

Presentation Material

Results for Fiscal Year Ended March 2017

June 7, 2017



— Supporting the World's Key Industries Through Technologies —

 SHINAGAWA REFRACTORIES CO.,LTD.

Securities Code Number: **5351**

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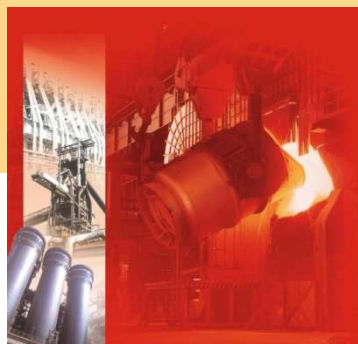
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I. Overview of Financial Results for 2016 (Fiscal Year ended March 2017)

1. Consolidated Financial Highlights for Fiscal Year Ended March 2017

(Unit: million JPY)

	FY 2015	FY 2016	YoY
	Results	Results	
Net sales	97,889	103,722	+ 6.0%
Operating income	5,019	6,344	+ 26.4%
Ordinary income	4,951	6,365	+ 28.6%
Profit attributable to owners of parent	2,796	3,602	+ 28.8%

- 2016 Japanese crude steel production totaled 151.6 million tons, an increase of +0.9% year on year, reflecting strong domestic steel market driven by automotive industries.
- Increasing crude steel production, as well as undertaking large-scale coke-oven construction projects, contributed to net sales increase of +6.0% year on year.
- Operating income and ordinary income improved +26.4% and +28.6% respectively, attributable to cost reduction efforts and savings from raw materials and fuel costs.

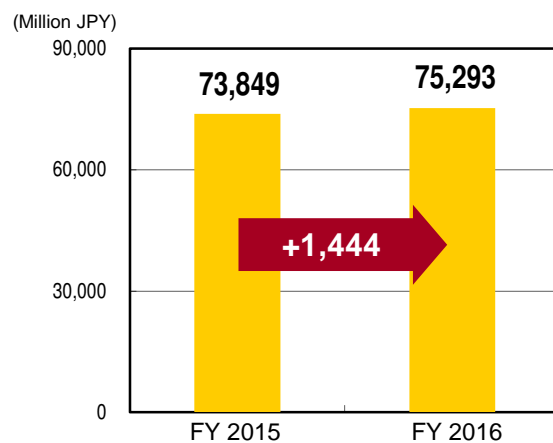
2. Net Sales by Business Segment

(Unit: million JPY)

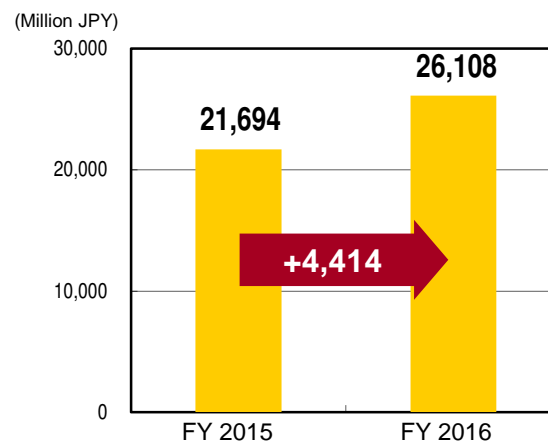
	FY 2015	FY 2016	YoY
	Results	Results	
Refractories and related products	73,849 [75.4]	75,293 [72.6]	+ 2.0%
Furnace construction and engineering	21,694 [22.2]	26,108 [25.2]	+ 20.3%
Real estate, Leisure business, etc.	2,345 [2.4]	2,320 [2.2]	- 1.1%
Total	97,889 [100.0]	103,722 [100.0]	+ 6.0%

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

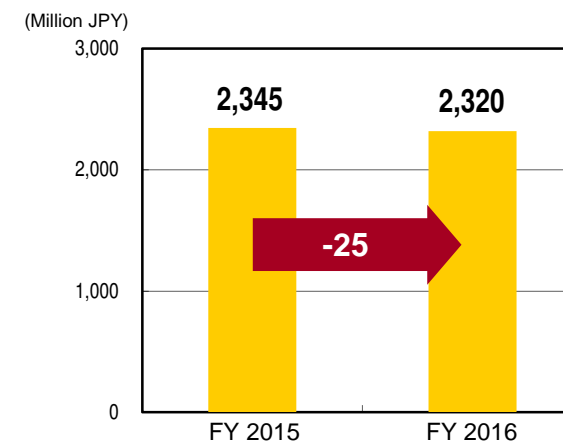
Refractories and related products



Furnace construction and engineering



Real estate, Leisure business, etc.



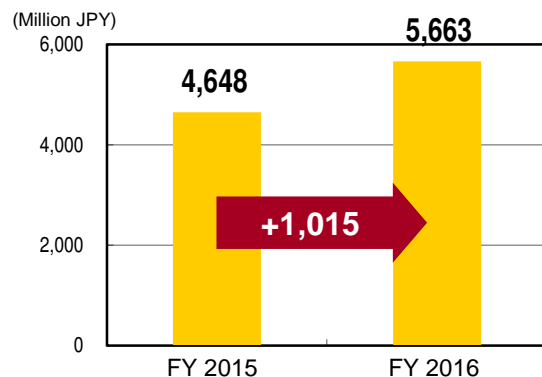
3. Operating Income by Business Segment

(Unit: million JPY)

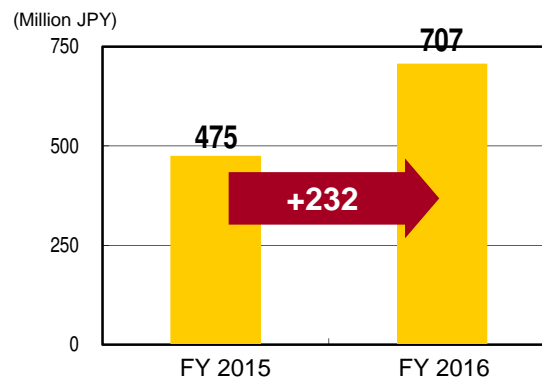
	FY 2015	FY 2016	YoY
	Results	Results	
Refractories and related products	4,648 [75.6]	5,663 [75.6]	+ 21.8%
Furnace construction and engineering	475 [7.7]	707 [9.4]	+ 48.8%
Real estate, Leisure business, etc.	1,023 [16.7]	1,121 [15.0]	+ 9.6%
Total	6,148 [100.0]	7,493 [100.0]	+ 21.9%
Adjustment	- 1,129	- 1,148	—
Total operating income	5,019	6,344	+ 26.4%

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

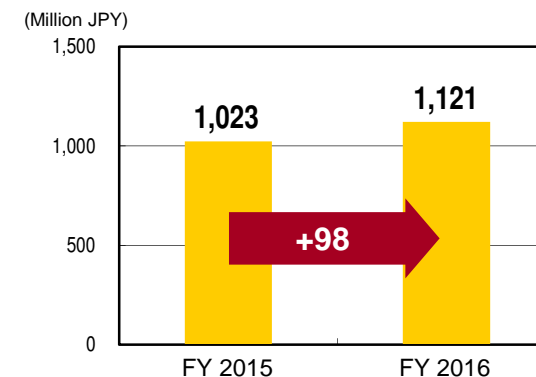
Refractories and related products



Furnace construction and engineering

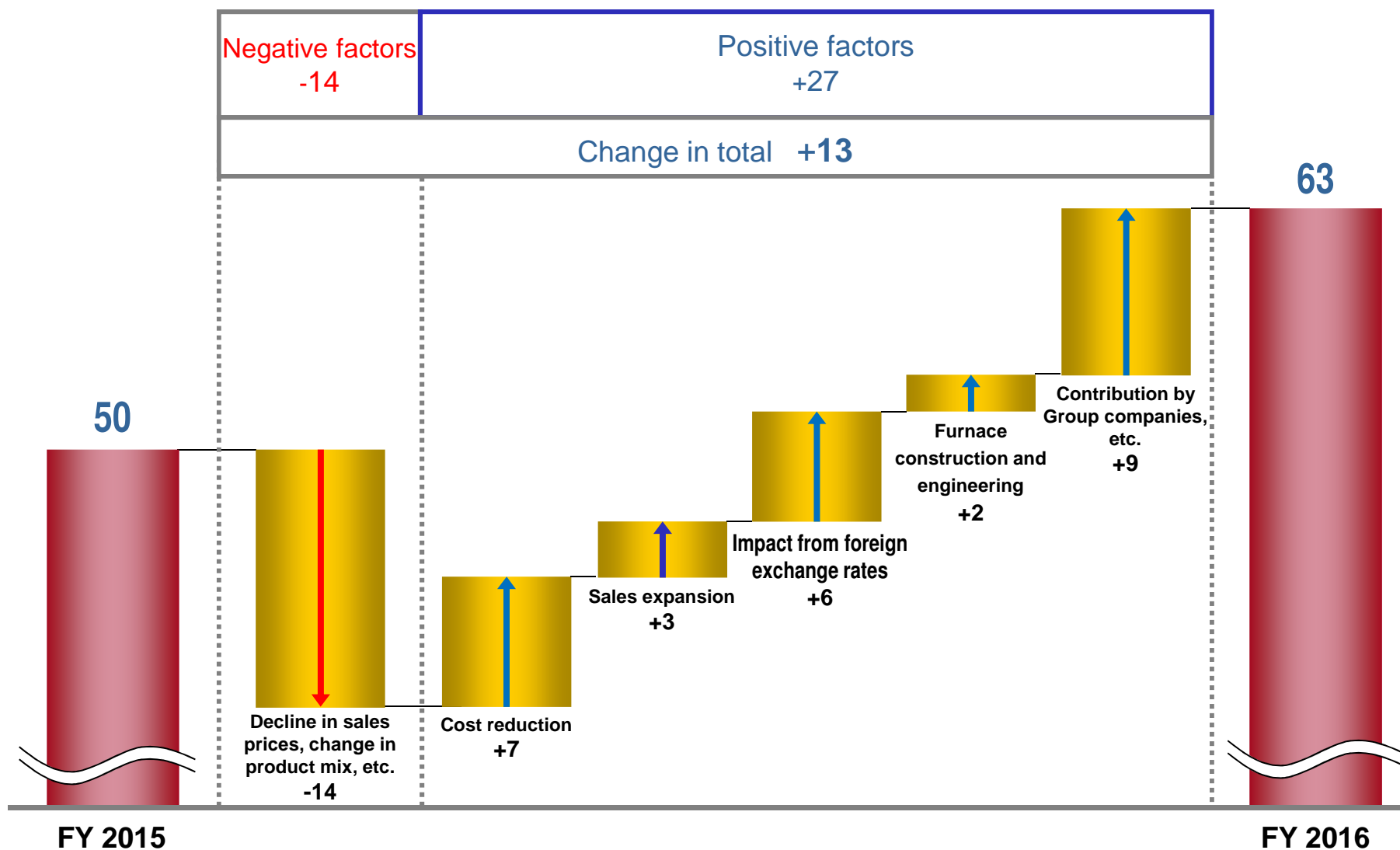


Real estate, Leisure business, etc.



