

Microbiological 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 papermaking. 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 papermaking excellence.

Microbiological Control Technology

As a papermaker, some of the biggest problems you face are so small you can't even see them. They are the seemingly endless array of bacterial and fungal slime, spores, and microbiological contaminants that thrive in your paper machine. Left unchecked, these microorganisms can create a variety of problems, including slime deposits, microbiologically related corrosion, spores, spots and holes, unpleasant odors, additive spoilage, and more.

At Solenis, you have a complete resource for exclusive, proprietary, and standard microbiological control products.

Our microbiological control technology provides you with reliable and consistent:

- Control of bacterial and fungal slime deposition
- Control of anaerobic, SRB, and VFA-producing bacteria
- Reduction of microbiologically related corrosion
- Control of spores in food-grade paper
- Control of odors in paper and paperboard products
- Prevention of additive spoilage
- Finished product preservation programs (e.g., mold-inhibition)



- Control of microbiological contamination from recycled fiber use
- Control of catalase-induced degradation of hydrogen peroxide in deinked bleach plants

Your Total Machine Solution

Controlling microbiological activity throughout the entire papermaking process is critical to the success of the operation. Solutions offered by Solenis include organic biocides, oxidizing biocides, microbiological deposit control technologies, automated feed control, and complete program management and expertise. These components are integrated into a comprehensive program to reduce microbiological contamination and improve machine runnability, product quality, and profitability.



Organic Biocides

Mills differ in both operation and processing of paper grades—even from machine to machine. Our expertise in microbiological control enables us to tailor a treatment program for your specific system. Your program could include:

- Water-based biocides
- Exclusive blends of actives for better control
- Cost-effective actives
- Environmentally safe applications

Your program could also include preservatives to inhibit the growth of microorganisms that affect wet pulp, filler slurries, starch solutions, and coating colors. These products range from safe, effective fungicides for mold-inhibition and wet lap pulp preservation to patented and food contact-approved biocides (including FDA, BfR and GB9685) for additive preservation. Solenis also supplies a variety of biocides for stock preservation applications.

Oxidizing Biocides

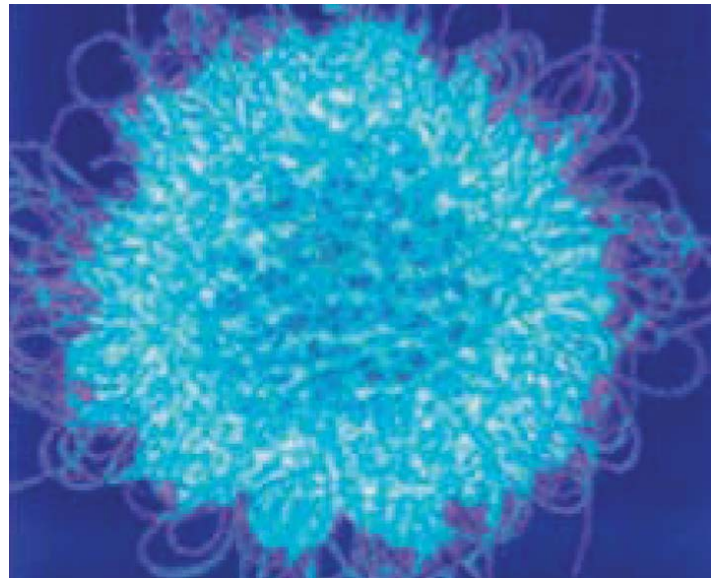
Solenis' portfolio of oxidizing biocides includes conventional technologies, such as sodium bromide and chlorinated and brominated hydantoin, as well as our ammonium-based, in-situ generated technologies. These dramatically reduce microbiological counts without negatively impacting the papermaking process. Programs based on these products are designed with careful consideration given to safe handling and operation and feature a unique combination of chemical feed technology along with the most advanced ORP monitoring and control available.

Microbiological Deposit Control Technologies

When a reduced toxicity control program is called for, Solenis' microbiological deposit control products¹ are the ideal choice. These products block the formation of microbiological deposition in the wet end of the paper machine. The major benefit of these treatments is to enhance machine cleanliness while reducing the amount of toxic substances introduced into your process. These products can also help you:

- Meet environmental objectives
- Reduce biocide usage
- Improve worker safety by reducing operator handling
- Reduce machine downtime

