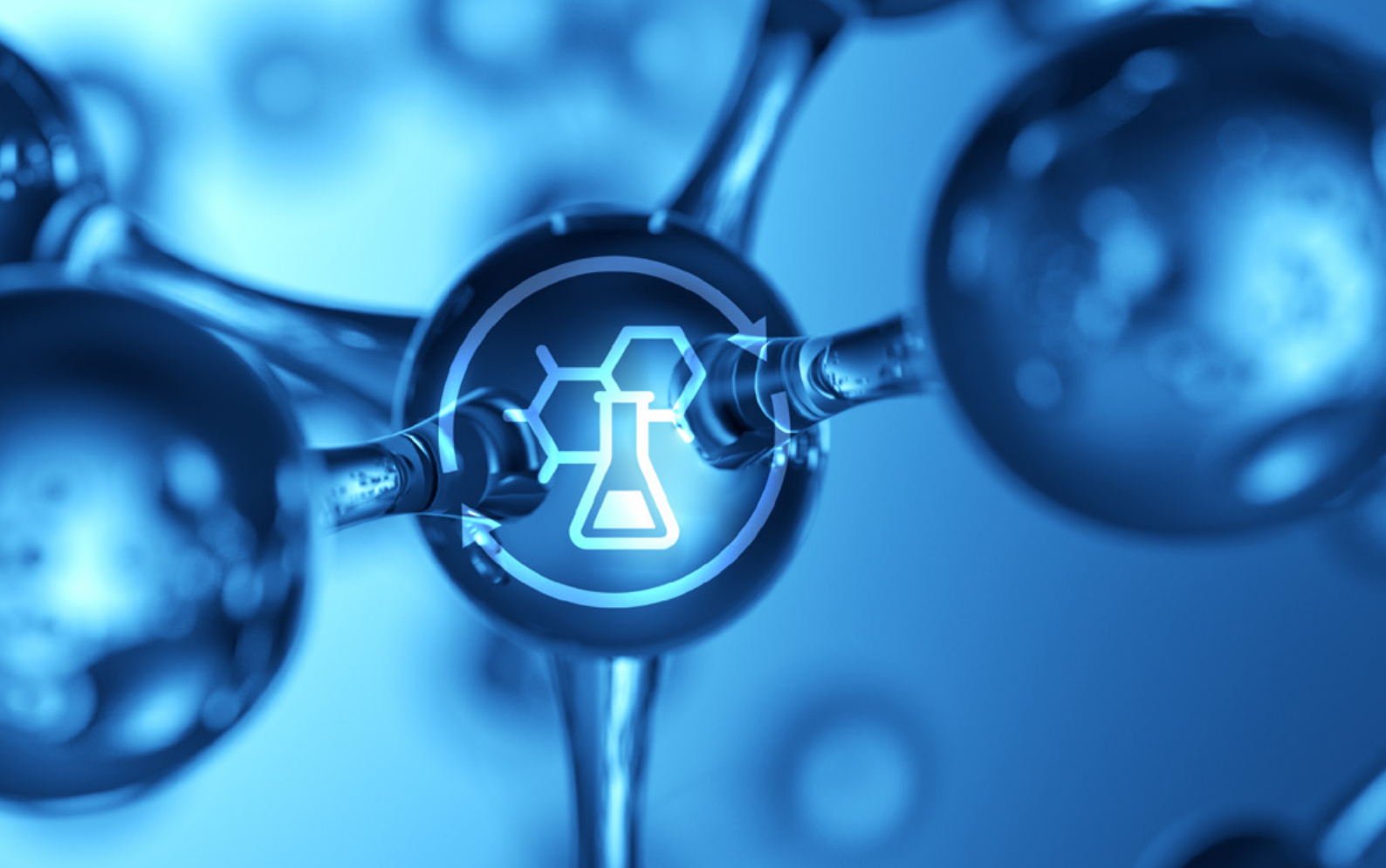


Fraunhofer Chemistry Alliance

**Application-oriented research and development
partner of the chemical industry**



Fraunhofer Chemistry Alliance

Applied research and development to accelerate innovations for a safe and sustainable chemistry

Founded in 2021, the Fraunhofer Chemistry Alliance builds on decades of collaboration between currently 15 Fraunhofer institutes and the chemical industry. Our goal is to leverage complementary competencies and interdisciplinary synergies to support industrial customers in technology development and scaling up to develop sustainable, innovative products and processes.

With bundled Fraunhofer know-how, inventiveness and a unique infrastructure, we are a strong partner for the chemical industry on its ambitious path to defossilized and circular production processes.

