

improving backwash water treatment and deposit control saves US\$1,388,000

challenge

Two critical areas of this German steel mill were experiencing problems that resulted in inefficiencies and environmental concerns. In the filter backwash water treatment plant, the levels of solids and oil were sometimes exceeding the mill's discharge limits. Metal levels also needed to be reduced. In the continuous casting plant, heavy CaF₂ deposition was occurring in the strand cooling section's mold and bend zone, plugging spray nozzles, altering spray patterns, and reducing cooling effectiveness. The mold and bend zone had to be removed for cleaning at least every 10 days.

solution

Improving the backwash water treatment treatment included a search for alternative clarification aids that would avoid a pH correction step, required with existing PACl chemistry. Laboratory tests demonstrated that a combination of Novus* CE2680 flocculant and a KlarAid* coagulant optimized thickener performance satisfactorily without pH correction. The improved treatment program

reduced solids and oil, as well as nickel and chromium, to acceptable levels, and eliminated the need for flotation.

A system analysis of the deposition in critical spray zones in the continuous casting plant led to a trial treatment program using a SUEZ deposit control agent from the DeposiTrol* BL5300 series. During the DeposiTrol trial, the spray nozzles were nearly free of deposits and performed perfectly.

results

The optimization of the thickener treatment for backwash water reduced flotation costs and sulfuric acid dosing, for a net annual savings of US\$134,000. The mill also achieved environmental gains by meeting discharge limits for metals, solids and oil, and reducing sludge volume. Control of CaF₂ deposition extended the time period before the bend and mold zone required cleaning, and reduced treatment costs, for a net annual savings of US\$1,254,000. The savings for both projects totaled US\$1,388,000.

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