Best-in-Class Abatement System Exceeds GHG Benchmarks Outlined in Semiconductor Climate Consortium Whitepaper

DAS Environmental Experts demonstrates >99.9 % CF□ abatement efficiency for semiconductor manufacturing

Plasma-based TILIA abatement system by DAS Environmental Experts, achieving >99.9 % destruction efficiency for CF□ in semiconductor manufacturing.

DRESDEN, SAXONY, GERMANY, March 19, 2026 /EINPresswire.com/ -- As semiconductor production continues to expand worldwide, reducing greenhouse gas emissions from chip manufacturing is becoming increasingly critical. DAS Environmental Experts demonstrates that state-of-the-art abatement technology can significantly exceed the greenhouse gas benchmarks outlined in the 2024 whitepaper of SEMI's Semiconductor Climate Consortium (SCC).

With plasma-based systems of the TILIA product family, DAS Environmental Experts achieves destruction and removal efficiencies (DRE) above 99.9% for CF□, surpassing the SCC reference benchmarks for semiconductor greenhouse gas abatement.

Small efficiency gains – large environmental impact
Fluorinated gases such as CF□ are widely used in semiconductor etching and chamber cleaning processes and have an extremely high climate impact. CF□ has a global warming potential of 7,390 relative to CO□. As a result, even small differences in abatement efficiency has a significant measurable environmental impact.

At the same time, the rapid expansion of artificial intelligence infrastructure is driving demand for advanced memory technologies such as high-bandwidth memory (HBM). These devices require more deposition, etching and cleaning steps during fabrication, increasing the use of fluorinated process gases. Therefore, the importance of highly efficient abatement systems continues to grow.

> Moving beyond benchmark compliance toward best-in-class performance is essential for achieving real emissions reductions."
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> *Dr. Guy Davies, Chief Business Development Officer, DAS EE*

Benchmarks are a starting point, not the limit
The SCC whitepaper "Overview of F-GHG and Nitrous Oxide Semiconductor Abatement Technologies" (2024) defines new industry reference values, including a minimum destruction efficiency above 95% for CF and a target above 99%.
While these benchmarks improve transparency in emissions reporting, they should be understood as a minimum rather than the maximum achievable performance. From a technical perspective, significantly higher efficiencies are already feasible.

"Moving beyond benchmark compliance toward best-in-class performance is essential for achieving real emissions reductions," says Dr. Guy Davies, Chief Business Development Officer at DAS Environmental Experts.

From compliance to real emission reduction
By achieving destruction efficiencies above 99.9%, advanced abatement technologies can substantially reduce Scope 1 emissions from semiconductor manufacturing.

As fabs continue to expand capacity to meet demand for AI and high-performance computing, the difference between meeting minimum thresholds and achieving optimized abatement performance will become increasingly important.
High-efficiency abatement systems therefore represent not only an environmental necessity but also a strategic element of sustainable semiconductor manufacturing.

About DAS Environmental Experts
DAS Environmental Experts, founded in Dresden in 1991, is an internationally recognised technology leader in industrial waste gas and water treatment. Innovative solutions support companies in the semiconductor, solar, chemical, food and pharmaceutical industries in environmental compliance and sustainable resource management.

With over 950 employees and branches in nine countries, DAS Group combines global expertise with local presence. The products are manufactured in Germany and stand for the highest quality and flexibility. The portfolio is complemented by comprehensive services for waste gas and water treatment as well as innovation and support centres in Dresden, Taiwan and the USA.

DAS Environmental Experts continuously invests in sustainable research at its own innovation campus in Dresden and shares technological advances with customers, employees and society.

www.das-ee.com

Daniela Georgi
DAS Environmental Expert GmbH
media@das-ee.com
Visit us on social media:
LinkedIn

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