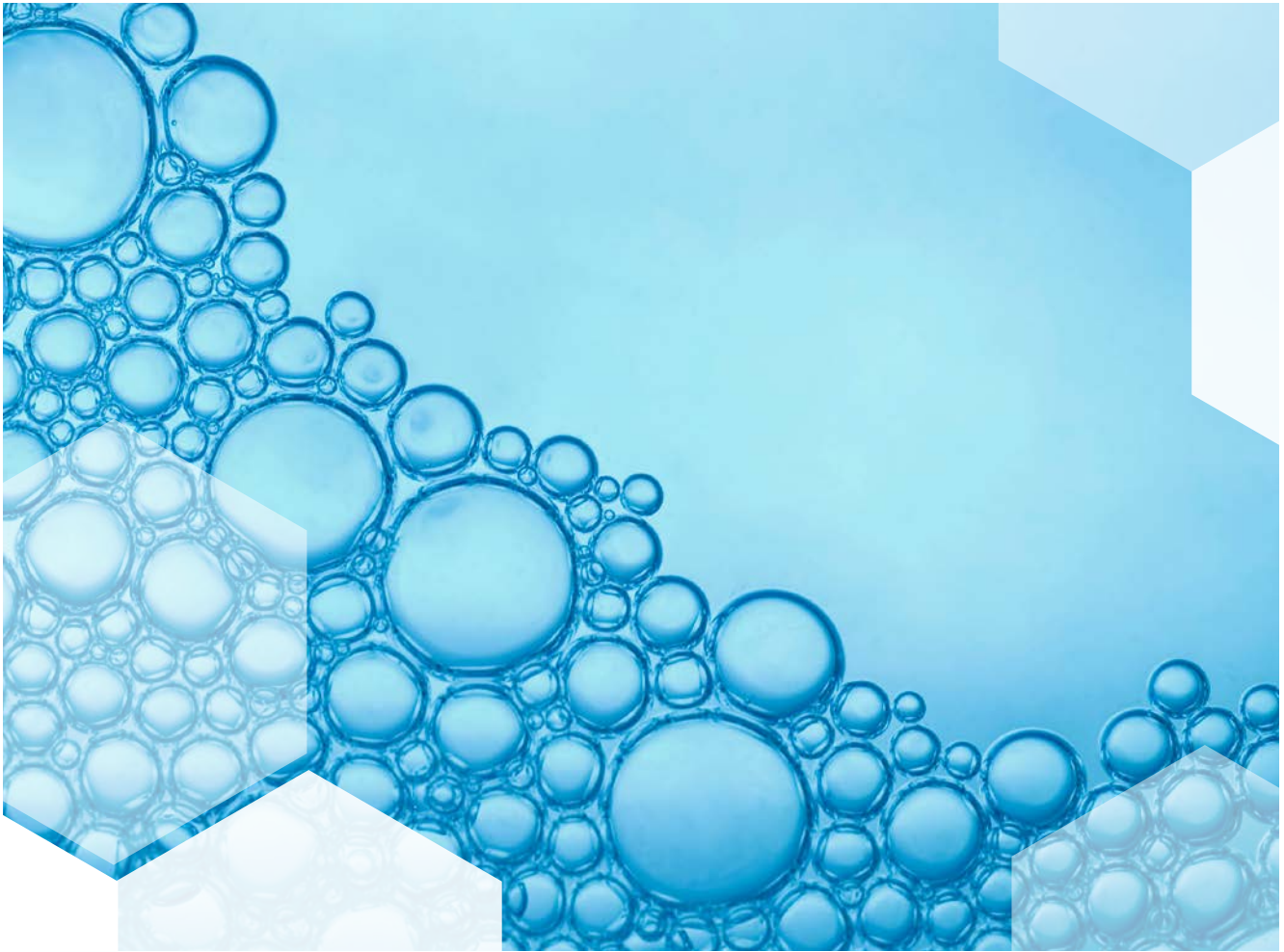


FOAM CONTROL TECHNOLOGY

**Bringing the right products and people
to your papermaking**



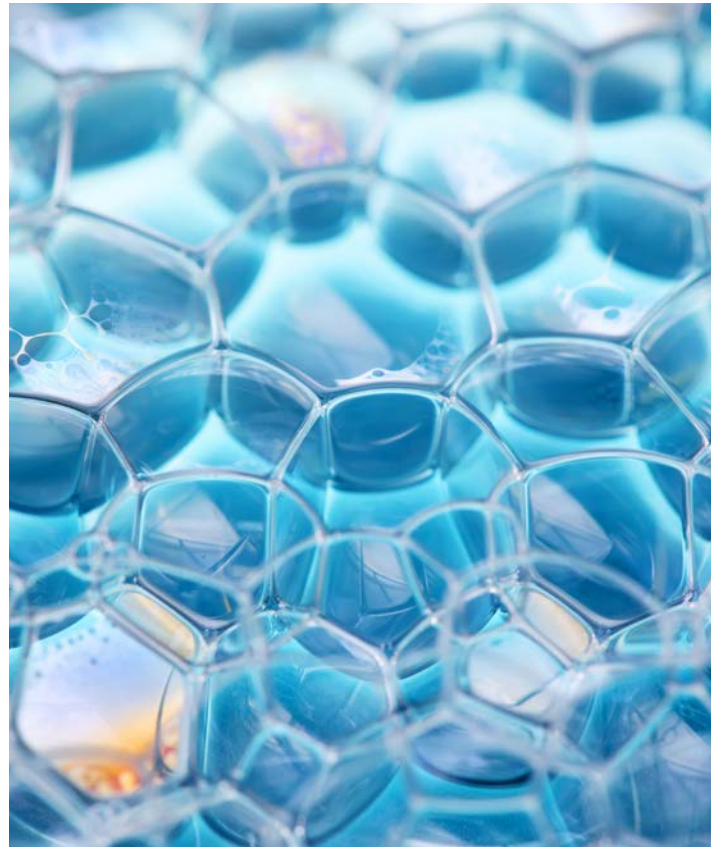
Solenis is dedicated to helping pulp and paper mills operate more efficiently and profitably. We offer a state-of-the-art product portfolio that addresses nearly every aspect of the Pulp & Paper process. Our highly skilled team of field sales representatives, applications engineers, and research scientists ensure our products work in your specific mill environment. By bringing together the best of both worlds — innovative chemistries and innovative people — Solenis is setting the standard in Pulp & Paper excellence.

Foam Control Technology

Entrained air and surface foam can cause any number of quality, production, and environmental problems, including reduced washing efficiency, sheet breaks and defects, loss of system additives, and more. At Solenis, we've designed our foam control portfolio to minimize these problems. We take the time to understand the unique operating conditions of your system to identify the root causes of foam and the impact that it has on the performance, quality, and environmental aspects of your operation.

Our technology features a combination of specially formulated foam control products, unparalleled applications systems, and the unmatched process and product expertise of your Solenis field representative and applications team. When put into action, your mill operation could benefit from:

- Improved quality
- Increased production
- Flexibility in feed system design
- Reduced chemical handling
- Superior entrained air and surface foam control
- Minimal interference with other additives
- Ease of handling
- Lower freight costs
- Automated feed systems



Major Features and Benefits of Solenis Foam Control Technology

PRODUCT TYPE	BENEFIT	FEATURE
Water-based	<ul style="list-style-type: none"> • Low unit cost • Oil-free • Particulate interference 	<ul style="list-style-type: none"> • Minimized VOC* contribution • Excellent surface foam control
Water-extended	<ul style="list-style-type: none"> • Strong actives • Multiple actives 	<ul style="list-style-type: none"> • Increased effectiveness over a wide range of conditions • Reduced VOC contribution
Oil-based	<ul style="list-style-type: none"> • Ease of handling • Persistent • Low dioxin precursor content 	<ul style="list-style-type: none"> • Consistent and problem-free feed • Long-lasting performance
