CASE STUDY

Reducing Electrode Consumption at a Steel Mill with ChemTreat ECR® Technology

Background

An EAF steel producer in the midwestern United States was experiencing increased furnace electrode costs. The related financial impact, compounded with the associated greenhouse gas emissions, led the facility to evaluate methods for reducing their operational costs and their carbon footprint.

Solution

To help the customer manage ESG goals and decrease electrode costs, ChemTreat began applying its Electrode Consumption Reduction (ECR) technology. The patented process and related proprietary chemical program are applied directly to the spray cooling water to create a barrier to oxidation on the electrode surface.

The ECR process is controlled with specifically designed, state-of-the-art automation to ensure consistent program application. The automation package provides flow-based proportional control, redundant lockouts, inventory monitoring, chemical feed verification, and spray water flow monitoring. The ChemTreat Primary Metals team customizes the setup for each furnace based on the spray water chemistry and related operational needs.

The selected chemical program is applied to each phase of the spray water, passing through the spray ring, and forming a protective barrier on the electrode, therefore reducing sidewall oxidation. When the electrode penetrates the furnace, the protective barrier becomes molten, extending protection further down the electrode and reducing electrode sidewall oxidation.

Results

Applying ChemTreat's ECR technology at this facility delivered the following results on an annual basis:

- $1.32M in electrode cost savings
- $173k in production cost savings
- 952 tons of CO_2 eliminated from the environment

Results are examples only. They are not guaranteed. Actual results may vary.

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