

Businesses

Mobility & Imaging Business Unit

For automotive safety components, amid the expected growth of inflators centered on China and ASEAN, we will focus on new applications of dye-type polarizers as shades for head-up displays.

Member of the Board Managing Director, In charge of Mobility & Imaging Business Unit, Head of Safety Systems Group



Shigeyuki Kawamura



Business Overview for FY2023

Net Sales

Safety Systems Business Inflators Strong

- Micro gas generators and squibs Strong
- Although the domestic business was affected by semiconductors shortages and such at the start of the year, automobile production subsequently recovered and remained firm; sluggishness reappeared in the fourth quarter due to production-line suspensions by certain automakers
- Overseas sales increased substantially due to strong demand in Europe, the US, China, and ASEAN as well as advantages due to yen depreciation

Polatechno Business

- Optical films Struggling
- Sales struggled due to sluggish sales and production discontinuations of existing models using our optical films
- X-ray analyzer components Steady Sales held firm

Operating income by industry segment



Operating income saw a slight decrease due to increases in raw materials costs and fixed costs



Forecast and plan figures are based on those disclosed in the financial results presentation on May 14, 2024

Growth Story from FY2024 and Beyond

Although profits in FY2023 were affected by the increase in raw material prices and other factors, we are passing on the costs to prices. For FY2024, we expect the domestic market to recover and the overseas market to remain steady.

Growth of inflators centered on China and ASEAN

The installation rate of automotive safety components is expected to continue increasing in the future centered on China, ASEAN, and other emerging countries. We aim to expand the market through new inflators with higher competitiveness.

Recovery of polarizers in the Polatechno business

For high durability dye-type polarizers for vehicles in the Polatechno business, we are focusing on new applications

such as for head-up display instead of existing applications in instrument panels, where demand is shrinking. Therefore, we expect a recovery in the Optical Films business. Together with the Precision Components business, which includes X-ray analyzer components with steady sales, the

Polatechno business will contribute toward the performance of the Mobility & Imaging Business Unit.

Launch of new Safety devices for drones

PARASAFE® emergency parachute system for drones is the next area of application for our pyrotechnic safety technology. We will promote commercialization by providing this system to customers in Japan and overseas and contributing toward the social implementation of industrial drones.



Target expansion of sales volume of inflators while maintaining global market share in micro gas generators and squibs

New automotive applications such as HUD shades

Dye-type polarizers respond to the evolution of head-up displays, smart room mirrors, and other vehicle display devices





Businesses

TOPICS 1 New cylinder-type inflator—Initiatives to expand our global share for inflators

The market for automotive safety components is expected to continue to expand in the future due to more vehicles being sold in the medium-to-long term as well as an increase in the number of safety components per vehicle, especially in emerging countries. In this new market opportunity, the Nippon Kayaku Group aims to expand our global share for inflators following the already significant share held by our squibs and micro gas generators by expanding sales of our new cylinder-type inflator.

Disc-type inflators are used in the front airbags for the driver and passenger seats. Meanwhile, thin and long cylinder-type inflators are used in the side airbags that protect the sides of passengers and knee airbags that



* Estimated by the Nippon Kayaku Group based on survey data from S&P Global Mobility that was released in February 2024

protect the knees-side and knee airbags being increasingly adopted due to strengthening of safety standards. Production of the new cylinder-type inflator will start in 2025. Besides a product design that offers improvements by simplifying the production processes compared to existing products, this new inflator is 30% lighter, contributing toward improving fuel consumption for gasoline vehicles and cruising range for electric vehicles. Carbon emissions during production is also reduced by 30% due to less metals used, structural design, and other factors, making it a product that is friendly to the environment in the move toward carbon neutrality.

Production of the new cylinder-type inflator will start from our plant in Malaysia. We will also carry out capital investment at other overseas locations to increase the number of manufacturing locations, and we plan to establish a system that allows production to commence production in China from October 2025. We will establish a global supply structure from multiple locations and expand

our global share, mainly targeting the markets of China and ASEAN. where robust demand is anticipated.

The new cylinder-type inflator (left), which is lighter and has design improvements in structure and processes, and the existing product (right)



TOPICS 2 High durability dye-type polarizers—Toward application in vehicle head-up displays

High durability dye-type polarizers in the Polatechno business have long been used in vehicle LCDs as materials that can pass tests for long-term durability, or capability of withstanding direct sunlight exposure and high temperature environments. In recent years, we also expect to see growth in new applications centered on shades for protecting projection equipment of head-up displays (HUDs).

