



Tough cleaning solutions for the toughest jobs.

QUAKER'S CLEANER PRODUCT LINE

- » Process Cleaners
- » Maintenance Cleaners
- » Floor Cleaners
- » Rinse Aids
- » Defoamers

WE ARE QUAKER - EXPERTS IN PROCESS FLUIDS AND SPECIALTY CHEMICALS.

Since 1918, the world's most dynamic industrial companies have relied on us for smarter solutions. As a global supplier of cleaner products for automotive, appliance, container and steel manufacturing, we create custom-formulated solutions specific to your business to maximize quality, performance and safety – and increase your profitability.

Quaker knows the needs of the 21st century steel mill, providing liquid alkaline cleaners that cost effectively remove surface oils and surface irons from the steel strip prior to many operations, including metallic coating, annealing and surface treatment. Our line also includes multi-package cleaners that provide detergency, dispersing and chelating properties based on customer proportioning to meet individual requirements, and maintenance cleaners that add to a better work environment through cleaner floors, housings and machinery.

Quaker is also the only cleaner supplier to develop and utilize several methods for measuring the cleanliness of the strip after the cleaning section, including our Cleaner Trolley, which measures the wiped surface area, and our 'fixed roller' method, which quantifies the amount of blackness that is removed from the strip surface.





IT'S WHAT'S INSIDE OUR PRODUCTS

QUAKER CLEANERS

- » Green cleaners that meet Environmental Regulations (e.g., NPE free) and improve waste treatment processing of cleaner effluents
- » Substantial savings to our customers through a reduction in coating defects
- » Higher production speeds via improved cleaning performance
- » Operation at significantly lower product concentrations
- » Measures for strip cleanliness
- » The lowest bottom-line cost for your business

Quaker. It's what's inside that counts.®

Certain benefits listed above apply to some, not all, of the products in Quaker's Cleaner Product Line.





A wide range of solutions for complete process optimization.

WE ARE QUAKER - EXPERTS IN PROCESS FLUIDS AND SPECIALTY CHEMICALS.

Since 1918, the world's most dynamic industrial companies have relied on us for smarter solutions as experts in process fluids and specialty chemicals. As a global supplier of cold rolling oils, we create custom-formulated solutions specific to your business to maximize quality, performance and safety – and increase your profitability.

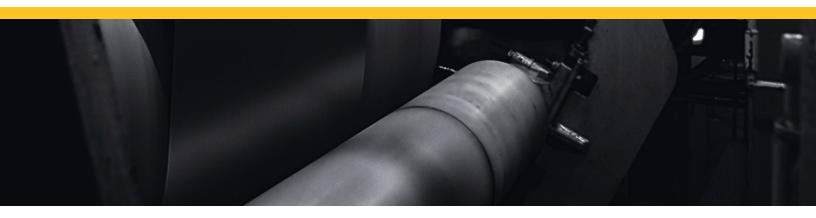
QUAKEROL® AND TINNOL® PRODUCT LINES

Quaker is the world-leading supplier of cold rolling oils. Our QUAKEROL® and TINNOL® lines are designed to maximize mill production, improve strip and mill cleanliness and reduce consumption. This helps your mill's entire process run at the lowest possible cost, including those downstream of the cold mill.

For optimizing each operation, QUAKEROL® and TINNOL® come in a wide range of natural, semi-synthetic and synthetic esters for base lubrication. Optimized emulsifier packages,

including non-ionic, polymer, cationic and hybrid formulas, are available dependent on unique customer requirements. These products also contain additive packages for extreme pressure and corrosion for optimum performance on more demanding processes. And when you need support, our experts are always available to help with correct application and usage so you get the most out of your processes.





IT'S WHAT'S INSIDE OUR PRODUCTS

QUAKER COLD ROLLING OILS

- » Greater productivity
- » Improved cleanliness
- » Reduced consumption
- » Improved roll life
- » Fewer defects
- » Reduced waste treatment concerns
- » The lowest bottom-line cost for your business

Quaker. It's what's inside that counts.®

Certain benefits listed above apply to some, not all, of the products in Quaker's Cold Rolling Oils Product Line.





Corrosion doesn't happen on our watch.

