

Message from the Officer in Charge of R&D



We will leverage our technologies and human resources to strengthen our R&D capabilities and create the next generation of core competencies.

Yoichi Yoshida

Executive Officer,
General Manager, Research & Development Division,
with responsibility for Development section and Deputy responsibility for M&A Promotion Office

The Research & Development Division's mission is to continue advancing innovation in next-generation core technological competencies that will give UBE a competitive edge in the future.

Our ability to compete in the harsh global market comes from our people who are passionate about our Purpose of "Breaking Through with the Chemistry of Hope." and our unique core technologies meticulously

developed by our predecessors. To these we are adding our insight to future market needs, fresh ideas from academia and startups, and the power of DX.

We define our core competency focus areas through both forecasting and backcasting. We narrow down our research and development priorities by anticipating future social and environmental issues and market needs, then use our current business as a platform for projecting how

to evolve our present core technologies to create new products. These efforts are further supported by open innovation with national projects, university research, and startup collaborations.

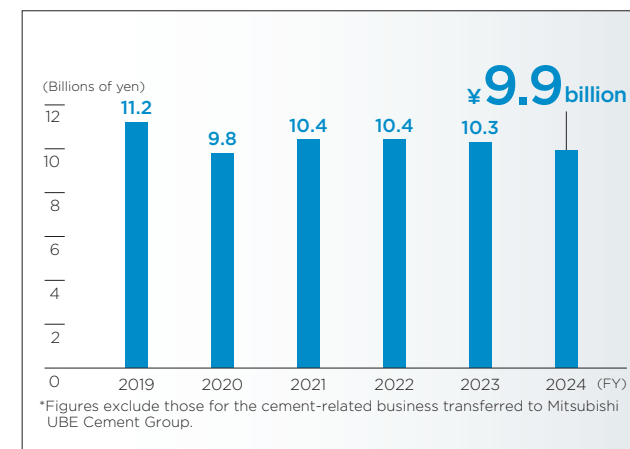
For our R&D in the specialty businesses, it will be critical to gather data on future societal and business trends to use as a basis for proposing solutions. For that reason, the R&D department is cultivating talent through training in marketing fundamentals and technical management for new product development. We also hold in-house technical exchange meetings to bring together various industrial perspectives, dispatch employees to universities and startups, and promote diverse perspectives and innovation by hiring former UBE employees with external experience and by facilitating employee exchanges among our global sites.

A key current initiative is advancing our proprietary molecular and material design technologies using material informatics and computational chemistry to create new functional materials. This will accelerate the development of higher-performance, sustainable materials and enhance our competitiveness in global markets.

Corporate R&D focus markets and technologies

Area	R&D Theme	Examples of social implementation
Information electronics	Electronic material films Optoelectronics Heat-dissipating composite materials	<ul style="list-style-type: none"> Electronic material films Improving mobile communications functionality Optoelectronics materials Energy-saving information processing
Mobility	Weight reduction (fewer parts, reduced manufacturing processes, metal substitution)	<ul style="list-style-type: none"> Instrument panel reinforcement module Contributing to vehicle weight reduction (fewer parts) Multi-layer tubing system with dissimilar material joining Enabling improved durability
Life sciences	Biomimetic systems, cell product manufacturing, cell culture food materials	<ul style="list-style-type: none"> Cell utilization therapy Contributing to a healthy, long-lived society Cultured meat Addressing food issues and environmental protection
Sustainability and global environmental issues	Composite material upgrade recycling CO ₂ upgrade recycling CO ₂ separation and recovery	<ul style="list-style-type: none"> CO₂ electrolysis technology Contributing to global environmental issues CO₂ separation and recovery Recovering CO₂ with low energy consumption

