

# 374Water Releases White Paper Detailing Potential for Innovative AirSCWO Technology to Address Lithium-ion Battery Waste

*Results demonstrate that treatment with 374Water's AirSCWO technology achieved >99.999% destruction of HQ-115, a PFAS additive used commercially in Lithium-ion batteries.*

*Battery manufacturing and recycling industries represent over \$91 billion in global opportunity.*

**DURHAM, NC / ACCESSWIRE / July 31, 2024 /** 374Water Inc. (NASDAQ:SCWO), a global leader in organic waste destruction technology for the municipal, federal, and industrial markets released a comprehensive white paper highlighting the Company's AirSCWO technology's ability to destroy >99.999% of a recalcitrant chemical additive used in Lithium-ion batteries (LiBs). The common battery additive, HQ-115, belongs to a group of PFAS, frequently referred to as forever chemicals, and poses risk to LiB operations which release these chemicals into the environment. 374Water believes the success of its AirSCWO system in effectively treating LiB waste demonstrates the efficacy of the technology for use in the LiB production and recycling industries to improve their sustainability and mitigate risks.

## Highlights

- While Lithium-ion batteries (LiBs) are used globally as a key component of clean and sustainable energy infrastructure, electrified transportation, medical devices, and consumer goods, their production and recycling processes produce toxic waste.
- Existing LiB manufacturing and recycling waste management approaches have been shown to release persistent organic toxic pollutants, such as HQ-115, a bis-FASI PFAS, into the environment.
- 374Water demonstrated a new approach to treat HQ-115 wastewater using their AirSCWO system, which resulted in >99.999% waste destruction.
- Once commercialized, the adoption of 374Water's AirSCWO system to destroy LiB waste could prevent the release of toxic PFAS "forever chemicals" from over 20,000 kilotons of electric vehicle waste produced per year.

## Challenge

Lithium-ion batteries (LiBs) are essential across various industries, including transportation, electronics, and solar power. For instance, the transportation sector's growing demand for high-performance LiBs is evident, with the US EPA predicting that electric vehicles could represent up to 67% of all light-duty vehicle sales within the next decade.

LiB manufacturers incorporate fluorinated electrolytes, such as HQ-115, a bis-FASI PFAS, into the production process to enhance overall LiB product performance. It has been found that without targeted treatment of LiB manufacturing and recycling waste streams, additives such as HQ-115 are released into the environment, posing significant environmental and health risks. In fact, the global production and recycling of LiBs result in approximately 460,000 metric tons of waste, including over 19 million gallons of electrolyte solvents, including HQ-115, in the US alone.

The traditional methods used to treat LiB manufacturing and recycling waste streams - such as distillation, chemical treatment, incineration, adsorption, biological treatment, and advanced oxidation processes (AOPs) - are not designed to remove fluorinated electrolytes. This leads to the release of fluorinated electrolytes (PFAS), which are now being detected at high environmental concentrations proximal to manufacturers and recyclers. This poses risk as the ecotoxicity of these compounds are comparable to other PFAS that are now prohibited and highly regulated worldwide.

374Water believes its AirSCWO technology offers a more sustainable and efficient alternative to existing processing technology, as it provides complete mineralization (i.e. destruction) of electrolyte solvent waste streams with minimal environmental impact. In addition, 374Water's AirSCWO technology handles (i.e. destroys) complex waste streams effectively without generating secondary pollutants and prevents PFAS from re-entering the ecosystem through

secondary liquid byproducts or emissions.

## **Solution**

374Water's AirSCWO technology utilizes supercritical water oxidation (SCWO) to treat waste streams, heating and pressurizing them to conditions that rapidly destroy organic compounds, including PFAS. In this study, 374Water prepared synthetic waste streams containing industrially relevant concentrations of HQ-115, the bis-FASI PFAS commonly used in LiB manufacturing and recycling. 374Water then processed this waste stream through the AirSCWO system to destroy the organic waste in under 30 seconds.

## **Results**

374Water partnered with two nationally recognized and certified PFAS testing laboratories to evaluate the efficacy of the AirSCWO waste destruction process. Using mass spectroscopy, these national laboratories confirmed that 374Water's AirSCWO technology reduced HQ-115 concentrations by over 99.999% from 1 billion ppt to as low as 34 ppt.

