

Identify

Enthusiasm for Solving Issues Enables Us to "Identify"

Identify >>> Develop >>> Expand

We want to create a presence that prompts business partners to say, "Let's first ask NAGASE." Since our founding, accumulated involvement in solving problems in a variety of areas has led to an ability to identify new technologies and businesses. The NAGASE Group will continue to "identify" what times require.

History

We Have Identified Technologies Needed for the Future

Now & Future

Identifying New, Next-Generation Businesses Now and in the Future

Early Days of Building Relationships with Foreign Manufacturers

Pursuing the possibilities of chemicals

The NAGASE Group in its early days rapidly sought partnerships with powerful overseas manufacturers to pursue the possibilities of chemicals. In 1900, we started trading with Basel Chemical Co. of Switzerland (at that time called Ciba), and opened an office in Lyon in 1901. This was an extremely advanced move for a Japanese company at the time. Trade expanded with Ciba Specialty Chemicals, and in 1951, we started to import and sell epoxy

resins with electrical insulation properties. This would lead to the development of what is today's Electronics Business.

We also turned our attention to cinematographic film, taking into account the development of the visual image culture, and started trading with Eastman Kodak Co. of the United States in 1923. Technology used to develop the imported film would form the technological foundation of the semiconductor business.



Eastman Kodak's head office at about the time trading started with NAGASE

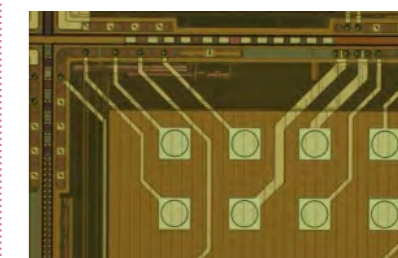
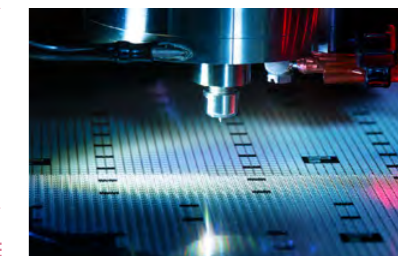
Taking on the Challenges of Next-Generation ICT Business

Beyond 5G

At a time when attention is focused on the shift to 5G (5th generation mobile communication system), which features ultra-high speed, large capacity, ultra-low latency and multiple simultaneous connections, the NAGASE Group believes its fundamental technologies can fulfill an important role for development of equipment and devices related to 5G, and we are moving ahead on development. We are also taking into account the kind of transition that will be

brought by 6G (6th generation mobile communication system expected to be realized by around 2027) through M&A and focusing all our abilities on core technology development.

The next-generation information and communications business aims for the realization of smart cities. This will contribute to "a sustainable world where people live with peace of mind."



▶ See P.32-33, "Feature/Initiatives for Next-Generation Businesses Case 1"

Identifying the Possibilities of Engineering Plastics

Partnership with General Electric

The NAGASE Group concluded an agency agreement with General Electric Co. (GE) of the United States in 1968. At the time, polyvinyl chloride (PVC), polyethylene, polystyrene and other general-purpose resins were the mainstream plastics, but NAGASE had the idea that highly functional engineering plastics were indispensable for development of Japanese industry.

At that time, GE was handling engineering plastics in the United States and searching for a partner in Japan. Following an exhaustive investigation, GE designated the NAGASE Group as its most reliable partner in Japan and this led to the conclusion of the agency agreement.

Doing business with GE caused NAGASE to soar in popularity within the industry and later made a significant contribution to expanding bases in Asia.



General Electric



Create the Core of Future Business

New Value Creation (NVC) Office

The mission of the NVC Office set up in April 2017 is to create the core of the NAGASE Group's future business. As its name suggests, the office advances the NAGASE Group's innovation and aims to create new value that will form the core of future business through cross-sectional collaboration among business divisions.

Of the initiatives the NVC Office has conducted over three years, some can actually connect to specific services. One example of this is Materials Informatics (MI) being jointly developed with IBM Corp. This a service for developing new materials that combines the latest data processing technologies with materials science, and we are preparing for market launch.

