Niterra

NEWS RELEASE

Niterra Co., Ltd.

Niterra Co., Ltd. Signs a Memorandum of Understanding (MOU) for a Demonstration Project aimed at Developing Solid Oxide Electrolysis Cells (SOEC) for Green Ammonia Synthesis in Poland

~ SOEC Demonstration unit installation and operation are set to begin in Early 2026 ~

NAGOYA, JAPAN, September 10, 2025 — Niterra Co., Ltd., Japan's leading manufacturer of spark plugs and sensors with an evolving portfolio focused on ceramics and beyond, has signed a Memorandum of Understanding (MOU) with Poland's Łukasiewicz Research Network – New Chemical Syntheses Institute (Ł-INS), Hynfra P.S.A., Rockfin S.A., and a chemical manufacturing company from the same country. In total, five parties have agreed to demonstrate a water electrolysis system for green ammonia production using the Solid Oxide Electrolysis Cells (SOEC) developed by Niterra, and to establish an industrial-scale system.

■ Background

Niterra has been developing Solid Oxide Electrolysis Cells (SOEC) using a ceramic technology to accelerate the realization of a decarbonized and hydrogen-based society. This technology enables extremely high-efficiency hydrogen production in areas where hydrogen is used as an industrial feedstock, such as in the chemical industry, steel industry, synthetic fuel production, and where waste heat from processes can be utilized. Niterra has been developing SOEC technology with a focus on high efficiency and high reliability. The company has now reached an agreement with Polish chemical manufacturers and engineering companies to conduct field demonstrations for applying SOEC to the ammonia synthesis process (Haber-Bosch process*) and to develop its application in plants. Niterra will advance its technology from the development phase to the field demonstration and mass production development phases, accelerating value creation for a decarbonized and hydrogen-based society.

**Haber-Bosch process: A technology for producing ammonia by reacting hydrogen and nitrogen under high temperature and high pressure.*

■ Key Points of this Agreement

Hynfra, Rockfin, and Niterra, primarily the technology providers, along with Ł-INS, which provides the functional demonstration site and evaluation capabilities, will lead the initiative. The companies have agreed to install and commence operation of a small-scale SOEC demonstration unit at the Ł-INS research facility in Puławy, Poland, in early 2026.

This demonstration unit will serve as a crucial platform for verifying the basic operation of the SOEC

electrolysis system using the plant's actual infrastructure utilities. Its purpose is to validate the feasibility of integrating hydrogen production by SOEC with ammonia synthesis via the Haber-Bosch process.
In addition to this demonstration unit, the MOU also stipulates the joint development of an industrial-scale SOEC mass production pilot plant. The high-purity hydrogen produced through this initiative will be directly used in the production processes of ammonia and fertilizers, which are key industries in Poland. The initial goal is to significantly reduce carbon emissions in the ammonia production process of the target plant, which will produce hundreds of thousands of tons of ammonia annually. The transition from conventional fossil-derived hydrogen to green hydrogen produced from renewable energy will significantly contribute to Poland's 2030 decarbonization targets and its commitment to promoting sustainability.

■ Key Participating Companies and Institutions

Łukasiewicz Research Network – New Chemical Syntheses Institute (Ł-INS)

A Polish research and development institute for chemical processes and synthesis technologies. Provides expertise in the development and optimization of ammonia production processes and demonstration facilities.

Rockfin S.A.

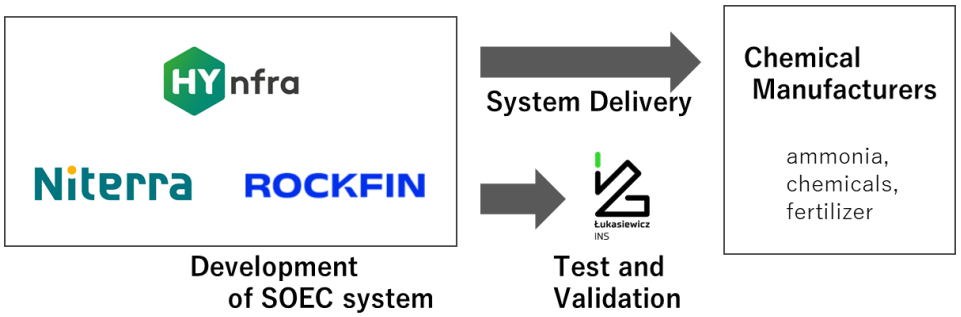
A Polish engineering company specializing in the design, manufacturing, and servicing of hydraulic systems and modular industrial equipment. Responsible for the electrical, piping, and thermal design and equipment manufacturing of the water electrolysis system.

Hynfra P.S.A.

A Polish developer company that promotes and develops projects related to chemicals and renewable energy. Responsible for overall project management of this consortium and negotiations with the government and off-takers.

Niterra Co., Ltd.

Responsible for the product development and manufacturing of solid oxide electrolysis cells.



■ Future Outlook

This agreement will accelerate the demonstration of SOEC in chemical and industrial applications where its strengths can be best utilized. The Niterra Group will work as one to provide technology and social value for the decarbonization of process industries, including domestic and international chemical and steel industries, using green hydrogen, and for the realization of a sustainable society.

About Niterra

Founded in Nagoya, Japan in 1936, Niterra Co., Ltd. (formerly NGK SPARK PLUG CO., LTD.) is renowned for its NGK-branded spark plugs and NTK-branded ceramic products. Niterra, a coined word combining the Latin words "niteo" (shine) and "terra" (Earth), was introduced in April 2023 to express the reborn company's commitment to sustainability through an evolving portfolio focused on ceramics and beyond. Under the corporate message "IGNITE YOUR SPIRIT", Niterra is now expanding into the growth fields of mobility, environment & energy, and semiconductors. The company's consolidated revenues in fiscal 2024 (to March 2025) totaled 652.9 billion yen (4,267 million USD). Niterra has 31 bases in Japan and 62 overseas, and approximately 16,000 employees worldwide. Please visit https://www.niterragroup.com/english/