4. Factors Behind Changes in Operating Income (Year-on-Year Comparison)

(Unit: 100 million JPY)



5. Balance Sheets (Consolidated)

(Unit: million JPY)

	FY 2015	FY 2016	Change	
Current assets	62,847	64,690	+1,843	▪ Notes and accounts receivable-trade: +3,074 ▪ Inventories: -1,170
Noncurrent assets	40,850	41,817	+967	▪ Investment securities: +1,048
Total assets	103,697	106,507	+2,809	
Current liabilities	40,624	36,828	-3,796	▪ Short-term loans payable: -3,128 ▪ Current portion of bonds: -2,140
Noncurrent liabilities	12,941	15,492	+2,551	▪ Long-term loans payable: +3,444
Total liabilities	53,565	52,320	-1,244	
Shareholders' equity	43,271	46,307	+3,036	▪ Retained earnings: +3,037
Accumulated other comprehensive income	924	1,363	+439	▪ Valuation difference on available-for-sale securities: +630
Non-controlling interests	5,937	6,515	+578	
Total net assets	50,132	54,186	+4,053	
Total liabilities and net assets	103,697	106,507	+2,809	

6. Cash Flows (Consolidated)

(Unit: million JPY)

	FY 2015	FY 2016	Change
Cash flows from operating activities	4,390	5,459	+ 1,069
Cash flows from investing activities	- 1,173	- 1,825	- 652
Cash flows from financing activities	- 2,343	- 2,526	- 183
Cash and cash equivalents at the end of period	12,659	13,627	+ 968

• Interest-bearing debt/cash flow ratio: 3.5 years
(improved by 1.4 years from the previous year)

[Main contents of cash flows from operating activities]

- Income before income taxes and minority interests: 6,070
- Depreciation and amortization: 2,400
- Decrease (increase) in notes and accounts receivable – trade: -3,262
- Income taxes paid: -1,361

[Main contents of cash flows from investing activities]

- Purchase of property, plant and equipment: -2,647
- Net increase (decrease) in short-term investment securities : +899

[Main contents of cash flows from financing activities]

- Short-term loans payable (including redemption of bonds): -1,791
- Redemption of bonds: -180
- Cash dividends paid: -612

7. Financial Targets

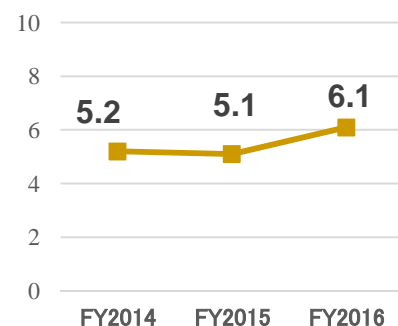
1 Securing high profitability

● ROS (Return on Sales)
and

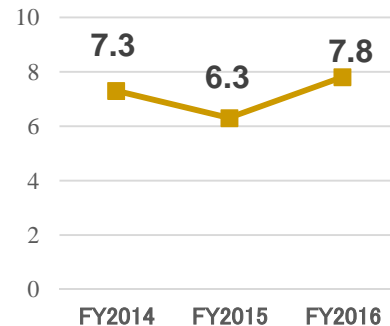
● ROE (Return on Equity)

are set as major management indicators with the aim of enhancing management efficiency.

ROS (%)

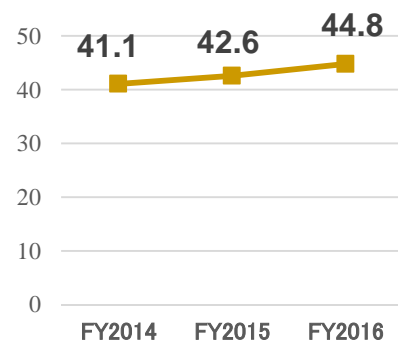


ROE (%)

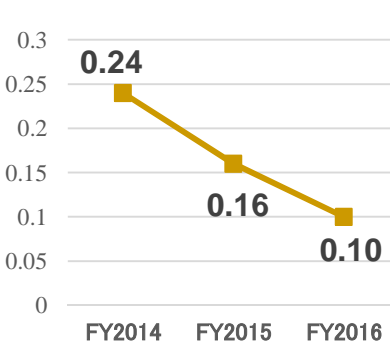


2 Further improvement of financial position

CAR (%)



D/E Ratio



7. Financial Targets

3 Shareholder returns

- Maintaining constant steady dividend payouts.

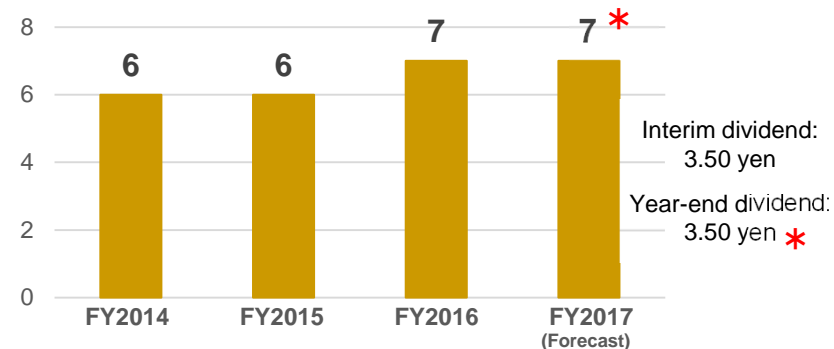
[Actual dividend payout for the fiscal year ended March 2017] (Dividend per share)

- Interim dividend: 3.00 JPY
- Year-end dividend: 4.00 JPY

Annual dividend: 7.00 JPY

Dividend per share

(JPY)



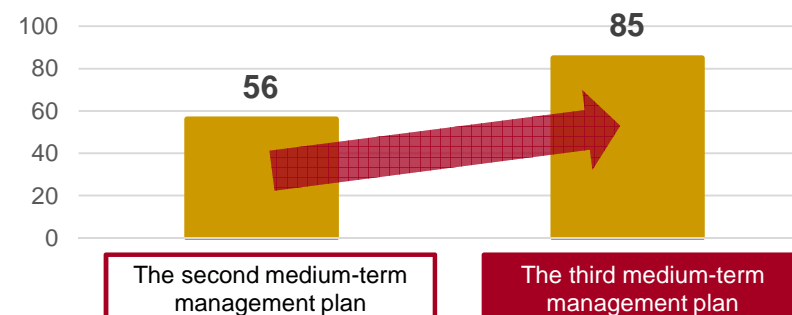
* A 10-for-1 reverse stock split is scheduled to take effect October 1, 2017. However, for the purposes of year-on-year comparison, the year-end per-share dividend for the fiscal year ending March 31, 2018 does not reflect the reverse stock split (The year-end dividend payout plan is 35 yen per share when factoring in the reverse stock split).

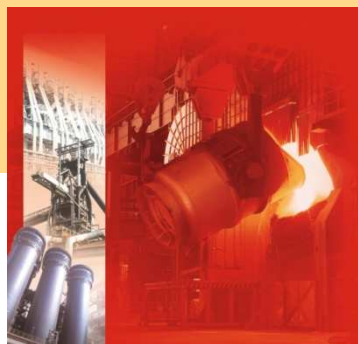
4 Investment for future growth

Amount of capital expenditure

(Actual results and medium-term plan)

(100 million JPY)