▶ See P.34-35, "Feature/Initiatives for Next-Generation Businesses Case 2"

Develop Staying a Step Ahead

Identify >>> Develop >>> Expand

The Group's Competency Make "Development" Come True

NAGASE presence is not just to bring products in and sell them, but to add value in a way that only NAGASE can. The NAGASE Group is a trading company that also derives strength from the cutting edge and R&D competence of its group manufacturers. The new business we find, we grow into business that creates new value. Those activities form the lineup for NAGASE's "Development."

Manufacturing

Technological Capability to Create New Value from Identified Businesses

R&D Research & Development

Pursuing Business Output through Various Perspectives and R&D Competency

Core Technologies × Creative Capabilities Nagase ChemteX Corporation

Nagase ChemteX Corporation is a core manufacturing subsidiary of the NAGASE Group and possesses creative technologies in a variety of areas including electronics and biotechnology. In business areas such as functional resins including epoxy, photolithography materials for semiconductors, functional chemicals like conductive coatings, and bio-chemicals with enzymes for food applications, world-first technologies and technologies with top shares in the Japanese market support the Group's innovations. We proactively collaborate with universities, research institutions and partner companies, and strive to introduce new elemental technologies.

We, in close collaboration with members of NAGASE, respond to customers' needs with speed and at the same time provide awareness. In the biomaterial field we focus on, we developed a technology to remove or reduce endotoxins harmful to the body from various materials. Foreseeing increased demand in such fields as medical devices, we are absorbing a wide array of customer needs and enhancing our product lineup. Binding our strengths in the materials and technologies we possess with ideas created through feedback from customers enables us to develop business with value, grown from technology.



Satoru Fujii
President and CEO
Nagase ChemteX Corporation



Established: 1970
Production and development bases: Japan (3), China (2), Europe (1), Americas (1)
Number of employees: 581

Innovation Created with Customers

The Nagase ChemteX Process innovation Center (NPIC), established in September 2019, oversees the application lab, which can develop processes using various types of equipments, and the Universal Design Office, where ideas can be shared instantly, and is a space that leverages the free innovation of Nagase ChemteX engineers and customers. The center is capable of integrated operations from ideas through to implementation and strives to develop new functional resins.

Nagase ChemteX Business

Functional Resins Business	Precision Process Materials Business	Functional Chemicals Business	Bio Chemicals Business
Epoxy adhesives, encapsulants (sheets, liquids)	Resists, developer, etchants, remover, 3D printing materials	Transparent conductive coating materials, acrylic elastomers, special epoxy resins	Food enzymes, industrial enzymes, enzyme preparations for lifestyle, phospholipids

Combining Biotechnological Expertise with Frontier Technologies Nagase R&D Center

The Nagase R&D Center was established in 1990 with the objective of combining the Group's expertise and promoting integrated corporate activities from development and production through to sales. Since 2013, we have focused on R&D in the biotechnology field and have established a research system for studies into molecular biology, applied microbiology, genetic engineering, protein engineering, bioinformatics, fermentation engineering, metabolic engineering and more. The center does not limit itself to supporting Group companies in product development, but also creates its own projects, having successfully

mass produced its proprietary fermentation technology for actinomycetes and plans to soon launch the Nagase ChemteX product Trehangelin, which is expected to have anti-aging effects.

Moreover, a breakthrough has been achieved with the so-called longevity vitamin ergothioneine, which is expected to have applications in foods, cosmetics and pharmaceuticals. Using our strength of microbial fermentation and our dedication to the environmental friendliness, we will continue to move forward with the aim of mass production.



Xiaoli Liu
General Manager
Nagase R&D Center



Established: 1990



Akihiro Taniguchi
General Manager
Nagase Application Workshop (NAW)



Established: 2007

Providing Customers with a Place for Open Innovation Nagase Application Workshop (NAW)

The Nagase Application Workshop is an open innovation laboratory operated on the basis of free thought possible only in a lab operated by a trading company. As a development partner to customers, NAW provides evaluation and analysis of unique new technologies and materials, adds functions for formulation development, proposes new concept color designs, and advances the development of new applications and more. Collaborations occur with materials and process manufacturers and

universities for markets including automotive, office equipment, home appliance, electronics, building and construction, and packaging, etc.

Looking ahead, NAW will focus on themes in the environmental field such as ESG initiatives, and move forward on developing new technologies and materials aimed at building a business model for the NAGASE Group. Furthermore, NAW is also taking action with a view to global Group collaboration regarding the lab's functions.