By reducing energy from direct sunlight-which causes the temperature of the projecting part of a HUD to rise-without lowering the display brightness of a HUD, shades can limit the thermal degradation of the light source. We can provide shades with excellent optical properties and long-term reliability as

Products of the Polatechno business for HUD systems



dye-type polarizers have high resistance to heat and light.

Furthermore, if the projecting part of the HUD uses an LCD panel, it will also require materials that have high resistance to heat and light. Therefore, the market for dye-type polarizers and phase different plates used in combination is also expected to expand.

Besides not generating optical degradation in regard to heat and light, our products also have excellent reliability in not generating optical path physical surface distortion under environments with high temperatures. We therefore expect greater demand from automotive manufacturers requiring high quality. In addition, there are several cases of adoption of our products, centered on China where the production of electric vehicles (EVs) is vibrant, and we expect an expansion in demand in China for vehicles installed with HUDs centered on luxury cars.

HUDs are gaining attention in the safety aspect as devices that allow drivers to check information without moving their gazes. We will advance activities to develop markets-including

Europe and the US where there is high interest in safety, in addition to China - to help grow dye-type polarizers, the core products of the Polatechno business.



Special Feature

Safety Devices for Drones





In the safety systems business, we created the product PARASAFE®, a safety device for drones used in industrial applications as a new air mobility, and launched sales in December 2021. To PARASAFE[®], we have applied our pyrotechnic safety technology, which we have cultivated for automotive safety components. When a drone drops from the sky due to unforeseen circumstances, PARASAFE® swiftly deploys a parachute with its pyrotechnic igniter, thus protecting

safety at ground level while preventing damage to the drone itself and cameras and other on-board equipment. Also used for drone certification, etc. under the revised Civil Aeronautics Act, this product is expected to contribute to the spread and expansion of Level 4 flights (operation beyond the visual line of sight (BVLOS) over populated areas without pilot action) in the future.

Core technologies that enabled the development of PARASAFE®

Pyrotechnic Safety Technology

Industrial pyrotechnics have the outstanding ability to reliably generate a certain amount of energy in an instant. We have handled pyrotechnics since our founding and our extensive expertise in the properties and safe handling of pyrotechnics is a major advantage of Nippon Kayaku.

High-performance Component Development Capabilities

In addition to materials, another strength of our company is our ability to develop components that offer both high performance and reliability and durability. We manufacture all products inhouse, using our expertise in material and form design, simulation of operation, etc.

Operating state of PARASAFE® attached to drone



Drone flight to descent time (s)

Market for Drones for Distribution and Inspection Expected to Grow Significantly in the Future

The impression is that there is a delay in social implementation in Japan compared to the previous fiscal year. Currently, we expect to commence mass production in line with social implementation around 2025 and start to see contributions to profits in 2026 or 2027. We think there is potential for accounting several billion yen in sales for drone safety components around 2030.

PARASAFE

Sensing and Programming Technology

A device called an Autonomous Triggering System (ATS) is necessary to activate safety components when a dangerous fall is detected. We select the optimal sensors from drone flight data and simulations, develop an activation program, and are working on other technologies for ATS.

Forecast of the Size of the Domestic Market for Industrial Drone Business (billion yen) Peripheral services Service Drone bodies



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Ensuring Safety for the Future of Extensive Use of Air Mobility

The air mobility market has kept expanding globally. Air mobility is expected to be used in various fields, such as agriculture and security, in addition to use in urban areas. Diversification and evolution of aircraft bodies is also anticipated, and various trials are being conducted on a whole range of aircraft, from small models weighing several kilograms to large models exceeding 100kg, and flying cars

(with a gross weight of

up to 15 kg)

that can transport people.

(with a gross weight

of up to 150 kg)

The Nippon Kayaku Group will provide optimal safety components in accordance with needs. including products for various weights and ones applying sensing technologies, in addition to the current PARASAFE®. We will thus secure our position as a peripheral device manufacturer and contribute to realizing a society with safe and secure air mobility.



