

August 21st, 2023

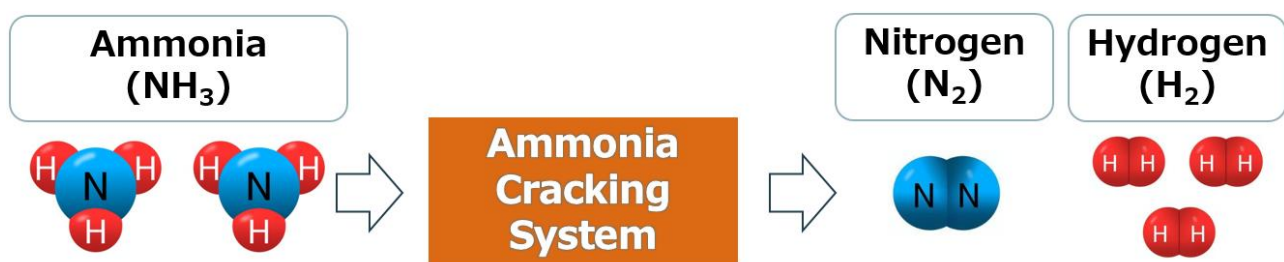
## Nippon Shokubai and Mitsubishi Heavy Industries Conclude Agreement on Joint Development of an Ammonia Cracking System - Project Aimed at Expanding Use of Hydrogen and Ammonia -

◆ The joint development will integrate the two companies' respective areas of expertise, targeting early system achievement and widespread adoption

Tokyo, August 21, 2023 – NIPPON SHOKUBAI CO., LTD. (Nippon Shokubai) and Mitsubishi Heavy Industries, Ltd. (MHI) have reached an agreement on joint development of an ammonia cracking system, anticipating establishment of a hydrogen and ammonia supply chain that enables high-volume transport.

Ammonia is garnering attention today as a hydrogen carrier that enables safe transport and storage of hydrogen, a fuel that emits no CO<sub>2</sub> when combusted, in large volumes over great distances. Plans to establish ammonia supply chains are underway worldwide, notably in Europe, while in Japan a “Fuel Ammonia Supply Chain Establishment” project is in progress. This market is expected to grow in the years ahead.

Ammonia “cracking” is a technology indispensable for extracting ammonia’s hydrogen component, and therefore it plays an important role in building supply chains. In the newly agreed project to jointly develop an optimal ammonia cracking system using an ammonia cracking catalyst, MHI will contribute significant global expertise delivering ammonia and other chemical plants, and its technologies in handling ammonia and hydrogen. Nippon Shokubai has developed and successfully implemented numerous catalysts, such as process catalysts for acrylic acid and others, as well as environmental purification catalysts, including automotive catalysts and exhaust gas catalysts. Nippon Shokubai will leverage the achievements and insights gained from such catalytic technologies in the development of the ammonia cracking catalyst. The hydrogen extracted from the new cracking system can be utilized as a clean fuel and raw material. MHI and Nippon Shokubai are committed to driving the development forward, aiming to achieve for early commercialization.



MHI Group today is pursuing a growth strategy in the area of Energy Transition, aiming for decarbonization on the energy supply side to support the Company's goal of achieving Carbon Neutrality by 2040. Through the development and commercialization of an ammonia cracking system that will contribute to building a hydrogen and ammonia supply chain, the company will strive for early establishment and execution of decarbonization technologies, as a way of contributing to the realization of a sustainable Carbon-Neutral world.

Nippon Shokubai is actively pursuing the "Strategic Transformation for Environmental Initiatives" outlined in the Group's long-term vision "TechnoAmenity for the future" by 2030. The Company's focus lies in advancing the prevalence of ammonia and hydrogen, alongside the promotion of the development and implementation of ammonia cracking catalysts. Nippon Shokubai will continue to provide materials and solutions required by people and society, while also contributing to a sustainable world.

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About NIPPON SHOKUBAI CO., LTD.: About NIPPON SHOKUBAI CO., LTD.: Since 1941, Nippon Shokubai has grown up its business with unique catalyst technology. Nippon Shokubai has supplied, for example, ethylene oxide, acrylic acid, automobile catalysts, process catalysts and so on. Among all, our global market share of superabsorbent polymers is the largest in the world now (according to Nippon Shokubai research in 2022). Nippon Shokubai is a global chemical company operating under its corporate mission "TechnoAmenity-Providing affluence and comfort to people and society with our unique technology."

<https://www.shokubai.co.jp/en/>

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