Strengthening All of Our Business into Primary Sources of Profit to Achieve Vision 2030

Executive Director and President **Hiroshi Okubo**

Our Aims

- **Strengthening all of our business into primary sources of profit.**
- **Envision a bright future looking ahead to 2050.**
- **Cultivate the next generation of talented personnel.**
- **Thoroughly adhere to the "compliance as premise."**

Inaugural Message

Taking Initiative, Taking the Lead and Taking Risks

The role of President is not for the fainthearted. That is a fact of which I am acutely reminded every day. Previously, I was a Executive Director and Senior Managing Executive Officer, but the authority and responsibility demanded by my current position is on a different level altogether. The livelihoods of several thousand people, including employees and their families, rest on my shoulders. That is why I am resolved to take the initiative so that I take the lead. Even if it may seem that I am too passionate, I will show our employees that I am serious about management and willing to take risks.

When chairman Kenichi Tanaka was President in fiscal 2021, he created the ISK Group's "Purpose" and long-term vision, "Vision 2030," as well as the previous medium-term business plan, "Vision 2030 Stage I," all of which are now left to us successors. Former President Hideo Takahashi led us through Stage I, building up a revenue base, delivering increased dividends and wage increases, and achieving consolidated net sales targets. He developed the new business creation project to a level where it can be handed over to the New Business Development Laboratory, newly established in the Central Research Institute. Other notable achievements include a major structural reform of our inorganic chemicals business, which involved discontinuing titanium dioxide production in sulfate process, and the establishment of "Our Vision Towards 2050" that looks beyond 2030. All of these have put us on a journey which is reflected in our "Vision 2030 Stage II" medium-term business plan, which began in fiscal 2024.

Message from the President

Former President Takahashi (left) and President Okubo

Having inherited these assets, my mission now is to complete Stage II, which I created when I became president. By creating and executing a detailed action plan, we will Strengthen all of our businesses into pillars of profit that will lead to the achievement of our next medium-term business plan, “Vision 2030 Stage III,” followed by “Vision 2030.” This phrase, “Strengthening all of our businesses into pillars of profit,” is the key concept for Stage II.

We must also begin to chart a path beyond Vision 2030 and towards 2050. Less than six years remain until 2030; so, if we don't start thinking now, it will be too late. Of course, I won't be with the company when it is celebrating its 130th anniversary in 2050. However, I believe I have a responsibility to those who will come after me to pave the way for the future, just as those who came before did for me.

It is also my mission to cultivate the next generation of talented personnel. We will hold discussions within the Personnel Committee and elsewhere about improving our approach to executive development. Of course, you cannot cultivate talented personnel in a year. At a minimum it might take five to ten years, or, in fact, even longer. It is my hope that from such nurtured personnel our future leaders will emerge.

I joined the company in 1986 as an engineer. Almost immediately after joining, I was made part of the construction planning for a titanium dioxide in chloride process plant in Singapore, where I worked for four years, then, afterwards, I was involved with titanium dioxide in chloride process in Yokkaichi for over ten years. It was a time when working overtime until late at night was the norm. Together with a variety of different people, including from partner companies, we worked like mad to keep everything operating at full production.

The turning point for me came with the emergence of the “Ferosilt problem*” in 2005. I realized that this was a problem for the Yokkaichi Plant in terms of the environment, safety and quality that needed to be resolved, and, from a sense of great urgency, I appealed directly to the plant manager, who put me in charge of addressing the matter. For the next few years, we were criticized daily by the government, local community and the media, and we continued to humbly acknowledge the criticism. Those were some stormy days.

Nevertheless, it is by making a serious and sincere effort that you eventually gain people’s understanding. At the time, I was dealing with a series of problems at the Yokkaichi Plant, requiring me to report to and seek guidance from various government agencies, but I was fortunate to receive guidance on everything from preparing the documents to be submitted to improvement measures to be taken on site. No matter if it was day or night or even a holiday, there were people I could turn to, and their kind consideration moved me to tears. I will never forget the strict yet compassionate guidance these folks provided me. I also developed strong bonds with my colleagues at the time who worked with me on these matters.

In any case, it was a situation which must never happen again. I believe that it is also my mission to ensure thorough adherence to the " compliance as premise " and to pass on the lessons I have learned.

Some time after the situation had settled down, I was temporarily transferred to a subsidiary before joining to the Corporate Administration and Planning Headquarters at the Head Office four years ago. There are many aspects of the work at the Head Office, such as accounting, that I didn’t understand, as I came from engineer background . Even if I start studying from square one, it won't be enough. So, I changed my work style that I offer my excellent subordinates carte blanche while concentrating on their work while I focused myself on checking over that work. My style is to consult with my colleagues and get their help to get the job done. Now that I'm president, this is how I intend to continue doing things.

*The problem involved the detection of amounts of hexavalent chromium and other substances beyond what was allowed by environmental standards in Ferosilt, a soil filling material developed and sold by our company as a measure to reduce industrial waste.
We spent a total of 60 billion yen over a period of 10 years to collect and dispose of all Ferosilt.

From Stage I to Stage II

Building Strong Pillars on the Foundation of Stage I

During Stage I, we were unable to achieve some of our targets, partly due to the recording of impairment losses of approximately seven billion yen as part of the restructuring of our inorganic chemicals business. However, we did achieve our major targets, such as increasing dividends and reaching our consolidated net sales targets. Taking over the baton at this point in time, it now becomes my responsibility to paint an even brighter future.

However, there are still many issues that need to be resolved. In our organic chemicals business, generic pesticides made by Chinese manufacturers are gaining ground, and environmental regulations in Europe are also becoming stricter. Although we set a goal of achieving the world's lowest cost manufacturing, the launch of the Indian factory intended to achieve this has been delayed due to the impact of COVID-19. Also, we are faced with the pressing issue of increasing the supply capacity of our contract manufacturing partners for our animal health product PANOQUELL™-CA1.

In our inorganic chemicals business as well, the halting of production of titanium dioxide in sulfate process is now in the implementation stage. After 2028, sales of titanium dioxide in sulfate process will be zero. The point is whether we can develop and sell new replacement products. It is essential that we expand sales of functional materials in the large markets

of America and Europe.
It is against this backdrop that Stage II was formulated as the medium-term business plan for this next, most important phase in achieving Vision 2030. If Stage I is about building the foundation, Stage II is about erecting strong pillars that will steadily accumulate profits. To achieve this, we first changed the target of Vision 2030 itself from net sales to operating income. Furthermore, we have introduced a divisional system into our Inorganic Chemicals Business Headquarters, creating a mechanism for managing profits for each sub-segment of each division. We will pursue thorough organizational improvements over the three years of Stage II which will then bear fruit in Stage III. To this end, we have put forward the following priority measures.

Pursuing Originality with Stronger and Streamlined Research and Technological Development Capabilities

Our primary focus in Stage II will be on strengthening our research and development capabilities. In order to survive as a development-oriented manufacturer, we will invest in our Central Research Institute (Kusatsu City, Shiga Prefecture) and make fundamental changes.
For example, starting in fiscal 2024, the New Product Development Department for our inorganic chemicals business, which was previously at the Yokkaichi Plant, will be relocated to the Central Research Institute and, along with the biosciences field, will be placed under the direction of the head of the Central Research Institute, thus concentrating authority there. This will make our research and development more agile and will also enable research that transcends the boundaries between organic and inorganic chemistry, such as by incorporating inorganic chemistry technology into pesticide development.
There are also plans to relocate the Central Research Institute during the Stage III period starting in 2027. Next year will mark the 60th anniversary of the establishment of the Central Research Institute. Although the equipment is state-of-the-art, the building has become quite old and cramped. We therefore considered options, including relocation, and sought to create research and living environment that would attract talented researchers and enable them to realize their dreams. We will use the Central Research Institute as a foundation for developing products that can be priced independently to compete with price-competitive Chinese products, as well as for developing products that uncover new needs in the European, American and Asian markets.
Meanwhile, Technology Research Center, Hyogo-Ono, a production technology research facility (Ono City, Hyogo Prefecture), will also begin operations next year. Our goal is to reduce manufacturing costs and ensure stable production in overseas outsourced manufacturing and to achieve the world's lowest cost manufacturing of agrochemicals.
Of course, it will take time for these research and development investments to bear fruit. However, we have to put in the effort now if we want to see what developments we can pursue in the future that lies beyond 2030.
For many years, ISK has focused on the manufacture and sale of general-purpose titanium dioxide in the equipment industry. However, considering the future trend toward carbon neutrality, waste-related issues, and the risk of disaster from a Nankai Trough earthquake, we have concluded that we should not make large-scale investments to upgrade our titanium dioxide in sulfate process production at this time. We will invest that money into the future of research and development, i.e. into the future
At present, however, sulfate processing accounts for only about one-third of the titanium dioxide produced by our Group. The remaining two-thirds of our production facilities, which use chloride processing to manufacture titanium dioxide, have been equipped with robust earthquake-resistance measures, and we intend to continue to fulfill our supply responsibilities.

Accelerating Globalization

Improving our overseas sales ratio is also an important goal for Stage II. The key to achieving this will be whether we can deliver products to each country's market that meet the changing local needs. In particular, for all of our businesses it is important that we expand sales in the American market.
Our biosciences business is performing well, partly due to the weak yen, but the market environment is tough. The environmental standards for agrochemical approval in Europe have been elevated, resulting in a more rigorous registration process, and there is also the threat of generic agrochemicals from China. In order to respond to these issues, our directors and department heads are currently traveling overseas to find solutions. In our healthcare business, in addition to strengthening sales of our animal health product PANOQUELL™-CA1 in the United States, we are also aiming to expand our business in Europe and Asia.
For our inorganic chemicals business, we will review the current allocation of staff at our overseas subsidiaries in the United States, Taiwan and South Korea, and this includes increasing staff numbers. We would also like to have our engineers in Japan go along on overseas sales trips. The future of our inorganic chemicals business will depend in large part on functional materials, including materials other than titanium-based materials, and, in order to capitalize on new needs, the engineers developing the products will need to visit with customers directly to sell them on those products. It cannot all be left to trading companies. We will tackle overseas technical sales ourselves.

Maintaining Stable Returns for Shareholder and Pursuing ROIC Management

Over the past year, there has been a lot of discussion within ISK about PBR (price-to-book ratio) and how to return value to shareholders. As a result of this discussion, we have decided to aim for a PBR of 1.0, which is approximately double the current level, during the Stage II period, while, with regard to shareholder returns, the director of the Finance and Accounting Headquarters has, after consulting with institutional investors, decided to seek a dividend payout ratio of 40%.
In order to increase PBR, it is necessary to make the growth potential of our Group more visible. The litmus test for this will be to see whether we can increase dividends as planned in the fiscal 2024 financial statements. While this is difficult to say, in the past our Group has sometimes been unable to achieve its medium-term business plan targets. However, this time,

the details of the plan have been thoroughly finalized by each of our business headquarters. Our shareholders and investors have told us that they think well of the plan, but it all depends on how well it is realized in the future; so, I think the next one to two years will be crucial.
Furthermore, in order to Strengthening all of our business into primary sources of profit, we must change the perception, which is deeply rooted within the Group, that it is enough to just increase the top line (sales). That is why we have introduced a divisional system and have also begun considering the introduction of ROIC (return on invested capital) as an internal management indicator. The aim is to use the ROIC tree to break down the various indicators, identify bottlenecks, and make visible those points that need improvement.
For the time being, we will not disclose ROIC, or the ROIC tree itself, but will use it to build a stronger corporate structure.

Stage II and ESG

Making an Unprecedented Level of Investment in Human Resources

For Stage II we have also established four priorities for management overall: “Contributing to the environment and society,” “Promoting human capital management,” “Promoting DX,” and “Continuing and improving corporate governance.”
In terms of “contributing to the environment and society,” our emphasis is on reducing CO_2 emissions.
At our Yokkaichi Plant, we use coal boilers to manufacture titanium dioxide; so, we need to pay special attention to CO_2 emissions. One of the reasons for the decision to discontinue the production of titanium dioxide in sulfate process was to reduce the environmental impact of CO_2 emissions. Additionally, we will promote energy conservation in the chloride process titanium dioxide production by switching the fuel from coal to LNG and by optimizing boiler operating conditions.
Of the four priorities, “promoting human capital management” is the one I place the most importance on. Data shows that when people have a greater sense of happiness, they become three times more creative and 1.3 times more productive. In other words, happy organizations are able to be more profitable. To increase employee engagement, we will make an unprecedented level of investment in our human resources, and this includes improving training and employee benefits. We believe that highly engaged personnel generate higher profits and dividends, which in turn fosters a virtuous circle of increased engagement.
In terms of “promoting DX,” our aim is to further expand existing businesses in response to changes in the needs of customers and society, as well as in the business environment, and to undertake new business creation in order to strengthen our business foundations. By capitalizing on digital technology, we are able to free up time for employees to be creative. My hope is that they will use that time to apply generative AI to help in exploring novel ideas. Currently, we are still at the stage of project member-centered study sessions and building a safe environment in terms of security, but, once generative AI becomes a commonplace tool, it will encourage each employee to tackle challenges. I hope that the culture within our company will change in that way.
As for “continuing and improving corporate governance,” I want to put particular emphasis on compliance. As I mentioned earlier, I have been involved at the front lines on a variety of issues. I understand firsthand the importance of compliance. That is all the more reason why we will continue to adhere to the “compliance as premise.”

Looking Towards the Future

Fostering More “Comrades” to Create a Bold Corporate Culture

No one knows when their life will end. That's why I strive to work hard every moment to do what needs to be done. But no one can do it all on their own. Without comrades who are willing to tell you when you’re wrong, you’ll just end up like the emperor with no clothes.
I intend to convey this way of thinking in my own words to employees and other stakeholders. Nothing gets conveyed if you don’t put into words.
I hope that, by this, employees will increase the number of comrades they have among one another, thereby creating an open organizational culture in which each employee can work independently and with confidence. I want to foster a corporate culture which boldly takes on challenges. I believe that all of this is necessary in order to achieve the numerical targets of Stage II, to Strengthening all of our business into primary sources of profit, and to advance to Stage III.
And I would be happy for all of our shareholders and investors to join with us as comrades.

Review of Vision 2030 Stage I

Bioscience sales exceed target

Although global growth in the bioscience sector drove increased sales under the Group's Vision 2030 Stage I medium-term business plan (covering April 2021 through March 2024), a slowdown in the titanium dioxide market meant we failed to achieve the plan's targets for profit and return on equity (ROE).

