New project tackles "forever chemicals" by designing safe and sustainable PFAS alternatives

ZeroF will develop safe and sustainable coating alternatives to replace PFAS in the packaging and textile industry

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Espoo, Finland - The ZeroF project, funded by the EU and SERI, held its first General Assembly at VTT FutureHub on March 1-2, 2023, to address the overwhelming prevalence of per- and polyfluoroalkyl substances (PFAS), the poison of the century.

Bringing together 12 research and industry partners from 9 countries, the **ZeroF project** will develop **safe and sustainable coating alternatives to replace PFAS compounds in food packaging and upholstery textile value chains**. Coordinated by **VTT**, Finland's leading research center, ZeroF will innovate during a 36-month project period. The aim is to produce coatings with limited water absorption, high oil and grease resistance for packaging and high water and oil repellency for textiles.

The timing for the launch of the project could not be more appropriate. **PFAS** aren't just in the news, they're in our soils, rivers, lakes and bodies. Their **negative impact on the environment and human health** has raised serious concern. The chemical properties that make PFAS so appealing for industrial use are also what make them such a nuisance. Their **indestructible nature, properties and pervasiveness** have carried them far and wide, and if nothing is done, the European Chemicals Agency (ECHA) expects that **about 4.4 million tons more PFAS will be released over the next 30 years**. These new findings have prompted several European authorities to take action and **submit a proposal to ECHA**, which was published on 7 February 2023, **to restrict the use of PFAS and make products and processes safer**.

ZeroF aims to **prevent further PFAS pollution** by developing new coating technologies for the packaging and textile industries. The goal is to **replace PFAS with renewable feedstock and non-toxic compounds**. The developed materials are expected to meet the needed performance while **eliminating the use of fluorochemicals**. In this process, a Safe-and-Sustainable-by-Design (SSbD) framework is being developed to guide the material design. In addition, ZeroF solutions aim to **cost no more than 20% more** than current alternatives and **reduce the environmental impact by more than 25%.** To keep track on this, several analyses will be conducted, such as a life cycle analysis, life cycle costs and an environmental footprint assessment.

Project partners will collaborate to identify the **technological, economic, socioeconomic, and regulatory incentives and barriers for new PFAS-free coating** materials to facilitate their adoption in the textile and packaging industries. Finally, a **certification and regulatory roadmap** will be developed to anticipate future regulatory requirements and help other sectors outside the project scope **transition to PFAS-free solutions**.

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Partners

- **Research organisations:** Fraunhofer Institute for Silicate Research ISC, Leitat Technological Center, Luxemburg Institute of Science & Technology LIST, VTT Technical Research Centre of Finland Ltd.
- **Universities:** Alma Mater Studiorum – Universita di Bologna
- **Industry players:** Kemira
- **SMEs:** E.Cima, IDEAconsult, LGI Sustainable Innovation , TEMAS Solutions, Yangi
- **Cluster:** AEI Tèxtils

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