

Evonik to develop precious metal catalysts and technology with Hydrogenious LOHC Technologies

- Evonik to produce precious metal catalysts tailored to Hydrogenious' LOHC (liquid organic hydrogen carriers) technology
- Technology will be jointly commercialized and targets green hydrogen for mobile applications
- Catalysts for pilot plants and commercial units expected to be available 2026.

Hanau, Germany. Evonik has signed an agreement to develop, scale up and produce proprietary fixed bed catalysts for mobile applications of Hydrogenious LOHC Technologies' proprietary liquid organic hydrogen carrier (LOHC) technology based on benzyl toluene (BT).

The safe, cost-efficient and flexible process chemically binds hydrogen synthesized by sustainable energy to the LOHC-BT, which then is transported to the off-taker site where the hydrogen is released for industrial or consumer use – or in the mobile application released on board to power propulsion units.

“We are committed to bringing our expertise in catalysis to jointly develop processes with the Hydrogenious team, that will help to transform the industry from fossil-based to sustainable feedstock,” said Michael Frey, Head of Product Line Polyolefin and Continuous Process Catalysts, at Evonik.

“When transporting hydrogen over long distances, liquid organic carriers play a particularly important role. To overcome catalytical challenges associated with the use of onboard applications, customization – based on extensive and proven experience – is required,” he added.

Hydrogenious' LOHC process uses benzyl toluene as carrier material, boasting competitive safety and economic advantages. The thermal oil – which is loaded with hydrogen – is hardly flammable and non-explosive, with a risk potential comparable to diesel fuel. It can be stored at ambient temperatures and pressure,

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has a competitive storage density level, and is reusable as a hydrogen carrier hundreds of times.

"The flexibility and scalability of our LOHC technology accelerates the ramp-up of the hydrogen economy because we can leverage the existing liquid fuel infrastructure," said Dr Caspar Paetz, Chief Technology Officer (CTO) of Hydrogenious LOHC Technologies.

"We are happy to work with Evonik to further improve our technology – their expertise in tailoring catalysts to specific needs is an essential part of the development process," he added. Catalysts for pilot plants and commercial units are expected to be available from 2026 onwards.

Company information

Evonik is one of the world leaders in specialty chemicals. The company is active in more than 100 countries around the world and generated sales of €18.5 billion and an operating profit (adjusted EBITDA) of €2.49 billion in 2022. Evonik goes far beyond chemistry to create innovative, profitable, and sustainable solutions for customers. About 34,000 employees work together for a common purpose: We want to improve life today and tomorrow.

About Smart Materials

The Smart Materials division includes businesses with innovative materials that enable resource-saving solutions and replace conventional materials. They are the smart answer to the major challenges of our time: environment, energy efficiency, urbanization, mobility and health. The Smart Materials division generated sales of €4.83 billion in 2022 with about 7,900 employees.

About Hydrogenious

Hydrogenious LOHC Technologies provides the missing link for flexible hydrogen supply chains worldwide. Based on its proven Liquid Organic Hydrogen Carrier (LOHC) technology, the market pioneer founded in 2013 enables the storage and transport of hydrogen in a particularly safe, simple and efficient way – at high storage densities, under ambient conditions and in conventional liquid fuel infrastructure. The portfolio of the Erlangen-based scale-up and its international joint venture and subsidiary companies today comprises stationary and mobile (on-board) LOHC-based applications, including turnkey (de)hydrogenation plants, operation & maintenance and LOHC logistics. www.hydrogenious.net

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