

February 5, 2025
NOK Corporation

Ensuring Battery Safety and Thermal Management

NOK to Exhibit at Battery Japan Event, Showcasing Hydrogen Detection Rubber

NOK Corporation (Headquartered in Shibadaimon, Minato-ku, Tokyo; Representative Director, Group Chief Executive Office: Masao Tsuru; hereinafter "NOK") will exhibit in the 23rd SMART ENERGY WEEK [February] Battery Japan – Rechargeable Battery Expo. The event will be held at Tokyo Big Sight in Ariake, Koto-ku, Tokyo, from February 19 (Wednesday) to February 21 (Friday).

With its philosophy of "Essential Core Manufacturing – The manufacture of pivotal products that shape society," the NOK Group is committed to developing innovative solutions that enhance safety and efficiency across industries. At this exhibition, NOK will introduce a range of products designed to improve battery safety and thermal management. These include pressure control valves that regulate gas release within battery cases and insulating heat-conductive resins that aid in heat dissipation. NOK will also showcase its newly developed "Hydrogen Detection Rubber," created in collaboration with Tokyo University of Science. This innovative material changes color upon exposure to hydrogen gas, providing a simple yet effective way to detect leaks and enhance the safety of hydrogen-use environments.



NOK Group booth design

■ Hydrogen Detection Rubber (For Demonstration Purposes)

The Hydrogen Detection Rubber changes color to blue upon contact with hydrogen gas, enabling easy and visual detection of leaks. It can be installed on pipes, joints, and flanges where hydrogen leaks may occur, allowing for quick and simple identification. The rubber is reusable, contributing to simplified long-term inspections and cost reduction.



Developed through joint research with Tokyo University of Science, this rubber utilizes chromism, a property where color changes due to external stimuli. It can be molded into various shapes and customized according to specific applications.

■ Pressure Control Valves

These components are installed on battery cases to safely release excess gas generated inside the battery in controlled amounts, thereby enhancing battery safety. NOK offers five types of pressure control valves, each designed with different materials and mechanisms to suit various applications, functions, opening pressures, and flow rates.



For battery packs, available options include small-flow, medium-flow, and large-flow types, as well as the Diavent[®], which integrates a breather valve and a medium-flow pressure control valve into a single unit.

For battery cells, NOK provides a high-pressure, small-flow type that is designed for repeated use, reducing the need for frequent valve replacement.

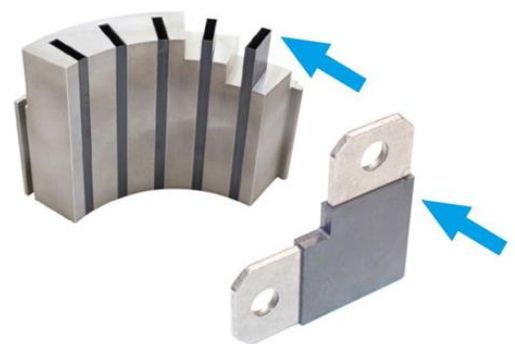
Diavent is a registered trademark of Carl Freudenberg KG (International Registration No. 1412757).

■ Thermally Conductive Insulating Resin ("QLEASE" Resin Type)

This insulating resin material combines high thermal conductivity with excellent heat resistance, effectively reducing heat generation and improving heat dissipation.

It can be precisely molded and serves as a lightweight alternative to conventional metal components, contributing to weight

reduction in machinery and vehicles. Designed for continuous use in high-temperature environments (up to

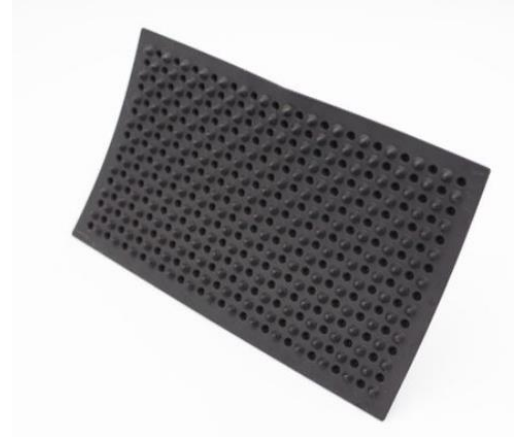


220°C), it is well-suited for applications requiring superior heat dissipation and thermal resistance, such as busbars and connectors in batteries, motors, and inverters.

QLEASE is currently pending trademark registration.

■ Intercell Insulating and Elastic Sheet (For Demonstration Purposes)

A flame-retardant rubber sheet designed to regulate battery performance degradation. Placed between battery cells, it adapts to expansion and contraction during charging and discharging, maintaining appropriate load support. Its hollow structure enhances thermal insulation, preventing heat transfer to adjacent cells in case of thermal runaway, thereby delaying and suppressing combustion. The material complies with UL94 V-0 flame-retardant standards, making it resistant to ignition even under extreme heat conditions.



■ Piping Fitting Seal (For Demonstration Purposes)

These seals flexibly accommodate piping misalignment while ensuring a reliable seal. Their unique construction, featuring an integrated molding of rubber and metal rings, allows for effortless installation by simply press-fitting them into the piping. Engineered to adapt to assembly variations in multi-pipe units — such as complex cooling channels and resin structures — they optimize space utilization and enhance design flexibility.



■ Cylindrical Lithium-ion Battery Gasket

A resin seal that securely encloses the battery interior. Precision molding and injection molding technologies enable the production of gaskets with diameters ranging from 7 to 46 mm. Designed to support larger, high-capacity batteries, these gaskets contribute to enhanced stability, quality, and service life.



■ Extreme Low Temperature Perfluorinated Grease

A perfluorinated grease that delivers exceptional lubrication performance even in extreme low temperature environments, operating effectively across a wide temperature range from -80°C to 180°C. It helps reduce power consumption in equipment and facilities and is particularly well-suited for machinery operating at low temperatures, such as bearings and seals in hydrogen facilities.



Developed with our proprietary material technology, this grease offers superior resistance to chemical, solvent, and fuel elution, ensuring stable fluidity and performance even in the most demanding conditions.

Visitors at the event will have the opportunity to experience the grease's properties firsthand.

<NOK Group Booth Overview>

- Organizer: RX Japan Ltd.
- Exhibition Dates: February 19 (Wed) – 21 (Fri), 2025, 10:00 AM – 5:00 PM
- Venue: Tokyo Big Sight East & South Halls (3-11-1 Ariake, Koto-ku, Tokyo)

Booth Number: E45-22 (East Hall 4)

Access: Approx. 7-minute walk from Rinkai Line Kokusai-Tenjijo Station or 3-minute walk from Yurikamome Tokyo Big Sight Station

- URL: <https://www.wsew.jp/spring/en-gb.html>

For inquiries related to this press release:

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■ About NOK Group

The NOK Group is dedicated to "Essential Core Manufacturing - The manufacture of pivotal products that shape society." Through this approach the Group demonstrates its commitment to providing greater safety and comfort, the cornerstones of a prosperous society. The NOK Group consists of 93 companies located in 15 countries and regions with approximately 38,000 employees. Product development is built upon a robust base of foundational research, resulting in large-scale, stable and high-quality production. Moving forward, the Group will continue to provide technologies and products for all industrial areas including automobiles and other mobility sectors, electronic products- centered on PCs and smartphones- office automation equipment, medical and healthcare devices, industrial robots, and satellites.