Research and Development

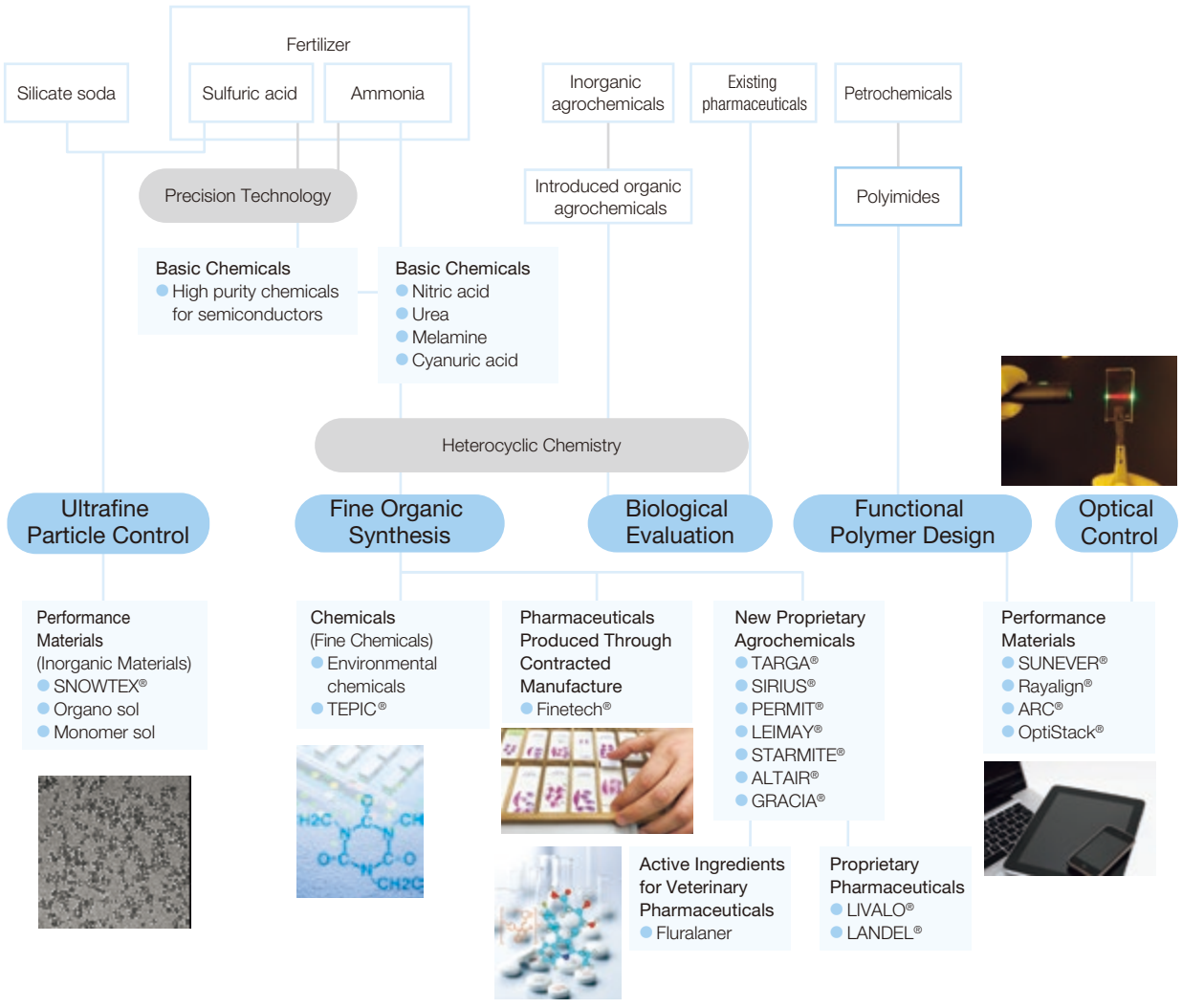
With “Fine Organic Synthesis”, “Functional Polymer Design”, “Ultrafine Particle Control”, “Biological Evaluation”, and “Optical Control” serving as our core technologies, we aim to become “A Future-Creating Enterprise that Responds to Social Needs with Unique, Innovative Technologies” committed to continue creating new technologies and products.