R&D expenditure



R&D

Basic policy under the medium-term management plan

Starting in fiscal 2025, the Research & Development Division has been promoting organizational restructuring aimed at sustainable corporate growth and a stronger competitive edge with a mission to “creating core competencies through technology development that will shape the future” based on the medium-term management plan. The development sections that were previously under the control of business divisions have been integrated as divisional R&D to strengthen cooperation with corporate R&D on research and development themes, human resources, and technology. Corporate R&D is also responsible for medium- to long-term themes in existing business domains, implementing strategic research and development that combines backcasting and forecasting. Furthermore, with the aim of achieving a transformation into a research and development-based company, we are increasing the number of R&D personnel, as well as strengthening and acquiring core technologies by leveraging material informatics and computational chemistry to bolster our molecular and material design technologies. We are also focusing on securing and developing specialty human resources with solution proposal capabilities through external assignment of employees, mid-career recruitment, and development of the education system. To realize an environment that allows researchers to concentrate on creative work, we are actively deploying DX aimed at advancements in operations, including electronic laboratory notebooks and structuring of information using generative AI. Through such initiatives, we aim to create new value in the specialty chemicals field.

UBE’s core technologies

UBE possesses an extensive range of core technologies, including polymer processing, inorganic and organic synthesis, ceramics, battery materials, and pharmaceuticals manufacturing. These technologies have features such as microstructure control, high selectivity, heat resistance, and continuous process implementation and support the creation

of sustainable, high functionality products in combination with our molecular and material design capabilities.

Research strategies and measures

The Research & Development Division promotes strategic research and development based on strengthening the cooperation between corporate R&D and divisional R&D with a mission to “creating core competencies through technology development that will shape the future.”

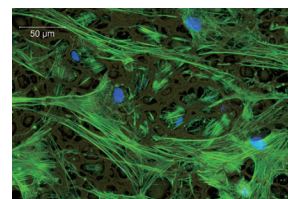
Corporate R&D

Corporate R&D is responsible for technology strategy from a medium- to long-term perspective and basic research, leveraging material informatics and computational chemistry to bolster and deepen our molecular and material design technologies. We are working to create next-generation core technologies and meet future demands through open innovation in collaboration with universities and start-ups.



UBE’s proprietary porous polyimide membrane cell culture substrates feature the advantage of enabling the stable, long-term culture of animal cells.

Corporate R&D has developed innovative cell culture substrates using porous polyimide membranes.



Divisional R&D

Divisional R&D promotes efficient research and development focused on short- to medium-term issues, in collaboration with business divisions. By pursuing field-driven themes and accelerating technology implementation, we aim to boost the competitiveness of our products. In addition, we work to strengthen the company-wide technology foundation and secure a sustainable competitive advantage through cooperation with Corporate R&D.

Attracting and developing talents driving growth in specialty chemicals

In promoting growth in specialty chemicals, attracting and developing talent with both expertise and the ability to propose solutions is essential. The Research & Development Division focuses on developing talents with the ability to accurately assess information on future social and business environments and propose solutions based on this information. More specifically, we have developed multi-faceted talent development measures, including training on marketing and Management of Technology (MOT), the cultivation of an industrial perspective through meetings among internal technical teams, and the enhancement of practical skills by assigning employees to universities and start-ups. Furthermore, we work to improve our innovation capabilities by recruiting professionals with external experience and conducting talent exchange among global sites to bring in diverse perspectives and values. Through such initiatives, we aim to strengthen our talent base which is the source of our competitive edge in the specialty chemicals field.

DX initiatives

We are actively deploying DX measures to contribute to operational transformation in the R&D domain to realize an environment that allows researchers to concentrate on creative work. As an initiative that aims for operational advancements beyond simply improving efficiency, we are promoting the development of a data utilization infrastructure through the introduction of electronic laboratory notebooks and the accompanying improvement in the efficiency of organizing and accessing information. We are also promoting the development of tools to support the rapid verification of technology-market hypotheses using generative AI to structure information, and trials aimed at benefiting from these tools are currently underway. Going forward, we will aim to further improve R&D quality and speed by integrating cross-functional knowledge and gaining deeper insights through the use of AI.