Stage I results and evaluation

In our organic chemicals business, bioscience business sales exceeded the plan's target thanks to pricing revisions, yen weakness, increased sales of agrochemicals in Brazil, and sales of new herbicides in the U.S., while operating income grew in line with the plan's target. In the healthcare business, impacts associated with a delay in the start of U.S. sales of an animal health product caused performance to fail to achieve targets.
In the inorganic chemicals business, the functional materials business failed to meet the plan's targets as increases in sales of conductive materials, including overseas, fell short of what the plan envisioned, aggravating the impact of a slowdown in the electronic component market. The titanium dioxide business was impacted by a loss of market momentum during the second half of 2022, and we failed to recoup soaring raw material costs through pricing revisions.

Performance overview (consolidated)

Net sales (Billion yen)	Results	Stage I targets
Organic chemicals business	67.1	58.7
Inorganic chemicals business	68.0	63.5
Other	3.2	—

Operating income (Billion yen)	Results	Stage I targets
Biosciences business	10.3	10.6
Healthcare business	△0.7	0.6
Functional materials	2.6	3.8
Titanium dioxide and other inorganic chemicals	△1.1	1.5
Other	0.2	—

Other indicators	Results	Stage I targets
Operating margin (%)	8	13
Ordinary income (Billion yen)	14.8	15.8
Net income (Billion yen)	7.9	12.4
ROE (%)	8	13

Results and issues

	Results	Issues
Organic chemicals business	● "The use of multiple agrochemical distributor" and "the maintenance of agrochemical registrations" helped achieve the sales targets of agrochemicals. ● Finalized the construction plan for Technology Research Center, Hyogo-Ono to "refine and pass on chemical synthetic technologies."	● A new subcontractor plant in India has started operation to achieve "low-cost production of active agrochemical ingredients," but the introduction of the new production method is behind schedule. ● To achieve the "global roll-out of the anti-inflammatory drug for acute phase of pancreatitis in dogs," a sales partnership with Ceva Santé Animale S.A. was concluded. The sales plan was behind schedule.
Inorganic chemicals business	● To "expand sales of electronic component materials," we established a joint venture company with Murata Manufacturing Co., Ltd. and finalized the plant construction plan. ● We successfully achieved "waste reduction at the Yokkaichi Plant." "Creating a roadmap toward carbon neutrality."	● "Increasing the sales ratio for highly functional, high-value-added products" was not achieved. We are steadfastly implementing the structural reform of the inorganic chemicals business. ● "Accelerating development of new products that will serve as drivers of further growth" was behind schedule.
Groupwide	● To achieve "management from the perspective of ESG and the SDGs," we have implemented an organizational transformation under the leadership of the Sustainability Promotion Committee. ● We successfully achieved "strengthening shareholder return" with a payout ratio of 30% and a cumulative shareholder return of 7.7 billion yen. Further enhancement will be pursued in Stage II.	● "Strengthening of the ability to create new businesses and products" is still ongoing. We will pursue the enhancement of R&D organization. ● To achieve "exhaustive capital cost management," we will establish mechanisms and structures for ROIC-focused management.

Overview of Vision 2030 Stage II

Realizing “Originality. Acceleration. Global Reach.” through individual change

Under Vision 2030 Stage II, the Group has set the principal objective of pursuing the initiatives to combine business activities with sustainability, along with the four goals of strengthening R&D capabilities and improving efficiency for greater originality, accelerating globalization, pursuing ROIC management, and continuing stable returns for shareholders. Specifically, in our organic chemicals business, we will seek to develop and commercialize new agrochemical products and to roll out animal health products overseas while launching a new research center. In our inorganic chemicals business, we will pursue a program of selection and consolidation as we aim to dramatically transition our product portfolio from general-purpose titanium dioxide to the functional material domain.

The Group is currently facing a period of business transition as it prepares for the end of titanium dioxide using sulfate processing production at the Yokkaichi Plant, which was launched exactly 70 years ago, and the launch of its first new research center in 60 years. Times like this demand character, productivity, a willingness to embrace challenges, and passion. We will achieve change throughout the Group through individual employees’ changes as we realize “Originality. Acceleration. Global Reach.” as set forth in Vision 2030.

Vision 2030 Stage II, medium-term business plan covering FY2024 to FY2026

Strengthening R&D capabilities and improving efficiency for greater originality	Accelerating globalization	Pursuing ROIC management	Continuing stable returns for shareholders

Organic chemicals business

- Accelerating R&D and commercialization of new agrochemicals and animal health products
- Increasing our share of the global market by manufacturing agrochemicals at the lowest cost in the world and supplying them in a stable manner
- Acquiring and maintaining agrochemical registrations in various countries worldwide
- Expanding sales for the animal health product PANOQUELL™ in the US and deploying the drug in other major countries as well
- Expanding the scale of our businesses by pursuing M&As and partnerships with other companies, and introducing agents from other companies
- Developing and commercializing biological products

Inorganic chemicals business

- Expanding sales and increasing production capacity of electronic component materials
- Expanding business by marketing newly developed products and creating new businesses
- Improving the capability of technical sales overseas
- Expanding business through collaboration with other companies
- Procuring main raw materials and fuels stably and on favorable terms
- Reforming our inorganic chemicals business structure

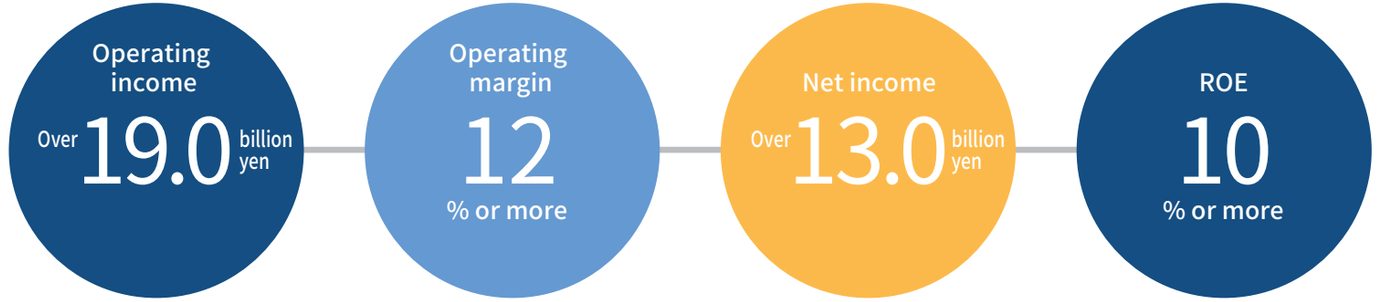
Overall management

Pursuing the initiatives to combine business activities with sustainability

- Contributing to the environment and society
- Promoting human capital management
- Promoting DX
- Continuing and improving corporate governance

Vision 2030 Stage II targets

Under Vision 2030 Stage II, the Group will transition from its direction during Stage I, when it pursued revenue growth, and implement structural reforms to seek profits. We will aim to achieve an operating margin of at least 12% and ROE of at least 10% by the end of FY2026, the plan's last year. We have set the ambitious target of generating operating income of at least 19.0 billion yen, which is almost twice FY2023's 11.4 billion yen, but consider that goal to be a viable one.



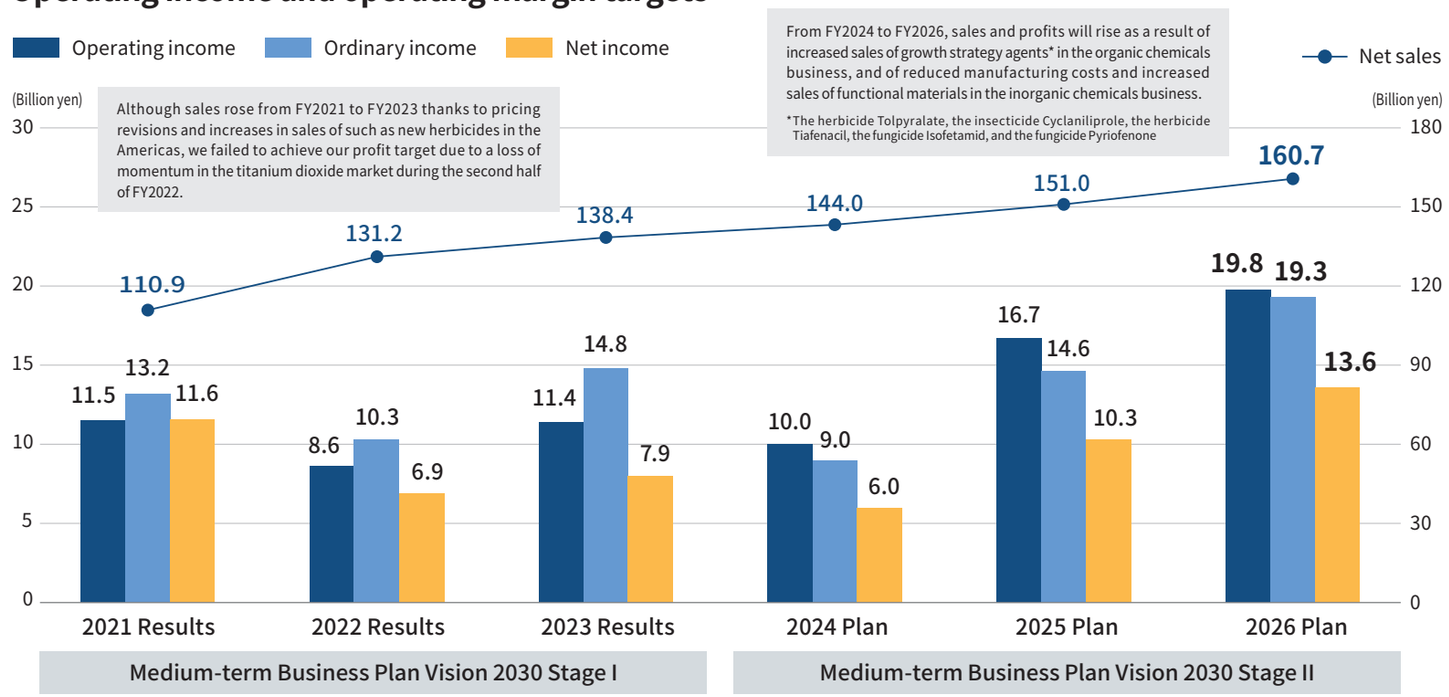
Principal KPIs

	2023 Results	2026 Target
Operating income	11.4 billion yen	**Over 19.0 billion yen**
Operating margin	8%	**12% or more**
Net income	7.9 billion yen	**Over 13.0 billion yen**
ROE	8%	**10% or more**

	2021–2023 Results	2024–2026 Targets
Capital Investment	20.7 billion yen	**32.7 billion yen**
R&D Expenses	27.0 billion yen	**30.3 billion yen**

	Target
Dividend policy	Aiming for a consolidated dividend payout ratio of 40% toward FY2026

Operating income and operating margin targets



Message from the Director of Finance & Accounting Headquarters

Monitoring Earnings Trends while Striking a Balance Between Investment and Shareholder Returns

Director of Finance & Accounting Headquarters **Yasunobu Kawazoe**

Market Conditions and Performance Results for Fiscal 2023

Groundwork Laid for Next Stage Despite Missed Targets in Stage I

Although our organic chemicals business was indirectly affected by other companies' excess inventory in Brazil, market conditions were otherwise adequate and overall performance in fiscal 2023 exceeded the previous year in both sales and profits. However, caution is called for as generic agrochemical active ingredients from Chinese manufacturers are beginning to penetrate the European market and elsewhere.

In our inorganic chemicals business, the downturn in the Chinese economy led to an influx of cheap titanium dioxide from local manufacturers into Southeast Asia, and titanium dioxide used in architectural paints domestically was affected by delays in construction work due to labor shortages. In addition, demand for functional materials for multilayer ceramic capacitors was also weaker due to a slowdown in EV production in China. Despite all of these factors, price revisions and a weaker yen contributed to results for fiscal 2023 which saw both sales and profits exceed the previous year.

As a result, the Group's consolidated operating income exceeded our forecast, reaching 11.4 billion yen, but fell short of the 16.6-billion-yen target set in our previous medium-term business plan, Vision 2030 Stage I. This was due to the fact that earnings from titanium dioxide in our inorganic chemicals business were in the red, while there have been delays in achieving profitability for our healthcare business.

Let us now look back at Stage I as a whole. Within our organic chemicals business, we achieved our targets for biosciences business to a certain extent, realizing a dividend payout ratio of 30%. On a positive note, we were able to lay the groundwork for the next stage, such as with the establishment of Technology Research Center, Hyogo-Ono, which will carry out production technology research, and with the establishment of MF Material Co., Ltd., which is a joint venture with Murata Manufacturing Co., Ltd. We also came to a decision about structural reforms for our inorganic chemicals business, including discontinuing production of titanium dioxide in sulfate process. On the other hand, however, we have not been able to achieve our goal of having the lowest cost manufacturing in the world for our biosciences business due to intensifying competition with Chinese-made generic active ingredients and delays in the start-up of our Indian factory.

When we look at the current market situation, we see that the overcapacity in China is continuing in both the organic and inorganic chemical markets in fiscal 2024 as well, meaning a continuation of these harsh market conditions.

Vision 2030 Stage II

Reducing Volatility Through Structural Reform of Our Inorganic Chemicals Business

It is amidst these conditions that we launched our current medium-term business plan, Vision 2030 Stage II, in April 2024. From a financial perspective, the main features include (1) a shift in policy from focusing on net sales to focusing on operating income, and (2) the introduction of a business headquarters system for our inorganic chemicals business, with all business divisions managing profits by subsegment. Of particular importance is that, with regard to (2), we have begun structural reforms to improve the profitability of our inorganic chemicals business. Over the next three years, we will be shutting down our titanium dioxide production lines which use sulfate processing and focusing on the chloride process, all while meeting our supply responsibilities to our users. We will communicate with our customers to ascertain the brands and quantities they need while carefully accommodating their requests so as not to cause them any inconvenience.

With regard to (1), as the chief financial officer, I will monitor whether we can achieve our intended operating income and, in line with the state of our progress, will seek an optimal solution that balances investment with shareholder returns. Our current operating income target of 19.8 billion yen is the result of a thorough review by the Corporate Administration & Planning Headquarters to ensure we do not repeat the mistakes of past plans that were not achieved. Each business division will be held responsible for achieving its targets.

In addition, in Stage II we will emphasize ROE, setting a target of 10% or more. We sought the same level for Stage I but, in the end, arrived at 7.9%. This was due to the high volatility of titanium dioxide. Now that we have decided to discontinue production of titanium dioxide in sulfate process, we expect there will be less fluctuation in our business performance, and we hope to clearly demonstrate over the next three years.

Also, what is key for achieving our targets is whether we can steadily implement the research and development strategy laid out in Stage II. This is entirely possible if, towards the end of the plan, we are able to introduce new functional materials products on schedule in our inorganic chemicals business. Another important point is whether titanium dioxide in chloride process can be made profitable through advantageous procurement of ore and innovation in manufacturing technology. It is by these efforts that we will turn all of our products into high-profit products.

