

Case Study

RemTech Optimizes Metallurgical Effluent Treatment and Reduces Sludge Disposal Costs

LOCATION

Cabreúva – SP – Brazil

PROJECT SUMMARY

In its physicochemical treatment line for metallurgical effluents, the company faced challenges such as high consumption of hydrated lime, limited storage space, and the need to reduce operational costs without compromising efficiency. With the application of the RemTech solution by MetaFLO, it was possible to replace lime with a high-performance alkaline reagent, resulting in a significant reduction in sludge generation, overall process optimization, and direct gains in efficiency, sustainability, and operational cost savings.

THE RESULT

Effluent treated in full compliance with Decree 8468/1976 – Art. 19A, meeting the parameters required by environmental legislation, with a reduction of up to 50% in sludge generation and significant gains in savings in disposal, promoting a cleaner, more efficient and sustainable process.

CONTEXT AND CHALLENGES

The client operated a traditional system of physical-chemical treatment of effluents, based on the conventional use of hydrated lime, which resulted in several operational obstacles:

Excess sludge generated, making disposal difficult and more expensive;

Logistical storage constraints caused by the large volume of input required due to the high dosage;

Challenges in handling lime, with dust generation, risk of inhalation by operators and increased dirt on the production line;

Need to meet stringent environmental parameters.

IMPLEMENTED SOLUTION

The technical scenario required an alkaline solution that was effective, economically competitive and reduced the volume of waste. RemTech technology was chosen, applied directly to the treatment tank, ensuring better performance with lower consumption of inputs.

Technical Details:

- ✓ **Product applied:**
RemTech
- ✓ **Dosage:**
0.03% in relation to effluent volume.
- ✓ **Material used:**
High contaminant load, with an average of 250.53 mg/L of total oils and greases, 28.43 mg/L of total metals and 57 mg/L of fluoride.
- ✓ **Application method:**
Direct dosing in the treatment tank.
- ✓ **Equipment used:**
Agitation tank with air injection system.

Reasons for Product Choice:

Efficient lime replacement, eliminating handling challenges such as dust generation with inhalation hazard.

Reduction in the consumption of reagents, given the limited space for storage of inputs.

Cleaner and safer working environment, with the complete elimination of lime handling.

Acceleration of the alkalization stage, without the need for prior preparation, optimizing the process time.

Better operational control, with more stable and efficient process.



Results

Technical Performance:

- ✓ Effluent treated efficiently, **within the legal limits**, in compliance with Decree 8468/1976 – Art. 19A.
- ✓ **50% reduction in sludge generation**, reducing environmental impact and optimizing disposal.
- ✓ Cleaner, **more controlled process** with greater operational stability.

Productivity and Efficiency:

- ✓ **76% reduction in alkalinizing consumption**, generating significant operational gains and simplifying the process.
- ✓ **Increased productivity in the filter press** – cleaning is now only required every two batches, reducing downtime and increasing efficiency.
- ✓ **Simplified operation**, without the need for prior lime preparation, with time savings and less exposure to risks.

Total Savings:

32.8% in treatment and disposal costs.

Lower consumption of inputs.

Less sludge generation and reduction of operational interventions.

REMTECH

MetaFLO Technologies

CONCLUSION

MetaFLO's SoilTech proved to be a technically sound and cost-effective alternative for layer stabilization in demanding infrastructure projects.

The technology enabled the use of more accessible materials while meeting performance standards, streamlining operations, and helping the project stay on time and within budget.

Innovation that drives your success!

MetaFLO's Industrial Solutions

MetaFLO develops solutions that combine technical efficiency, process optimization, and operational gains for a variety of projects.

Our technologies are applied to projects seeking greater performance, cost-effectiveness, and reliability, always focusing on concrete and sustainable results.

Our team is available to present you our solutions and explain how we can contribute to the success of your project.



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