Our Core Technologies

Originally started as a fertilizer company, over our long history we have grown with “Fine Organic Synthesis”, “Functional Polymer Design”, “Ultrafine Particle Control”, “Biological Evaluation”, and “Optical Control” serving our core technologies.

In addition to further refining these technologies, we are working to develop new products and technologies and create new businesses by fusing these technologies while working closely with each other between research laboratories and related departments. We are also promoting the introduction of new technologies through joint research with universities and other companies.

Our Core Technologies and Products



Chemical Research Laboratories

Chemical Research Laboratories is Nissan Chemical's core R&D site, and is responsible for our corporate research. In addition to R&D of agricultural chemicals and pharmaceuticals that utilize the fine organic synthesis technology, Chemical Research Laboratories performs research on companywide processes, material analysis research, etc.

- Analysis Research Department
- Synthesis Research Department
- Agricultural Chemicals Research Department
- Pharmaceutical Research Department

Funabashi, Chiba

Biological Research Laboratories

Biological Research Laboratories serves as a place for life science research, such as evaluation research related to the usefulness and safety of agricultural chemicals, pharmaceuticals and medical materials.

- Agricultural Chemicals Research & Development Department
- Toxicology & Environmental Science Department
- Medicinal Research Department

Shiraoka, Saitama

Materials Research Laboratories

Materials Research Laboratories creates highly unique new materials, allowing us to respond quickly to increasingly sophisticated and diverse market needs. At the same time, the Laboratories focuses their efforts on researching next-generation materials in an effort to create new markets.

- Display Materials Research Department
- Semiconductor Materials Research Department
- Inorganic Materials Research Department
- Advanced Materials Research Department
- Frontier Materials Research Department

Funabashi, Chiba

Toyama, Toyama

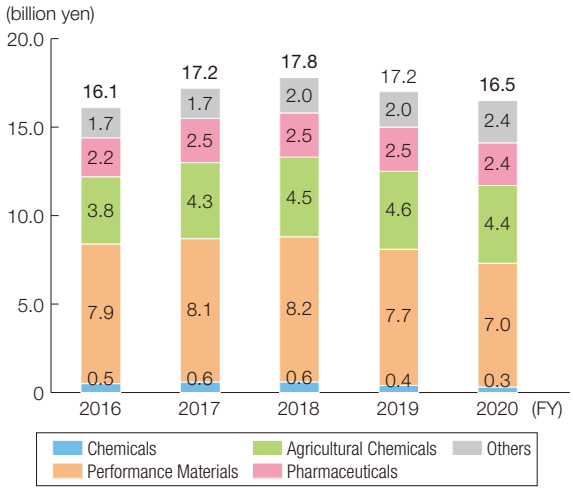
Sodegaura, Chiba

R&D Expenses

We consider R&D is the source of growth, and have intensively invested our management resources in R&D.

Over the last five years, R&D expenses have totaled 84.8 billion yen. The R&D expenses in Performance Materials and Life Sciences (Agricultural Chemicals and Pharmaceuticals) account for more than 40% each. In addition, about 40% of employees of regular position are allocated as R&D personnel.

R&D Expenses



Voices of Researchers

Supporting manufacturing using analysis technology

MATSUO Mina
Analysis Research Department
Chemical Research Laboratories

Our job in the Analysis Research Department is to support the development of materials through analysis work in collaboration with other departments. We are working on the introduction and construction of new technologies in addition to basic analysis technologies in order to respond to the evaluation of various materials that are evolving day by day. In research and development, relationships with people are very important. By accurately grasping the needs of the development side, we can provide high-quality analysis results. Also, deep involvement can lead to the development of new analysis technologies. Relationships with people in other departments are one of the most rewarding aspects of my job.

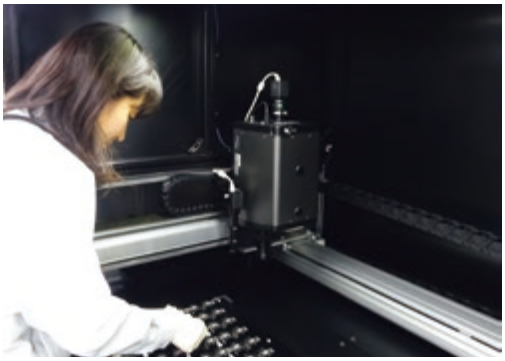
The surface analysis team, to which I belong, uses analysis techniques specific to the surface and interface of materials to elucidate the mechanisms of function expression and trouble factors. Electron microscopes allow us to observe the structure of an object that is invisible to the naked eye by magnifying it several hundred to several million times down to the atomic level. In this sense, analysis technology makes the invisible visible. New materials are created based on what we are able to see. Those materials will be used to create a variety of products that will reach many people, including myself, and contribute to people's lives. I am proud of my job which supports such manufacturing through the use of analysis technology.

