

Securities Code Number: 5351

Shinagawa Update

Results for Fiscal Year Ended March 2019

June 11, 2019



— Supporting the World's Key Industries Through Technologies —

 SHINAGAWA REFRACTORIES CO.,LTD.

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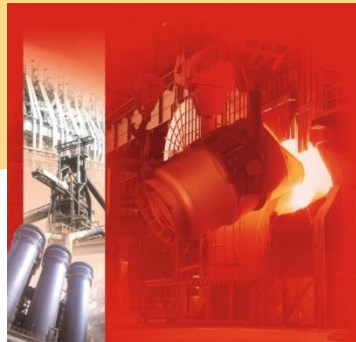
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I. Overview of Financial Results for 2018 (Fiscal Year ended March 2019)

1. Consolidated Financial Highlights

(Unit: Million JPY)

	FY 2017	FY 2018	YoY
	Results	Results	
Net Sales	102,749	119,067	+ 15.9%
Operating Income	6,049	10,233	+ 69.2%
Ordinary Income (ROS)	6,322 (6.2%)	10,659 (9.0%)	+ 68.6% (+2.8pt)
Profit attributable to owners of parent	3,419	6,225	+ 82.1%

- Net sales: Increase (+ 15.9%) due to sales increase of refractories, along with price increase in response to raw material costs increase which had happened since 2017.
- Operating income: Increase (+ 69.2%) due to profit margin improvement of refractories sales, along with manufacturing costs reduction associated with increased production.

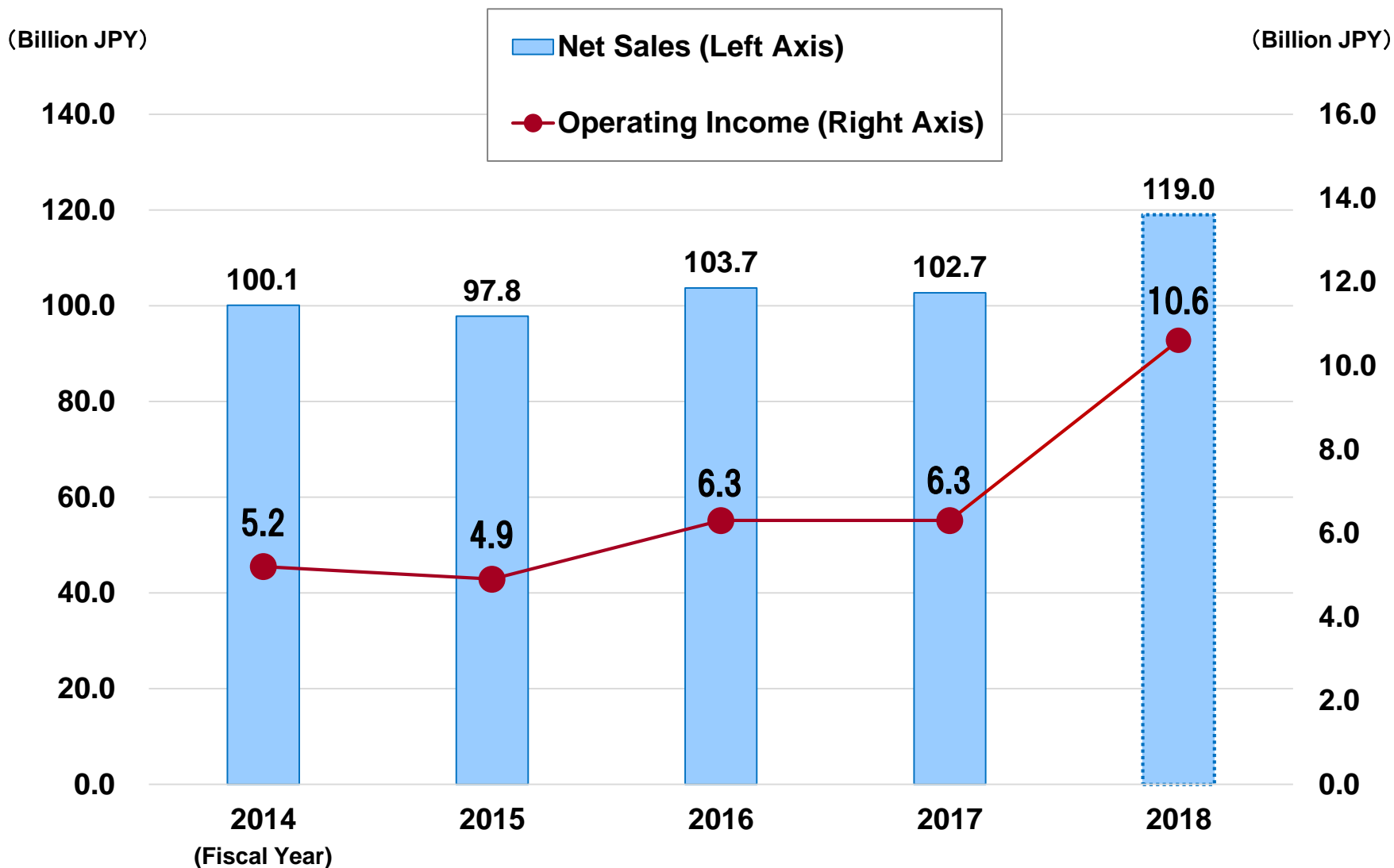
【Japanese Annual Crude Steel Production】

2016: 105.2 Million tons

2017: 104.8 Million tons (- 0.3% over 2016)

2018: 102.9 Million tons (- 1.9% over 2017)

2. Consolidated Net Sales & Operating Income



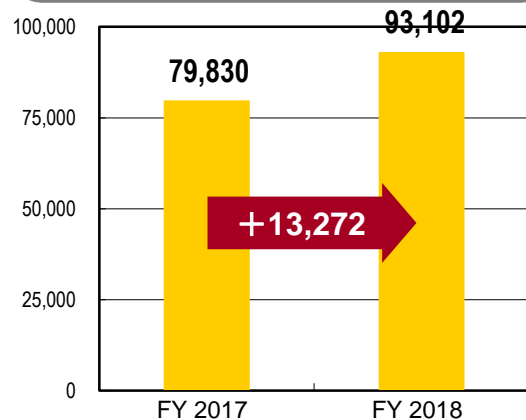
3. Net Sales by Business Segment

(Unit: Million JPY)

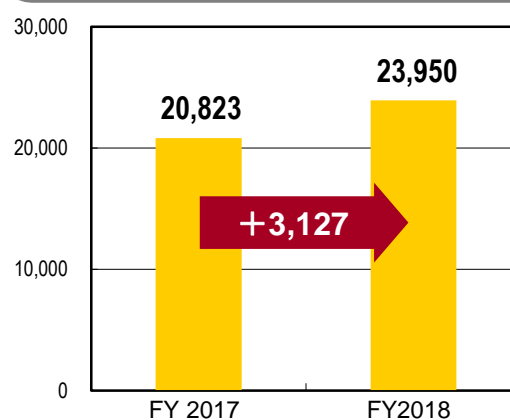
	FY 2017	FY 2018	YoY
	Results	Results	
Refractories and related products	79,830 [77.7]	93,102 [78.2]	+ 16.6%
Furnace construction and engineering	20,823 [20.3]	23,950 [20.1]	+ 15.0%
Real estate and other businesses	2,095 [2.0]	2,014 [1.7]	- 3.9%
Total	102,749 [100.0]	119,067 [100.0]	+ 15.9%

Note: Figures in square brackets [] indicate net sales share (%) by business segment.

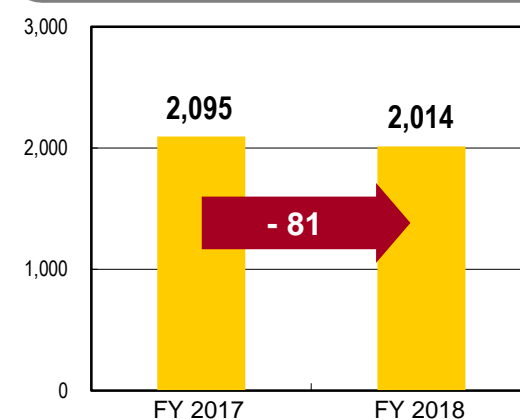
Refractories and related products



Furnace construction and engineering



Real estate and other businesses



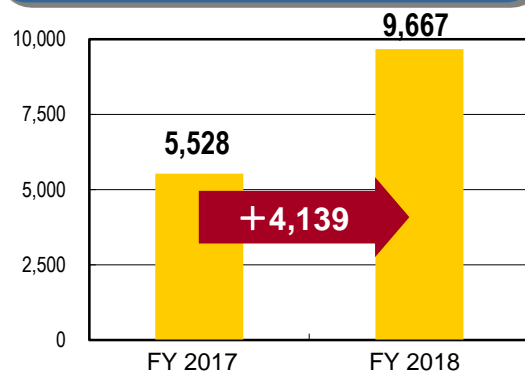
4. Operating Income by Business Segment

(Unit: Million JPY)

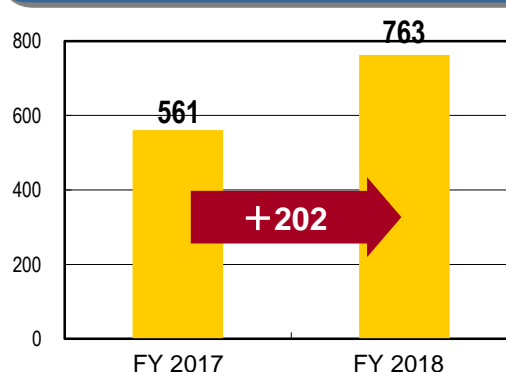
	FY 2017	FY 2018	YoY
	Results	Results	
Refractories and related products	5,528 [77.3]	9,667 [84.3]	+74.9%
Furnace construction and engineering	561 [7.8]	763 [6.7]	+36.0%
Real estate and other businesses	1,058 [14.8]	1,034 [9.0]	- 2.3%
Total	7,148 [100.0]	11,464 [100.0]	+60.4%
Adjustment	- 1,098	- 1,231	—
Total Operating Income	6,049	10,233	+69.2%

Note: Figures in square brackets [] indicate operating income share (%) by business segment.

