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NGK INSULATORS, LTD.
Chubu Electric Power Co., Inc.

**NGK and Chubu Electric Power Conclude an Agreement
to Jointly Conduct Research Aimed at Practical Application of Kilns
that Burn Ammonia**

NGK INSULATORS, LTD. (hereinafter, “NGK”) and Chubu Electric Power Co., Inc. (hereinafter, “Chubu Electric Power”) concluded an agreement to jointly conduct research aimed at practical application of kilns that burn ammonia. Through this joint research, the two companies aim to establish an ammonia-based firing process that does not emit carbon dioxide (CO₂), thereby helping to achieve carbon neutrality by 2050.

Ceramic kilns that use ammonia combustion have yet to be put into practical use. In this joint research, the two companies will explore the challenges and solutions associated with adopting ammonia as fuel in ceramic kilns. NGK will focus on developing high-temperature (at 1,400°C or higher) kiln, such as using regenerative burners* capable of efficiently combusting ammonia, a fuel with limited flammability, including a high ignition temperature. Chubu Electric Power will study methods for supplying ammonia to the kiln and for treating exhaust gases from the kiln.

In FY2025, the two companies have been preparing testing facilities and other equipment, with full-scale combustion testing scheduled to begin in FY2026. The joint research is scheduled to continue through the end of FY2028.

As efforts are made to reduce CO₂ emissions in the industrial sector toward achieving carbon neutrality by 2050, a shift to non-fossil fuels that do not emit CO₂ when burned, such as hydrogen and ammonia, has become an urgent priority. Among these fuels, ammonia is particularly promising as a decarbonized energy source because technologies for its transportation and storage are already well established, making it more feasible for early implementation in society than hydrogen. On the other hand, ammonia has technical challenges, including its slow combustion speed, ignition difficulty, and generation of harmful nitrogen oxides (NO_x) during combustion. Therefore, further technological innovation is required for its broader use as a fuel.

Looking ahead, NGK and Chubu Electric Power will leverage their respective expertise to promote the early social implementation of ammonia and contribute to realizing a decarbonized society.

*Regenerative burner:

A burner that performs both combustion and exhaust through an internal ceramic heat storing. By alternating at intervals between combustion and exhaust, the exhaust heat from the combustion gas is recovered through the heat storing and is reused to preheat the combustion air, resulting in high thermal efficiency.