

Promoting Industrial Growth and Achieving a Prosperous Society

SHINAGAWA REFRACTORIES CO., LTD.

Shin-Otemachi Building 8F, 2-2-1 Otemachi, Chiyoda-ku, Tokyo 100-0004, Japan TEL.+81-3-6265-1600 URL: https://www.shinagawa.co.jp/en/



Integrated Report 2023

Management Philosophy

Promoting Industrial Growth and Achieving a Prosperous Society

The Shinagawa Group contributes to promoting industrial growth and achieving a prosperous society through manufacturing and sales of refractories and providing engineering services including furnace designing and construction.

We focus on developing creative and dynamic workforce, establishing superior technological capabilities and a solid financial base with developing high-profit structure to achieve the following goals:

- 1 Maintain our position as one of the world's leading full-service refractory solutions providers
- 2 Closely engage with customers to timely fulfill their exact needs
- 3 Build a high level of trust from shareholders, business partners, local communities, and all our other stakeholders and supporters
- 4 Create an attractive and rewarding work environment for employees



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Scope of Reporting

Our History

Value Creation

A leading company in refractories that continues to support the development of Japanese industry



Financial Information

Value Creation



*All data are historical results on a consolidated basis

Non-Financial Information



05 Shinagawa Refractories Co., Ltd.

CO₂ Emissions Reduction Rate





Cumulative Participants in Internal **Correspondence Education**



ſ	1		
	C		

Rate of Outside Directors



(As of June 29, 2023) *All Outside Directors are Independent



*All Figures are based on FY 2022 Non-Consolidated Results.

Value Creation

Providing unique solutions for manufacturing sites with high-temperature processes to help customers improve thermal efficiency and reduce CO₂ emissions

The Role of Refractories

- Many of the materials that support our daily lives, such as steel, non-ferrous metals, cement, and glass, are produced in furnaces **lined with refractories**
- The refractory industry supports the foundations of key industries through supplying refractories, furnace designs, furnace installations, and other engineering works



Many of the world's key industries have high-temperature processes at their manufacturing sites, and decarbonizing these high-temperature processes is a major challenge for achieving carbon neutrality in the future. Through a fusion of our long-cultivated refractory and insulation technologies with furnace engineering technologies, Shinagawa Group is able to support customers with better thermal efficiency and longer service lives at their manufacturing processes. With these strengths, the Group provides unique solutions to diverse industries with high-temperature processes, helping our customers decarbonize their operations.





Value Creation

Shinagawa Refractories has established a network for global development, manufacturing, and sales to deliver total solutions related to high-temperature technology to customers around the world.





In order to deliver the Group's superior high-temperature technology area solutions to customers requiring these solutions around the world, we have secured production sites in all major Indo-Pacific markets.

Our first production site for refractories was established in China in 1997, followed by sites in Australia, New Zealand, the United States, Indonesia, India, and most recently in Brazil in 2022. For insulation products, we have secured production bases in Malaysia, Taiwan, and China. Furthermore, in 2022, we acquired our first overseas production site for ceramics in the United States.

We have sales offices in Taiwan and Korea for refractories, and in China, Germany, and Taiwan for insulation products. Going forward, we will continue to enhance our global network and drive the Group's growth strategy.

ramics Americas LLC

Refractories production sites
Refractories sales offices

Insulation products production sites

Insulation products sales offices

Ceramics production sites/sales offices

- SRB Shinagawa Refratários do Brasil Ltda.

Promoting sustainable growth strategies and creating innovative values alongside stakeholders

[Changes in business environment]

Value Creation

Growing sense of urgency about climate change and a trend toward carbon neutrality

Necessary transition to a circular economy

Rise of emerging countries and expansion of their markets

Declining birthrate, aging population, and shrinking workforce in Japan

Fluctuating foreign exchange rates, soaring raw material prices, complexifying economic and security environments

...and more

Embodying Management Philosophy

Promoting Industrial Growth and Achieving a Prosperous Society



[Our Goal]

Be a Leading Company in High-Temperature Technology

[Co-Creating Value with Stakeholders]

Working with stakeholders to achieve a sustainable society

Customers	Contributing to Increasing their Corporate Value and Decarbonization		
Shareholders/ Investors	Maximizing Share Price		
Suppliers	Collaborating on Co-Creating Value		
Employees	Building Pride and Job Satisfaction		
Local Communities	Achieving Prosperous and Vibrant Communities		
Future Generations	Passing on a Better Society to Future Generations		

Growth Strategy

Implementing Management Policies to Integrate Growth Strategies and Sustainable Initiatives

President and CEO Hiroyuki Fujiwara

Progress and Outlook for the Mid-Term Management Plan (1) Quantitative Aspects

Consolidated Performance in FY2022

Record Highs for Net Sales and Ordinary Income

The Shinagawa Refractories Group is currently working to implement its 5th Mid-Term Management Plan, covering the period from FY2021 to FY2023, and has achieved performance exceeding plan targets.

In the fiscal year covered by this report (FY2022), the business environment remained challenging. In the Japanese steel industry, the Shinagawa Group's main customer base, crude steel production in Japan declined 8.1% year on year to 87.85 million tons due to a slow recovery in demand, particularly for automotive applications. This is well below the 90 million tons assumed in the mid-term management plan. In addition, sharp and significant exchange rate fluctuations affected business, averaging 136 JPY per 1 USD for the year, a significant depreciation against the assumed exchange rate of 105 JPY per 1 USD in the mid-term management plan. Furthermore, prices of raw materials for refractories, including lithium-based raw materials, rose unexpectedly.

Despite this challenging business environment, consolidated net sales and ordinary income for the FY2022 marked record highs once again as in the previous year. Net sales totaled 124.9 billion JPY, achieving the mid-term management plan's final year target of 115.0 billion JPY one year ahead of schedule. Ordinary income was 11.4 billion JPY, almost achieving the final year target of 11.5 billion JPY.

One of the reasons for the increase in net sales was the success of our efforts to properly adjust selling prices and expand sales amid declining sales volumes of refractory materials due to the decline in crude steel production in Japan. As for the profit increase, a significant contribution was made by securing price cost margin through sales price revisions and sustained progress in cost reductions.

The decrease in the ratio of ordinary income to net sales (ROS) from the previous year (9.7% in FY2021 to 9.2% inFY2022) was due to the fact that the revision of selling prices could not keep pace with the sharp rise in raw material prices. We expect to be able to recoup the entirety of this insufficient portion through sales price revisions in FY2023.

Consolidated Performance Outlook for FY2023

Further Exceeding Final Year Targets and Achieving Fresh Performance Records

In the next fiscal year (FY2023), the final year of the midterm management plan, we aim to achieve record-high performance surpassing even FY2022, with net sales of 145 billion JPY and ordinary income of 15 billion JPY.

With regard to net sales, despite the challenging environment we face in which refractories volumes and engineering projects are expected to decline due to customers' consolidation of their production sites, we will work to grow our sales through enhanced sales promotion activities in Japan and overseas, while properly reflecting the sharp rise in raw material and energy prices in product prices. In FY2023, we will also incorporate revenue from SSCA in the USA and SRB in Brazil, both acquired at the end of FY2022, to make a significant contribution to the Shinagawa Group revenue growth.

In terms of profit, although there are some negative factors such as declining demand in Japan and inventory write-downs, we are aiming for a record-high profit level by reducing costs, improving price cost margin, and further expanding profits from newly welcomed SSCA and SRB, as well as other existing overseas businesses.

Progress and Outlook for the Mid-Term Management Plan (2) Qualitative Aspects

In our 5th Mid-Term Management Plan, our basic policy is to aim for record financial performance despite the gradual decline of steel demand in Japan by introducing new products that meet various customers' needs and strengthening our competitiveness by production optimization. Based on this policy, we have been implementing four Primary Action Plans.

As previously mentioned, with regard to quantitative aspects, we have already achieved the element of our basic policy to achieve record-high performance, and on the qualitative side, we are making steady progress too.

Primary Action Plan 1: Sales Expansion & Production Optimization in Japan

Providing Unique Solutions to Various Furnaces with High-Temperature Processes: Strengthning Positions in Existing Markets and Enterinig into New Markets

With crude steel production in Japan not expected to increase significantly anymore in the future, it is a must for our Japanese businesses to expand into areas other than those for the steel industry. There are many customers with factories in Japan with high-temperature processes that emit CO_2 . For such customers, we can provide solutions that combine refractory, insulation, and furnace engineering technologies to improve thermal efficiency and durability and reduce CO_2 emissions. These activities fully leverage the Shinagawa Group's unique ability to provide optimal solutions.

Furthermore, with the introduction of the Sector structures for our Group management organization from April 2023 (details to follow), each business sector works to strengthen cooperation beyond just business locations in Japan, extending its reaches to overseas business locations to accelerate product lineup expansion for customers both inside and outside Japan. In addition, promoting collaboration among the Sectors allows us to improve operational efficiency and customer services, which enable us to increase our market share for existing businesses and strengthen our activities to enter new markets. As an example of our overseas development into new markets, in March 2023, we concluded an Exclusive Distributor Agreement with Allied Mineral Products, with whom we have had a technical alliance in Australia for many years, for monolithic refractories for the Japanese aluminum industry and have started sales activities since then. In FY2028, five years from now, we aim to achieve sales of 2 billion JPY in this market segment.

We will continue to seize every opportunity to penetrate the aluminum industry and various other unexplored markets in Japan.

Primary Action Plan 2: Overseas Business Expansion

Further Exploring Growth Potential for Overseas Businesses, where Sales is Expected to More than Triple in the Next 10 Years

The overseas expansion of the Shinagawa Group's refractory business began in 1997 with the establishment of a subsidiary in China. Since then, we have expanded into Australia, New Zealand, the United States, Indonesia, and India by 2019. These efforts to expand our overseas business have continued during our current mid-term management plan. In May 2022, we reached an agreement with Saint-Gobain of France to acquire its refractory business in Brazil and wear-resistant ceramics business in the United States, and closed the agreement in December 2022. As for this refractory business in Brazil, we have had technical and personnel exchange with Saint-Gobain for more than 30 years, and we are well aware of its strengths and areas for improvement. This acquisition gave us our first production site in South America, and today we have successfully secured production sites in all major Indo-Pacific markets. In parallel with the expansion of production sites, we have also established SRK, our sales subsidiary, in South Korea in April 2022 as a measure to strengthen our sales function overseas.

Overseas net sales have been gradually increasing from 13.6 billion JPY (14% of consolidated sales) in FY2013, about 10 years ago, and the pace of increase has accelerated since the start of this mid-term management plan period, rising to 27.7 billion JPY (22% of consolidated sales) in FY2022. In the next fiscal year, FY2023, we expect overseas net sales of 43.5 billion JPY, far exceeding the 22.0 billion JPY stated in the mid-term management plan by about 30%, mainly due to the addition of SRB in Brazil and SSCA in the USA.

Overseas Net Sales





But, of course, we are not satisfied with the status quo. In order for the Shinagawa Group to achieve sustainable growth, the most important key is to successfully expand our overseas business, and we will proceed with further expansion at a rapid pace.

For example, in order to improve overall competitiveness and to better manage supply chain at each overseas location, we are considering exporting refractory bricks from SRB in Brazil to the USA and Australasia. We will also actively pursue new business opportunities in growing countries and regions, such as India and ASE-AN. Naturally, we are very well aware that it is essential to fully identify market opportunities and take a cautious stance to constantly balance risk-taking for growth with the improvement of capital efficiency.

We will continue to implement our basic policy of expanding business alliances with leading local partners and focusing on M&A, while exploring a wide range of investment opportunities and ascertain optimal investment conditions to make proper business decisions in a timely manner.

Primary Action Plan 3: New Business Opportunities

Drastic Expansion in Ceramics Business by Collaboration between Japan and the USA

Among new businesses, we are specifically focusing on ceramics business beginning with the current mid-term management plan. Ceramic products are mainly used as substitute raw materials for metal parts, and have excellent resistance to high temperatures and wear. These also have low expansion characteristics and offer chemical corrosion resistance. Applications include components for semiconductor and LCD manufacturing equipment, pump parts, and various rollers that require wear resistance.

Focusing on the development and sales of products for these markets and applications, in FY2022, sales increased 80.7% to 2.16 billion JPY and operating income increased 524% to 130 million JPY compared to FY2020, the final year of the previous mid-term management plan.

With the acquisition of SSCA in the USA at the end of 2022, the Shinagawa Group's ceramics business now has two locations, one in Japan and the other overseas, providing an enhanced foundation for global market development.

Mutual technical exchanges between these two locations are progressing, and efforts are underway to expand product lineups and enhance technical capabil-



ities. Using these activities as leverage, we will promote entry into new markets and sales expansion, in addition to further penetrating our existing markets.

Primary Action Plan 4: Vigorous Capital Investments

Production Optimization in Japan to Solidify a Foothold for Future Overseas Business Growth

Growth investments focus on investments aimed at production optimization in Japan in order to win intensifying competition in Japan and overseas. Improving productivity and reducing costs requires a leap forward to a level worthy of being called reform and innovation, rather than just improvement and we have been advancing fundamentally transformative initiatives.

In western Japan, construction of a new fully automated plant is underway to consolidate production of monolithic refractories to the Ako Plant. Construction is progressing as planned despite the extreme difficulty in procuring various materials amid supply chain disruptions. The new plant will begin test runs in January 2024, after which production will be transferred from other plants, and commercial production is expected to start in April of the same year, as originally planned.

In eastern Japan, we are exploring opportuities to consolidate production of monolithic refractories and upgrade production lines for flow control system refractories in the next mid-term management plan in order to respond to changes in the market demand such as integrated steel making companies restructuring their production processes. In particular, we intend to design production lines for flow control system refractories in eastern Japan as a global mother factory in Japan that will drive future overseas business growth.



Growth Strategy

Key Initiatives in the Next Fiscal Year (FY2023)

FY2023 marks the final year of the 5th Mid-Term Management Plan, and we consider it an important preparatory period for the next 6th Mid-Term Management Plan.

Shinagawa Group's business environment is expected to remain unstable, with ongoing inflation in many countries around the world, the prolonged situation in Ukraine, and geopolitical risks in East Asia. As for the steel industry in Japan, crude steel production for FY2023 is expected to increase only slightly from the previous year to still less than 90 million tons per year, and the restructuring of production processes by integrated steel making companies is expected to continue. Furthermore, we believe that we will continue to face severe situation for the procurement of raw materials, due in part to persistently high raw material prices, as well as rising fuel and electricity prices and logistics costs resulting from various events happening around the world.

And, the medium- to long-term business environment is expected to be more challenging than ever, because of the many risks presenting profound uncertainty as I discussed, as well as the growing problem of climate change and Japan's declining population due to its declining birthrate and aging society.

In this environment, we identified two key initiatives to overcome the situation: One is the reformation of the Shinagawa Group's management structure, which is indispensable for sustainable growth, and another is formulation of a long-term vision to be pursued by the Shinagawa Group in the future. Key Initiative (1): Reformation of the Shinagawa Group's Management Structure

Introducing a Sector System that maximizes Sub Optimization and Total Optimization Simultaneously

At the Shinagawa Group, we have allowed each group company to have considerable autonomy and managerial ties among us was relatively loose. However, in April 2023, we implemented a fundamental reformation of the Shinagawa Group management structure, considering tighter cooperation among all businesses to effectively utilize various management resources is essential for the Shinagawa Group to achieve sustainable growth in an uncertain medium- to long-term business environment. In fact, I have been thinking about a reformation like this since I assumed the presidency, and determined that this was the best timing after analyzing the internal and external business environment.