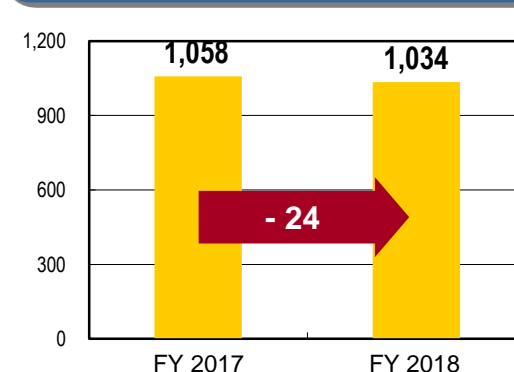
Refractories and related products



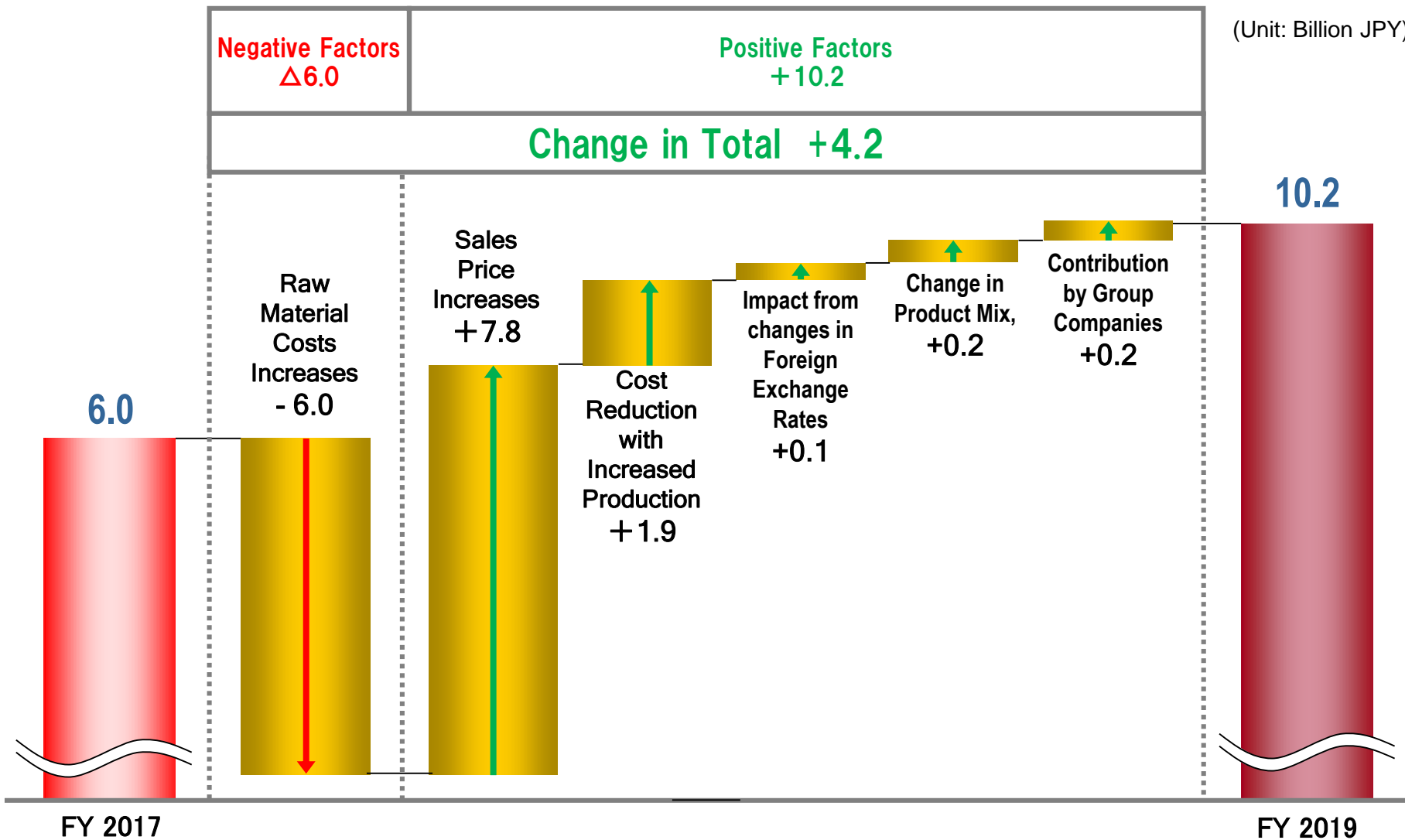
Furnace construction and engineering



Real estate and other businesses



5. Factors Behind Changes in Operating Income (YoY)

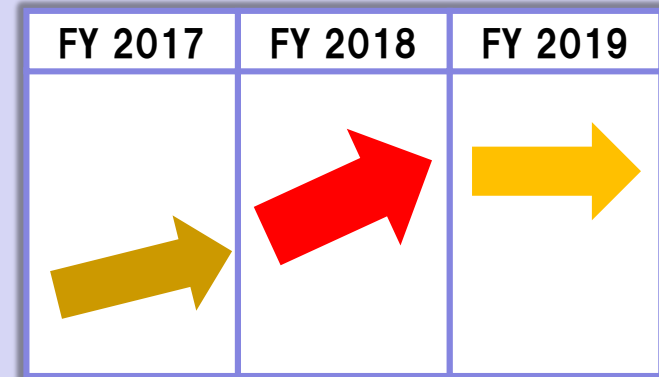


6. Raw Materials Procurement

Raw Materials Market

- Supply shortage caused by introducing stricter environmental measures in China triggered soaring of raw material prices since the second half of 2017, continued into 2018.
- It has been stabilizing now in 2019, yet certain materials still show certain fluctuations.

<Market Trend>



Shinagawa Procurement Strategies

Further diversification of suppliers' portfolio to reduce high dependence on China, especially for Fused Magnesia

Successfully reduced dependency on China for Fused Magnesia by 15% in 2018 compared to 2017

Optimal Raw Materials Procurement

Increasing Suppliers within China

Multiple Supply Sources from Different Regions

Establishing Stable Supply Sources outside of China

Diversification of Supply Sources

7. Consolidated Balance Sheet

Unit: Million JPY

	2018/3	2019/3	Change	
Current Assets	65,547	72,167	+6,620	▪ Cash & Deposits + 1,777 ▪ Receivables + 4,213 ▪ Merchandise & Finished Goods + 1,672 ▪ Securities - 1,099
Fixed Assets	40,932	39,059	- 1,873	▪ Buildings & Structures - 1,131
Total Assets	106,479	111,227	+4,748	
Current Liabilities	35,864	37,526	+ 1,662	▪ Short-term +Loans Payable – 888 ▪ Income Taxes Payable + 1,427 ▪ Accrued Consumption Taxes + 530
Fixed Liabilities	13,144	11,314	- 1,830	▪ Long-term loans payable - 123 ▪ Accumulated Retirement Benefit - 1,312
Total Liabilities	49,009	48,841	- 168	
Shareholders' Equity	48,721	53,966	+5,245	▪ Retained Earnings + 5,245
Accumulated Other Comprehensive Incomes	1,278	438	- 840	▪ Valuation Difference on Available-for-sale Securities - 580
Non-controlling Interests	7,469	7,980	+511	
Total Net Assets	57,470	62,385	+4,915	
Total Liabilities & Net Assets	106,479	111,227	+4,748	

	2018/3	2019/3
ROE (Return on Equity)	7.0%	11.9%

8. Consolidated Cash Flows

Unit: Million JPY

	FY 2017	FY 2018	Change
Cash Flows from Operating Activities	1,578	4,288	+2,710
Cash Flows from Investing Activities	- 1,623	- 1,179	+444
Cash Flows from Financing Activities	- 3,011	- 2,286	+725
Cash and Cash Equivalents at the End of Period	10,620	11,347	+727

[Main contents of cash flows from operating activities]

- **Income before income Taxes + 10,239**
- **Depreciation + 2,344**
- **Changes in Receivables - 4,403**
- **Changes in Inventories - 2,034**
- **Income Taxes Paid - 1,441**

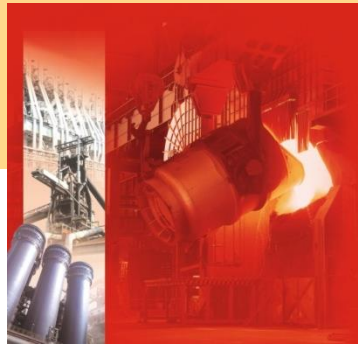
[Main contents of cash flows from investing activities]

- **Sales of Tangible Fixed Assets + 1,369**
- **Purchase of Tangible Fixed Assets - 2,090**

[Main contents of cash flows from financing activities]

- **Proceeds from Long-term Loans Payable + 1,304**
- **Repayments of Long-term Loans Payable - 1,528**
- **Net Changes in Short-term Loans Payable - 758**
- **Cash Dividends Paid - 980**

- **Interest-bearing Debt/Cash Flow Ratio:
4.2 Years
(6.6 Years improvement YoY)**



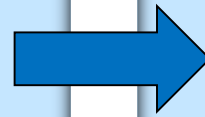
II. 2019 Business Plan

1. Business Environment

Global Economy

Widespread Sense of Uncertainty

- US-China Trade War
- No Deal Brexit
- China's Economic Slowdown and its impact to emerging economies



Japan Domestic Economy

Negative Impact on Japanese Economy

- More Challenging Environment for Exports and Manufacturing Sectors
- Vulnerable Economy to Downturns in Trade

Risks hindering Stable Growth of the World Economy

Risks of Entering Recession

1. Business Environment

Global Steel Industry

Expected to Show Steady Growth Globally

- Increases in Infrastructure Investment allows Steady Growth in Japan
- Global Production continues to Increase due to Strong Demand in Emerging Economies