Achieved Level 4 Drone Flights and Working Toward Widespread Use

A device that detects flight

anomalies, which can be used in

combination with PARASAFE®

In 2022, Japan's Civil Aeronautics Act and such were revised, and Level 4 flight of drones (operation beyond the visual line of sight (BVLOS) over populated areas without pilot action) became possible. In response to this revision, in March 2023, ACSL Ltd. (Edogawa-ku, Tokyo), a major drone manufacturer, acquired an official certificate for Level 4 flight for the first with aircraft equipped with PARASAFE® from Nippon Kayaku. Subsequently, the recognition of PARASAFE® as a safety component compliant with Level 4 flight of drones grew. We are cooperating with several manufacturers of drones for logistics and such toward obtaining type certification.



Besides such technological initiatives, in 2023, we also participated together with Tokio Marine & Nichido Fire Insurance Co., Ltd. (head office: Chiyoda-ku, Tokyo) in a project by Hyogo Prefecture and others on promoting the practical use of drones, carrying out verification experiments aimed at establishing better drone insurance. Specifically, through drone free-



weight of up to 25 kg)

fall experiments and computer simulations, we were able to collect a lot of data helpful in establishing drone insurance* that comprehensively compensates the liability risks in accidents such as when drones fall while in flight.

The Nippon Kayaku Group hopes to properly fulfill our role toward achieving domestic social implementation while actively participating in various initiatives in the aspects of technologies and systems for industrial drone safety components.

* Official, tentative name: Unmanned helicopter general insurance

Initiatives for Overseas Deployment of PARASAFE®

China has already embarked on the social implementation of drones ahead of others, including uses such as pesticide spraying and food delivery. Most airframes are fitted with parachute-type safety systems, creating a market of the largest scale in the world. To enter this market, besides being a safety system made in China placing emphasis on industrial circular policies, cost competitiveness will

be crucial. The Nippon Kayaku Group plans to consolidate resources and develop the Chinese market through sales activities by local subsidiary Kayaku Safety Systems (Huzhou) Co., Ltd. and strengths such as lower costs arising from in-house designing of parachutes.

In Europe, there are strict legal regulations in place regarding drone flight, and currently, operation methods for social implementation are being studied. led by industry parties such as airframe manufacturers. The situation of compliance with legal regulations being crucial to widespread use is similar to that in Japan. We are carrying out marketing while using our knowledge from having acquired certification in Japan.

Furthermore, in the United States, Aero Systems West, Inc. (ASW, California, the United States), which specializes in drone design and development, as well as manufacturing and operational training, joined the group in 2022 through a capital participation. Including exhibiting at Commercial UAV Expo, a large-scale exhibition for unmanned aerial vehicles, we will promote research and activities toward widespread use, such as aiming to satisfy the ASTM F3322 safety standard for drone parachutes designated by civil aviation authorities.



Initiative toward entering the Chinese market (top; exhibiting at UAS EXPO 2024 held in Shenzhen) Activity for satisfying the US safety standard ASTM F3322 (bottom; exhibiting at Commercial UAV Expo 2023 held in Las Vegas) **Fine Chemicals Business Unit**

About the Nippon Kayaku Group Business Results and Strategy

We will focus on areas where growth is expected such as semiconductor-related products and industrial inkjet inks—and establish a system for increased production while continuing to work on increasing our profit margins.





Forecast and plan figures are based on those disclosed in the financial results presentation on May 14, 2024

In FY2024, under Functional Materials, we expect a recovery for semiconductor-related products from the second half. As for Color Materials, we expect a recovery in consumer inkjet colorants and growth in industrial inkjet colorants. For Catalysts, the replacement period continues due to the catalyst replacement cycle at our customers' plants, but it will reverse in FY2025, and on average, we expect a continuation of stable market conditions.

Passing on raw material costs to prices

The Fine Chemicals Business Unit imports many raw materials. Due to pressure on profits from higher raw material prices arising from the exchange rate and the increase in energy costs, we have progressively passed on costs to prices.

es Management Foundation to Data Section	
Contribution to SDGs	CUMATE ACTER
Business Overview for FY2023	
Net Sales	
 Epoxy resins for semiconductor encapsulation and substrates Sluggish Sales were sluggish due to a slow recovery in market conditions for semiconductor materials, a decline in de for consumer electronic devices, and restrained invest in communication infrastructure Ultraviolet curing resins for displays Steady Color Materials Business Consumer inkint colorante Suggish 	emand ment
 Consumer inkjet colorants Sluggish Demand was sluggish despite progress in eliminating inventories in the market Industrial inking Stady 	
Sales remained steady just as in the previous year	
Catalysts Business	
 Catalysts Dusiness Catalysts for the production of acrylic acid and methacrylic acid for use in new manufacturing Slu Salas ware sluggish during the replacement paried 	lggish