Capital Allocation and Funding

Capital Investment of 30 Billion Yen and Cumulative Dividends of 12 Billion Yen

Stage II also includes the announcement of a new outline for capital allocation. We began working on this two years ago after investors asked about cash flow allo-

Message from the Director of Finance & Accounting Headquarters

cation following our first share buyback.
For the announced allocation, we have estimated that operating cash flow obtained over the three-year period of Stage II will be approximately 52 billion yen, which will be allocated first to necessary capital investments and then to dividends. Capital investment, including the construction costs of the MF Material Nobeoka No. 2 Plant, will be approximately 30 billion yen. Regarding dividends, after spending six months talking with institutional investors, we decided to set a target dividend payout ratio of 40%, which many felt was a level that would be well received. The cumulative total for the three years will be approximately 12 billion yen. Although there is a risk of a downward trend in current net income, dividends will be maintained.
The remaining approximately 10 billion yen will be allocated to other growth investments. If a larger amount is required, such as for expenses related to the introduction of other companies' agrochemicals, we will raise the funds through interest-bearing debt. Currently, working capital is increasing due to an increase in our inventory of titanium dioxide produced by sulfate processing; however, as inventory adjustments progress, interest-bearing debt will decrease, keeping the company's rating at "BBB+ Stable," which means there will be no problems with fundraising. Stage II has also been well-received by rating agencies an easy-to-understand plan.

Introduction of ROIC

ROIC as an Internal Investment Standard, and ROE as an External Indicator for the Time Being

Our Group is preparing to introduce ROIC (return on invested capital) from fiscal year 2024. It will be used as an internal investment standard. We are currently considering the basic framework, including whether the target organizational units should be the individual headquarters or the individual sub-segments. We have used, and will continue to use, the discounted cash flow method to evaluate investments, so what we do will remain essentially unchanged; however, our decision to switch to ROIC will make things easier to understand and allow them to be broken down into a tree in order to identify indicators directly related to our business operations.
First, we will spend a year analyzing and allocating accounts; in the next year, we will put in place a system which includes consolidation and then begin employee training.
Meanwhile, as an indicator for those outside the company, we will continue to use ROE for the time being, with one of our Stage II targets being an ROE of 10% or more. This is because it is easy to understand and is an important factor among institutional investors' voting criteria. Currently, the trend seems to be to perform evaluation using ROE, but that could very well change; hence, we will be keeping an eye out for any developments.
Regarding shareholder's equity cost, which is the capital cost corresponding to ROE, we are looking at a broad range of 7 to 10%. This is because the results can vary considerably depending on how the data is collected. Fundamentally, I do not see any problem as long as ROE exceeds shareholder's equity cost. We are reducing the volatility of our performance through the introduction of structural reforms to our inorganic chemicals business, and hope you will watch to see whether this can be reflected in ROE over the next three years.

Shareholder Returns

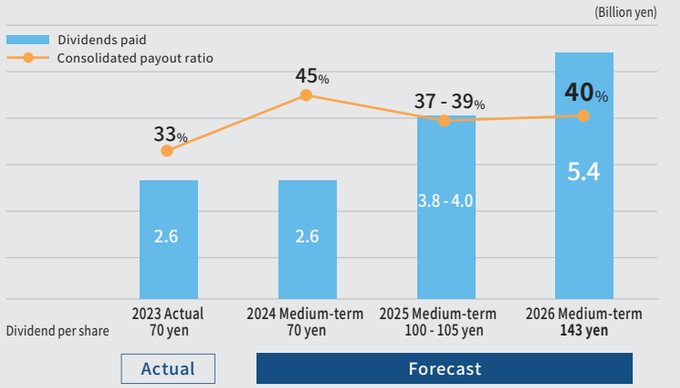
Aiming for a Dividend Payout Ratio of 40% and a PBR of 1

As mentioned in the explanation of allocation, the target shareholder return for Stage II is a dividend payout ratio of 40%. This was the most commonly heard figure based on discussions with a wide range of institutional investors. We will monitor our profit levels and consider share buybacks where appropriate, but our main focus remains dividends. We are not focused on the total return ratio.
Part of having a dividend payout ratio of 40% is that it helps in addressing PBR (price-to-book ratio). For many years, our PBR was below the liquidation value of 1, and, in order to resolve this situation during Stage II, we calculated backward from the dividend to arrive at the expected share price when PBR is 1 and found that the dividend payout ratio was 40%.
The most important factor for achieving a dividend payout ratio of 40% and a PBR of 1 is making sure that we achieve our operating income target. What is required to achieve this will be decided in Stage II. Execution is all the remains after that.
Institutional investors indicated to us that they will have no issue with the progression of Stage II if it results in a dividend payout of 143 yen in the final year as planned. However, there does seem to be some anxiety about what might happen if the market starts to move downwards. So, first things first, we need to show solid progress in the first year.
However, the views of the Tokyo Stock Exchange, from which the PBR request originated, as well as the opinions and expectations of investors, change from year to year. I believe it is essential that we face our challenges head-on while also being flexible with rolling our targets.

Shareholder Returns

Fiscal 2026 Consolidated Payout Ratio of 40%

- Continue paying stable dividends in line with business performance, comprehensively taking into account factors such as business performance trends, financial conditions, and the maintenance of sufficient internal reserves necessary for future business development.
- Aim for a consolidated dividend payout ratio of 40% toward the final year (FY2026).
- Flexibly acquiring treasury stock.



Value Creation Process

Chemical technologies

- Organic Synthesis technologies
- Formulation Manufacturing technologies
- Environmental analysis technologies
- Genetic Modification technologies
- Crystal control
- Electronic Conductivity control
- Manufacturing technologies

Ability to develop proprietary technologies × Ability to accommodate quality and environmental requirements × Ability to collaborate globally

Management capability

Materiality P22-23

- Technological development capabilities
- Dealing with climate change, reducing environmental impacts
- Supply chain management
- Reforming workstyles by pursuing digital transformation (DX) and streamlining operations
- Diversity and inclusion
- BCP, risk management
- Occupational safety and health, operation safety and disaster prevention
- Corporate governance

Input P20-21

- Financial Capital
- Human Capital
- Natural Capital
- Manufacturing Capital
- Social and Relationship Capital
- Intellectual Capital

Basic Philosophy P02

- Contribute to social development, protection of life and environmental preservation
- Respect shareholders, customers, suppliers, local communities and employees
- Abide by laws and regulations; maintain transparency in business activities

Vision 2030

Originality. Acceleration. Global Reach.
Transforming Lives Through the Power of Chemistry.

Output P20-21

Purpose

To continue contributing to better living environments through chemical technologies

Our Vision Towards 2050

A global company that is cherished by people and society, achieving healthy and fulfilling lives

Outcome

Agrochemicals Improving agricultural production stability and quality	**Animal health products** Attain a comfortable life with companion animals	**Pharmaceuticals** Contributing to medical care
Functional materials Creating a range of comfort	**Titanium dioxide** Providing a variety of colors and hues	**Environmental products** Achieving both innovation and environmental protection

Promote Value Creation through Continuous Input

ISK Group's definitions of the inputs and outputs of the six capitals of value creation are given below. We will realize Vision 2030 through ongoing enhancement of inputs.

	Input	Role in Value Creation	Output
Financial Capital 	● Total assets (FY2023 consolidated) **224.3** billion yen ● Interest-bearing debt (FY2023 consolidated) **70.3** billion yen ● Shareholders' equity (FY2023 consolidated) **101.9** billion yen	The Group considers taking maximum advantage of the resources it owns to generate profit efficiently to be an important priority. Under Vision 2030 Stage II, we will introduce ROIC management and work to further improve capital efficiency. In addition, we will control the balance between equity and interest-bearing debt, both of which are sources of assets, as we work to lower capital costs.	● Forecast performance for FY2024 ・Consolidated net sales **144.0** billion yen ・Consolidated operating income **10.0** billion yen ・ROE **5.6** %
Manufacturing Capital 	● Capital investment (FY2023 consolidated) **9.6** billion yen ● Contract manufacturers of agrochemicals (FY2023 non-consolidated) **38** facilities (Japan) **19** facilities (Overseas) **19** facilities	Most products in our organic chemicals business are produced at contractors' facilities, rather than at our own plants. In this way, we've linked manufacturing directly to product sales and implemented supply structures that are resistant to geopolitical and ESG risk. In addition, we're working to lower the cost of manufacturing aggressively so that we can compete with generic products. Although products in our inorganic chemicals business are produced at our Yokkaichi Plant, we will halt production of titanium dioxide in sulfate process at the end of FY2026. By continuing to be Japan's only producer of titanium dioxide in chloride process, we will improve our profitability.	● Organic chemicals business production volume (FY2023 consolidated) **49.1** billion yen ● Inorganic chemicals business production volume (FY2023 consolidated) **75.6** billion yen
Human Capital 	● Employees (FY2023 consolidated) **1,813** people ● New graduate hires (FY2023 non-consolidated) **29**, including **10** women ● Mid-career hires (FY2023 non-consolidated) **39**, including **15** women	Securing and making the most of a diverse group of human resources are key priorities of the ISK Group. We strive to secure human resources with a challenging spirit and a global perspective, regardless of their gender or nationality, as newly hired graduates or mid-career hires. We also help newly hired employees develop their careers in order to strengthen their basic skills as working members of society, raise the awareness of employees at all levels of their roles, and offer a career development program designed to prepare promising candidates for executive roles. In this way, we're working to put in place an environment in which all employees can embrace the challenge of doing high-quality work and to enhance our training programs. Through these initiatives, we will maximize the value of our human resources.	● Training time per person (FY2023 non-consolidated) **31** hours per person/year ● Employees who took childcare leave (FY2023 non-consolidated) **18** people ● Female manager ratio (FY2023 non-consolidated) **9.1** % ● Paid leave acquisition rate (FY2023 non-consolidated) **82.8** %
Social and Relationship Capital 	Transparency in business activities abiding by laws and regulations ● Number of countries where we sell our products **74** countries	In keeping with the Group's corporate philosophy, we strive for the sustained growth of our business and growth in our corporate value through a commitment to compliance and management that is transparent, trustworthy, and sound. We promote two-way communication to earn the trust of local residents, for example through efforts to ensure safety and disaster prevention, environmental activities, and active communication of information. In addition to undertaking human rights initiatives, we observe the laws and regulations in every country and region in which we operate, and we ensure our purchasing activities are characterized by decency and adherence to social ethics.	● Coexistence with local communities ● Number of interviews with institutional investors (FY2023) **100** ● External honors: Shiga Prefectural Federation of Fire Safety Councils FY2024 Shiga Prefecture "Excellence in Fire Safety" Worksite Award

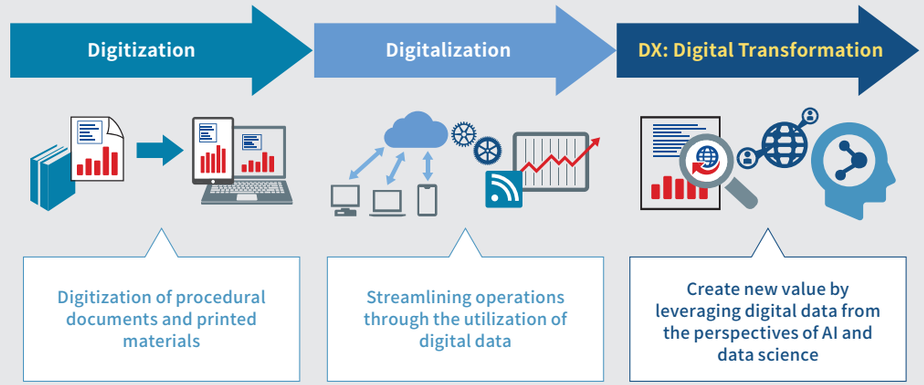
Input and Output

	Input	Role in Value Creation	Output
Natural Capital	Yokkaichi Plant FY2023 ● Energy (heavy fuel oil equivalent) **140,000** kiloliters ● Industrial water **16** million m³ ● Seawater **11** million m³ ● Titanium ore **160,000** tons	We treat energy, water, and titanium ore consumption at Yokkaichi Plant and our subsidiary, Fuji Titanium Industry, as key indicators so that we work to reduce the volume of our CO_2 emissions, water usage, and industrial waste disposal. By reducing coal-fired boiler CO_2 emissions as part of our efforts to address global warming, we aim to preserve a comfortable living environment. Through more thorough chemical substances management, we are reducing the amount of emissions and transfers, with the goal of reducing the impact on humans and the ecosystem to as close to zero as possible.	Yokkaichi Plant FY2023 ● CO_2 emissions **370,000** tons ● Wastewater emissions into public water areas **27** million m³ ● Industrial waste **97,000** tons PRTR-listed substances **1,500** tons
Intellectual Capital	R&D expenses (FY2023 consolidated) **9.7** billion yen Organic chemicals **8.2** billion yen Inorganic chemicals **1.3** billion yen ● Percentage of R&D employees (FY2023 non-consolidated) **22.4** %	Research and development have long been a priority for ISK Group. We ensure that a certain threshold for R&D expenses is met regardless of fluctuations in business performance. R&D activities at the Central Research Institute and Yokkaichi Plant account for the majority of R&D expenses, while some are used for the registration of agrochemicals in various countries. Drive the development and patenting, both in Japan and overseas, of new agrochemicals, functional materials, and more, and facilitate the creation of new business associated with them.	● Number of patents held (end of FY2023 non-consolidated) **2,606** (Japan) **234** (Overseas) **2,372** ● Products developed in-house as a percentage of organic chemicals business sales (FY2023 consolidated) **88.0** %

Topics

Striving to spread a digital transformation (DX) mindset and a willingness to embrace challenges throughout the organization

In order to effectively utilize digital technologies, it's necessary to cultivate the proper mindset. To spread this mindset as we pursue a digital transformation (DX), we're offering in-house DX mindset training, generative AI workshops, and other programs for employees, including those in management positions.
In addition to building organizations and mechanisms that empower employees to take the initiative in proposing and implementing solutions based on digital technologies in this way, we're working to train human resources so that they can exhibit leadership in business process reform by connecting issues in site work with improvement measures based on a deep understanding of DX trends and technological expertise. Furthermore, by building an environment that facilitates safe, internal use of generative AI and other digital technologies, we're striving to utilize generative AI with highly sensitive data like research data accumulated by the company over many years and customer information so that we can streamline R&D and create new corporate value. At the same time, cybersecurity is becoming increasingly important as adoption of digital technologies accelerates. We're strengthening governance based on cybersecurity and computerization while pursuing the DX and building an environment that enables employees to actively embrace new digital technologies with peace of mind.



Materiality

Accelerating efforts to connect Our Vision Towards 2050 with materiality

Our group connects materiality factors with three initiatives to realize our Vision for 2050 of becoming "a global company that is cherished by people and society, achieving healthy and fulfilling lives."

