Sustainability Management

To realize the sustainable growth, we understand that actively addressing social and environmental issues is required in our business activities. Specifically, we set various goals, such as achieving our goals (Scope 1 and 2) of carbon neutrality by 2030, and incorporated them in our mid-term management plan. Toward these goals, we have worked on solving climate change issues, promoting human capital management, and reducing emissions.

ESG Policy	In all aspects of our business activities, we actively address a variety of issues related to environment, society and governance and aim to achieve sustainable growth.

ESG promotion organization

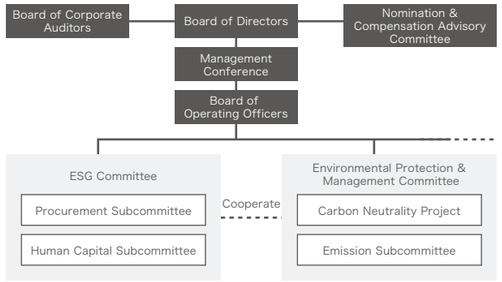
Under the supervision of the Board of Directors, the ESG Committee (Chairperson: Director and Senior Managing Operating Officer; Members: Executive Officers and Division Managers, and Management of Domestic Subsidiaries) holds 4 meetings a year to raise awareness and promote sustainability-conscious management and discuss such themes as a response to climate change, realization of a decarbonized society, respect for human rights, consideration for work conditions, and fair and appropriate transactions with clients.

Regarding environmental conservation activities, the Environmental Protection and Management Committee, which works with the ESG Committee, supervises the progress of activities conducted by the Carbon Neutrality Project and the Emission Subcommittee and continuously improves them.

The Procurement Subcommittee sets up the CSR Procurement Policy under the supply chain management and promotes CSR activities with suppliers.

Under the concept of human capital management contributing to corporate value improvement, the Human Capital Subcommittee holds a monthly meeting to discuss such matters as setting up a human resource strategy to link management strategy to human resource strategy.

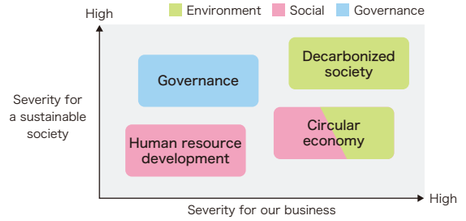
Each committee periodically reports important agenda items and activity status to the Board of Operating Officers, the Management Conference, and the Board of Directors, and the Board of Directors makes final decisions. The Board of Directors checks the progress of the mid-term management plan, discusses measures for issues, and reflects the results in the management strategy and risk management and assessment based on the periodic reports.



Board of Directors	- Supervise the entire sustainability
ESG Committee	- Promote the entire activities to overcome challenges for sustainability, such as establishing a general sustainability policy, coordinating to set division goals, and managing their progress
Procurement Subcommittee	- Procure eco-friendly materials, provide suppliers with training on human rights, labor rights, safety and health, and corporate ethics in accordance with the CSR Procurement Policy, and establish the best supply chain
Human Capital Subcommittee	- Develop human resources who can implement CIC and promote human resource development by linking management strategy to human resource strategy - Develop future leader candidates who can achieve diversity and ensure equal opportunities
Environmental Protection and Management Committee	- Manage budgets and conduct company-wide coordination for activities to reduce environmental loads, such as setting goals for the Carbon Neutrality Project and the Emission Subcommittee and managing their progress
Carbon Neutrality Project	- Establish and implement measures to achieve carbon neutrality by 2030, such as capital investment, echnological innovation, use of renewal energy, and improvement in energy use efficiency
Emission Subcommittee	- Take the initiative in reducing, removing, and recycling emissions and waste generated in business activities - Research the technology trend toward the realization of zero emissions in 2050

Key issue (materiality) identification

To respond to changes in external environments due to environmental issues and to contribute to international Sustainable Development Goals (SDGs), we designated the following 4 items as materiality to be tackled in our mid-term management plan: "Contribution to the realization of a decarbonized society," "development of diversified human resources and improvement in job satisfaction," "promotion of circular economy," and "enhancement of governance." To solve these issues, we make company-wide efforts.



Initiatives on materiality

We set KGIs (key goal indicators) in each materiality to increase our corporate value.

Materiality	KGIs (key goal indicators)	Initiatives for FY2024
Contribution to the realization of a decarbonized society [For details, see "Response to Climate Change" on page 49.]	・Achieve carbon neutrality by 2030	54.4% reduction compared with FY2020 (Target: 54%)
	・Promote saving energy and saving resource	Launched a waste heat recovery system on the coating VOC processor, launched onsite PPA, and continued to investigate the equipment for future management such as air-conditioning upgrade and production consolidation
	・Replace with renewable energy	Purchases in FY2024 (Renewable energy: 17.31 million kWh) (Carbon offset city gas: 2.05 million ㎥)
	・Offer low environmental load materials	(1) Reduction in energy to produce existing mass-produced products (2) Development of eco-conscious new products (Conducted in-house low-energy production, saved energy in clients' processes, and used for hydrogen energy purposes and mobility and lightweight purposes)
Development of diversified human resources Improvement in job satisfaction [For details, see "Human Resource Management" on page 55.]	・Develop next-generation human resources	Increased job rotation(Internal internships: a total of 12 participants in FY2024) Made efforts to increase the percentage of women in managerial positions to 20.1% (FY2024) Enhanced career development support, and reviewed promotion policies
	・Be a company where all employees can work lively	Efforts to increase the paid vacation utilization rate (66.7%/FY2024) Promoted the planned paid leave system (6 days per year) through labor-management cooperation Reviewed allowances and systems Expanded support for employees through the introduction of a new dependent allowance, and implemented wage increases in line with rising prices
Promotion of circular economy [For details, see "Promotion of Circular Economy" on page 53.]	・Reduce emissions	14.4% reduction in industrial waste disposal (compared with FY2020) Raised awareness of reduction through waste patrols, initiated reuse of materials such as winding cores and outer packaging materials (return to manufacturers) Recycling rate: 94.8% (thermal recycle: 66.3%, material recycle: 29.4%), started recycling glass plates
[For details, see "Supply Chain Management" on page 60.]	・Establish a sustainable supply chain	Dissemination and encouragement of the CSR Procurement Policy Feedback on CSR survey results to 133 companies Used reused or recycled materials, investigated carbon-neutral materials Adoption of polyester resin and other materials
	・Ensure chemical substance safety	Operation of the new chemical substance database and management system
Enhancement of governance [For details, see "Risk Management" on page 63.]	・Be an organization with a strong sense of ethics	Conducted operating audits (including group companies) Internal adoption and external promotion of the new brand Exhibiting at NEIA Electronica Niigata 2024, installed the brand logo object
	・Enhance risk management	Conducted BCP training, improvement in the quality of information security systems

Coexistence with society

To enhance our brand value, we have conducted locally focused social activities. We return 0.5% of non-consolidated net income to society, including contributions to academies, schools, and health-promoting businesses. In addition, we participate in local events (such as the Takada Gion Festival Grand Bon Dance Parade) and volunteer activities (such as blood donation).

TOPICS

Supporting the SSH* (Super Science High School) project!

We conduct special classes annually for students at Takada High School, an SSH-designated school, to deepen their understanding of science, technology, and innovation.

In fiscal year 2024, the program focused on helping students experience the joy of manufacturing. A factory tour was also conducted at a later date.

*A program of the Ministry of Education, Culture, Sports, Science and Technology that reviews and designates high schools implementing exemplary initiatives to nurture science and technology professionals, capable of succeeding globally, and provides them with support.


A scene from the class


Factory tour

Mid-term Management Plan

Background and basic policy for formulating the new mid-term management plan (2025–2029)

Our group formulated the mid-term management policy based on the management policy (see page 3) with the motto "Create, Innovate, and Challenge," and released it in May 2025.

The formulation of this mid-term management plan is based on the "What we want to be" discussed by employees during the workshops. To achieve it, we established the basic policy of "enhancing our corporate value from both business and financial perspectives by leveraging our human resources and addressing environmental and social issues." Our group strives to work on technological innovation and product development while fulfilling users' needs and continues to help improve social and environmental issues to realize its sound survival and sustainable growth. Specifically, to maintain or expand the revenue base of existing business fields, we implement strategic investments in a new business field that maximizes the synergy effect with existing businesses and has high profitability of capital, as well as improving and expanding production capability and investing in the development of new products that anticipates users' needs.