II. Future Strategies

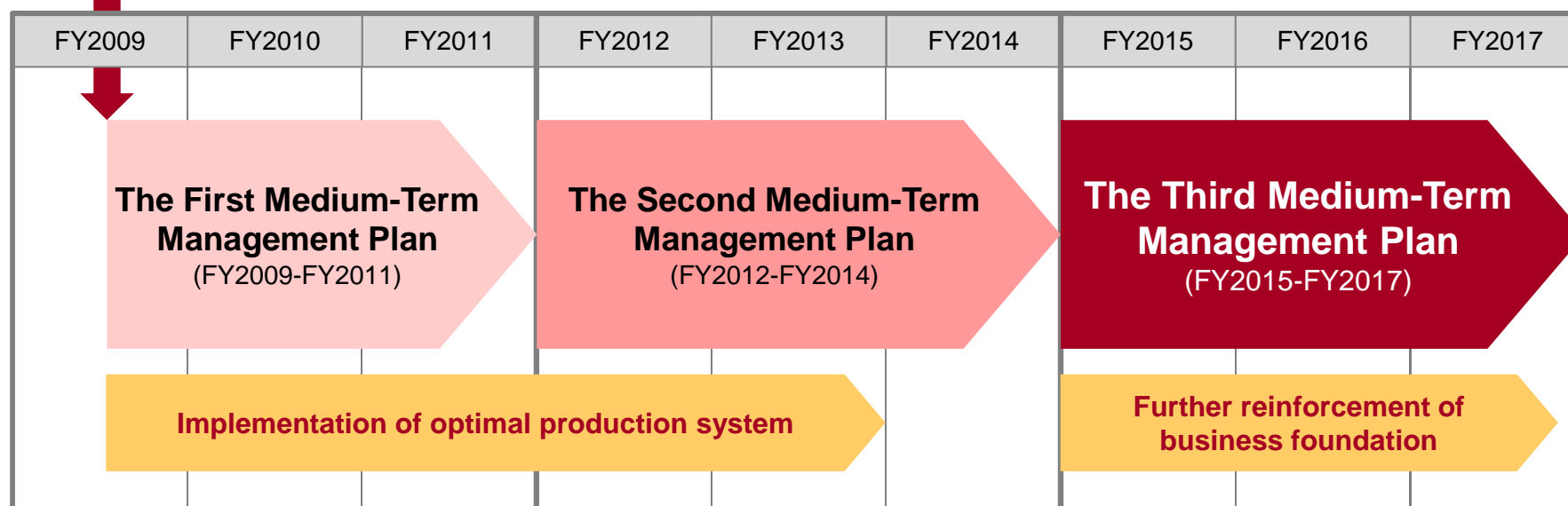
1. Overview of the Medium-Term (Three Years) Management Plan

Third Medium-Term Management Plan Currently Underway based on Achievements of Second Medium-Term Management Plan

Fundamental Policy of the Third Medium-Term Management Plan

Achieving sustainable growth for the long-term future by enhancing manufacturing capabilities and strengthening human resource development.

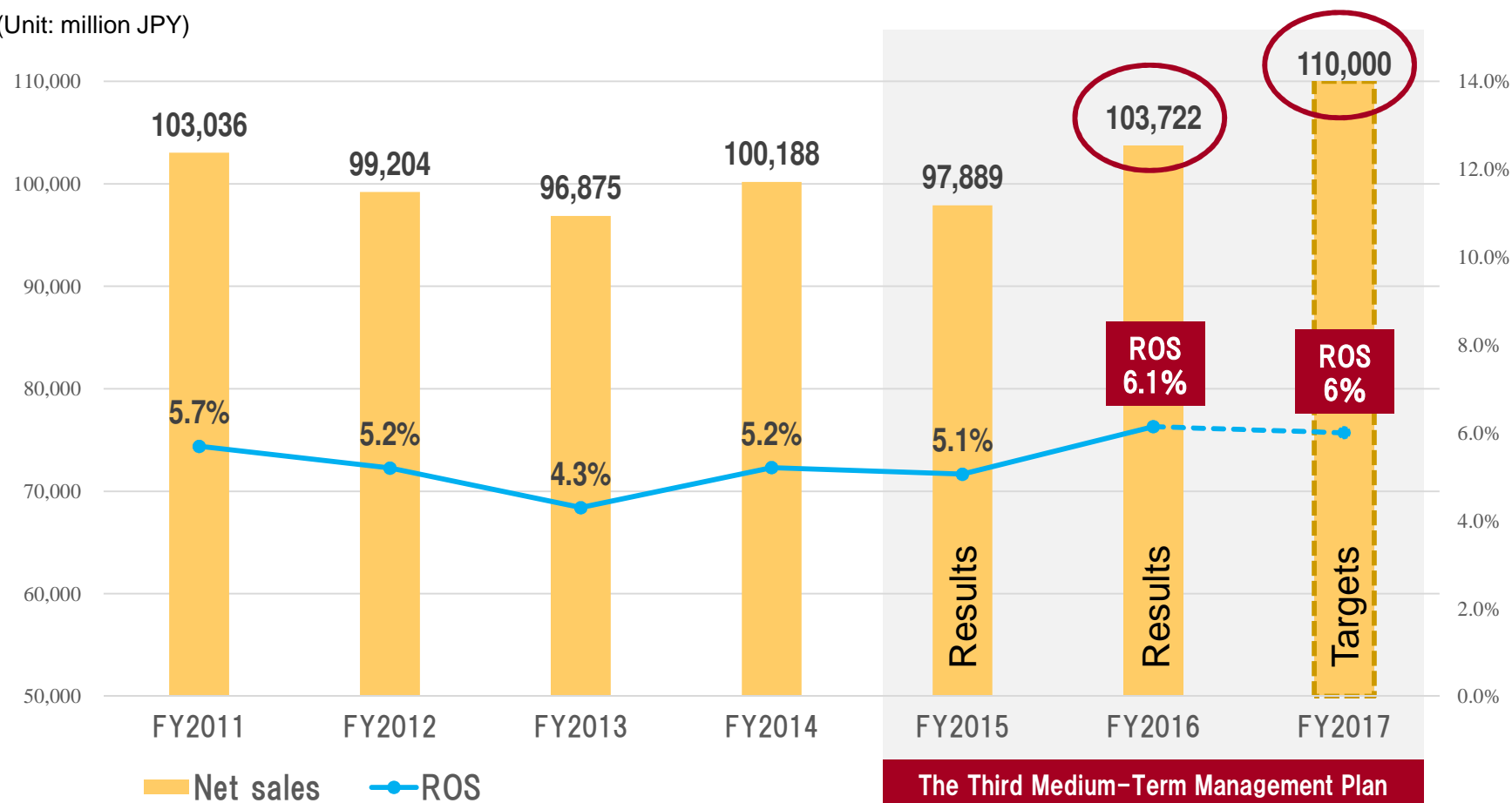
Shinagawa Refractories Co., Ltd. was established as a result of a merger between Shinagawa Shirorenga and JFE Rozai on October 1, 2009.



2. Third Medium-Term Management Plan: Targets & Progresses

In FY2016, net sales increased as planned and ROS even hit the final target of the Third Medium-Term Management Plan (Final Target in 2017: Net sales of 110,000 million JPY and ROS of 6%)

(Unit: million JPY)



3. FY2017 Management Plan: Financial Targets

(Unit: million JPY)

	FY 2016	FY 2017	YoY
	Results	Forecast	
Net sales	103,722 [100.0]	102,000 [100.0]	-1.7%
Operating income	6,344 [6.1]	5,600 [5.5]	-11.7%
Ordinary income	6,365 [6.1]	5,700 [5.6]	-10.5%
Profit attributable to owners of parent	3,602 [3.5]	2,700 [2.7]	-25.1%

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

Final Goal of Third Medium-Term Management Plan in FY2017

**Consolidated net sales:
110,000 million yen**

**Consolidated ROS
(ordinary income ratio): 6%**

4. Business environment for FY2017 Management Plan

1 World economy ➡ Gradual recovery

- [US] Continued stable growth
- [Europe] Modest recovery
- [China] Recovery with the government economic stimulus package

2 Japanese economy ➡ Bottoming out

Key factors expected to boost economy

- Recovery in world economies
- Improvement in inventory turnover
- Increase in public investments with the government economic measures

4. Business environment for FY2017 Management Plan

③ Steelmaking industry → Continue to face Challenges

- Ongoing issue of excess production capacity in China
- Coking coal and iron ore prices continue at the highest level



Profit Improvement continues to be the most urgent managerial issue for steelmaking industry



Shinagawa fulfills their needs by supplying the highest quality refractories at the competitive pricing with on-time delivery

5. Key Challenges for FY2017 Management Plan

1

Reinforcing competitive strengths of the core business: Refractories

1. Completing enhancement of domestic production capabilities
2. Further improvement of cost competitiveness
3. Expansion of products offerings, technological capabilities and sales functions & abilities: Domestic and Overseas

2

Further focus on HR development: Effective recruitment and training

3

Diversifying business portfolio: Earnings from businesses other than refractories

6. FY2017 Management Plan: Action Plans

1 Reinforcing competitive strengths of the core business: Refractories

① Completing enhancement of domestic production capabilities

Our goal in the current three-year medium-term management plan is to complete enhancement of our domestic manufacturing infrastructure

Main capital investments in FY2017

- Add one new furnace:
- Streamline manufacturing process

■ Capital expenditure

(Consolidated/adoption basis)

(Unit: 100 million yen)	FY2015 (Actual)	FY2016 (Actual)	FY2017 (Plan)	3-year accumulated (Budget)	Progress Rate Budget vs Actual
Consolidated	30	28	27	85	106%
Non- consolidated	20	18	16	54	108%

- Three year budget for capital expenditure will be fully implemented

6. FY2017 Management Plan: Action Plans

1 Reinforcing competitive strengths of the core business: Refractories

② Further improvement in cost competitiveness

Thorough cost reduction for entire process from procurement to production

[Procurement]

FY2016

Centralize procurement activities to eliminate redundancy and improve efficiency



FY2017

Further improvement in efficiency and effectiveness by strengthening collaboration between the procurement and production

[Production]

Further cost reduction

- Streamline and renovate manufacturing process
- Further improvement in productivity

6. FY2017 Management Plan: Action Plans

1 Reinforcing competitive strengths of the core business: Refractories

③ Expansion of products offerings, technological capabilities and sales functions & abilities: Domestic and Overseas

GOAL: Insure prompt and accurate responses to fulfill customer needs

Introducing “Products based Strategy Committee” to fully integrate production, R&D and sales activities

Significantly reduce response time to various requests from customers

Shinagawa has now fully integrated production, R&D and sales activities for all refractory products, shaped and monolithic refractories

6. FY2017 Management Plan: Action Plans

1 Reinforcing competitive strengths of the core business: Refractories

③ Expansion of products offerings, technological capabilities and sales functions & abilities: Domestic and Overseas

Global Strategic Products

High-performance SN plates

- Fully automated press forming
- Newly developed firing process

Major Benefits ⇒ Longer plate life
⇒ Shorter production lead-time
⇒ Substantial improvement in work environment

Replacement from conventional plates ongoing at existing customers

Slide-gate Mechanism for Steel Ladles (SST)