WE ARE QUAKER - EXPERTS IN PROCESS FLUIDS AND SPECIALTY CHEMICALS.

Since 1918, the world's most dynamic industrial companies have relied on us for smarter solutions. As a global supplier of corrosion preventives, we create custom-formulated solutions specific to your business to maximize quality, performance and safety – and increase your profitability.

FERROCOTE® PRODUCT LINE

Our FERROCOTE® product line is the most widely approved corrosion preventive in the industry. It's been perfected for use on hot dip galvanized, electrogalvanized, cold rolled, hot rolled, pickled, hot dip galvannealed, dual phase and various other plated steels. It comes mineral oil based, emulsifiable and solvent diluted for use on blanks or coil stock, providing optimal resistance to humidity-related corrosion and staining - perfect for metal inventories in long-term storage. The line is specifically formulated with downstream processes in mind, and is easily applied using electrostatic oiler equipment and other conventional methods. Included in the FERROCOTE® product line are prelubes or mill-applied lubricants with advanced lubrication properties for downstream forming applications that require additional lubrication.

QUAKER DRYCOTE® TECHNOLOGY

When you need to improve consistency in lubrication and corrosion protection beyond what current products on the market can give you, look no further than QUAKER DRYCOTE®. This hot melt, dryfilm technology goes above and beyond to limit variability and is optimized to reduce costs. OUAKER DRYCOTE® is superior to water-based, oven-cured dryfilms, giving you extensive application flexibility, reduced costs, and lower coating weights for less die buildup of powdered material and subsequently improved quality and line up-time. The entire series is environmentally friendly, with low VOC products (typically 1-3% by weight) that reduce overall waste streams, improve housekeeping concerns and do not contain any solvents.





IT'S WHAT'S INSIDE OUR PRODUCTS

QUAKER CORROSION PREVENTIVES

- » Industry standard for approved corrosion preventive
- » Excellent resistance to humidity and staining
- » Formulated with the downstream process in mind
- » Significant reduction in total applied cost
- » Greater energy reductions
- » Lower environmental impact
- » Improved product quality and line up-time
- » The lowest bottom-line cost for your business

Quaker. It's what's inside that counts.®

Certain benefits listed above apply to some, not all, of the products in Quaker's Corrosion Preventives Product Line.





Rigorous solutions for your mill's most rigorous demands.

WE ARE QUAKER – KNOWN THE WORLD OVER FOR DELIVERING HIGH QUALITY AND HIGH PERFORMANCE. Since 1918, the world's most dynamic industrial companies have relied on us for smarter solutions. As a global supplier of fire-resistant hydraulic fluids, we formulate solutions specific to your business to maximize quality, performance and safety – and increase your profitability.

QUINTOLUBRIC® PRODUCT LINE

To meet the rigorous demands of today's steel industry, you need rigorous products. Our QUINTOLUBRIC® fluids are made to keep your equipment rolling, and they meet various ISO standards. The product line includes high water content (HFA), water glycols (HFC) and water free synthetics (HFD).

HIGH WATER CONTENT FLUIDS

Specific additives formulated into QUINTOLUBRIC® HFA fluids supports your water hydraulic equipment by preventing corrosion in components and piping, inhibiting bacterial growth in the fluid and extending component life. They are ideal for use in steel mills and any other hydraulic system designed to operate on water. Quaker offers both HFA-E (emulsion) and HFA-S (synthetic) concentrates.

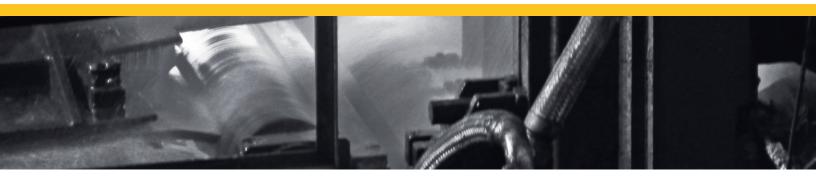
WATER GLYCOL FLUIDS

Quaker's HFC water glycol fluid prevents ignition through sudden line ruptures or fluid contact with a high temperature source that could occur in hydraulic systems operating under high pressure. This fluid includes additives that provide lubricity and corrosion protection for today's high performance hydraulic systems.

