

# PULP AND STOCK PRODUCTION SUPPORT

## Process and Pulping Capabilities



For nearly 100 years, Solenis has helped pulp and paper mills all over the world optimize performance and efficiency with a wide array of innovative specialty chemicals and monitoring and control equipment. Our customers rely on our deep expertise, our on-site management approach, and our seasoned team of application experts and research scientists to remain competitive in increasingly challenging environments. The Customer Applications Laboratories, which include Pulp and Stock Production Support, serve as hubs of our application expertise, ensuring that Solenis is prepared to meet the needs of our customers today and into the future.

## Comprehensive services. Global reach.

The Global Customer Applications Laboratories serve as hubs for our application expertise. We work closely with our sales, application, and research teams to understand our customers' systems and problems as well as assist in the development of new treatment technologies. This ensures that Solenis is prepared to address the current and future needs of our customers.

Solenis' Applications Labs support our customers globally with laboratories located in Wilmington, Delaware; Paulínia, Brazil; Krefeld, Germany; Barendrecht, the Netherlands; Drammen, Norway; Terrassa, Spain; and Shanghai, China. They are staffed with experienced scientists and technicians, who use process simulation tools and methods to recommend effective improvements with the goal to enhance our customers' papermaking productivity and product quality.



## Pulping

The pulping process is designed to economically strike an optimal balance between fiber yield, pulp purity and quality while efficiently recovering chemicals and by-products under more stringent environmental regulations. Solenis pulp process chemicals help our customers meet key targets such as:

- Digester and cooking aids for optimal yield and quality
- Brown stock washing aids, pulp defoamers and pitch dispersants for increased quality of the pulp and efficiency of the process
- Inorganic scale control for pulping, bleaching, and evaporators to improve energy efficiency and avoid unnecessary down time for cleaning
- Solutions for more effective recovery of chemicals
- Aids for by-product separation
- Bleaching stabilizers

Solenis utilizes pulp process testing to effectively solve problems and assist with product development.

- Pulp digester/cooking aid, bleaching and de-resination testing including flat screens and Pulmac Masterscreen for yield and reject analysis
- Pulp brown stock wash aid testing including surface tension defoaming and drainage aid performance
- Inorganic scale control assay via high temperature / high pressure testing
- Determination of pulp extractives, such as resin acids, fatty acids, sterols, steryl esters and betulin as well as residual lignin content and silicone oil-based defoamer concentration in primary and secondary process streams
- Chemical analysis of process deposits and pulp specs
- Bleaching simulations
- Fiber species analysis and pulp characterization



## Stock Preparation, Repulping and Deinking

The widespread use of recycled fibers and lower quality raw materials has stimulated the demand for improved deinking and fiber recovery. Solenis has a variety of patented technologies that complement mechanical processes such as pulping, screening and high shear mixing with the aim to deliver the best options for pulp quality/quantity used in paper making and related processes.

The Solenis product portfolio includes:

- Ink collectors - fatty acid and silicone-based
- Special silicone-based collectors for stickie treatment and removal that supplement contaminant control at the paper machine
- Biobond™ program in recycled paper and board machines utilizing native starch recovery with simultaneous microbiological control for improved strength, cleanliness, and enhanced chemical efficiency resulting in a more robust operation of the paper machine and effluent plant
- Catalase treatments for optimal efficiency and quality of the deinking process
- Masking agents offering unique foam management for flotation units with a positive impact on yield and brightness
- Re-pulping agents to improve pulper/drum efficiency and to enhance separation of fibers and non-fibrous material to achieve higher yield and fiber quality

The techniques used to recommend treatment strategies for repulping and deinking include simulations of:

- Stock preparation systems (valid for all paper grades)
- Deinking with a strong emphasis on both flotation and washing technologies

Our evaluations are based on established TAPPI (Technical Association of the Pulp and Paper Industry) and INGEDE (International Association of the Deinking Industry) methods for fiber yield, optical sheet properties and dirt count.

## Deposit Control

The use of lower quality fibers and the industry trend to close water loops has increased the potential for deposition throughout the stock prep process. Solenis strategies for deposition mitigation are based on a fixative, detackification, or contaminant size reduction approach to:

- Minimize downtime for cleaning
- Ensure consistent paper quality

Most of our contaminant control testing capabilities were developed in-house based on decades of experience.

Techniques used to recommend customized treatments are:

- System surveys including count/particle size distribution/area, image and charge analysis

- Determination of potential depositing/agglomerating material through particle size and characteristics using modern technologies like flow cytometry
- Evaluation of stock fixatives, dispersant and detackifiers programs combined with process parameters documentation

## Foam Control

Undesired foam/entrained air development causes severe problems such as decreasing operational throughput and pulp/paper quality. Solenis foam control products provide excellent knock-down and persistence to help our customers in controlling entrained air. The Solenis product portfolio offers solutions for a wide range of applications and unit operations and include antifoams/defoamers and deaeration technologies.



Using different methods and proxy systems, the customer applications laboratory team recommends the right product and approximate dosage based on performance and application parameters, taking into account compatibility and compliance with relevant regulations. These tests include:

- Foam development, foam stability and air entrainment
- Defoaming and drainage effect for direct comparison of our products

With the help of a unique laboratory test set-up utilizing modern online-measurement processes, the defoaming and de-aeration of mill primary and secondary process streams can be evaluated quickly.

## Real-world science. Rapid response.

The quality of communication between Solenis' lab teams and our customers is just as important as the quality of the science in supporting the efficiency of industrial operations. Seamless coordination between lab and field, supported by state-of-the-art systems and software, ensures timely transmission of results to sales representatives for fast interpretation and problem-solving recommendations.



# 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.

To learn more, contact your technical sales representative or visit us online.

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