Specifically, we have rearranged the Shinagawa Group's business domains into four sectors: Refractory, Insulation, Ceramics, and Engineering, and have assigned a head to each sector who is responsible for the profit and loss and the business growth of each sector. Under the leadership of its sector head, each sector is expected to operate autonomously. However, collaborations among sectors and implementing effective allocation of the Shinagawa Group's management resources is a must. In order to make these collaborations happen effectively, we eastablished the Corporate Headquarters too to play a role as liaison and a backup organization for the activities of each sector.

Furthermore, in order to have a meeting body that can determine management strategies and plans for the entire Shinagawa Group, we established the Group Management Strategy Council, with the President, Sector heads, and the head of the Corporate Headquarters as its core members. This will allow us to precise control of the entire Shinagawa Group in the interest of total optimization of the whole Shinagawa Group.

Key Initiative (2): Formulation of a Long-Term Vision

Formulation of a Long-Term Vision with Total Integration of Growth Strategies and Sustainability Initiatives

In order to achieve sustainable growth, it is necessary for the Shinagawa Group to formulate various measures from different angles from a medium- to long-term perspective, not just short-term targets, and to make sustained efforts. From this perspective, in FY2023, we will formulate the Shinagawa Group's long-term vision for 2030, and by backcasting from that vision, we will formulate the 6th Mid-term Management Plan to launch in FY2024. The Corporate Headquarters is currently serving as the secretariat for discussions at the Group Management Strategy Conuncil in preparation for the scheduled announcement in May 2024.

This long-term vision will include the Shinagawa Group's initiatives for sustainability. We have identified 7 themes and 11 materiality, and we are currently promoting sustainability initiatives in accordance with them. To ensure that our contribution to the realization of a sustainable society will be directly linked to the sustainable growth of our Group, the long-term vision we formulate and pursue will seamlessly integrate our growth strategies and our sustainability initiatives.

Going forward, we intend to focus particularly on addressing climate change and human resource issues. With respect to human resource issues such as diversity and inclusion, we have a great deal to learn from SRB in Brazil and SSCA in the USA, which we acquired from Saint-Gobain, an excellent global company. We will incorporate the lessons we learn here into our long-term vision and the next Mid-Term Management Plan.



Toward Formulation of a Long-Term Vision Pursuing Seamless Integration of Growth Strategies and Sustainability Initiatives



Conclusion

Toward 150 Years of Shinagawa Refractories and Beyond

Shinagawa Refractories is a well-established company in the refractory industry, celebrating its 150th anniversary in 2025. While passing on the spirit of contributing to our customers and society through our business activities to the future, we continue to be a stronger and more attractive company that can respond to major changes of the times.

In the 6th Mid-Term Management Plan, we will apply ROIC as an important management indicator and build a management strategy emphasizing capital efficiency. The profits will be specifically invested in growth strategies to maximize corporate value. The results of these efforts will then be reinvested in further growth and will lead to enhanced returns to our stakeholders.

Shinagawa will also further improve our communication methods with our stakeholders to emphasize dialogue rather than our previous somewhat one-sided communication.

We continue to strive to the best in the industry. Your continued support to the Shinagawa Refractories Group would be much appreciated. **Growth Strategy**

5th Mid-Term Management Plan (FY2021 to FY2023)





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	FY2023 Mid-Term Management Plan Targets
Net Sales	115.0 billion JPY
Ordinary Income	11.5 billion JPY
ROS	10%

5th Mid-Term Management Plan: Final Year Target

Forecast made in 2020

· Crude steel production in Japan: 90.00 million tons per year • Exchange rate: 105 JPY / 1 USD

FY2023 Outlook Assumptions (Revision in the Second Half of FY2022

 Crude steel production in Japan: 88.50 million tons per year • Exchange rate (average for the fiscal year): 145 JPY / 1 USD

Sales Expansion & Production Optimization in Japan

Sales Expansion of Refractory and Insulation

• Exclusive distribution agreement signed with Allied Mineral Products in March 2023 for monolithic refractories for the aluminum industry in Japan

Production Optimization



3 **Entering New Business**

New Development with Fine Ceramics Business (Shinagawa Fine Ceramics)

- Mainly used as substitute for metal parts (Required properties: High temperature resistance, low expansion, wear resistance, chemical corrosion resistance)
- Maior customers include manufacturers of semiconductor and LCD manufacturing equipment, pumps, and specialty metals





Ceramics for Semiconductor / Ceramics for Various Pumps Liquid crystal Manufacturing equipment

Wear-resistant Ceramic Bollers

Aiming to enter the global market through collaboration with SSCA in the USA.



2 Overseas expansion since 1997 started from China Secured production bases in all major markets in the Indo-Pacific region in 2022 Strategic Acquisitions Saint-Gobain's Refractories business in Brazil

Overseas Business Expansion

Druzii Way 2022					
USA	May 2022	Saint-Gobain's Alumina based Wear Resistant Ceramics business in USA			
Technology Transfer Agreement					
India	July 2022	 Technology Transfer of Shaped Refractory for steel to Dalmia 			
China July 2022		 Technology Transfer of Flow Control System Refractory for Continuous Casting to Anshan Hefeng Refractories 			

Vigorous Capital Investments

Expecting to Achieve 14.0 Billion JPY Mid-Term Plan Target (Three-Year Total

Policy to sustain aggressive growth investment in the third year



Capital Investment (by medium-term plan period)

Collaborating with a Spirit of Service with Each Sector in Pursuit of Maximizing the Corporate Value

Fundamental Operational Policy for the Corporate Headquarters

Growth Strategy

Providing Full Support for Overall Group Activities in the New Sector System

With the aim of further strengthening and streamlining the Shinagawa Group's management, we have reorganized the entire Shinagawa Group into four sectors (Refractory, Insulation, Ceramics, and Engineering) and newly established the Corporate Headquarters to support various activities of these sectors. Planning and Administration Unit at Shinagawa Refractories will perform the role of the Corporate Headquarters. The Planning and Administration Unit has five departments (General Affairs & Human Resources, Accounting & Finance, Corporate Planning, IR & Public Relations, and Information Systems) and one section (Sustainability Promotion Section).

In general, these departments and offices are considered back-office that provides support to the front-office positions, such as sales and production, with their various responsibilities. The table on this page, "Action Policies of Each Department & Office of Corporate Headquarters (Planning and Administration Division)" well describes how each department of the Corporate Headquarters supports the production, sales, and technology development activities of each sector.

What I believe is critical in the stance of the Corporate Headquarters is to collaborate with sectors always wiith a spirit of service, and to contribute in maximizing corporate value. It is essential that we always listen to and sincerely respond to the requests of our shareholders, customers, employees, communities, and other stakeholders. In order to provide the right support to each sector, the Corporate Headquarters will actively collect and analyze relevant information based on a thorough understanding of the position of the Shinagawa Group and each individual sector, and will supply the human resources, funds, and information needed by each sector in a timely manner. The Corporate Headquarters also serves as the host of the Group Management Strategy Committee and other meetings, and participates in the review of capital and business investments as the secre-

Action Policies of Each Department and Office of Corporate Headquarters (Planning and Administration Division)

Department/Office	Action Policies Excerpt for FY2023
General Affairs & Human Resources Department	 Fully recognize the importance of our work as a service department for both inside and outside the company, and strive to improve the services we provide. Improve various rules and policies to make the company a comfortable place to work for employees Host the General Meeting of Shareholders, Board of Directors and the Executive Committee, and serve as the secretariat of the Compliance Subcommittee.
Accounting & Finance Department	 Further improve the quality of information provided and respond promptly and appropriately to system revisions and public requests. Arrange optimal and complete financing for increased working capital and investment capital needs.
Corporate Planning Department	 Manage progress in timely manner and actively disclose information to achieve the goals of the FY2023 management plan. Develop and prepare the 6th Mid-Term Business Plan and conceptualize the future beyond Shinagawa Refractories' 150th anniversary. Host the Group Management Strategy Committee and Financial Review Committee, and serve as the secretariat of the Risk Management Subcommittee.
IR & Public Relations Department	 Continue focusing on proactive communication with stakeholders and effectively reaching out to talent market for successful recruiting activities. Ex: Increasing in the number of eranings briefinga for investors, Creation of a corporate character aimed at market penetration, etc.
Information Systems Department	 Establish sustainable systems and programs. Support business improvement through the cloudification of mainframes and various system improvements.
Sustainability Promotion Section	 Promote sustainability in the Shinagawa Group's businesses and enhance corporate value. Ex: Support KPI activities in each department, promote climate change action, implement human rights due diligence, etc.



tariat. In order to carry out these important tasks properly, it is essential to secure and develop human resources with knowledge of finance and other business skills. In addition, we will make sure to conduct close communication with the administrative units of each sector and subsidiary, along with timely communication with external parties such as IR, which is becoming increasingly important.

Two Key Points in Management Planning

Formulating a Long-Term Vision with Integrating Growth Strategies and Sustainability Initiatives

FY2023 is the last year of the 5th Mid-Term Management Plan, and also serves as the preparation period for the 6th Mid-Term Management Plan. In the 6th Mid-Term Management Plan, we intend to formulate targets by backcasting from a long-term vision for 2030 that integrates growth strategies and sustainability initiatives.

Point 1: Growth Strategies

Further Improving Growth Strategies for the Next Mid-Term Management Plan and Beyond through ROIC Management

As for the growth strategies, we adopt return on invested capital (ROIC) as an important management indicator and build a management strategy emphasizing capital efficiency. The largest market for the Shinagawa Group's business activities is currently the steel industry in Japan, but in order to continue to grow into the future, we must further penetrate non-steel and industrial furnace markets in Japan and expand our business toward the overseas markets for refractory and insulation, as well as the ceramics market.

In the process of pursuing such growth, it is important as a management decision that we make the most effective use of limited management resources and focus on targets with higher growth potential. This requires management indicators that enable comparison and confirmation of whether management resources are being used effectively.

The Shinagawa Group has adopted the ratio of ordinary income to net sales (ROS) as a main management indicator. However, ROS is a management indicator that does not involve balance sheet assets, liabilities, and equity as calculation elements, It is not a proper indicator for any business decisions involving effective use of management resources and discussions for improvement of capital efficiency.

Considering recent significant changes in competition involving restructuring, integration and M&A, the Shinagawa Group has decided to adopt ROIC as our main management indicator, starting with the upcoming midterm management plan.

This allows us to determine how efficiently the invested capital or, in other words, the business assets to

be invested will generate profits when developing new markets or entering new businesses, thereby enabling us to make effective use of management resources. ROIC is effective indicator for making decisions on investments not only for new businesses, but also on additional investments in existing businesses. When evaluating the Shinagawa Group's business portfolio using ROIC, it allows us to make decisions whether to make additional investments or not in businesses/product groups that are currently "question marks" from a long-term strategic perspective. Since ROIC management contributes to the effective utilization of management resources, it will maximize the Shinagawa Group's corporate value as we further develop our growth strategy for the next mid-term management plan and beyond.

Growth Strategy

The results obtained by maximizing corporate value will be used to reinvest in further growth and to enhance returns to stakeholders.

In this context, we review an appropriate level of shareholder returns, which is set at a dividend payout ratio of 30% in the current Medium-Term Management Plan, in conjunction with the total return ratio in the next Medium-Term Management Plan.

Point 2: Sustainability Initiatives

Advancing Sustainability Initiatives Based on Materiality

Next, with regard to sustainability initiatives, the Sustainability Committee, chaired by the President, is playing a central role in addressing various social issues, such as climate change and respect for human rights, through the Shinagawa Group's businesses. The KPIs based on the 11 key issues set are backcasted from 2030 to formulate annual action plans, manage progress, and report to the Board of Directors on the current status and future challenges. I now would like to address on an overview of our activities with regard to our major topics: Climate Change and Reducing Environmental Impact (Environment) and Diversity, Inclusion & Respect for Human Rights (Social).

Climate Change Action: Executing Our Scope 1 & 2 CO₂ Emissions Reduction Commitment and Supporting Our Customer CO₂ Emissions Reductions through Business Activities

In the area of climate change and reducing environmental impact, the Shinagawa Group has endorsed the recommendations of the TCFD and disclosed information accordingly. In this area, we have set the goals of reducing

The Shinagawa Group's ROIC Management Approach

Aiming to Further Build and Strengthen Earning Power, Shinagawa will Further Develop Our Growth Strategy and Maximize Corporate Value based on ROIC Management.

	ROIC Management	Implementing a management strategy emphasizing capital efficiency			
	● Focusing on cost of capital and er ⇒ Setting sector-specific ROIC targets (lo	nphasizing the efficiency of profit creation for growth ng-term and short-term) and prioritizing on achieving long-term targets *The 6th Mid-Term Management Plan is scheduled to be announced in May 2024.			
	Further Developing Growth Strategies	Further deneloping the growth strategy from the current mid-term plan into the next mid-term plan*			
	Optimizing the business portfolio in both manufacturing and sales				
	 Expanding business scale and imp Maintaining the sales amount to the steel indust 	oroving the sales mix Responding to customers' consolidation of production sites and processes			
	 Expanding the sales for non-ferrous industrial fi Upgrading production lines of flow control system 	rnaces, and overseas customers • Restructuring our production structure in Japan n refractories to accelerate overseas business expansion			
Maximizing Corporate Value		Reinvesting in further growth and enhancing returns to stakeholders using profits generated by maximizing corporate value			
	Proposing appropriate levels of div	vidend payout ratio and total return ratio.			

CO₂ emissions in Scopes 1 and 2 by 50% from FY2013 levels by 2030 and achieving carbon neutrality by 2050. In order to reduce CO₂ emissions by 50% by 2030, we are promoting fuel conversion from heavy oil to LNG and upgrading to more thermally efficient equipment in terms of production, and implementing a modal shift in terms of transportation. Furthermore, we are expanding the installation of solar power generation, active at two locations so far, to increase the use of green power in our electricity consumption.

However, even if the Shinagawa Group were to achieve net-zero CO2 emissions, it would only make a small contribution to reducing emissions in Japan overall.

Therefore, we have identified the following two focus projects as our contribution to society through the reduction of CO₂ emissions. First is to achieve e greater thermal efficiency and longer service lives in our customers' production processes through a combination of technologies from the four sectors. Shinagawa has been providing our customers with thermal efficient products with low heat loss and state-of-the-art furnace technology; we are now taking these efforts one step further to contribute to the reduction of our customers' CO2 emissions. Another is the recycling of used refractories. This recycling business is not only aimed at reducing CO₂ emissions during the production of raw materials and conserving mineral resources, but is also an initiative to reduce environmental impact that will contribute to our customers' zero emissions. In cooperation with our customers, we are currently engaged in test plant operations and working toward full-scale launch.

Diversity, Inclusion & Respect for Human Rights: Promoting Diversity of Human Resources to Enhancing Human Capital

With respect to diversity, inclusion & respect for human rights materiality, in May of 2023, we newly formulated the Basic Human Rights Policy by considering recent growing awareness of human rights all over the world. In conjunction with the Procurement Policy and CSR Procurement Guidelines, we will continue to identify and address human rights risks not only within the Shinagawa Group but also within our business partners in the supply



chain. The human rights due diligence is conducted regularly on an annual basis to reduce and eliminate human rights risks. As for activities to enhance human resources, we revised the Basic Human Resource Development Policy in June 2022, which includes improvements to the workplace environment, in June 2022, and are conducting in-house training, including position-specific training based on the Education and Training Regulations. In June of this year, we also significantly improved our foreign language training programs and began to develop a system that will contribute to the expansion of our overseas business. With respect to diversity & inclusion, we aim to achieve a 25% ratio of female in managerial positions by 2030. Furthermore, our target of hiring 10% or more female for career-track positions was achieved, achieving 33% of new hires in April 2023. Furthermore, we will actively promote the employment of foreign nationals and people with disabilities, aiming to create a workplace that attracts a diverse range of human resources.