ANHYDROUS SYNTHETIC HYDRAULIC HFD FLUIDS

Quaker is the market leader in ester-based fire-resistant hydraulic fluid technology, and has more than 35 years of experience with the application of these fluids in the Steel, Non-Ferrous, Mining, Automotive and Power Generation industries. Quaker's fire-resistant HFD-U fluids are based on synthetic polyol esters and natural esters, and are globally available as well as readily biodegradable. Many are also Factory Mutual approved as less hazardous.





IT'S WHAT'S INSIDE OUR PRODUCTS

QUAKER FIRE-RESISTANT HYDRAULIC FLUIDS

- » Factory Mutual approved fire-resistant products
- » High ignition temperature and low heat release
- » Properties that limit the spread of fire
- » Provide excellent shear stability
- » Lower environmental impact
- » Reduced waste treatment concerns
- » The lowest bottom-line cost for your business

Quaker. It's what's inside that counts.®

Certain benefits listed above apply to some, not all, of the products in Quaker's Fire Resistant Hydraulic Fluids Product Line.





Longer roll life, less product, max profitability.

WE ARE QUAKER - A COMPANY WITH DECADES OF EXPERIENCE ON THE FOREFRONT OF STEEL INDUSTRY TECHNOLOGICAL INNOVATION. Since 1918, the world's most dynamic industrial companies have relied on us for smarter solutions. As a global supplier of hot rolling lubrication, we create custom-formulated solutions specific to your business to maximize quality, performance and safety - and increase your profitability.

The difference is in our approach. We've developed a strong expertise in lubricating the hot rolling process by not only focusing on product formulation, but also on developing, testing, and selling application systems (both complete and partial). Combined with our knowledge of hot rolling product requirements and product development capabilities, Quaker

can drastically reduce the amount of lubricant needed to extend roll life while giving greater energy and roll force reductions. These innovations have greatly improved application efficiencies, including edger roll, roughing mill and finishing mill operations.





IT'S WHAT'S INSIDE OUR PRODUCTS

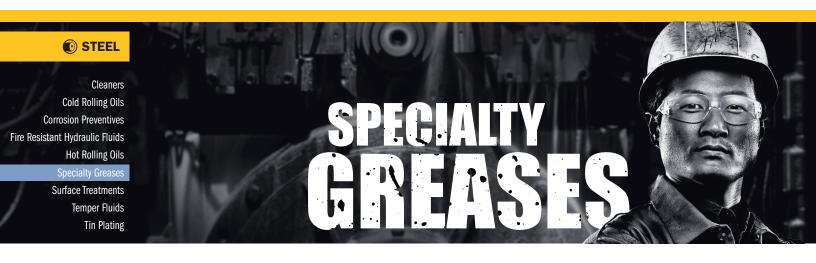
QUAKER HOT ROLLING OILS

- » Higher speeds
- » Reduced or no cleaning of headers and nozzles
- » Eliminated waste treatment concerns through drastically reduced lubricant needs
- » Greater than standard energy reductions, especially with pickle line savings
- » Improved back-up and work-roll life
- » Advanced water affluence by using 90% less product in solution
- » Technically superior hot rolling lubricant application equipment
- » Lower environmental impact on water and lower carbon footprint
- » The lowest bottom-line cost for your business

Quaker. It's what's inside that counts.®

Certain benefits listed above apply to some, not all, of the products in Quaker's Hot Rolling Oils Product Line.





Greasing the wheels of steel.

WE ARE QUAKER - EXPERTS IN PROCESS FLUIDS AND SPECIALTY CHEMICALS.

Since 1918, the world's most dynamic industrial companies have relied on us for smarter solutions. As a global supplier of specialty greases, we create custom-formulated solutions specific to your business to maximize quality, performance and safety – and increase your profitability.

Quaker's range of specialty greases include aluminum complex, lithium complex, polyurea and calcium-sulfonate-thickened greases that are designed to address the customer's needs through proven technology.

The QUAKERTEK™ portfolio:

LITHIUM COMPLEX GREASES QUAKERTEK™ LX SERIES

Multipurpose, water-washout resistant and high-temperature-tested greases for bearings, sliding surfaces, cranes and cable winches.

