

Success Story

CRITICAL COOLING

A CEMENT MANUFACTURER BECOMES A COOL OPERATOR

A cement manufacturing plant in Kenya could not adequately address inferior cooling water chemistry, precipitating unacceptable scaling throughout the system that drove inconsistent manufacturing performance and unsustainable maintenance costs. Gradiant formulated and deployed a custom CURE Chemicals program that mitigated all concerns and transformed performance and maintenance metrics.

The Challenge

In cement manufacturing, the consistent flow of temperature-controlled water is critical to maintain the specified operating temperature of the ball bearings in the rotary kiln and thus ensure proper clinker formation. Cooling towers need plentiful fresh water to operate smoothly, but only quarry water was available at our client’s site. Water testing showed the source brackish with high chlorides, sulfates, silica, and calcium levels - a cocktail of undesirable inclusions that make cooling systems highly susceptible to scaling and corrosion. High skin temperatures further exacerbated this propensity for scaling.

Intense scaling had repeatedly caused unplanned cleaning shutdowns, which generated unsustainable maintenance costs and reduced capacity to meet increased demand. The manufacturer sought a solution to inhibit scaling, enabling effective heat transfer and protecting the system metallurgies. Especially important was to increase the time to greater than 24 months between planned shutdowns for cleaning.

The Solution

After a thorough system audit and understanding of the complex cooling system chemistry, Gradiant designed a tailored solution that included a comprehensive CURE Chemicals package, dosing equipment, and monitoring program supported by an on-site service arrangement to ensure system performance and reliability. The program was targeted for cathodic protection of system metallurgies and effective scale inhibition and dispersion.



**CURE Chemicals
in Industrial
Manufacturing**



Kenya

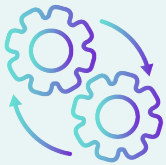
Location:	Kenya
Application:	Cooling Systems
Solution:	Cooling Water System Treatment
Industry:	Cement Manufacturing
Feedwater Source:	Quarry Water (High Mineral Content)
CURE Chemicals:	Scale Inhibitor, Corrosion Inhibitor, Biocide



20% +
Water reduction in
the cooling system

>3.5

Years Between plant
shutdowns
for cleaning



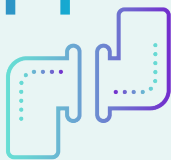
Zero
Downtime caused
by cooling system



< 2 MPY
For mild steel
corrosion

< 0.5 MPY

For copper



The Benefits

The plant now routinely operates on higher concentration cycles in the cooling system, reducing the water footprint. Benchmark corrosion rates have been improved for mild steel and copper. Planned shutdowns have been extended with minimal downtime for cleaning, and no downtime due to cooling tower treatment has occurred since Gradiant has been responsible for on-site monitoring.



Learn More at <https://www.gradiant.com/solutions/cure-chemicals/>

Contact Gradiant today at: [gradiant.com/contact](https://www.gradiant.com/contact)

This document is for general information only. No warranty or guarantee whatsoever is given or implied and Gradiant is not bound by or liable for or by the information contained herein. Customer has the sole responsibility to determine whether the information in this document are appropriate for Customer's use, including without limitation actual site, geographical, and plant conditions, specifications, requirements, disposal, applicable laws and regulations. This document is the intellectual property of Gradiant, including but not limited to any patent or trademark contained in this document. Distribution of this document is not and does not imply any transfer of Gradiant's intellectual property.

Gradiant, the Gradiant logo, and all trade and service marks denoted with ™ and ® are owned by Gradiant Corporation unless otherwise noted. ©2024 Gradiant.