Operating income by industry segment

Operating income decreased due to increases in raw materials costs and fixed costs

Growth Story from FY2024 and Beyond

- We will pay attention to the future trend of raw material prices and consider passing on costs to prices again as necessary. Strategic investment in facilities to increase production We undertook a large-scale investment to increase production of epoxy resins at Asa Plant and industrial inkjet inks at Fukuyama Plant. We will properly launch these new plants. Initiatives to increase profit margins
- The Fine Chemicals Business Unit will work as a whole on the issue of increasing profit margins. Besides expanding sales and revising prices, we will adopt a multi-directional approach, including reducing costs, improving yields, reviewing production processes, and launching new products as early as we can.

Fine Chemicals Business Unit

Strengths We Possess

Semiconductor-related product synergies

Strengths in using epoxy and maleimide resins for 5G, MEMS materials, cleaner materials, semiconductor manufacturing equipment, and other products for reciprocal identification of customer needs and expansion of sales

Functional molecule design

Enables the design of resins with special functions according to the purpose, such as high-purity, high heatresistance, etc.

Functional Materials Business

Resin

materials

Precise organic synthesis

Possess expertise in the synthesis of a wide range of color materials, from dyes that were the first in history in Japan, to colorants for inkiet printers and functional colorant materials

Knowledge on inkjet ink performance evaluation

Accumulated knowledge on evaluating characteristics-including ink discharge performance and fixabilitynurtured through the development of consumer inkiet colorants





including composition design, synthe

dispersion, and evaluation - as well as

uman resources, intellectual property, and

manufacturing facilities

design and technical services Creation of high-performance catalysts using expertise in the

Provision of technical services such as filling methods that





New and Promising Areas, and Key Growth Areas

Applications related to semiconductors and LCDs

Capture expansion of semiconductor demand from the proliferation of IoT and nextgeneration high-speed communications



Expansion of demand for digital printing for packaging materials, textiles, etc.

Industrial inkjet applications



Optimal catalyst composition

- composition of metallic elements used and grain size design
- manifest top performance





TOPICS 1 Focusing on growth areas—Expansion of industrial inkjet inks and dyes

The growth area for inkjet inks and colorants has shifted from consumer applications for households and offices toward industrial applications. In industrial applications, due to the advantage of being able to print different types in small quantities and short periods, digital printing is expanding as a replacement for offset printing. Digital dyeing of textiles-which is friendly to the environment as it does not need cleaning after printing-is another area that is growing significantly.

The new water-based pigment inks developed by the Nippon Kayaku Group has the feature of being able to directly print on coated paper used for flyers and posters. Coated paper is said to be a medium with poor absorbency that is difficult for inkjet printing as ink does not penetrate easily. With excellent drying performance and discharge stability, our inks can be properly fixated to allow printing with high resolution, quality, and speed.

As a new product group, we are also working on the development of inks for non-absorbent media that do not absorb ink at all, such as films for food and packaging.

At drupa 2024, a large-scale, international printing and

TOPICS 2 Developing catalysts that help realize a hydrogen-powered society

In recent years, there are expectations for the stable supply of hydrogen as a clean energy source for various applications such as fuel cells, power generation, and automobiles. Our Catalysts Business is working to develop catalysts that contribute towards realizing a hydrogen-powered society.

Our catalyst method for producing hydrogen involves focusing on an environmentally friendly process which thermochemically decomposes water through collecting sunlight and solar heat in a reaction field where water vapor and catalysts coexist. This method is characterized by its ability to use renewable energy and generate economies of scale by employing a three-dimensional reaction field.

In parallel with calculating the cost of hydrogen production based on data from the pilot plant, we are working on establishing technologies for the stable,

Management Foundation to Support Sustainable Growth	Data Section



media trade fair taking place once every four years and held at Düsseldorf, Germany from May to June 2024, we showcased developmental products for non-absorbent media and print samples at our booth, gaining significant response due to their performance and print quality.

At Fukuyama Plant, the production location, we are undertaking capital investment for increasing production, including the construction of a new building for manufacturing industrial inkjet inks. The new building is scheduled to commence operation in FY2025. We will apply our strengths-including our dye, dispersion, and ink design technologies nurtured so far-to strive and grow our business for industrial inkjet applications to a business with

a scale of 10 billion yen in sales by 2030.