ALUMINUM COMPLEX QUAKERTEK™ AX SERIES

For the best protection from water washout or water spray-off in industrial applications that include casters, hot rolling mills and cold rolling mills.

POLYUREA GREASES QUAKERTEK™ UX SERIES

Formulated to provide outstanding lubrication in high-temperature applications.

CALCIUM SULFONATE QUAKERTEK™ CS SERIES

Greases for any application needing excellent lubricity, mechanical and thermal stability and corrosion protection, and water-washout resistance. Applications include bearing lubrication in wet or acidic environments.

FIRE-RESISTANT BIODEGRABABLE GREASES QUINTOPLEX™ AND QUINTOLITH™ SERIES

Designed to replace extreme pressure, mineraloil-based greases in applications where fire hazards exist.





IT'S WHAT'S INSIDE OUR PRODUCTS

QUAKER SPECIALTY GREASES

- » Ability to withstand extreme temperatures
- » Excellent resistance to water washout
- » Best-in-class water resistance
- » Superior rust and corrosion protection
- » Excellent film strength
- » Extreme pressure lubrication
- » Shock-loading protection
- » Material compatibility
- » Full range of base oil chemistries with temperature ranges from -70°C (-94°F) to > 250°C (482°F)

Quaker. It's what's inside that counts.®

Certain benefits listed above apply to some, not all, of the products in Quaker's Specialty Greases Product Line.





Treat the surface. Keep what's beneath safe.

WE ARE QUAKER - EXPERTS IN PROCESS FLUIDS AND SPECIALTY CHEMICALS.

Since 1918, the world's most dynamic industrial companies have relied on us for smarter solutions. As a global supplier of surface treatments, we create solutions specific to your business to maximize quality, performance and safety – and increase your profitability.

Quaker's portfolio of PRIMECOAT™ Surface Treatments set an industry standard for corrosion protection, lubrication properties and excellent compatibility with paints and adhesives.

The PRIMECOAT™ portfolio:

CHROME-FREE PASSIVATION (ZERO CHROME BASED)

Water-based passivation for corrosion protection on zinc/zinc alloy coated steel strip. Has excellent lubrication and appearance even at higher layer weights, excellent paint adhesion and no toxic ingredients.

CHROME-FREE THIN ORGANIC COATING

Water based for the corrosion protection of zinc/zincalloy steel strips.

CHROMATE-FREE THIN ORGANIC COATING (TRIVALENT CHROME BASED)

Water-based, extended corrosion protection on zinc/zinc-alloy strip. Serves as a dry lubricant achieving excellent forming properties without additional lubricating additives, and acts as a primer when products are post-painted. Gives a shiny and transparent anti-fingerprint layer.

CHROMATE-FREE PASSIVATION (TRIVALENT CHROME-BASED)

Water-based, excellent corrosion protection on zinc/zinc-alloy coated steel strip. Has excellent paint adhesion, lubrication and appearance even at higher layer weights.

CHROMIUM PASSIVATION

Provides efficient "White Rust Prevention" to zinc/zinc-alloy coated surfaces during in-house storage and/or transportation to customers' sites.

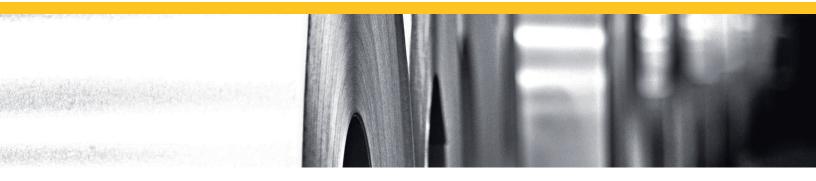
CHROMIUM THIN ORGANIC COATING

Water-based, corrosion protection of zinc/zinc-alloy steel strips. Achieves formability and produces a transparent, anti-fingerprint layer.

PRE-TREATMENTS

Developed for the Chrome-6, Chrome-6 free and Chrome-free pre-treatment in multi metal applications, either for no-rinse or for multi-step processes. Provides excellent corrosion protection and adhesion to paint.