[This device is attached to the bottom of a steel ladle to control the flow and amount of molten steel]

- Low maintenance cost as a result of its simple design
- Longer SN plate life
- Reducing work load of customers
- Lighter weight refractories

6. FY2017 Management Plan: Action Plans

1 Reinforcing competitive strengths of the core business: Refractories

③ Expansion of products offerings, technological capabilities and sales functions & abilities: Domestic and Overseas

Domestic Business Expansion

Increasing sales capabilities to capture demand from New Customers and Growth Markets

Action Plans for Integrated Steel Markets

- Focus on promoting value added products directly contributing to improve steel quality: SN plates, nozzles and mold powders
- Further promotion of monolithic repair materials to support customers cost reduction activities by extending furnace life

Action Plans for Other Markets

- Strengthening sales activities for Electric Arc Furnace market
- Actively exploring opportunities for non-traditional markets for Shinagawa
 - Non-ferrous Metal market
 - Lime furnace
 - Reheating furnace

6. FY2017 Management Plan: Action Plans

1 Reinforcing competitive strengths of the core business: Refractories

③ Expansion of products offerings, technological capabilities and sales functions & abilities: Domestic and Overseas

Domestic Business Expansion

Exploring new opportunities with New Products and Technologies: Electric Arc Furnace, Specialty Steel and Non-ferrous Metal producers

Action Plans for Electric Arc Furnace producers

- Promote energy savings by preventing heat transfer at molten steel container
- Promote low thermal conductivity and lighter weight products
- Promote eco-friendly solutions by actively recycling raw materials
- Promote shaped and monolithic products depends on applications to provide optimal solutions

Action Plans for Specialty Steel and Non-Ferrous Metal producers

Mixing and Firing Technologies

VS

Needs for Design, Manufacturing and Engineering

Promote high performance pre-cast blocks particularly for specialty steel and non-ferrous metal production

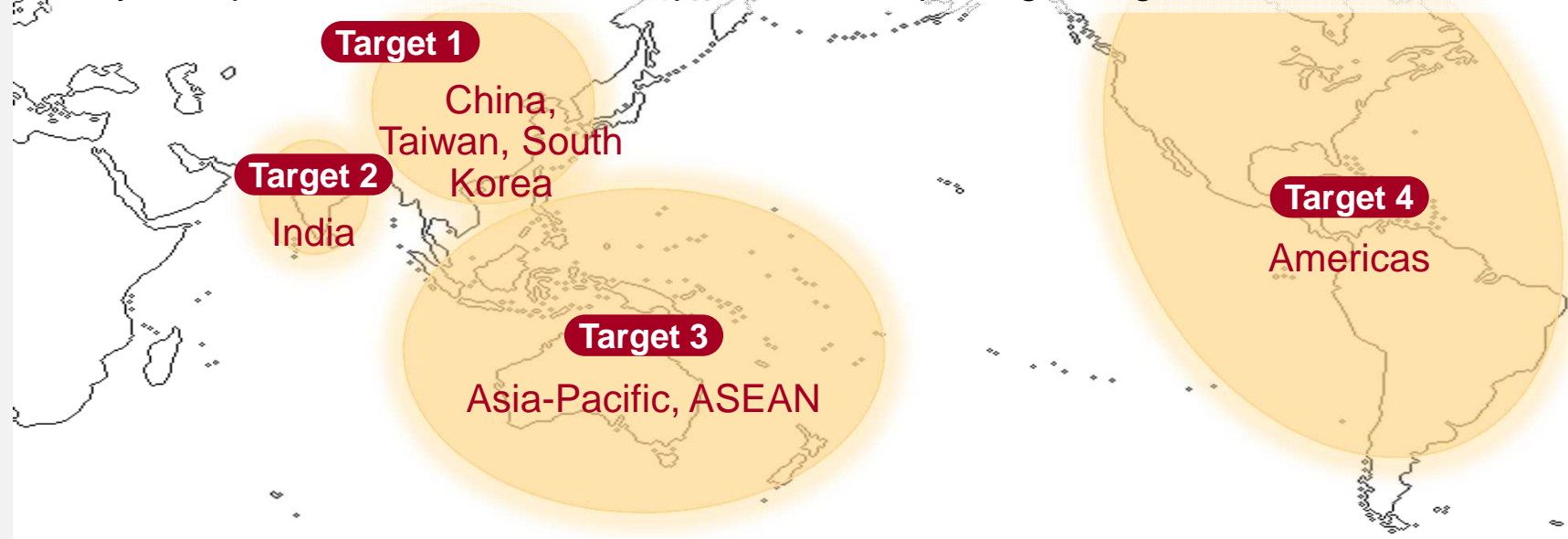
6. FY2017 Management Plan: Action Plans

1 Reinforcing competitive strengths of the core business: Refractories

③ Expansion of products offerings, technological capabilities and sales functions & abilities: Domestic and Overseas

Overseas Business Expansion

Promote the concept of “**Shinagawa Solutions**” driven by “**Market-In**” strategy, that fully incorporate market needs into products to capture growing demands.



6. FY2017 Management Plan: Action Plans

Overseas Business Expansion

Target 1 China, Taiwan, South Korea

China: Actively expand sales of mold powders for high grade steel sheets productions

Taiwan: Maintain and increase market share at the major customer

South Korea: Break into market for tap-hole clays and value added refractory products

Target 2 India

- Changed sales channel from January 2017: Implemented direct sales strategy by dispatching full-time engineer in India
- Considering local production soon

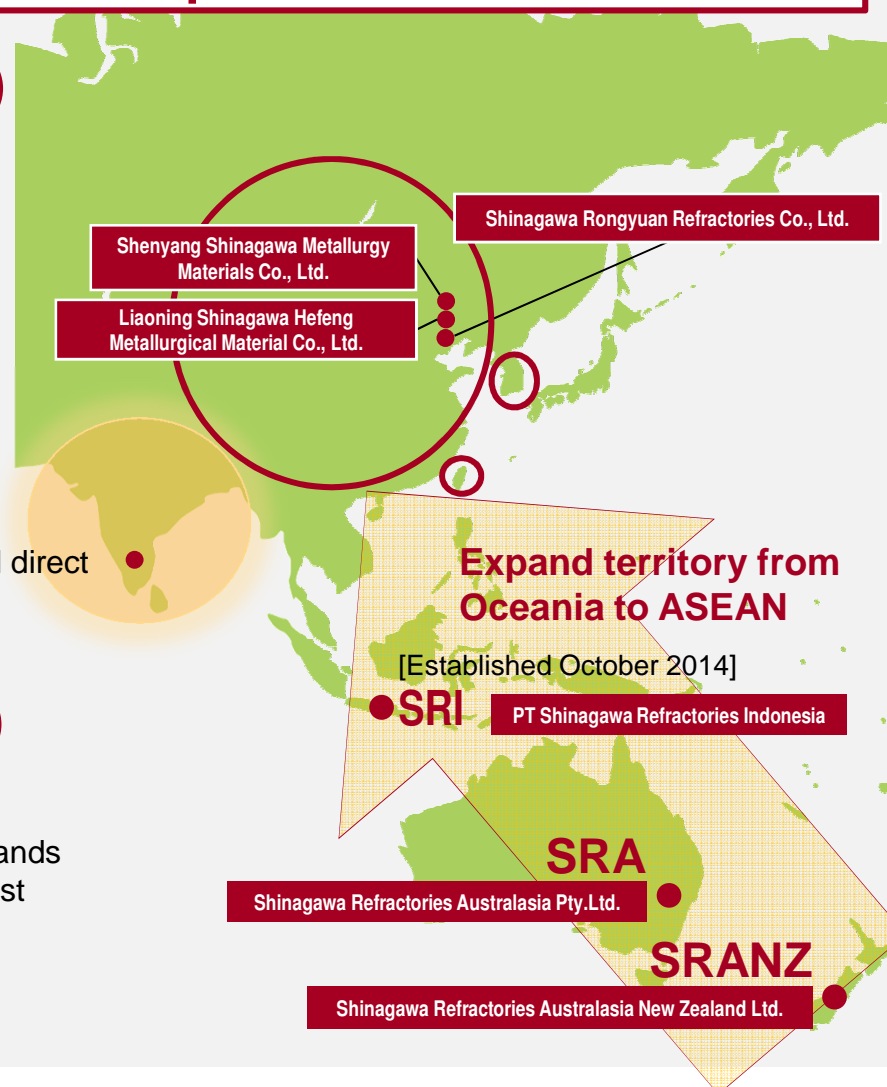
Target 3 Asia-Pacific/ASEAN

Asia Pacific

- Establish local tap-hole clay production
- Secure business opportunities for industrial furnace repairs

ASEAN

- Capture growing demands in Indonesia, the largest ASEAN market for refractories



6. FY2017 Management Plan: Action Plans

Overseas Business Expansion

Target 4 Americas

North America

- Fully implement Market-In strategy by SAM, combining sales of US made mold powders with imported refractories from Japan and other regions and countries, including refractories from Saint-Gobain in Brazil, such as tap-hole clays, trough and runners and BOF bricks
- Continue business partnership with JW Hicks for selected products and customers

Middle & South America

- Enhance sales capabilities in South America, especially in Brazil
- Increase Shinagawa's market presence in South America by strategic alliance with Saint-Gobain, our business partner in Brazil



6. FY2017 Management Plan: Action Plans

2 Further focus on HR development: Effective recruitment and training

Further focus on well planned, effective recruitment and training of employees to insure sustainable competitiveness for the future

“Employees are the resources of our competitive strength”