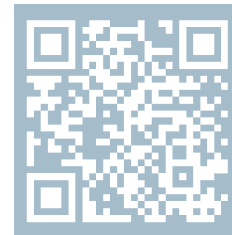
We develop systemic solutions for a successful energy and raw materials transition and contribute to a sustainable industrial society with interdisciplinary research.

With state-of-the-art research infrastructure from laboratory to pilot scale, our focus is on developing basic research results to a higher level of technological maturity and supporting our partners in large-scale implementation. Our own pre-developments constantly complement our R&D portfolio. The particular strength of the alliance lies in its complementary competencies and the high technical qualifications of its employees. This enables us to realize holistic solutions at system level.

Our focus topics

The Fraunhofer Chemistry Alliance pools the central expertise of its member institutes in the fields of chemistry, chemical engineering and biotechnology, as well as automation, digitization and regulatory issues. Complementary collaboration is achieved with expertise at the molecular, process engineering and data levels.

All alliance institutes have many years of experience in R&D business with the chemical industry and have very good industry knowledge and networks.



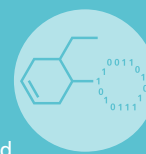
Accelerating Green Chemistry

Guided by the 12 principles of green chemistry, we develop synthesis processes that not only minimise the use of fossil raw materials, but also impress with their energy and resource efficiency and the reduction of waste streams. High-performance catalysts and the skilful interplay of chemistry and process engineering play a central role in improving the sustainability of organic, biotechnological and electrochemical processes.



Digitizing Chemical Processes

Modelling, simulation and optimisation form the triad with which we support synthesis and process developments and seek optimisation for existing processes at both the reaction technology and process engineering level. We use customised process analytics to collect the necessary data where necessary. Our in-house developed software tools serve our industrial partners as valuable interactive decision-making aids for the best possible process designs and process parameters.



Empowering Circularity

A central element of sustainable chemical processes is to bring together raw material and waste streams in cycles. We offer our industrial partners a broad portfolio of expertise in this area, be it technical processes and methods for material recycling and the recovery of important chemical building blocks, new recyclable material developments or methods for transparent life cycle assessment.



Enhancing Safety

The human and ecotoxicological safety of chemicals is of central importance for their industrial production and use. We have been supporting our industrial partners for many years with the relevant analyses, studies and method developments that are essential for regulatory issues. In addition, we analyse, design and implement hazardous processes, e.g. with regard to thermal safety, explosion protection or the handling of highly reactive synthesis building blocks.



Facilitating Scale-up

We support our industrial partners with key technical and economic issues relating to the scaling up of chemical synthesis and processing procedures. Utilising our pilot plants under industry-like scales and boundary conditions generates valuable process data and relevant sample quantities for subsequent industrial production. This reduces the entrepreneurial risk at a crucial point in time and accelerates market entry.



Improving Efficiency

The economic success of chemical processes depends heavily on their energy and resource efficiency. In times when fossil raw materials are increasingly being replaced by complex biogenic raw materials and materials from waste streams, the requirements for efficient process steps are increasing considerably. We support our partners with a broad spectrum of process engineering and material development, be it through the design of efficient separation processes or customised reactor concepts.

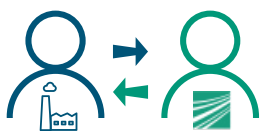


Your cooperation with Fraunhofer Chemistry Alliance

We offer customized research and development as well as systemic solutions based on a broad technology portfolio and expertise. We support the chemical industry equally in solving short-term tasks and in meeting its global challenges in the areas of climate protection, energy and resource efficiency.

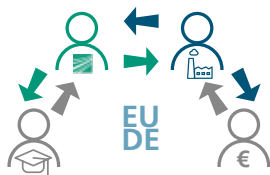
Together with our industrial partners, we develop new cooperation formats and offer exclusive access to Fraunhofer-internal preliminary research.

Bilateral contract research



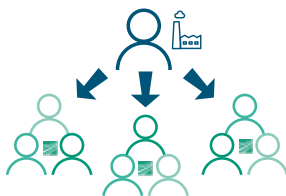
We provide support in equal measure for the **realization of new products and processes** as well as for short-term problem solutions.

R&D Joint Projects



Multilateral R&D in joint projects, which are co-funded by **national and European research funding programs**, is another established cooperation format.

One-Stop-Shop



The Fraunhofer Chemistry Alliance offers its customers and research partners central access to the **interdisciplinary expertise** of its member institutes (one-stop-shop).

TRL Hubs



We see ourselves as a partner to the chemical industry for **technology development and scaling on the way to commercialization** of products and processes.

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