Intellectual Property

Basic policy and structure

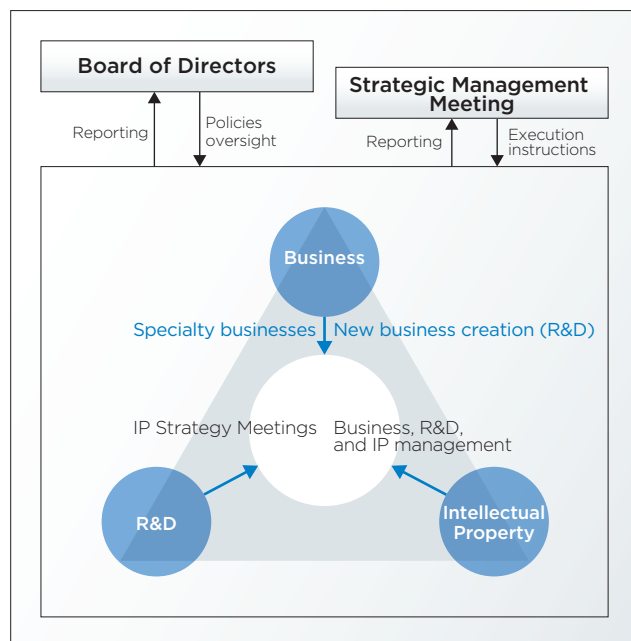
Basic policy

We will gain a sustainable competitive edge in our specialty chemicals by having our business, R&D, and intellectual property (IP) departments collaborate closely in IP initiatives.

Structure

For the specialty business, we hold IP strategy meetings to realize its ideal vision. There, we deliberate on IP acquisitions and review the status of IP investments.

Regular reports on overall IP activities go to the Strategic Management Meeting and the Board of Directors. They issue instructions on and oversee policies and execution approaches for IP efforts.



Medium-term management plan and intellectual property

IP initiatives under the medium-term management plan

Under UBE Vision 2030 Transformation - 2nd Stage, the UBE Group has set five materialities (material issues) based on the Group's purpose, the UBE Corporate Philosophy, and the level of impact on society in order to realize our Vision for 2030. This section will discuss the measures that are currently being implemented or that will be implemented going forward in relation to four of these materialities, excluding ensuring occupational safety and health, process safety, and disaster prevention.

● Expanding specialty businesses

1. Existing businesses

We build an intellectual property portfolio (PF) tailored to the characteristics of existing specialty businesses, including polyimides, separation membranes, ceramics, and C1 chemicals. We draw on IP information through patent maps^{*1} and IP landscapes^{*2} to identify new issues for resolution, new applications, and prospects for alliances with other companies. For new inventions, we assess the essence of the invention and its patentability, and determine the scope of rights in view of the supply chain and future implementation approaches. We also decide appropriately on whether to keep information open or closed. In this way, we seek to sufficiently safeguard our technical achievements, establish high barriers to entry through IP, and build a sustainable competitive edge for our businesses.

In addition, we are considering the smooth transfer of intellectual property relating to the acquired urethane systems business and will ensure successful integration through an inventory of intellectual property and global intellectual property management going forward.

Please see Growth Strategies of specialty businesses on pages 39 to 47 for progress with current R&D efforts in specialty businesses.

^{*1} A patent map is a visual representation from collecting, analyzing, processing, and organizing patent information into charts, graphs, and other visual information.

^{*2} IP landscape is an analysis of management and business information incorporating IP information in formulating management and business strategies and sharing results (including overviews of current situations and prospects) with management and business leaders.

2. Corporate R&D

At each stage from theme exploration to commercialization, we research and analyze IP information and provide insights to the Research & Development Division about technological trends and competitor activities.

We contribute to creating core competencies by tapping IP information from early R&D stages, helping develop themes, exploring new businesses, and building collaborative partnerships.

3. M&A and alliances

We will clarify the potential for creating synergies and cooperating by assessing the technology and IP of targets through intellectual property due diligence (DD) from the earliest stages of evaluation.

● Empowering and engaging a diverse workforce

1. IP experts

We assess the specialized skills our existing talent currently possess and create training plans that match the characteristics of each individual to increase their expertise. We also recruit diverse talent, including mid-career and new graduate recruitment. In addition, we also send employees to global business leadership training programs and provide support for them to obtain external qualifications related to IP.