IT'S WHAT'S INSIDE OUR PRODUCTS

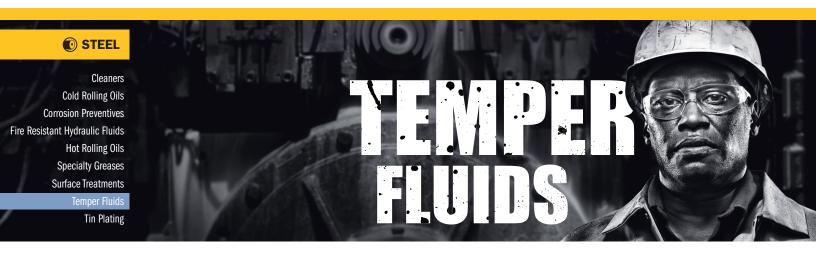
QUAKER SURFACE TREATMENTS

- » Fully transparent appearance
- » Excellent corrosion protection
- » Excellent adhesion properties with paints and organic coatings
- » Fluoride-free products
- » Hazardous substance (RoHS) compliant products
- » Waste from Electrical and Electronic Equipment (WEEE) compliant products
- » Excellent price-performance ratio
- » Vanadium-free products
- » Products that provide excellent lubrication

Quaker. It's what's inside that counts.®

Certain benefits listed above apply to some, not all, of the products in Quaker's Surface Treatments Product Line.





Quality temper fluids for quality, fluid results.

WE ARE QUAKER - A COMPANY WITH DECADES OF EXPERIENCE ON THE FOREFRONT OF STEEL INDUSTRY TECHNOLOGICAL INNOVATION. Since 1918, the world's most dynamic industrial companies have relied on us for smarter solutions. As a global supplier of temper fluids, we create custom-formulated solutions specific to your business to maximize quality, performance and safety - and increase your profitability.

Quaker's QWERL® line of temper fluid products are customized to fulfill demanding mill operating conditions, and are formulated with a lubrication package for either low (to provide good roughness transfer), or high temper extensions. They are also designed for different steel products including cold roll: anneal, galvanized, galvanneal and galvalume. Quaker's QWERL® line is compatible with Quaker's rust preventive oils and passivation fluids, and is designed to provide cleanliness to keep the temper mill rolls as clean as possible, minimizing work roll pick-up. The products offer the required corrosion protection with excellent detergency for dirt and other contaminant removal.

Additionally, Quaker provides on-site experts to support the QWERL® temper product line, who work with customers to recommend best practices based on global process experience. Analyzing your needs, aiding in problem solving and providing assistance in implementing a comprehensive plan to increase your metal production potential is all part of their job.

This integrated approach is what makes Quaker a leader in temper fluids.





IT'S WHAT'S INSIDE OUR PRODUCTS

QUAKER TEMPER FLUIDS

- » Compatible with steel, galvanized and galvanneal
- » Reduces roll change and wear
- » Improved strip quality less rolled dirt defects
- » Premium corrosion prevention
- » High flash point
- » Offer both water-based and solvent-based fluids
- » Meet the higher elongation needs for HSLA and Motor Laminate grades

Quaker. It's what's inside that counts.®

Certain benefits listed above apply to some, not all, of the products in Quaker's Temper Fluids Product Line.





Get more from your tin.

WE ARE QUAKER - EXPERTS IN PROCESS FLUIDS AND SPECIALTY CHEMICALS.

Since 1918, the world's most dynamic industrial companies have relied on us for smarter solutions. Our Tin Plating Technology has helped some of the largest manufacturers maximize their value and efficiency by getting the most out of their tin operations, delivering utmost value, performance, and profitability.

STANTEK® MSA ELECTROLYTE TECHNOLOGY

Quaker Stantek® MSA (Methane Sulfonic Acid) Electrolyte technology lets you optimize your Tin Plating operation for enhanced product quality, significantly decreased tin consumption, markedly reduced costs and lower environmental impact. This MSA-based technology significantly increases tin efficiency, putting only the right amount of tin on the strip and less down the drain. That's better for your mill, and better for the environment.

INCREASE TIN EFFICIENCY & REDUCE WASTE

By nature, PSA (Phenol Sulfonic Acid) electrolytes pull tin toward the edges of the strip during the plating process, resulting in uneven plating and over-consumption of tin in order to stay in spec at the center. MSA is designed to give you at-spec plating across the entire strip, creating a more precise plate that consumes less tin.