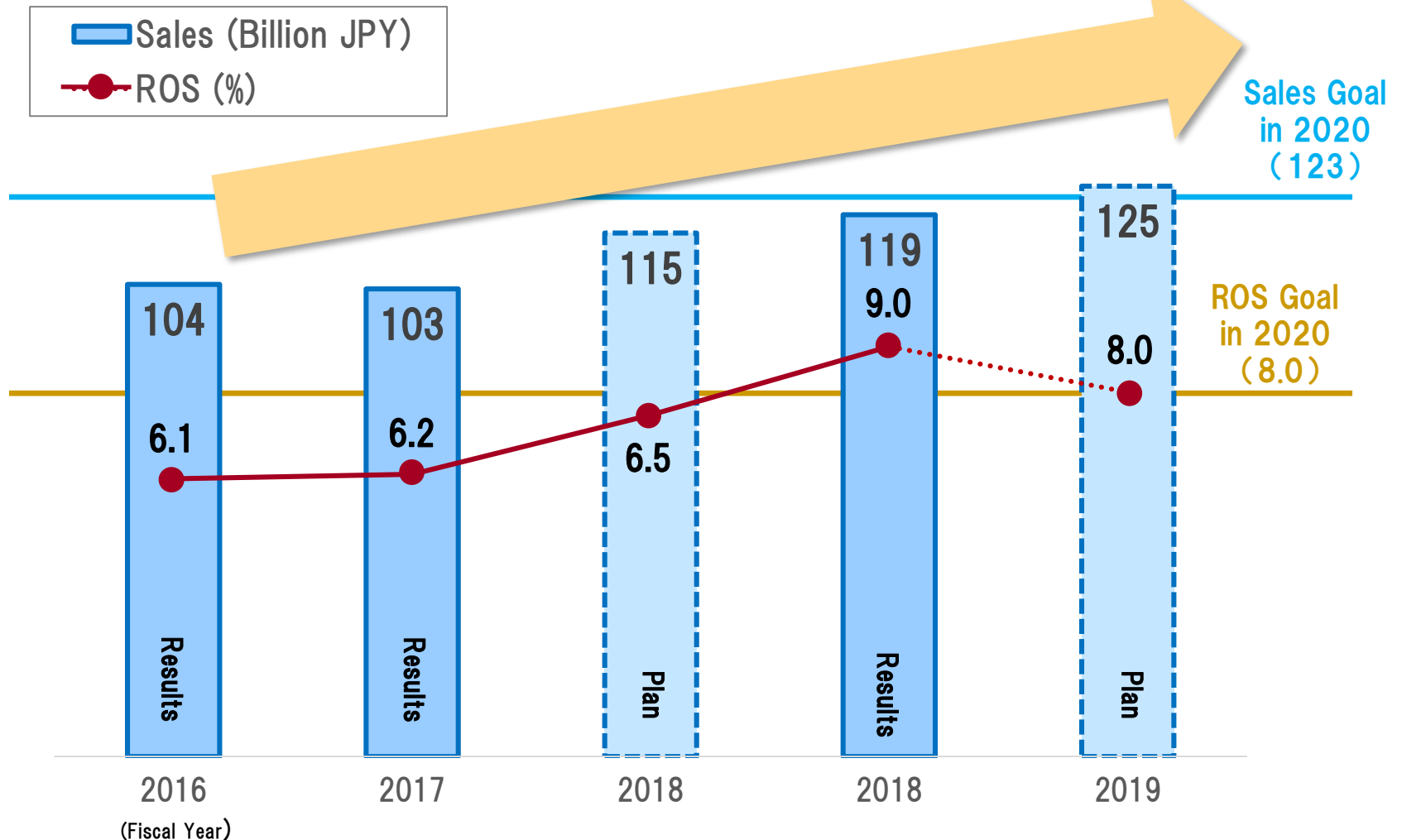
However...

There are Risks of Slowdown with Global Steel Industry due to Uncertainty in Global Economy

Shinagawa is committed to Further Strengthen our Competitiveness to Make Rapid Progress even with Unfavorable Changes in the Market

2. Fourth Mid-Term Management Plan (2018-2020)

Getting off to a Good Start toward the Goal



3. 2019 Business Plan: Areas of Focus

Strategic Importance of 2019:

- 10 Years since the Merger of Shinagawa Shirorenga and JFE Rozai to create Shinagawa Refractories
- Crucial Year as a Milestone for Our Future Success

Area of Focus①

Sales Expansion of Refractory Products

Area of Focus②

Cost Reduction Initiative

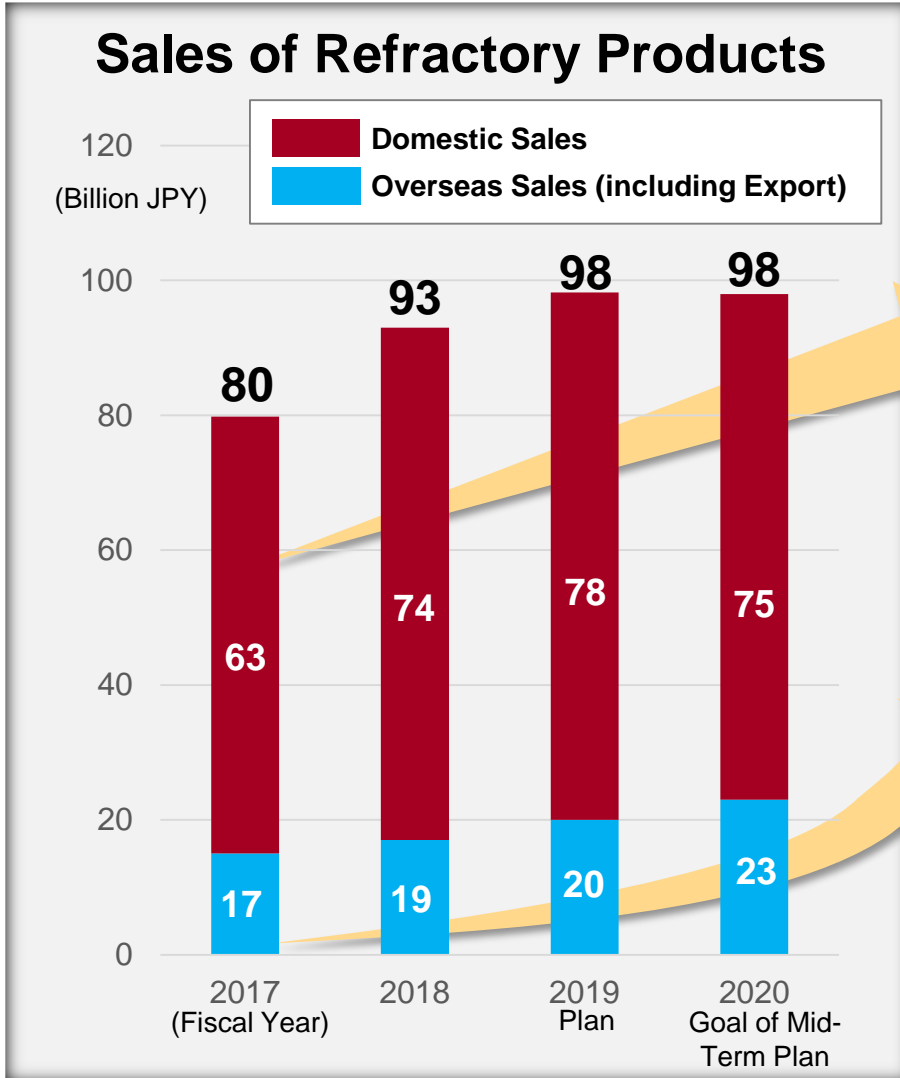
Area of Focus③

Product Competitiveness

Area of Focus④

Production Facilities Upgrade

3. Area of Focus① Sales Expansion of Refractory



Sales Expansion in Domestic Market

- 1 Market Penetration with Existing Markets: BOF/EAF Customers
- 2 New Market Development: Non-Ferrous/Cement Customers

Sale Expansion in Overseas Market

- 1 Sales and Services Onsite
- 2 Overseas Production

3. Area of Focus① Sales Expansion of Refractory

Sales Expansion in Domestic Market

1 Existing Markets

● Market Penetration with BOF/EAF Customers

- ▶ Cost Reduction Proposal with Improved Monolithic Repairing Products
- ▶ Proposal-Based Sales by Value Analysis Engineering

2 New Markets

● Market Development with Specialty Steel/Non Ferrous Customers

- ▶ Further Collaboration with Engineering Team and Isolite Insulating Products
- ▶ Introduction of SST ^{*1} : Improving Safety and Working Efficiency

^{*1} Automatic Loading Mechanism for Ladle Slide Gate Valve System

- ▶ Precast Castable Blocks available with Large and Complex Shapes ^{*2}

^{*2} Construction Advantages with Better Quality and Easy Installation

● Market Development with Cement/Lime Customers

- ▶ Optimization of Refractory Lining
 - ⇒ Proposal to Minimize Furnace Refractory Erosion

3. Area of Focus① Sales Expansion of Refractory

Sales Expansion in Overseas Market

1 Sales and Services Onsite

- 2017/1 ● Expat in India
- 2018/4 ● Open Shanghai Office
- 2019/1 ● Open Taiwan Office
- Expat in Brazil
- 4 ● Expat in Australia