What we want to be

- A world's top runner in weaving, coating, and molding processing technologies
- A partner whom our customers consult with first
- A company that is comfortable and rewarding for employees
- An entity that is needed by society

Basic policy of the mid-term management plan

We aim to enhance our corporate value from business and financial perspectives by leveraging our human resources and addressing environmental and social issues.

[Human resource strategy] Personal and company growth

- Developing human resources to lead business and management
- Attracting and developing diverse human resources
- Creating comfortable and rewarding workplaces

[Business strategy] To enhance profitability

- To enhance businesses that contribute to the improvement of environmental and social issues
- To expand the scope of existing business
- To create new business opportunities

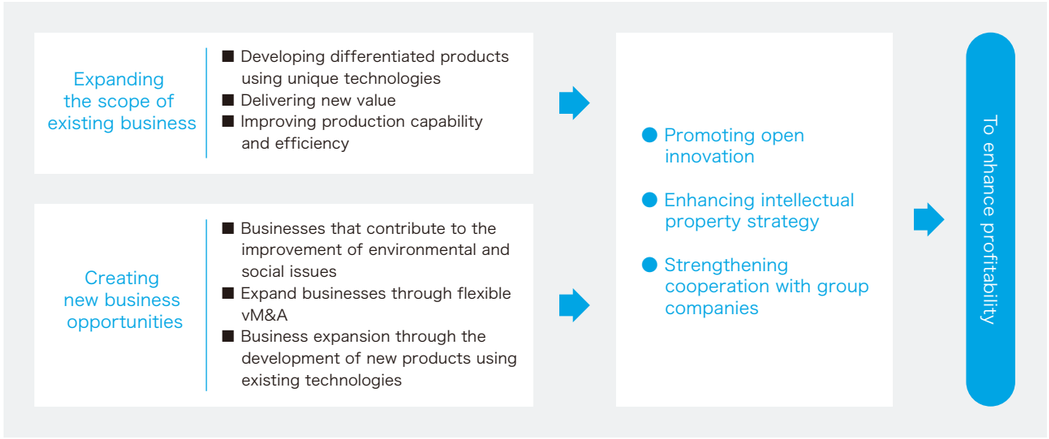
[Financial strategy] To improve capital efficiency

- To allocate funds for investment in growth
- To explore the optimal capital structure by leveraging

Maximization of corporate value

Business strategy

We enhance profitability through "expanding the scope of existing business" and "creating new businesses opportunities" and also develop differentiated products with a focus on fields with growth prospects.



Regarding the "Expanding the scope of existing business," we create opportunities to earn profits by developing and selling differentiated products with a focus on fields with growth prospects.

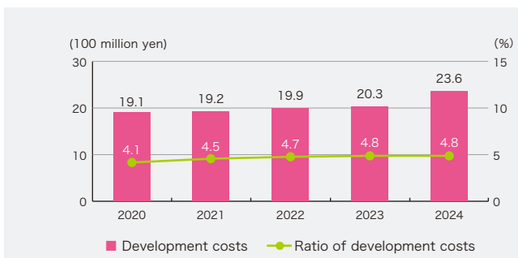
To realize the "creation of new business opportunities," we accelerate M&A and new product development. Whether to implement M&A or not relies the most on the existence of high profitability acquired through "a synergistic effect with our existing business and technology."

The target fields of differentiated products are information devices (contribution to IoT society), next-generation mobility (contribution to next-generation transportation aircraft), the next-generation energy (challenge to new energy), and Smart Wellness (contribution to the environment and human health). Working on the above helps improve social and environmental issues. Specific examples are as follows: (1) Electronic materials: Offering products that are compatible with new standards such as generative AI and fast communication, (2) Industrial structural materials and electrical insulating materials: Supplying materials for cells, including FCV and EV materials, reducing the weight of structural and mechanical parts, securing drinking water and plant water, and tapping into the hydrogen energy and nuclear fusion power generation fields, and (3) Display materials: Expanding the application of 3D displays into non-medical fields and addressing the advancement of AR/VR capabilities.

Investment to research and development

The Innovation Center serves as the hub for promoting research and technological development of differentiated products.

For research and development costs, we strengthen investments that lead to high-quality development outcomes, such as patent acquisition, rather than simply increasing the amount. While the ratio of research and development costs to sales was in the 4% range for FY2024, we plan to actively advance research and development investment in facilities, analytical equipment, and materials.



Mid-Term Management Plan

Differentiated products by business segment

Market	Business (segment)		
	Electronic materials	Industrial structural materials Electrical insulating materials	Display materials
Information device Contribution to IoT society	FPC materials for high-speed communications FPC materials for micro wiring FPC materials for foldable support Insulating film for semiconductor substrates	Glass cloth materials for high-speed communications	Transparent materials for graphic tablets
Next-generation mobility Contribution to next-generation transportation devices	FPC materials for high-heat dissipation and high-current support High-reflective materials for in-vehicle monitors	In-vehicle batteries-related materials High-output motor-related materials Lightweighting structural materials	In-vehicle screen materials
Next-generation energy Challenge for new energy	Hydrogen energy-related materials	Hydrogen energy-related materials Electricity storage-related materials Radiation-resistant insulating materials	Weather-resistant transparent materials
Smart wellness Contribution to environment and human wellness	FPC materials for medical devices	Materials for drinking water and industrial water treatment Materials for gas separation devices	Display materials for medical devices AR/VR-related materials

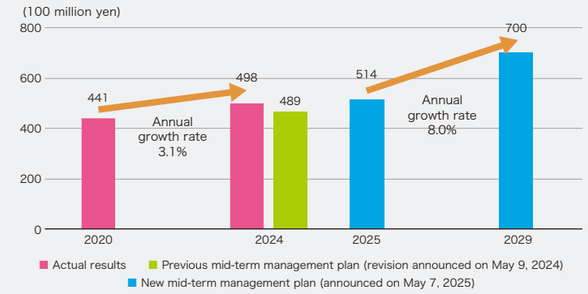
Results of the previous plan (2020 to 2024) and the new plan (2025 to 2029)

In FY2024, we achieved the ROIC of 6% targeted in the previous plan.

Business performance of electronic material segment, which is our main field, stagnated in FY2022 and FY2023 due to a decrease in demand in the Chinese market. However, the sales plan was achieved with the recovery of electronic materials performance starting from FY2024. Regarding display materials, the sales of 3D displays and polarized control optical components are growing due to an increase in demand from the medical field and exceeded the sales plan. Meanwhile, the sales target for industrial structural materials was not achieved as the performance of honeycomb sandwich panels and in-house materials was weak, even though the sales of FRP pressure vessels for water treatment showed steady growth due to the increased demand in the seawater desalination business.

Under our new mid-term management plan, we aim to achieve an ROIC of 8% or more and an ROE of 10% or more by FY2029. The business strategies for each segment are described in "Strategy by Segment" section (pages 41 onward).

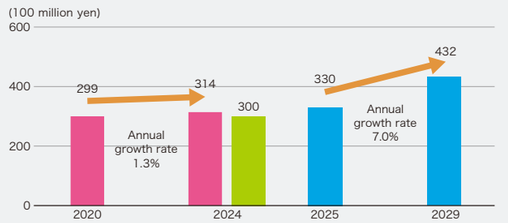
Overall sales



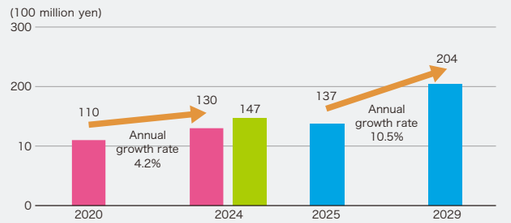
(100 million yen)	2020 (actual)	2024 (actual)	2024 (planned)	2025 (planned)	2029 (planned)
Sales	441	498	489	514	700 or more
Operating profit	31	48	32	45	85 or more
ROIC	4.2%	6.2%	6% or more	5.6%	8% or more
Net profit	21	39	22	32	60 or more
ROE	4.7%	8.4%		6.6%	10% or more