The outline of the 6th Mid-Term Management Plan, which incorporates the growth strategies and sustainability initiatives as described above, as well as ROIC targets and our approach to shareholder returns, is scheduled for announcement in May 2024.

I would like to thank all our stakeholders for your continued support and encouragement as always.

Shinagawa Group launched the New Management Platform in April 2023 in order to effectively pursue the Future Long-term Vision & the Next (6th) Mid-Term Management Plan and to execute these Plans and Strategies at earliest possible.



Business Strategy

In order to ensure the sustainability of the future growth of the group, we have reformed the management structure of the group. As the best bundles for each division to pursue their expertise, we have rearranged the Shinagawa Group's business domains into four sectors: Refractory, Insulation, Ceramics, and Engineering. Each sector will attempt to maximize synergies between sectors in order to realize the 'overall optimization' as the group by closely collaborating among the sectors, while pursuing the 'individual optimization' by autonomous operations.

ducts called shaped and monolithic refractories, haped refractories, also known as 'bricks', are achines. Monolithic refractories are powdery ty is exhibited at the customers by mainly adding sually used as linings of a high temperature furnace.	P27-28	
ulating properties including ceramic fibers and insulated nly high resistance against heat, but also bring an the material for the backside of a furnace and that for the recent years, with increasing needs to achieve carbon and as an effective measure against thermal loss.	P29-30	
products including fine ceramics, inorganic paints, ared to refractories, have a dense structure and exhibit and chemical inertness. They are primarily used as anic paints and inorganic adhesives are products which ctory technologies of the Shinagawa Group.	P31-32	
and installation (including maintenance) of lining for ulated materials. Our strength is based on profound on products with many years of experiences. We also tories.	P33-34	

Sector Vision

REFRACTORIES

Refractory Sector

Be the Customer's First Choice

ve Director, Managing Executive Officer Refractory Sector

Masanori Ogata





Refractory: Fascinating World of Technology

The Refractories Sector consists of the Refractories Business Unit of Shinagawa, Cera Techno, two domestic affiliated companies of Shinagawa General, as well as 11 overseas affiliated companies such as Shenyang Shinagawa Metallurgy Materials Co., Ltd. (China), Liaoning Shinagawa Hefeng Metallurgical Material Co., Ltd. (China), SRA (Australia), SAM (USA), SRB (Brazil) and others. Developing the refractory business on a global scale, our sector achieved 81.1 billion JPY of the net sales for FY2022, accounting approx. for 65% of the consolidated net sales of the total Shinagawa Group.

Refractory business is a fascinating world of technology, and this is very well described by Gustavo Padilha. President of SRB (our consolidated subsidiary in Brazil), who joined our company group through an M&A in December 2022, at his preface in Shinagawa Technical Report No. 66 (2023).

"Refractories is the most fascinating business I have ever worked for. I started working with Refractories in 2014, after managing totally different business (tempered and laminated glass for vehicles, wood components for housing finishing and glass containers for food and beverages) around 20 years, I must confess that Refractories business is by far the most fascinating one. Unlike other business

activities, Refractories business isn't related only to products offer but also, and mainly, total fit with customer's needs. The same product that works well for one customer, could be a disaster for another customer due to their specific operational conditions, their raw material characteristics, and their final product specification. This complexity turns our activity a prescriptive one where Proximity with customers isn't an ethereal concept, but a very concrete condition to survive, a condition to keep serving this market. Refractories business is a business in continuous improvement and rapid development. To serve and fulfill the needs of our customers, and be their First Refractories' Choice, we must continuously reinvent our offer to promote an effective and perceived differentiation, being part of a transformation of their processes.'

Our sector aims to provide "SHINAGAWA's Solutions" to our global clients as a group collectively, aspiring to be the refractories business chosen first by our customers.

Growth Strategy of the Refractory Sector

The Refractory Sector revolves three main growth strategies, leveraging collaboration among our Refractory Business Unit as the hub and 13 affiliated companies in Japan and overseas

Sales Expansion & Production Optimization in Japan

Approximately 80% of our business in Japan is for the steel industry; however, crude steel production in Japan is expeted to decline. In order to continue grow our business in Japan, we are expanding sales into non-ferrous and industrial furnace industries, while maintaining sales for the steel industry.

In March 2023, Shinagawa was successful in reaching an exclusive sales agreement with Allied Mineral Products for monolithic refractories for the aluminum industry in Japan. Leveraging the great range of their quality products with competitive edges, we have started exploring new sales opportunities.

Cost competitiveness is also pivotal for business expansion. Therefore, we are actively investing in plants to restructure production systems and enhance productivity in Japan to strengthen our competitive edge.

Overseas Business Expansion

Steel demand is expanding in emerging countries and it is crucial for Shinagawa to expand our overseas business to capture these business opportunities. We continue investing in overseas production/sales sites to expand our

Focus

Technologies, Products and Services



Product Range of the Refractory Sector



Gas purging-plug effective for bottom blowing used in a large-sized electric furnace



Nozzles and plates used during the process of steel continuous casting



Designing submerged entry nozzles tailored to customer's operating conditions using fluid dynamics calculations



business globally. Strategic alliance with potential business partners and further M&A activities will be also actively pursued globally.

Sustainability Initiatives

The Shinagawa Group has set a target to reduce CO2 emissions from our in-house production processes by 50% by FY 2030 compared to the FY 2013 levels. Initiatives such as the introduction of energy-saving equipment, low-temperature firing of burnt bricks and converting the bricks to monolithic, and leveraging renewable energy sources will be pursued to achieve these goals. In addition, prior to the manufacturing process for refractories, because of the substantial CO₂ emissions during raw material manufacturing, efforts will focus on expanding refractories recycling initiatives to reuse used refractories as raw materials.

Furthermore, we are expanding our product range capable of transitioning to new steelmaking processes for achieving carbon neutrality in the steel industry. Additionally, we are promoting the application of refractories and insulation products that contribute to reducing thermal loss in the high temperature production processes of various industries.

Going forward, our sector will take a leading role in addressing these sustainability initiatives, driving them across the entire Shinagawa Group.

Area of the image





Precast blocks made of castable refractories

INSULATION

Sector Vision

Global Supply of Environmentally-Friendly Insulation Products Aimed at Reducing Environmental Impact

Sustainable growth through the collaborative creation of new applications using foundational and applied technologies

Toshihiko Kaneshiae



Insulation Sector



Features and Strengths of Insulation Sector

The Insulation Sector has been established consisting of the Isolite Insulating Products Group. In our sector, alongside the core business of manufacturing and selling insulation bricks and ceramic fibers, we're driving the development and market penetration of new products geared towards new markets, leveraging the features of both refractory and insulation.

As a pioneer company in insulation materials with refractory features, the Isolite Industrial Group has cherished our corporate principles and high-quality standards, while dedicating ourselves to strengthening supply chains in Japan and overseas, and investing in technological advancements. The commitment to our customers' journey towards carbon neutrality extends beyond energy efficiency in industrial furnaces; we aim to enhance our product range to withstand high temperatures and various atmospheres, facilitating the transition from fossil fuels to alternative sources. Additionally, as a trailblazer in eco-friendly and biodegradable fibers, the group strives to mass-produce the product while improving its heat resistance. We take pride in being an insulation manufacturer that places significant emphasis on environmental considerations. In recent years, we've expanded into new applications for ceramic fibers, foreseeing growth in markets such as automotive and fuel cell parts, tools for semiconductor and electronic component manufacturing,

and applications in battery storage. Simultaneously, we actively engage in developing products for sustainable applications, such as non-combustible building materials for housing that not only offer insulation but also possess fire-resistant features.

Business Environment and Challenges Surrounding the Insulation Sector

To achieve carbon neutrality, it's imperative to advance energy efficiency and high-temperature effectiveness in production processes across all industries using fuel, not just through the utilization of alternative fuels or shifts in transportation modalities. As part of the solution, the insulation products that are lightweight and high in insulation properties has become indispensable. Especially in industrial furnaces contemplating a transition to alternative fuels, there's a demand for novel lining configurations. These configurations should encompass various operating temperatures and combustion atmospheres by combining multiple types of insulation materials, to replace the existing lining structures. Moreover, there's a growing demand for super-insulation facilitated by products with exceptionally strong thermal insulating features.

Therefore, we will be asked for diversification and quality enhancement of insulation materials that can withstand high temperatures while exhibiting superior insulation features.

Additionally, for insulation products used in growth sectors such as semiconductor, electronic component manufacturing, and fuel cell production, meeting delivery deadlines through highly efficient production methods is as critical a challenge as reducing production costs.

Mid - Long Term Vision

In order to address the new challenges and needs mentioned earlier, it is crucial to move beyond status-guo approaches, and instead, focus on refreshing our manufacturing methods and production facilities. Proactively and boldly implementing technology development aligned with market demands and introducing new production facilities will be paramount for sustained growth.

Furthermore, it is imperative to establish a market leading position and production/sales infrastructure in the field of insulation materials for semiconductors, electronic component manufacturing, and fuel cell production, which are market segments with increasing global demand.

Mid - Long Term Strategy towards Achieving the Vision

The worldwide initiatives aiming at energy efficiency and carbon neutrality serve as a tailwind for the insulation business.

With the key factors of "energy efficiency" and "environmentally-friendly insulation materials":

1) Making proposal of optimal lining designs for insula-

Technologies, Products and Services

<Sales Ratio for Insulation Products by Industries>



Insulation materials are widely used across various industrial sectors, primarily catering to industrial furnaces.



Automotive exhaust gas purification systems Peripheral applications







Ceramic filters for high-temperature dust collectors (ISOFIL)

Products for semiconductor manufacturing furnaces

Focus



tion materials in molten metal containers.

- 2) Selection of optimal materials and lining designs, considering fuel conversion in reheating furnace and heat treatment furnaces, while streamlining construction efficiency.
- 3) Versatility and enhanced heat resistance of biodegradable fibers.

With the key factors of "exploring new applications for refractory insulation materials":

- 4) Sales expansion for raw materials used in exhaust gas filters and brake pad friction materials.
- 5) Market expansion for heating tools used in semiconductor and electronic component.
- 6) Sales development for fuel cell components.
- 7) Market expansion for embedded materials enhancing the performance of storage batteries.
- 8) Market expansion of high-temperature ceramic filters used in dust collection.
- 9) Exploring entering into non-combustible building materials market.

These strategies aim to both develop our core business and utilize established foundational technologies to expand into new applications, in order to foster sustained growth of the business.

Moreover, to expand in the global market, we are further collaborating with the Refractory Sector and Ceramics Sector by sharing our overseas sales platform.





Sector Vision

Business Strategy

The Ever-Growing Sector with **Strong Presence Leveraging** "Advanced Ceramics Technology"

Yoshio Fukusak



Ceramics Sector



Features/Strengths of Ceramics Sector

The Ceramics Sector comprises two companies: Shinagawa Fine Ceramics (established in November 2002) and SSCA (Shinagawa Specialty Ceramics Americas LLC, acquired through M&A in December 2022). The products of our Sector are categorized as 'highly value-added' within the group, including fine ceramics, inorganic paints, and inorganic adhesives. Fine ceramics are products manufactured with meticulously controlled chemical compositions, microstructures, shapes, and production processes using carefully selected raw materials, resulting in products having advanced functionalities and characteristics. On the other hand, inorganic paints and adhesives leverage the outcomes of our primary business in refractories research, providing product features such as heat resistance, electrical insulation, weather resistance, and release properties that cannot be achieved with conventional paints and adhesives containing organic materials.

Business Environment and Challenges Surrounding the Ceramics Sector

Fine ceramics, our flagship products, excels in heat resistance, corrosion resistance, and mechanical strength, compared to commodity such as metals and resins. It has been utilized across diverse fields such as semiconductor, automotive, and industrial machinery, and its future demand is also expected to grow further especially with its lightweight feature. Meeting this increasing demand requires enhancing production capacity, strengthening competitiveness, and expanding business scale, all of which are our critical objectives.

Mid - Long Term Vision

The semiconductor market, crucial for high-definition imaging, ultra-fast data communication, AI, and advanced automotive driving technologies, is expected to double from the current 50 trillion JPY to 100 trillion JPY by 2030. Additionally, countries worldwide are enhancing semiconductor production infrastructures for economic/national security reasons, and a similar growth trend is expected to the market for semiconductor manufacturing equipment. Due to its excellent properties, the demand for fine ceramics is anticipated to proportionally increase as a component in semiconductor manufacturing equipment.

Considering this mid-to-long-term market expansion, our Sector will further refine our own Advanced Ceramics Technology, aiming to explore new markets, new fields, and new clientele on a global scale. Our goal is to be a 'Sector with a Strong Global Presence.'

Mid - Long Term Strategy towards Achieving the Vision

Our Sector is implementing the following mid-to-long-term growth strategies to contribute to society:

- 1) Increasing supply capabilities through enhanced collaboration with our supply chain partners and proactive investments to production infrastructure for quickly responding to rapid market changes driven by increasing demand.
- 2) Leveraging our strength in producing materials through precision finishing, further expanding our product lineup and enhance competitiveness through stringent quality control.
- 3) Technology development and manufacturing capabilities in emerging fields (markets for special coatings, long-length rolls, and the lithium-ion battery), where high growth is anticipated.
- 4) Collaborating with strategic partners to leverage synergies, and expanding the scale through the introduction of new technologies, and economies of scale.

Technologies, Products and Services









Fine ceramics for semiconductor/ liquid crystal manufacturing equipment Fine ceramics for industrial machineries



The synergy with SSCA, a newly joined company to our Sector, in the Fine Ceramics field is particularly crucial.

SSCA has product lineups not found in Shinagawa Fine Ceramics in Japan, and we are aiming to establish the foundation for global expansion by collaborating in technologies, manufacturing, and sales. Furthermore, we believe there are untapped markets for inorganic paints and adhesives. We are also intensifying our efforts in new market exploration in collaboration with the other Sectors, i.e. Refractory, Insulation, and Engineering.



Inorganic paints/ adhesives

ENGINEERING

Sector Vision

Sustainable Business Growth through the Development of Cutting-Edge Technologies and the Integration/Expansion of Human Resources

Representative Director, Managing Executive Officer of Shi Head of Engineering Sector President and CEO of Science Deleters

Yoshikazu Kurose



Engineering Sector



Our sector mainly conducts the designing and installation (including maintenance) of lining for refractories used for various furnaces. Furthermore, we engage in the production of various refractory installation equipment and the design, production and installation of industrial furnaces and drying furnaces. These activities allow us to support the production infrastructure of industries with high-temperature processes and meet customer needs across a wide range of market segments, and to differentiate the Shinagawa Group from the competition.

Structures and Features of the Engineering Sector

The Engineering Sector comprises the Steel Business Division and the Environment & Industrial Furnace Engineering Business Division of the Engineering & Installation Business Unit and Shinagawa Rokoh, our subsuduary.

