

Trusted **Solutions.**  
Measurable **Results.**





**SOLENIS**

# Improve Your Market Position with Solenis Expertise

Continuous process improvement and innovative product development are essential to maintaining your competitive edge in the marketplace. That's why you're constantly looking for new ways to improve efficiency, quality and profitability. Solenis has the specialty chemicals and equipment, the R&D support services and the applications expertise you need to meet these demands.

Solenis is one of the top specialty chemical companies in the world. Our elite team provides sustainable solutions to water-intensive industries, including the pulp, packaging paper and board, tissue and towel, upstream energy, petroleum refining, chemical processing, mineral processing, biorefining, power and municipal markets.

Our advanced product portfolio and decades of experience have earned us a reputation for delivering innovative solutions that help customers meet their operational and sustainability goals. These solutions, which include advanced water treatment chemistries, process aids and functional additives and state-of-the-art monitoring and control platforms, are used to improve operational efficiencies, enhance product quality, protect plant assets and minimize environmental impact.



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# Markets We Serve

Solenis is a leading specialty chemical supplier to a variety of water-intensive consumer and industrial markets. Notably, Solenis is the leading global producer of specialty papermaking chemicals.

## Consumer Markets

- Food and Beverage
  - » Paper Packaging
  - » Processing
- Graphic and Specialty Papers
- Packaging Paper and Board
- Specialties and Engineered Wood
- Tissue and Towel

## Industrial Markets

- Biorefining
- General Manufacturing
- Mineral Processing
- Municipal
- Power Generation
- Pulp
- Refining and Chemical Processing
- Upstream Energy





# Our Purpose

To improve life through water.

# Our Vision

To unlock the potential of water and renewable resources to build a safer, healthier, more sustainable world.

# Our Mission

We strive to be a trusted partner by anticipating challenges and solving problems with the right people, the right experience and the right technology. Our innovative solutions build a better world by creating value, reducing waste and promoting healthy living.

# Water Treatment Solutions

## Boiler Water Treatments

To ensure the optimum performance and safety of boiler and steam generating systems, it is imperative that corrosion and deposition be addressed proactively. Solenis' boiler water treatment programs combine application expertise with state-of-the-art chemistries to manage these issues and the multitude of problems they can cause. Whether your objective is to increase production, to improve plant reliability or to protect plant assets, you can count on Solenis to provide a cost-effective solution that addresses your boiler water treatment needs.

- Corrosion Inhibitors
- Deposit Control Agents
- Fuel Oil Additives
- Membrane Treatments
- Metal Passivators
- Oxygen Scavengers

## Cooling Water Treatments

When corrosion, deposition and microbiological growth occur in a cooling water system, they can lead to flow restrictions, reduced operating efficiency, higher maintenance costs and unscheduled outages. To help maintain the reliability and performance of industrial cooling water systems, Solenis offers a full line of chemical treatments that work at various pH levels and with different water chemistries, as well as advanced digital solutions that preemptively address system corrosion and fouling.

- Biocides
- Chlorine Stabilizers
- Cleaners
- Corrosion Inhibitors
- Deposit Control Agents
- Organic Dispersants
- Scale Inhibitors

## Raw Water Treatments

Whether used for drinking water or in a manufacturing process, water is a vital resource. Because the quality of raw water varies greatly, Solenis' influent treatment programs are custom designed to meet each customer's specific requirements. These programs use organic or inorganic chemistries in a liquid, powder or emulsion product to deliver optimum clarification performance and a reliable supply of water that meets required quality standards.

- Biocides
- Coagulants
- Corrosion Inhibitors
- Flocculants

## Wastewater Treatments

As environmental regulations become more restrictive, improving the performance of a wastewater system becomes even more critical. To help customers achieve their environmental and operational objectives, Solenis offers one of the most advanced and comprehensive product lines for effluent treatment, along with a wide range of customer-focused services that help ensure the optimum performance of wastewater systems. Solenis can provide cost-effective solutions to help maintain regulatory compliance, minimize sludge handling and disposal costs, recycle and/or reuse effluent and improve wastewater quality.

- Bacterial Nutrients
- Bioaugmentation Technologies
- Coagulants
- Defoamers
- Dust Control Products
- Flocculants
- Odor Control Products
- Scale Inhibitors
- Sludge Dewatering Polymers

# Process Solutions

## Biorefining Process Aids

Solenis offers a number of FDA-approved process chemistries that can help biofuel producers and sugar, grain and oilseed processors operate more efficiently and profitably. Novel chemistries specifically designed for improving evaporator efficiency, increasing sugar production and optimizing the fermentation process are available, as well as a variety of EPA-approved and NSF-registered chemistries designed for treating boiler water and cooling water in and around food processing areas.