Sales by segment

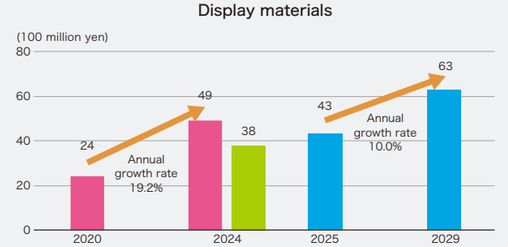
Electronic materials



Industrial structural materials / Electrical insulating materials



Display materials



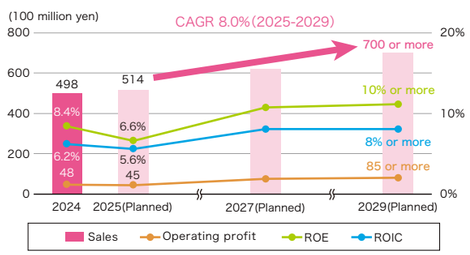
Financial Strategy

Summary of the previous mid-term management plan

Looking back on our mid-term management plan, which concluded in the fiscal year ended March 2025, we believe that particularly in the final year, our initiatives to date began to take shape and our organization operated in greater alignment, enabling us to demonstrate meaningful potential for future growth. Due to headwinds such as the downturn in the Chinese market triggered by the COVID-19 pandemic in 2020 and rising energy costs, we revised previous mid-term management plan downward from its initial targets. However, as the business environment improved in FY2024, our business performance recovered significantly and exceeding the revised plan. Net sales reached ¥49,815 million (up 18.3% year on year), and operating profit reached ¥4,893 million (a 3.3-fold increase year on year). Furthermore, we achieved our target ROIC of 6% (6.2% for the fiscal year ended March 2025).

New mid-term management plan

Under the new mid-term management plan, we aim to achieve net sales of ¥70 billion (up 40% compared with the fiscal year ended March 2025), operating profit of ¥8.5 billion (up 74% year on year), ROIC of 8%, and ROE of 10% by 2030, centered on "expanding the scope of existing business" and "creating new business opportunities." By leveraging our unique strength—the integration of the three technologies of "weaving," "coating," and "molding,"—we will strengthen product development in areas inaccessible to competitors, while expanding sales and improving profitability.



Investment strategy

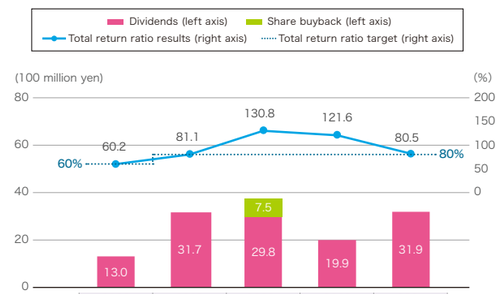
To pursue high-growth areas while factoring in risks, we make investment decisions based on an ROIC benchmark of 8%, focusing primarily on investments that carefully evaluate market potential and customer needs. With the completion of the Innovation Center, we believe that we will be able to further strengthen our co-creative initiatives with customers. We aim to grow not merely as a contract manufacturing company, but as a value-added partner that can proactively propose solutions tailored to our customers' needs. In our core electronic materials business, we will pursue capacity expansion in addition to improving the efficiency of existing production lines. We will allocate the stable cash flow generated from the growth of our core businesses to investments in new businesses and research and development, thereby strengthening our mid- to long-term growth foundation.

Financial policy and return to shareholders

We aim to maximize corporate value over the mid- to long-term by prioritizing a balance between growth investments and shareholder returns. With respect to growth investments, we execute them in a timely manner, utilizing funds generated from our businesses and borrowings as necessary to enhance corporate value.

We believe that M&A is an effective means of reducing time required to enter new business fields and markets. Accordingly, when we determine it to be necessary for deepening our existing business domains or expanding into new business areas, we intend to pursue M&A proactively.

We have changed return to shareholders to whichever is greater between a "DOE of 6%" or a "total return ratio of 80% or more" and continue to actively conduct return to shareholders. The equity ratio at the end of March 2025 was 67.7%. As total assets gradually increase due to business expansion, we have set a near-term target of curbing the growth of equity and reducing the equity ratio to approximately 50%.



	2020	2021	2022	2023	2024
Stock price (yen/share)*	1,000	957	1,254	1,137	1,384
Dividends (yen/share)	39	95	90	60	96

*Closing price at the end of each fiscal year

Aiming for further growth and corporate value improvement

Under the mid-term management plan for FY2020 to 2024, we have made growth investments to build a solid revenue base by strengthening profitability, while converting non-business assets into business assets and enhancing return to shareholders.

In May 2025, we formulated and announced a new mid-term management plan covering up to FY2029. The key aspects of the financial strategy for this plan are described below.

Results for FY2020 to 2024

- Non-business assets: 16 billion yen from sales of securities
  →Business assets: 14.3 billion yen of capital expenditure
- Enhanced return to shareholders: Introduced the benchmark of 6% of DOE in 2024
  (in addition to a total return ratio of 80% or more)

Initiatives for FY2025 to 2029

- Invest in growth businesses that generate future cash flows
- Explore capital structure optimization and improve capital efficiency

Investment for growth	Shareholder returns	Capital structure
■ Capital expenditure To expand the scope of existing business To create new business opportunities ■ M&A Synergistic effect with the strengths of existing business fields Expanding into new fields	■ Greater of either DOE of 6% or total return ratio of 80% or more ■ Flexible acquisition of treasury stock	■ Equity ratio 50% ■ Use of interest-bearing liabilities (both direct and indirect finances)

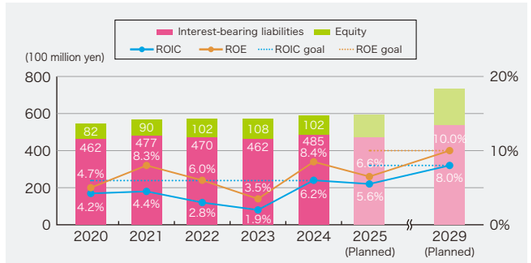
Improvement in capital efficiency

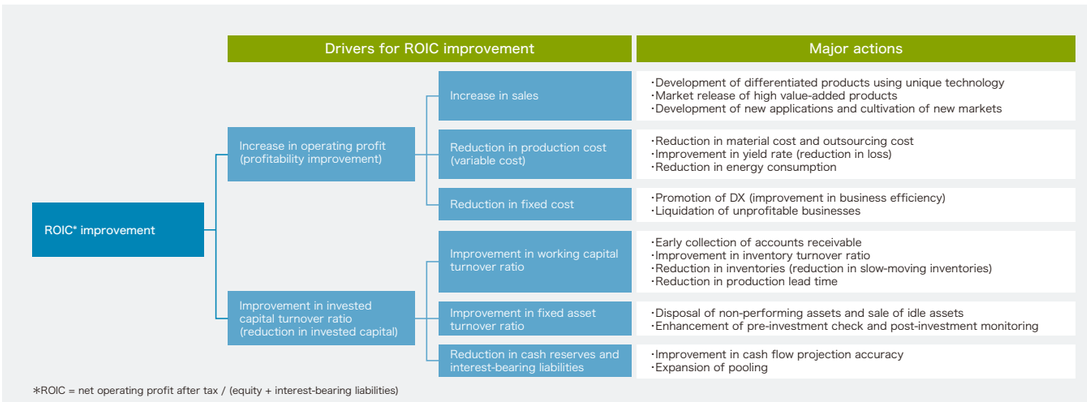
Integrated offensive and defensive business management through ROIC-based management

To promote management that is conscious of capital costs and corporate value, we have adopted ROIC as a key financial KPI since FY2020.

In response to changes in the business environment and evolving expectations from stakeholders, we set a target of 8% or more (by the end of FY2029) in our mid-term management plan formulated in FY2025. To improve profitability over the long term, we will advance initiatives based on the ROIC tree.

In addition, we use ROIC not only as a management KPI but also as a decision-making tool for capital investment, including investments in facilities.