The Steel Business Division primarily conducts refractory repair work within the steelmaking plants of JFE Steel. The Environment & Industrial Furnace Engineering Business Division not only designs refractory linings for various clients but also executes refractory installation projects for furnaces and incinerators nationwide. The division is also providing the design, production, and installation services of industrial and drying furnaces. Shinagawa Rokoh undertakes refractory installation projects under both the Steel

Business Division and the Environmental & Industrial Furnace Engineering Business Division, and is engaged in the designing and manufacturing of various installation equipment and drying furnaces.

Business Environment and Challenges for the **Engineering Sector**

The Engineering Sector has been successful in earning high praise from customers because of our optimal lining design and installation techniques, and maintained a stable financial performance for years. While continuing to collaborate with the Refractory Sector to drive further growth, the landscape surrounding our Sector has been undergoing significant changes such as the reduction of crude steel production in Japan and the accelerated move towards carbon neutrality.

In addition to our existing businesses, especially with the steel industry, it is crucial for us to embark on the challenge of creating new businesses aligned with future growth business segments.

Growth Strategy for the Engineering Sector

The Engineering Sector focuses on the following three key areas to achieve sustainable growth.

1) Strengthening response to future growth areas, including contributions to various industries' efforts toward carbon neutrality and the expansion of refractory recycling businesses.

We will respond quickly to customer needs by demonstrating our advanced technological capabilities in initiatives toward carbon neutrality, such as energy conservation in the steel and other industries with high-temperature processes, as well as in the refractory recycling business, which we will further expand in the future.

2) Continuously receiving orders of large-scale projects by further improving customer satisfaction in terms of safety, quality, and technology.

We further refine the technologies we have accumulated over the years, including in the steel industry, non-ferrous, environmental, and industrial furnaces, and by providing advanced technologies to further strengthen our relationships of trust with customers, we continue to receive orders for large refractory installation projects.

Technologies, Products and Services



1) Blast Furnaces



Example of Refractory Installation 2) Coke over



1) Incinerators





2) Tunnel-type firing furnace

Equipment for installing monolithics



3) New business creation through further collaboration with the Insulation Sector and the Ceramics Sector. Our collaboration within Shinagawa Group has been mainly with the Refractory Sector. We are now actively promoting collaboration with the Insulation Sector and the Ceramics Sector to explore creating new business opportunities.

To ensure the continuous growth of the Engineering Sector, we consider 'technical strengths' to be the most crucial element. Moreover, to maintain and enhance the technical strengths, it is imperative to further develop human resources within the Engineering Sector. In addition to the knowledge accumulated up to date, we are actively promoting digitization and mechanization. This allows us to consistently develop new installation and maintenance techniques, meet our customer needs in a timely manner, and support the sustainable growth of the Shinagawa Group.



Refractory lining designing

Our Commitment & Action Plan

Based on our management philosophy of "Creation of a Prosperous Society by Industrial Development," Shinagawa is working together with our stakeholders to create a sustainable society from the perspectives of "Environment," "Society" and "Governance." Shinagawa continues to grow through sustainable business activities and increase corporate value. Under our Corporate Conduct Charter, we contribute to the development of industrial society through fair competition, ensure respect for human rights and compliance with laws and regulations globally, and act with honesty, fairness, and integrity as a member of global society.



better society for them. We, in

to contribute to solving global

climate change, and not only

environmental issues including

reducing the environmental impact

of our business activities, but also developing environmentally friendly

products and installation methods and providing them to society.

particular, are actively taking actions

Business Partners

Sustainability

Shinagawa co-creates value with all our business partners. We areconducting business with fairness and sincerity, deepen mutual understanding and trust. and working together to grow and enhance corporate value. We are asking all our business partners to act with supporting this policy and of co-create a sustainable society.

Sustainability Governance

The Group has established a Sustainability Committee, chaired by the President and CEO, to address issues surrounding sustainability. The Sustainability Committee meets at least twice a year to discuss the direction of the Group's sustainability management, including SDGs and ESG investment, in cooperation with the Internal Control Committee (Compliance Committee and Risk Management Committee), and reports to the Board of Directors. We have also strengthened our sustainability efforts by introducing sectors for each business area.

business activities. At our

and cultures and strive for

cooperation and harmony.

business locations around the

world we respect local customs

Role of the Sustainability Committee

1	Develop and revise the Basic Sustainability Policy
2	Propose action policies related to environmental issues (climate change, resource recycling, etc.) and social issues (human rights, social contribution activities, diversity and inclusion, etc.)
3	Develop specific action plans for these policies and manage progress

4 Address any other important sustainability issues

Sustainability Management Promotion Organization



efficient operations of its customers based on its comprehensive high-temperature technologies.

decarbonization and energy conservation through our heat loss reduction and raw material recycling technologies, thereby contributing to the creation of a sustainable society. We also believe that these efforts will strengthen and expand the Group's business both in Japan and internationally.

In May 2022, the Shinagawa Group identified seven themes and eleven key issues (materiality), identifying the direction we will take. Given these, we will achieve sustainable business growth and contribute to solving social issues, aiming to build a prosperous society through industrial development.

Materiality at Shinagawa

SDGs	Торіс	No.	
10 chest 2 telescont see 10 http://dat		1	Develop and p of CO ₂ emissio
	Reducing Environmen-	2	Reduce CO2 e
	tai impact	3	Minimize the in
8 EISWATE SAFE	Quality Improvement and Stable Supply	4	Support the op services.
9 Income Management Mana Management Management Man Management Management Mana	Innovation	5	Consistently in resources to in
3 total Hacking 	Health and Safety	6	Prevent accide furnace constr
5 сомота 10 нескота 12 негочани на нескота 12 негочани на нескота на нескот	Diversity, Inclusion &	7	Create workpla
@ (≑) (∞)	Respect for Human Rights	8	Establish soun
	Compliance	9	Fully comply w partner compa
11 SEMANDEL CENTS NOLZMONENTE: 8 EESANDE CADARIE	Otalishaldan Dalatiana	10	Contribute to t and deepening
		11	Make sound p
			and .

Process for Identifying and Reviewing Materiality

STEP 1 Identification of Crucial Issues

Analyzing social issues and ESG trends to identify crucial issues to be addressed for sustainable arowth with society

STEP 2 Materiality Assessment and Prioritization

Assessing materiality in terms of impact on our business based on stakeholder. ESG perspectives and international frameworks, and identifying priorities

Review as needed in response to changes in the business environment and activities

Risk Management

Please refer to the Internal Control Committee and Compliance sections on pages 53-54 and Risk Management on pages 55-56 for information on how the Group addresses various risks that may hinder its activities as it pursues sustainable growth and corporate value creation through its business activities.

Indicators and Targets

The Shinagawa Group steadily promotes sustainability management by setting ambitious indicators and targets for the 11 key issues, Of the seven themes and 11 key issues, we consider climate change and reducing environmental impact, as well as human resource

establishing a clear direction for sustainability management, and ensuring accurate progress management by the Sustainability Committee. strategy, to be of particular importance, each with clear indicators and targets. For more details, please see the Environmental Initiatives and Human Resource Initiatives sections, on pages 37-39 and pages 40-42, respectively.

Strategy

- To date, the Shinagawa Refractories Group has contributed to the realization of a prosperous society by supporting the safe and
 - We continue to contribute to society through these efforts and provide superior solutions to social issues such as

Materiality

rovide environmentally friendly products and solutions to contribute to the reduction ons and energy conservation

mission and promote energy conservation in production processes

npact on the environment by promoting refractory recycling and reducing waste.

perations of our customers by consistently providing high quality products and

novate technologies through active capital investment and developing human mprove productivity and cost competitiveness.

ents through continuous improvement of the safety environment in works and ruction sites and safety training.

ace environments in which a diverse workforce can thrive to play active roles.

nd workplaces and responsible supply chains that respect human rights.

vith laws and regulations to build fair and sound relationships with employees and

he sustainable development of local communities by promoting communication

) engagement

rofits through business activities and return them to stakeholders.

Legend : E (Environment) : S (Social) : G (Governance)



STEP 3 Identification of Materiality

The Sustainability Committee, chaired by the President and CEO, reviews, identifies, and manages progress on key issues, KPIs, and action plans based on the three criteria: "Social Significance," "Core Values," and "Shinagawa's strengths"

Environmental Policy

Basic Policy

Aiming to be one of the most Environmentally Friendly & Sustainable Companies, Shinagawa Group considers local and global environmental conservation as one of the most important cores of our business activities.

Action Policy

1. Development of Environmental Management System We are fully committed to complying with environmental laws and regulations and fulfilling our promises to local government and local communities. We set our own targets for environmental improvement, strive to achieve them, and work to develop a management system for continuous improvement.

- 2. Initiatives to Reduce Environmental Impact and Improve Environmental Performance Considering the life cycle of all our business activities, including procurement, production, sales, distribution, and technological development, we strive to reduce environmental impact and improve environmental performance by utilizing sustainable resources, reducing energy consumption, recycling, reusing goods, preventing pollution, and reducing waste.
- 3. Environmental Education

To ensure that all of our employees are aware of and proactively engage in environmental conservation activities, we ceaselessly conduct company-wide educational activities and work to raise environmental awareness.

4. Environmental Communication

In order to fulfill our social responsibilities in all regions and areas in which we operate, we strive to actively disclose and collect information, and work together with society to contribute to global environmental protection and conservation.

Indicators and Targets for Climate Change and Reducing Environmental Impact

50% reduction in Scope 1 and 2 CO₂ emissions by 2030 vs. FY2013 levels Achievement of carbon neutrality by 2050

Support for the Task Force on Climate-related Financial Disclosure (TCFD) and its Recommendations

Global climate change in recent years has had a major impact on society in various ways, and has started to make a serious impact on the global environment and the lives of citizens.

In December 2021, Shinagawa announced our support for the TCFD recommendations and joined the TCFD Consortium, an organization of supporting companies domestically in Japan. Shinagawa Group considers responses to climate change as a crucial management issue, seriously faces them to understand the opportunities and risks that impact our business. We actively disclose our efforts and contribute to the mitigation of climate change through our business activities, while seeking new business opportunities through contribution to issues of climate change. [Reference 1] In addition, many of our customers emit large amounts of greenhouse gases in their manufacturing processes, and they are all actively engaged in exploring fundamental changes to their manufacturing methods, including conversion of heat sources, to reduce CO₂ emissions. [Reference 2] Shinagawa Group is committed to support these customers' initiatives by providing products and technologies in the broad areas of refractories, thermal insulation, and installation work. Through these initiatives, we aim to achieve the aforementioned targets for our indicators.



CO2 Emission Reduction Target (Unit: thousand tons/year)



[Reference 1] Timeline and Impact Assessment per Risk/Opportunity Category

A range of climate change scenarios are possible depending on what global warming prevention measures are implemented going forward, and their impact. In our assessment, we referred to climate change scenarios (below 2°C scenario and 4°C scenario) by the IPCC and IEA, and examined them on a medium- to long-term timeline to 2050 (short-term: within 3 years, medium-term: to 2030, and long-term: to 2050). · Below 2°C scenario: Society changes due to technological innovation and stricter regulations to decarbonize and curb global warming • 4°C scenario: Decarbonization efforts fail, resulting in extreme heat and severe weather Based on these two climate change scenarios, we identified and evaluated our climate-related risks and opportunities. We are currently analyzing the risks and opportunities if the below 2°C scenario is modified to be less than 1.5°C.

Category	Expected Scenario	Timeline	Business Risks and Opportunities		Responses
Policies and		Medium-term	Risk	Bearing carbon prices based on Company greenhouse gas emissions	Reduction of greenhouse gas emissions through introduction of energy-saving equipment, fuel conversion, introduction of solar power generation, and procurement of green power
Regulations		Medium-term	Risk	Increased raw material costs due to carbon pricing (a policy method for setting carbon prices and changing emitter behavior)	Active use of recycled raw materials
		Medium-term	Risk/Opportunity	Shift from the blast furnace method to the electric furnace method in the steel industry	Expanding sales of refractories for large-scale and high-grade steel smelting using the electric furnace method
Markets		Medium to long-term	Risk/Opportunity	Commercialization of new industrial furnaces using clean energy such as hydrogen, ammonia, and biomass fuels	Development and marketing of refractories suitable for the combustion conditions of new industrial furnaces
	Delaw 090	Short to medium-term	Opportunity	Accelerating green procurement by customers	Expanding sales of ecofriendly/green products
	- Below 2°C scenario	Short to long-term	Risk/Opportunity	Growing need to improve energy efficiency of industrial furnaces toward achieving carbon neutrality	Accelerating product development in response to customers' new process development as a comprehensive refractory manufacturer with both heat resistance and insulation technologies
		Medium to long-term	Opportunity	Practical application of ultra-innovative steel manufacturing methods such as hydrogen reduction	Development of refractory and insulation products suitable for new operating processes
Technologies		Medium to long-term	Risk/Opportunity	Decrease in demand for steel products due to the development of innovative new materials with decarbonized production processes	Expanded lineup of new insulation and ceramics products suitable for new industrial furnaces and production processes
		Short to medium-term	Opportunity	Promotion of refractory linings considering life cycles at customers	Proposing optimal refractory linings and repair methods based on sensing technology and improved accuracy in predicting refractory wear and tear
		Short to medium-term	Opportunity	Increased development and introduction of sensing devices and precision equipment to support a low- carbon society	Accelerating development of fine ceramics for semiconductor manufacturing and precision machinery
		Short to medium-term	Risk	Damage to facilities and interruption of business activities due to increased natural disasters	Reinforcement of BCP measures, optimal consolidation and relocation of sites
Climate and	4°C scenario	Short to medium-term	Risk/Opportunity	Further shortage of furnace builders for extremely hot environments	Expanding application of labor-saving construction technologies such as automatic gunning machines
		Medium to long-term	Opportunity	Increased demand for steel and cement from infrastructure development to address increasing natural disasters	Establishment of a flexible production system capable of responding to increased demand

[Reference 2] Energy-Derived CO₂ Emissions by Industry (FY2021)



Source: Japan's National Greenhouse Gas Emissions and Removals in Fiscal Year 2021 (Final Figures), Ministry of the Environment

Environmental Management System (EMS)

In order to effectively promote our environmental policy, Shinagawa appoints an Officer in charge of Environmental Management, who is fully responsible for overall management of the environmental issues.

Since obtaining certification in 2002, we have undergone annual audits by a certification authority to ensure that our environmental management system is in full conformance with the ISO 14001 standard, and to confirm our ongoing conformance and effective implementation.

..... ----Certification Authority: JIC Quality Assurance Ltd.

Promoting Modal Shifts in Product Transportation

In order to promote carbon neutrality by reducing greenhouse gas emissions,

Shinagawa is actively promoting shifts from truck transportation to rail and

logistics efficiency by consolidating loads and changing packing methods.

Furthermore, transportation staff from the manufacturing and sales

promote modal shifts and improve logistics efficiency, in an effort to maximize

In addition, with the ongoing expansion of our overseas production

export, but are also working to significantly shorten transportation distances,

ship transportation, methods which emit less CO₂, as well as improving

divisions meet regularly to report and discuss the status of activities to

locations, we are not only reviewing loading and packaging methods for

effectiveness and develop leadership roles for environmental issues.

which allows us in reducing CO₂ emissions.

Environmental Impact Reduction Activities

Shinagawa promotes integration with our business processes for sustainable operation of EMS activities.

In accordance with our environmental policy, we promote zero emissions activities in manufacturing processes, modal shifts in product transportation, and various streamlining measures to improve our environmental performance, including sustainable use of various resources and energy conservation.

Zero Emissions Activities

Zero Emissions is the concept of a resource-recycling society that does produces no waste by effectively utilizing all types of waste as raw materials, and was proposed by the United Nations University in 1994. Shinagawa is promoting this concept as an initiative that has two major implications for our company.

