

Application Brief

PROCESS TREATMENT

Process chemicals are indispensable for optimizing efficiency and reliability across myriad industrial processes. They ensure product quality and enable new product innovation. Industries such as pulp and paper, mining, refining, chemical production, and the sugar industry rely on tailored chemical programs to address common challenges and elevate their operations to new levels of productivity and sustainability.

Tailored formulations designed especially for these challenges can effectively combat scale and deposition, enhance paper strength, stabilize froths, prevent corrosion & improve overall process performance.

By designing the right program from the outset, these process industries can overcome hurdles and unlock many benefits that significantly impact operational efficiency and product quality.

Your Pain Points

There are many reasons for processes to run outside of control limits in industrial applications, including variable raw material quality, unstable operating conditions, and inexperienced operators, all contributing to process instability.

Below is a sampling of common issues in industries Gradient serves:

Pulp & Paper - Plant operators grapple with scale formation, slime/bacterial control, reduced paper strength, felt conditioning, and machine run time.

Mining - Ore processing frequently encounters malfunctions like froth stability and mineral recovery.

Refining & Chemicals - Refining processes encounter corrosion, fouling, and complex hydrocarbon compositions. Chemical production must overcome fouling, catalyst deactivation, and impurities.

Food & Beverage - The sugar industry contends with yield issues, scale build-up in evaporators, and challenges in juice clarification.

Our Comprehensive Solution

Gradient offers a comprehensive approach to addressing process challenges, integrating advanced chemical treatment with sophisticated feed, monitoring, and control systems. Our tailored programs provide site-wide peace of mind throughout the entire plant process.

By combining our application expertise and suite of high-performance CURE chemicals, we can tailor an optimal combination for your plant's unique operating needs, which include but are not limited to:

- Antifoams
- Antifoulants
- Filming and Neutralizing Corrosion Inhibitors
- Bicine Inhibitors
- H₂S Scavengers
- Retention Aids
- Biocides

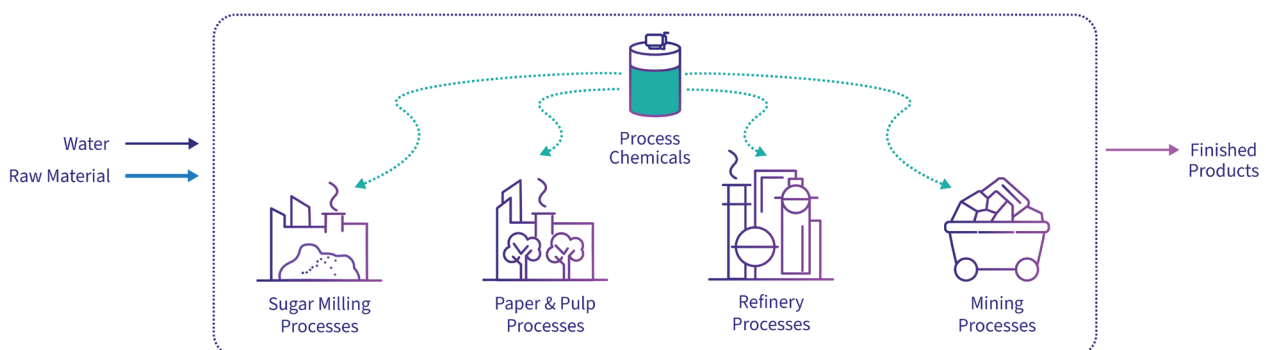


Figure 1: Process Chemicals in Industrial Applications

Bespoke Service Programs

Gradiant designs customized service programs aligned with each facility's needs. These include routine water chemistry analyses, chemical inventory checks, system performance and monitoring, training, technical support, and on-site response. Chemical dosing and monitoring systems are part of the comprehensive chemical and service program.

Benefits:

Improve reliability, enhance product quality, and enable discharge compliance —Gradiant's tailored solutions redefine the potential of your cooling systems.



Operational Efficiency

Specialty chemicals optimize processes, leading to increased operational efficiency. Reduced downtime, improved throughput, and streamlined operations contribute to overall productivity.



Product Quality Enhancement

Tailored formulations ensure product quality by addressing specific challenges. In the pulp and paper industry, this may result in brighter and stronger paper; in refining, expect higher yield and purity of end products.



Environmental and Compliance

Specialty chemicals aid industries in meeting stringent environmental regulations. By reducing emissions, minimizing waste, and enhancing resource efficiency, companies can operate in compliance with sustainability standards.



Cost Savings

The correct chemical program can lead to significant cost savings through reduced maintenance costs, extended equipment lifespan, and optimized resource utilization, ultimately improving the bottom line.

Have a question? Contact us at:
[gradiant.com/contact](https://www.gradiant.com/contact)

Resource Conservation



In industries like mining and refining, where water and energy consumption are critical, specialty chemicals and associated solutions contribute to resource conservation. Reduced water usage, energy-efficient processes, and minimized waste generation align with sustainable practices.

Gradiant CURE Chemicals have become indispensable for operational excellence and sustainability across industries. As companies face unique challenges, adopting targeted chemical programs ensures not only the resolution of specific issues but also the realization of quantifiable benefits, propelling these sectors toward a future of enhanced efficiency, product quality, and environmental responsibility.

Learn more about Gradiant's water treatment expertise across your facility:

- [Technologies](#)
- [Solutions & Industries](#)
- [CURE Chemicals:](#)
 - Water Clarification Systems
 - Membrane Systems
 - Wastewater Treatment
 - Cooling Systems
 - Process Treatment
 - Boiler Systems

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