Silicone	<ul style="list-style-type: none"> • High activity • Low feed rates • Ease of handling • Oil-free 	<ul style="list-style-type: none"> • Lower overall program costs • Lower deposition and more first-quality pulp than EBS-containing products • Minimized VOC contribution • Reduced on-site inventory storage requirements
Concentrate	<ul style="list-style-type: none"> • 100 percent active • Low feed rates • Ease of handling • Oil-free 	<ul style="list-style-type: none"> • Lower overall program costs • Reduced interference with sheet quality • Improved sheet drainage • Minimized VOC contribution
Silicone Free	<ul style="list-style-type: none"> • FDA approved • Low-cost alternative 	<ul style="list-style-type: none"> • Improved defoaming and drainage, and washer efficiency • Improved pulp cleanliness • Minimized VOC contribution

Effects of Entrained Air and Surface Foam

CAUSE	EFFECTS
Entrained air attaches to individual fibers and gathers them into fiber bundles	<ul style="list-style-type: none">• Reduced washer efficiency• Formation problems• Wet end breaks• Deposition• Strength problems
Entrained air dispersed throughout filtrate system	<ul style="list-style-type: none">• Pump cavitation• Flow disturbances• Oxygenation that promotes aerobic slime growth• Effluent system upsets
Surface foam	<ul style="list-style-type: none">• Washer control variations• Stock and additive chest overflow• Deposits, scales, and pitch deposits• Sheet quality defects

Because of the different situations created during the manufacture of pulp and various paper grades, Solenis foam control encompasses a full range of product types, including water-based, water-extended, oil-based, silicone, and 100 percent active concentrate technologies.

Total Foam Control Application Systems

Having the right products is only part of your complete solution. The proper feed system is also critical. To achieve optimum results, Solenis has the capability to provide feed systems with:

- Computerized feed technology
- Booster pumps tied to reset timers
- Preassembled feed skid units for multi-feed point applications
- Customized shower bars

Your success in foam control starts with our application expertise and products. To complete the process, a Solenis field representative carefully monitors every program to ensure optimum performance. System monitoring includes:

- Entrained air testing
- Process water parameters
- Visual inspections
- Tall oil monitoring
- Machine runnability parameters
- Washer efficiency
- Pulp and sheet quality
- Pitch plates





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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