Materiality identification

The Group identified 16 materiality factors by resolution of the Board of Directors by compiling a list of themes (issues) by means of an employee questionnaire and workshops, ranking them on the basis of their importance for the Company and their importance for stakeholders, and having them reviewed by outside experts.

Initiatives to achieve KPIs

We established KPIs for eight of the 16 identified materialities characterized by a particularly high level of importance, and we're managing progress by setting single- and multi-year targets and assigning a department with oversight responsibility for each.
Progress towards achieving KPIs is monitored by the Office of Sustainability Promotion, and results for each fiscal year are reported to the Sustainability Promotion Committee. KPIs are reviewed as appropriate based on progress in related initiatives, deliberated by the Sustainability Promotion Committee, and disclosed in the Integrated Report and on the website.
In addition, we plan to review the materiality factors during Vision 2030 Stage II to accommodate changes in the business environment and society. We're working to develop mechanisms for bringing information about business risks and opportunities to bear on our management from an ESG and SDGs perspective.

STEP 1 Issue identification

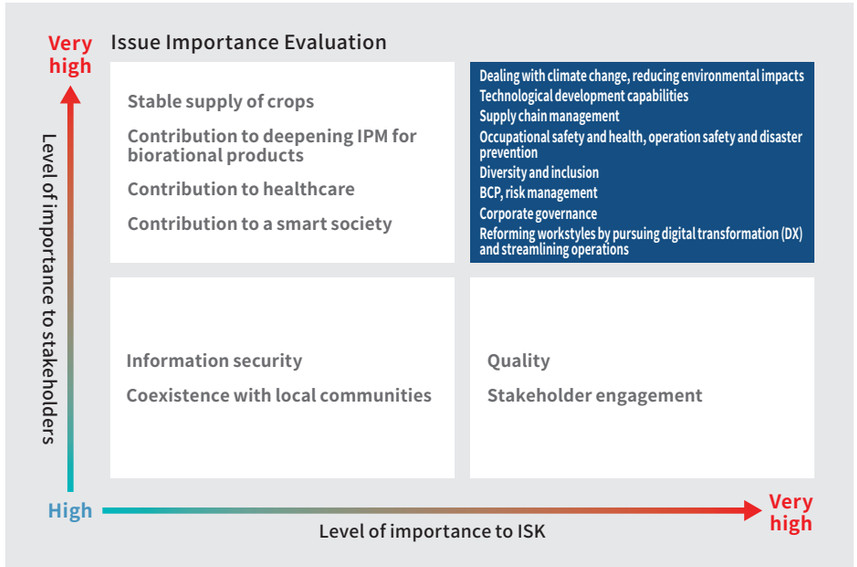
- In accordance with GRI, SASB, and other guidelines, as well as the ISK group's long-term vision and other resources, we identified issues that deserve to be emphasized.

STEP 2 Prioritization

- We carefully reviewed the importance of issues for ISK based on their alignment with our corporate purpose and other policies, and the importance of issues for stakeholders based on industry issues, key ESG themes, and other resources.

STEP 3 Materiality identification

- Outside experts reviewed the process and verified its suitability.
- Finalized following deliberation by the Executive Management Committee and approval by the Board of Directors.



STEP 4 Establishment of KPIs

- We reviewed materiality-related indicators highlighted by ESG evaluation organizations.
- We then established KPIs after conducting interviews with business departments and other entities as necessary.

STEP 5 Regular monitoring

- Progress is monitored by the Office of Sustainability Promotion.
- Results are reported to the Sustainability Promotion Committee.

STEP 6 Disclosure of results and review of KPIs

- KPIs are deliberated by the Sustainability Promotion Committee.
- KPIs are disclosed each year in the Integrated Report and on the website.

Eight Most Important Issues and KPIs

Materiality	KPI	Achievements		Target/FY	Scope
		2022	2023		
Dealing with climate change, reducing environmental impacts	CO_2 emission reduction rate (Scope 1+2, vs. FY2019)	1.5% increase (FY2019 levels)	2.7% increase (FY2019 levels)	30% or more/2030	ISK Group
	Reduction in energy intensity	3.9% increase (Year-on-year)	1.0% decrease (Year-on-year)	1% or more/Every year	Japan, consolidated
	Industrial waste emission reduction rate (vs. FY2019)	22.1% reduction (FY2019 levels)	20.2% reduction (FY2019 levels)	50% or more/2030	ISK
	Adherence to voluntary control standard values that are stricter than environmental laws (wastewater, waste gas)	Achieved	Achieved	Continue/2024	Japan, consolidated
Technological development capabilities	Creation of new products and technologies in each business segment	Working according to the plans	4 new products launched (FY2022 to FY2023)	Increase in number of new products created/ Every year (average of most recent 3 years)	ISK Group
	R&D expenses	9.1 billion yen	9.7 billion yen	30.3 billion yen/Cumulative total, FY2024 to FY2026	ISK Group
	Percentage of employees in R&D positions	22.2%	22.4%	Maintenance of a level of 20% or greater/2030	ISK
Supply chain management	Establishment of ISK Group Policy on Procurement and guidelines governing procurement	ISK Group Policy on Procurement has announced and guidelines under review.	Compilation of guidelines in progress	Completion of guidelines/2024	ISK Group
	Supplier CSR survey rate	—	56% (transaction value)	70% or greater (transaction value)/2025	ISK
Occupational safety and health, operation safety and disaster prevention	Frequency rate of worktime injuries, severity rate*	Frequency rate: 0.56 Severity rate: 0.03	Frequency rate: 0.93 Severity rate: 3.47	0 accidents/2024	ISK, Fuji Titanium Industry, MF Material
	Percentage of employees undergoing health checkups and stress checks	100%	100%	100%, continuing/2030	ISK
	Paid leave acquisition rate	81.9%	82.8%	80% or more/2030	ISK
Diversity and inclusion	Female manager ratio	7.6%	9.1%	10% or more/2026	ISK
	Mid-career hires as percentage of managers (average for last three years)	29.3%	21.4%	30% or more/2024	ISK
	Time spent in training and/or classes per employee	24 hours	31 hours	30 hours or more/2024	ISK
	Cost of training sessions and/or classes per employee	50,000 yen	62,000 yen	60,000 yen or more/2024	ISK
BCP, risk management	Implemented through Corporate Risk Management Committee initiatives	Progressing according to the plans	Achieve plan	—	ISK Group
	Implementation of training envisioning a large-scale disaster and review of documented procedures in light of environmental changes	—	—	1 per year/2024	ISK
	Revisions to the risk map and review of priority risks targeted by measures	—	—	Held/2024	ISK Group
Corporate governance	Participation in at least 1 compliance training session	100%	100%	100%, continuing/2024	Japan, consolidated
Reforming workstyles by pursuing digital transformation (DX) and streamlining operations	Effective contribution to operational streamlining	3	3	3 /2024	ISK
	DX certification	Progressing according to the plans	Acquired	Continuing/2025	ISK

*Frequency rate of worktime injuries: Number of employees injured or killed in occupational accidents per 1 million total working hours; indicates the frequency of occupational accidents. Severity rate: Number of working days lost per 1 thousand total working hours; indicates the severity of occupational accidents.

Organic Chemicals Business (Biosciences)

In our biosciences business, we manufacture and distribute agrochemicals such as herbicides, fungicides, and insecticides. We sell our products not only domestically but also export a significant amount overseas, in fact we are one of the leading exporters by value in Japan. We relentlessly pursue research and development that will improve people's daily life in terms of their food, health, and lifestyle.

Stage I Review

Results

- "The use of multiple agrochemical distributors" and "the maintenance of agrochemical registrations" helped in achieving the sales targets for agrochemicals.
- Finalized the construction plan for Technology Research Center, Hyogo-Ono to "refine and pass on chemical synthesis technologies."

Issues

- A new subcontractor plant in India has started operation to achieve "low-cost production of active agrochemical ingredients," but the introduction of the new production method is behind schedule.

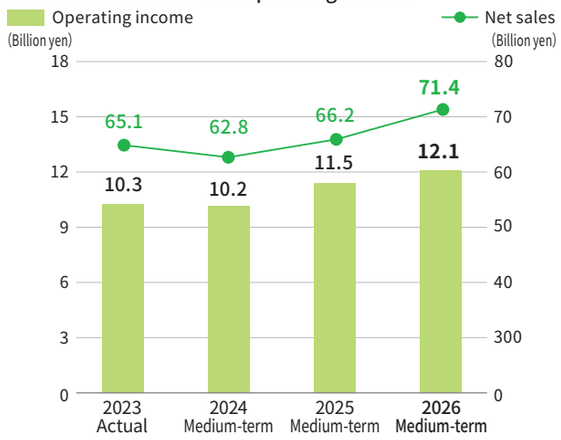
Sales and Revenues

We use multiple agrochemical distributors to expand sales of our flagship products as well as of growth strategy agents*. We are also currently constructing Technology Research Center, Hyogo-Ono as a new research and development base for agrochemical production technology in order to help ensure we are able to stably supply our agrochemicals while, at the same time, reduce our manufacturing costs. Through these efforts, we aim to expand our global market share, accelerate our globalization, and increase sales and revenues.

Growth Strategy Agents

- Tolpyralate (herbicide)
- Cyclaniliprole (insecticide)
- Tiafenacil (herbicide)
- Isofetamid (fungicide)
- Pyriofenone (fungicide)

Trends for Net Sales and Operating Income



Social Issues

The current world population is approximately 8.1 billion people. According to the United Nations, the population is expected to increase to 9.7 billion people by 2050, raising concerns about food shortages. Agrochemicals are needed to produce the crops that support the world's population. Such pesticides must not only be safe for humans but also have a low environmental impact in order to respond to environmental changes in crop production caused by climate change, to protect biodiversity, and to contribute to sustainable agriculture.

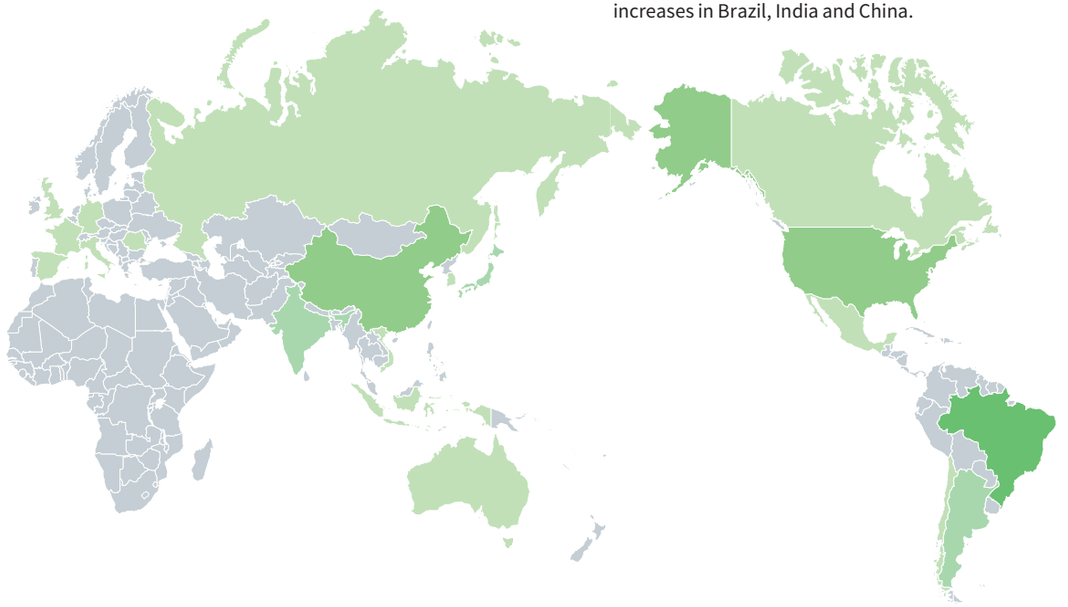
Market Environment

There are concerns about food shortages, and farmland is limited. Agrochemicals play an important role by controlling pests and diseases, thereby ensuring crop yields and quality and helping make it possible to supply needed food at reasonable prices to people around the world. Against this backdrop, the global agrochemical market is expected to continue expanding, with an average annual growth rate of 1.7% between 2023 and 2028 (source: Agbio Crop 2023).

Global Agrochemical Market (AgbioCrop 2023)

Billion US $ 16.3

Sales of agrochemicals have steadily increased over the past five years due to such factors as expanding acreage for crops like soybean, with particularly notable increases in Brazil, India and China.



Organic Chemicals Business (Biosciences)

Risks and Opportunities

Risks	Opportunities
Delay in, or failure to achieve, product approval or registration	Take proper approach to countries' registration agencies and authorities; assess other companies' agrochemicals registration and survey their registration status; secure personnel with expertise in highly specialized fields, ensure handover of registration know-how
Revised and stricter laws and regulations	Appropriately gather information relating to laws and regulations and registration requirements
New entries and intensifying competition	Lower production costs to strengthen competitiveness; develop new molecule and mixed formulations that will enable ISK to stand out in the agrochemicals market
Crop injury by agrochemical products	Strengthen safety confirmation by performing growing tests in fields. Promote and disseminate appropriate methods for using agrochemical products

Helping resolve societal problems

In order to sell agrochemicals, they must be registered in accordance with the laws and regulations of each country. And in order to register an agrochemical, it must be proven, based on scientific data, that it is safe for people and the environment. Thus, agrochemicals must be highly selective in order to control targeted pests while avoiding causing adverse effects on non-target organisms such as honeybees.
In recent years, there has been a heightening of safety standards required for registration worldwide, especially in Europe, and it can be said that the agrochemical registration system is one that takes biodiversity into consideration.
We are committed to developing agrochemicals that are not only safe but also highly effective in controlling pests. Agrochemicals that are highly effective at controlling pests will help ensure abundant harvests of high-quality crops.
Through the development of agrochemicals, we will contribute to the creation of a society free from hunger while at the same time protecting biodiversity.

Message from the Director

Thorough Management and Pursuit of Profit

Director of Biosciences Business Headquarters
Mikiya Horie

Review of Stage I

Achievement of Profit Targets and Good Progress in Recruiting Local Distributors

Despite the overall sales volume falling short of our target, we were able to achieve our profit target for Stage I. The sluggish sales volume was due to an increase in market inventory of agrochemicals in general in North America and Brazil in fiscal 2022 due to distributors and users purchasing more agrochemicals than they needed because of supply concerns caused by COVID-19. In addition, while other efforts such as the recruitment of local sales distributors overseas progressed according to plan, the start of operations at a new production plant in India being outsourced to a subcontractor was delayed due to the impact of COVID-19.
Significantly, we have been able to maintain the registration of our agrochemicals with different governments. In particular, as competing agrochemicals lose their registrations in the EU, where regulations are becoming stricter every year, maintaining our registrations has led to increased product sales in the EU. Another positive result has been the expansion of our sales distributors and, as part of our efforts to reduce manufacturing costs, the start of construction on Technology Research Center, Hyogo-Ono (Ono City, Hyogo Prefecture).