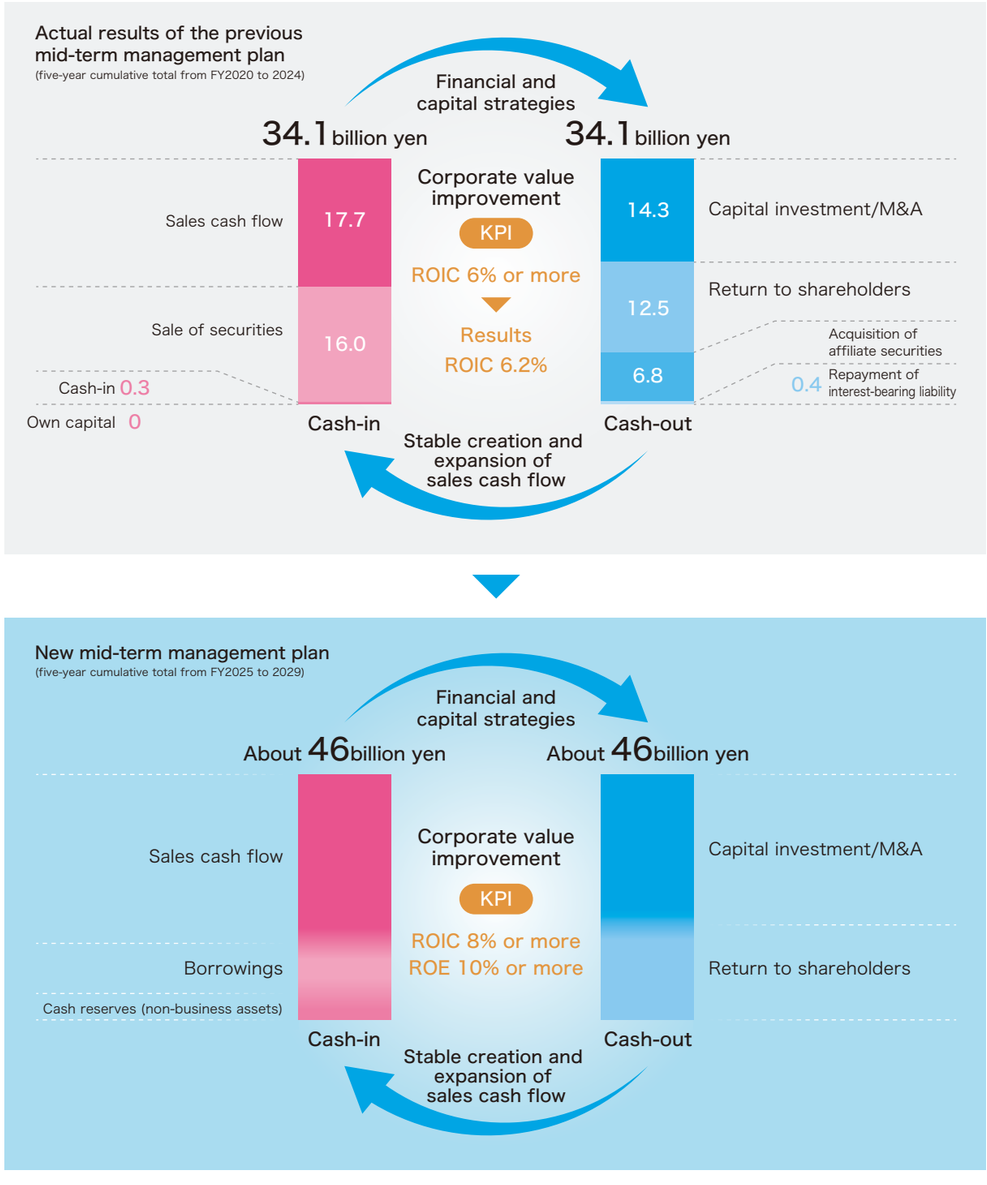


*ROIC = net operating profit after tax / (equity + interest-bearing liabilities)

Financial Strategy

Cash allocation

To enhance our corporate value, we allocate the capital generated from our business to investments and dividends, while ensuring financial stability. From FY2025 to 2029, we will invest in increasing production capacity and commercializing and mass-producing new products utilizing means such as interest-bearing liabilities, while actively and continuously returning value to our shareholders. We will also allocate cash effectively based on investment opportunities to strengthen our human capital and intellectual capital.

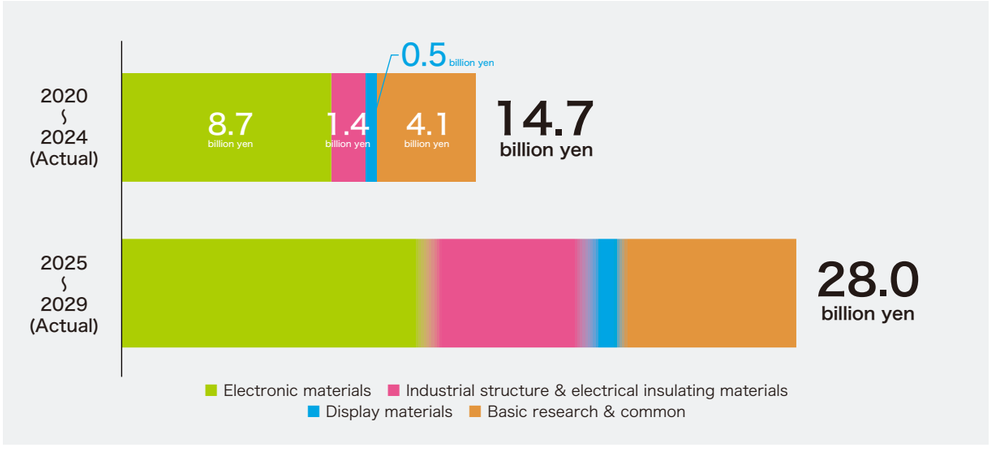


Investment for growth

We allocate our funds to production capital expenditure to support expanding the scope of existing businesses and growth investment to create new business opportunities. We also spend capital on quality improvement, research and development, human resource development, and digitization to aim at strengthening the business foundation. Achieving continuous growth while maintaining our competitive advantages through these activities will lead to a virtuous cycle that allows reinvestment for further growth of our group.

We have invested from a mid- to long-term perspective. Under the mid-term management plan through FY2025, we have steadily advanced research and development investments, exemplified by the construction of the Innovation Center, which opened in September 2025. Over the five-year period starting in FY2026, we plan to expand production capacity for insulating films used in semiconductor substrates in the electronic materials segment, as well as to introduce mass-production facilities for new businesses in the industrial structural materials and electrical insulating materials segment. The actual and planned capital expenditures are shown below.

Capital investment to expand businesses and promote development (by division)



Details of planned capital investment from FY2025 to FY2029 (by objective)

Planned (May 2025)

Increase in production capability

15billion yen >
- Production facilities for insulating films for semiconductor substrates (expanding the scope of existing business)
- Production facilities for new industrial structural materials business (creating new business opportunities)

New product development

6billion yen >
- Innovation Center (establishment of an open innovation base)
- Testing facilities (expanding the scope of existing business and creating new business opportunities)

Improvement in the production process

2billion yen >
- A waste heat recovery system and onsite solar energy generation (promotion of carbon neutrality)
- A production management system and security measures (promotion of DX)

Building and facility maintenance

5billion yen

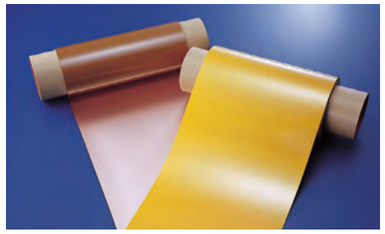
Businesses / Outline of Each Segment

Our group offers various products by leveraging our excellent processing technologies and centralized production system.

Electronic Materials

P41-42

This is our group's main business, which accounts for more than 60 percent of our consolidated sales. There are production sites in Japan, Taiwan, and China. This business contributes to the growth of society mainly in the information device field.

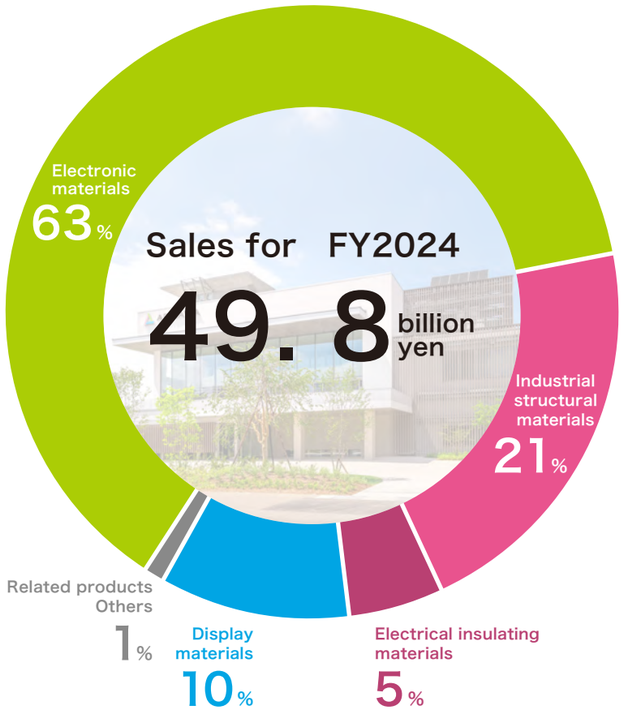


Sales and proportion of major products

Sales
31.5 billion yen

Sales breakdown in the segment

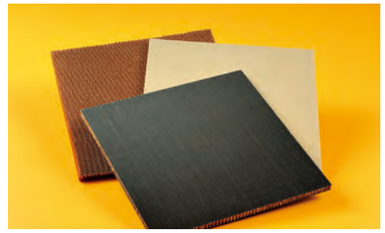
Materials for flexible printed circuit boards & semiconductor-related materials	88%
Glass cloths for printed circuit boards & prepregs for rigid printed circuit boards	6%
Rigid printed circuit boards	6%



Industrial Structural Materials

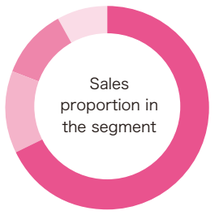
P43-44

This is the second pillar of our group's business. There are production sites in Japan, Spain, and the U.S. This business contributes to society by offering materials to improve fuel efficiency for aircraft and vehicles and produce new energy and clean water.