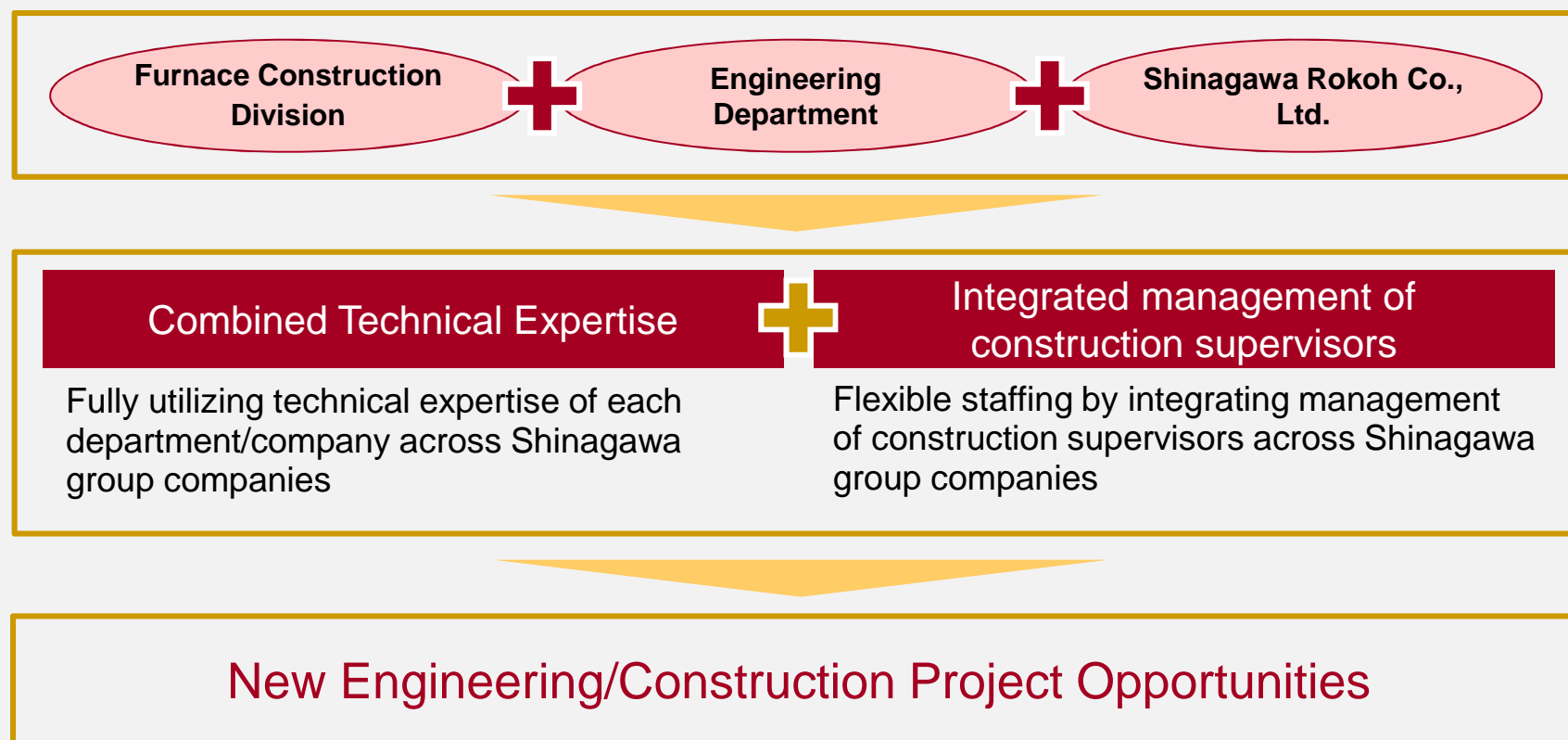
Main initiatives for HR development

- Recruit quality employees necessary to achieve Mid-Term Management Plan: Increase headcount also to support full implementation of growth strategies; engineers and sales, domestic and overseas
- Continue to implement effective training programs
 - OJT
 - Hierarchy-specific training
 - Support personal development

6. FY2017 Management Plan: Action Plans

3 Diversifying business portfolio: Earnings from businesses other than refractories

Exploring new engineering/construction project opportunities by integration of installation and construction expertise across Shinagawa group companies

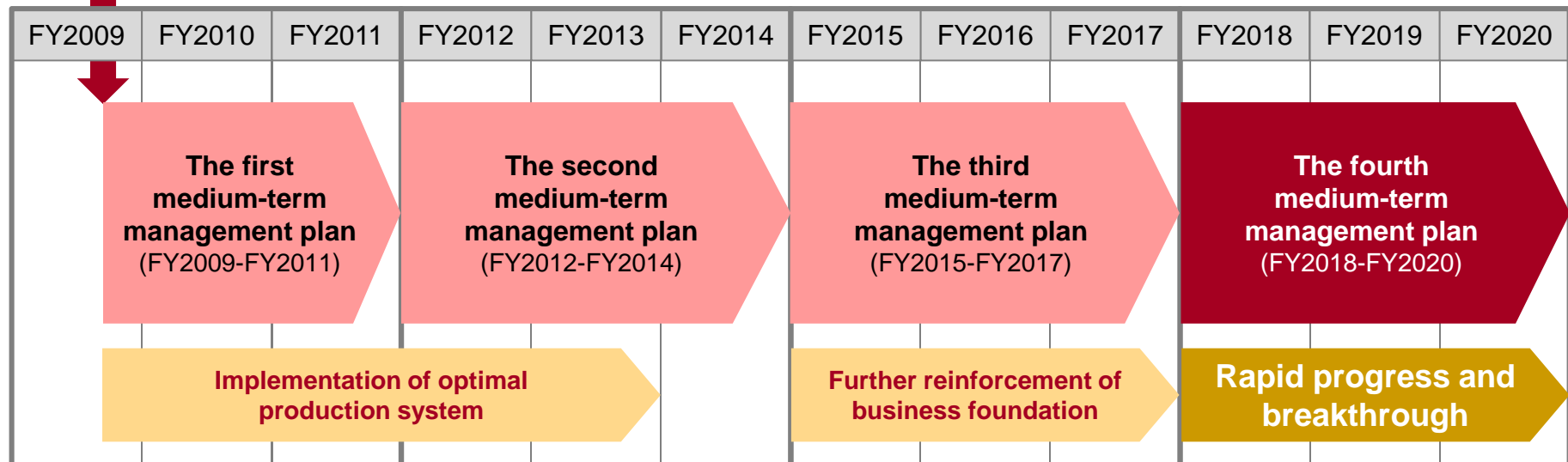


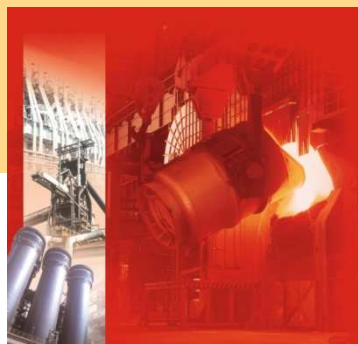
7. Creation of the Fourth Medium-Term Management Plan (2018-2020)

Shinagawa will introduce our Fourth Medium-Term Management Plan by the end of 2017

GOAL: Rapid progress breakthrough for the future based on accomplishment at the Third Mid-Term Management Plan

Shinagawa Refractories Co., Ltd. was established as a result of a merger between Shinagawa Shirorenga and JFE Rozai on October 1, 2009.





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

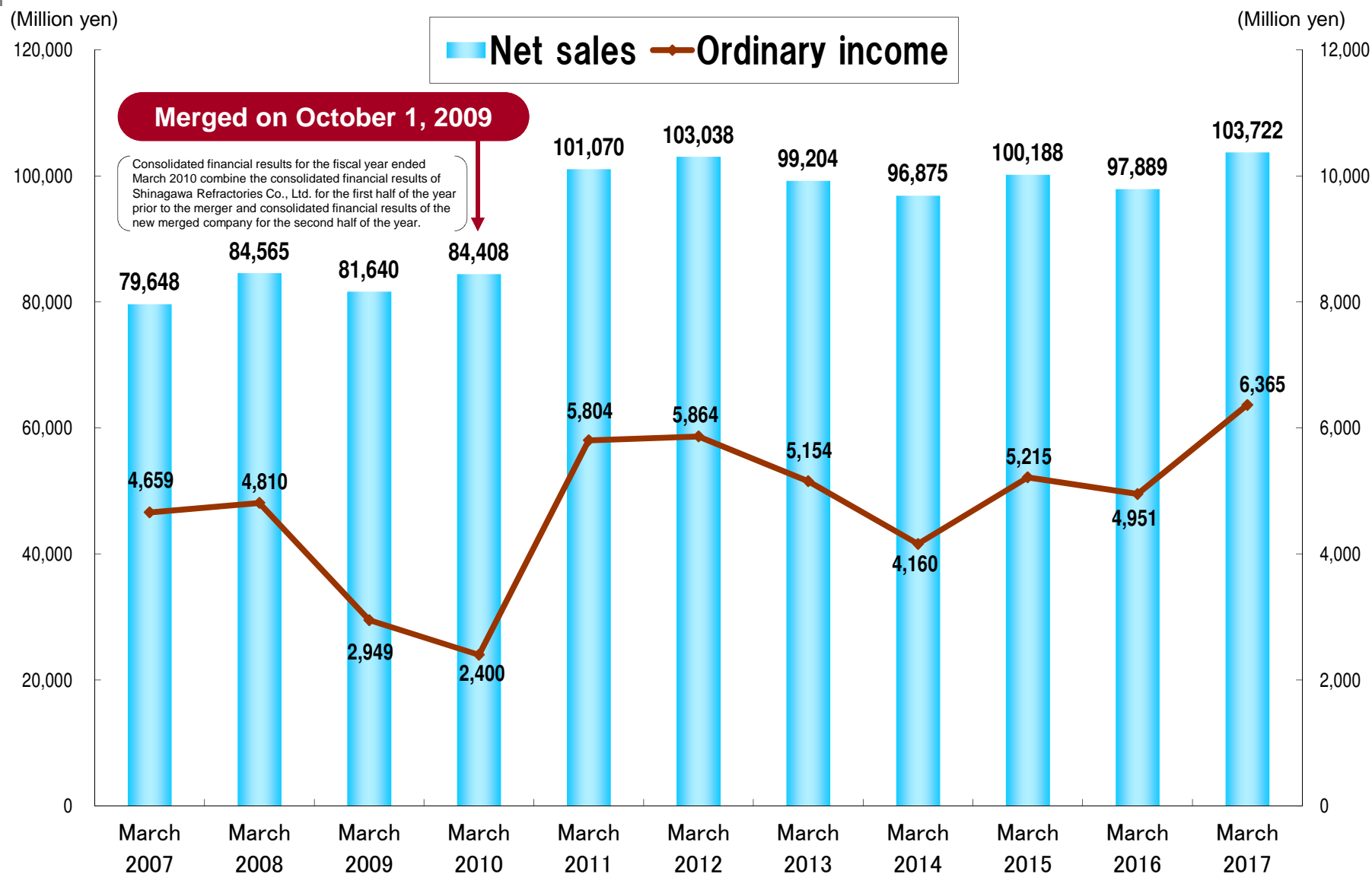
With our core philosophy of respecting the basics “Be BASIC,” Shinagawa Refractories is committed to contributing to the industrial development and the creation of affluent societies through providing high quality refractory products along with engineering services for furnace designs and construction.