Exhibiting at drupa 2024

safe, and affordable manufacture of catalysts, aiming for practical application in FY2029.

Besides catalysts for hydrogen production, we are also exploring the development of catalysts for hydrogen carriers which enable efficient storage, transportation and utilization through dramatic reductions in storage volume. In FY2023, we achieved our target hydrogen production volume on a small scale. Going forward, we will study scaling up toward practical application.

With a view of practical application in the mediumto-long term, we will seek to create catalysts that are indispensable for the future hydrogen society.





Fine Chemicals Business Unit

Special Feature

Semiconductor-related Products

Expansion of Resins for Semiconductors

Market Overview

Demand is growing recently for our high-purity epoxy resins for package circuit boards, in addition to ones for use as materials for semiconductor encapsulation, which must have a high degree of electrical reliability.

Digitalization is making rapid progress due to the development of 5G communication networks and the spread of telework and social media. The increase in demand for semiconductors, GPUs used in Al servers, and other such equipment that form the core of the infrastructure has become a tailwind.

Synergy between the Growing Semiconductor Market and Our Products

KAYAKU Vision 2025 (KV25)

The semiconductor market is expected to grow rapidly to one trillion dollars by 2030. With this opportunity, we engaged in business for semiconductor cleaners and equipment used in semiconductor manufacturing processes.

Fully using this synergy, we plan to achieve sales of 33 billion yen in FY2025 for our semiconductor-related products-which include resins, cleaners, and equipment-and aim for rapid growth together with the market.



Final fiscal year of the KV25 Medium-term Business Plan Numbers for semiconductor market size: Partially excerpted from Handotai Senryaku (Gairyaku) (semiconductor strategy

(short summary)), which was published at the website of the Ministry of Economy, Trade and Industry in June 2021

Cleaners for Semiconductors Acquired LCD and semiconductor cleaner business of Germany-based Henkel AG & Co. KGaA and started operating the business in April 2020

Epoxy and Maleimide Resins Epoxy and maleimide resins for semiconductor encapsulation and substrates with features such as high purity, flame retardance, and low electric characteristics

Semiconductor Manufacturing Equipment

Acquired Teikoku Taping System Co., Ltd., which deals in laminators and other equipment used in semiconductor manufacturing processes, and started operating the business as part of the Nippon Kayaku Group in April 2021

Value Provided to the Future Society Depicted by Synergy

We provide relevant products with high added value to a society that uses electronic devices and semiconductors in all aspects of life, including information, communication, mobility, healthcare, and smart agriculture.



Showing presence in a society where semiconductors are used everywhere

- O Semiconductors will become even more important as the near future will be digitalized and electronic devices will be used everywhere.
- O The Nippon Kayaku Group sees the strategy of expanding resins for substrates as crucial, and we are advancing research and development of materials for the latest semiconductors besides providing a stable supply of existing materials.
- Seeking sustainable growth, we leverage synergy with cleaners and equipment for manufacturing processes for multi-directional approaches

Epoxy and Maleimide Resins

- We offer high-quality epoxy resins with characteristics that can also be used for applications requiring sophisticated management, such as in-vehicle devices.
- We launched new maleimide resins in 2018 for areas that require a good balance of characteristics and low dielectric loss tangent, such as 5G semiconductor package substrates.
- Demand for these resins is expected to grow further in applications such as mobile phone base stations and data center servers.

Acrylate Resins

- We have a lineup of acrylate monomers, epoxy acrylates, urethane acrylates and other acrylate oligomers as the KAYARAD Series of light-curable resins. We also handle the special methacrylate KAYAMER Series and the KAYACURE Series of photopolymerization initiators and sensitizers.
- Specifically, for displays, these resins are used as components suitable for LCD sealants, hard coats, and color filter resists.



Cleaners for Semiconductors Incorporating demand for cleaners for manufacturing processes

• The LCD and semiconductor cleaner business was acquired with a special focus on semiconductor manufacturing applications.

With technological

- Coating of resist Silicon substrate Resist
- knowledge as our strength, we have a lineup of Metal wiring: Residue removal excellent products, including developers and strippers that can be used in high-

resolution processes, resist strippers used for wafer-level packaging, and dry etching residue removers.