Creating next-generation materials

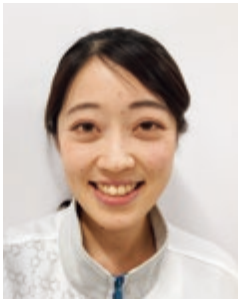
KUNIMI Naho
Advanced Materials Research Department
Materials Research Laboratories

The hole injection layer (HIL) that we are developing is a necessary component to improve the performance of OLED displays and is required by display manufacturers to have many characteristics. In order to always meet these demands, we are constantly developing HIL materials to improve performance. In addition, I always keep in mind the need to develop materials with a sense of speed, not only by completing assigned tasks, but also by identifying issues that may arise in the future, finding solutions, and outputting new materials. Under these conditions, I feel much rewarded as a developer when the materials that I was involved in developing are highly regarded by customers.

I was involved in the work mentioned above in the milestone year after my maternity leave. Although it has only been a short time since I have been involved in this work, our goal is to work together to create standard materials that will make people say “This Nissan Chemical’s materials are excellent” in the future.



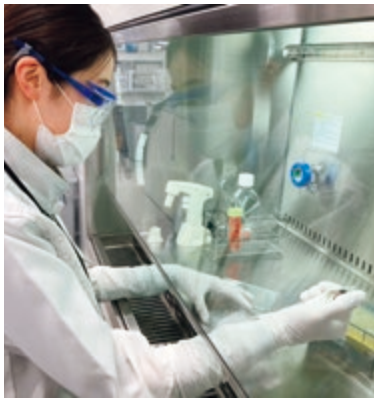
Advancing regenerative medicine to benefit people



HIROI Miya
Frontier Materials Research Department
Materials Research Laboratories

Our mission in the Frontier Materials Research Department is to provide unique value through our coating materials by identifying the challenges of the industry, targeting next-generation medicines such as regenerative medicine. In the future, we hope to save the lives of people with serious illnesses and contribute to the improvement of their quality of life. Although I have a chemistry background, developing materials requires not only knowledge of chemistry but also knowledge of biology, including cell culture, and consideration for the safety of the human body. In particular, I am working on my research every day with a sense of responsibility and urgency that I must not forget since my work is related to human life.

The market for regenerative medicine has not yet matured. This is why we need to catch potential needs through conversations, which will provide us with hints to identify needs, with people at universities and companies engaged in cutting-edge research and use that information for materials and experiments. Then, we discuss the results with others. I find such a cycle interesting and rewarding. Our goal for the future is to save many lives through next-generation medicine using our materials. To achieve this goal, I will continue to search for new issues and apply what I learn about them to the development of new materials.



Co-creating new value through open innovation

ISHIBASHI Ken
Semiconductor Materials Research Department
Materials Research Laboratories
(Currently at Imec)

Imec (Interuniversity Microelectronics Centre), where I am currently stationed, is a leading research institute in the field of semiconductors which owns many types of research equipment, including cutting-edge lithography equipment used in semiconductor device manufacturing. In addition, Imec accepts a wide range of researchers from semiconductor-related companies and universities of various countries to conduct joint research.

Resident researchers have two primary missions, which I will address. The first is to utilize the research equipment at Imec and evaluate materials in conditions similar to those of customers. Since it is very challenging to detect minute differences in characteristics when evaluating materials used in cutting-edge fields, I feel that there is great value in fully utilizing Imec's research equipment to construct methods for evaluating differences in characteristics with greater accuracy than possible with existing methods.

The second mission is the continued development of semiconductor-related materials that will be required by next-generation products through joint research with Imec and other companies (material and equipment manufacturers). By collaborating with Imec and other companies, we can increase our knowledge of semiconductor processes and materials evaluation. I also find it interesting to be able to apply the knowledge I gain through collaborative activities to material development at our company.