So when you're ready, our experts are here to help you make the switch from commodity to specialized process technology. Quaker also provides the sophisticated rolling oils and high solid liquid alkaline cleaners to prepare your substrate for tin plating. So let's work together to achieve complete consistency in process technology for your entire Tin Plating operation.



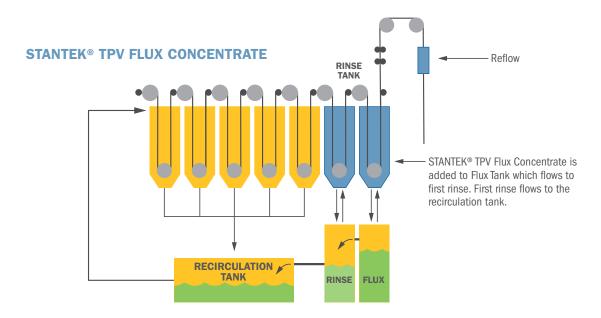
IT'S WHAT'S INSIDE OUR PRODUCTS

QUAKER TIN PLATING TECHNOLOGY

- » Significantly reduced tin consumption and enhanced tinplate quality
- » Environmentally advantaged, low-sludging MSA-based technology (REACH, RoHs compliant)
- » Patented Flux technology
- » Straightforward conversion from PSA
- » No phenols, resulting in minimal waste treatment and recoverable tin
- » Industry expert service team

Quaker. It's what's inside that counts.®

Certain benefits listed above apply to some, not all, of the products in Quaker's Tin Plating Product Line.







Manage chemicals, and you can manage anything.

WE ARE QUAKER – A COMPANY WITH DECADES OF EXPERIENCE ON THE FOREFRONT OF STEEL INDUSTRY TECHNOLOGICAL INNOVATION. Since 1918.

the world's most dynamic industrial companies have relied on us for smarter solutions. Our chemical management services have helped some of the largest steel manufacturers maximize use of chemical products for utmost value, performance and profitability.

Quaker Chemical Management Services (QCMSSM) is a comprehensive management approach that helps some of the largest steel manufacturers maximize their value and efficiency by getting the most out of their chemical products. We form a strategic partnership with you to manage the entire chemical system, monitor the performance of major process chemicals and inject improvement into the entire system.

Though our QCMSSM approach is proven around the globe, it's our people that set us apart from the rest. Quaker employs some of the most-respected, best-trained chemical managers in the industry, whose success comes from critical thinking and a drive for continuous improvement. Their services include:

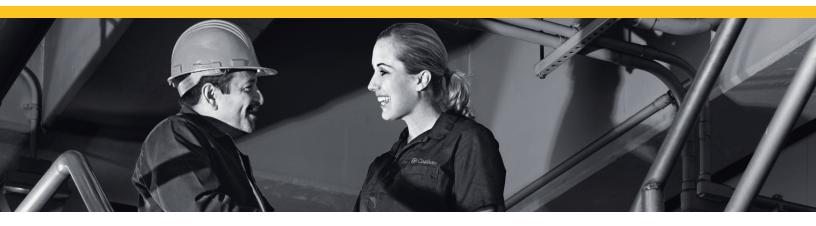
Quaker Chemical Management Services (**QCMS**SM) **Chemical Procurement:** Managing inventory and supply chain.

Chemical Systems Management: Managing and maintaining chemical-based systems, documenting results and recommending action plans.

Usage, Financial & Environmental Reporting: Providing information and reports on the use and application of chemicals for each function.

Environmental, Health & Safety: Providing information, training and reporting relating to chemicals, and maintaining the customer's Safety Data Sheet (SDS).





IT'S WHAT'S INSIDE OUR PRODUCTS

QUAKER CHEMICAL MANAGEMENT SERVICES

- » Increased manufacturing uptime via reduced chemical maintenance-related issues
- » Stability of chemical-related processes
- » Reduction in total cost through reduced chemical consumption and waste
- » Timely, reliable and consistent data and reporting
- » Ease of administration and reduction of paperwork
- » Reduced exposure to chemicals for increased health and safety
- » On-site expertise in the use and application of chemicals

Quaker. It's what's inside that counts.®





Adding value at every step.

