



**Notice Regarding Investment in Novel Crystal Technology, Inc.:**  
**Accelerating Initiatives in the Expanding Power Semiconductor Market**

Taiyo Nippon Sanso Corporation (President: Kenji Nagata; hereinafter "TNSC"), a Japanese industrial gas company of Nippon Sanso Holdings Group, has decided this month to invest in Novel Crystal Technology, Inc. (President & CEO: Akito Kuramata; hereinafter "Novel Crystal Technology"). Novel Crystal Technology develops, manufactures, and sells gallium oxide wafers, which are gaining attention as a next-generation power semiconductor material, and also develops power devices. The investment aims to create synergy between the two companies and promptly satisfy the expanding power semiconductor market by accelerating the development of mass production gallium oxide epi growth system\* for the production of gallium oxide epi-wafers.

\*Gallium oxide epi growth system: equipment for depositing high-quality gallium oxide crystals on gallium oxide substrates



“Gallium oxide epi growth system” (perspective drawing)

Power semiconductors are electronic components incorporated into various electrical equipment, such as servers, home appliances, trains, and production facilities, to control voltage and currents and reduce power consumption. Their demand is expected to increase in the future with the further spread of electric vehicles and renewable energy.

Power semiconductors made of gallium oxide are also anticipated to have higher power output and efficiency than those made of other materials, such as gallium nitride and silicon carbide. They further reduce power loss in power electronics devices such as home appliances, electric vehicles, and railway vehicles, as well as in industrial equipment, photovoltaic power generation, and wind power generation.

Through this investment, TNSC intends to accelerate the development process of mass production gallium oxide epi growth system for the production of gallium oxide epi-wafers by enhancing its collaboration with Novel Crystal Technology, which develops, manufactures, and sells gallium oxide epitaxial wafers.

### **[Company Overview of Novel Crystal Technology]**

Novel Crystal Technology, Inc.

Business description: Manufacture and sales of substrates with gallium oxide epitaxial film, single crystals and their applied products, and semiconductors and their applied products

Established: June 30, 2015

Capital: 162.92 million yen (as of May 12, 2022)

Major shareholders: AGC Inc., Hazama Ando Corp., Iwatani Venture Capital LLC, JX Nippon Mining & Metals Corp., ROHM Co., Ltd., Satori Electric Co., Ltd., Shindengen Electric Manufacturing Co., Ltd., Sojitz Machinery Corp., Tamura Corp., Torex Semiconductor Ltd., Yaskawa Electric Corp., and others (listed in alphabetical order)

### **【News releases related to Novel Crystal Technology】**

[Succeeded in Growing the Gallium Oxide Film on a 6 inch Wafer by HVPE System](#)

[Contribution to Cost Reduction of Power Devices and Energy Saving in Next Generation Electric Vehicles](#)

### **[Company Overview]**

Taiyo Nippon Sanso Corporation

Business description: Manufacture and sale of various industrial gases such as oxygen, nitrogen, and argon, LP gas, gas for medical uses, and specialty gases, manufacture and sale of welding equipment and materials, gas-related devices, and, air separation equipment, assembly, processing, inspection of electrical components, and equipment maintenance

Established: October 30, 1910

Incorporated: February 4, 2020

Capital: 1.5 billion yen

Shareholder: Nippon Sanso Holdings Corporation (Investment ratio: 100%)

Revenue: 420.4 billion yen\*

\*Note: This figure shows the revenue of Japan for Nippon Sanso Holdings Corporation in FYE2023