

# TRUSTED SOLUTIONS MEASURABLE RESULTS



Product Portfolio

 **SOLENIS**  
Strong bonds. Trusted solutions.



solenis

solenis

# Improve Your Market Position with Solenis Expertise

**Continuous process improvement and innovative product development are essential to maintaining your 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 solutions to water-intensive industries, including the pulp and paper, oil and gas, chemical processing, mining, biorefining and power markets.

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





# Markets We Serve

Solenis is a leading specialty chemical supplier to the pulp and paper, oil and gas, chemical processing, mining, biorefining and power markets. Notably, Solenis is the leading global producer of specialty papermaking chemicals.

## Biorefining

### Chemical Processing

- Adhesives
- Ag Chemicals
- Basic Chemicals
- Metalworking Fluids
- Paints and Coatings
- Specialty Chemicals

### Food and Beverage

- Beverage
- Canning
- Dairy
- Fruits and Vegetables

### General Manufacturing

- Automotive
- Building Materials
- Electronics
- Industrial Gases
- Pharmaceuticals
- Plastics
- Textiles
- Tires and Rubber

## Metals

- Aluminum
- Steel

## Mining

- Base Metals
- Bauxite
- Coal
- Industrial Minerals
- Precious Metals

## Municipal

- Drinking Water
- Wastewater

## Oil and Gas

- Exploration and Production
- Refining

## Paper

- Packaging Paper and Board
- Printing and Writing Papers
- Tissue and Towel

## Power Generation

## Pulp

- Chemical
- Mechanical
- Recycled





# Process Chemistries

## Biocides

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 stability and safety of a finished product.

Solenis offers a variety of broad-spectrum, water-dispersible products that effectively control microbiological growth in industrial processes, prevent additive spoilage and provide long-term preservation of consumer and industrial products.

- Bactericides
- Fungicides
- Mold Inhibitors
- Preservatives

## Defoamers

Entrained air and surface foam can cause quality, production and environmental problems. Solenis offers a full range of specially formulated products that minimize the detrimental effects of entrained air, surface foam and surfactant-stabilized foam.

- 100% Active Concentrate Defoamers
- Hydrocarbon Oil-Based Defoamers
- Vegetable Oil-Based Defoamers
- Silicone-Based Defoamers
- Water-Based Defoamers
- Water-Extended 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



## Food and Beverage Processing Aids

Solenis offers a number of innovative products that meet the regulatory requirements for food and beverage processing, grain processing and biorefining. Novel chemistries specifically designed for pasteurization, sterilization, disinfection and corn oil extraction are available, as well as a variety of products that are NSF-registered for treatment of cooling and boiler water in and around food processing areas.

- Chlorine Dioxide Treatments
- Corn Oil Extraction Aids
- Evaporator Treatments
- Pasteurization Treatments
- Sterilization Treatments



## Mining and Mineral Processing Aids

Solenis is a premier supplier of specialty chemicals and support services to mining and 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
- Dust Control Products
- Filtration Aids
- Non-Sulphide Flotation Reagents
- Rheology Modifiers
- Scale Inhibitors
- Specialty Dewatering Aids
- Viscosity Modifiers

## Oil and Gas Processing Aids

Offering a collection of truly differentiated process chemistries to the oil and gas industry, Solenis is well-equipped to help oil and gas operations solve their most challenging process issues across the entire value chain, from exploration and production to transportation and refining. Whether the goal is to cut costs, reduce downtime or increase output, Solenis' comprehensive suite of process aids offers operators, service companies and refiners multiple opportunities to improve their gross margins.

- Amine Removal Aids
- Coker Yield Improvers
- Corrosion Inhibitors
- Emulsion Breakers
- Friction Reducers
- Iron Control Agents
- Metal Passivators
- Oxygen Scavengers
- Scale Inhibitors



# Process Chemistries

## Pulp Mill Additives

Pulp mill operators are faced with ever-changing global market conditions that push them to produce pulp of a higher quality while reducing their overall operating costs to maintain profitability. Operators must also deal with variable fiber sources and qualities, elimination of elemental chlorine use and effluent minimization goals.

Solenis is dedicated to the pulp industry and is committed to helping its customers overcome these challenges. For pulping operations, Solenis provides cost-effective products that improve pulp production and quality, causticizing loop performance and byproducts recovery.

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

## Retention, Drainage and Clarification 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 product offerings in the paper industry, including proprietary microparticles, uniquely formulated cationic polymers and advanced charge control agents. These novel chemistries, together with applications expertise, enable Solenis to provide a total system approach tailored to each customer's specific needs.