2 Overseas Production

★ SAM(USA) <New Product>

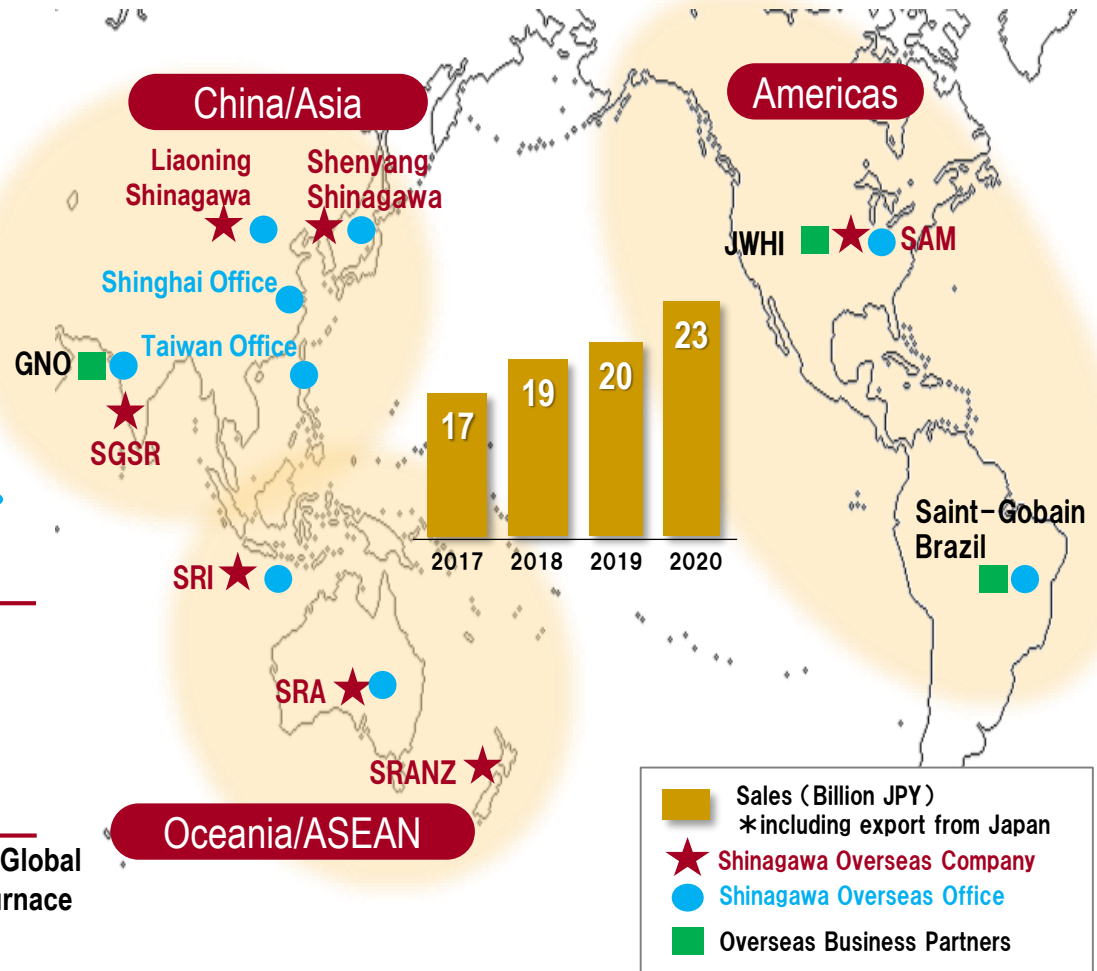
Build a New Tower to produce Spray Dried Mold Powders for Continuous Casting

➡ 2019/5 Commence Production

★ SGSR(India) <New JV>

Decision to establish a JV with Saint-Gobain, our Global Business Partner, to produce Tap Hole Clay for Blast Furnace

➡ 2020/3 Commence Production



3. Area of Focus② Cost Reduction Initiative

Cost Reduction Initiative to further strengthen Competitive Cost Position

1 Product Integration

2 Low Costs Raw Materials

3 Process Innovation

4 Productivity Improvement

5 Automation

**Further Improvement
of Competitive Cost
Position by Cost
Reduction Initiative**

3. Area of Focus③ Product Competitiveness

1 Support Customers for their Stable Production

① Optimal & Customized Products for Each Customers' Need

- <e.g.> · Customizing Magnesia Carbon Bricks for BOF according to Customers' Operation Analysis
· In-House Integrated Production of Custom-Engineered Precast Blocks

② Support Customers' Environmental Loading Reduction

- <e.g.> · Recycle of Used Coke Oven Door Blocks

2 Improvement of Installation Services

- Consolidation of Engineering & Furnace Construction Department

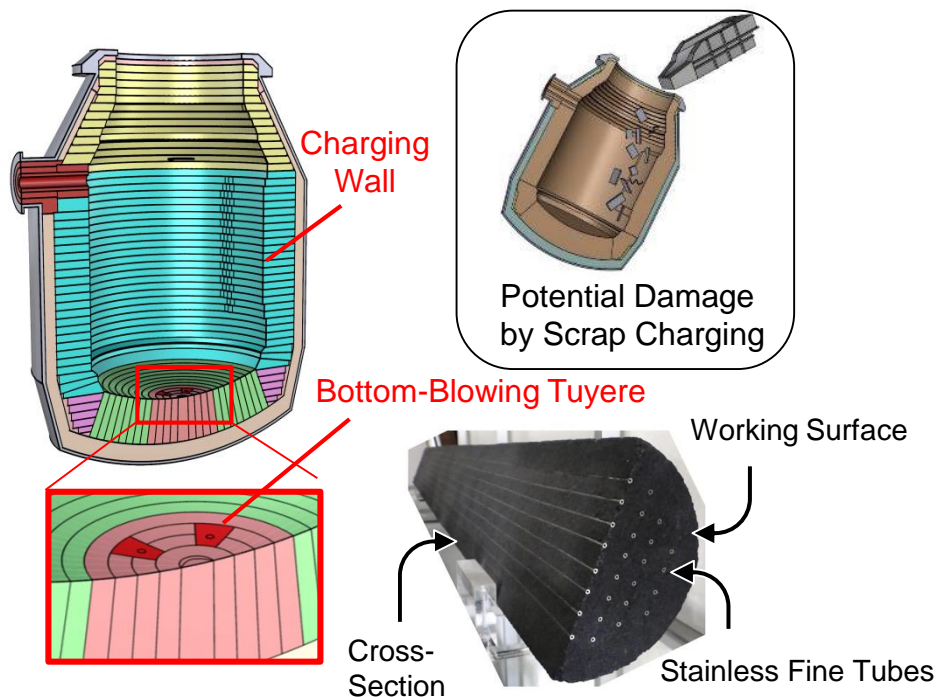
3. Area of Focus③ Product Competitiveness

Support Customers for their Stable Production

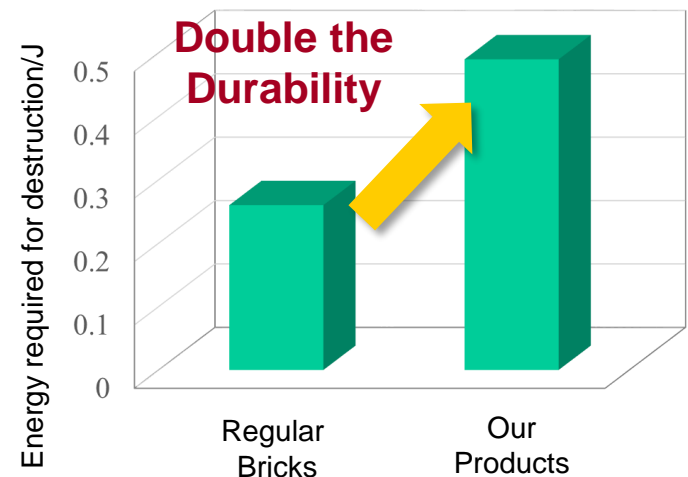
(1) Tailored Refractories to Meet Customers' Service Conditions

Strategic Product: High Strength Magnesia Carbon Bricks for BOF

Achieve 20% Reduction in the Wear Rate of the Charging wall and Bottom-Blowing Tuyere



Improving the Bricks' Overall Durability of by Increasing Cracking Resistance Property



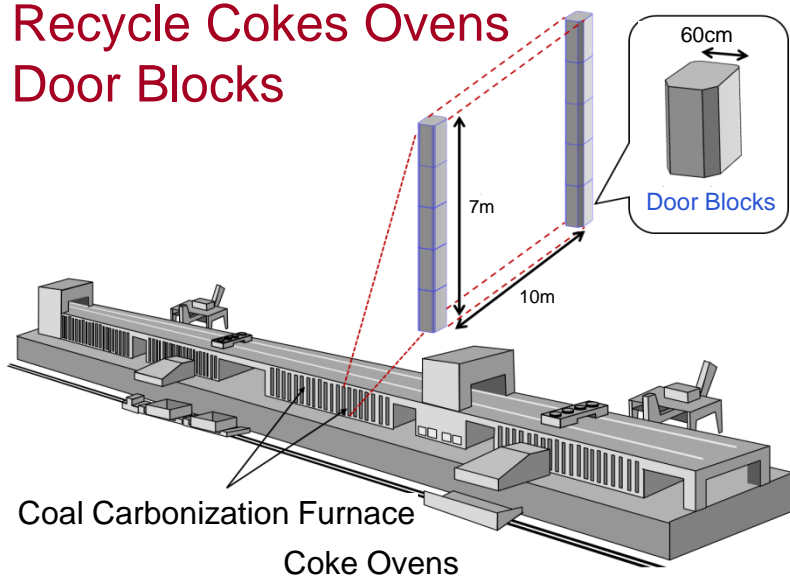
3. Area of Focus③ Product Competitiveness

