R&D and Intellectual Property Strategy

Related Materiality

- Responding to climate change
- Ensuring the safety of products and chemical substances
- Improving value and reliability of products

Message from executive officer in charge of R&D

We will develop new products for the following five fields targeted in the business strategy roadmap: Electronics & Information, Mobility, Environment & Energy, Life Science, and Agricultural & Food. Through the Mid-term Management Plan SPEED 25/30, we will move forward with research and development with flexible thinking while envisioning society in 2050 and ascertaining what 2030 will be like as we move toward 2050. The concrete business fields that we will focus on are advanced organic solar cell material for cutting-edge electronic device materials, organic solar cell materials, near-infrared absorption colorants, environmentally friendly dyes and polyols, bio-medical materials, and environmentally aware agricultural materials.

Norimasa Yokoyama Managing Executive Officer

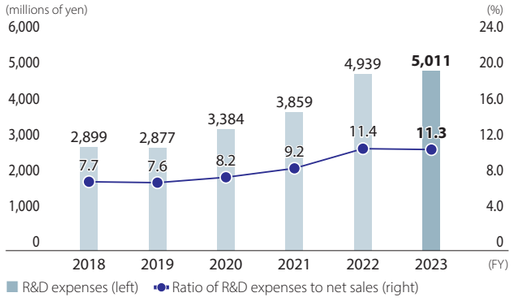
R&D Strategy

Basic Policy

We have formulated the 10-year scenario ideal figure FY2030 and target figure FY2025, the mid-point for that. Through FY2025, the midpoint of the plan, we will implement key measures related to such items as OLEDs and maintain or expand our current business fields. In addition, we will move forward with our search in applied fields. To achieve that, we will quickly identify social needs that are growing extremely diverse and promote research and development that can immediately meet the different needs of various customers.

The Hodogaya Chemical Group gives form to the skills and know-how from the technology we have cultivated over our long history to develop products and production technology with all-new functions. We also engage in research and development to become a corporation that contributes to establish a sustainable society by means of our original portfolio and environmentally friendly manufacturing, with a focus on specialty products. We will encourage innovation by creating specialty products to help achieve SDG goal 9 (Industry, Innovation and Infrastructure).

R&D expenses



Basic Strategies in SPEED 25/30

Further development of strategic products while fostering new ideas	• New business creation and growth for functional colorants • Take new research projects into—and beyond—the development stage
Strengthen our R&D structure	• Expand our sustainable creation of new research projects • Establish an organizational structure able to swiftly move from research to mass production

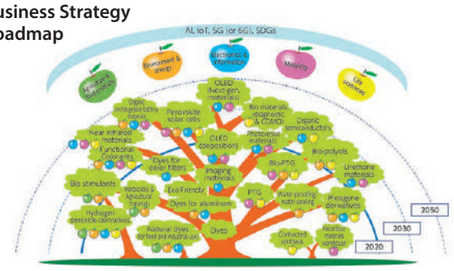
Further Development of Strategic Products while Fostering New Ideas

By applying the technology we have accumulated over the past 100 years, we aim to continue expanding and developing our strategic products under our Mid-term Management Plan SPEED 25/30.

In the fields of Electronics & Information, Mobility, Environment & Energy, Life Sciences, and Agricultural & Food, centered on the New Product Exploration Project, we will also conduct research and investigations to establish R&D strategies based on a long-term perspective. The goal is to create new businesses for the next generation, put in place a system in which R&D, production, and sales functions make a three-pronged effort to respond speedily to the needs of customers. In addition to reinforcing research on OLEDs and their application in the field of Electronics and Information, we also aim to expand the biotechnology field, primarily through the Korean group company SFC in Life Sciences.

We are also actively promoting joint frameworks with industry, government, and academia and working to build next-generation basic technologies and create new businesses.

Business Strategy Roadmap



Intellectual Property Strategy

Promoting an Intellectual Property Strategy

Keeping in mind our future business portfolio, we are moving forward with quickly filing patents and securing intellectual property rights related to the results of our research and development. Having focused on improving the quality of our patents through the use of patent map and IP education based on information searches and patent analysis, we were ranked 30th for patent value growth in the Nikkei Business's 2023 Intellectual Property Management Ranking. In particular, for IP education, we hold courses for all frontline researchers using the Company's own experiences as case studies based on the principle that it is important to conduct research and development with an eye toward securing rights. We continue to aim to secure firm intellectual property rights both in Japan and overseas in order to respond to our global business expansion.

Strengthen Our R&D Structure

The Hodogaya Chemical Group promotes cutting-edge R&D for the future with a global R&D system that extends from Japan to overseas.

The Development Department of each plant and the Korea-based Group companies SFC and HODOGAYA CHEMICAL KOREA are working together to promote research and development and to quickly respond to customer desires through activities more closely tied to customers, and these activities are centered on the Tsukuba Research Laboratory (Japan).

Initiatives Related to Perovskite Solar Cells

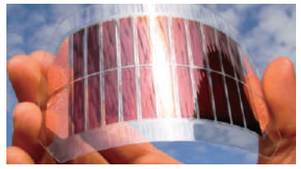
An example of our initiatives related to building next-generation basic technologies and creating new businesses is our research and development of perovskite solar cells.

Unlike traditional inorganic silicon solar cells, perovskite solar cells, which use organic compounds, are light, flexible, and inexpensive, and are expected to meet strong social demand as a way to promote a green transformation (GX).

The development of higher performance materials is necessary for the use of perovskite solar cells to spread. Applying not only advanced organic synthesis technology obtained through many years of R&D related to colorants but also technology and know-how accumulated with imaging materials and OLED materials, we research and develop solar cell materials to meet those needs.

We are also integrating and reinforcing knowledge and technology through not only our own work but also joint research with Toin University of Yokohama Professor Tsutomu Miyasaka, a leading researcher in the field of perovskite solar cells.

Through this R&D, we aim to achieve the envisioned 2050 society and become a corporation that contributes to establishing a sustainable society.



VOICE

Searching for the bud of new businesses

With New Product Exploration Projects, we conduct research to find the buds of next-generation research themes that can become one of our new businesses in the future. We are also moving forward with research in various fields by periodically confirming the position of search themes being worked on in terms of business and technical feasibility, etc., and replacing those themes when appropriate.

Starting this fiscal year, perovskite solar cell material was selected as a research theme, and we have moved to the fundamental research and development stage. I am extremely happy that the research I am responsible for has been selected as a theme and feel satisfaction that I can contribute to the research that will lead to new business for the Company.

With this New Product Exploration Project, the focus is on research of near-infrared absorption colorants, and I hope that we all unite to tackle the issue so that it leads to a business as quickly as possible.

(Y. S., New Product Exploration Project)

Relevant Group company: **Hodogaya Contract Laboratory Co., Ltd.**
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