Semiconductor Manufacturing Equipment

- Providing solutions even in manufacturing processes
- We provide equipment used for semiconductor manufacturing, including laminating, stripping, and wafer mounting.
- Among our products, our laminators—which laminates film resist on wafers-have an established reputation for the precision of the conditions that can be configured. An example of their use is for forming hollow structures that protect tiny circuits in RF SAW filters used in communication equipment.
- We can customize products for each customer using hardware and software developed in-house, contributing to foundry operation with high productivity. We will provide solutions even for processes while collaborating with the resin and cleaner business.

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Dry Film Resist for Microelectromechanical Systems (MEMS)

- SU-8 3000CF Dry Film Resist is a film photoresist that can be used in high aspect ratio photolithography process such as that in the production of RF surface acoustic wave (SAW) devices.
- It has a structure in which the resist layer is laminated with a cover film and a support film. This eliminates the solvent removal processes and contributes to process simplification.



Encapsulation with

encapsulation materials

SU-8 3000CF Dry Film



Enlarged image of developed Dry Film Resist

Semi-additive wiring fabrication 2 Exposure 3 Developing 4 Metal plating 6 Resist stripping (using cleaners Wiring completed Plating patter 2 Dry etching and 4 Metal plating and B Residue removal ashing (using cleaners) RF SAW filter used in communication equipment Hollow structure of microelectromechanical system formed using a laminator (components of SAW filters, etc.) Film resist (roof layer) • • • • • • • • • • • Lithium tantalate (LT) wafer Film resist (wall laver) Tiny circuits such comb-shaped electrodes





Life Science **Business Unit**

Centered on our strength in cancer treatment, besides generic drugs and biosimilars, we will aim for a system that enables a lineup of new pharmaceuticals that fulfill unmet needs.

Member of the Board Managing Director, In charge of Life Science Business Unit Hiroshi Shimada







Business Overview for FY2023

Net Sales

Pharmaceuticals Business

The impact of drug pricing revisions was covered by higher volume, and sales were basically the same as in the previous year for the business as a whole

Biosimilars (BS) Strong

- Bevacizumab BS, which treats colon, rectal, ovarian cancers and other indications, penetrated the market and gained a 10% market share (as of April 30, 2023)
- Launched in 2023, Adalimumab BS, which treats rheumatism and other autoimmune diseases, had a smooth start
- Generic anti-cancer drugs Strong
- Dasatinib, which treats chronic myelogenous leukemia and other such indications, increased sharply in its share of generic drugs after the switch to generic drugs due to the same indications, dosages and administration as the original product

Agrochemicals Business Steady

Flometoquin and DIAZINON[®] grew in overseas sales

Operating income by industry segment

Operating income decreased due to upfront licensing fee of six billion yen recorded in the third quarter for the unmet needs of anti-cancer drugs



Marketing Division (New drugs, others) 📰 Marketing Division (GE) 🚺 Marketing Division (BS) Specialty Chemicals, International & IVD Division Food Techno and others ness Agrochemicals Real estate Operating income by industry segment Net sales (billion ven (billion ven) 20 KV25 15 <u>10</u> 11 0 _5 20.0 15.0 9.7 2022 2024 (Forecast) (FY) 2023 (Result) 2025 (Plan)

Forecast and plan figures are based on those disclosed in the financial results presentation on May 14, 2024

Growth Story from FY2024 and Beyond

In 2024 and beyond, we will continue to seek growth while maintaining the same stable performance so far, using our strengths of trust in the field of cancers and our position as a pioneer in biosimilars for Pharmaceuticals, and our capabilities in developing products-including new products-in Agrochemicals.

Generic drugs and biosimilars

Our business for generic anti-cancer drugs is recognized for its high repetition and stable performance, with strong sales for both new and existing products. For our biosimilars business, we will grow sales of Bevacizumab BS and Adalimumab BS, two products which were launched before FY2023. Regarding the recent issues with generic drugs in terms of supply concerns and quality problems, we will emphasize stable supply and quality assurance, and we will undertake studies that also include the enhancement of production facilities.

We will shift to a product portfolio ---which will also include new drugs-that can easily ensure profits for our business in pharmaceuticals for treatment in Japan, which centers on generic drugs and biosimilars that are affected by annual drug price revisions. Regarding the two new drug candidates and one new diagnostic reagent candidate that were introduced in FY2023, we will advance the

Introduction of new drug candidates with a view of the future

development stage to turn them into growth drivers. Growth of Agrochemicals business

In Agrochemicals, amid the shrinking agrochemical market in Japan, the expansion of overseas sales will become the key to growth. Together with striving to expand sales of the existing DIAZINON®, chloropicrin, and the new product FINESAVE®, we will also promote the development of new active ingredients aimed at around 2030.