Support Customers for their Stable Production

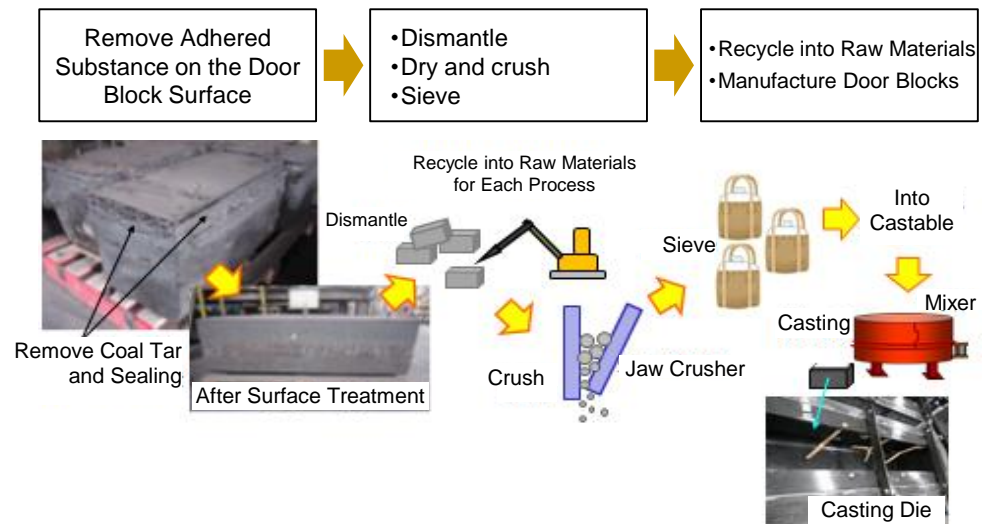
(2) Reducing Environmental Burden

Industrial Waste Reduction by Used Refractories Recycling

Recycle Cokes Ovens Door Blocks



Develop New Recycling Process



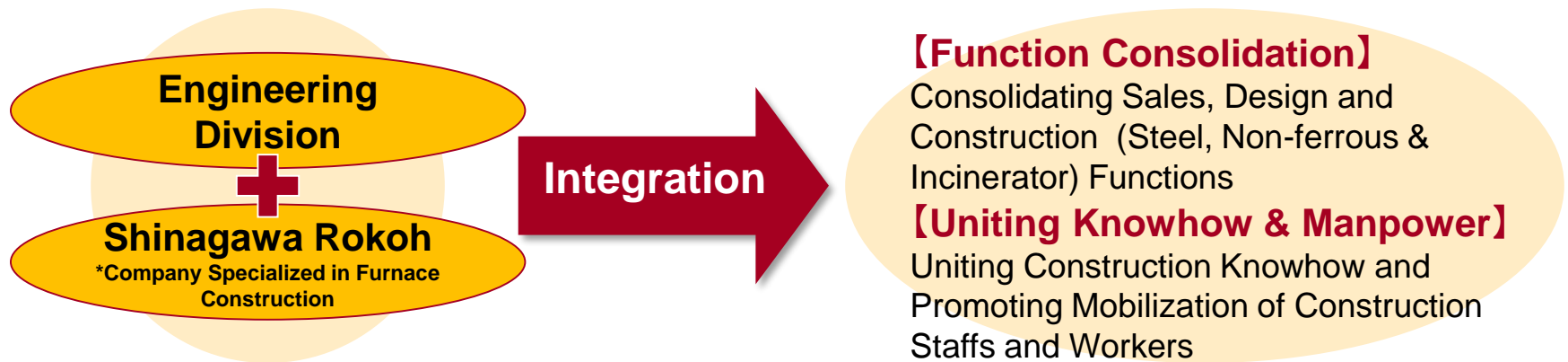
3. Area of Focus③ Product Competitiveness

2 Improvement of Installation Services

Targeting Large Construction Project: Reorganization of Engineering Business

Reorganization of Engineering Business

- Consolidation of Engineering & Furnace Construction Department: Engineering Division
- Further Integration with Group Company



Sales Increase by Establishing Fully Consolidated Organization and System

3. Area of Focus④ Production Facilities Upgrade

【Capital Spending】 Active Capital Spending to Enable Flawless Operation and Enhance Product Competitiveness

Capital Spending	2018	2019
Plan (a)	4,100	4,800
Results (b)	4,700	—
(b) – (a)	+600	—

Capital Spending 2 years is in total of 9,500M JPY, which is more than our original plan for 3 years (8,000M JPY).

【Fully Taking Advantages of Production Facilities Upgrade】

1 Enabling Flawless Operation

- Totally Revamping and Updating Aging Equipment (Various Presses & Furnaces)

2 Enhancing Product Competitiveness

- Introducing New Equipemtn & Products and Further Automation
 - New Products: Ceramic Fiber (Isolite) and Spray Dried Mold Powders (SAM)

4. Financial Targets & Strategies

Shareholder Returns

- Increased fiscal year-end dividend from 60 to 75 JPY per Share

【FY 2018 Results】 (Per Share)

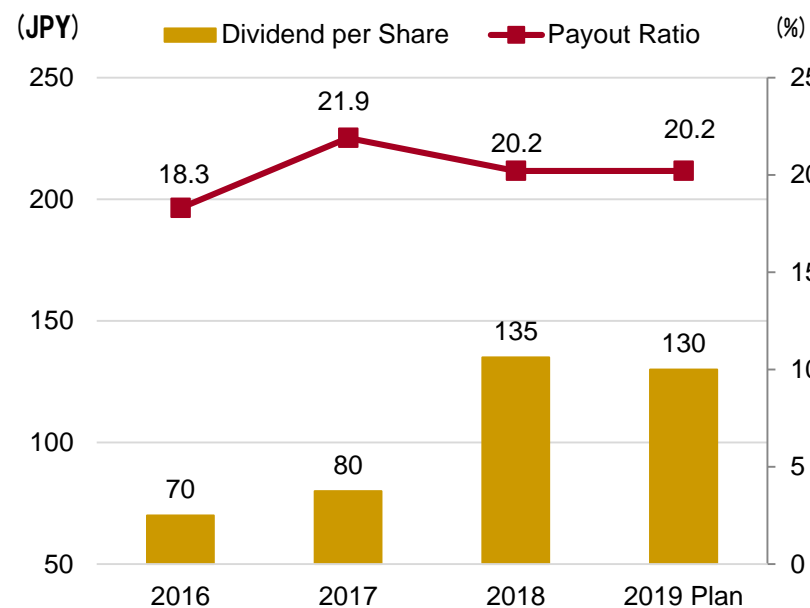
● Interim Dividend	60JPY
● Year End Dividend	75JPY
<hr/>	
Total	135JPY

- Continue to maximize Shareholder Returns

【FY 2019 Plan】 (Per Share)

● Interim Dividend	65JPY
● Year End Dividend	65JPY
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Total	130JPY

Dividend per Share



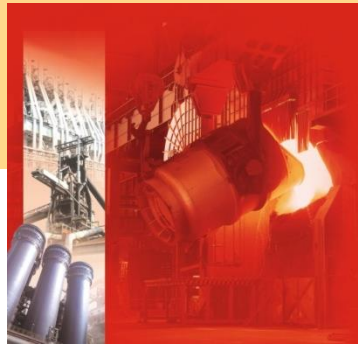
*A 10-for-1 reverse stock split of common shares was implemented, with an effective reverse split date of October 1, 2017. For the purpose of year-on-year comparisons for these financial statements, we retroactively implemented the reverse stock split to the start of FY 2015.

5. 2019 Business Plan: Financial Targets

(Unit: Million JPY)

	FY 2018	FY 2019	YoY
	Results	Plan	
Net Sales	119,067 [100.0]	125,300 [100.0]	+5.2%
Operating Income	10,233 [8.6]	9,800 [7.8]	- 4.2%
Ordinary Income	10,659 [9.0]	10,000 [8.0]	- 6.2%
Profit attributable to owners of parent	6,225 [5.2]	6,000 [4.8]	- 3.6%

Note: Figures in square brackets [] indicate ratios against net sales (%).



III. Supplementary Notes

1. History

[Established in 1875]

Shinagawa Refractories Co., Ltd.

(First private company in Japan to manufacture fire bricks)

[Established in 1938]

JFE Refractories Corporation

(Operated as a subsidiary of the Kawasaki Steel Corporation Group since 1944)

Increasing market presence and establishing reliable production infrastructure through further expansion of the refractories business

Merged on October 1, 2009

Shinagawa Refractories Co., Ltd.

“Streamlining operational infrastructure and effectivity coping with rapid changes in the business environment through the prompt realization of integration effects.”

2. Mission Statement

Mission Statement of Shinagawa Refractories

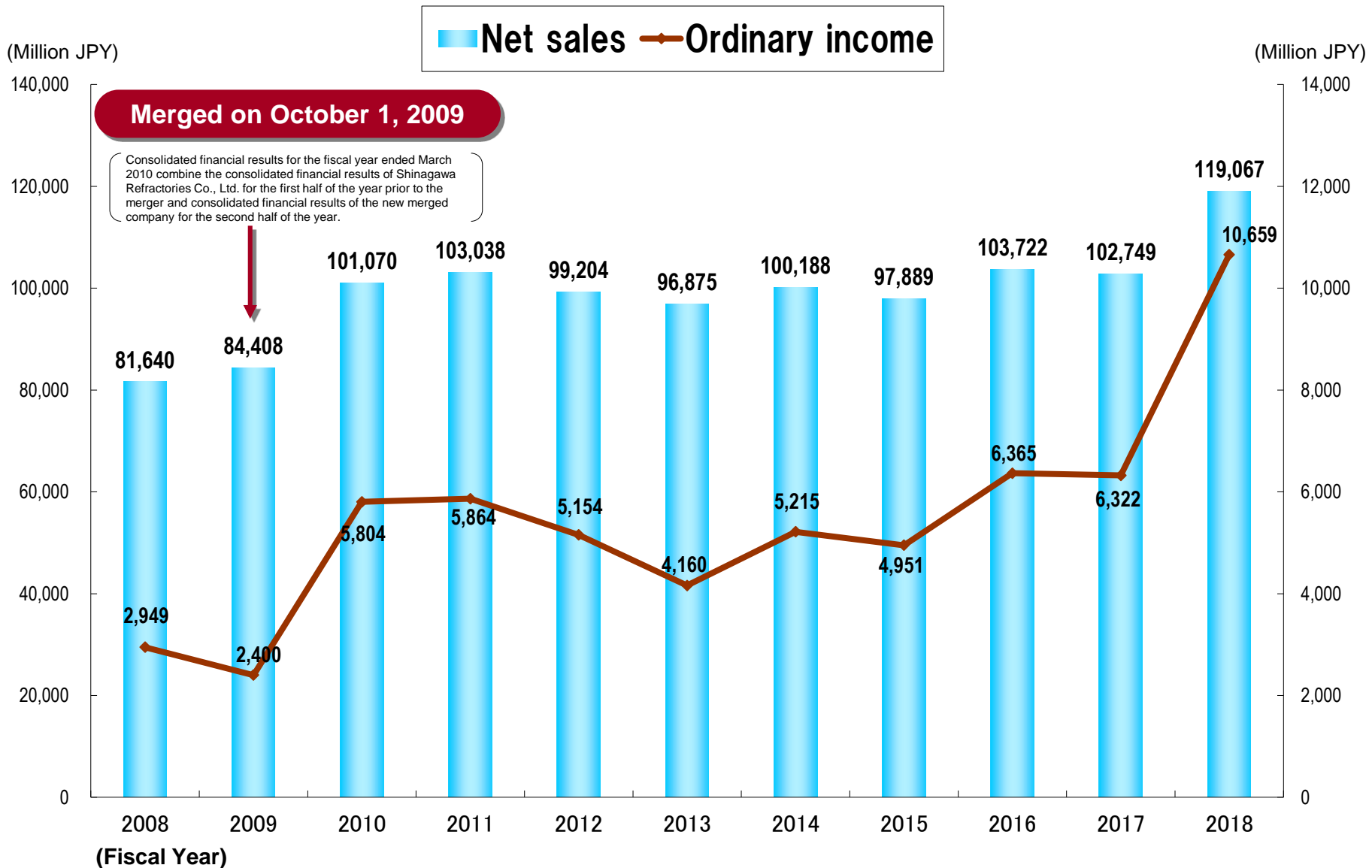
With our core philosophy of respecting the basics “Be BASIC,” Shinagawa Refractories is committed to contributing to the industrial development and the creation of affluent societies through providing high quality refractory products along with engineering services for furnace designs and construction.

