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halofreeetch.eu

Project details

Project number: 101161153
Project name: Novel approaches for halogen-free and sustainable etching of Silicon and Glass
Project acronym: HaloFreeEtch
Topic: HORIZON-EIC-2023-PATHFINDERCHALLENGES-01-04
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Project starting date: 1 September 2024
Project duration: 48
EU Contribution: 3.997.735,00 Euro

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European Innovation Council
Funded by the European Union

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HaloFreeEtch

Novel approaches for halogen-free and sustainable etching of Silicon and Glass

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Project

HaloFreeEtch aims to **revolutionize semiconductor manufacturing** by developing an environmentally sustainable etching process that **eliminates the use of halogenated compounds**.
Funded by the European Union, this innovative initiative brings together leading experts from academia, research institutions, and industry to address the critical need for greener **manufacturing technologies**. By leveraging cutting-edge plasma etching techniques and advanced materials science, HaloFreeEtch strives to reduce the **environmental footprint** of semiconductor production while maintaining **high performance and cost-effectiveness**.

Case Studies

Development of a deep etching process for aapacitive sensors without halogens

Reduce environmental impact and improve process efficiency.

Multi-Scale modeling for etching process optimization

Development of multi-scale models to predict and optimize energy efficiency and etching speed.

Objectives

Innovation in Etching Technology

Creating novel etching processes that replace harmful halogenated compounds with environmentally friendly alternative

Sustainability

Significantly reducing environmental impact of semiconductor manufacturing

High Performance

Ensuring that the new etching techniques meet or exceed the performance standards of current technologies

Cost-effectiveness

Optimizing the production to reduce costs and make the adoption of greener technologies financially viable for semiconductor manufacturers

Regulatory Compliance

Helping semiconductor manufacturers stay ahead of regulatory changes and avoid potential compliance issues

Knowledge Transfer

Fostering collaboration between leading academic institutions, research organizations, and industry partners

Educational Outreach

Developing educational materials, organizing workshops, and creating opportunities for hands-on learning experiences

Market Readiness

Ensuring that the halogen-free etching processes are ready for large-scale adoption and can be seamlessly integrated into existing production lines

Expected Impacts

HaloFreeEtch aims to significantly impact both the **semiconductor industry** and the environment by eliminating the use of harmful halogenated compounds in etching processes. This reduction in ecological footprint aligns with global efforts to combat **climate change** and promote **sustainable practices**.

The project will enhance the European semiconductor industry's competitiveness by developing cutting-edge, environmentally compliant technologies, essential as the EU enforces stricter regulations on **fluorochemicals**. This innovation will lower costs and improve compliance with environmental standards.