

## Promotion of R&D in our three prioritized business fields

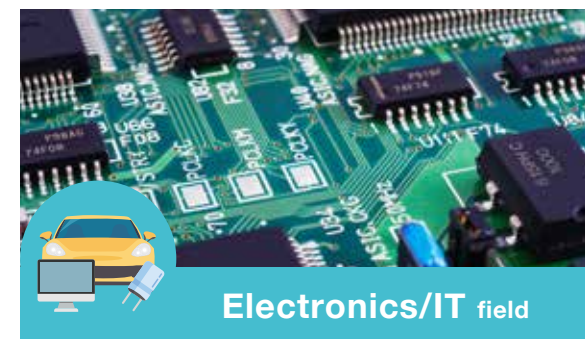
Amid growing expectations for innovation in the chemical materials field, we are working to develop new technologies and products in the three prioritized business fields.



As demand for air conditioners and refrigerators increases due to global warming, we expect to see demand for base materials for refrigerating oils and polybutene for air conditioner putty. In addition, as offshore wind power generation gains momentum for development, particularly in Asia, there is a growing need for products that contribute to the environment, such as biodegradable lubricants made from raw materials derived from natural oils and fats and rust inhibitors for bolts, to prevent marine pollution. Furthermore, as EVs become the norm, there are expectations for development of products with advanced functions, including anti-fog agents for LED headlamps and noise reduction agents in order to maintain a quiet car interior.



For pharmaceuticals, we are developing functional lipids and activated PEG as DDS materials for biopharmaceuticals through means such as precision synthesis and advanced refining technologies. We are developing monodispersed PEG and ionic lipids for nucleic acid delivery for antibody and nucleic acid drugs. In the area of medical care, we are developing the LIPIDURE® Series for use in eye care, diagnostic pharmaceuticals, and medical devices, as well as highly functional materials for regenerative medicine. For cosmetics, we have a wealth of expertise in areas such as biocompatible materials, natural bioavailable substances, interface control technology, and mix design technology. We use this expertise to respond rapidly to functional advances.



In the telecommunications field, the need for curing agents for low-dielectric materials is increasing as the speed and capacity of telecommunications increases. Demand for highly photosensitive materials and additives for electronic components is also increasing as electronic components undergo miniaturization. The shift to EVs in automobiles also requires miniaturization of electronic components, and we are working to add more value to these products. In addition, the increase in number and larger size of displays in EVs is expected to raise demand for overcoat materials for LCD color filters.

# Co-Creation with External Partners: Establishment of the NOF-AIST Smart Green Chemicals Collaborative Research Laboratory

We are actively promoting open innovation activities in line with our vision of co-creating new value through the power of chemistry.

## NOF-AIST Smart Green Chemicals Collaborative Research Laboratory



On April 1, 2024, NOF and the AIST Group (National Institute of Advanced Industrial Science and Technology (hereafter “AIST”) and AIST Solutions Co.) established the NOF-AIST Smart Green Chemicals Collaborative Research Laboratory in the Central area of AIST’s Tsukuba Center.

At this collaborative research laboratory, we integrate NOF’s proprietary technologies with the AIST Group’s fundamental technologies and expertise to develop environmentally friendly chemical manufacturing processes and create functional chemicals (smart green chemicals) that contribute to decarbonization and prosperous lives. In addition, we promote the organic exchange of personnel and technologies between the two organizations to foster the next generation of technical talent. Through these efforts, we aim to continuously deliver new value to society through the power of chemistry, while contributing to the realization and development of a sustainable chemical industry.





**NOF**

We aim to continuously create new value with the power of chemistry in the three fields of Life/Healthcare, Environment/Energy, and Electronics/IT.

**Realizing sustainability**

- Transitioning from petroleum-based raw materials to low-environmental-impact materials such as biomass
- Establishing environmentally friendly manufacturing processes that save energy and resources

Koji Sawamura,  
President and Chief Executive Officer of NOF

Creating green chemicals that contribute to both decarbonization and prosperous lives



**AIST GROUP**

AIST is a public research institution that conducts research and development in science and technology to contribute to economic and social development, with a mission of “solving social problems” and “strengthening Japan’s industrial competitiveness.”

**Leveraging comprehensive knowledge of materials**

- High potential in cutting-edge catalyst creation technology and materials development through digital transformation (DX)
- Development hubs equipped with Japan’s most advanced facilities for bio-manufacturing and materials diagnostics

Kazuhiko Ishimura,  
President and CEO of the National Institute of Advanced Industrial Science and Technology