

# Treatment of Antimicrobial API & Mixed Organics in Pharmaceutical Rinse Water

## Customer Pain Point

A pharmaceutical manufacturing facility generates several hundred thousand gallons per year of clean-in-place rinse wastewater contaminated with an antimicrobial active pharmaceutical ingredient (API) and organic solvents. The stream is currently trucked off-site for incineration. The facility wants to treat the stream on-site to eliminate off-site trucking and incineration in order to reduce cost and risk, streamline operations and improve sustainability performance. In order to treat the stream on-site and discharge the treated water to sewer, the API needs to be reduced to non-detect levels in order to meet local public wastewater utility permit requirements.



Axine technical team reviewing results

## Treatability Methodology

The facility shipped samples of rinse water generated over various time periods to Axine’s in-house, certified laboratory and testing facility. Axine technicians analyzed each sample prior to treatability testing to establish the concentration of API, other organics,

## Axine Value Proposition



Generates immediate opex savings via Axine’s service model



Eliminates ~20,000 miles per year of off-site wastewater trucking



Eliminates ~1.6 million lbs/yr of off-site incineration of API contaminated waste



Addresses corporate EHS & sustainability goals

TDS, TSS and other components. Each sample was run through Axine’s treatment system and the treated water was analyzed. Table 1 shows the wastewater composition before and after Axine treatment. Treated samples were returned to the facility for final analysis and validation. Finally, a report was produced comparing the rinse water characteristics of the sample as received and post treatment in the Axine system.

## Treatment Results

Analysis of four separate rinse water batches showed starting API levels of 2 – 7 mg/L and COD from 1,100 – 3,250 mg/L, as shown in Table 1. Treatability testing verified successful oxidation and treatment of API to

Parameter	Units	Treatment Requirement	Influent	Treated Effluent
COD	mg/L	N/A	3,250	< 50
API	mg/L	< 0.07	7	non-detect
pH	SU	4-12	5-6	7-8

Table 1 - Wastewater parameters and treatment results

non-detect levels (i.e. <0.05 mg/L). Figure 1 shows the API levels measured from untreated rinse water

as well as treated samples at various levels of COD removal.

## Conclusion

The treatability study verified successful reduction of the API to non-detect levels post treatment in the Axine system so the rinse water can be discharged to the sewer. Adoption of this on-site service program and treatment technology will generate immediate savings for the facility and streamline operations as well as eliminate the risks associated with off-site trucking and incineration.

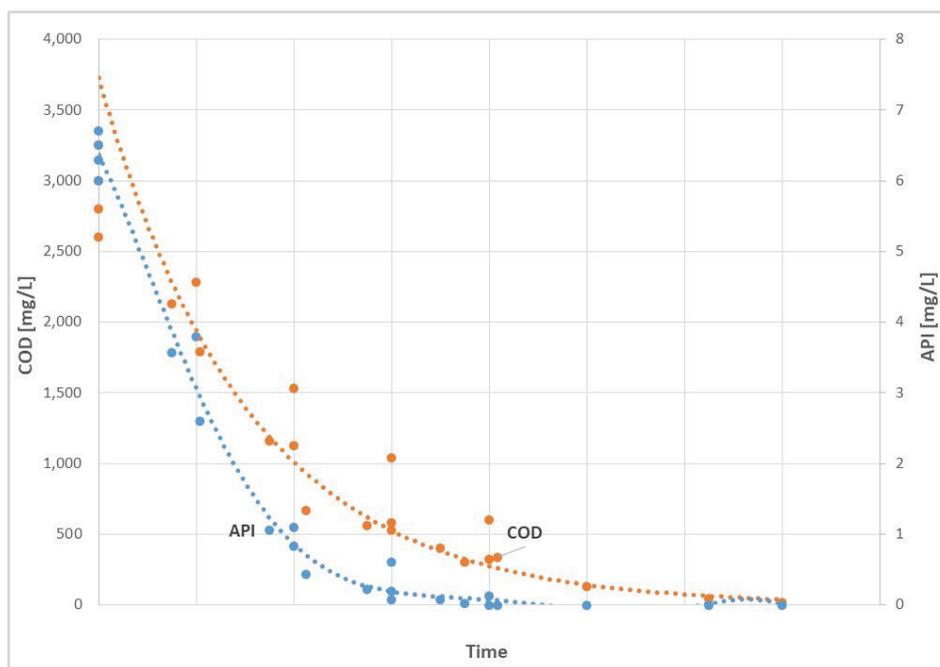


Figure 1 - Axine treatment performance over time

## About Axine

Axine has created a new standard for treating toxic organic pollutants in industrial wastewater to address a global problem for pharmaceutical, chemical, electronics and other manufacturing industries. Axine's breakthrough solution combines advanced electrochemical technology, modular system design and data analytics with a unique wastewater-as-a-service business model. By doing so, we enable customers to generate savings, lower risks, eliminate liabilities, streamline operations and minimize waste as well as improve safety and environmental performance. Contact us today for a solution tailored to your specific wastewater treatment needs.

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