- (1) Zero Emissions is an extremely important goal as the SDGs have become more prevalent in society. We have established new department with additional staff to increase our focus on reducing environmental impact.
- (2) Waste reduction is an opportunity to improve profitability. We are developing activities based on the idea that "losses (such as raw materials lost in the production process) are lost profits."



Transportation Energy Consumption per Transportation Ton (Index: FY2013 = 100)



Environmental Education and Communication

Shinagawa is working to raise environmental awareness by implementing various environmental education curriculum and through environmental audits conducted by internal environmental auditors.

Also, in order to fulfill our social responsibilities in all regions and areas in which we operate, we work together with local communities to contribute to global environmental protection and conservation, including the reduction and proper management of industrial waste.

Major Environmental Education Curriculum

Timing	Curriculum
	The EMS Mechanisms
June	Proper Storage of Waste Materials
Gano	The Act on the Promotion of Effective Utilization of Resources
November	Internal Environmental Auditor Training and Refresher Training
December	Report on Survey of Trends in Environ- ment-Related Laws and Regulations
January-Feb-	Education for EMS Managers
ruary	Education for EMS Legal Staff





Internal Environmental Auditor Training Site Inspection of an Industrial Waste Disposal Sites



The Shinagawa Refractories Group believes that respect for human rights is a vital corporate social responsibility and one of the foundations of management. With this in mind, we have developed the following Basic Human Rights Policy, and have made Group-wide efforts to promote respect for human rights and realize a society in which human rights are respected at any time and at any cost.

Please refer to the "Basic Human Rights Policy" section of our website for details. > https://www.shinagawa.co.jp/profile/humanrights_policy.html

Basic Structure for Human Resource Management

The Group believes that the enhancement of human resource is essential to our efforts to promote sustainability. Respect for human rights is the first step in human resource management, under which we strive to create a workplace environment in which diverse human resources can thrive to play active roles (as shown in the structure below). In addition, we have established indicators and targets to measure the progress of these efforts and aim to achieve them accordingly.

Corporate Conduct Charter, Faray	1 apri 7. ne	sher	any numan nights and i	
We respect personality and ir physica While ensuring a safe working environment fo	ndividuality, al disorders or employee	and d or soo es, we	o not discriminate on the ba cial status at any time and a strive for development of tl	
Basic Human Rights Policy			Human F	
 Support and respect international norms on human Request commitment from supply chain partner co Zero tolerance for any kind of discrimination and harassment Measure and act against risks with human rights or diligence 	 Support and respect international norms on human rights Request commitment from supply chain partner companies Zero tolerance for any kind of discrimination and harassment Measure and act against risks with human rights due diligence 			
Diversity & Inclusion	Creation	of a Cr	omfortable Work Environment	
Diversity & inclusion	Greation		omioriable work Environment	
Creating workplace environments in which a diverse workforce can thrive to play active roles Major Measures	Support t tailored t	for wor o indivi M	k-life balance and work styles idual employee circumstances ajor Measures	
Compliance education	Encourag	ing em	ployees to take annual paid leave	
Preventing harassment	Utilizing f	lextime	and telecommuting work systems	
Advancing diversity recruitment	Encouraging employees to take childcare and family care leave			
	Full lineup	of dormit	tories/company housing at all locations	
Indicato	rs and Ta	rgets	s for Human Capital M	
Ratio of women in managerial positions	Numbe	er of F	oreign National Employees	
25% or more (by 2030)	Three	time	2S the 2020 level OF MOR (by 2030)	
Rate of male employees taking leave for childcare	Rat	te of a	nnual paid leave taken	
100%		80	% or more	

Basic Human Rights Policy

- 1. Compliance with laws and regulations
- 2. Scope of application
- 3. Respect for human rights
- 4. Conducting human rights due diligence
- 5. Education
- 6. Information disclosure

Human Rights and Ensuring a Safe Working Environment

iscriminate on the basis of sex, nationality, principles, tus at any time and at any cost. for development of the skills of each and every one of our employees.

Human Resource Development Policy

eveloping a workforce that is rich in diversity, highly specialized, and capable of ecuting plans in order to achieve Shinagawa's sustainable growth oper Environment for Human Resource Development

- Respect for human rights and individuality
- Safe, secure, healthy, and comfortable workplace
- Objective and fair evaluation

e Work Environmer

Health and Safety

Creating a comfortable workplace to ensure employee safety and health Maior Measures

A Newly Built Hazard Simulation

oting 5S Activities in the Workplac

Mental Health Measure

uman Capital Management



Respect for Human Rights

Shinagawa is actively working to prevent harassment, which is the most common form of human rights violation. In 2013, we initiated a corporate wide campaign directly led by our President declaring Zero Tolerance for Sexual Harassment. In our evolution of this, in 2019, we issued a document titled "We do not tolerate any harassment!!" which incorporated power harassment. This was distributed to all Group members and clearly demonstrated our top management's zero tolerance policy for any harassment. We also conduct annual training to prevent human rights violations as a result of harassment.

Human Resource Development

Our Basic Human Resource Development Policy is the foundation for our human resource development efforts. We are providing education and training while making creative use of e-learning and other means.

(1) Basic Human Resource Development Policy

Developing a workforce that is rich in diversity, highly specialized, and capable of executing plans in order to achieve Shinagawa's sustainable growth.

Human Resource Development Goals Workforce with:

- Creativity and a spirit of challenge, and who can identify issues and set their own goals to solve them
- · Broad perspectives and a high level of expertise, and who can carry out their duties quickly with persistence
- Flexible, positive and sincere mindset to properly respond to inter-cultural communication and advances in digital technology
- Management skills to execute our strategies and achieve Shinagawa's business goals

Proper Environment for Human Resource Development

- · Respect for human rights and individuality
- Safe, secure, healthy, and comfortable workplace
- Objective and fair evaluation

(2) Human Resource Development Initiatives

- 1) Education and training
- i. Job-level specific training and specialized training Throughout the year, job-level specific training is provided to supplement the management abilities and skills required of each level, and specialized training is provided to acquire the knowledge necessary for specific business execution.
- ii. In-house correspondence training Veteran employees serve as course instructors, covering a wide range of topics, including expertise in refractories, safety, quality, and compliance. This training has been offered for over a quarter century and successful completion of the program is a prerequisite for promotion.

In addition, we have introduced a diverse range of e-learning programs available to employees, including management, labor issues, legal affairs, safety, and language courses, to provide an environment in which they can acquire the necessary knowledge.

List of Internal Correspondence Education Courses

Category	Course	Participants in FY2022
	Fundamentals of Inorganic Materials	37
Introduction to	Furnaces and Refractories	34
Refractories	Theory of Refractories	27
	Steel Manufacturing Methods	35
	Fine Ceramics	21
	Furnace Engineering	29
	Quality Control Management	27
Various Fields	Production Control	40
	Patents	18
	Accounting	25
	Human Resources Management	45
	Compliance	35
Mandatory Courses	Health and Safety	45
	Getting to Know Shinagawa Refractories	42
	Total	460

Sample e-Learning Courses						
Category	Area	Course Name (Abridged List of 290 Courses)				
		Team Management Fundamentals				
	Organization	Learning Organizational/HR Management through Games				
	Target	Target-Based Management Fundamentals				
	Management and Personnel Evaluations	Personnel Evaluation Fundamentals: Job Qualifica- tion Systems				
	CSR and	Workplace Compliance Step-Up				
	Compliance	Corporate Ethics and Compliance Fundamentals				
		Addressing Workplace Harassment				
Management	Labor Affalas	Power Harassment Prevention				
Management	Labor Affairs and Mental	Sexual Harassment Prevention				
	Health	Workplace Mental Health Care Fundamentals for Managers				
		Mental Health Self-Care Fundamentals				
	Customer Satisfaction (CS) and Sales	Introductory Corporate Sales				
		Solution Proposals (Customer Analysis)				
		Preparing for Work				
	Business Skills	Business Manner Fundamentals				
		(Updated) Business Coaching Fundamentals				
		(Updated) Corporate Accounting Fundamentals				
	PC Skills	Easy Fundamentals of Word 2019				
II Literacy and DX	DΥ	DX Fundamentals: Understanding DX				
	DX	DX Fundamentals: Understanding Data Literacy				
		(Updated) Prof. Liang's Beginner Business Chinese				
Language Learning	Language Learning	Globish Method, Advanced: Practical English Conversation in Business Situations (1)				
		TOEIC® Mini-Mock Test: 30 Minute Scoring				
	Production Control	Official Production Meister Certification: Production Site Fundamentals - QCD, Safety and Environment				
		Electricity Fundamentals				
	Electricity and	Electrical Equipment Fundamentals				
lechnologies and Skills	Control	New Sequence Control Fundamentals (For New JIS Standards)				
		Electricity Conservation				
	Safaty	Electrical Hazard Safety Knowledge				
	Salety	Safety Knowledge for Pinching and Trapping				

From the e-Learning Library® by JMA Management Center Inc

- iii. Promoting professional qualifications.
- promote self-development.
- iv. Management by objectives
- objective and fair evaluation.
- v. Competency mapping and self-assessment to increase the competence and motivation of our employees and promote efficient communication within organizations. vi. Language learning
- year, and are given an incentive based on the difficulty level of the score achieved.
- 2) Focus on diversity recruitment In recent years, Shinagawa has been actively implementing diversity recruiting, and the results have gradually led to the hiring of more women, foreign nationals, and people with disabilities. We continue to focus on diversity recruitment. In 2021, Shinagawa formulated a general action plan based on the Act on Promotion of Women's Participation and Advancement in

career-track positions.



Creation of a Comfortable Work Environment

- 1) Supporting a better work-life balance for employees We encourage employees to actively take annual leave.
- Shinagawa strongly encourages employees to actively take annual leave. We have also established a system for half-day use of annual paid leave and a system for accumulating expired paid leave in preparation for unforeseen circumstances.
- 2) Introducing diverse working styles according to the situation of each employee and reduction of regular working hours By utilizing the flextime system and telecommuting system (home/remote work), we are introducing diverse working styles that suit the circumstances of each employee and reduce overtime work.
- 3) Maintaining and further promoting a workplace environment that makes it easy to take childcare and family care leave Shinagawa uses internal newsletters and a portal site to ensure awareness and understanding of the system, and maintain a workplace environment that respects individuals and where employees can feel free to seek advice. 4) Employee benefits

All of our business sites are fully equipped with dormitory and company housing systems. In the Okayama area, in particular, we built a dormitory for single employees in 2022 to accommodate diversity hiring and continue to develop a foundation for employees to live in a safe and secure environment.



2018 2019 2020 2021 2022 (FY)

In addition to ensuring that employees possess the official qualifications required for performing their duties, Shinagawa encourages and supports the acquisition of various professional qualifications for the purpose of improving the work capabilities of our employees, and

Shinagawa has introduced Management by Objectives for employees with the thecareer position. By setting business goals for each employee every year and clarifying the tasks to be achieved, we identify the skills and efforts necessary to face the challenges and improve their skills and abilities. Progresses and results are evaluated by the employees and their supervisor together to ensure

Supervisors evaluate the competence of each employee for his/her duties through in-person interviews, discuss the OJT plans and goals for the next year, and the employees self-assess their progress and decide their goals. Repeating this cycle every year allows us

We have introduced a system supporting employees with the career position in taking foreign language proficiency tests. Employees may take a certification examination in a language selected from English, Chinese, or Japanese (for non-Japanese employees) every

the Workplace. In this plan, we have set a target ratio of maintaining 10% or more women among new graduates hired each fiscal year for





Dormitory for single employees completed in March 2022

The Shinagawa Refractories Group recognizes that ensuring the health and safety of all employees is the foundation of management and a social responsibility to fulfill. Therefore, we actively work to create a safe and comfortable workplace and promote better physical and mental health.

Slogan

Sustainability

Safety First: For Ourselves and Our Families

Basic Health and Safety Policy

- · Ensuring safety and health as the absolute top priority
- Ensuring the health and safety of employees by complying with laws and regulations related to occupational safety and health as well as Shinagawa's internal standards
- Continuously engaging in activities to reduce workplace risks and ensure a safe and comfortable work environment
- Implementing transparent communication and aiming for a disciplined and open workplace with the participation of all employees

Priority Action Items

- · Promoting the creation of safety-conscious personnel who follow the rules and act with heightened sensitivity to risk and danger
- Promoting intrinsic safety of equipment and operations
- Promoting sharing safety information to other business units
- Creating a safe work environment through promotion of 5S activities
- Strengthening prevention of stress-related illnesses by enhancing mental health care

Health and Safety Management System

Shinagawa created The Central Health and Safety Committee, chaired by the President, overseeing Group-wide health and safety activities. In addition, the Health and Safety Promotion Committee, chaired by the General Manager of the Health and Safety Department, plans and promotes various activities related to health and safety throughout the Shinagawa Group. Furthermore, we have established the Production and Engineering Subcommittees, among others, to efficiently solve health and safety management issues common to multiple business units with similar operations and functions.



Health and Safety Activities

Our health and safety activities are based on the three pillars of Health, Safety, and Disaster Prevention.

[Safety Activities]

1) Eliminating rule violations and unsafe behavior, 2) Making equipment and operations intrinsically safe (ensuring safety not reliant on human attention), 3) Sharing safety information and best practices to other departments & 4) 5S activities (sorting, setting in order, shine, standardize, sustain)

[Health Activities]

1) Preventing heat stroke, 2) Improving work environments, 3) Preventing mental illness & 4) Preventing infectious diseases

[Disaster Prevention Activities]

1) Conducting ongoing practical disaster drills & 2) Checking the status of sharing accident countermeasures across different departments

Safety Performances

The number of occupational accidents has remained almost flat since 2018. We also recognize the need to further intensify our activities as the lost time injury frequency rate (one day or more lost from work) has been 0.52 on average over the past five years, showing that lost time injuries continue to occur every year.

The types of accidents that occurred in 2022 varied widely, including pinching/trapping, cutting/rubbing, falling, and collisions. The main causes of accidents were insufficient awareness of danger, violation of rules, and defective equipment. This year, we have designated the creation of safety-conscious personnel who follow the rules and act with a high level of risk sensitivity, and the promotion of intrinsic safety of equipment and operations as priority action items for Group-wide efforts.

Lost time injury frequency rate (one or more lost work day, excluding overseas affiliates)

	2018	2019	2020	2021	2022
Lost time injury frequency rate	0.13	0.50	0.84	0.41	0.71





Activity Feature

Status of the Hazard Simulation Training Center

In April 2022, we opened the Hazard Simulation Training Center in the Okayama Plant as a pillar of our activities to develop safety-conscious personnel. The 270 square meter training center is permanently equipped with 14 sensory devices (three of which were newly introduced in FY2023) that allow trainees to experience various occupational hazards, and 12 scenarios using VR hazard simulation equipment (three of which were newly introduced in FY2023) that allow trainees to experience hazards via virtual reality (VR). This makes it possible for participants to simultaneously receive both hands-on training and VR training. Since the training center was established, more than 1,700 people from inside and outside the Shinagawa Group have participated in the training as of September 2023. In particular, requests for training from other companies have increased in FY2023, partly due to the response to media coverage. Since training at the Hazard Simulation Training Center appears to be effective in preventing occupational accidents by improving workers' sensitivity to danger, we will continue to make effective use of the center to further raise safety awareness among our employees.