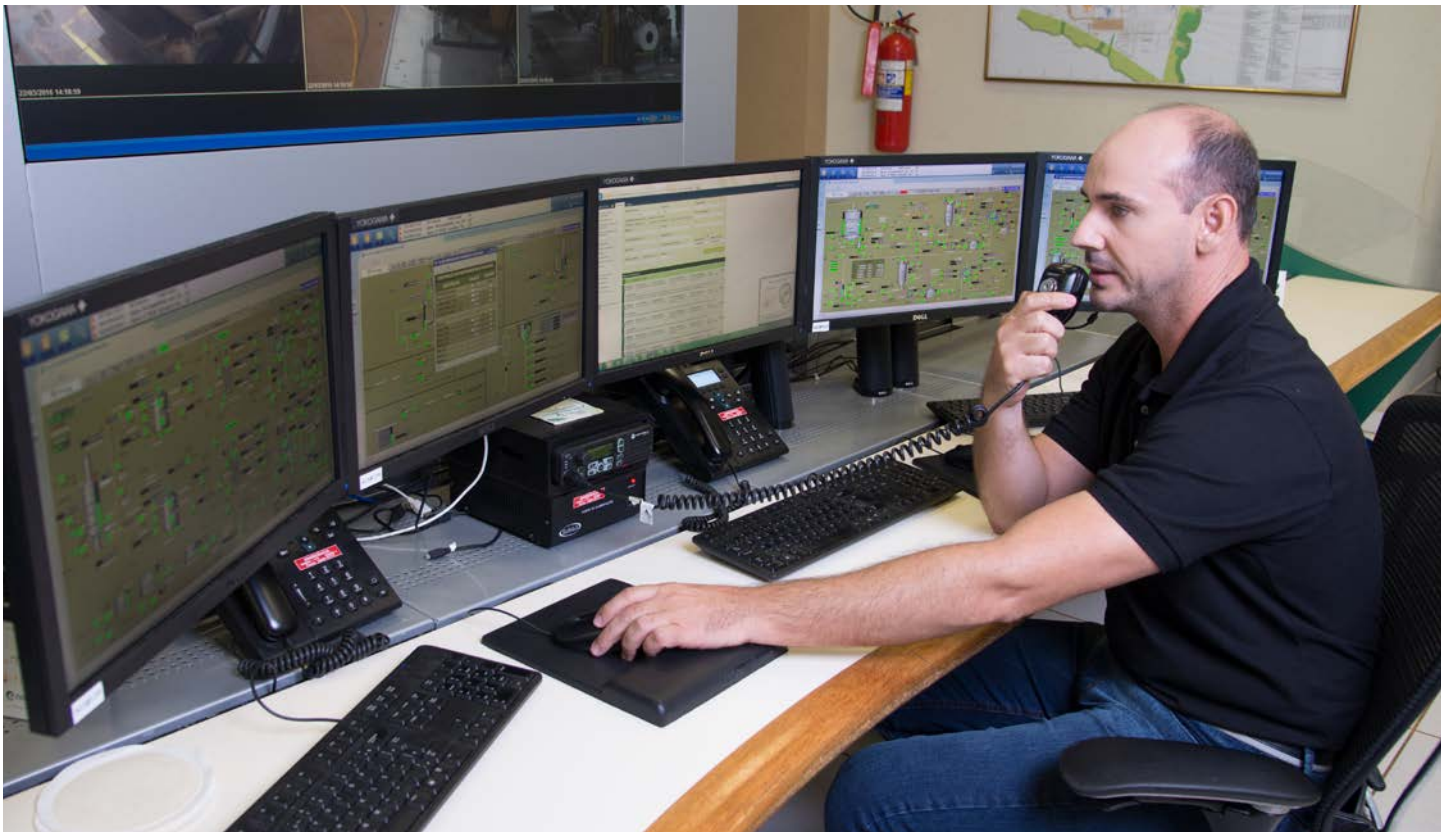
¹May be regulated in some countries



Automated Feed and Monitoring Equipment

To ensure total optimization of our microbiological control technology, we also provide application-specific feed systems and electronic monitoring and control equipment, which consists of three components:

- Computerized feed technology and data collection system
- Windows*-based data management software
- Monitoring and control sensors





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, oil and gas, petroleum refining, chemical processing, mining, biorefining, power or municipal market. Combining the right people, the right experience and the right technology, we're built to deliver value.



All statements, information and data presented herein are believed to be accurate and reliable, but are not to be taken as a guarantee, an express warranty or an implied warranty of merchantability or fitness for a particular purpose, or representation, express or implied, for which Solenis and its subsidiaries assume legal responsibility.

®Registered trademark, Solenis or its subsidiaries, registered in various countries

™Trademark, Solenis or its subsidiaries, protected in various countries

210094 | © 2021, 2015 Solenis