Four Goals:

- 1) Be the world's leading supplier of a full range of refractory products
- 2) Be responsive to customers' needs
- 3) Be a reliable corporate citizen for all our stakeholders
- 4) Be an attractive company for employees by providing safe, pleasant and rewarding workplace

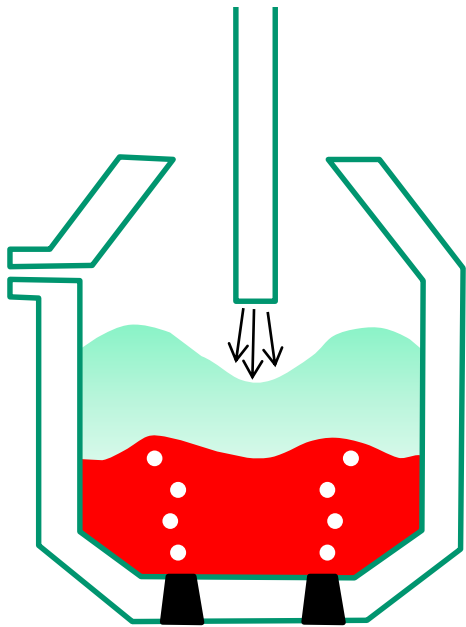
Shinagawa will strive to fully achieve these goals by pursuing excellence in developing human resources, promoting advanced technological capabilities and securing strong earning capacity along with solid financial foundation.

3. Consolidated Net Sales and Ordinary Income for Past 11 Years

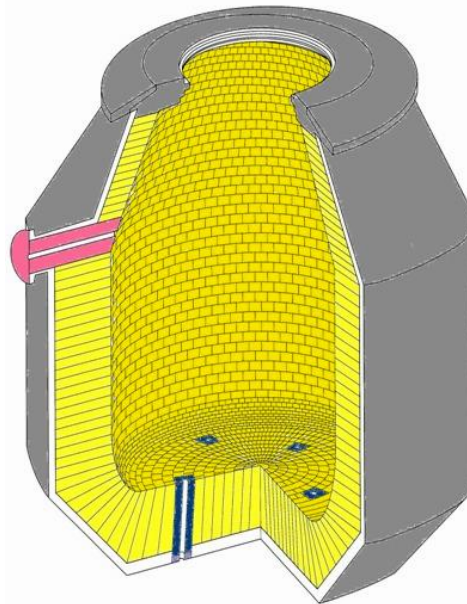


4. Refractory Industry: Foundation of Society

- Many varieties of materials used in public infrastructure such as iron and steel, nonferrous metals, cement, glass are manufactured in furnaces at extremely high temperature with refractory lining.
- The refractory industry provides foundational support to key industries through manufacturing of refractories and engineering services for furnace design, installation and construction.



Refining of Molten Steel in Converter



Refractory Lining



Fire Bricks for Converters



Furnace Construction using Fire Bricks

5. Major Products 1/2

Refractories

Refractories are industrial materials that can resist ultra-high temperatures in excess of 1,500 degrees Celsius. Approximately 80% of refractory production is consumed by the steel industry.

Shaped refractories

Shaped refractories (“fire bricks”) provide basic support to industrial furnaces and ultra-high temperature processing facilities

- Magnesia-based bricks
- Carbon-containing bricks
- Fire-clay and high-alumina bricks
- Functional products for continuous casting
- Silicon carbide bricks
- Silica bricks, etc.

Monolithic refractories

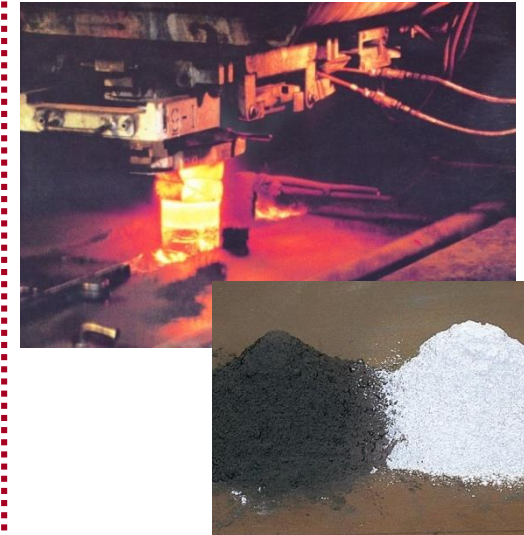
A complete system package including “product, design, installation and after-sales service” that can suit a wide range of applications

- Castable refractories
- Precast shapes
- Gunning refractories
- Plastic and ramming mixes
- Refractory mortars, etc.

Mold powder

An essential component of high-quality steel

(Powder-type material added to maintain the surface temperature inside casting molds. It prevents the steel from oxidizing and acts as a lubricant during the continuous casting process used to manufacture steel ingot plates and rods)



5. Major Products 2/2

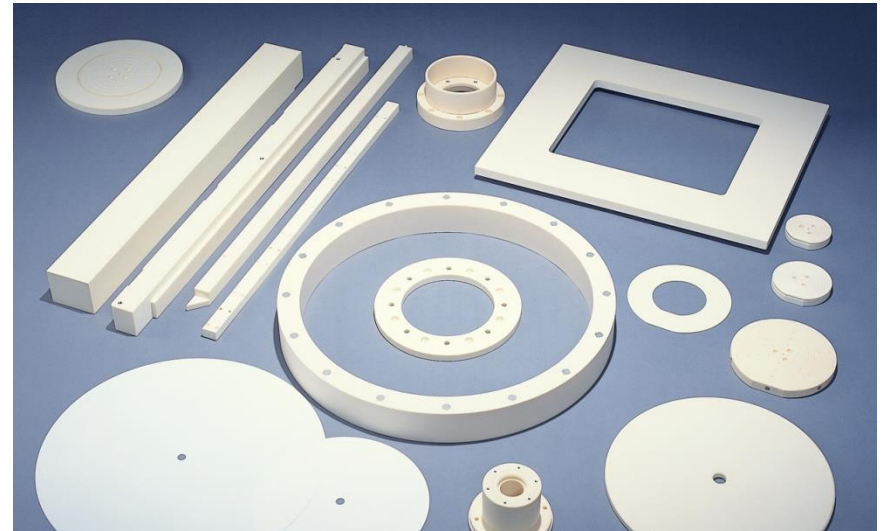
Ceramic fiber

Lightweight material featuring low thermal conductivity and high thermal insulation, making it essential for energy-saving



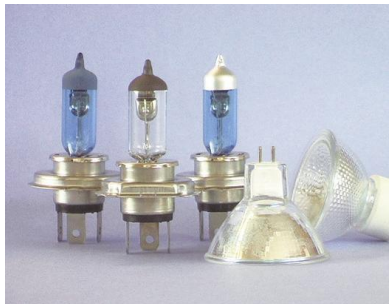
Advanced ceramics

Ceramic material with a broad range of characteristics including excellent electrical insulation properties, abrasion resistance, corrosion resistance, chemical stability, mechanical strength, etc.



Chemical and other products

Heat-resistant paint, heat-resistant adhesives, multifunctional absorbent, desiccant, etc. with applicability to ceramic materials technologies



6. Key Features and Strengths

1

Leading Company of Ultra-High Temperature Technologies

2

Solid Customer Base with Highly-Advanced Technological Capabilities

3

Global Business Expansion

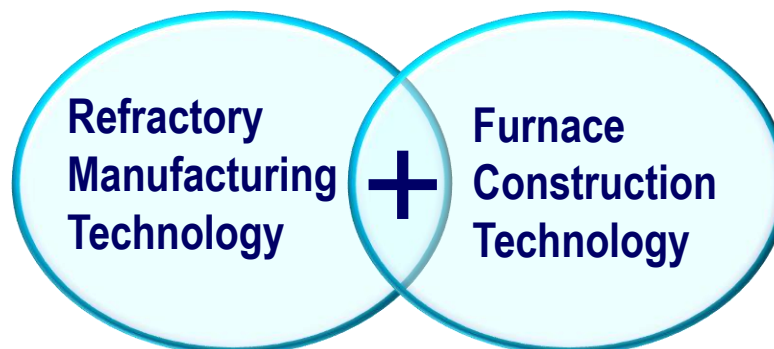
7. Key Features and Strengths

(1) Ultra-High Temperature Technology (i) Key Two Technologies

Leading Company of Ultra-High Temperature Technology

Solid Technology Development and Commercialization Capabilities supported by Key Two Technologies

- Refractories
- Ceramic Fiber
- Advanced Ceramics
- Chemical Products



- Furnace Design
- Engineering Services
 - Furnace construction work for blast furnaces, converters, incinerators, etc.
 - Ultra-fast relining of blast furnaces and hot stoves
 - Maintenance of furnaces used by iron and steelmaking works, etc.