WE ARE QUAKER - EXPERTS IN PROCESS FLUIDS AND SPECIALTY CHEMICALS.

Since 1918, the world's most dynamic industrial companies have relied on us for smarter solutions. As a global supplier of products for the steel industry, we create custom-formulated solutions specific to your business to maximize quality, performance and safety – and increase your profitability.

Quaker has 29 locations that cover 19 countries.

The fact is, Quaker provides high-quality products that are incorporated into a unique offering of teamwork, service, application know-how and ongoing support. The results? Superior value and lower total costs for customers. We coordinate and align products, services, resources and expertise to make your improvement consistent throughout the world.

Quaker also offers superior service through our distributor network in order to improve the local support available to customers, improve the speed and quality of response to your needs and provide faster and better problem resolution. In short, we are dedicated to your total satisfaction.



IT'S WHAT'S INSIDE OUR PRODUCTS

Our expertise and process experience is unrivaled in the markets we serve. We can put this knowledge to work for you, giving your business the competitive advantage it deserves with an unparalleled product portfolio:

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ROLLING OILS	5			
QUAKEROL®	Cold Rolling, Pickle Line, Tin Rolling	Effectively reduces a multitude of steel alloys to gauge and shape as required by the automotive, appliance and construction industry.		
QUAKEROL® HB SERIES	Hot Rolling	Provides lubrication on work rolls and/or back-up rolls that significantly extends roll surface life and reduces roll force.		
QWERL®	Roll Grinding, Wet Temper	A true solution roll grinding/wet temper fluid specifically formulated for maximum detergency and corrosion protection.		
CORROSION PREVENTIVES				
FERROCOTE®	Finishing, Galvanize Lines, EGL, Temper Mill, Pickle Lines, Rewind Lines, Cut-to-length Lines	Offers medium- to long-term corrosion and staining protection for ferrous and non-ferrous surfaces to be stored and shipped in a variety of climate conditions.		
QUAKER DRYCOTE®	Finishing, Galvanize Lines, EGL, Pickle Lines, Rewind Lines, Cut-to- length Lines	A solid film lubricant that is mill-applied preferably using electrostatic equipment. This product dries instantaneously to a solid, non-migrating coating, providing superior lubrication, corrosion resistance and stain protection for coils traveling from metal producers or coil-coating facilities to stamping plants.		
CLEANERS				
UIIVKEDUI EVVI®	Annoaling Coatings	Parague surface ails and surface irons from the steel strip prior to appealing surface treatment, electroplating and hat dip		

QUA	KERC	LEAN®	Anne

Annealing, Coatings Lines Removes surface oils and surface irons from the steel strip prior to annealing, surface treatment, electro-plating and hot dip galvanizing operations.

FIRE-RESISTANT HYDRAULIC FLUIDS

QUINTOLUBRIC®

Hot Rolling, Slab Casting, Cold Rolling These fluids meet various ISO standards. Our HFC product and a number of the HFD fluids are FM approved. HFA fluids are designed to operate in water hydraulic equipment. HFD fluids combine good fire-resistance properties with excellent lubrication performance.

PASSIVATION SURFACE TREATMENTS

PRIMECOAT™

Galvanize Lines, Zinc/ Aluminum Lines, Electrical Insulation **Pre-treatment:** Sets an industry standard for approved corrosion prevention. Strong adhesion to paints even at low coating weights. **Passivate:** Maintains a fully transparent appearance even at "high" layer weights, provides excellent corrosion protection and reduces galling in roll-forming operations.

Thin Organic Coating (TOC): Forms a transparent layer for enhanced corrosion protection and "anti-fingerprint" properties.

SPECIALTY GREASES

QUAKERTEK™

Casting, Hot Rolling, Pickling, Cold Rolling, Tin Rolling, Tempering Offers high-temperature performance, superior rust and corrosion protection, excellent EP protection for heavy loading, excellent film strength and excellent resistance to water washout.

TIN PLATING

STANTEK, IRIDITE® CHEM TREAT, MACROME® TFS Electro tinning line, tin-free steel line (TFS) Solutions especially formulated for high-speed tin mill electro passivation.