

Development of processes using separation membranes to conserve energy in organic solvent recovery as part of the manufacturing process for electronic devices selected as NEDO grant project

The development of processes using solvent resistant membranes to conserve energy in organic solvent recovery which was jointly proposed by NAGASE & Co., Ltd. (Chuo-ku, Tokyo; Representative Director and President: Kenji Asakura) and Unitika Ltd. (Chuo-ku, Osaka; Representative Director and President: Shuji Ueno) has been selected as a grant project under the New Energy and Industrial Technology Development Organization (NEDO)'s FY 2020 Strategic Innovation Program for Energy Conservation Technologies (Joint research: Kobe University; Commission: NAGASE Techno-Engineering Co., Ltd.).

To reuse the organic solvent used in a wide array of manufacturing processes, including those for electronic devices such as semiconductors and liquid-crystal displays, it is necessary to remove impurities such as resin from the used solvent. Generally, distillation is used for this purpose, using high temperatures to separate the solvent from any impurities. However, as this distillation method requires large amounts of heat energy, the environmental burden of the high CO₂ emissions caused is an issue. The organic solvent resistant nanofiltration membrane (organic membrane) which Unitika and Kobe University have been researching is a technology that separates the solvent from impurities by passing the used solvent through a filtration membrane made of numerous hollow fibers, shaped like straws, and it is expected to have one-hundredth or less of the energy cost of distillation, for significant energy conservation. With this grant, the nanofiltration membrane will be further improved, with efforts made to improve precision of impurity removal and enable mass production.

Unitika and Kobe University will develop the nanofiltration membrane, while the NAGASE Group's NAGASE and NAGASE Techno-Engineering will use their knowledge of membrane separation and concentration management technology cultivated in the recycling of the photographic developer used in the manufacturing of electronic devices to carry out the development and marketing of a solvent recycling system. Using the NAGASE Group's broad network, efforts will be made to expand into industries other than electronics components which require separation, concentration, and refining technology, such as medicine, agrochemicals, chemical materials, textiles, and coating. The NAGASE Group is working towards "a sustainable world where people live with peace of mind," and will continue to contribute to the creation of a better society.

[Overview of Project Selected]

Grant Project Name	FY 2020 Strategic Innovation Program for Energy Conservation Technologies (Round 1) Development of processes using solvent resistant membranes to conserve energy in organic solvent recovery
Grant Period	July 2020 to February 2023

■ **Inquiries**

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