

# Press Release

---

## Successful Collaboration

### Fraunhofer IMM Develops System Solution for Ammonia-Powered Engines in Inland Waterway Shipping

**How can ammonia produced from renewable sources not only be stored on board ships, but also utilized safely and energy-efficiently for propulsion? This is the question addressed by the AmHyPower collaborative project, funded by the Federal Ministry for Economic Affairs and Energy (BMWE). The Fraunhofer Institute for Microtechnology and Microsystems IMM will highlight the underlying technology at its booth at the SMM trade show in Hamburg from September 1 to 4, 2026, in Hall A4, Booth 231. As part of the project, Fraunhofer IMM is developing an ammonia cracker that will supply hydrogen or hydrogen-rich synthesis gas for a gas engine with an output of 200 kW.**

In doing so, AmHyPower addresses a major challenge in the use of alternative fuels: In maritime practice, it is not enough simply to provide a more climate-friendly energy source. It must be stored safely under the specific conditions on board, used efficiently, and be capable of being integrated into existing or future propulsion systems. The project therefore deliberately considers the entire system chain – from fuel storage to mechanical propulsion power.

#### Integrating Ammonia as a Fuel into an Overall System

Renewably produced ammonia is considered a particularly attractive energy carrier because it contains no carbon. At the same time, its use poses significant challenges in terms of safety, storage, and systems engineering. The project therefore combines the development of the propulsion system with a concept for a space-saving, lightweight, free-form tank. The goal is to make better use of the available installation space on an inland waterway vessel and thus be able to store more fuel on board.

As part of this collaborative project, Fraunhofer IGP is working with other project partners to develop solutions for a lightweight, free-form tank made of fiber-reinforced composites. Key areas of focus include the resistance of the materials and adhesive joints to ammonia, as well as the structural safety of the tank.

## An integrated approach with broad application potential

August 24, 2026

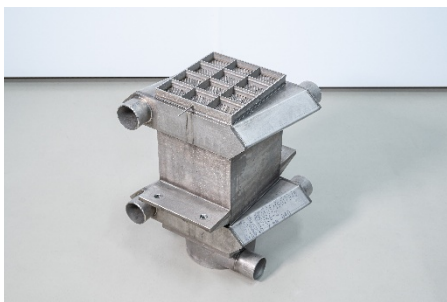
Page 2 | 2

AmHyPower takes an integrated development approach in which fuel storage, processing, the engine, control systems, and safety are viewed as an interconnected system. This yields insights that go beyond individual components and are relevant both for the further design of ammonia propulsion systems and for their integration into various maritime applications. At the same time, the project lays the groundwork for addressing broader issues related to technical qualification, certification, and standardization. Looking ahead, individual solutions can also be applied to other fields of application, such as deep-sea shipping, commercial vehicles, and rail vehicles.

## Fraunhofer IMM at SMM 2026

At the SMM from September 1 to 4, 2026, in Hall A4, Booth 231, Fraunhofer IMM will demonstrate the various ways ammonia can be used as an energy carrier for maritime and other applications that are difficult to electrify. In addition to AmHyPower, researchers will provide insights into the institute's other development initiatives – such as the EU project GAMMA, in which ammonia and green methanol are to be converted into hydrogen on board a cargo ship, as well as the collaboration with First Ammonia Motors, in which an internal combustion engine is powered by ammonia and the hydrogen required for combustion is produced directly on board. Join the experts for a conversation and discuss which technological approach is best suited for your specific applications.

Additional Project Partners: Neptun Ship Design GmbH, BaltiCo GmbH, NORIS Automation GmbH, ScanDiesel GmbH, Technologie und AnlagenBau (TAB), Engineering- und Managementgesellschaft.



**Fig. 1 Ammonia Cracker © Fraunhofer IMM**

The Fraunhofer-Gesellschaft, headquartered in Germany, is one of the world's leading organizations for applied research. It plays a major role in innovation by prioritizing research on cutting-edge technologies and the transfer of results to industry to strengthen Germany's industrial base and for the benefit of society as a whole. Founded in 1949, the Fraunhofer-Gesellschaft currently operates 74 institutes and research units throughout Germany. Its roughly 30,000 employees, predominantly scientists and engineers, work with an annual business volume of 3.6 billion euros; 3.2 billion euros of this stems from contract research.

## Contact

### Antonia Winkler

Fraunhofer Institute for  
Microengineering and Microsystems  
IMM  
Communications  
Press Officer  
Phone +49 6131 990-495  
[antonia.winkler@imm.fraunhofer.de](mailto:antonia.winkler@imm.fraunhofer.de)

### Dr. Gunther Kolb

Fraunhofer Institute for  
Microengineering and Microsystems  
IMM  
Head of Decentralized & Mobile Hydro-  
gen Technology  
Phone +49 6131 990-341  
[gunther.kolb@imm.fraunhofer.de](mailto:gunther.kolb@imm.fraunhofer.de)

[www.imm.fraunhofer.de](http://www.imm.fraunhofer.de)