Basic Strategy

Developing Mixed Formulations of Growth Strategy Agents and Expanding Sales Networks

The biosciences business strategy for Stage II is simple. In order to increase profits, we need to reduce costs, increase sale prices, and increase sales volume. We believe that maintaining the prices of existing products and expanding sales of five growth strategy agents* will be key to achieving our target of 12.1 billion yen in operating income.

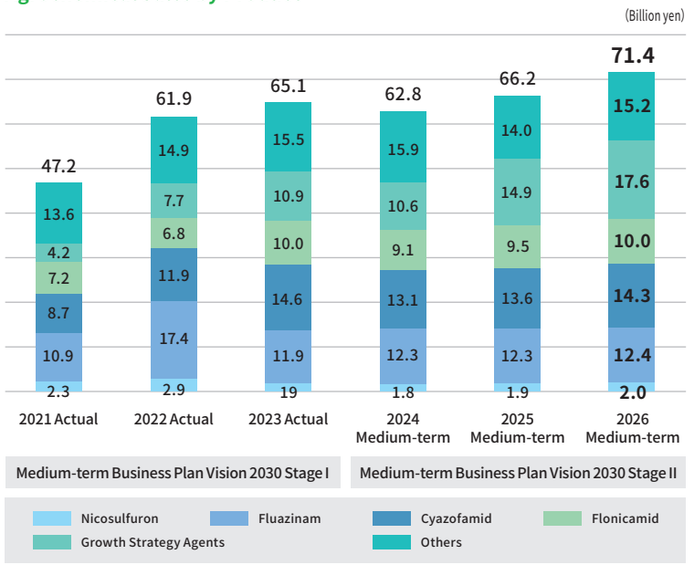
*Tolpyralate (herbicide), Cyclaniliprole (insecticide), Tiafenacil (herbicide), Isofetamid (fungicide), Pyriofenone (fungicide)

Organic Chemicals Business (Biosciences)

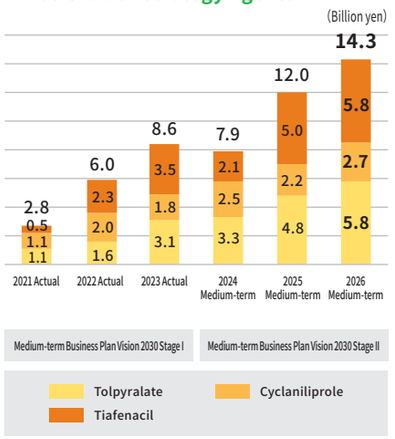
Message from the Director

Of the five, single formulation sales are growing for three; so, we will focus on developing mixed formulations of them. In addition to expanding the range of applications for our products, we will also work to differentiate our products from those of other companies, such as by taking measures against pesticide resistance to prevent fungus and other organisms from developing resistance to our products, so that we will be competitive against generic agrochemicals that are expected to be brought to market in the future. The aim is to develop mixed formulations as early as possible while the patent period remains, in order to gain first-mover advantage. We will introduce one to three products in each major region and will roughly double the number of local distributors that handle them.
For the remaining two growth strategy agents, we will explore new application contexts while reducing manufacturing costs to increase their competitiveness.
The main target markets for our growth strategy agents are North and South America. In Asia, registration of the single formulations has been completed in India, so we are aiming to add two mixed formulations. The problem is in the EU, where new environmental requirements are being constantly introduced, making it difficult to maintain registrations. Even if we secured register now, it may be revoked when the regulations suddenly become stricter. At one point, the European Commission proposed a bill to halve the use of chemical pesticides by 2030, but it was withdrawn earlier this year due to opposition from local farmers. We will need to continue to closely monitor relevant trends. However, I believe there will continue to be opportunities in Eastern Europe and the CIS countries, even within Europe.
In terms of costs, we will focus on improving the manufacturing process of active ingredients. A pilot facility will be installed at Technology Research Center, Hyogo-Ono to enable verification for actual manufacturing, and, by among other things, reviewing the Synthetic pathway and reaction conditions to improve yields, reducing the number of steps and the amount of raw materials used, and switching to cheaper raw materials, a more economically advantageous manufacturing process will be developed. We will set a fixed target amount to be achieved by 2030 to reduce manufacturing costs.
For the Stage II period only, we will consider purchasing intermediates cheaply from Chinese manufacturers and turning them into final compounds, but our main focus will be on improving the process and scaling it up in-house so that we can have our production outsourced to other companies to produce active ingredients cheaply. The costs for Technology Research Center, Hyogo-Ono will be recovered through cost reductions in our business.

Agrochemical Sales by Product



Three Growth Strategy Agents



Features and Strengths

Unique Development Speed and Registration Capabilities

One of our strengths is that we are able to efficiently develop agrochemicals ourselves by providing feedback to our Central Research Institute (Kusatsu City, Shiga Prefecture) about market demand captured by our sales departments. Thanks to this the speed of development is already fast, but to further enhance this strength, we are looking at introducing AI drug discovery along with joint development with research companies and other companies in the same industry.
Another notable feature of our business is our ability to independently perform agrochemical registration. We have approximately 20 registration staff in Europe and 10 in North America, mostly locally hired staff, as well as staff in Brazil, India and China. We are also considering increasing our staff numbers in North America and India. Our plan is to have not only registration department staff but also sales, development and manufacturing department staff stationed locally to give them experience abroad and help improve the quality of their work at the Head Office. Eventually, we would like to increase the number of staff stationed overseas to two or three times the current level.

Future Development

Working Now to Lay the Foundations for Future Global Expansion

Once Technology Research Center, Hyogo-Ono begins full-scale operation, our strengths will be augmented by enhanced production technologies. In order to capitalize on this further, I would like for us to have a base overseas that can serve as a manufacturing base. I think this is something for after we enter Stage III, but the idea is to gradually consolidate production to specific contract manufacturers and then form joint ventures with them.
We are also considering options such as introducing products from other companies and pursuing M&A with companies that have promising one. The aim is to supplement the products that are lacking in our product lineup, and if we want to expand sales in the shrinking European, American, and domestic markets, it is more reliable to acquire existing products with a proven track record than to launch new ones. We are particularly keen to target products that be divested by multinational corporations, provided that we can recoup our investment within a certain period of time and maintain registration without difficulty.
Stage II is period for us to strengthen pillars of profit in each of our businesses. Of course, we aim to achieve our operating income targets, but we also think it important to reduce production costs and improve efficiency while establishing a system for global expansion. This is so that when new products are developed in the future, they can be quickly expanded into sales. And, by 2030, when Vision 2030 reaches its culmination, we will have given tangible expression to our philosophy of “supporting people’s nutrition, health, and life to contribute to realizing a sustainable society.”

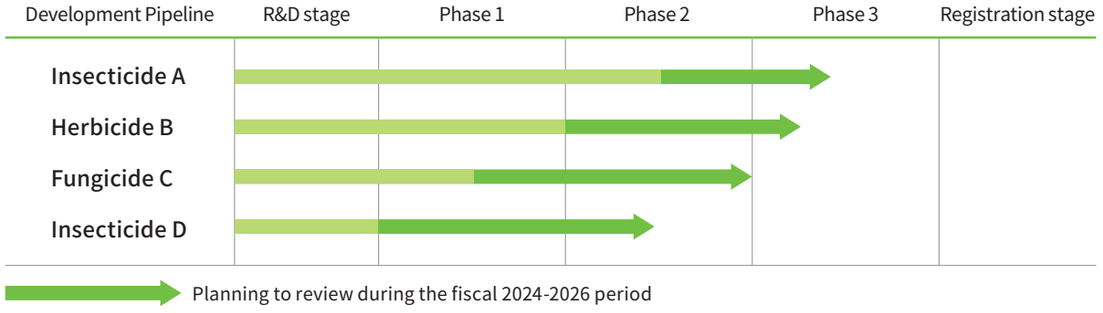
Organic Chemicals Business (Biosciences)

Research and Development Investment and Policies

We are strengthening our in-house research and technological development capabilities and utilizing them efficiently to promote the development and commercialization of new agrochemicals. We are also exploring various possibilities for expanding the scale of our business, such as through M&A with other companies, pursuing collaborations, and introducing products from other companies. We are also working on development and commercialization in the field of biologicals.

Development pipeline

From the standpoint of marketability and growth potential, we are concentrating our research on four focus areas. Based on an analysis of the target market size for each of these focus areas, we believe that each will be an attractive focus that will provide further growth opportunities for our agrochemicals business. It is generally said that agrochemical development takes more than 10 years. We undertake our research every day with an emphasis on speed and efficiency so as to complete it in as short a time as possible.



Contributing to Sustainable Agriculture

We have launched Riceful™, a biostimulant* for paddy rice made from ingredients extracted from plants that are also used in food. It is considered that spraying Riceful™ onto seedling trays before planting promotes the expression of heat shock proteins (HSPs), resulted in improving the high temperature tolerance of the rice and helping it to avoid the stress of hot summer.

*Biostimulants are materials that mitigate "abiotic stress," caused by such as high temperatures, dryness, cold damage, salt damage and physical damage.

Products under development	Marketing period
Biopesticides	In FY2026
Biostimulant	In FY2026

Construction of Technology Research Center, Hyogo-Ono

We will establish new Technology Research Center, Hyogo-Ono on our own site within the Hyogo-Ono Industrial Park in Ono City, Hyogo Prefecture where it will serve as a research and development base for agrochemical production technology in our organic chemicals business. Construction of the Center began on May 29, 2024.
The establishment of this R&D base is part of the priority measures presented in Vision 2030 Stage II, for our Organic Chemicals Business, is aimed at "accelerating R&D and the commercialization of new agrochemicals and animal health products" and "increasing our share of the global market by manufacturing agrochemicals at the lowest cost in the world and supplying them in a stable manner."

Intended Results

- Ongoing cost reduction through process review of new and existing products
- Establishment of highly efficient and inexpensive processes through in-house scale-up studies
- Cultivation of chemical engineers (human resources) and the passing on of plant engineering capabilities (manufacturing capabilities)

Construction work is scheduled to continue until September 2025, with operations scheduled to begin in December 2025. Approximately 30 to 40 people are expected to be employed at the facility initially. The main facility is being built during this first phase of construction, with about half of the land reserved for future growth as we look ahead to a second phase of expansion.

In parallel with the construction work, we are holding workshops to prepare the research facilities and equipment, select office furniture and fixtures, and to formulate rules for operating the Center. We are engaged in active discussion, not only with veterans but also the younger employees who will be the future of ISK, on ways that we can create a better workplace.

We will continue to strengthen our discovery and development of highly functional, safe and reliable agrochemicals, as well as our ability to supply them globally, to thereby contribute to stable agricultural production around the world.

Organic Chemicals Business (Healthcare)

Our healthcare business manufactures and sells animal health products and active pharmaceutical ingredients for human use, with the aim of protecting the health of people and animals and contributing to the realization of a fulfilling life both physically and mentally. We are currently pursuing global expansion, primarily in the United States and Europe.

Stage I Review

Issues

- With regard to the introduction of an anti-pancreatitis drug for dogs to worldwide markets, although we released this drug in the United States as well as Japan, sales have lagged compared to what was planned. The issue we face is to strengthen the sales system.

Sales and Revenues — **Animal Health Products (Anti-pancreatitis Drug for Dogs)**

Overseas Sales

The drug received conditional approval from the FDA in November 2022 and went on sale in the United States in April 2023. Currently, sales of our anti-pancreatitis drug for dogs are strong, but due to a delay in its launch compared to what was anticipated in the Stage I previous medium-term business plan, sales did not reach their target for Stage I.
During the current Stage II medium-term business plan, sales are scheduled to begin in Europe and other major countries around the world.

Domestic Sales

In fiscal 2023, both sales and operating income increased compared to the previous fiscal year. Since its launch in fiscal 2018, sales have smoothly increased every year compared to the previous year.
In fiscal 2024, we will expand our sales staff and communicate technical information to clinical practices to further deepen our penetration into the market.

Social Issues

With regard to animal health products, as the lifespans of companion animals (CAs) increase they experience a greater variety of diseases; however, addressing this need is complicated by the fact that there is a shortage of therapeutic drugs in the veterinary medical field.

Market Environment

Overseas

Health products for CA markets worldwide (2022)
About 2 trillion yen*1

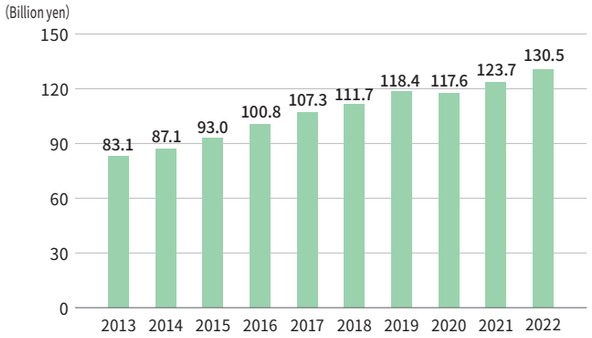
Japan

Animal health products markets in Japan (2022)
130.5 billion yen*2
[including production animals (PA) and CA]

Health products for CA markets in Japan (2022)
About 52 billion yen*1

*1 Based on in-house research
*2 The National Veterinary Assay Laboratory in Ministry of Agriculture, Forestry and Fisheries "Annual Report of Sales Amount and Sales Volume of Veterinary drugs, Quasi-drugs, Medical Devices and Regenerative Medicine Products 2020-2022"

Animal health products markets in Japan



Risks and Opportunities

Risks	Opportunities
There is a limit to the regulatory data protection period (reexamination period) during which sales exclusivity is guaranteed.	The reinforcement of the intellectual property protection network and many sides of the use opportunity by the improvement of the formulation, dosage forms and the application expansion of the target disease
The high market growth rate may lead to competitors entering the market.	Create business opportunities by matching excellent existing seed ideas with the plethora of unmet needs in the veterinary medicine market

Message from the Director

Establishing Pillars of Business to Bring Prosperity in Stage III

Director of Healthcare Business Headquarters

Hiroyuki Watanabe

Review of Stage I

Developing Business Foundations in the Large US and European Markets

In terms of figures, we missed our targets for both net sales and operating income. This was due to a delay in the launch in the United States of an anti-pancreatitis drug for dogs, as well as to misjudgment in the anticipated in the speed of market penetration in Japan. However, we were able to establish a business foundation in the United States and Europe, which are both major markets for veterinary medicines. These foundations encompass the establishment of two local US subsidiaries, the recruitment and dispatch of personnel, the building of a network with partners who can help compensate where we are lacking, and more. This is a major achievement and provides us with a reliable business infrastructure that will enable us to quickly put our developed products on the market in the future.

