

NEDO Adopts Nippon Shokubai and Tokuyama Project to Develop Large Alkaline Water Electrolyzers and Separators Suited to High-pressure Electrolysis

NIPPON SHOKUBAI CO., LTD. (Headquarters: Osaka, Japan; President: Kazuhiro Noda; hereinafter “Nippon Shokubai”) and Tokuyama Corporation (Head Office: Tokyo, Japan; President: Hiroshi Yokota; hereinafter “Tokuyama”) announce that their joint “Project for Developing Large Alkaline Water Electrolyzers and Separators Suited for High-pressure Electrolysis” (hereinafter “the Project”) has been selected for adoption in the category of “Technology Development for Diversifying Fuel Cell Use” under the framework of the “Collaborative Industry-Academia-Government R&D Project for Solving Common Challenges Toward Dramatically Expanded Use of Fuel Cells and Related Equipment” operated by the New Energy and Industrial Technology Development Organization (Chairman: Hiroaki Ishizuka; hereinafter “NEDO”).

High-pressure alkaline water electrolyzers (hereinafter “High-pressure AWEs”) are devices that produce hydrogen and oxygen by supplying alkaline aqueous solution to cells divided by separators and electrolyzing water. Hydrogen is attracting much attention as a next-generation energy source, and global expectations are high for green hydrogen that can be produced with electricity generated by renewable energy.

The Project combines Nippon Shokubai’s development of large separators suited to high-pressure electrolysis with Tokuyama’s development of internal structures for electrolyzers that maximize separator performance in the aim of developing globally competitive High-pressure AWEs. Separators developed by Nippon Shokubai will be incorporated into pilot equipment for High-pressure AWEs developed by Tokuyama for further research and development.

Tokuyama is focusing on development of environmentally friendly products, guided by the goal set in its Medium-Term Management Plan 2025 to “contribute to mitigation of global warming.” Ahead of the Project, work has begun on establishing production and development facilities for normal-pressure AWEs at Tokuyama’s Center for Commercialization of Advanced Technology (Yanai-shi, Yamaguchi) in the aim of achieving commercialization by fiscal 2025. Original technologies related to electrolyzers built up over many years in the brine electrolysis business will also be applied to High-pressure AWEs. Tokuyama will accelerate efforts in this field in order to make such technologies useful in the supply of next-generation energy.

Nippon Shokubai is expanding its solution business to realize the long-term vision that sets out our

goals for 2030. With an eye to expected medium- to long-term growth in the green hydrogen market, we are developing these separators utilizing our original organic-inorganic composite technology and sheet-forming technology, and have succeeded in developing separators with widths of up to 1.2 m. By developing large separators compatible with high-pressure electrolysis, the Project will contribute to more efficient hydrogen production and support the realization of a green hydrogen society.

Through the Project, Nippon Shokubai and Tokuyama will further refine their respective technological strengths and proactively contribute to achieving carbon neutrality by 2050 and building a sustainable society.

(Photo Captions)

High-pressure AWE pilot equipment
(Tokuyama)



Separators for alkaline water electrolysis
(Nippon Shokubai)



About NIPPON SHOKUBAI: 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). Nippon Shokubai is a global chemical company operating under its corporate mission "TechnoAmenity - Providing prosperity and comfort to people and society, with our unique technology."

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