Trapping in a drilling machine Pinched in a press

Newly introduced sensory devices

Slipping/falling while walking

Mental Health Measures

Mental health measures have become a very important issue in ensuring the health of workers. Shinagawa asks all employees to fill out Work Stress Questionnaire regardless of the size of each business unit. Professional counselors are invited to conduct mental health training, deepening the mental health knowledge of new employees, managers, and supervisors. For those with mental disorders, we provide full support based on our "Return to Work Support Manual" to facilitate their smooth return to the workplace.

* Lost time injury frequency rate = (Accidents with one or more lost work day ÷ total work hours) × 1 million hours (2023 target: 0.2 or less)

Major accident causes in 2022 including those with no lost work) ding those with no lost work) Insufficient management 4% Pinchina/ Insufficient trapping Equipment 23% defects 54% 34% Cutting/ rubbing 15% Rule violation 8% Falling 15%



Training

Media coverage

Training sessions in progress



Procurement Policy

- 6. Promoting CSR
- Building a Responsible Supply Chain

In order to build a responsible supply chain together with our business partners, suppliers, and other stakeholders, we have communicated various policies to these stakeholders, including the Basic Human Rights Policy (demonstrating the Group's approach to respect for human rights), Procurement Policy, and CSR Procurement Guidelines. We are actively working to promote respect for human rights and are striving to gain their understanding and cooperation. Currently, we are asking for the support of our suppliers and others in our efforts to respect human rights.

Sustainability



For details, please refer to the Purchasing Policy page on our website > https://www.shinagawa.co.jp/profile/purchase_policy.html

Supply Chain Risk Management

Shinagawa is highly dependent on procurement from China for most of our refractory raw materials and purchased for resale products.

By implementing the measures listed on the right, we are reinforcing our stable procurement system, including reducing our dependence on China.

- 1. Establishing multiple sources within China
- 2. Expanding procurement from outside China
- 3. Strengthening relationships with suppliers in Japan 4. Holding appropriate inventory to counter risks
- 5. Expanding usages of various recycled raw materials
- Status of Stabilizing Procurement System Utilizing Sources Outside China



By recycling used refractories, we help reducing CO₂ emissions during raw material production and conserving mineral resources, as well as reducing environmental burden by helping our customers achieve zero emissions.

These alternative raw materials are reliably sourced, further enhancing our stable procurement of raw materials.



Collected used refractories

Initiatives to enforce Fair Trade

Full Compliance with the Contractor Act

It is mandatory for each of our departments to have minimum one person who has finished a course on the Subcontractor Act hosted by the Public Interest Incorporated Foundation Fair Trade Institute of Japan. Finishing the course allows our employees to fully understand the concept and purpose of the Subcontractor Act, its application, obligations and prohibited acts, and to ensure them conduct fair transactions with our suppliers.

Dialogue with Suppliers

In line with our policy to realize a sustainable society, we are deepening mutual understanding through dialogue with our suppliers and reflecting on their advice and suggestions in our procurement measures. We are actively utilizing not only face-to-face but also web-based methods to enhance dialogue with our suppliers.



In order to build a relationship of co-existence and co-prosperity with our business partners, we have issued our Partnership Building Declaration .This declaration is posted to a portal site run by the National Association of Small and Medium Enterprise Promotion Organizations.

Compliance Helpdesk for Suppliers

In order to enforce fair trade for any business transactions with our suppliers, Shinagawa has established a Compliance Helpdesk on our website that our suppliers may use anytime when they have concerns/questions about their business transactions with us. We continue our best efforts to ensure compliance, as well as build our relationships of trust, through dialogue with our suppliers, and continue to act with fairness and integrity.

For Inquiries (see the bottom of each page for contact information) > https://www.shinagawa.co.jp







Quality Initiatives

Sustainability

Quality Policy

Basic Policy

Shinagawa Refractories provides quality products and services satisfying all of our customers and contribute to the realization of a prosperous future and a sustainable society.

- 1. We engage in company-wide continuous improvement of quality management activities through our reliable quality assurance system.
- We proactively work to improve the quality of our products and services, and create new value through active communication with our customers.
- 3. We comply with laws and regulations and contribute to the realization of a sustainable society.

Action Policy

- 1. We fully understand the importance and processes of quality assurance and ensure that it take place at every aspect of our business activities.
- 2. We engage in quality control activities with the participation of all employees through small group activities and 5S activities to build a quality-conscious workplace environment and develop proper quality mindset.
- 3. We share all information on product and service irregularities and customers complaints company-wide and thoroughly implement corrective measures to prevent future recurrence.
- 4. We place importance on understanding the actual conditions at the sites where our products and services are provided, and everyone from manufacturing, sales, R&D and installation are actively working together to make quality improvement proposals and create new value for our customers.







Our production and procurement units are certified to the ISO 9001:2015/JIS Q 9001:2015 standard, registered within the scope of "Design, Development, and Manufacture of Refractory Products." We always strive to further improve the quality of our products and services and build sustainable product processes based on the quality management activity framework in the quality management system of the Shinagawa Group.

We are committed to the stable procurement of appropriate raw materials, and all employees participate in ongoing efforts to improve productivity, safety, and environmental measures through quality control based on QC process charts, small group activities, workplace quality meetings, and 5S activities.

Employees also engage in process assurance through automation of production equipment, and work to automate product inspections and increase data reliability to prevent human error, such as in keeping records and issuing determinations, as well as to prevent falsification and fabrication of inspection data.

Furthermore, information on products and services irregularities, customer complaints and corrective actions are shared throughout the company, and quality management activities are reflected in management activities through activity reviews and quality audits by the Quality Committee of the Shinagawa Group.

In addition to manufacturing, sales, and installation of insulating refractory materials for the industrial markets, we offer products for the B2C market, such as thermal insulation materials used in batteries for automobiles and lithiumion batteries, and housing-related products that combine fire resistance (flame shielding) and thermal insulation performance. Therefore, it is important to conduct quality activities to create customer satisfaction and reliability from a different perspective than conventional industrial products.

In the Insulation Sector, not only do we ensure quality to meet performance requirements, but we deliver additional values to customers by creating products that are easy to handle and friendly to the global environment and the human body.

All departments and employees of the Shinagawa Group work together to advance quality activities, from multifaceted studies at the development and design stages, to quality assurance of final products produced on the production line, delivery time and shipping management, and customer service.

Ceramics Sector

Sector

Our sector contributes to the evolution of cutting-edge industries by providing our fine ceramics and other components. We strive for continuous quality improvements by operating a quality management system (QMS) based on the ISO 9001:2015/JIS Q 9001:2015 standard. The QMS Promotion Committee ensures that everyone is working to create high value-added quality according to commitment by the management. We have programs for education, training, facilities and environment regarding products and services, and through regular internal quality audits, we are promoting the establishment of a quality control system based on QC process charts to build a smart factory. Problems, and customer complaints of products and corrective actions to prevent their recurrences are sheared with all employees to always respond to customers' voices with honesty and sincerity. We view quality control activities as keys to create and promote our positive brand image.

Our sector supports industries with high-temperature processes with the utmost level of engineering through the installation, inspection, diagnosis and repair of refractory materials in all types of industrial furnaces.

With safety as our top priority, we always strive to install refractories accurately, cost competitively, and on time to provide the best solutions for real-world conditions based on on-site inspections. To carry out this mission, we conduct thorough risk assessments to detract and resolve problems at an early stage and share installation results and performances with all departments including sales, research and development, manufacturing, and quality assurance and promote overall quality control activities across the entire Shinagawa Group. We are actively working as a cross-department team to continue improving installation technology and to constantly adapt to changes in the environment and customer needs with the best possible technologies. Through these activities, we continue to provide quality installations and services that consistently satisfy our customers' needs.

Quality Activities

Basic Approach to Corporate Governance

In order to conduct appropriate corporate management based on our management philosophy and to further solidify the trust of all stakeholders. Shinagawa strives to strengthen and enhance our corporate governance system and operate it efficiently to ensure management transparency, fairness, efficiency, and sound management practices based on a high level of compliance awareness.

Please refer to the "Basic Corporate Governance Policy" section of our website for details. > https://www.shinagawa.co.jp/profile/governance_guideline.html

Corporate Governance Structure Diagram

Sustainability



<Overview of Corporate Governance Structure>

In addition to the Board of Directors and the Audit and Supervisory Committee as organizations that audits and supervises business execution, we have established the Executive Committee, which consists of board directors and certain appointed managing officers, and the Managing Officers Meeting, which consists of managing officers. We hold the Board of Directors once a month, the Executive Committee Officers Meeting once or twice a month, and the Managing Officers Meeting four times a year. The four board directors who are members of the Audit & Supervisory Committee, including three outside board directors, audit and supervise overall management. We have thereby put a system in place that functions sufficiently in terms of management monitoring functions.

Board of Directors, Executive Committee, Managing Officers Meeting

The Board of Directors makes important decisions regarding business execution in accordance with laws and regulations, the Articles of Incorporation, and the Rules of the Board of Directors. Other important matters are decided by the Executive Committee. One board director who is a full-time Audit & Supervisory Committee member attends all of these meetings. Managing officers are appointed by the Board of Directors to execute business under the supervision of the Board of Directors and the Representative Directors, and supervise the execution of business by employees in business units in charge.

2 Audit & Supervisory Committee

The Audit & Supervisory Committee secretariat also works in unison with the Audit & Supervisory Committee and its members,

We currently maintain an auditing and supervisory structure with four members of the Audit & Supervisory Committee, including three outside board directors, and two full-time secretariat staff to the Audit & Supervisory Committee, assisting committee members in their activities. In accordance with the audit policy established by the Audit & Supervisory Committee, Audit & Supervisory Committee members audit and supervise the execution of business by board directors by attending meetings of the Board of Directors and other important meetings, interviewing board directors, and inspecting important documents. In order to further enhance effectiveness of auditing activities, these members visit plants, sales offices, subsidiaries, and other organizations to investigate the status of business execution of Shinagawa and our subsidiaries. The Audit & Supervisory Committee meets once a month to receive reports about audits by each Audit & Supervisory Committee member and to discuss relevant matters. assisting them in their activities and performing duties in accordance with the instructions of the Audit & Supervisory Committee.

3 Accounting Auditor

Shinagawa has appointed KPMG AZSA LLC as our accounting auditor in accordance with the Companies Act and for accounting audits in accordance with the Financial Instruments and Exchange Act.

4 Internal Control Committee

The Internal Control Committee has been established to oversee the compliance and risk management efforts of Shinagawa and our subsidiaries cross-functionally.

5 Nomination and Compensation Committee

In FY2022, Shinagawa established the Nomination and Compensation Committee, an advisory body to the Board of Directors and consisting of members selected by the Board of Directors, a majority of whom are independent outside directors. This committee serves to strengthen the fairness, transparency, and objectivity of procedures related to the nomination of board director candidates, board director compensation, and other important matters.

O Introduction of the New Management Structure: Sector System

In April 2023, we divided the Shinagawa Group's business units into the four sectors: Refractory Sector, Insulation Sector, Ceramics Sector, and Engineering Sector. Furthering cross-sector collaboration and effective use of management resources, we also established the Group Management Strategy Council and Corporate Business HQ. Each sector engages in autonomous initiatives with their own responsibility for profit, loss, and growth of their respective businesses, while inter-sector collaboration will be promoted across the entire Shinagawa Group via the newly established Group Management Strategy Council, where discussions explore the effective allocation of management resources.

Analysis and Evaluation of the Effectiveness of the Board of Directors

Article 3.8 of the Basic Policy on Corporate Governance states, "The Board of Directors shall enhance the effectiveness of corporate governance by conducting periodic reviews to ensure that the execution of duties is in compliance with laws and regulations, the Articles of Incorporation, and this basic policy." In accordance with this policy, the Board of Directors Questionnaire (29 questions on a 4-point scale, with free responses and overall responses to each question) is conducted each year across four categories: 1) Composition and operation of the Board of Directors, 2) Responsibilities and roles of the Board of Directors, 3) Structure supporting the Board of Directors & 4) Relationships with stakeholders. The average evaluation score for the questionnaire conducted in FY2022 exceeded three points (satisfactory) for each item. The overall questionnaire scores also exceeded 3 points, at 3.31. This indicates that our Board of Directors is generally satisfied with the effectiveness of the Board of Directors as required by the Corporate Governance Code.

	FY2018	FY2019	FY2020	FY2021	FY2022
1. Composition and operation of the Board of Directors	3.12	3.20	3.39	3.47	3.24
2. Responsibilities and roles of the Board of Directors	3.32	3.40	3.57	3.66	3.38
3. Structure supporting the Board of Directors	3.15	3.30	3.56	3.66	3.38
4. Relationships with stakeholders	3.13	3.23	3.29	3.29	3.19
Overall Average	3.20	3.30	3.47	3.55	3.31

Leadership (As of June 29, 2023)

Board Directors (Excluding Audit & Supervisory Committee Members)





President and CEO Hiroyuki Fujiwara



 President, Shinagawa Rokoh Co., Ltd.



Board Director Toshihiko Kaneshige Major concurrent roles President, Isolite Insulating Products Co., Ltd.



Outside Board Director Keiko Yamahira

Major concurrent roles Outside Board Director, Joshin Denki Co., Ltd. Outside Board Director, MIRARTH HOLDINGS, Inc.

Board Directors (Audit & Supervisory Committee Members)



Board Director, Full-time Audit & Supervisory Committee Member Hirofumi Yamashita



Board Director, Outside Audit & Supervisory Committee Member

Kantaro Toyoizumi

Major concurrent roles

 Outside Director and Audit and Supervisory Board Member, Nippon Life Insurance Company Outside Audit & Supervisory Board Member, San-Ai Obbli Co., Ltd.



Representative Director,

Managing Executive Officer

Hajime Ichikawa

Board Director, Outside Audit & Supervisory Committee Member

Masanori Sato

Major concurrent roles Outside Auditor,

Maruzen-Yushodo Co., Ltd.



Representative Director,

Managing Executive Officer

Masanori Ogata

Board Director, Outside Audit & Supervisory Committee Member

Shigeru Nakajima

Major concurrent roles Outside Audit & Supervisory Board Member, Nissei ASB Machine Co., Ltd.

Composition of the Board of Directors (Since June 29, 2023) and Attendance at Board of Directors and Other Meetings (FY2022)

			Audit 9	Evolution	Managing	Internal	Nomination	Custainability	Attendance (FY2022)	
		Board of Directors	Audit & Supervisory Committee	Committee (Note 1)	Officer Meeting (Note 1)	Control Committee (Note 1)	and Compensation Committee	Committee (Note 1)	Board of Directors	Audit & Supervisory Committee
President and CEO	Hiroyuki Fujiwara	O		O	O	O	0	O	13/13	_
Representative Director, Managing Executive Officer	Yoshikazu Kurose	0		0	0	0		0	13/13	—
Representative Director, Managing Executive Officer	Hajime Ichikawa	0		0	0	0	0	0	13/13	—
Representative Director, Managing Executive Officer	Masanori Ogata	0		0	0	0		0	13/13	_
Board Director	Toshihiko Kaneshige	0		0	0	0		0	13/13	—
Outside Board Director	Keiko Yamahira (Note 2)	0							10/10 (Note 3)	—
Board Director, Full-time Audit & Supervisory Committee Member	Hirofumi Yamashita	0	0	\bigtriangleup	\bigtriangleup	0		\bigtriangleup	13/13	10/10 (Note 4)
Board Director, Audit & Supervisory Committee Member	Kantaro Toyoizumi (Note 2)	0	0				O		13/13	12/13
Board Director, Audit & Supervisory Committee Member	Masanori Sato (Note 2)	0	0				0		13/13	13/13
Board Director, Audit & Supervisory Committee Member	Shigeru Nakajima (Note 2)	0	0				0		13/13	13/13

(Note 1) Committee members also include persons designated by the President. (Note 2) These are independent officers registered in accordance with financial instrument exchange rules. (Note 3) Keiko Yamahira attended all 10 meetings of the Board of Directors held after her appointment as outside board director in June 2022. (Note 4) Hirofumi Yamashita attended all 10 meetings of the Audit & Supervisory Committee held after his appointment as board director and Audit & Supervisory Committee member in June 2022.