Sales and proportion of major products

Sales
10.6 billion yen



Sales breakdown in the segment

FRP pressure vessels for water treatment	68%
In-vehicle materials	13%
Honeycomb sandwich panels for aircraft	11%
Others	8%

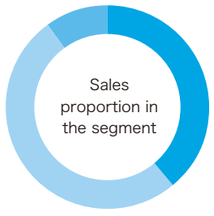
Display Materials

P45-46

These products are among the most widely recognized by the general public within our portfolio. Through the provision of materials for medical and amusement applications, this business contributes to the development of a richer quality of life.

Sales and proportion of major products

Sales
4.9 billion yen



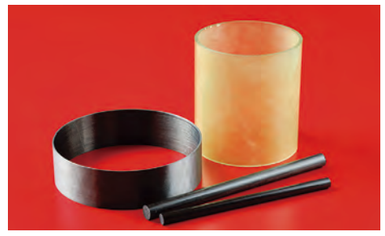
Sales breakdown in the segment

Polarization control optical components	39%
3D display-related materials	51%
Others	10%

Electrical Insulating Materials

P43-44

These products have a long history. By providing insulating and heat-dissipation materials for generators and other applications, this business contributes to the creation of a more livable society.



Sales and proportion of major products

Sales
2.5 billion yen

Sales breakdown in the segment

Prepregs for electrical insulation	38%
Glass cloths & glass tapes	27%
Others	35%

Related products & others

Our related products and other businesses include pultrusion molding, golf driving range operation, and logistics and transport.

Sales Strategy

Accelerating the development of the "Visible" and uncovering the "Invisible"

The Innovation Center, a new base for research and development, held its opening ceremony on September 2 and is now fully operational. As an officer in charge of sales, I expect the Innovation Center to serve as an engine accelerating the development of the "Visible" and as a platform for uncovering the "Invisible." Specifically, we accelerate the development of our existing core fields: electronic materials and industrial structural materials (Visible), achieving the numerical targets of the mid-term management plan. On the other hand, we believe that uncovering the "Invisible" serves as a catalyst for identifying new customers and technological development with which we have not previously had points of contact. For the small experimental coating machine "ai-coater," which commenced operation prior to the Innovation Center, we are already beginning to see the benefits anticipated from the Innovation Center: launch of new material development with existing customers and initiation of engagement with potential customers.

Improving development efficiency

We believe that the defining characteristic of the Innovation Center lies in its practical, hands-on approach. Positioned as a platform for advancing new product development not only internally but also in collaboration with our customers, the Innovation Center enables us and our customers to work with actual products and share a tangible sense of development progress in real time. We believe this enables smoother communication between both parties and accelerates the development process.

Collaboration from development through production and sales

While the Innovation Center naturally serves as a hub for development, we believe its role extends beyond that. It also functions as a key base for production technology development, focusing on how to smoothly transition developed products into the production phase and how to scale them up for mass production. While we excel in high-mix, low-volume production, achieving our medium-term management plan also requires improving production technologies for mass-produced items with larger lot sizes.

With the establishment of the Innovation Center, we believe the role expected of our sales function is to uncover the "Invisible"—namely, to identify potential customers in new fields with which we have not previously had points of contact. To achieve this, sales representatives need to develop a deeper understanding of our assets including such as products and technologies, than ever before. In addition, we believe that access to information that enables the early identification of future needs is essential. We are confident that when sales representatives equipped with such knowledge and information conduct their activities with a stronger marketing mindset and engage with a broader range of customers, they will be able to uncover new seeds for development.

Looking ahead, we expect the Innovation Center to foster interaction among members from development, production, sales, and other functions beyond departmental boundaries. As cross-functional collaboration is strengthened, we believe this will further energize the organization.

Collaboration with customers

We operate two business models: OEM and proprietary products. Even in the early stages of OEM product development, we have a strong foundation for co-creating products with our customers by incorporating our own proposals. OEM projects are typically driven by clearly defined objectives, and we work closely with customers to achieve those goals. At the same time, the introduction of the "ai-coater" has expanded our potential to jointly develop products with customers even at an exploratory stage, where applications and objectives have yet to be fully defined. Furthermore, with the Innovation Center now in operation, we expect to jointly develop products with our customers have the potential to evolve into high value-added offerings, thereby promoting the sharing of intellectual property and know-how. We expect the Innovation Center to serve as a "hub" that strengthens our connections with customers and further expands business fields.

Development Strategy

Expectations for the Innovation Center

We aim to position the Innovation Center as a platform that enables the integration of people and technology, where diverse stakeholders—including our customers—can interact beyond organizational boundaries. While many companies emphasize collaboration with external partners in open innovation, we believe that fostering internal interaction and integration is equally important. The laboratories at the Innovation Center are designed to be shared across departments. By eliminating physical barriers, the layout makes work in other departments visible and creates an environment where people can naturally initiate conversations.

It has been about two years since the technical division transitioned to an organizational structure that encourages cross-functional interaction among members, and the positive effects of this change are now beginning to emerge. In particular, a sense that "working together leads to better results" is taking root among younger employees, fostering a strong foundation for collaboration. With the Innovation Center in operation, we expect this initiative to lead to a company-wide shift in mindset, involving not only our customers but also the sales, manufacturing, and other divisions.

Sharing tacit knowledge and managing intellectual properties

While tacit knowledge is one of our strengths, our knowledge and skills have tended to rely on individuals," making knowledge sharing a key challenge. We are gradually systematizing and documenting the know-how that has traditionally depended on individuals, clearly distinguishing between knowledge that should remain closed and protected and knowledge that should be shared through co-creation with our customers. Going forward, we will also actively promote the acquisition of patents. The Innovation Center, which promotes human interaction, also plays an important role in this regard. Furthermore, we will refine our incentive system for patent acquisition to better motivate researchers.

In addition, to draw out experiential knowledge from the manufacturing floor, we will establish a framework that uses the Center as a hub to enhance on-site capabilities and promote the sharing of insights. This is because establishing a "bridge from research and development to mass production" is essential to nurturing new businesses. By creating a shared platform through the Innovation Center, we expect to foster more active dialogue and collaboration between the technology and manufacturing divisions. In particular, we believe that introducing new equipment and processing methods will broaden perspectives across manufacturing operations, enabling development and production beyond existing frameworks.