- Anionic and Cationic Polyacrylamides
- Brown and White Bentonites
- Cationic Polymer Dispersions in Water
- Colloidal Silica
- Liquid Coagulants
- Organic Microparticles

## Tissue-Making Additives

As the world's leading supplier of tissue additives, Solenis is uniquely positioned to help tissue-makers 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-makers are able to meet production goals and consumer needs. For converting operations, Solenis also offers a variety of topical treatments.

- Absorbency Aids
- Biological Additives
- Coating Modifiers
- Creping Adhesives
- Debonders
- Lotions
- Release Agents
- Softeners
- Strength Additives
- Yankee Cylinder Conditioners





# Water Treatment Chemistries

## Influent Treatments

Whether used in a manufacturing process or for drinking, 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
- Flocculants

## Boiler Water Treatments

To ensure the optimum performance and safety of boiler and steam systems, it is imperative that corrosion, deposition and boiler water carryover be addressed proactively. Solenis' boiler treatment programs combine application expertise with state-of-the-art chemicals to manage these issues and the multitude of problems they can cause. Solenis can help whether the objective is to improve production, to extend equipment life or to protect plant assets.

- 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 cooling systems, Solenis offers a full line of chemical treatments that work at various pH levels and with different water chemistries.

- Biocides
- Corrosion Inhibitors
- Deposit Control Agents
- Scale Inhibitors

## Effluent 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 remove pollutants, minimize sludge handling and disposal costs, recycle or reuse effluent and improve wastewater quality.

- Bacterial Nutrients
- Bioaugmentation Technologies
- Coagulants
- Defoamers
- Dust Control Products
- Odor Inhibitors
- Odor Neutralizers
- Odor Scavengers
- Sludge Dewatering Polymers



# Functional Chemistries

## Sizing Agents and Surface Treatments

From alkaline fine paper to liquid packaging board to sack kraft, whether internally or surface sized, Solenis has the most complete range of sizing agents to help papermakers meet their grade specifications. This portfolio also includes surface treatments that improve the print performance of paper used in inkjet, laser and offset printing and that impart oil-, grease- and water-resistant properties to food-contact grades of paper and paperboard.

- 100% Reactive Surface Sizes
- Alkenyl Ketene Dimer (AnKD)
- Alkenyl Succinic Anhydride (ASA)
- Alkyl Ketene Dimer (AKD)
- Anionic and Cationic Dispersed Rosins
- Coating Lubricants
- Colloidal Silica
- Fluid Rosins
- Mordants
- Paraffin Wax Emulsions
- Starch Crosslinkers
- Styrene Acrylic Emulsions (SAE)
- Styrene Maleic Anhydride (SMA)
- Surface Strength Additives

## Strength Additives

Solenis offers papermakers a broad selection of wet and dry strength additives that enhance the end-use performance of products such as tissue and towel, printing and packaging papers and corrugated containers. 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.

- Permanent Wet Strength Additives
- Repulping Aids
- Synthetic and Natural Dry Strength Additives
- Temporary Wet Strength Additives

## Wood Adhesives

Solenis' adhesive portfolio includes a number of cost-competitive products with excellent performance and environmental attributes. For interior wood products, Solenis offers formaldehyde-free adhesives that are not only strong and water-resistant but also derived from a natural and renewable resource—soybeans. For interior and exterior wood products, Solenis offers soy-based technologies that enable traditional resins to be extended, resulting in a lower-cost adhesive that meets critical performance requirements.

- Formaldehyde-Free Adhesives
- MDI Extended Adhesives
- PF Extended Adhesives
- PVAc Extended Adhesives



# Monitoring and Control Systems

## Analyzers, Controllers and Data Management

Solenis' portfolio of monitoring and control systems represents the latest innovations in chemical monitoring and process control instrumentation. The portfolio includes a range of proprietary analyzers and controllers and an online monitoring and data management service that allow for around-the-clock surveillance and control of process and water treatment programs.

When used in conjunction with Solenis' process and water treatment chemistries, these systems ensure the optimal performance of the treated system, minimizing water and energy costs, reducing downtime and providing long-term asset protection.

- Analyzers
- Data Mining and Inference Software
- Knowledge-Based Controllers
- Online Data Management Service
- Performance-Based Controllers





# Solenis

## **Strong Bonds. Trusted Solutions.**

Solenis supplies specialty chemicals for water-intensive industries, including the pulp and paper, oil and gas, chemical processing, mining, biorefining and power markets. Whether you want to increase production, develop new products, reduce costs or simply do more with less, we can help. With our innovative technologies, passionate people and unrivaled experience, Solenis is ready to deliver the solutions you need.

**Together, we'll create strong bonds that ensure trusted solutions.**



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