- Alcohol Neutralizing Aids
- Antimicrobials
- Biocides
- Clarification Aids
- Cleaners
- Corn Oil Extraction Aids
- Defoamers
- Nutrients
- Scale Inhibitors
- Viscosity Modifiers

## Defoamers

Entrained air and surface foam can cause a variety of quality, production and environmental problems for industrial operations. Solenis offers a full range of foam control technologies that minimize the detrimental effects of entrained air, surface foam and surfactant-stabilized foam in aqueous manufacturing systems. These products are available in a variety of chemical formulations to address virtually any foam-related issue and regulatory requirement.

- Oil-based Defoamers
- Silicone-based Defoamers
- Surfactant-based Concentrate Defoamers
- Water-based Defoamers

## Deposit Control Agents and Scale Inhibitors

Organic deposits and inorganic scales can lead to any number of problems, including lost production, increased maintenance and energy costs, poor product quality and unscheduled downtime. Solenis offers a complete portfolio of products for controlling the deposition of system contaminants and the formation of virtually any type of scale, as well as a full range of cleaning products for removing existing deposits and scales.

Solenis' applications expertise and experience with various industrial processes, coupled with a complete line of proven chemical treatments, ensure customers receive completely customized solutions to their deposit control needs.

- Cleaning Products
- Corrosion Inhibitors
- Detackifiers
- Dispersants
- Microfixatives
- Scale Inhibitors
- Stabilizers
- Surface Passivators
- Surfactants

## Microbiological Control Agents

Microorganisms can cause numerous problems in aqueous systems, including slime deposits, microbiologically induced corrosion, unpleasant odors and hazardous gases. Likewise, they can cause raw materials to spoil and impact the quality of a finished product.

Solenis offers a variety of broad-spectrum, water-dispersible microbiological control agents, including oxidizing biocides and non-oxidizing biocides, that inhibit microbial growth in industrial processes and prevent additive spoilage.

- Algaecides
- Bactericides
- Fungicides
- Mold Inhibitors
- Organic Biocides
- Oxidizing Biocides
- Preservatives
- Water-based Biocides



## Mineral Processing Aids

Solenis is a key supplier of specialty chemicals and support services to mineral processing operations around the world. With one of the largest and most comprehensive portfolios of process aids in the mining industry and a dedicated team of applications engineers, Solenis is able to address a variety of customer needs and help customers establish new productivity benchmarks for their operations.

- Coagulants and Flocculants
- Corrosion Inhibitors
- Dust Control Products
- Filtration Aids
- Grinding Aids
- Non-sulphide Flotation Reagents
- Rheology Modifiers
- Scale Inhibitors
- Tailings Dewatering Aids
- Viscosity Modifiers

## Upstream Energy Application Aids

Offering a collection of truly differentiated chemistries to the upstream energy sector, Solenis is well-equipped to help service companies and operators solve their most challenging process issues across the entire value chain, from drilling and stimulation to cementing and production. Whether the goal is to cut costs, reduce downtime or increase output, Solenis' comprehensive suite of application aids offers multiple opportunities for customers to improve their operational and environmental excellence.

- Biocides
- Defoamers
- Demulsifiers
- Dewatering Additives
- Dispersants
- Fluid Loss Additives
- Friction Reducers
- Gelling Agents
- Scale Inhibitors
- Shale Inhibitors
- Viscosifiers



# Pulp and Paper Solutions

## Barrier Coatings

Solenis' portfolio of barrier coatings for paper and board includes a range of products that repel water and water vapor, hot and cold liquids, and oils and greases. These coatings are available as either water-based polymer emulsions or solid biowaxes and are produced using the highest level of renewable raw material content currently feasible. Most importantly, paper and board coated with these coatings typically are repulpable, recyclable, compostable and biodegradable, thereby offering packaging producers a way to improve their sustainability credentials.

- Biowax-based Barrier Coatings
- MOSH/MOAH Repellent Barrier Coatings
- Oil and Grease Resistant Barrier Coatings
- Water Repellent Barrier Coatings

## Colorants

Solenis offers an extensive portfolio of high-quality paper colorants, including basic dyes, direct dyes and pigments, to help papermakers produce a wide spectrum of colors for a variety of paper, tissue and board grades.

Whatever the medium, Solenis understands the underlying technology and manufacturing requirements, so we can work closely with papermakers to cost-effectively achieve precise shade and quality targets.

- Basic Dyes
- Direct Dyes
- Dyes for Security Paper Applications
- Inorganic Pigment Dispersions
- Organic Pigment Dispersions

## Pulp Mill Additives

Pulp producers are faced with ever-changing global market conditions that push them to manufacture pulp of a higher quality while reducing their overall operating costs to maintain profitability. They must also deal with increasing regulatory requirements, variable fiber sources and qualities, and water conservation mandates.