## **Market Opportunity**

374Water believes its AirSCWO system presents a timely and scalable solution for addressing PFAS challenges for the rapidly growing LiB manufacturing and recycling markets. On a global level, the LiB manufacturing and recycling markets are valued at over \$10 billion with projected CAGR of 14.46% through [2029](#). The US LiB manufacturing and recycling markets account for about 17% and 1.5% of the global market value, with a CAGR of 25.49% through [2028](#) and 38.1% through [2030](#), respectively.

For perspective, according to a [McKinsey & Company study](#), in 2020 the global supply for EV battery recycling alone was 250 kilotons, by 2040 that number is expected to increase by almost two orders of magnitude to about 20,000 kilotons per year. To prevent the release of harmful PFAS compounds into the environment, LiB manufacturing and recycling operations must incorporate wastewater treatment technologies capable of destroying PFAS and other organic contaminants.

Despite the critical need, little attention has been given to the fate of fluorinated electrolytes (PFAS), particularly the bis-FASI class, used in LiB manufacturing and recycling operations. Currently, no technology has been adopted at scale in the battery manufacturing or recycling industries to specifically target the elimination of these compounds in wastewater. 374Water's AirSCWO technology has been demonstrated to effectively destroy contaminants from LiB manufacturing and recycling wastes. 374Water is actively collaborating with leading LiB manufacturers and recyclers to take early action in tackling this critical and growing environmental challenge.

"This latest study once again highlights the effectiveness of our AirSCWO technology in tackling the pressing issue of PFAS contamination, this time in the rapidly growing Lithium-ion battery market which fuels many emerging sustainable technologies," said Chris Gannon, CEO of 374Water. "We believe the opportunity for appropriately managing harmful waste within these industries is significant and represents an important addition to complete the cycle of sustainability. AirSCWO achieved a remarkable reduction in harmful electrolyte waste, reinforcing our commitment to providing innovative, sustainable solutions across diverse sectors. We look forward to partnering with battery manufacturers and recyclers to establish new waste management standards and processes driven by environmental safety and efficiency in this important industrial subsector."

Download the full [whitepaper here](#).

## **About 374Water**

374Water Inc. (NASDAQ:SCWO) is a global cleantech company providing innovative solutions addressing wastewater treatment and waste management issues within the municipal, federal and industrial markets. 374Water's AirSCWO technology efficiently destroys a range of non-hazardous and hazardous organic wastes producing safe dischargeable water streams, safe mineral effluent, safe vent gas, and recoverable heat energy. 374Water's AirSCWO technology has

the potential to assist its customers to meet discharge requirements, reduce or eliminate disposal costs, remove bottlenecks, and reduce litigation and other risks. 374Water continues to be a leader in innovative waste treatment solutions, dedicated to creating a greener future and eradicating harmful pollutants. Learn more by visiting [www.374water.com](http://www.374water.com) and follow us on [LinkedIn](#).

### **Cautionary Language on Forward-Looking Statements**

Certain statements in this communication are "forward-looking statements" within the meaning of the "safe harbor" provisions of the Private Securities Litigation Reform Act of 1995, as amended. These statements relate to future events or our future financial performance, including statements relating to our ability to execute on our strategic plan and involve known and unknown risks, uncertainties, and other factors that may cause our actual results, levels of activity, performance, or our achievements or those of our industry to be materially different from those expressed or implied by any forward-looking statements. In some cases, forward-looking statements may be identified by the use of words like "may," "will," "could," "would," "should," "expect," "plan," "anticipate," "intend," "believe," "estimate," "project," "consider," "predict," "potential," "feel," or other comparable terminology. The Company has based these forward-looking statements on its current expectations, assumptions, estimates, beliefs, and projections. While the Company believes these expectations, assumptions, estimates, and projections are reasonable, such forward-looking statements are only predictions and involve known and unknown risks and uncertainties, many of which involve factors or circumstances that are beyond the Company's control. These and other important factors, including those discussed under "Risk Factors" in our Annual Report on Form 10-K for the year ended December 31, 2023, as well as the Company's subsequent filings with the SEC, may cause actual results, performance, or achievements to differ materially from those expressed or implied by these forward-looking statements. The forward-looking statements herein are made only as of the date they were first issued, and unless otherwise required by applicable securities laws, the Company disclaims any intention or obligation to update or revise any forward-looking statements, whether as a result of new information, future events, or otherwise.

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