

# **Financial Results Presentation for the 2nd Quarter of the FY2021**

**November 17, 2020**

 **SHIKOKU CHEMICALS CORPORATION**

**Code number : 4099**

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# **I . Corporate Profile (Business Structure)**

# I – 1. Corporate Profile

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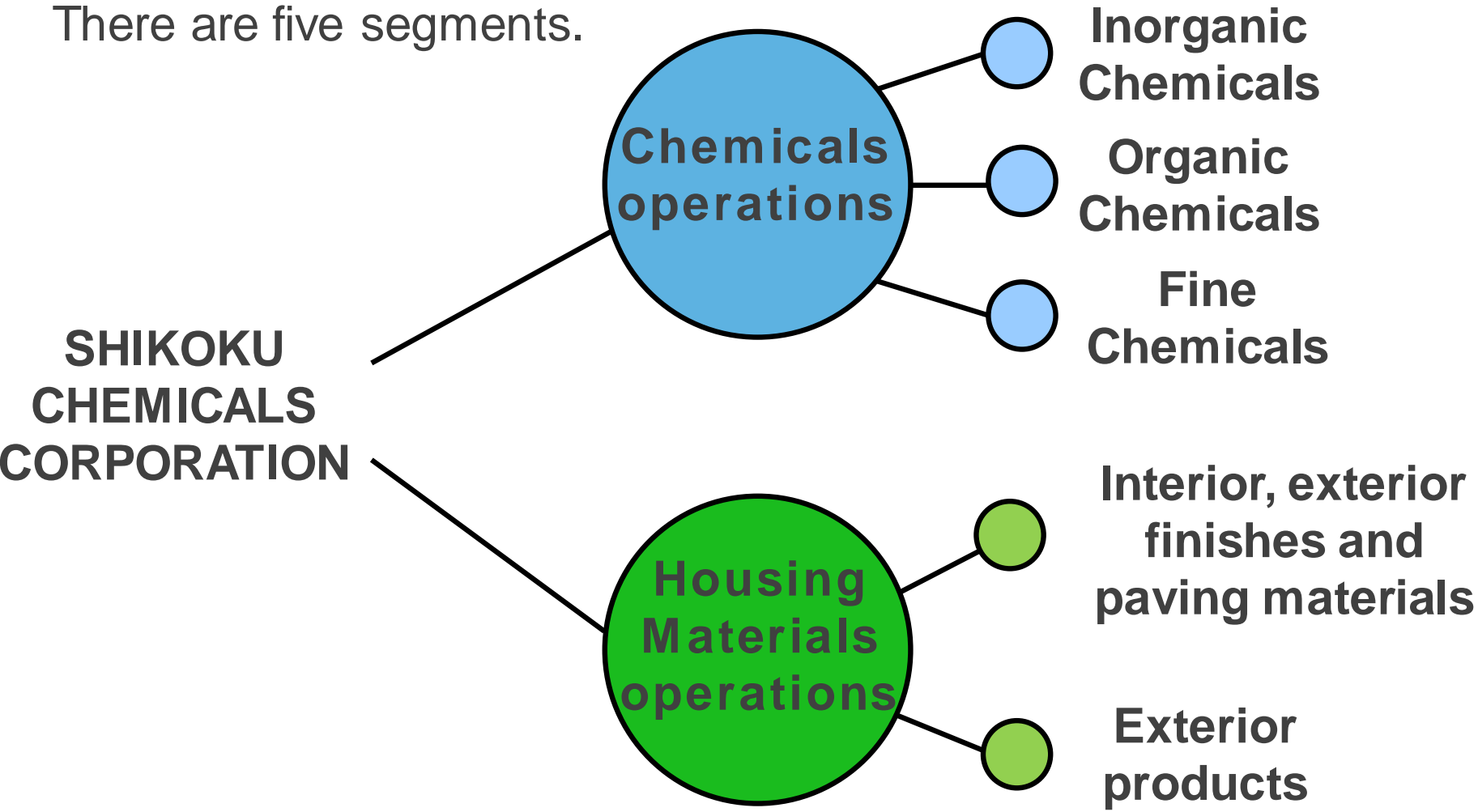
(As of September 30, 2020)

■ Company name	SHIKOKU CHEMICALS CORPORATION	
■ Code number	4099	Industry : Chemicals
■ Stock exchange listing	Tokyo	
■ Incorporated	October 10, 1947	
■ Head Office	Marugame, Kagawa Prefecture	
■ President and C.E.O.	Naoto Tanaka	
■ Capital	6,867 million yen	
■ Number of employees	1,217 (Consolidated)	
■ Net sales	51,564 million yen	
	(Consolidated • As of March 31, 2020)	

# I – 2. Business Structure

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- Two main business pillars, which are chemical products and housing materials. There are five segments.



# **II. Financial Results for the 2nd Quarter of the FY2021**

## II – 1. Overview

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**1** Due to the influence of the novel coronavirus, sales decreased by 8.9% compared to the previous term, and net profit decreased by 24.1% compared to the previous term.

**2** Net sales for the chemicals operations segment were down 9.2% year-on-year, and segment profit was down 27.9% year-on-year.

Net sales for the housing materials operations segment were down 9.2% year-on-year, and segment profit was down 12.4% year-on-year.

**3** As an outlook for this term, we revised the profit upward from the previously announced value to 49 billion yen, which is +2.1% of the sales, and also revised the net profit for each stage upward to 6.8 billion yen, which is +7.9% of the operating profit, in anticipation of sales recovery in Insoluble sulfur due to normalization of the production activity at tire manufacturers and the strong sales performance with Chlorinated Isocyanurates in the U.S. market.