Expand

“Chemical Reactions” Going Beyond the Boundaries

Identify >>> Develop >>> Expand

NAGASE, which rolls out businesses in a wide variety of business domains, wants the concept of finding different applications for technologies and products to sink in. One of our strengths is having the expertise to unveil businesses meeting the needs of various countries. The NAGASE Group has the power to enlarge and spread business possibilities.

Global Network

Delivering Value Where It's Needed Utilizing a Global Network

Europe

Mainly engaged in the pharmaceuticals and chemicals businesses. In pharmaceuticals, the Group focuses on exporting to Japan pharmaceutical ingredients emanating from Europe, while in chemicals, it is moving ahead on switching from products that place a heavy burden on the environment to bio-chemicals in consideration of the environment.

ASEAN and the Middle East

We are moving ahead on adding high value to core businesses like plastics and mobility-related business. In the food ingredients business, we aim to solve customers' problems through the application lab and various materials.

Greater China

Greater China accounts for the majority of sales in the NAGASE Group outside of Japan, and is currently focused on the four main businesses of semiconductors, mobility, electronics and life and healthcare.

Japan

As the heart of the NAGASE Group's global network, Japan not only carries out core businesses, it also proactively develops new fields such as AI and next-generation ICT business.

South Korea

South Korea develops around an axis in the electronics business, including its globally competitive semiconductors. Leveraging the NAGASE Group's global network, we are advancing the worldwide rollout of South Korean products.

Americas

Leveraging the Group's R&D capabilities and network, including the 2019 addition of Prinova Group, LLC, we aim to create synergies within the Group, centered around the food ingredients business field.



Consolidated Net Sales

799.5

billion yen

Overseas 397.1 billion yen

Overseas Sales to Net Sales

49.7 %

Number of Bases

30 124

Countries and Areas

Companies

Number of Manufacturing Companies

15 60

Countries and Areas

Companies

Number of Sales and Servicing Companies

28 64

Countries and Areas

Companies

Number of Employees (Consolidated)

7,207

Overseas 3,248

▶ See P.70-71, "Regional Strategy"

Driving Our Value

Through its 188 years of business activity, the NAGASE Group has grown into a unique corporate group with a foundation in chemicals. It possesses a wide array of business domains, an information network spanning the globe, and manufacturing as well as R&D capabilities that increase its power as a corporate group. NAGASE's position of maintaining the highest standards of integrity has earned the trust of its partners, and serves as a strength that leads to sustainable growth for the NAGASE Group.

On top of these strengths, which the NAGASE Group built up over many years, it has developed business while adding "new strengths," and continually delivering the value generated by the strengths to all its stakeholders. In this way, the NAGASE Group contributes to realize a sustainable world where people live with peace of mind.

Partnerships Built on Trust

The NAGASE Group's long-standing management philosophy is to maintain the highest standards of integrity. With this idea in mind, we believe in gaining a deep understanding of our customers and building cooperative relationships in which we pursue various possibilities together.

Advanced Technology and Knowledge in the Field of Chemistry

Through connections with various customers, such as leading chemical manufacturers that operate on a global scale, as well as the manufacturing, processing and R&D functions which we have so far acquired, the NAGASE Group has gained an unwavering technological capability and knowledge in the field of chemistry.

A Broad Customer Base

The NAGASE Group possesses a customer base of over 9,000 companies domestically and overseas. The NAGASE Group also boasts global expansion over a wide business domain as well as a strong, independent information network unique to a trading company not bound by any particular manufacturer's technology or product. This allows for proposals that lead to customer value.

Ability to Create Business

The NAGASE Group has created and provided new value by freely stringing together the various functions of the NAGASE Group such as manufacturing, processing, and R&D. The ability to create new businesses as a "Business Designer" is a significant strength.