Basic Strategy

Selling Animal Health Products in Brazil and Other Countries in Addition to the US and EU

We believe that by streamlining unprofitable businesses and changing our pricing structure, we can improve our bottom line, after which the key is seeing how much profit we can make. The most important thing is to expand sales of PANOQUELL™-CA1 in the United States. Meanwhile, our submission of approval to the EU for PANOQUELL™ was completed this May, and, if all goes well, approval is expected to be granted within fiscal 2025. That would expand our target market dramatically.
Our basic healthcare business strategy is to focus primarily on the United States and Europe while also getting this product on the market and expanding its sales in Brazil, Australia, and Mexico during Stage II, thereby helping to expand the growth of our business in the global market. The number of pet dogs in Europe and the United States alone is approximately 17 times that of Japan, so significant growth is expected. In this way, we aim to achieve profitability in fiscal 2025 followed by a significant increase in profits in fiscal 2026.

Features and Strengths

Capitalizing on Unmet Needs During Product Development

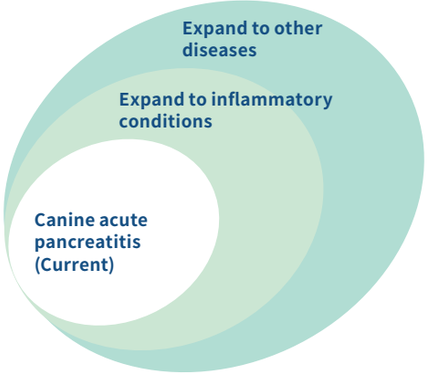
The strengths of our healthcare business lie in our research and development and marketing capabilities. The Central Research Institute (Kusatsu City, Shiga Prefecture) has developed a wide range of compounds which were synthesised for new agrochemical research and is able to convert these into animal health products by selecting only those with pharmacological effects. In addition, ISK possesses a range of technologies necessary for formulation, thus enabling it to develop a wide range of pharmaceutical products more quickly and efficiently than other companies.
Meanwhile, however, the role of the marketing team is to detect and accurately identify, in real time, unmet medical needs at clinical practices and to match these with the seeds held by the Central Research Institute. We have strong connections with influential experts and are able to obtain early information about their needs, which allows us to develop products that will have a high probability of success.
Our basic business model is to lead our business by taking the lead in areas where we can make the most of these two strengths, while forming partnerships with highly specialized companies to cover other aspects such as manufacturing and end sales. We are already deepening our ties with major partner companies, including a major French animal pharmaceutical manufacturer, and this is producing positive results. This networked business structure eliminates the need for large-scale capital investment, and one of our defining features is that we pursue high capital productivity.

Future Development

Expanding Investment in Response to a Global Shift

Fuzapladib sodium hydrate, the active ingredient in our anti-pancreatitis drug for dogs, may also be effective in treating other diseases, and we are in process of developing applications targeting these as well. We also have a number of other pharmacologically effective compounds which we will continue to capitalize upon. For human use, we are already working on active pharmaceutical ingredients and have found compounds that may be effective on the human body; however, finding a balance with development costs and with the associated risks means that we will need to focus our efforts on a targeted basis.
Another consideration is our healthcare business's dependence on overseas markets, which is expected to increase from 27-28% in fiscal 2023 to over 60% in fiscal 2026, indicating that we are currently in the midst of a rapid global shift. Under these circumstances, in order to expand our business and meet our Stage II targets, the first thing we need to do is increase our human resources in the United States and scale up our production bases. We intend to fully invest all of the necessary resources, and this includes human resources. It is in Stage II that we will develop the core of our business in order that it can truly prosper in Stage III. I believe that our mission in Stage II is to prepare the business infrastructure that we have in the US and Europe to enable us to commercialize the seeds that we have in hand whenever they are ready to bear fruit.

■ Expanding the application of fuzapladib sodium hydrate utilizing its unique mechanism of action, towards Stage III



Inorganic Chemicals Business

The flagship products of our inorganic chemicals business include functional materials like electronic component materials and heat shielding materials. We're also the only domestic manufacturer to produce titanium dioxide using chloride processing, which has a lower environmental impact than other methods, and we supply the material as a white pigment to a broad range of fields, including for use in industrial products like paints, plastics, and inks as well as cosmetics and synthetic fibers.

Stage I Review

Results

- To "expand sales of electronic component materials," we established a joint venture company with Murata Manufacturing Co., Ltd. and finalized the plant construction plan.
- We successfully achieved "waste reduction at the Yokkaichi Plant." "Creating a roadmap toward carbon neutrality."

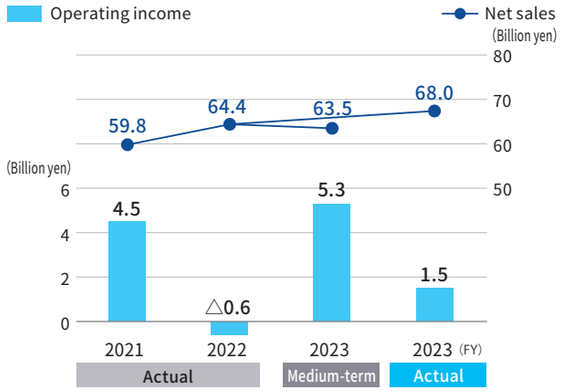
Issues

- "Increasing the sales ratio for highly functional, high-value-added products" was not achieved. We are steadfastly implementing the structural reform of the inorganic chemicals business.
- "Accelerating development of new products that will serve as drivers of further growth" was behind schedule.

Stage I sales and revenue

As a result of our efforts to shift soaring raw material and fuel prices into selling prices, sales rose relative to what we envisioned in the medium-term business plan. However, profits fell below the level in the plan as a result of increases in raw material and fuel costs beyond pricing revisions, a decrease in availability rate due to factors including a decrease in sales volume, a slowdown in the electronic components market, and a failure to increase sales of conductive materials, including overseas.

Profit trend in the inorganic chemicals business



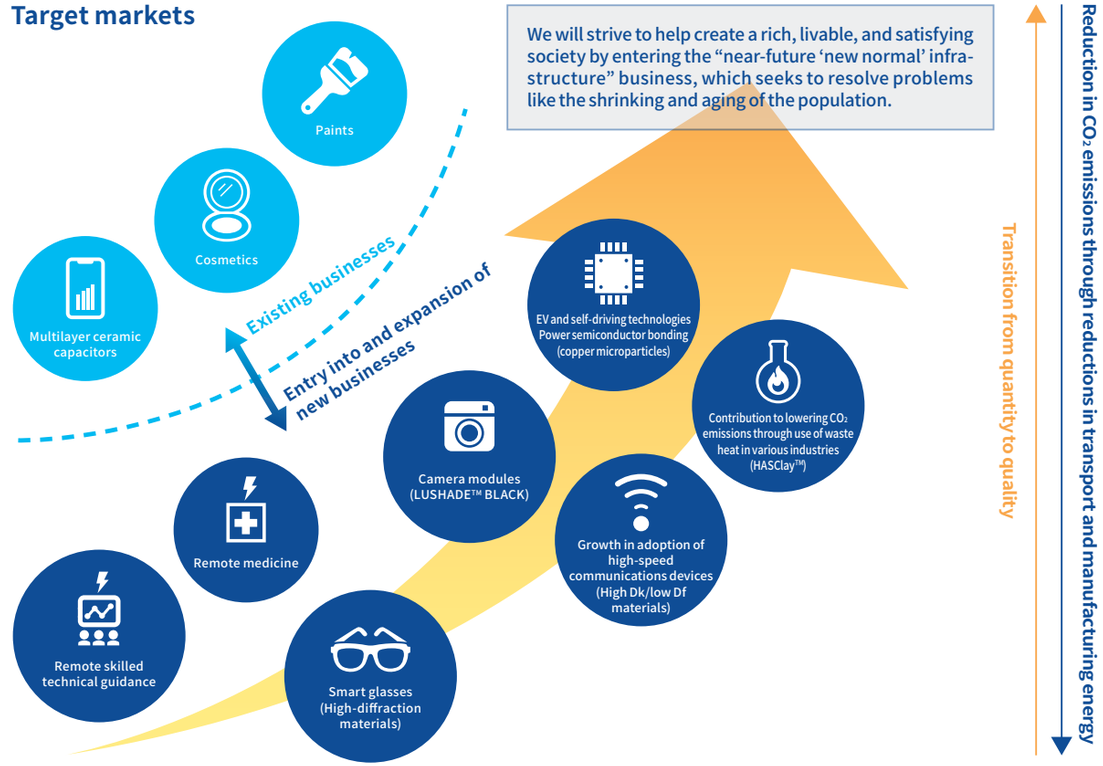
Social issues

Principal megatrends where our inorganic chemicals business can make a contribution include rising life span and the aging of the population worldwide and progress in the development of digital technologies. We will focus on devices that will underpin next-generation infrastructure with our functional materials products.
In addition, we will reduce the environmental impact of our operations by strengthening development of manufacturing processes.

Market environment

We expect camera demand to continue to grow as a result of progress in self-driving technologies and efforts to improve security, and our high jet-black pigment (LUSHADE™ BLACK) is attracting attention for use in blocking stray light in optical devices. In addition, we expect demand for stylish, compact, low-speed mobility products for use by senior citizens to grow, and our low-temperature sintering copper microparticles, a power semiconductor bonding material, will make a contribution in this area.

Target markets



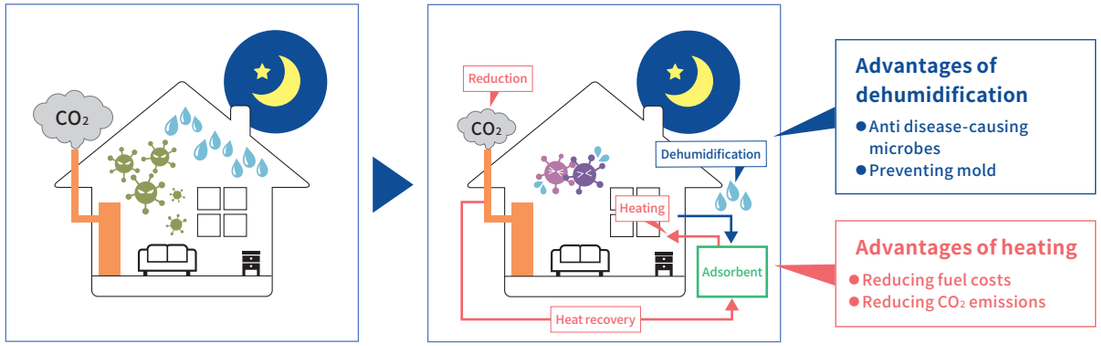
Inorganic Chemicals Business

Risks and Opportunities

Risks	Opportunities
Reduced earnings due to rising costs for energy and raw materials, such as titanium ore	While continuing to monitor market trends, pass costs on to product prices and increase the sales percentage for functional materials products. Also, including technological improvement, diversify raw materials used to expand the range of options
Accidents and other problems due to aging production facilities and equipment	Carry out preventative maintenance and study the appropriate timing for replacing equipment and facilities
Drop in market price and ISK market share as a result of growth among Chinese titanium dioxide manufacturers	Work towards increased and stable revenue by continuing to provide the market with functional materials products based on ISK's unique technology

Helping resolve societal problems

HASClay™, a high-performance heat storage material, can store low-temperature waste heat around 100°C and improves more than twice the thermal storage capacity of conventional materials. In addition, it doesn't need to be kept warm when storing heat for extended periods of time. Since a heat storage tank can accumulate waste heat and then be transported to another location so that its heat can be used there, the material can be expected to serve as a "heat battery," contributing to effective use of energy and reduction of CO_2 emissions.
In addition, HASClay™ has dehumidifying effects and is likely to be able to help reduce disease damage in greenhouses by dehumidifying them.



Message from the Director

Reducing the cost of manufacturing titanium dioxide in chloride process while extending sales of functional material capabilities

Director of Inorganic Chemicals Business Headquarters
Yoshiyuki Shimmyo

Review of Stage I

Halting production of titanium dioxide in sulfate process after three years of deliberations

It was three years of enormous change. Despite robust sales of high-value-added products and overseas sales during the first fiscal year starting April 2021, titanium dioxide remains a product that's susceptible to the effects of market conditions. Starting in FY2022, we had to deal with an economic slowdown in both Japan and abroad as well as soaring raw material, fuel, and mineral prices after the start of the war in Ukraine.
Against that backdrop, I think it was fortunate that we were able to correct pricing several times, continue our business activities, and maintain a stable supply. As a result, the titanium dioxide business operated at a loss during FY2023, but it could have been worse had we not taken those actions.
In the midst of those developments, we launched the Sulfate Process Redevelopment Study Committee in 2021 and considered making structural reforms at the Yokkaichi Plant. Seventy years since we began producing titanium dioxide in sulfate process, repair costs each year, including to address safety issues, were exceeding depreciation expenses, and Chinese manufacturers were offering their product at low prices, making it difficult to continue operations. After two years of study, we had estimated the enormous capital expenditures that would be necessary to renew our production equipment and decided to reconsider production of titanium dioxide in chloride process and functional materials based on profitability and future potential considerations.
Armed with the results of that study, the Committee for Inorganic Business Restructuring, which was established in May 2023, took another year to study far-reaching reforms and as a result decided to halt production of titanium dioxide in sulfate process effective March 31, 2027. It's an unfortunate but inevitable decision so that we can implement the Stage II policy of "Strengthening all of our business into primary sources of profit."