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

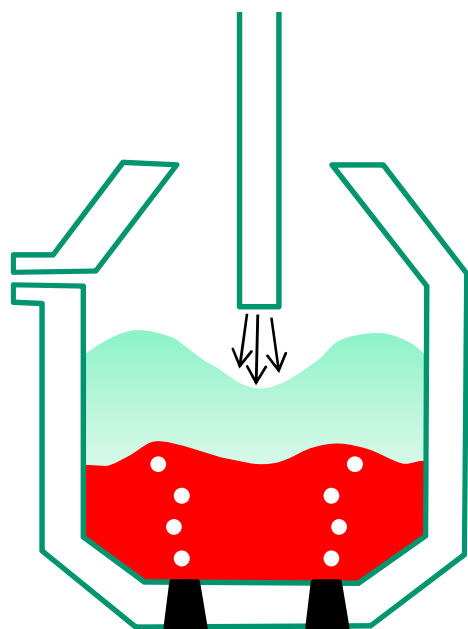
Shinagawa will strive to fully achieve these goals by pursuing excellence in developing human resources, promoting advanced technological capabilities and securing strong earning capacity along with solid financial foundation.

3. Changes in Net Sales and Ordinary Income During Past 11 Years (Consolidated Basis)

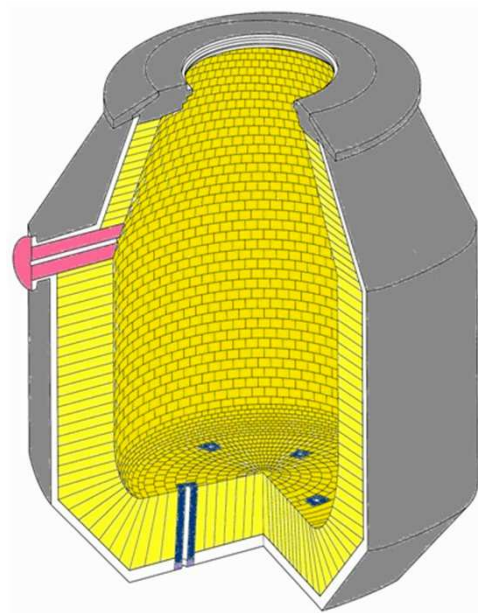


4. What are the roles of the "Refractory Industry"?

- 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, 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

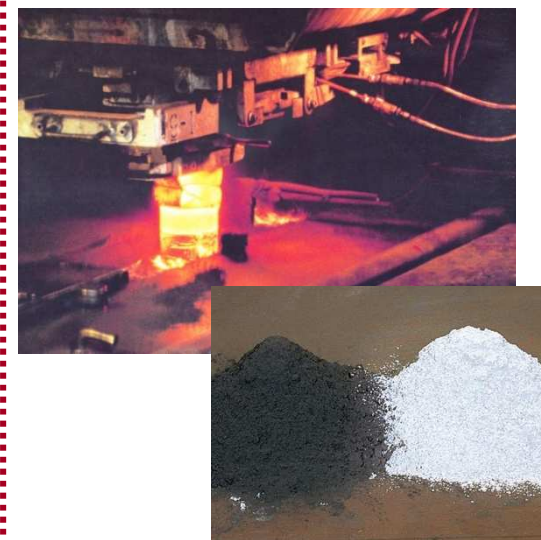
- Castable refractories
- Precast shapes
- Gunning refractories
- Plastic and ramming mixes
- Refractory mortars, etc.



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



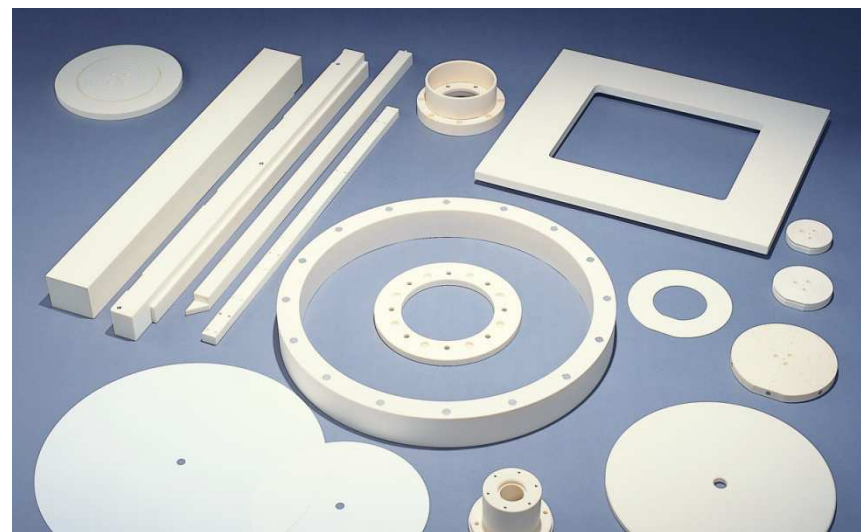
Chemical and other products

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



Advanced ceramics

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



6. Key Features and Strengths

1 Leading company of ultra-high temperature technologies

2 Solid customer base with highly-advanced capabilities

3 Global business expansion

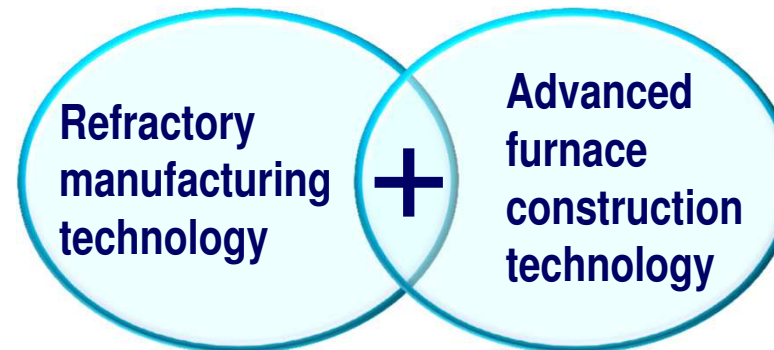
7. Key Features and Strengths

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

Leading company of ultra-high temperature technology

Solid technology development and commercialization capabilities supported by two technologies

- Refractories
- Ceramic fiber
- Advanced ceramics
- Chemical products and other 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.

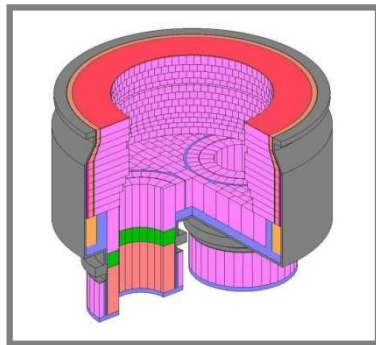
Customer-oriented technological response

Development capability to meet customer needs

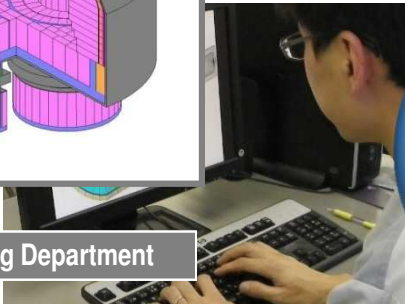
7. Key Features and Strengths

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

Work closely with customers at all times backed up by technologies and long track records of four divisions covering design, manufacturing, furnace construction, and development.



Engineering Department

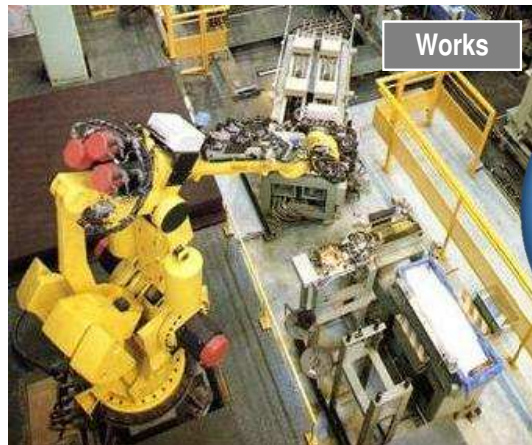


Design



Analysis
and
development

Technical Research Center



Works

Manufacturing

Furnace
construction
and repair



Furnace Construction Division



7. Key Features and Strengths

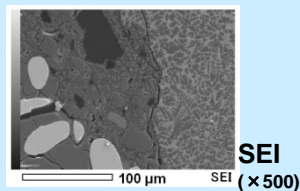
(1) Ultra-High Temperature Technology (iii) Development Capability to Meet Customer Needs

With world-class research facilities, the Research Center focuses on the development of products to meet the exact needs of customers

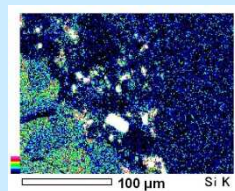


**EDS analysis data
(color map)**

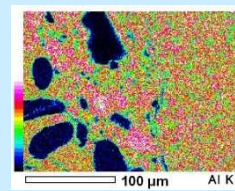
Elements present in the area
can be detected in a short
period of time.