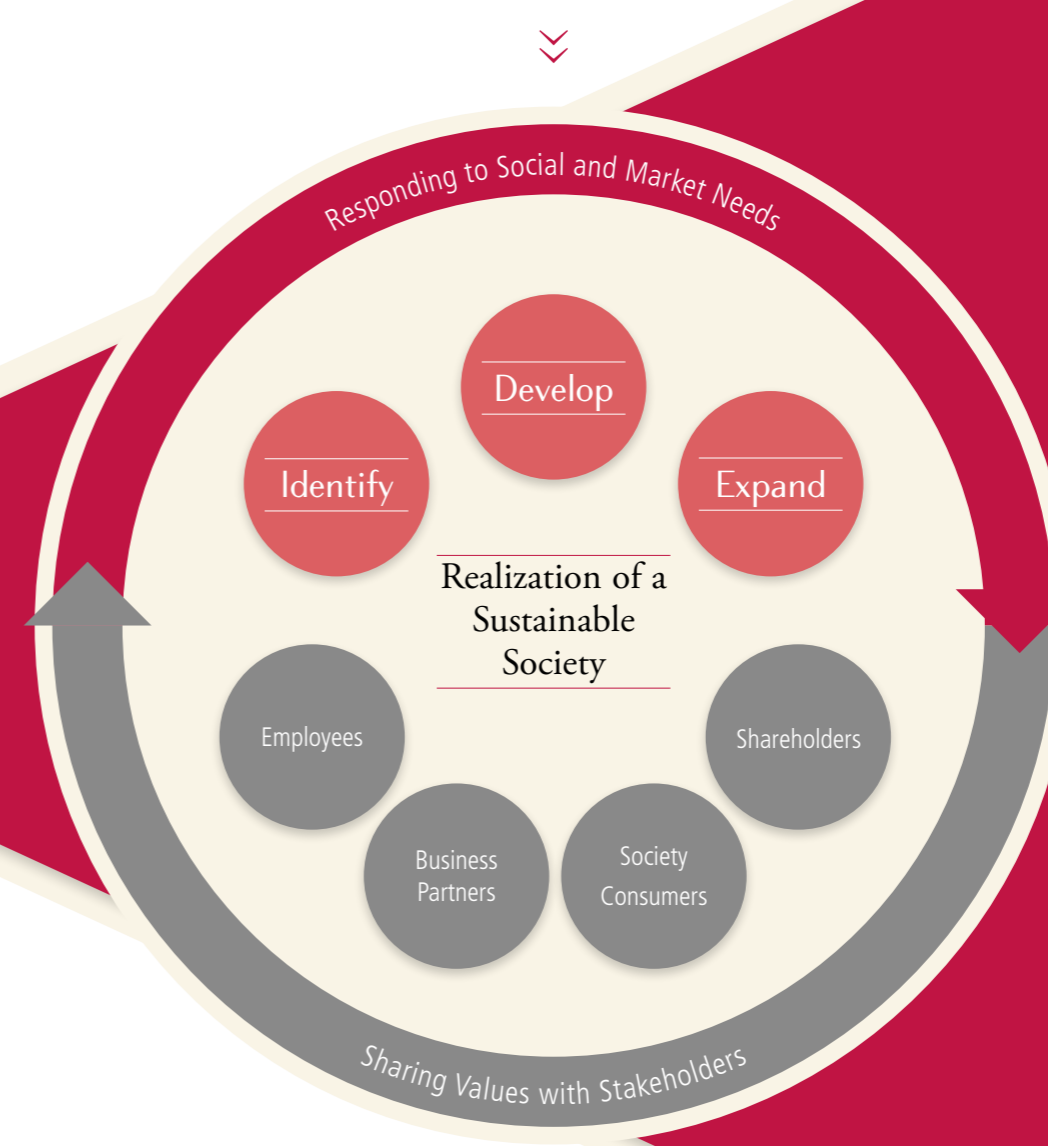
Financial Soundness and Strict Financial Discipline

At the NAGASE Group, our corporate culture ensures financial soundness and strict financial discipline. Our supply and sales foundations are also stable, as we are not heavily dependent on particular products or regions. This kind of financial base allows for new "challenges" that lead to the NAGASE Group's sustainable growth, such as DX and next-generation information communications business.

Our Strengths

Value to the Future

Developing Sustainable Business



Delivering New Value

Summary of the Long-Term Management Policy

Challenges for Growth

- Increase investment
- Accelerate organic growth
- Expand overseas operations

Reinforcement of Business Base

- Restructure global governance
- Increase flexibility in HR management
- Enhance safety and assurance
- Consolidate communications infrastructure

▶ See P. 26-27 "Our Roadmap of Growth"

NAGASE Vision

To realize a sustainable world where people live with peace of mind

▶ See P. 22-23 "Our Philosophy"