



INTRODUCTION

Company: Founded in 1976, this organization operates in the paints and coatings industry with more than 300 employees. Its growth in production technologies and marketing strategies has increased the demand for water and raw materials, essential in manufacturing processes.



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WASTEWATER TREATMENT AND RECYCLING PLANT STATE OF MEXICO PLANT



PROBLEM

- Wastewater treatment plant handles 13,000 liters/day with high Chemical Oxygen Demand (COD) (10,000–50,000 mg/L).
- Treatment uses physical-chemical processes, producing sludge requiring 4 weeks to dry.
- Existing system lacked efficiency and required process upgrades.

SOLUTION

- Automation of high-efficiency mixing, particle formation, gravity separation, and sludge dewatering systems to reach 30 m³/day capacity.
- Achieved zero discharge by integrating treated water into biological processes, meeting NOM 001

COMPLIANCE:

Distributed control system designed for:

- Action Level: Liquid level monitoring, flow rate measurement.
- Field Level: Pump and motor controllers.

OUTCOME:

- Efficient wastewater reuse for irrigation.
- Improved sludge drying and reduced environmental impact.

Previous Process	Reengineered Process
<ul style="list-style-type: none"> • Capacity: 13 m³/day • Sludge: 95% moisture content • COD (peak): 17,500 mg/L • Batch-based physical-chemical process with limited containment capacity. • Poor water quality prevents incorporation into the biological process • Sludge generation involves long drying time 	<ul style="list-style-type: none"> • Capacity: 30 m³/day • Sludge: 32% moisture content • COD (peak): 450 mg/L • Continuous physical-chemical process with integration into the biological process to meet NOM 001 standards. • Treated water integrated into biological processing for enhanced compliance • Continuous sludge generation with a moisture content of 5%.

ROI

- New Capacity: 30 m³/day (4.58 gpm)
- Investment: \$ 439,620.00 USD
- Sludge Disposal Savings: \$34,700 USD/month
- ROI: 12.7 months