2. Increasing IP literacy across the UBE Group

We have undertaken a range of IP education initiatives to foster a culture that values and respects IP. In the past year, we have expanded the implementation of e-learning and raised in-house awareness of patent valuation methods.

● Addressing global environmental issues

1. U-BE-INFINITY™, our environmentally friendly products brand

In April 2024, UBE Group launched the environmentally friendly product brand, U-BE-INFINITY™. This brand is assigned to environmentally friendly products developed

Intellectual Property

by the UBE Group that demonstrate particularly outstanding environmental contributions, enhancing the added value of the certified products.



Registered Trademark No. 6884758

2. Coexisting with nature

By sharing patent information related to three perspectives (carbon neutrality, circular economy, and nature positive), we contribute to progress in R&D and creation of new businesses in these areas.

● Upholding integrity and fairness in corporate governance

1. Intellectual property clearance

We respect the IP rights of other companies as we do our own. We accordingly do our utmost to conduct intellectual property clearance searches and minimize business risks in existing businesses and at the commercialization stage in R&D.

2. Establishment of intellectual property procedures

In line with the review of our next IP management system, we will review the IP workflows and update procedural documents. This will further enhance our internal control systems.

Enhancing corporate value through our IP strategy

Progress of IP activities in specialty businesses

In the past year, we sustained and strengthened IP activities in specialty businesses. More specifically, we enhanced both the quality and frequency of IP Strategy Meetings and IP Activity Meetings at the staff level. In

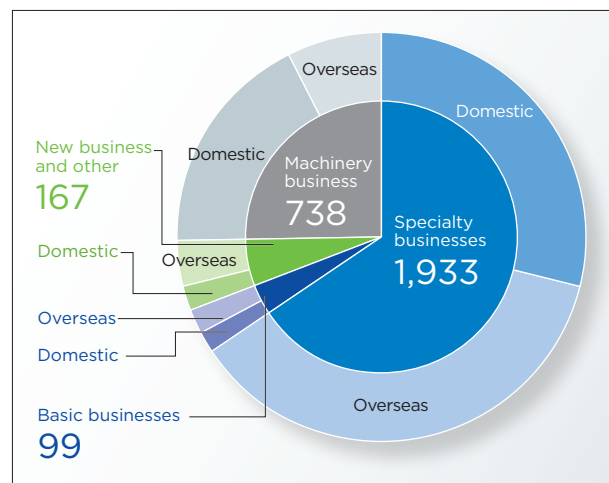
using a patent value assessment tool, we increased the number of patents examined and analyzed with a continued focus on the number of patents, the status of patents acquired globally, and the level of interest from other companies in our patents.

We consistently implemented patent portfolio expansion through patent filings to protect our technologies and patent clearance activities. This approach provides an environment in which customers solve issues with UBE's patented products and services, which they can use with confidence.

Status of patents held

We focused on securing patents for inventions. As a result, the total number of patents held increased from the previous fiscal year. In particular, the number of patents held related to specialty businesses increased. The proportion of patents in specialty businesses was also higher.

Number of registered patents by portfolio (As of March 31, 2025)



* Patents held by UBE and some Group companies

Inventor incentives

In line with employee invention rules, we incentivize inventors upon applying for, registering patents, and commercializing registered inventions. Also, at the UBE Group R&D presentation meetings, we honor inventors of patents that have contributed significantly to our business. Such recognition motivates inventors and encourages them to pursue further advances.

In fiscal 2024, we presented awards to inventors for patents in the polyimide, pharmaceuticals, composites, and fine chemicals areas.



IP DX initiatives

As well as the tools mentioned earlier, UBE is now further visualizing patents, gaining new insights, and streamlining operations by also adopting patent analysis software and AI-based patent search tools. IP operations have reached a significant turning point due to the advances in generative AI in recent years. We will actively introduce generative AI technology to promote operational transformation, concentrate resources on tasks that are uniquely human, and further enhance the functions of our IP operations. Together with consideration of the next intellectual property management system mentioned earlier, we will also visualize statistical data on IP and disseminate information that will help with management and business.