

July 13, 2021

Sanyo Chemical Industries, Ltd.

NAGASE &amp; CO., LTD.

**Joint Electronic Nose Business by Sanyo Chemical and NAGASE & CO.  
Visualization of Flavor Data by Artificial Olfaction Using AI**

Sanyo Chemical Industries, Ltd. (Higashiyama-ku, Kyoto; Representative Director, President and CEO: Akinori Higuchi) and NAGASE & CO., LTD. (Chuo-ku, Tokyo; Representative Director and President: Kenji Asakura) have agreed to look into a joint business venture involving electronic noses, which utilizes AI to identify odors using an artificial olfaction.

Digital scent technology, which combines scent-sensing materials with advanced AI technology to digitally identify and quantify odors, is expected to have applications in the medical field as well as products for daily life such as food and beverages. With a market size of approximately 320 billion USD in 2017, it has been estimated that its market size will reach 3.12 trillion USD by 2026 (\*1).

The electronic nose being considered for this business utilizes a method which identifies odors by the change in electrical resistance when a scent molecule attaches to the probe (materials equivalent to the cells for a human sense of smell), and so through machine learning the AI can identify the patterns for combinations of odorant molecules for various odors. A unique feature is that it is made of resin with integrated surface control technology, and this combination is expected to make it possible to identify more complex odorant molecules.

For commercialization, Sanyo Chemical will propose a high-precision probe combination making it possible to identify diverse smells, using resin based on their original composition design taking advantage of their surfactant and functional polymer knowledge and technology. NAGASE & CO. will carry out high-level design of the sensor system, including processing the data received from the probe, and develop a new DX business providing analysis results to meet customer needs.

For this electronic nose business venture, the first goal is applying it to quality control for sake production, as well as for developing new products by analysis, management, and measurement of odorant molecules. Next, the product will be marketed in markets such as food products, medicine, cosmetics, and environmental response in factories, using NAGASE & CO.'s domestic and international customer networks to expand into a wide array of fields.

**■ Sanyo Chemical Overview**

(1) Company Name	Sanyo Chemical Industries, Ltd.
(2) Head Office	Higashiyama-ku, Kyoto
(3) Representative	Representative Director, President and CEO: Akinori Higuchi
(4) Established	November 1949
(5) Business Overview	Manufacture and sales of approximately 3,000 types of performance

	chemicals
(6) URL	<a href="https://www.sanyo-chemical.co.jp">https://www.sanyo-chemical.co.jp</a>

■ NAGASE & CO., LTD. Overview

(1) Company Name	NAGASE & CO., LTD.
(2) Head Office	Chuo-ku, Tokyo
(3) Representative	Representative Director and President: Kenji Asakura
(4) Established	June 1832
(5) Business Overview	Import/export and domestic sales of chemicals, plastics, electronics materials, cosmetics and health foods
(6) URL	<a href="https://www.nagase.co.jp">https://www.nagase.co.jp</a>

\*1. Source: Research and Markets, "Electronic Nose Market - Growth, Trends, COVID-19 Impact, and Forecasts (2021 - 2026)"

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