Inorganic Chemicals Business

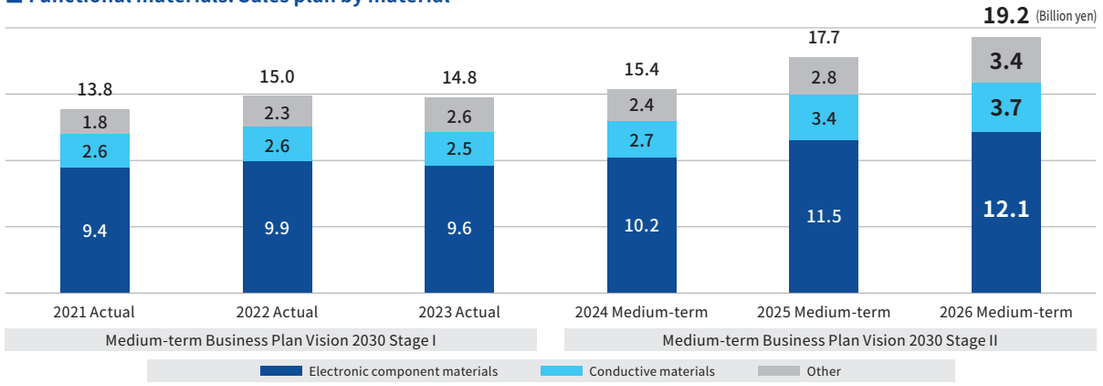
Message from the Director

Basic strategy

Accelerating development of the solutions business by introducing a business headquarters-based organization

During Stage II, which began with the conditions described above, we will consolidate production on titanium dioxide in chloride process to strengthen our competitiveness. Although the process uses high-quality, high-cost ore with titanium content of about 90%, it produces less waste and entails lower processing costs, making it advantageous overall from a cost perspective as well as imposing lower environmental impacts. Furthermore, we're working to develop technologies that will make it possible to use ore consisting of 80% titanium and will lower costs by shifting a large portion of production to that approach during Stage II.
In addition, consolidating operations on chloride processing will significantly lower environmental impacts. Our goal is to lower current annual industrial waste emissions (60,000 to 70,000 tons) to 30,000 tons by 2030. With regard to CO_2 emissions, we're aiming to achieve a 30% reduction by 2030 (compared to FY2019 levels) by introducing CO_2 collection technologies while transitioning to LNG as a boiler fuel.
At the same time, in order to realize sustainable growth, it will be essential to launch new products that take advantage of the technologies we've developed in connection with titanium dioxide pigments. To do so, we'll need a development sales-based organization that can take advantage of R&D to accommodate customer needs and market seeds. We launched a new headquarters-based organization in June 2024, combining inorganic chemical sales, R&D, and production, which were previously separated into different departments, to form the Inorganic Chemicals Business Headquarters, which consists of three divisions with planning, sales, and R&D functions for each business domain: the Functional Color Materials Business Division, the Electronic Materials Business Division, and the Fine Chemicals Business Division. We also established two departments with cross-cutting responsibilities: a Production Technology Division tasked with realizing cost reductions and mass-production processes, and an Analytical Solutions Division tasked with providing analytical support to the divisions and spearheading a transition to a solutions-oriented business. We brought together the divisions at the Yokkaichi Plant and accelerate business development founded on customer needs and business seeds driven by sales worksites in various cities. In doing so, we're inspired by Japanese athletes' baton-passing coordination as they won the silver medal in the 400-meter relay at the 2016 Rio Olympics. The faster we can orchestrate similar hand-offs within the Company, the faster we can work and ultimately realize profits. We will seek to realize development and production in a way that catches up to customers' needs through proposal-based sales, which involves more than just making products.
We will seek to strengthen our operations around electronic component materials and functional color materials through these structures. For the former, barium titanate, which is used to produce multilayer ceramic capacitors (MLCCs), and high-purity titanium dioxide, which is used to produce barium titanate, are representative products. Medium-to long-term demand are sure to rise, and we will put in place structures capable of catching up to needs in terms of quality, quantity, and lead time. For the latter, we will realize significant increases in sales of our super-low-reflectivity structural jet-black pigments (LUSHADE™ BLACK), which absorb almost all visible light, starting in FY2026, with a focus on blocking stray light in optical devices.
Expanding our target markets to include overseas markets will also be essential in order to achieve our Stage II goals. However, we will pursue profits, rather than simply seeking to achieve high volume. As with our Bioscience Business Headquarters, which is one of the Company's core businesses, I believe one approach is to outsource some production to contractors. We will also review overseas facilities and work to realize optimal personnel assignments and education. In particular, we want to send young employees in R&D and sales overseas, and we're studying assigning employees to Taiwan, which has a strong semiconductor industry, and increasing business travel to the EU, where there's a high level of need for technologies.

■ Functional materials: Sales plan by material



Characteristics and strengths

A broad and diverse group of products

Our business's strength lies in its focus on titanium dioxide, a product with exceptional breadth. We have relationships with companies in numerous industries and also offer electronic component materials and functional products for use in applications like cosmetics, as well as deep relationships with trading companies. However, if we take these strengths to mean that we can simply keep doing what we've done until now and fall into a state of inertia, we will have put the cart before the horse. In light of our purpose of "to continue contributing to better living environments through chemical technologies," I believe that it's important to continue to think seriously about why we exist and to train human resources who combine planning and sales skills so that they can do so.

Future developments

Laying the groundwork in Stage II so that we can pursue even greater accomplishments during Stage III

Our most important goal during Stage II is to achieve 5.5 billion yen in operating income, and much remains to be done. We must realize cost reductions by using lower-quality ore to produce titanium dioxide in chloride process while extending sales of functional materials. At the same time, we must also optimize inventory assets, which have surged due to factors including soaring raw material and fuel prices and deteriorating economic conditions. Those conditions have not improved since the beginning of FY2024, but we've been steadily producing results under our plan to increase sales nevertheless.
Stage II is a time for laying the groundwork for future success. We will aim to realize even greater accomplishments during Stage III by training human resources, raising awareness, and creating new businesses to replace titanium dioxide produced using conventional sulfate processing.

Inorganic Chemicals Business

R&D investment and measures

We will work to orchestrate a major transition in our product portfolio from general-purpose titanium dioxide to the functional material domain. We will pursue new-product development, starting with products for the electronic component materials segment and form groups of specialists and develop strategies for each domain.

Development pipeline

We're focusing on developing high-purity titanium dioxide for use in next-generation multilayer ceramic capacitors (MLCCs), for which demand is expected to grow for use in electric vehicles and fifth-generation (5G) communications. By offering a line of products in various particle sizes, including developed products with fine particles excellent dispersibility, we will pursue improvements to accommodate customer requirements ranging from general-purpose to state-of-the-art applications.
In addition, we're working to develop markets by focusing on the exceptional reflective characteristics (visible light absorption and infrared reflection) as well as the jet-black color characteristics of bismuth sulfide black pigments sold under our LUSHADE™ BLACK brand, and we're accelerating efforts to study commercialization, including industrialization.

New product R&D

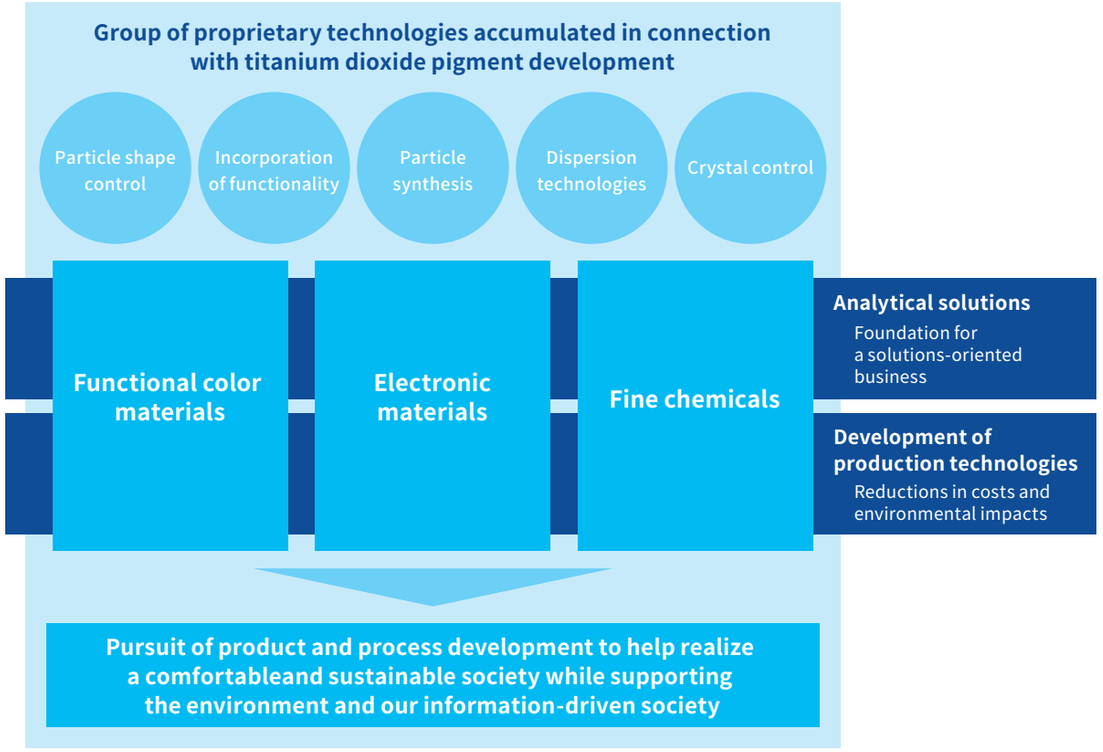
Pre-sale　Full-scale sales

Classification	Developed materials	Sales period (Unit: Fiscal year) 2024	2025	2026	2027
Continued expansion market	High Dk/low Df materials	■	■	■	■
	New high-purity titanium dioxide	▒	■	■	■
New expansion market	High refractive index material	▒	▒	■	■
	High jet-black pigment (LUSHADE™ BLACK)	▒	▒	■	■
	Heat storage material (HASClay™*)	▒	▒	▒	▒

*This product was developed based on findings from our collaborative research with the National Institute of Advanced Industrial Science and Technology.

Future R&D structures

Previously, our inorganic chemical business organization existed alongside the Sales Division, Development Division, and Production (Yokkaichi Plant). To strengthen sales, R&D, and production collaboration while increasing flexibility and efficiency across the organization, the recent structural reforms established the Inorganic Chemicals Business Headquarters to clarify results and responsibility for performance as well as the Functional Color Materials Business Division, Electronic Materials Business Division, and Fine Chemicals Business Division to oversee each business domain under the Headquarters. We also created the Analytical Solutions Division to provide analytical support to the divisions and the Production Technology Division to lower costs and environmental impacts. In this way, we will help realize a comfortable and sustainable society while supporting the environment and our information-driven society by pursuing product development that goes beyond titanium dioxide through each division while helping the group of proprietary technologies we've accumulated in connection with titanium dioxide pigment development take root.

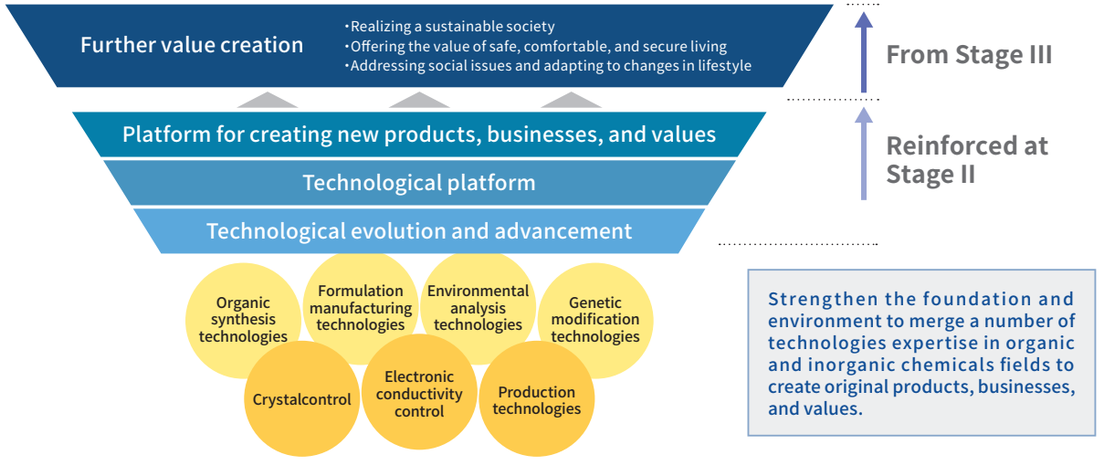


Research and Development Activities

Research and Development Policy

Identify products and services that meet global needs, and continue to provide new value.

Since the opening our research institute in 1958, we have expanded our business into a wide range of fields as a research and development-oriented manufacturer. Each of our businesses conducts competitive research and development in its own field and shapes the market with its strong chemical technology and product appeal.
Going forward, we will have marketing in mind as we establish research themes and will build and utilize a platform for researchers to share the unique technologies cultivated in each business department, thereby promoting the development of new products in existing fields, the creation of new business, and the creation of new value.
We are also looking for collaboration with industry, government and academia globally to accelerate innovation and bring value to people's daily lives as quickly as possible.



Organizational Strengthening of Research and Development

With the organizational restructuring of June 2024, the new business development departments for our organic and inorganic chemicals businesses have been consolidated into the Central Research Institute. This will lead to more active personnel and knowledge exchange between the two businesses, which will hopefully result in more synergistic effects in research and development.
In Stage II, we are working with members from across the entire company to build a technology platform that transcends the boundaries of specialization between organic and inorganic chemistry.

Business-specific Research and Development Policies

[Biosciences] Capitalize on our technological strengths and research system to accelerate development

We will capitalize on our unique technological strengths and integrated research system to accelerate development that will contribute to sustainable food production.

We aim to develop new agrochemicals that are both people and environmentally friendly, and to promote and expand their sales in a sustainable manner. We will also work to commercialize non-chemical pesticides, such as biological pesticides.
By utilizing our integrated research system, which encompasses everything from drug discovery to commercialization, we are accelerating the development of new products and also verifying new drug discovery technologies with the aim of further improving efficiency. The results of this, when combined with our intellectual property strategy, will strengthen our competitiveness.
In terms of new business, we have developed the field of floriculture using biotechnology.
We will continue to build new pillars of business to combining organic and inorganic chemical technologies.

[Healthcare] Combine market needs with ISK technology to create value

By combining the needs of clinical practice with our elemental technologies, we create value in the field of healthcare, focusing in particular on animal health products.

We precisely ascertain the needs of clinical practice and other contexts and select research and development themes involved in large unmet demand, but which can contribute broadly to society. We then choose themes that can be conbined with our own technology and know-how, or outside expertise and thereby differentiate ourselves from our competitors.
Those performing research and development ascertain the essence of what is needed at the field, as well as receive feedback from them during the development process, to improve the thoroughness of the results.
Through these research and development efforts, we aim to create new value that we provide to our global customers in the form of medical products and services, including animal health products.

[Inorganic Chemicals] Product development that supports the environment and a digital society

We pursue the development of products and processes that support both the environment and a digital society in ways which contribute to the realization of a society which is comfortable and sustainable.

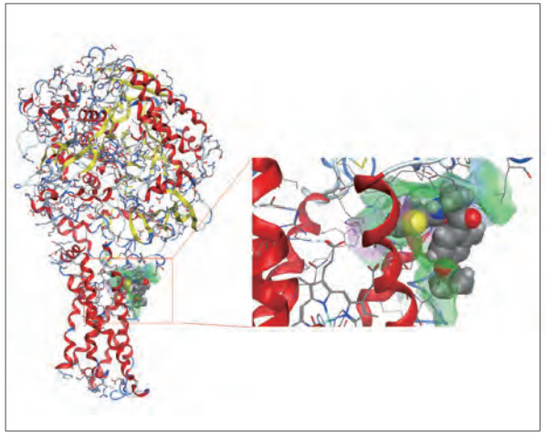
By responding to market needs by developing and offering materials that utilize various materials not limited to titanium dioxide, we aim to contribute to the realization of a society which is comfortable and sustainable.
We have established a structure in which each business division has planning, sales, and research and development functions, thereby enabling us to dig deeper into customer needs for each business domain and accelerate development, which includes utilizing our proprietary technologies and collaborating with external parties.