Skills Matrix of the Board of Directors (Since June 29, 2023)

		Corporate Management/ Strategy	Procurement	Sales/ Marketing	Manufacturing/ Installation/ R&D	Accounting/ Finance	Organizational/ HR Management	Legal Affairs/ Risk Management	Global Business	Environmental Management
President and CEO	Hiroyuki Fujiwara	0	0				0	0	0	0
Representative Director, Managing Executive Officer	Yoshikazu Kurose	0		0	0					0
Representative Director, Managing Executive Officer	Hajime Ichikawa	0				0			0	
Representative Director, Managing Executive Officer	Masanori Ogata	0			0				0	0
Board Director	Toshihiko Kaneshige	0	0	0	0				0	0
Outside Board Director	Keiko Yamahira	0		0	0		0			
Board Director, Full-time Audit & Supervisory Committee Member	Hirofumi Yamashita	0				0	0		0	
Board Director, Audit & Supervisory Committee Member	Kantaro Toyoizumi							0		
Board Director, Audit & Supervisory Committee Member	Masanori Sato					0				
Board Director, Audit & Supervisory Committee Member	Shigeru Nakajima							0		

The following indicates membership of each of the Shinagawa organizations. (Chair: ⁽◎, Member: ⁽○, Observer: ⁽△))

Initiatives for Strengthening Governance



Board of Directors

Compliance Subcommittee

Reporting

Reporting

Reporting

Internal Control Committee

Departments

Oversight/

Fvaluation

Auditina

Supervision

Oversight/ Auditing

Planning/

Execution

* Outside auditors have been appointed since the 1940s.

Internal Control Committee

The Internal Control Committee has been established to provide cross-functional oversight of Shinagawa's compliance and risk management efforts. The Internal Control Committee, consisting of board directors, managing officers, and full-time Audit & Supervisory Committee members, oversees the promotion of compliance and risk management and audits the status of these activities as necessary, and periodically reports the results of these to the Board of Directors and the Audit & Supervisory Committee.

In addition, the Compliance Subcommittee and Risk Management Subcommittee have been established as subordinate organizations to the Internal Control Committee to promote the planning and execution of compliance and risk management activities.

Compliance Committee

The Compliance Subcommittee, which is composed of board directors and some managing officers, is responsible for planning and executing various compliance-related activities. The major activities of the Compliance Subcommittee are as follows.



Audit & Supervisory Committee

Risk Management Subcommittee

Reporting

Submission

Submission

company newsletter

Annual Compliance Action Plan

	Item	April	May	June	July	August
Cor	npliance Subcommittee Activities					
		Ad-hoc: Compliance incident occurs -	→ Reporting to Compliance Subcommitte	ee ightarrow m Reporting to Internal Control Comm	hittee $ ightarrow$ Company-wide information sha	ring (awareness-raising and education)
	1) Compliance Awareness Month					
	2) Company Newsletters	 Previous fiscal year reporting 		 Harassment (1) 		 Harassment (2)
Educ	3) Various Job-specific Training					
ation	New employee training	 Internal training 	 Internal training 			
	Internal correspondence education					
	Manager training (including affiliates and subcontractors)					

(Maior activities)

Publication of articles in company newsletters

Compliance-related articles (with attorney's comments) on various themes are published in each issue of the company newsletter (published bimonthly). Topics have included the amended Whistleblower Protection Act, automobile safe driving management regulations, insider trading, the Antitrust Law, and working hour management. The Q&A format makes it easy to read, and it is also intended to be used as training materials.

Various training programs

- In-house correspondence education: Mainly taken by younger employees and required for promotion. Employees study on their own using textbooks and work on assignments prepared by in-house instructors.
- at each business site. Training in FY2022 covered the topic of working hour management.
- of similar cases.
- working hour management.

Preventing Harassment

In 2019, we issued a document in the name of the president, "We will not tolerate any harassment!!" to clarify Shinagawa's zero tolerance policy for any harassment.

Compliance Hotline

Internal and external contacts (Legal Counsel) have been established for all workers, including our affiliates, and subcontractors. Whistleblowers may choose to report anonymously anytime. We disseminate information about the Compliance Hotline by providing information in the company newsletter and displaying posters. In July 2022, Shinagawa revised its internal reporting regulations to comply with the amended Whistleblower Protection Act.



September	October	November	December
Compliance Subcommittee First half activity reporting (Interim)	Internal Control Committee/Board of Directors First half activity reporting (Interim)		
Ad-hoc: Compliar	nce incident occurs \rightarrow Reporting	to Compliance Subcommittee -	Reporting to Internal Co
			 Compliance Awarenes Month
	 Harassment (3) 		• Harassment (4)
	[For Conorol Monogoro]		IFor Section Manager

• Compliance Awareness Month: Held in December every year, we set a specific theme each time, distribute related materials, and conduct training

• Sharing Compliance Case Studies: Incidents of compliance violations are shared company-wide at each business unit to prevent the recurrence

• E-learning: Shinagawa introduced e-learning in FY2021, including at affiliates. E-learning in FY2022 covered the topics of whistle blowing and



Compliance posters displayed at each business unit

	January	February	March
	 Next year plan drafting 	 Compliance Subcommittee Second half/full-year activity reporting (Interim), Next year plan review 	Internal Control Committee Second half/full-year activity reporting (Final), Next year plan reporting
trol Co	mmittee \rightarrow Company-wide infor	mation sharing (awareness-raisir	ng and education)
S			
		 Harassment (5) 	
5]	 [For Section Chiefs] External training 		

Risk Management

1. Overview

As Shinagawa engages sustainable growth and corporate value creation through our business activities, there are various risks that may impede them. In response to these risks, we are engaged in activities to prevent and mitigate potential risks and minimize the negative impact when they materialize (risk management) based on the Basic Risk Management Policy.

Each department identifies potential risks and evaluates countermeasures. The Risk Management Subcommittee examines them. followed by review and audit at the Internal Control Committee chaired by the President and CEO, which deliberates and decides on future response policies. The Board of Directors receives reports on risk management from the Internal Control Committee and conducts management reviews to implement proper risk management.

Among all potential risks, we have specifically established the following procedures to follow in case of an internal business crisis due to natural disasters, fire, terrorism and outbreaks of infectious diseases.

(1) Emergency Response Plan (ERP)

Defines procedures for carrying out initial responses to natural disasters such as major earthquakes, windstorms and floods, and other emergencies such as fires, with a basic policy to (1) protect human life, (2) reduce losses, and (3) improve creditworthiness. (2) Crisis Management Plan (CMP)

Defines specific measures to be taken in the event of a business crisis such as natural disasters, fires, terrorism, and outbreaks of infectious diseases, until the crisis is resolved.

(3) Business Continuity Plan (BCP)

Defines specific procedures to be followed when Shinagawa is faced with a situation that requires maintaining business continuity.

In addition to the above plans, we regularly conduct contingency response drills among multiple business sites and disaster prevention drills at each business site to ensure that actions against contingency risks are firmly established.



2. Status of Risk Management Activities in FY2022

1) Risk Identification and Assessment

In FY2021, 65 risks were identified, assessed, and categorized into one of three levels according to the status of proposed countermeasures.

Assessment Level 1	Countermeasures are in place and regulations have been established	: 56 risks
Assessment Level 2	Countermeasures exist but are insufficient	: 9 risks
Assessment Level 3	No countermeasures	: 0 risks
The main items	with a Level 2 assessment are safety, quality, labor management and ene	ergy conservation. With the aim of

raising these items to Level 1, we are focusing on the development of countermeasures and regulations.

2) Conducting Contingency Response Drills (BCP initiatives)

In December 2022, we conducted a contingency response drill based on the assumption of a major earthquake in the Nankai Trough. The following is an overview of these drills.

[Drill Objective]

- (1) Verification of the crisis management system in the initial response and business continuity response. (2) Identification of issues to address in connection with potential problems/matters arising during a crisis and consideration of
- improvement measures to enhance response capabilities.
- (3) Trial run and function verification for information gathering and sharing tools in times of crisis.

[Drill Contents]

- (1) Initial response drill
- (2) BCP coordination drill
- present the results of their considerations.

Through this drill, participants set priorities for the task force's activities, such as collecting and reporting information on the state of damage and issuing instructions to each location, and successfully carried out support for the affected areas, recovery procedures, and sharing information to stakeholders in an appropriate manner. However, issues arose requiring consideration, including uneven burden of tasks on certain groups within the task force and the lack of effective use of information collection and sharing tools. We will focus on rectifying these points by reviewing our ERP, CMP, and BCP plans and preparing for the next drill.





Group Task Force (Corporate Office)

Starting with launching a task force following a major earthquake, the drill simulates the action process for task force by providing the headquarters with information on the disaster situation and internal damage on the day of the earthquake and the following day.

Questions are presented to the participants on their decisions, judgments, and actions regarding the business continuity of important operations from the perspective of mutual cooperation and complementary operation among business sites after a major earthquake. These participants are divided into small groups and given a short period of time to discuss their response and

Task Force Structure

Photos from the drill

Field Task Force (Okayama Plant)

Message from the Board Directors

Sustainability

Supporting Shinagawa Refractories to continue to grow and create new values for industries and societies around the world

We are further enhancing our corporate governance system by strengthening the supervisory function of the Board of Directors through the audit and supervision of the Audit & Supervisory Committee, the majority of which is outside board directors.

As of June 29, 2023, the Company has 10 board directors, of which four were members of the Audit & Supervisory Committee. There are a total of four outside board directors, three of which are members of the Audit & Supervisory Committee.

Here, we present messages from these board directors: Keiko Yamahira, the only outside non-Audit & Supervisory Committee member, as well as the four members of the Audit & Supervisory Committee: Hirofumi Yamashita, Kantaro Toyoizumi, Masanori Sato, and Shigeru Nakajima.



Outside Board Directo Keiko Yamahira

Contributing to Unrelenting Evolution and Transformation for the Future

It has been a little more than a year since I assumed the position of outside board director. While companies with long histories tend to be conservative. I have found that Shinagawa Refractories possesses a spirit of challenge and is presenting positive evolution and change in all its corporate activities, including R&D, production, construction, sales, and environmental initiatives.

To broadly inform the market about these strengths, a branding strategy is key. I am using my own experience in this area to support Shinagawa Refractories communicate and share its values and achievements.

For 150 years, this company has supported Japan's infrastructure through its business, branching out overseas in its activities as well.

Going forward, I look forward to its continued work in expanding business domains and areas by leveraging its technological capabilities and expertise, and to support infrastructure and people's lives on a global and worldwide scale.

As an outside board director, I will make contributions to aid its continuous evolution toward the future.



Outside Director and Audit and Supervisory Board Member Masanori Sato

The Growth of Shinagawa Refractories and My Mission

Shinagawa Refractories is taking significant steps toward growth, both quantitatively and qualitatively, with a greater sense of speed than ever before. It is focusing its efforts in all kinds of businesses, from refractory and insulation products to its ceramics and engineering businesses. The organizational structure has also changed significantly to offer enhanced functionality for the new era. Those officers on the executive side and those in R&D are all working enthusiastically under President Fujiwara's leadership to bring strength for further future growth. When it comes to such changes, it is easy to take steps too quickly or to

not sufficiently incorporate diverse perspectives. I believe it is the job of Audit & Supervisory Committee members to closely pay attention to trends and happenings in the world to notice issues to be addressed so that employees can fully demonstrate their enthusiasm and solidarity. I am very encouraged by the information I receive at Board of Directors meetings and other forums, which further inspires me to support Shinagawa's great growth.

Board Director, Full-time Audit & Supervisory Committee Member Hirofumi Yamashita

Active Contribution as a Full-time Audit & Supervisory **Committee Member to Tackle Important Issues**

Based on the experience and technology that have supported Japan's basic materials industry for 150 years since its establishment, Shinagawa Refractories is greatly accelerating its growth to further strengthen its competitive foundation in Japan and expand its overseas business for future leaps forward.

Meanwhile, in addition to maintaining compliance, we are also strengthening our sustainability management, including our contribution to carbon neutrality. In order to tackle these important management issues, it is important to promote a good balance between growth strategies for the future and the strengthening of the current structure. As a full-time Audit & Supervisory Committee member, I am conducting audits from the perspective of whether these mechanisms and their promotion structures are efficient, whether we are securing and cultivating human resources, and whether employees have sufficient awareness. To fulfill this, I will seek more opportunities to communicate with each internal board director and department, and will actively contribute as the Audit & Supervisory Committee while incorporating the expert opinions of the committee's outside members.



Outside Director and Audit and Supervisory Board Member Kantaro Toyoizumi

Enhancing Human Resource to Become the Preferred Company for Stakeholders

Although it has overcome many difficulties during this period, the discussion of sustainability on a global scale remains the most important issue to be addressed in order to continue to weave the history of the its evolution. In particular, in order to strongly advance overseas business development, it is essential to further address diversity issues such as race, human rights, and gender, as well as climate change and environmental issues. In this atmosphere, the employment and cultivation of diverse and excellent human resources, including issuing a human rights declaration and promoting women to higher positions, is an urgent issue to be addressed.

By widely disseminating these challenges through this Integrated Report, all members of Shinagawa Group are now fully aware of these issues and measure, allowing them to continue fully comply with a code of conduct and allow Shinagawa to be recognized as a "Company of Choice" with its strong organizational culture by a wide range of external stakeholders



Outside Director and Audit and Supervisory Board Member Shigeru Nakajima

Steady Evolution Ahead Founded in 150 Years of History

Since being appointed as an Audit and Supervisory Committee Member and Outside Director of the Company in June 2016, I have been receiving reports with even more interest than when he was solely an Audit & Supervisory Board Member regarding the company's performance and activities.

Today, there is a great deal of interest in corporate activities, not only to improve business performance, but also to ensure that corporate activities meet the expectations of society. In particular, society demands that companies respond appropriately to complex and difficult issues, including addressing recent global environmental changes, reducing CO₂, and tackling Japan's declining birthrate and aging society. We are obviously living in extremely difficult times, with demands for appropriate responses to complex and difficult issues. Shinagawa Refractories will soon celebrate its 150th anniversary. The fact that the company has continued for 150 years amidst tumultuous times of both prosperity and struggle is due to the fact that it has successfully overcome many troubled times in the past with its strength and fortitude. I firmly believe Shinagawa will continue to steadily develop as a company with that strength in the future.

Shinagawa Refractories is a long-lived company, with a history of around 150 years since its founding. Its main line of business is refractory bricks for steel industry, and Shinagawa has grown throughout history together with the steel industry in Japan.

Operating Results

Data Book

- The highest-ever performance was achieved due to the increase in refractory raw material prices being successfully passed on to sales prices and gains from inventory valuation
- Profit attributable to owners of parent increased 56.5% due to gains from the sale of idle assets (Urawa Ward, Saitama City), etc.







