Aclarity

PFAS DESTRUCTION IN FLUORINATED FIRE-FIGHTING FOAMS (AFFF)

Onsite PFAS destruction as a safer alternative to disposal or incineration of used foams or tank rinse water

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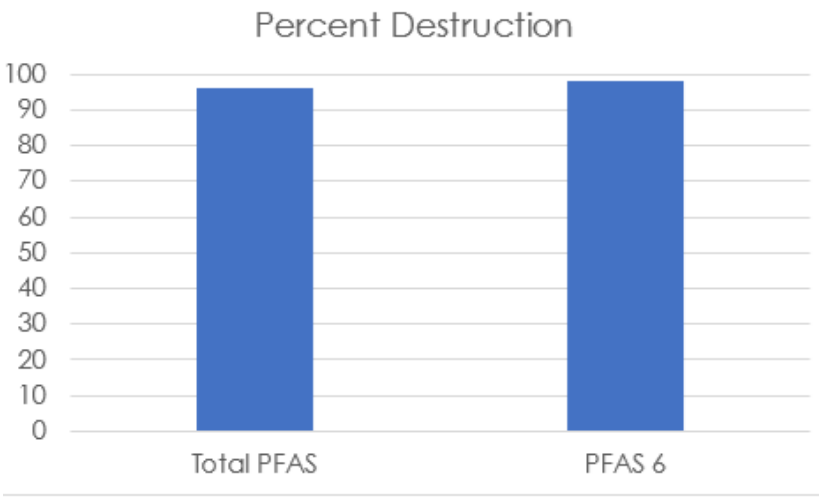
CASE STUDY

Aqueous Film Forming Foams (AFFF)

AFFF products are a class of fire suppressants comprised of PFAS surfactants and other organics used to chemically fight fires by forming a film that cuts off oxygen to the fire. These products are used at military installations, airports, petroleum refineries, chemical plants, and in midstream petrochemical operations. In the US and Europe, industries using AFFF are facing regulations to move away from PFAS containing foams to non-fluorinated replacements. Aclarity helps companies manage the transition by helping with disposal of concentrated AFFF and destruction of spent AFFF and rinse waters from tank cleaning.

Aclarity is working with airport and military clients to manage their transition away from fluorinated AFFF fire suppressants via electrochemical destruction of PFAS in waste streams from AFFF use and rinsate from tank cleaning.

Waste streams from AFFF use and rinse waters from tank and tanker cleaning can contain 3,000 - 50,000 ng/l (PPT) of total PFAS. Aclarity can destroy PFAS in these streams down to low enough levels for safe discharge. In the test data example below, Aclarity's electrochemical oxidation (EOx) technology provided 95% destruction of total PFAS and nearly 98% destruction of "PFAS-6", the top six PFAS compounds.



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Key Takeaways:

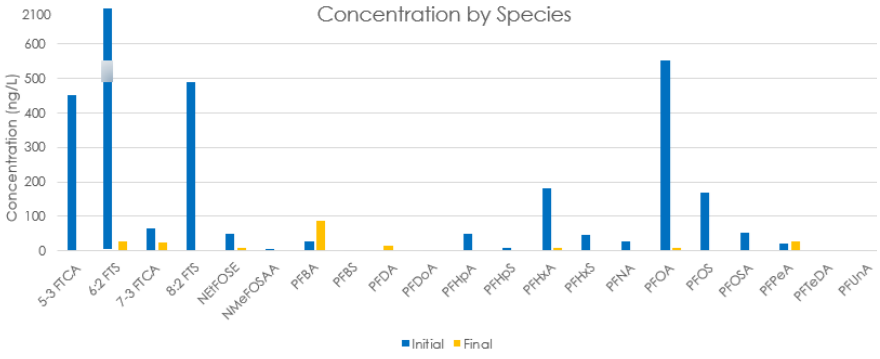
- Electrochemical oxidation of PFAS compounds in AFFF contaminated streams is an effective way to mitigate PFAS onsite instead of disposing of the materials offsite.
- This applies to wastewaters collected from fire training or firefighting, tank and system cleaning during AFFF conversion, and to AFFF contaminated groundwaters.
- Aclarity provides complete solutions for these applications, including pretreatment, destruction, post-treatment, and working with labs for certified test results.

Due to the varying nature of leachate and other wastewater streams, results may vary. Aclarity does not advise on PFAS destruction potential until a water analysis is provided and lab scale testing has been completed. Data provided herein is representative only.

A high level of overall PFAS destruction was achieved by the Aclarity process and the chart below on destruction by PFAS species indicates that all of the high concentration compounds in the AFFF were nearly completely destroyed. This occurred for both the carboxylic acids (5:3 FTCA and PFOA) and the sulfonic acids (FTS compounds and PFOS). The low concentration of PFBA showed an increase during the treatment process, which is an indication that a longer process may be required for more complete destruction.

Conclusion:

Aclarity's EOx technology is an efficient way to destroy PFAS in AFFF waters from firefighting or cleaning tanks during the conversion to non-fluorinated fire suppressants. Aclarity helps clients manage the full process, including the disposal of unused AFFF concentrate, testing and validation of destruction for discharge of treated waters.



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