Solenis is dedicated to the pulp industry and is committed to helping kraft pulp mills, sulfite pulp mills and mechanical pulp mills overcome these challenges. For pulping operations, Solenis provides cost-effective products that improve pulp production and quality, bleach plant efficiency and recausticizing loop performance.

- Cooking Aids
- Debonding Additives
- Defoamers
- Deposit Control Agents
- Drainage Aids
- Enzymes
- Lime Mud Dewatering Aids
- Liquor Clarification Aids
- Scale Inhibitors
- Tall Oil Separation Aids
- Turpentine Separation Aids
- Washing Aids

## Retention and Drainage Aids

To efficiently produce a quality sheet of paper, a papermaker must precisely balance retention, drainage and formation. To help papermakers achieve and maintain this critical balance, Solenis provides one of the broadest offerings of retention and drainage aids in the industry, including proprietary microparticles, uniquely formulated polymers and advanced charge control agents. These novel chemistries, together with unparalleled applications expertise, enable Solenis to provide a total system approach tailored to each customer's specific needs.

- Anionic and Cationic Polyacrylamides
- Aqueous Dispersed Polymers
- Liquid Coagulants
- Organic Microparticles
- Structured and Colloidal Silicas

## Sizing Agents and Surface Treatments

Solenis offers a wide array of sizing agents to help papermakers improve the aqueous holdout of their products. This portfolio includes internal sizing agents, standard and proprietary surface sizing agents, and promoter resins that enhance the performance of AKD- and ASA-based internal sizing agents.

Solenis also offers a complete line of surface treatments that improve paper performance properties such as coefficient of friction (COF), sizing, printability, toner adhesion, scuff resistance, surface strength, porosity, and offset and inkjet print performance.

- Alkenyl Ketene Dimer (AnKD) Size
- Alkenyl Succinic Anhydride (ASA) Size
- Alkyl Ketene Dimer (AKD) Size
- Anti-skid Agents
- Dispersed and Fluid Rosin Sizes
- Inkjet Printability Aids
- Paraffin Wax Emulsions
- Reactive Surface Sizes
- Styrene Acrylic Acid (SAA) Surface Size
- Styrene Acrylic Emulsions (SAE) Surface Size
- Styrene Maleic Anhydride (SMA) Surface Size

## Strength Additives

Solenis offers papermakers a broad selection of wet and dry strength additives that enhance the end-use performance of tissue and towel, graphic and specialty papers, and packaging board. These additives allow papermakers to manage the required wet and dry strength characteristics of their products, as well as enable them to develop new and improved paper grades and, in many cases, improve the operating efficiency of their paper machines.

- Dry Strength Additives
- Repulping Aids
- Wet Strength Additives

## Tissue Making Additives

As the world's leading supplier of tissue additives, Solenis is uniquely positioned to help tissue and towel producers respond to consumer demands and the resulting production and quality challenges. Whether the demand is for a softer, stronger or more absorbent product, or the challenge is to improve machine productivity, Solenis' comprehensive product portfolio and hands-on approach ensure that tissue and towel producers are able to achieve their goals.

For converting operations, Solenis also offers a range of topical treatments that deliver enhanced surface properties, allowing differentiation and improved profitability potential.

- Absorbency Aids
- Coating Modifiers
- Creping Adhesives
- Debonders
- Fines Management Programs
- Lotions
- Release Agents
- Softeners
- Strength Additives
- TAD Fabric Release Aids
- Yankee Cylinder Conditioners



# Digital Solutions

## Monitoring and Control Systems and Cloud-based Platforms

Solenis' portfolio of digital solutions represents the latest innovations in chemical monitoring, automation and process control. This portfolio includes a range of proprietary analyzers and controllers, web-based performance monitoring tools and dashboards, predictive analytics platforms, and inventory management and order tracking systems. When used in conjunction with Solenis' chemical treatments, these digital solutions ensure the optimal performance of the treated system, minimizing fresh water and energy use, reducing downtime, improving product quality, and providing long-term asset protection.

- Analyzers and Controllers
- Inventory Management and Order Tracking Systems
- Performance Monitoring Tools and Dashboards
- Predictive Analytics Platforms



## Advanced solutions for your toughest challenges.

Solenis is a global leader in specialty chemicals for water-intensive industries. With an average of 20 years expertise, our team is the industry's most knowledgeable. That's how we solve your toughest operational and sustainability challenges—whether you're in the pulp, paper, upstream energy, petroleum refining, chemical processing, mineral processing, biorefining, power or municipal market. Combining the right people, the right experience and the right technology, we're built to deliver value.



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