Key Technologies

[Biosciences]

Design, Exploration and Synthesis of New Compounds to Support Future Agriculture

In order to develop products adapted to the changing times and environment, and to meet customer needs, it is important that we promptly discover new candidate agrochemical compounds suited to the needs of the market, which includes future forecasts. Our aim is to discover innovative new agrochemicals more promptly by actively pursuing the synthesis of a wide variety of compounds using parallel synthesis equipment with our proprietary organic intermediates, achieving efficient molecular design using computational chemistry, and creating original, novel compounds using AI technology. Also, when developing agrochemicals, it is extremely important to consider not only their effectiveness in protecting crops, but also their safety for humans, animals and plants, their environmental friendliness, and their economic efficiency in agricultural production.
The Central Research Institute occupies a relatively compact site just four hectares in size, but it is home to researchers specializing in exploratory synthesis, biological activity evaluation, formulation, safety evaluation, and industrial process development. This research environment is one of our strengths as it allows for routine discussions that transcend the boundaries of specialization. We capitalize on this strength to design compounds for which agrochemical safety and economic viability are taken into consideration from the early stages of research, and we improve our synthesis research through repeated discussions with researchers from other departments. In addition to the know-how we have cultivated in developing agrochemicals, we are proactive about introducing new technologies and will continue to undertake research and development every day with the aim of developing high-added-value agrochemicals that will support future agriculture.



Computational chemistry docking simulation

Synthesis research to turn all ideas into reality

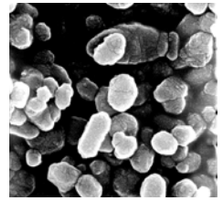
[Inorganic Chemicals]

Using Accumulated Crystal Structure and Particle Shape Control Technology for Materials Development

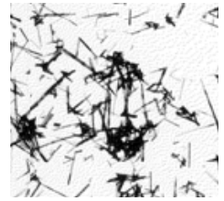
Approximately 70 years ago, our company began producing titanium dioxide for use in pigments to impart whiteness and opacity to paints, inks and other products. The key to improving the performance of titanium dioxide pigments is to control particle shape, particle size and crystallization, as well as to remove impurities and to use coating and doping technologies. We have been researching and improving 200 to 300 nm*-sized titanium dioxide pigment particles for many years and have systematically accumulated each elemental technology.
Furthermore, we apply these elemental technologies not only to titanium dioxide but also to many other inorganic compounds as we continue to design and develop a wide range of products.

*nm (nanometer) = 1/1 millionth of a mm [Comparison] Cedar pollen: 30,000 nm, PM2.5: 2,500 nm

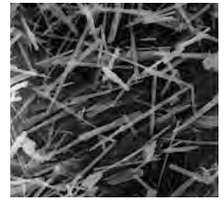
Product	Elemental Technology	Expression Performance
Titanium dioxide particles	Particle size control	Transparency, UV shielding, high refractive index
Acicular ATO (antimony-doped tin oxide)	Particle size and shape control, doping technology	Transparency, charge control
Acicular ATO-coated titanium dioxide	Particle shape control, coating technology	Adds whiteness and opacity; controls static electricity
High-purity titanium dioxide	Particle shape control, impurity removal	High dielectric constant when used with barium titanate
Calcium titanate manganate	Particle size, doping technology	Black infrared reflectiveness
Flake-like titanate	Particle size and shape control	Silky coloring
Sea urchin-shaped bismuth sulfide black pigment	Particle size and shape control	Ultra-low reflectivity, jet black, infrared reflective



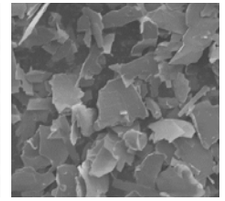
Titanium dioxide pigment
Particle size: 250 nm



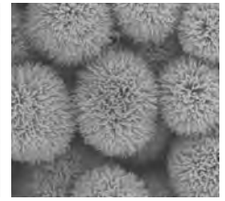
Acicular ATO
Particle diameter (minor axis): 10 - 20 nm



Acicular ATO-coated titanium dioxide
Particle diameter (minor axis): 200 - 300 nm



Flake-like titanate
Particle size (thickness: approx. 100 nm)



Sea urchin-shaped bismuth sulfide
Particle size: 1500 nm

Special Feature : Strategic Approach through “Formulation”

Provide Safe and Easy-to-use Agrochemicals Globally

ISK sells agrochemicals in 85 countries around the world.
In order to meet the diverse needs of different regions, which vary from one another in terms of climate, soil, farmland size and crops, the key is to develop a range of products and perform agrochemical “formulation” that imparts various functions and added value.
We asked Mitsuo Sano, General Manager of the Formulation Research Laboratory at our Central Research Institute (Kusatsu City, Shiga Prefecture), to explain what “formulation” is.

Going Through Hundreds of Rounds of Trial and Error to Unlock the Potential in Agrochemical Active Ingredients

—— What exactly does it mean to “formulate” an agrochemical?

It means using active ingredients to design and create agrochemical products that are easy for farmers to use. To make a product, it is of course necessary to maximize the effectiveness of the active ingredients, but it also needs to be safe, easy to use, and have a level of quality that can be guaranteed for years (storage stability). Typically, agrochemical products contain multiple additives in addition to the active ingredients, and the best recipe for the type and combination of additives is discovered through hundreds of rounds of trial and error. The final liquid or solid product is then created through pulverization, granulation or some other such process.
The key to unlocking the full potential of the active ingredients is in the choice of additives, especially surfactants (substances that mix water and oil, like soap). Surfactants have a variety of functions, such as spreading chemical solutions over plant leaves and making active ingredients more easily absorbed, thereby increasing effectiveness while reducing toxicity and decomposition. The real joy of formulation development is in deriving optimal solutions from a number of surfactant combinations and using them to their full potential, and our strength lies in our accumulated technology and know-how in this area. Formulation is a process of repeated trial and error. Therefore, there is nothing like the sense of accomplishment and satisfaction you feel when you finally create a recipe that performs and can be manufactured exactly as designed.

—— Give us some key examples of formulation.

All of the more than 50 types of agrochemical products that we sell have been developed by overcoming various challenges that arose during the development stage. For example, to develop the corn herbicide Tolpyralate, we screened more than 100 types of surfactants to ensure that the active ingredients perform at 100% of their intended potential, and we then tested over 300 combinations to find the optimal recipe that was then commercialized. Cyclaniliprole is an insecticide that is highly effective against a wide range of pests. Based on the idea of minimizing the particles of active ingredient as much as possible to improve its effectiveness, it was formulated using nanoparticle* technology so that, when diluted with water, the particles become 50 nanometers or less in size. It is extremely difficult to form nanoparticles at low cost, and it was also our first attempt at this, so I remember feeling particularly motivated in my research to bring this active ingredient worldwide, whatever it may take. These examples illustrate how we begin our research by drawing on our know-how, and by repeatedly solving problems through trial and error, to create each product.

* A particle one millionth of a millimeter in diameter.

A Large Number of Recipes and Formulation Techniques Accumulated Over More Than 50 Years of Research History

What are ISK's strengths in this field?

Formulation is a process of trial and error. Different active ingredients have different optimal recipes, so finding the additives to match with each active ingredient is important. Our greatest strength in formulation development is the large number of recipes and ideas we have accumulated over more than 50 years of formulation research. This original research has resulted in the launch of a number of world's-first agrochemical formulations. The representative is "OD formulation (oil-based suspension formulation)". OD formulation dispersed active ingredients that are easily decomposed by water in oil. Our company has a legacy of innovative manufacturing, and we take pride in the techniques and technology we have developed through our innovative thinking.

Our research organization is also unique. The Formulation Research Laboratory is responsible for everything from recipe research at the laboratory level to production development research and even production start-up (trial production at the factory). The researchers who create the recipes are themselves involved in production, allowing them to feed their experience back into their research. The researchers naturally develop a rational way of thinking that takes manufacturing into consideration, and, by experiencing success, they are inspired to take more initiative and feel an even greater level of motivation in their research. This aspect is also one of ISK's distinctive strengths.

In addition, experts in sales planning, registration, logistics, and production from the Biosciences Business Headquarters, which oversees our agrochemicals business, are also involved in formulation development from the research stage. Our strengths include our all-ISK team member product creation system and the sense of speed which they go about their work.

Agrochemical granulation process

What is most difficult about this business?

One thing is the amount of time it takes to bring a product to market. Agro-chemicals require licenses and permits in each country, and the review process in each country takes years. For example, in Brazil, where the approval process drags on even after the formulation is completed, a drug cannot be released on the market for more than five years. In order not let any need or opportunity get away, it is necessary to keep research periods as short as possible while developing products that anticipate trends and will remain competitive for years after their introduction. Since this is research, there is no one "best" formulation, but, rather, the key is to find the optimal formulation as quickly and rationally as possible.

We also need to accommodate environments and needs that vary greatly from country to country and region to region. Storage stability is a particular problem in high temperature regions. For products launched in regions where temperatures exceed 40°C, such as India, we develop formulations tailored to the conditions of the region, including developing region-specific recipes as necessary.

Although there are times when requests and tasks seem impossible, we approach each as an opportunity to expand our thinking and hone our skills.

Formulations are adjusted to suit the application, such as powder, granules, or liquid

Reducing Environmental Impact and Increasing Our Corporate Value

What do you want to achieve in the future?

Formulation development that is focused on reducing environmental impact. When spraying agrochemicals in a natural environment, there is a high likelihood of spray loss due to the spray solution scattering or dripping off the leaves; thus, not all of the active ingredients sprayed are utilized. We are pursuing research to address this issue through new formulation techniques that will increase the utilization rate of active ingredients. If we can reduce spray loss, we can reduce the amount of active ingredients that need to be sprayed, which we expect would reduce environmental impact. In addition, by reducing product costs, we can expand sales in countries and regions where product prices are low, which will lead to a significant increase in the value of our company.

In addition, another important focus is increased efficiency through digital transformation (DX). As we are also a DX-certified business, we are looking ahead to the use of AI technology in future recipe development, thereby contributing to more abundant food production.

At the same time, however, we also need to strengthen collaboration with our inorganic chemicals business. The physical properties evaluation and unit operations of manufacturing (pulverization, mixing, coating, etc.) used in formulation are, in fact, similar to the methods used in inorganic materials development. We hope to take advantage of the strengths that come from having both organic and inorganic chemicals businesses in order to create new value with technology that is unique to ISK.

Intellectual Property Management

Basic Policy

Our Group treats business strategy, research and development strategy and intellectual property strategy to be one and the same, and we are mindful of intellectual property in all aspects of our activities, from research to commercialization.
We seek to increase our corporate value by steadily acquiring the rights to the results of our research and development and using these to secure a business advantage over other companies. We also actively invest in intellectual property and endeavor to protect and leverage it.
Meanwhile, we have always respected the valid intellectual property of others.
At the same time, we take firm action against infringements by others.

Aims of ISK Intellectual Property-related Activities

Ensure the safety of our business	● Reduce intellectual property risks ● Countermeasure against others' patents	→ Confirmation that implementation does not infringe on the patents of others
Secure an advantage for our business	● Strengthen competitiveness	→ Early and reliable patent filing for research and development results
Shape the market for our business	● Market influence ● Create and respond to the market entry barriers	→ Build our brand, build our patent portfolio

↓

Increased corporate value

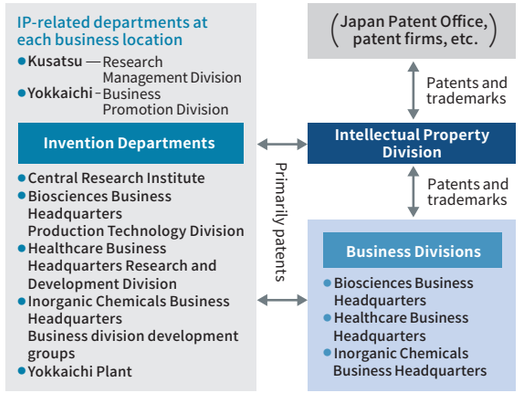
Management Structure

At ISK, the Legal & IP Headquarters handles the filing and management of industrial property rights, as well as intellectual property-related activities in the implementation of business strategies. In addition, we have patent officers stationed at each of our business sites in Yokkaichi and Kusatsu, where our production and research and development activities are carried out.

- Kusatsu : Intellectual Property Group, Research Management Division, Central Research Institute
- Yokkaichi: Promotion Group, Business Promotion Division, Inorganic Chemicals Business Headquarters

By adopting this type of activity structure, we are able to file patent applications for research and development results early and reliably, as well as be aware of other parties' patents from the early stages of research and development, thereby ensuring future business advantages and business safety and contributing to improvement in our corporate value.

Structure of ISK Intellectual Property-related Activities



Intellectual Property Strategy

We undertake the following activities with the aim of realizing our intellectual property basic policy.

Awareness-raising initiatives

- We provide our employees with intellectual property-related information, such as about patent and trademark systems.
- Through these activities, we work to raise awareness within the company about the link between R&D activities, business activities, and intellectual property.

Construction and utilization of an IP portfolio

- We build up our intellectual property portfolio through the timely and appropriate filing of patent and trademark applications in line with our business activities or business plans and strategies.
- We aim to increase the number of our patent applications.
- We utilize the intellectual property portfolio we have built up and take firm action against any infringements by third parties.

Improvement of the IP utilization rate

- We sort our intellectual property between the categories of "Currently being used in business," "Has future business potential," and "Restricting third parties," and treat this as an indicator of the link between our business and our intellectual property.
- We aim to increase the proportion of intellectual property that we utilize in our business activities.

Message from the Director of Legal & IP Headquarters

The Determination to Take Center Stage

Director of Legal & IP Headquarters
Akihiko Kikuchi

We are mindful of intellectual property in all aspects of our activities, from research to commercialization. Under Vision 2030, we will tackle the challenge of increasing patent applications (doubling them compared to fiscal 2022), which have been on a downward trend in recent years, improving our intellectual property portfolio, and increasing our patent utilization rate (to 50% or more). Based on the premise of investment in intellectual property creation (investment in R&D) and investment in intellectual property acquisition (investment in M&A), we will work with business divisions to swiftly promote an intellectual property mix that includes patents, trademarks, and contracts. By leveraging our intellectual property to give our business an advantage and maximize our corporate value, we will put into action the motto of Vision 2030, which is "Originality. Acceleration. Global Reach. Transforming lives through the power of chemistry." Since the revision of the CG Code, interest in intellectual property and intangible assets has increased. I believe that intellectual property professionals need to stop being unsung heroes and take their place at center stage.