Strengths We Possess

Pharmaceuticals

Business

Integrated business operation from R&D to manufacturing and sales

- Domestic manufacturing locations that contribute to a stable supply of high quality pharmaceutical drugs.
- Bidirectional sharing of information between R&D and manufacturing and sales
- Constant promotion of alliance activities with external parties

System for compiling and providing information to medical professionals

- Nationwide stationing of medical representatives who possess advanced expertise and cover information on all products
- Establishment of a Pharmaceutical Information Center for medical professionals and patients, and building of a support system for cancer treatment



Synergy with business units Seeking greater efficiency in R&D processes, such as sharing of intellectual property and exchange of researchers for drug

New Drugs

• DARVIAS[®] for treatment of peripheral T-cell lymphoma;

- Portrazza[®], a therapeutic agent for squamous non-small cell lung cancer
- ALAGLIO[®], a photodynamic diagnostic agent for bladder cancer, etc.

Biosimilars

Infliximab BS, a therapeutic agent mainly for inflammatory bowel disease, Bevacizumab BS, a therapeutic agent mainly for colon, rectal, ovarian cancers and other indications, among other drugs

Insecticides DIAZINON[®] FINESAVE[®]

- FUHMON[®]
- EVISECT[®], etc.

Double Stopper[®]

Chlopicflow[®]





Life Science Business Unit

New and Promising Areas and Key Growth Areas Pharmaceuticals developed in-house Results achieved through alliance activities New drug development in the cancer field using our Focusing on introduction and other activities to follow DARVIAS[®], PORTRAZZA[®], ALAGLIO[®], etc. R&D platform Establish a platform for sustained growth Ongoing market launches of unique formulations Development of new active ingredients for insecticides Reduced toxicity, improved For distribution by Research and develop ease of use drones new active pharmaceutical ingredients over the medium and long term

TOPICS 1 Development pipeline of Pharmaceuticals business

To shift to a system that makes new drugs—instead of a product lineup centered on generic drugs and biosimilars—the key axis of contribution to performance, the Nippon Kayaku Group added the two anti-cancer drug candidates Buparlisib and Taletrectinib to the development pipeline in FY2023.

Development Pipeline (as of August 31, 2024)

	Stage	Development code (Generic name)	Origin	Characteristics
New Drugs	Phase II	AN2025 (Buparlisib)	Adlai Nortye (Cayman Islands)	 Disease development: After platinum + ICT treatment, recurrent and transition squamous cell carcinoma of the head and neck Mechanism of action: PI3K inhibitor
	Phase I	AB-106/DS-6051b (Taletrectinib)	AnHeart Therapeutics (US)	 Disease development: ROS1 fusion-gene positive non-small-cell lung cancer Mechanism of action: ROS1 inhibitor
	Under preparation	Product name: Alaglio® (Aminolevulinic acid hydrochloride)	SBI Pharmaceuticals (Japan)	 Photodynamic diagnostic agent Characteristics: Emission of red light under a blue light source when incorporated into cancer tissue Basic agreement for joint development (2023.9)
Diagnostic agents	Under preparation	VECanDx™	BioCheetah (Singapore)	 In vitro diagnostic products Under development in Singapore Signed licensing agreement for exclusive development and marketing rights in Japan

Ever since the Ministry of Health, Labour and Welfare embarked on a policy of encouraging the active use of generic drugs in 2002, the adoption of generic drugs has spread due to the national policy. Following this trend, for Pharmaceuticals, we launched a strategy centered on the sale of generic drugs and added biosimilars to the lineup from 2014 to expand the business. However, in recent years, there has been significant impact to the income from generic drugs and biosimilars due to drug price revisions being conducted every year, including revisions in the inbetween years. Therefore, to add a foundation for longterm business growth that is not easily affected by drug price revisions, we have carried out a relatively large investment compared to the past and introduced new drug candidates.

