parts that are stored and unprotected outdoors. It leaves a tenacious, waxy film that lasts up to five years.

NOX-RUST® X-111 is similar to **NOX-RUST® X-110**, with additional resistance to acid fume environments found around pickling lines.

NOX-RUST® X-210 is a non-discernible, multi-purpose, long-term rust preventive used for the protection of interiors of machines under cover. **NOX-RUST® X-210** not only displaces moisture but will not emulsify in the presence of alkaline cleaners.

SUPERIOR SUPPORT FOR THE STEEL INDUSTRY

SOLUTIONS FOR A SUSTAINABLE FUTURE

AT DAUBERT® CHEMICAL COMPANY, WE EMBRACE THE OPPORTUNITY TO CONTRIBUTE TOWARD MORE SUSTAINABLE OPERATIONS. THAT'S WHY OUR PRODUCTS ARE FORMULATED WITH OUR EMPLOYEES, OUR CUSTOMERS, OUR PLANET AND FUTURE GENERATIONS IN MIND.

OUR NOX-RUST® AND TECTYL® COATINGS ARE PROVEN TO REDUCE COSTS CAUSED BY CORROSION BY UP TO 35%, AND OUR TECPLEX® GREASES HELP REDUCE ENERGY LOSS FROM FRICTION BY UP TO 75% VERSUS LEADING INDUSTRIAL LUBRICANTS.

FOR MORE INFORMATION ABOUT OUR SUSTAINABILITY INITIATIVE, VISIT DAUBERTCHEMICAL.COM.

MADE IN THE USA

A GLOBAL LEADER

DAUBERT® IS READY TO SERVE GLOBAL CUSTOMERS WITH A NETWORK OF REGIONAL PARTNERS AND LICENSEES IN MORE THAN 40 COUNTRIES WORLDWIDE. OUR PRODUCTS, TECHNICAL EXPERTISE AND ABILITY TO CUSTOMIZE SOLUTIONS TO MEET YOUR CHALLENGES CAN BE DELIVERED ALMOST ANYWHERE YOU DO BUSINESS.

DAUBERT® CHEMICAL HEADQUARTERS

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TECPLEX
HIGH-PERFORMANCE GREASE

NOXRUST
PROTECTIVE COATINGS

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