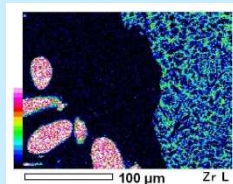
SEI
(×500)



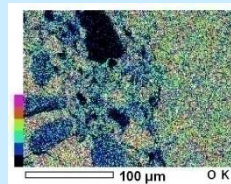
Si



Al

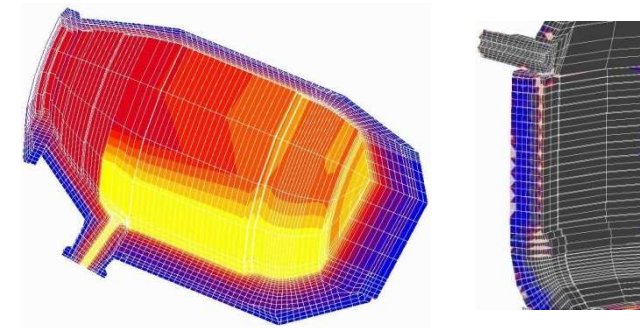


Zr



O

Analysis of microstructures of refractories



Structural analysis of converters



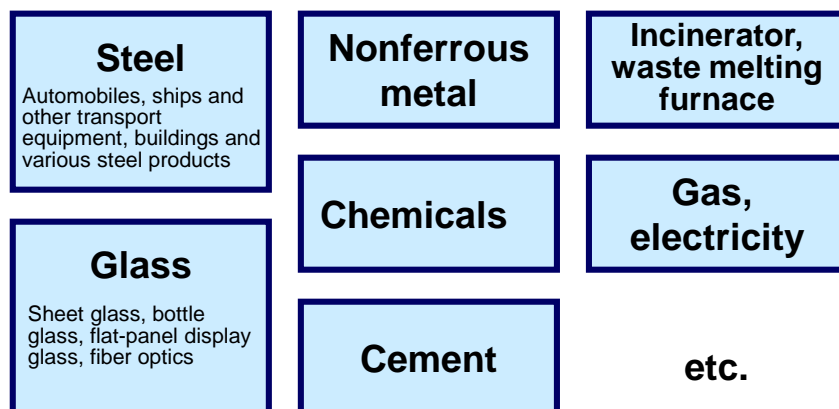
Water model simulation of
molten steel flow in the mold

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

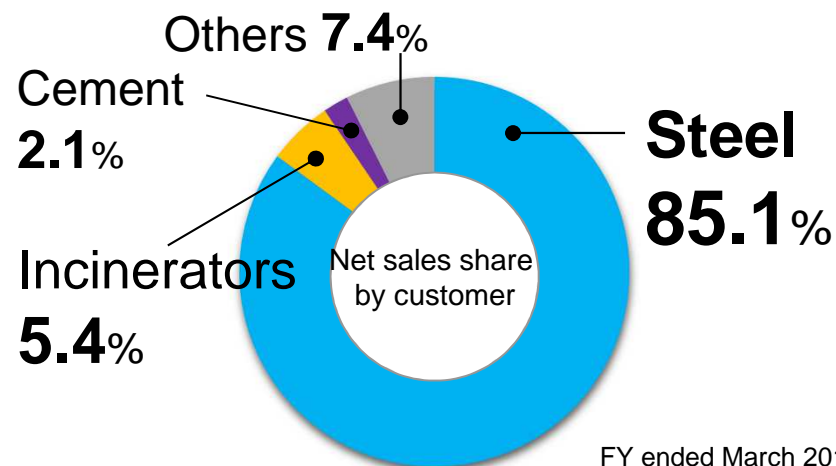
Solid customer base with highly-advanced technological capabilities

**Meeting the exact needs of customers in various industries
including the Japanese steelmaking industry, known for
their best steelmaking technology in the world**

**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 the main customer, accounting
for approximately 80% of the total sales**



FY ended March 2017
(non-consolidated)

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

Global business expansion

**Starting from our launch into China in 1997,
the Company has continued to expand overseas,
establishing production bases in Australia and the U.S.**

[China] ← Entered market in 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.
- 2005: Established a joint venture company, Shinagawa Rongyuan Refractories Co., Ltd.
- 2008: Established a joint venture company, Liaoning Shinagawa Hefeng Metallurgical Material Co., Ltd.

[Australia] ← Entered market in 1998

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

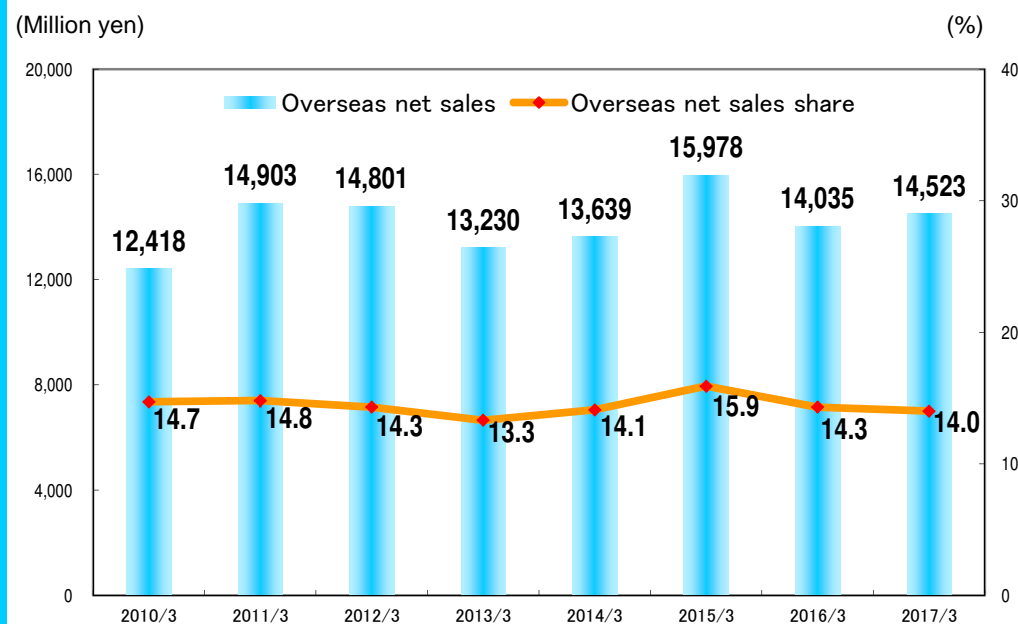
[U.S.] ← Entered market in 2006

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

[Indonesia] ← Entered in 2014

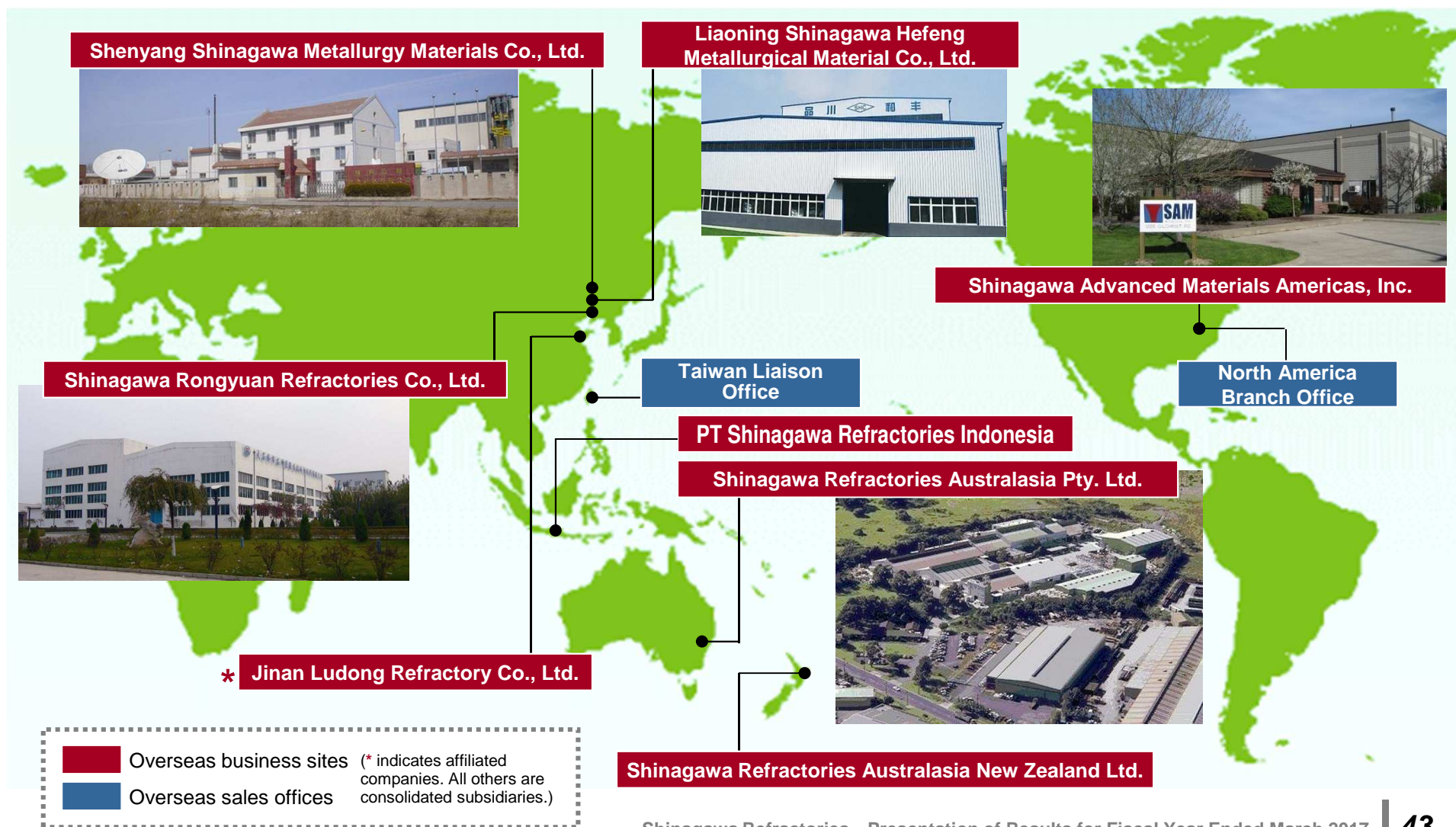
- 2014: Established PT Shinagawa Refractories Indonesia in Jakarta