Buparlisib is in Phase II, which is the final stage of clinical trials. We invested approximately 6 billion yen through third-party allocation in Adlai Nortye, which is

developing this drug, and received a priority right for acquiring sales license in Japan. It has the potential to be the first standardized secondary treatment for recurrent and metastatic head and neck cancers, and it has been given Fast Track—a process designed to expedite the review of drugs to treat serious conditions and fill unmet needs designation by the U.S. Food & Drug Administration (FDA).

Taletrectinib is a drug candidate for ROS1 positive non-small-cell lung cancer, which makes up a low frequency of approximately 2% of lung cancer in total. The current Phase II is in the final stages of clinical trials. Using approximately 6 billion yen, we acquired licensing rights for priority sales in Japan from AnHeart Therapeutics, which is

TOPICS 2 Capital investment in Takasaki Plant—Initiative toward stable supply of high-quality pharmaceuticals

In Japan, a new system for co-payment of drugs (selective treatment of existing drugs [long-term listed items] with new comparable drugs) was introduced in October 2024. If a patient chooses prescription of a long-term listed drug when a generic drug is available, except in cases when medically required, the patient will need to co-pay an additional amount equal to a quarter of the price difference as selective treatment. It is expected that the introduction of this system will further encourage the use of new comparable drugs.

In addition, the shortage of new comparable drugs is being prolonged and supply concerns are becoming a social issue. The Nippon Kayaku Group is working on new comparable drugs for which stable supply has become difficult as well as the supply for replacing existing drugs being discontinued with new comparable drugs. There will be increased requirement for supply of our products in the future, and in anticipation of supply consolidation at Nippon Kayaku, we are planning to enhance the production capabilities of Takasaki Plant, which manufactures pharmaceuticals. For FY2024, we have

TOPICS 3 Lineup of flometoquin-based products — Promoting expanded sales of products, from FINESAVE® to Gladius®

Flometoquin is a new active ingredient that obstructs the breathing of pests. It shows excellent effects against thrips and rust mites and is also effective against pests that have resistance against existing insecticides. Another feature is that it has little impact on helpful organisms such as honeybees. Nippon Kayaku has launched insecticides containing flometoquin in Japan. We launched FINESAVE® Flowable for citrus fruits and vegetables in 2018 and FINESNIPER® insecticide for cucumbers in 2022, gaining a good reputation.

Since 2020, we have also been focusing on selling flometoquin-based products overseas. We are selling Gladius[®] as an insecticide for roses and other cut flowers for export to countries where horticultural products are key exports, such as Kenya. Going forward, we intend to developing this drug. There are limited options for treating ROS1 positive non-small-cell lung cancer, and it has been given Breakthrough Therapy—a process designed to expedite the development and review of new drugs that are intended to treat serious conditions and life-threatening diseases—designation by the U.S. FDA.

Both **Buparlisib and Taletrectinib** aim to be launched by March 2026, and clinical trials are smoothly underway. After sales have stabilized, we expect at least 10 billion yen in sales for both drugs together, contributing to treatment in the area of cancer—in which we are strong in—while sufficiently recovering our investments including those made in the initial phases.

set aside a budget of 20 billion yen as part of this capital investment plan. Through large-scale investment, besides the stable supply of generic drugs, we also plan to add facilities for the manufacturing of biosimilars within Japan, including biosimilars that are currently dependent on imports, and we expect to contribute to their stable supply in the future.

Furthermore, to improve the efficiency and sophistication of quality assurance operations at Takasaki Plant, we have also embarked on the construction of a new integrated quality assurance building scheduled for completion in FY2026. Through initiatives to enhance production and quality at Takasaki Plant, the Nippon Kayaku Group will maintain

stable supply of high-quality pharmaceuticals in Japan and contribute to medical treatment.



No. 3 Pharmaceutical Plant of Takasaki Plant

expand the countries where Gladius[®] is used, centered on countries* like Kenya, where high-quality flowers can be grown throughout the year and there are high needs for

agrochemicals for export of cut flowers. We will further expand sales to countries in the Middle East, Africa, and Asia as, similar to Japan, there is strong demand for Gladius[®] for vegetables such as tomatoes, eggplants, and bell peppers. We hope to support agriculture around the world using Gladius[®], which can be widely used, from flowers to vegetables.

* Regions near the equator with high elevations have ideal environments that can grow high-quality flowers throughout the year, including stable temperatures, consistent sunshine, a certain number of sunlight hours, and little strong winds. It is expected that the export of cut flowers to countries such as the Netherlands—the biggest importer of cut flowers—will remain prominent.