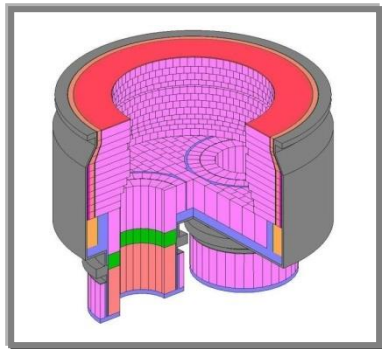
**Customer-Oriented
Technological Support**

**Development Capability to
Meet Customer Needs**

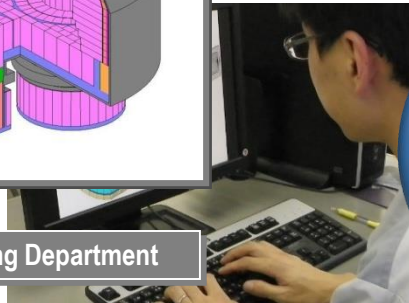
7. Key Features and Strengths

(1) Ultra-High Temperature Technology (ii) Customer-Oriented Technological Support

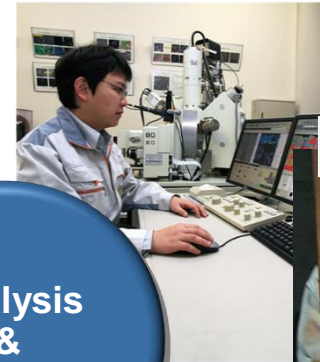
**Closely work with customers with Advanced Technologies and Proven Track Records in Four Divisions:
Design, Manufacturing, Furnace Construction and Analysis & Development.**



Engineering Department



Design



Analysis & Development

Technical Research Center



Manufacturing



Works

Furnace Construction & Repair

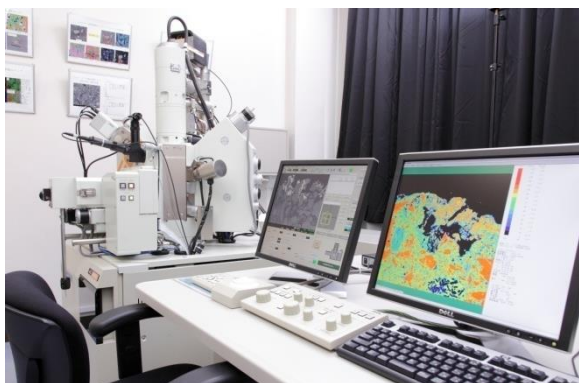


Furnace Construction Division

7. Key Features and Strengths

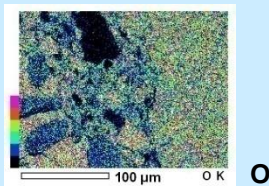
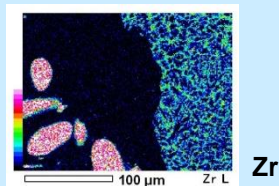
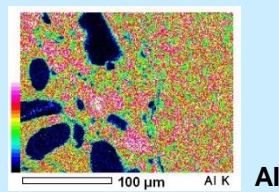
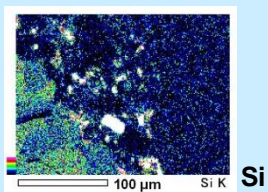
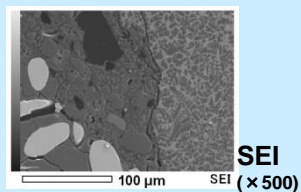
(1) Ultra-High Temperature Technology (iii) Development Capability to Meet Customer Needs

World-Class Facilities and Resources allow our Research Center to Propose and Develop Optimal Products for Customers

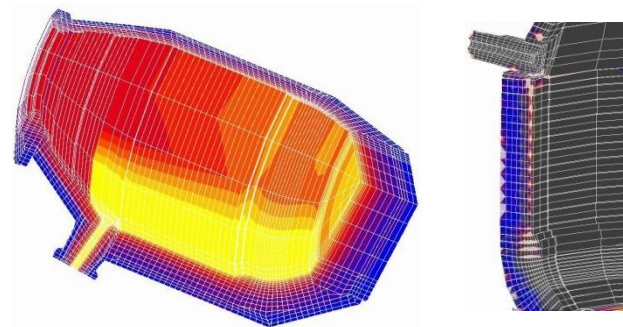


EDS Analysis Data (Color Map)

Elements present in the area
can be detected in a short
period of time.



Analysis of Refractories' Microstructures



Structural Analysis of Converters



Water Model Simulation of
Molten Steel Flow in the Mold

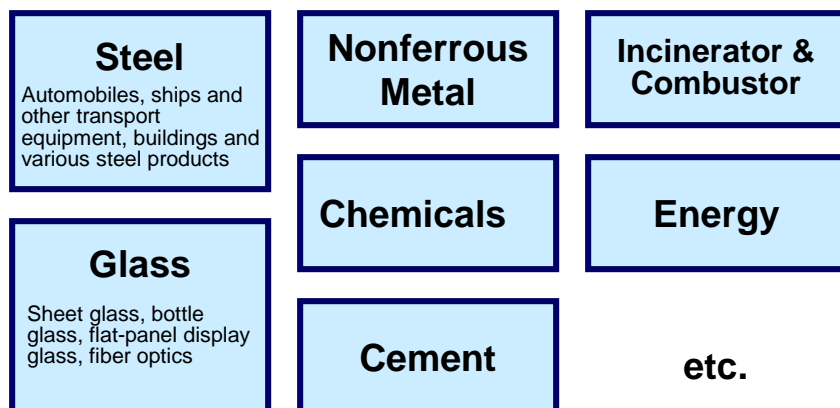
8. Key Features and Strengths (2) Solid Customer Base

Solid Customer Base with Highly-Advanced Technological Capabilities

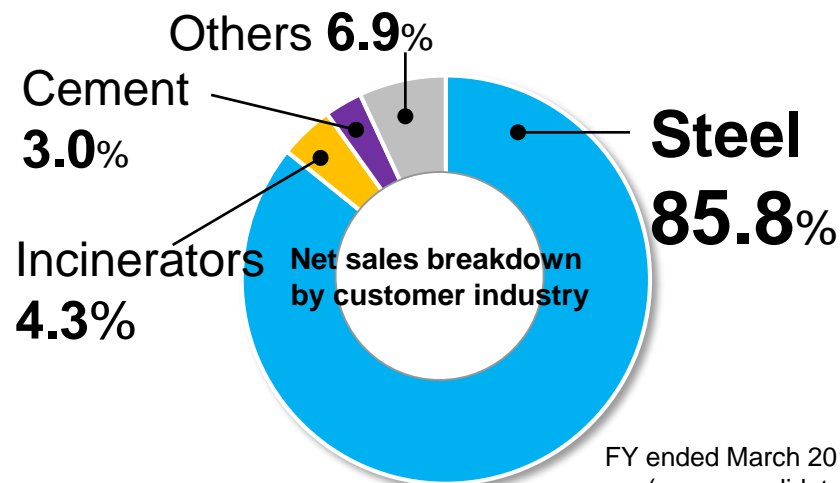
**Supplying Optimal Products for Various Customers
Industries including the Japanese Steel Industry,
known for their World Best Steelmaking Practices**

**Ultra-high temperature technologies are
fundamental technologies for many industries**

From the material industry to the field of energy production,
environmentally friendly ultra-high temperature technologies
are fundamental to all.



**Steel industry is our main customer base,
representing over 80% of Total Net Sales**



9. Key Features and Strengths (3) Global Business Expansion

Global Business Expansion

Since 1997 when we launched JV company in China, Shinagawa has been expanding our global presence by establishing production sites in Australia, New Zealand, the US, Indonesia and India.

[China] ← Established 1997

- 1997: Established a joint venture company, Shenyang Shinagawa Glorious Metallurgy Materials Co., Ltd. (current Shenyang Shinagawa Metallurgy Materials Co., Ltd.)
- 2003: Made an equity investment in a joint venture company, Jinan Ludong Refractory Co., Ltd.
- 2008: Established a joint venture company, Liaoning Shinagawa Hefeng Metallurgical Material Co., Ltd.

[Australia] ← Established 1998

- 1998: Established a joint venture general refractory company
- 2003: Fully consolidated the joint venture company and renamed it Shinagawa Refractories Australasia Pty. Ltd.