9.667

2018

10,288

9,451

2019 2020 2021 2022 (FY

6.714

<By Business Segment>

Refractories and Related Products

Due to the refractory raw material prices being passed on to sales prices, net sales for the period increased 14,575 million JPY (17.2%) to 99,476 million JPY and segment income increased 836 million JPY (8.9%) to 10,288 million JPY.



Engineering

Due to the decrease of repair work to furnaces, net sales for the period declined 410 million JPY (1.7%) to 24,487 million JPY. However, due to the difference in the structure of construction matters, segment income increased 157 million JPY (8.6%) to 1,982 million JPY.







Net sales for the period increased 14 million JPY (1.5%) to 998 million JPY and segment income increased 53 million JPY (12.2%) to 493 million JPY.



Net sales



<Change Factors (vs. Previous Period)>

Operating income for FY2022 was 10.8 billion JPY compared to 10.1 billion JPY for FY2021, an increase of 0.7 billion JPY.

An overall decrease in profit totaling 1.9 billion JPY occurred due to the negative impact of reduced sales quantities of refractories caused by the decline in domestic crude steel production, as well as increased selling and administrative expenses due to changes in personnel systems associated with extending the retirement age.

However, there was a total impact of 2.6 billion JPY on revenue growth due to securing the sales price/raw material spread, adapting to currency fluctuations, differences in inventory valuations, etc.



Financial

<Total Assets>

The increase in 'Goods and Products', 'Raw (millions of ven) Materials and Inventories,' 'Buildings and Structures 200,000 (net amount),' and 'Goodwill' accounted for the primary rise, resulting in an increase of 24,191 million JPY compared to the previous period-end, reaching 150.000 143,901 million JPY.

<Liabilities>

Liabilities increased 16,004 million JPY from the end of the previous period to 72,475 million JPY, mainly due to an increase in short-term borrowings.

<Net Assets>

Liabilities increased 8,186 million JPY from the end of the previous period to 71,475 million JPY, mainly due to an increase in retained earnings.

50.000

100,000

Cash Flows

Cash and cash equivalents ("cash") at the end of the period increased 1,434 million JPY from the end of the previous period to 18,197 million JPY. The status of each cash flow and their changing factors during the period are as follows.

<Cash Flows from Operating Activities>

Net cash earned by operating activities amounted to 10,281 million JPY (up 8.3% year-on-year). This was mainly due to income before income taxes and minority interests of 12,478 million JPY.

<Cash Flows from Investing Activities>

Net cash used in investing activities amounted to 15,950 million JPY (up 208.7% year-on-year). This increase primarily stems due to payments for purchase of property, plant and equipment of 4,781 million JPY, and expenditures from purchases of shares of subsidiaries resulting in change in scope of consolidation of totaling 11,969 million JPY, etc.

<Cash Flows from Financing Activities>

Net cash earned by financial activities amounted to 6,836 million JPY (spent 3,348 million JPY at the same period of the last FY). This increase primarily arises from the 'net increase in short-term borrowings' to 11,125 million JPY and expenditures such as dividend payments of 1,824 million JPY, as well as 'expenses from acquiring subsidiary stocks without involving changes in the scope of consolidation', totaling 2,144 million JPY.







Data Book

	(FY)	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Financial Information												
Consolidated Operating Results												
Net sales	(millions of yen)	99,204	96,875	100,188	97,889	103,722	102,749	119,067	118,973	99,969	110,784	124,963
Operating Income	(millions of yen)	4,770	3,934	4,895	5,019	6,344	6,049	10,233	9,597	7,285	10,107	10,844
Ordinary Income	(millions of yen)	5,154	4,160	5,215	4,951	6,365	6,322	10,659	9,844	8,220	10,716	11,457
Profit attributable to owners of parent	(millions of yen)	2,576	2,224	3,098	2,796	3,602	3,419	6,225	5,550	2,114	5,308	8,307
Capital Expenditures	(millions of yen)	2,278	2,057	1,918	1,703	3,006	2,003	2,849	4,968	3,426	4,417	5,181
Depreciation	(millions of yen)	2,520	2,464	2,493	2,453	2,400	2,330	2,344	2,538	2,581	2,684	2,931
R&D Expenses	(millions of yen)	967	933	870	980	992	1,007	1,022	1,153	1,151	1,244	1,382
Consolidated Financial Condition												
Total Assets	(millions of yen)	106,681	106,869	109,841	103,697	106,507	106,479	111,227	110,247	110,205	119,710	143,901
Net Assets	(millions of yen)	42,847	45,257	51,042	50,132	54,186	57,470	62,385	66,714	70,333	63,239	71,425
Interest-bearing Debt	(millions of yen)	29,552	25,189	22,108	20,399	18,526	16,700	15,688	14,745	13,682	22,854	34,303
Per Share Information (Consolidated)												
Earnings per Share	(yen/share)	27.33	23.59	32.87	29.67	38.21	364.90	666.68	594.37	226.29	567.82	888.00
Net Assets per Share	(yen/share)	402.73	422.49	478.95	468.80	505.68	5,354.09	5,825.89	6,211.92	6,492.30	6,434.59	7,279.71
Consolidated Cash Flows												
Cash Flows from Operating Activities	(millions of yen)	6,064	6,873	4,448	4,390	5,459	1,578	4,288	7,769	9,327	9,494	10,281
Cash Flows from Investing Activities	(millions of yen)	△2,808	∆1,180	129	∆1,173	∆1,825	∆1,623	△1,179	∆3,840	∆4,006	△5,166	△15,950
Cash Flows from Financing Activities	(millions of yen)	△2,707	∆5,121	∆3,730	△2,343	△2,526	∆3,011	△2,286	△2,549	△2,411	∆3,348	6,836
Cash and Cash equivalents at End of the Period	(millions of yen)	10,153	10,942	11,908	12,659	13,627	10,620	11,347	12,669	15,564	16,763	18,197
Dividends												
Dividend Payout Ratio (Consolidated)	(%)	18.3	21.2	18.3	20.2	18.3	21.9	20.2	21.9	48.6	33.5	22.5
Annual Dividends	(yen/share)	5.0	5.0	6.0	6.0	7.0	80.0	135.0	130.0	110.0	190.0	200.0
Major Management Indicators												
Ratio of ordinary income to net sales (ROS)	(%)	5.2	4.3	5.2	5.1	6.1	6.2	9.0	8.3	8.2	9.7	9.2
Return on equity (ROE)	(%)	7.1	5.7	7.3	6.3	7.8	7.0	11.9	9.9	3.6	8.8	13.0
Debt-to-equity ratio (D/E ratio)	(times)	0.8	0.6	0.5	0.5	0.4	0.3	0.3	0.3	0.2	0.4	0.5
Equity Ratio	(%)	35.6	37.3	41.1	42.6	44.8	47,0	48.9	52.6	55.1	50.3	47.3
Other												
Share Price at End of the Period	(yen)	200	209	292	201	303	2,794	3,135	2,215	2,884	3,795	4,570
Number of Consolidated Employees	(persons)	2,821	2,768	2,751	2,839	2,786	2,805	2,847	2,876	2,836	2,817	3,340
Number of Consolidated Subsidiaries	(companies)	27	27	27	26	25	23	22	22	20	21	23

* Effective October 1, 2017, the Company conducted a reverse stock split at a ratio of 1 share per 10 shares of common stock. Earnings per share, net assets per share, and annual dividends are calculated assuming that the reverse stock split took place at the beginning of the fiscal year ended March 2018.

Company Profi	le (as of March 31, 2023)
Company Name	SHINAGAWA REFRACTORIES CO., LTD.
Representative	Hiroyuki Fujiwara, President and CEO
Founded (Business)	1875
Founded (Incorporated)	June 25, 1903
Capital	3.3 billion JPY
Business Lines	Manufacturing and sale of refractories, design and installation of industrial furnaces, sale of fine ceramics and others.
Number of Employees	Consolidated: 3,340 Non-consolidated: 1,221
Corporate Office	Shin-Otemachi Building 8F, 2-2-1 Otemachi, Chiyoda-ku, Tokyo 100-0004, Japan TEL. +81-3-6265-1600 FAX. +81-3-6265-1616

Status of Shares (as of March 31, 2023)

Total number of authorized shares	37,700 thousand shares
Total number of issued shares	9,429 thousand shares
Number of shareholders	5,441

Major Shareholders (as of March 31, 2023)

Shareholder name	Number of shares held (thousand shares)	Ratio of shares held (%)
JFE Steel Corporation	3,181	34.0
The Master Trust Bank of Japan, Ltd. (trust account)	724	7.7
Kobe Steel, Ltd.	352	3.8
Sumitomo Mitsui Trust Bank, Limited	326	3.5
Custody Bank of Japan, Ltd. (trust account)	251	2.7
Fukoku Mutual Life Insurance Company	200	2.1
Okayama SS Society	197	2.1
Mizuho Bank, Ltd.	170	1.8
Shinagawa Refractories Employee Shareholding Association	153	1.6
Sumitomo Mitsui Banking Corporation	150	1.6

Corporate Officers (as of June 29, 2023)

President and CEO	Hiroyuki Fujiwara
Representative Director, Managing Executive Officer	Yoshikazu Kurose Hajime Ichikawa Masanori Ogata
Board Director	Toshihiko Kaneshige
Outside Board Director	Keiko Yamahira
Board Director, Full-time Audit & Supervisory Committee Member	Hirofumi Yamashita
Outside Director and Audit and Supervisory Board Member	Kantaro Toyoizum Masanori Sato Shigeru Nakajima
Managing Executive Officers	Michihiro Kuwayama Heiki Miki Yoshio Fukusaki Yoshinori Tsuchiya Hitoyoshi Kinoshita Shigeo Taniguchi Yoichi Amano
Managing Officers	Masayuki Negishi Yoichi Takahashi Makoto Namba Hirohide Uehara Masakazu lida Takayuki Shimoyama Takuya Fujita Shigeaki Goto Tadaaki Yamaguchi

(Note) Shareholding ratio is calculated excluding treasury shares (72 thousand shares).

Notes for Shareholders (as of March 31, 2023)

From April 1 to March 31 of the following year			
Held in June			
Ordinary General Meeting of Shareholders March 31 Year-end dividends March 31 Interim dividends September 30 Any additional dates, if necessary, as set in advance by public notice			
4-1, Marunouchi 1-chome, Chiyoda-ku, Tokyo, Japan Sumitomo Mitsui Trust Bank, Limited			
4-1, Marunouchi 1-chome, Chiyoda-ku, Tokyo, Japan Sumitomo Mitsui Trust Bank, Limited Transfer Agent Department			
2-8-4 Izumi, Suginami-ku, 168-0063 Tokyo Sumitomo Mitsui Trust Bank, Limited Transfer Agent Department			
0120-782-031			
https://www.smtb.jp/personal/procedure/ agency/ (Japanese only)			
Public notices are posted on Shinagawa's homepage. https://www.shinagawa.co.jp			



Group Companies

Consolidated Subsidiaries

<Japan> Ceratechno Co., Ltd. 5-11-70 Kisaki, Akashi, Hyogo 673-0037 TEL. +81-78-923-8678

Shinagawa Roko Co., Ltd.

1 Kokan, Fukuyama, Hiroshima 721-0931 (at JFE Steel Corporation site) TEL. +81-84-941-1504

Shinagawa General Co., Ltd. 88 Higashi-katakami, Bizen, Okayama 705-8615 TEL. +81-869-64-3701

Shinagawa Fine Ceramics Co., Ltd. 707 Imbe, Bizen, Okayama 705-0001 TEL. +81-869-64-2221

Isolite Insulating Products Co., Ltd. 8th floor, Nakanoshima Dai Building, 3-3-23 Nakanoshima, Kita, Osaka 530-6108 TEL. +81-6-7711-5801

Isolite Kenzai Co., Ltd. 570, Okuharamachi-shimo Nanao, Ishikawa 926-0174 TEL. +81-767-62-2336

<International>

Shinagawa Refractories Australasia Pty.Ltd. (Australia) SRA 23 Glastonbury Ave., Unanderra, NSW 2526 Australia TEL. +61-2-4221-1700

Shinagawa Refractories Australasia New Zealand Ltd. (New Zealand) [SRA-NZ]

24 Rayner Road,Huntly 3740, New Zealand TEL. +64-7-828-7019

PT Shinagawa Refractories Indonesia (Indonesia) SRI

JI.Tiang Bendera 3 no52/10RT 007/RW003, Roa Malaka, kec Tambaro, West Jakarta 11230, Indonesia TEL. +62-21-2269-3011

Shinagawa Advanced Materials Americas Inc. (United States) \fbox{SAM}

3555 Gilchrist Rd., Mogadore, OH 44260 U.S.A. TEL. +1-330-628-1118

SG Shinagawa Refractories India Pvt. Ltd. (India) SGSR

389350 Taluka, Halol District, Panchmahal, Gujarat, India TEL. +91-79-4003-9901

Shenyang Shinagawa Metallurgy Materials Co., Ltd. (China) Santai, Laobianxiang, Yuhong, Shenyang, Liaoning 110146, China TEL. +86-24-8926-0601

Liaoning Shinagawa Hefeng Metallurgical Material Co., Ltd. (China)

Baoancun, Tengao, Anshan, Liaoning 114225, China TEL. +86-412-838-8055

Shinagawa Refractories Korea Corporation (South Korea) $\ensuremath{\overline{\mathsf{SRK}}}$

205 Jungheung-ro, Buk-gu, Pohang-si, Gyeongsangbukdo, the Republic of Korea TEL. +82-54-727-1875

Shinagawa Refratários do Brasil Ltda. (Brasil) SRB

Av. Independência 7031 - Santa Claudina 13284- 400, Vinhedo, São Paulo, Brazil TEL. +55-19-2127-8605

Shinagawa Specialty Ceramics Americas LLC (USA) SSCA

4702 Route 982, Latrobe, PA 15650 USA TEL. +1-724-539-6040

Suzhou Isolite Eastern Union Ceramic Fiber Co., Ltd. (China) \fbox{SIE}

52 Zijin Road, Suzhou New District, Suzhou, Jiangsu Province, 215129, China TEL. +86-512-6807-8501

Isolite Insulating Firebrick Sdn. Bhd. (Malaysia)

Lot 1, Batu 10, Jalan Jelapang-Chemor, Perak Ceramic Industrial Park, 31200 Chemor, Perak, Malaysia TEL. +60-5-201-2187

Isolite Eastern Union Refractories Co., Ltd. (Taiwan) IER

No.93, Ruifang Industrial Park, Dingping Road, Ruifang Dist., New Taipei City 224, Taiwan TEL. +886-2-2496-0115

Isolite Ceramic Fibers Sdn. Bhd. (Malaysia) ICF Plo 345 Jalan Emas Dua, 81700, Pasir Gudang, Johor, Malaysia TEL. +60-7-251-6231

Isolite (Shanghai) Trading Co., Ltd. (China) IST

Room 574, Building 1, NO.188, Aona Road, Pilot Free Trade Zone Shanghai China TEL. +86-512-6825-8051

IIP Europe GmbH (Germany) IIP-E

Fritz-Vomfelde-Str. 34, 40547 Düsseldorf, Germany TEL. +49-211-53883-269

Equity-method affiliates

<Japan>

ITM-UNIFRAX Co., Ltd.

20-8 Takeda, Kouzaki-machi Katori-gun, Chiba 289-0212 TEL. +81-478-72-3850

<International>

Isolite Fanshin (Taiwan) Co., Ltd. (Taiwan)

8F, EU Bldg., 18, Lane 321, Yang-Kuang Street, Taipei, Taiwan (11468) TEL. +886-2-2799-3030

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