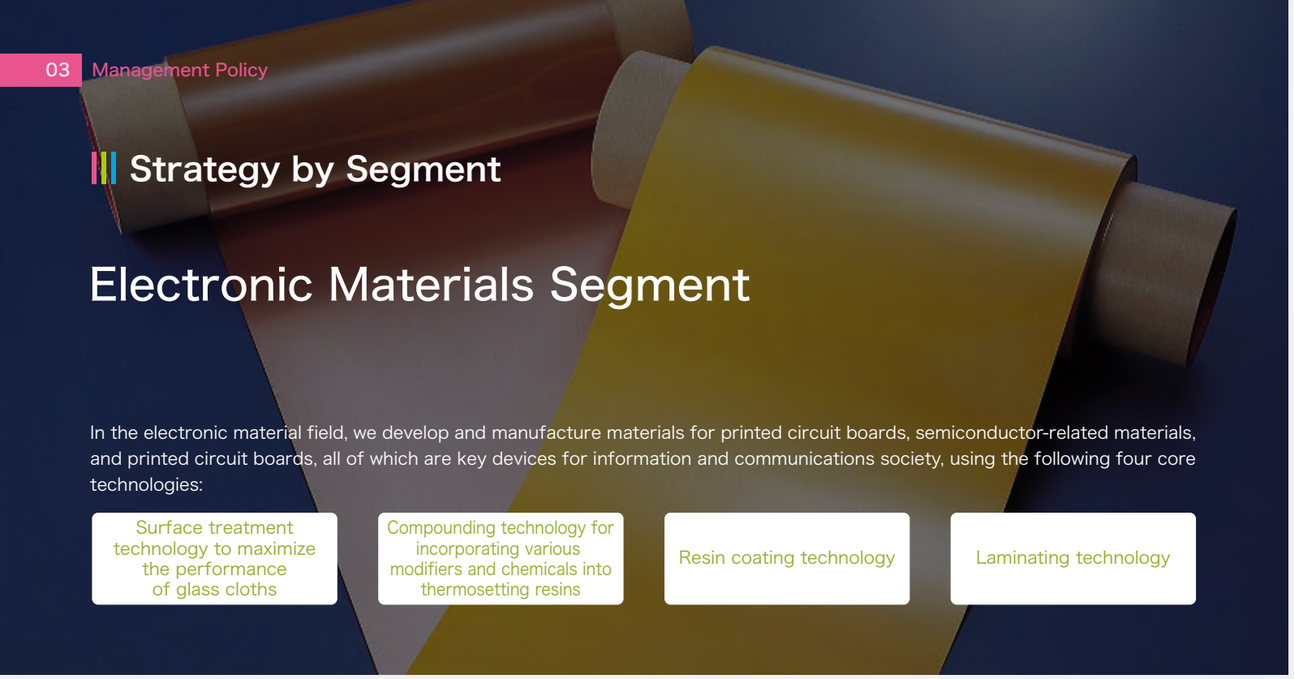
Proposal-driven development approach

Our OEM approach goes beyond a conventional contract-based model of "doing exactly what is requested." Our strength lies in combine our own materials and technologies to propose solutions that exceed our customers' expectations, positioning us as a "proposal-driven OEM manufacturer." By integrating four core technologies— "weaving," "coating," "molding," and "combining"— we can support a wide range of processing needs. This enables us to proactively engage in overcoming the challenges faced by our customers, building strong relationships of trust.

A platform that enables the integration of people and technology

New business and future growth areas

New businesses, which serve as a growth driver under our mid-term management plan, targets fields such as next-generation batteries; fuel cells and hydrogen energy-related technologies; next-generation computing, including AI and GPUs; and mobility, encompassing automobiles, aircraft, and rail vehicles. We anticipate that businesses in these fields will enter a full-scale phase and begin to make a significant contribution to our performance from the next mid-term management plan period onward. Accordingly, we position them as key business fields that will drive our future growth and focus our efforts on them. We aim for the Innovation Center to function not merely as a "technology hub" but as a mechanism that promotes the integration of organizational culture and talent, ultimately becoming a foundation that supports our growth over the next 100 years.



Strategy by Segment

Electronic Materials Segment

In the electronic material field, we develop and manufacture materials for printed circuit boards, semiconductor-related materials, and printed circuit boards, all of which are key devices for information and communications society, using the following four core technologies:

- Surface treatment technology to maximize the performance of glass cloths
- Compounding technology for incorporating various modifiers and chemicals into thermosetting resins
- Resin coating technology
- Laminating technology

Our group's products range from prepregs for rigid printed circuit boards to materials for flexible printed circuit boards (FPC). Especially, our materials for flexible printed circuit boards have gained acclaim for their production process with excellence in flexibility, anti-migration property, and heat resistance at high temperatures and ultra-narrow gaps. With the deep trust of customers, we have retained our position as one of the top manufacturers specializing in electronic materials.

Business locations

[Arisawa]
(Nakadahara Factory, Nakadahara-nishi Factory, Minami-honcho Factory)
Materials for flexible printed circuit boards, prepregs for rigid printed circuit boards, & semiconductor-related materials

[Arisawa Fiber Glass]
Glass cloths for printed circuit boards

[Satosen]
Rigid printed circuit boards

Overseas offices

[ThinFlex] (Taiwan)
Materials for flexible printed circuit boards

[TopFlex] (China)
Materials for flexible printed circuit boards

Analysis of the present situations

SWOT analysis based on the present business environment is shown below:

S Strengths	W Weaknesses
・Design flexibility with in-house resin compounding technology ・Support for various types of processing using equipment	・Lower production efficiency due to the production of many models in small quantities ・An excessive number of inspectors required to maintain quality
O Opportunities	**T Threats**
・Differentiated products with high functionality and high quality ・Flexible proposals, selected from a variety of products	・Low-price strategy of overseas competitors ・Slowdown in demand growth for PCs, tablets, and smartphones

Business environment

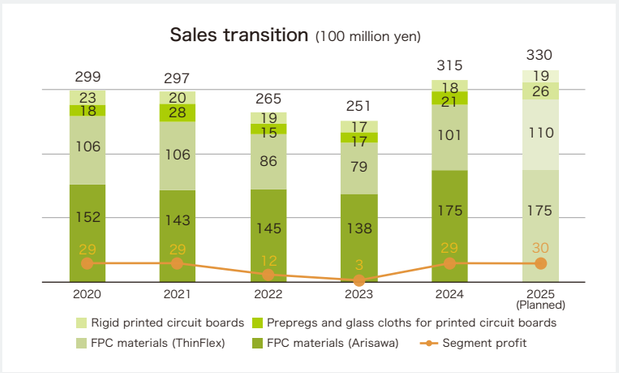
Electronic devices, such as smartphones, are becoming more highly functional, and electronic circuits have a higher circuit density through refining, accordingly.

The proliferation of generative AI and the advancement of mobility electrification are growing needs for materials supporting fast transmission, high heat dissipation, high heat resistance, and large current in a wide range of application areas, from home appliances to in-vehicle parts, and we work on developing highly functional products in response to these needs.

Business strategy

To enhance profitability according to the mid-term management plan, we work on "expanding the scope of existing business" and "creating new business opportunities."

For electronic materials, we aim to pursue growth by developing high-performance materials through in-house resin compounding and coating technologies. As our main business fields, we will develop new products and expand our business, focusing on semiconductors/data centers, mobile communication devices, next-generation computing, and next-generation mobility fields. Furthermore, we will explore new areas such as hydrogen energy and medical devices.



Business summary for FY2024 and measures and outlook for FY2025

Demand for PCs and smartphones in the Chinese market, which has declined since the latter half of FY2022, has finally recovered. As a result, the sales of materials for flexible printed circuit boards, semiconductor materials, glass cloths for printed circuit boards, and printed circuit boards for FY2024 have increased from the previous year.

For this segment, we are advancing the development of differentiated products in the mobile communications, semiconductor, and mobility markets. The adoption of our materials has expanded in fields such as foldable materials, extra-fine line boards, and faster communication boards.

For FY2025, we anticipate steady demand in the mobile communications and semiconductor fields. Accordingly, we expect increased sales of materials for flexible printed circuit boards and glass cloths for printed circuit boards.

In the mobile communications field, we aim to expand our market share by accelerating the design and launch of differentiated products, including thin film, fine wire, fast transmission, high flexibility, high heat dissipation, high heat resistance, and time-saving products. Furthermore, by collaborating with ThinFlex and TopFlex, we seek to provide efficient customer support and capture business opportunities in high-growth areas.

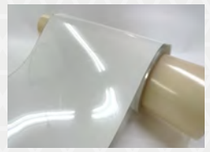
In the semiconductor and mobility fields, we aim, based on partner strategies, to capture and expand business opportunities for high-value-added products in high-growth areas such as high-end mobile, semiconductor packaging, next-generation mobility, generative AI, and satellite-related technologies.

Specific measures	
Existing business fields	Exploring growth-driving businesses ■ Semiconductor/data center Enhancing the production capacity, strengthening the business foundation through collaboration with group companies Strengthening quality of core business ■ Mobile communication devices Capturing the growth in demand in China and other Asian markets through unique and differentiated products
New business field	Commercialization of target fields ■ Next-generation computing Selling products that address the expanding generative AI markets/high-speed communication/larger capacities ■ Next-generation mobility Developing highly reliable products that meet the needs of high-current support and high-heat dissipation performance, etc.