[U.S.] ← Established 2006

- 2006: Established Shinagawa Advanced Materials Americas Inc. in Ohio

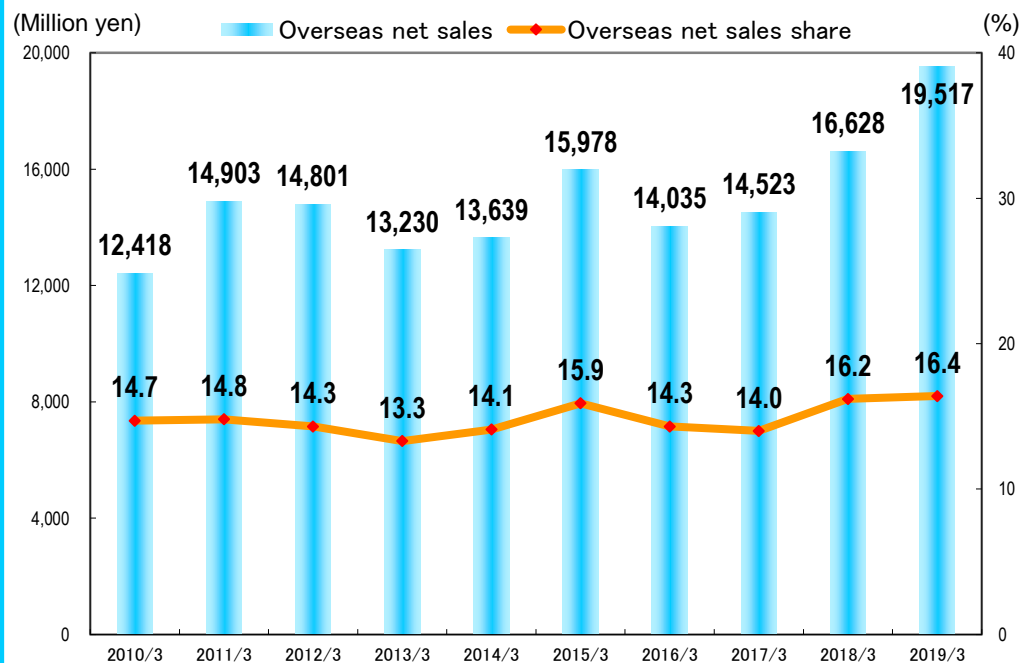
[Indonesia] ← Established 2014

- 2014: Established PT Shinagawa Refractories Indonesia in Jakarta

[India] ← Established 2019

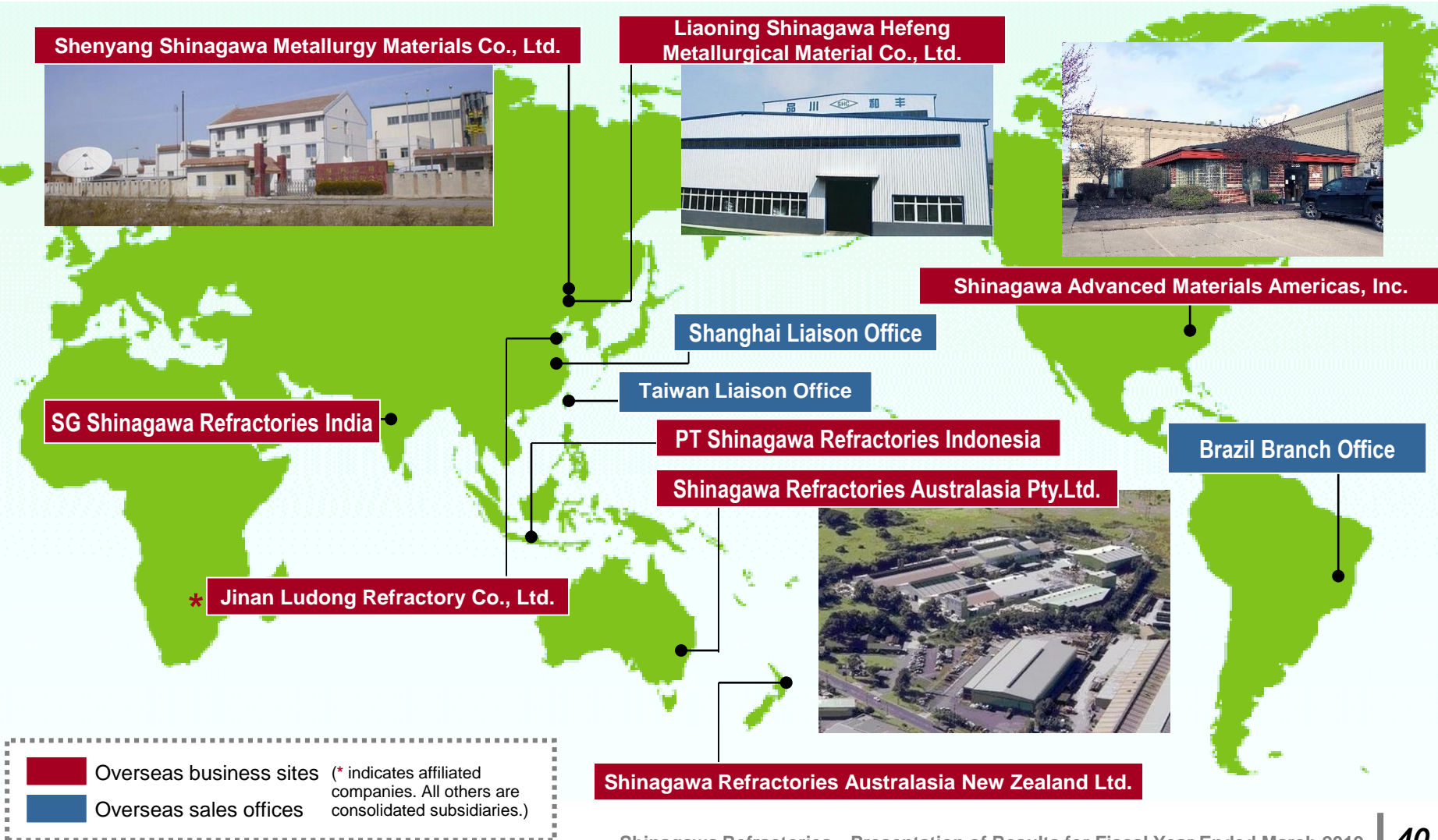
- 2019: Established SG Shinagawa Refractories India in Gujarat

Overseas Net Sales and its % of Total (consolidated)



10. Overseas Business Locations

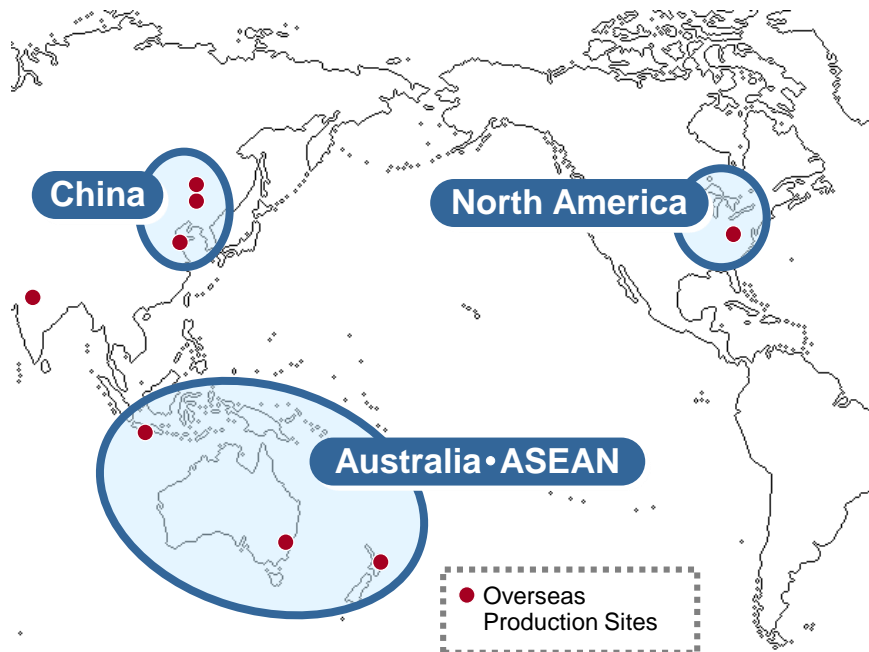
Expanding Global Footprint by increasing Overseas Business Locations in China, Oceania, Asia and the Americas with our focus of Proximity to Customers



11. Domestic and Overseas Refractory Supply Coverages

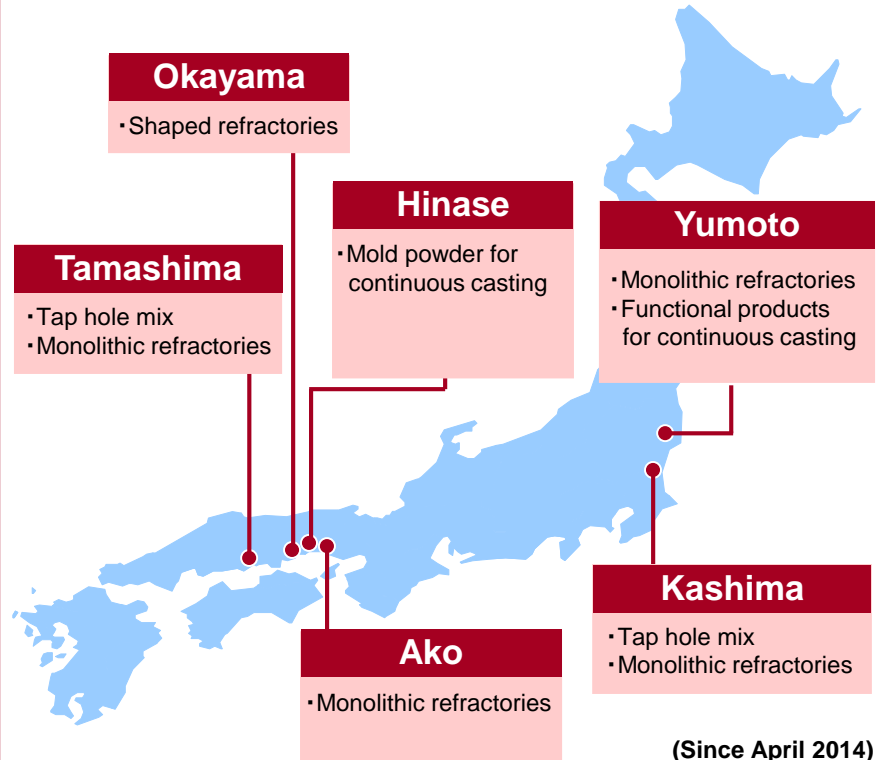
[Overseas]

Developing Stable Supply System
by Establishing Overseas
Production Sites with a Focus of
Proximity to Customers



[Japan]

Optimal Supply System with Enhanced
Efficiency and Effectiveness to support our
Domestic Customer Base



Disclaimer

This document is intended to provide information on the results for the fiscal year ended March 2019 (April 2018 – March 2019) and is not intended to solicit investment in securities issued by the Company.

The document was prepared based on data available as of June 11, 2019. Opinions, forecasts, etc. described herein are based on the Company's judgment at the time of the preparation of the document. The Company does not warrant or guarantee the accuracy or completeness of the information contained herein, and such information may change without notice in the future.

Securities Code Number: 5351

Shinagawa Update

Results for Fiscal Year Ended March 2019

June 11, 2019



— Supporting the World's Key Industries Through Technologies —

 SHINAGAWA REFRACTORIES CO.,LTD.