

Executive Summary: PFAS Bench Test Report for Financial Stakeholders

Client: Flotation Technologies

Engineering Partner: ECT2

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Project Focus: Cost-effective treatment of PFAS-contaminated water using a proprietary pretreatment method (CAST) paired with ion exchange resin.

Purpose of the Study

This bench test evaluated a water purification setup to determine if Flotation's CAST pretreatment improves performance and cost efficiency when combined with ion exchange resin for removing PFAS — a group of harmful contaminants now strictly regulated by the U.S. EPA.

Key Findings

1. Improved Treatment Lifespan

- o CAST pretreatment extended the operational life of the ion exchange media.
- o PFOS compound lasted 13,767 treatment cycles (bed volumes) with CAST, compared to 1,619 without.
- o At 20 gallons per minute (GPM), this equates to:
 - CAST: ~60 days of operation
 - No CAST: ~7 days of operation

2. Lower Operating Stress

- o CAST-treated systems showed slower pressure buildup.
 - o Enabled continuous operation without manual pressure management, lowering maintenance needs.
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Financial Impact

Capital Costs (One-time Investment)

- System with CAST + Ion Exchange: ~\$26,000
Includes vessels, filters, media, and basic instrumentation.

Operating Costs (Annual)

- With CAST: ~\$13,000/year for media replacement
- Without CAST: ~\$18,700/year
- Estimated annual savings: ~\$5,700

Note: Installation, labor, and waste disposal costs are not included but would further favor the CAST-enhanced setup due to fewer changeouts and reduced maintenance.

Why This Matters to Investors

- **Scalability:** Designed for 20 GPM, adaptable for larger flows.
 - **Regulatory Pressure:** Stricter PFAS limits increase market demand for effective treatment.
 - **Economic Efficiency:** CAST reduces operating cost drivers: resin use, labor, and downtime.
 - **Data-Driven:** Laboratory-backed evidence of performance and cost benefits.
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Bottom Line

Flotation's CAST pretreatment significantly improves PFAS removal system efficiency, reducing operating costs and enhancing system reliability. It is a scalable, economically viable solution aligned with regulatory trends — offering a strong return on investment for municipalities and private clients managing PFAS compliance.