TOPICS

Mass production of energy-saving adhesive sheets has begun!

We are advancing the development of products that require less processing energy. In recent years, heat press processing has shifted from the multi-stage press method—which consumes large amounts of energy through prolonged pressure and heating—to the quick press method, in which each sheet is pressed for a short period of time. By leveraging our unique compounding technology, we have developed an adhesive sheet that cuts the quick press time by 50% compared with conventional methods, significantly enhancing our customers' production efficiency.



Enhanced functionality of our small experimental coating machine (ai-coater)!

To promote open innovation, we have begun joint development projects with customers across a wide range of fields using our small experimental coating machine. Previously, only one type of coater head—used to apply resin to substrates—was available. However, in FY2024, we added two additional types of coater heads significantly expanding the machine's functionality. This enhancement enables the selection of coater heads based on the properties of the resin to be applied and the required coating thickness, allowing coating under a wider range of conditions than was previously possible.

Strategy by Segment

Industrial Structural Materials and Electrical Insulating Materials Segment

In the industrial structural material and electrical insulating material fields, we pursue FRP (fiber reinforced plastic) molding technology based on our core technologies of weaving and resin impregnation technology. FRP molded products are made by laminating prepregs, which are semi-cured through the impregnation of resin into the fiber, turning them into a desired shape, and applying heat and pressure to it.

Using glass fiber with insulation capability and heat resistance and carbon fiber with lightweight, high strength, and a high module of elasticity as main materials and leveraging FRP-specific anisotropy generated by the orientation (alignment) of fiber, we can optimize mechanical and thermal properties of FRP materials to meet our customers' requirements. With these characteristics, they are used in electrical insulating materials for such devices as generators and motors, materials for aircraft interiors, primary structural materials, general industrial structural materials, materials in the in-vehicle and new energy fields, and materials for sports equipment.

Business locations

[Arisawa] (Nakadahara Factory & Minami-honcho Factory)

FRP pressure vessels for water treatment (filament winding molded products), honeycomb sandwich panels for aircraft, prepregs, prepregs for electrical insulation)

[Arisawa Fiber Glass]
Glass cloths, glass tapes, special fiber woven products

[Arisawa Sogyo]
FRP (pultrusion moldings), prepregs

[Arisawa Jushi Kogyo]
FRP

Overseas offices

[Protec Arisawa Europe, S.A.] (Spain)
[Protec Arisawa America, Inc.] (U.S.)
FRP pressure vessels for water treatment (filament winding molded products)

Analysis of the present situations

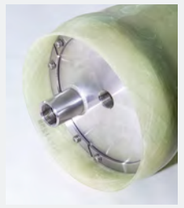
SWOT analysis based on the present business environment is shown below:

S Strengths	W Weaknesses
・Consistent development and manufacturing through the integration of core technologies of "weaving," "coating," and "molding" ・Flexible new resin formulation and improvement	・Easily affected by market changes due to many types of limited products sold to specific customers ・Lower production efficiency due to the production of many models in small quantities ・Human resource development is built on long-term experience
O Opportunities	**T Threats**
・Demand recovery in the aerospace sector ・Entry into markets requiring high heat resistance, high pressure resistance, and gas resistance	・Cost competition with domestic and overseas competitors ・Cost competition with alternative materials (metal, ceramic, etc.)

Business environment

Amid the shift to a decarbonized society, enhanced battery performance for FCVs/EVs and weight reduction to improve fuel efficiency in various transportation methods, including aircraft, are increasingly required. There is also a growing demand for new energy sources that replace fossil fuels.

In the smart wellness field, demand is also increasing for products used in water treatment (including seawater desalination) and gas separation applications. In response, our group is advancing the development of high-performance products to meet these needs.

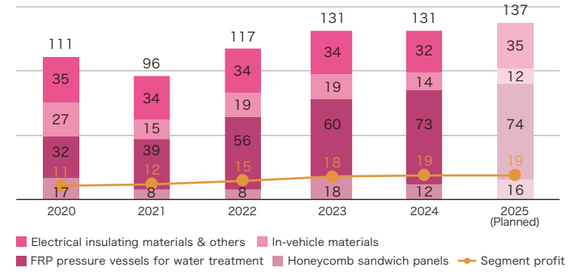


Business strategy

To enhance profitability according to the mid-term management plan, we work on "expanding the scope of existing business" and "creating new business opportunities."

For industrial structural materials and electrical insulating materials, we accelerate commercialization of products in mobility and energy business fields by launching differentiated products. To achieve further growth, we expand the scope and enhance the quality of existing businesses—such as FRP pressure vessels for water treatment, fuel cells, and materials for aircraft interiors—while advancing the development of environmentally friendly applications, including next-generation batteries/hydrogen energy and gas separation materials.

Sales transition (100 million yen)



Business summary for FY2024 and measures and outlook for FY2025

While the demand for FRP pressure vessels for water treatment showed steady, the sales of industrial structural materials for FY2024 decreased from the previous year because performance of honeycomb sandwich panels for aircraft interiors and in-vehicle materials was weak. The sales of electrical insulating materials for infrastructure are stably solid.

FRP pressure vessels for water treatment saw an increase in sales due to the technical support to Protec and continue to be considered for application to gas separation devices. Regarding in-vehicle materials, we deepened the relationship of trust with customers and developed differentiated products in next-generation batteries and hydrogen energy fields.

For FY2025 as well, it is expected that there will be continued strong demand in the water treatment field. While the demand for honeycomb sandwich panels for aircraft interiors is gradually recovering, we anticipate that our existing in-vehicle materials (special titanium foil coatings) remain in an adjustment phase.

By continuing to produce differentiated products through the expansion of application of our materials into new fields, such as deploying filament winding technology to other fields than water treatment, enhancing added value in the aerospace sector, and creating new opportunities of in-vehicle materials, we will boost competitiveness.

To reduce the impact on the environment, we will develop environmentally friendly materials in the aerospace sector and materials and processes for next-generation batteries and hydrogen energy-related materials in the mobility and infrastructure fields.

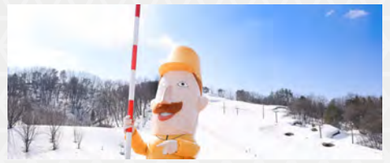
	Specific measures	
Existing business fields	Exploring growth-driving businesses ■ Water treatment plant Strengthening profitability and expanding business by taking full advantage of the group company's network	
	Strengthening quality of core business ■ Fuel cells Developing materials for next-generation batteries and promoting salesa	■ Materials for aircraft interiors Promoting sales of newly developed products such as environmentally friendly interior materials
New business field	Commercialization of target fields ■ Next-generation batteries/hydrogen energy Developing high-performance and high-durability materials	■ Environmentally friendly products Developing material for gas separation devices

TOPICS

The reflective snow pole "Lerch" continues to receive the "Made in Joetsu*" industrial product certification!

"Our snow poles are made of FRP, making them lighter and rust-free compared with conventional steel products. In recent years, rising steel prices combined with our ongoing efforts to reduce manufacturing costs have further enhanced the competitiveness of our products. In addition, we are actively engaged in development initiatives aimed at reducing environmental impact, including reuse and recycling. In addition, we are actively engaged in development initiatives aimed at reducing environmental impact, including reuse and recycling. Our goal is to ultimately replace all snow poles in the market with our own products." (Message from Yamagishi)

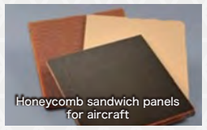
Yusuke Yamagishi
Group Leader, Sales Department, Arisawa Sogyo