Overseas net sales and market share (consolidated)



10. Current Status of the Expansion of Overseas Business Locations

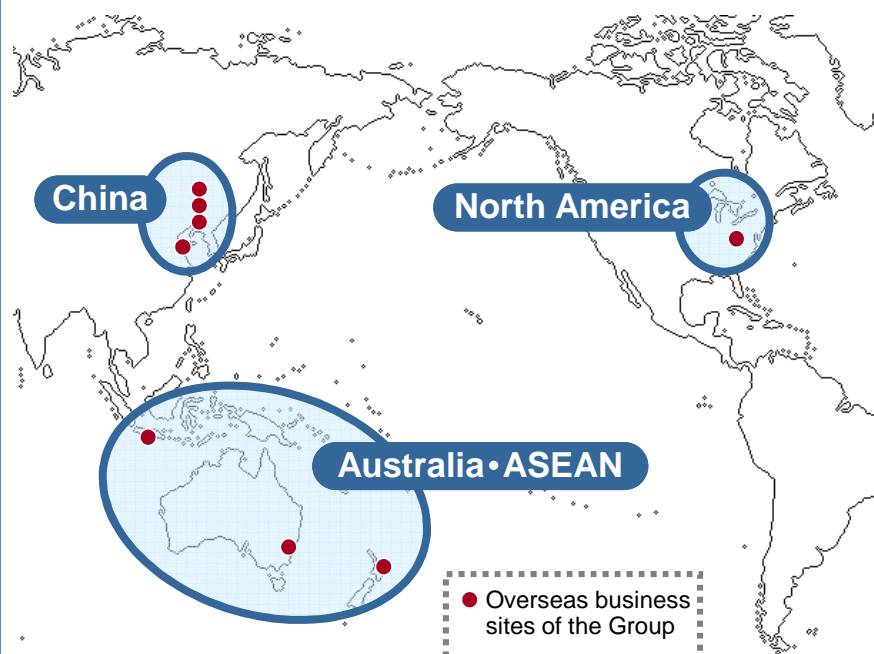
Expanding overseas business locations in China, Oceania, and the Americas with a focus on areas close to the production sites of our customers



11. Domestic and Overseas Production System

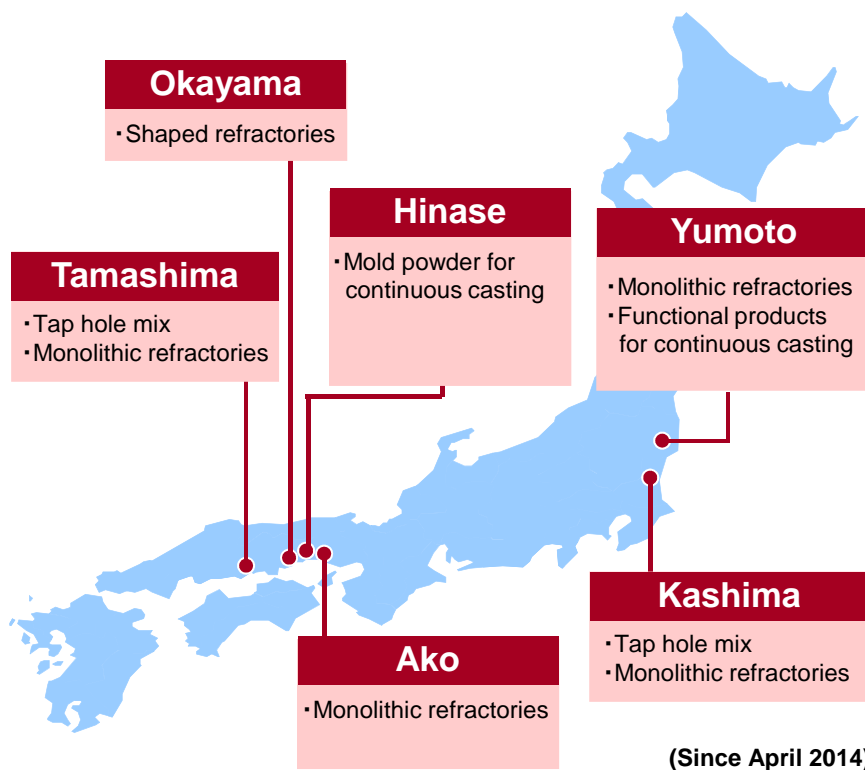
[Overseas]

Developing a stable supply system by establishing the Group's manufacturing sites closer to customers in order to customer needs responsive



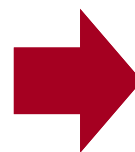
[Japan]

Promoting the redevelopment of a reliable supply system with enhanced efficiency and effectiveness



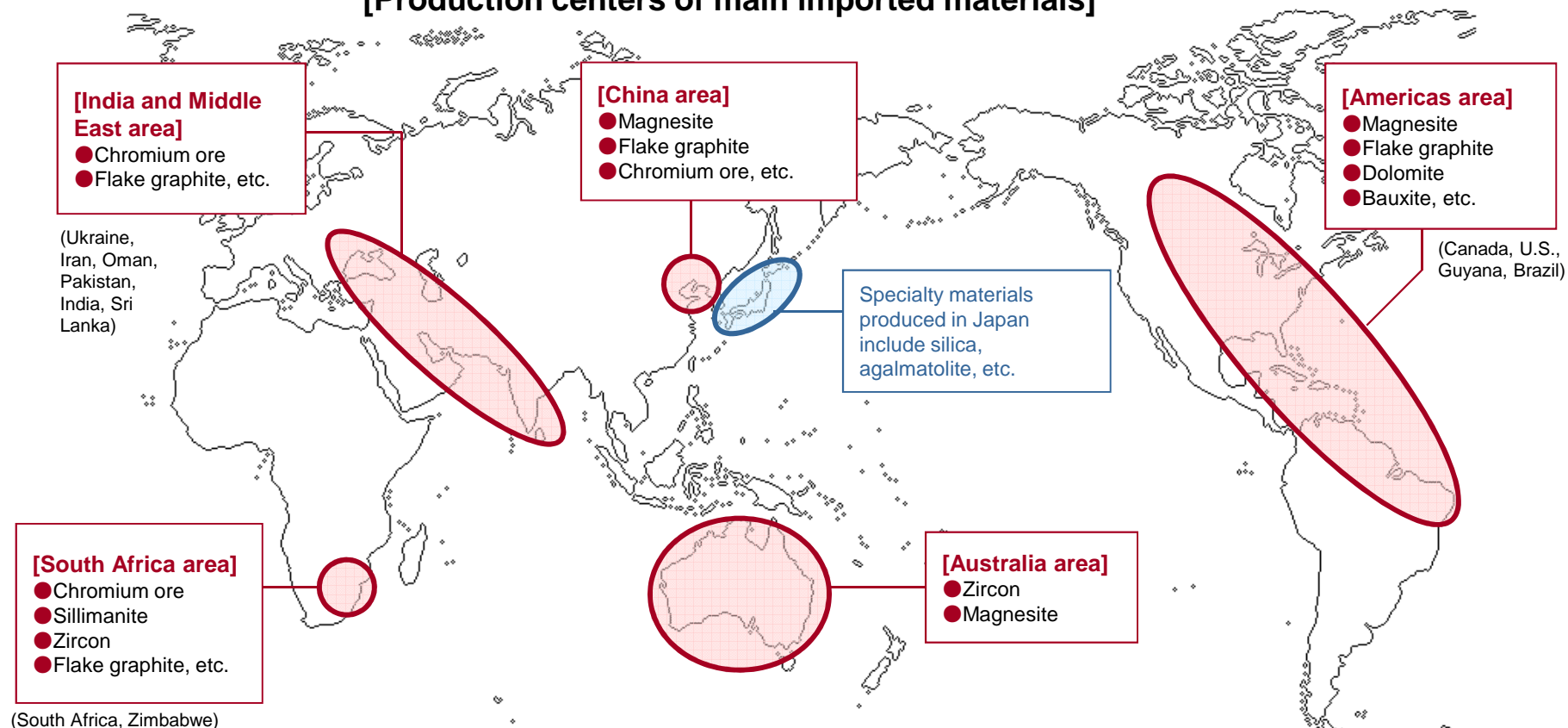
12. Global Procurement System

The Company depends on foreign sources for approximately 60% of refractory materials, 80% or more of which (approximately 50% of the total raw materials) are imported from China.



Amid such circumstances, the Company developed a balanced procurement system to source materials from production centers in five geographical areas around the world from the perspective of having balanced portfolio.

[Production centers of main imported materials]



Disclaimer

This document is intended to provide information on the results for the fiscal year ended March 2017 (April 2016 – March 2017) and is not intended to solicit investment in securities issued by the Company.

The document was prepared based on data available as of June 7, 2017. 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.

Presentation Material

Results for Fiscal Year Ended March 2017

June 7, 2017



— Supporting the World's Key Industries Through Technologies —

 SHINAGAWA REFRACTORIES CO.,LTD.

Securities Code Number: **5351**