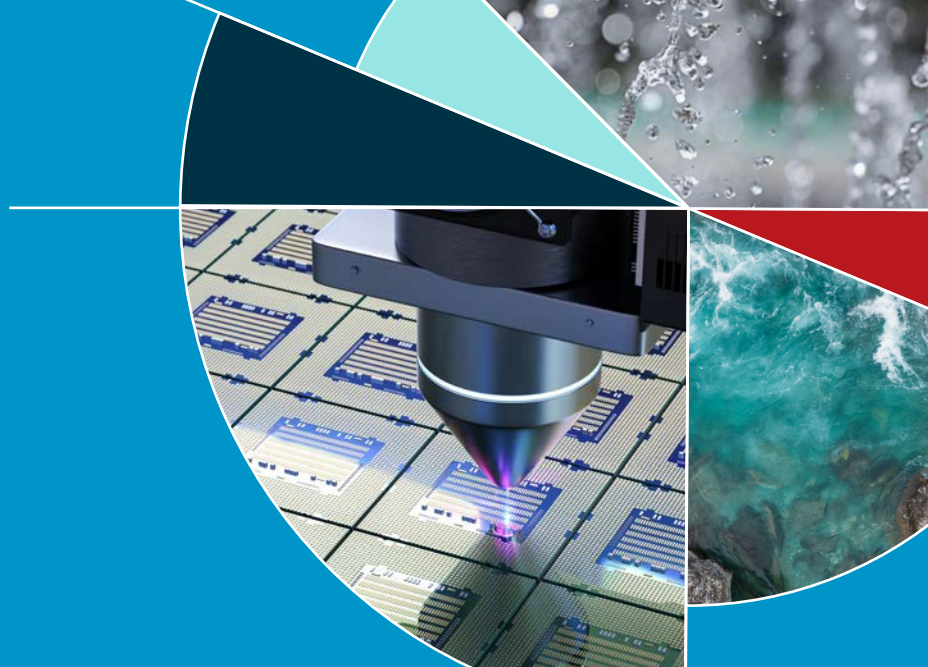


Advanced PFAS Destruction for Semiconductors & Electronics

APPLICATION BRIEF

SEMICONDUCTORS



PFAS IN SEMICONDUCTORS & ELECTRONICS

- Photoresist formulations
- Photoetching and masking
- Plasma cleaning
- Chemical-Mechanical Planarization (CMP)
- Wet processing, developers, and rinses
- Adhesion promotion
- Anti-reflective coatings

Axine is redefining semiconductor and electronics wastewater treatment with **electraCLEAR™**.

Our technology destroys PFAS, APIs, solvents, and other persistent contaminants at the source, giving semiconductor and electronics manufacturers the freedom to operate with confidence and the power to destroy contaminants for good. With more than 200,000 hours of proven runtime across the most demanding industries, electraCLEAR delivers guaranteed results through modular systems and flexible service models.

Our mission is to break the cycle of persistent contamination, reduce operational burden, and give semiconductor leaders the confidence to run their processes without compromise.

WHY ELECTRACLEAR™

Destroys up to 99.999% of long, short, and ultra-short chain PFAS

Reliable performance against APIs, solvents, and complex organics including 1,4-dioxane

Zero-waste treatment that breaks contaminants down to their simplest, most stable forms

Eliminates the cost, logistics, and liability of off-site disposal and incineration

Backed by guaranteed treatment outcomes and expert system operation

THE CHALLENGE: PFAS IN THE PROCESS. RISK IN THE FUTURE

Semiconductor and microelectronics manufacturers depend on PFAS-based compounds across critical processes, from photoresists and etching to cleaning and coatings.

These compounds are essential for product quality but create significant regulatory, operational, and liability risks. With global manufacturing expanding and regulations tightening, the industry needs solutions that destroy PFAS at the source. Axine provides a clear path forward, enabling companies to maintain process performance while eliminating the risks of persistent contamination.



electraCLEAR API treatment system,
Northeast U.S.

electraCLEAR PFAS Destruction Results Semiconductor Applications		
Contaminant	Conc./Carbon#	Photolithography Wastewater
Influent Tot PFAS	ng/l	66,682,571
NEtFOSAA	C12	99.99%
PFDaA	C12	99.90%
NMeFOSAA	C11	99.99%
PFUnA	C11	99.72%
8:2 FTS	C10	94.96%
PFDA	C10	99.99%
PFNA	C9	99.81%
PFOS	C8	99.51%
PFOA	C8	99.97%
6:2 FTS	C8	99.79%
PFOSA	C8	99.37%
PFHpA	C7	99.97%
PFHpS	C7	99.99%
4:2 FTS	C6	99.29%
PFHxA	C6	99.95%
PFHxS	C6	99.98%
PFPeA	C5	99.74%
PFPeS	C5	100.00%
PFBS	C4	95.43%
PFBA	C4	99.63%
2,3,3,3-TFPA	C3	97.06%
PFPrA	C3	99.84%
TFA	C2	96.33%

electraCLEAR PFAS Destruction Results in
Semiconductor Applications

THE SOLUTION: FREEDOM TO OPERATE. POWER TO DESTROY

Axine's electraCLEAR™ technology destroys contaminants completely at the source, providing a zero-waste alternative to conventional treatment or off-site disposal.

The system combines advanced electrode and catalyst materials with state-of-the-art process controls in a modular, containerized, or skid-based design. Performance is continuously optimized with Axine's proprietary AI and machine learning platform to maximize efficiency in real-world conditions. Easy to integrate into new or existing facilities, electraCLEAR meets the most stringent discharge targets while lowering operating costs and long-term environmental risks.

RELIABLE DESTRUCTION AT COMMERCIAL SCALE

The electraCLEAR system is the first commercial-scale electrochemical oxidation technology to destroy PFAS, APIs, solvents, fluoropolymers, and other complex organic contaminants.

Independent validation shows 3 to 5 log reduction, eliminating up to 99.999% of long, short, and ultra-short chain PFAS in semiconductor wastewater streams. Results have been demonstrated on industry-standard photolithography chemistries and verified through rigorous laboratory and pilot testing. Every project is validated before deployment to ensure predictable, guaranteed outcomes in mission-critical operations.

AXINE EXPERTISE. RESULTS YOU CAN TRUST

Axine brings decades of expertise in industrial water and wastewater treatment, with a track record built on collaboration and innovation.

The electraCLEAR systems have logged more than 200,000 hours of continuous runtime across industries including semiconductors, pharmaceuticals, and chemical manufacturing. Every system is designed, operated, and optimized by our team of experts to guarantee performance. Our focus is simple: deliver results that exceed expectations and give customers the freedom to operate without compromise.