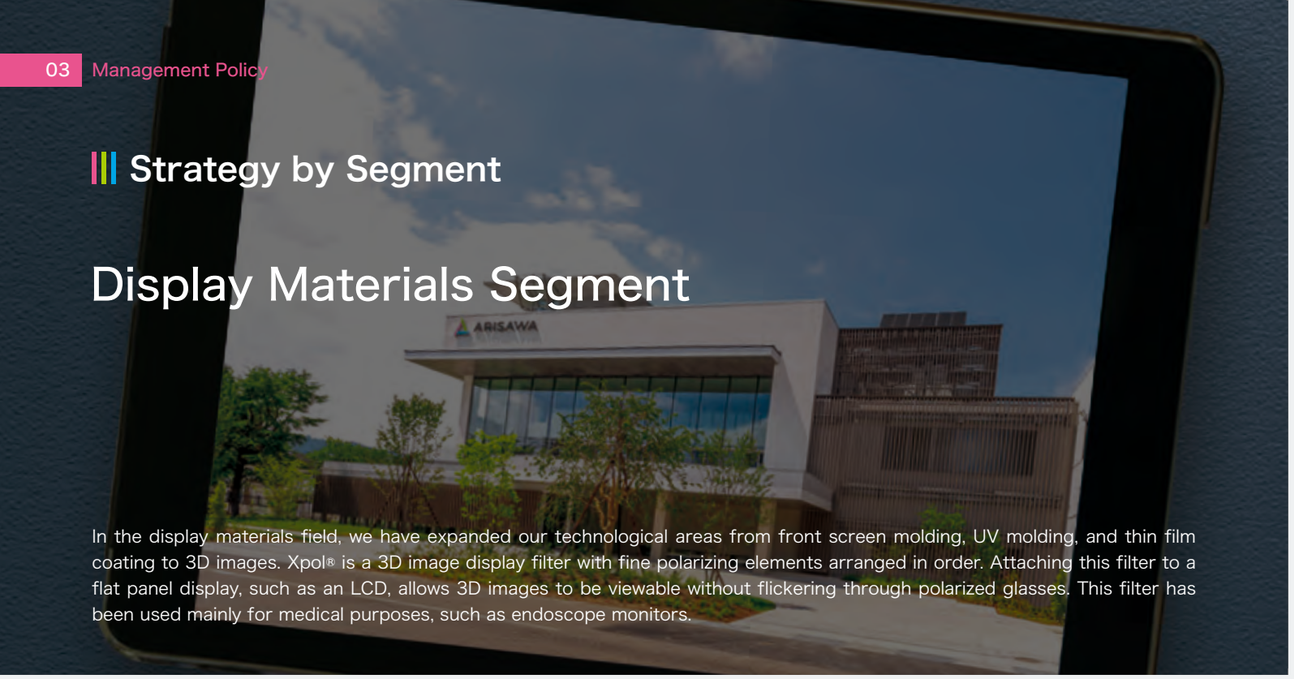
*A certification program operated by Joetsu City that recognizes products developed by companies with operations in the city based on their novelty, originality, reliability, and market potential.

Initiation of sample work on honeycomb sandwich panels using environmentally friendly formulations!

Halogen-based and antimony-based compounds are widely used as flame retardants in prepregs for aircraft honeycomb sandwich panels. In recent years, international requirements for reducing environmentally hazardous substances and for the management and regulation of hazardous materials have intensified, increasing the need for designs that avoid the use of such compounds. By leveraging our expertise in resin formulation technology, we have developed environmentally friendly, halogen- and antimony-free prepregs and honeycomb sandwich panels. Compared with our existing products, these materials achieve both sufficient flame resistance and high mechanical performance.


Honeycomb sandwich panels for aircraft


Example of use in an aircraft galley



Strategy by Segment

Display Materials Segment

In the display materials field, we have expanded our technological areas from front screen molding, UV molding, and thin film coating to 3D images. Xpol® is a 3D image display filter with fine polarizing elements arranged in order. Attaching this filter to a flat panel display, such as an LCD, allows 3D images to be viewable without flickering through polarized glasses. This filter has been used mainly for medical purposes, such as endoscope monitors.

We have developed an optical retardation element (wave plate) that can be a phase difference plate using a photo-alignment layer and a polymerizable liquid crystal and offered it as a product. We not only offer optical materials but also add a bit of contrivance to them to gain the trust of customers. One such example is lamination processing. Our advanced lamination technology has been developed through the experience of handling a wide range of optical materials and has been highly acclaimed. By reconsidering the properties of "light," we will work on further product development.

Business locations

[Arisawa]
(Nakadahara-nishi Factory)
3D display-related materials

[ColorLink Japan]
Polarization control optical components

Analysis of the present situations

SWOT analysis based on the present business environment is shown below:

S Strengths	W Weaknesses
・Xpol® brand value ・In-house 3D optical design ・Mass production factories available for in-house core processing ・Flexibility for the production of many models in small quantities	・Energy costs required to operate mass production facilities (a higher processing cost percentage) ・A lower level of compounding technology than molding technology
O Opportunities	**T Threats**
・Growth opportunities in the Asian markets ・Expansion of minimally-invasive treatment to the medical field ・Expansion of remote surgeries driven by a shortage of doctors	・Emergence of different types of 3D displays ・Cost competition with overseas competitors

Business environment

Under circumstances where a shortage of doctors and the concentration of population in urban areas have occurred, the spread of fast communications allows remote surgeries and robotic arm surgeries, hopefully reducing the workload on doctors. The demand for displays is also expected to rise in the education field due to the progress of digitization. Furthermore, in the industrial and scientific research fields, projects using polarization control optical components are expected to increase, and we are advancing the development of high-performance products capable of meeting these needs.

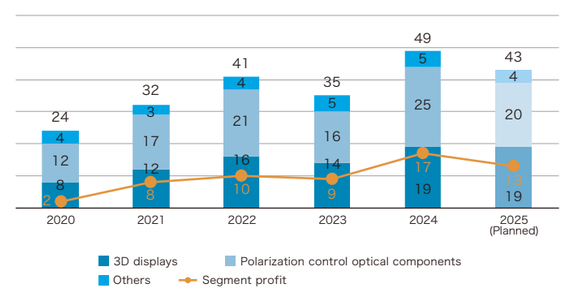
Business strategy

To enhance profitability according to the mid-term management plan, we work on "expanding the scope of existing business" and "creating new business opportunities."

Display materials contribute to further advancement of the digital society through the development of new products. Regarding 3D displays, we aim to expand the sales channels in the medical field requiring higher-definition products and pursue expansion into infrastructure applications.

As for polarization control optical components, we will expand the sales of new products utilizing our unique technologies, such as improving the quality in the next-generation computing field and creating new businesses in the space observation field.

Sales transition (100 million yen)



Business summary for FY2024 and measures and outlook for FY2025

Due to steady growth in the sales of 3D-related materials and ColorLink Japan's sales of polarization control optical components, the total sales for FY2024 increased from the previous year.

Regarding 3D-related materials, we are working on reducing costs through process improvement and expanding their application to non-medical purposes. As for the application expansion, we narrowed down the target fields and continues promotion to customers using demonstration content. We work to expand the business of polarization control optical components into the AR/VR field.

In FY2025, we aim to continue growth through the expansion of our businesses, mainly Xpol®, and the development and sales of new products. For 3D displays, we anticipate demand in the medical field for higher-contrast technologies, such as 8K and OLED, driven by the development of high-speed infrastructure and improvements in medical peripheral device performance. Therefore, we will focus on advancing our design and processing technologies.

Revenue from polarization control optical components is expected to decrease year on year, taking into account the impact of exchange rates. By improving the image quality of AR/VR-related products, we aim to expand our market share in the gaming and high-end markets.

Furthermore, we strengthen our competitiveness by offering differentiated products such as PSA (Pressure Sensitive Adhesive) sheets and establishing global linkage with our customers.

Specific measures	
Existing business fields	Exploring growth-driving businesses ■ Industrial infrastructure Newly developing for infrastructure applications such as mobility, construction equipment and heavy machinery Strengthening quality of core business ■ Medical devices Promoting sales in the Chinese and Asian markets, exploring new markets for larger and higher resolution products
New business field	Commercialization of target fields ■ Next-generation computing Developing new products and obtaining new market share for AR/VR-related materials

TOPICS

Expanded lineup of large, high-resolution medical 3D monitors!

3D displays featuring our optical element, Xpol®, have seen steady adoption in the medical field, driven by the recent transition to high-resolution 4K displays. In addition to the 32-inch model, which is widely used for endoscopic surgery, we have developed 4K 3D displays in sizes up to 55 inches and have begun mass production to meet growing demand for larger displays suitable for microsurgical applications.

Optical compensator adopted for reflective LCDs!

ColorLink Japan's PolarCorrect is an optical compensator designed to correct residual phase retardation inherent in LCD panels. It is primarily used to enhance contrast in the optical systems of LCOS (Liquid Crystal on Silicon) and HTPS (High-Temperature Polycrystalline Silicon) projectors.

Polar Correct has now been adopted for AR glasses utilizing LCOS technology, and mass production has commenced.

Optical compensator-ColorLink Japan, Ltd.
https://www.colorlink.co.jp/products/compensator/