## II – 2. Consolidated Financial Results

### ■ Highlights of Financial Results for the 2Q of FY2021

(Millions of yen)

	Consolidated cumulative 2Q				Increase of amount	Changes
	FY2020		FY2021			
	Amount	Percentage	Amount	Percentage		
Net sales	25,693	100.0%	23,408	100.0%	▲ 2,285	▲ 8.9%
Operating Income	3,567	13.9%	2,609	11.1%	▲ 958	▲ 26.9%
Ordinary income	3,626	14.1%	2,822	12.1%	▲ 803	▲ 22.2%
Net income attributable to owners of the parent	2,534	9.9%	1,924	8.2%	▲ 609	▲ 24.1%
Exchange rate (USD)	109		107			
Exchange rate (EUR)	123		120			



## II – 3. Sales and Profit by Business segments

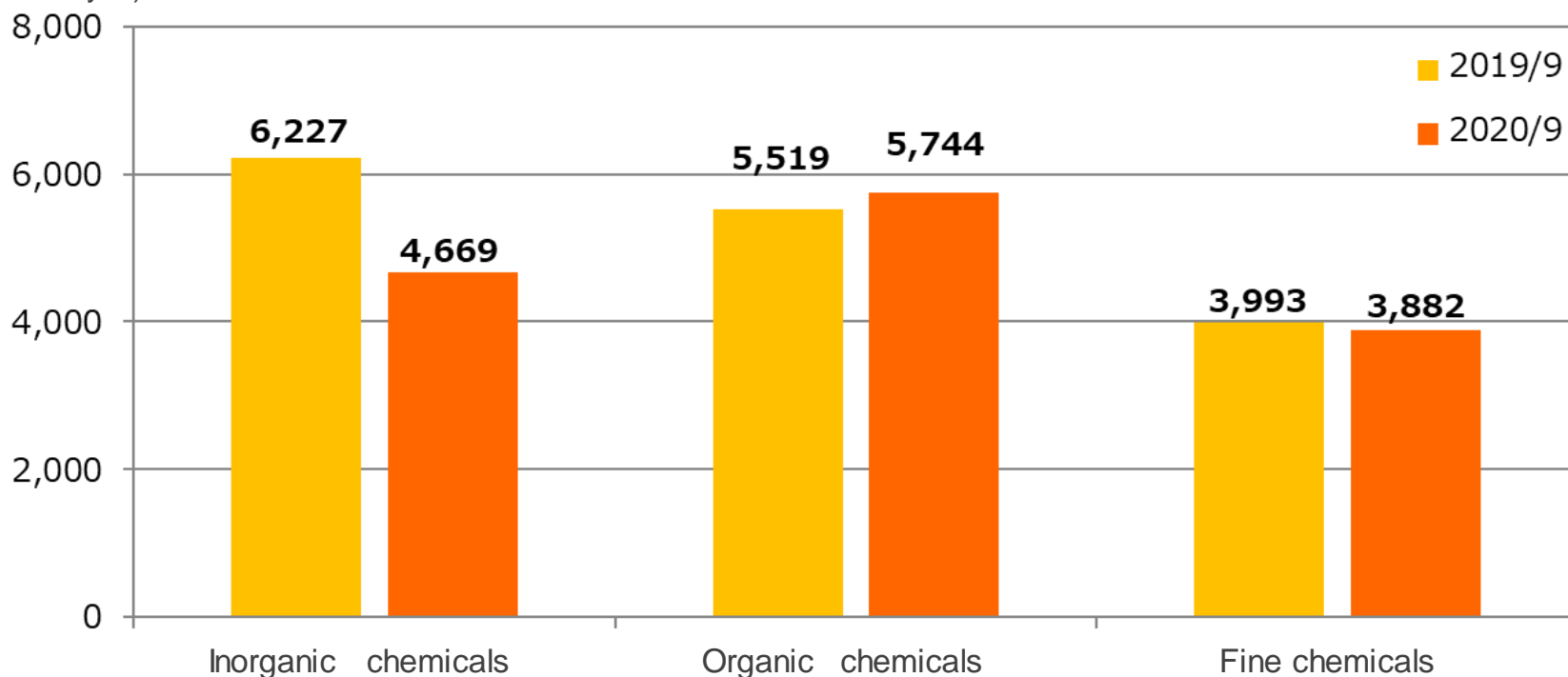
(Millions of yen)

Net Sales		Consolidated cumulative 2Q				
		FY2020	percentage	FY2021	percentage	Changes
Chemicals operations	Inorganic Chemicals	6,227	24.2%	4,669	19.9%	▲ 25.0%
	Organic Chemicals	5,519	21.5%	5,744	24.5%	▲ 4.1%
	Fine Chemicals	3,993	15.5%	3,882	16.6%	▲ 2.8%
	Subtotal	15,740	61.3%	14,297	61.1%	▲ 9.2%
Housing Materials operations	Interior, exterior finishes and paving materials	836	3.3%	710	3.0%	▲ 15.1%
	Exterior Products	8,756	34.1%	8,001	34.2%	▲ 8.6%
	Subtotal	9,593	37.3%	8,711	37.2%	▲ 9.2%
Other		360	1.4%	399	1.7%	▲ 11.0%
<b>Total</b>		<b>25,693</b>	<b>100.0%</b>	<b>23,408</b>	<b>100.0%</b>	<b>▲ 8.9%</b>

Segment Profit	Consolidated cumulative 2Q		
	FY2020	FY2021	Changes
Total of Chemicals operations	2,955	2,131	▲ 27.9%
Total of Housing Materials operations	1,527	1,337	▲ 12.4%

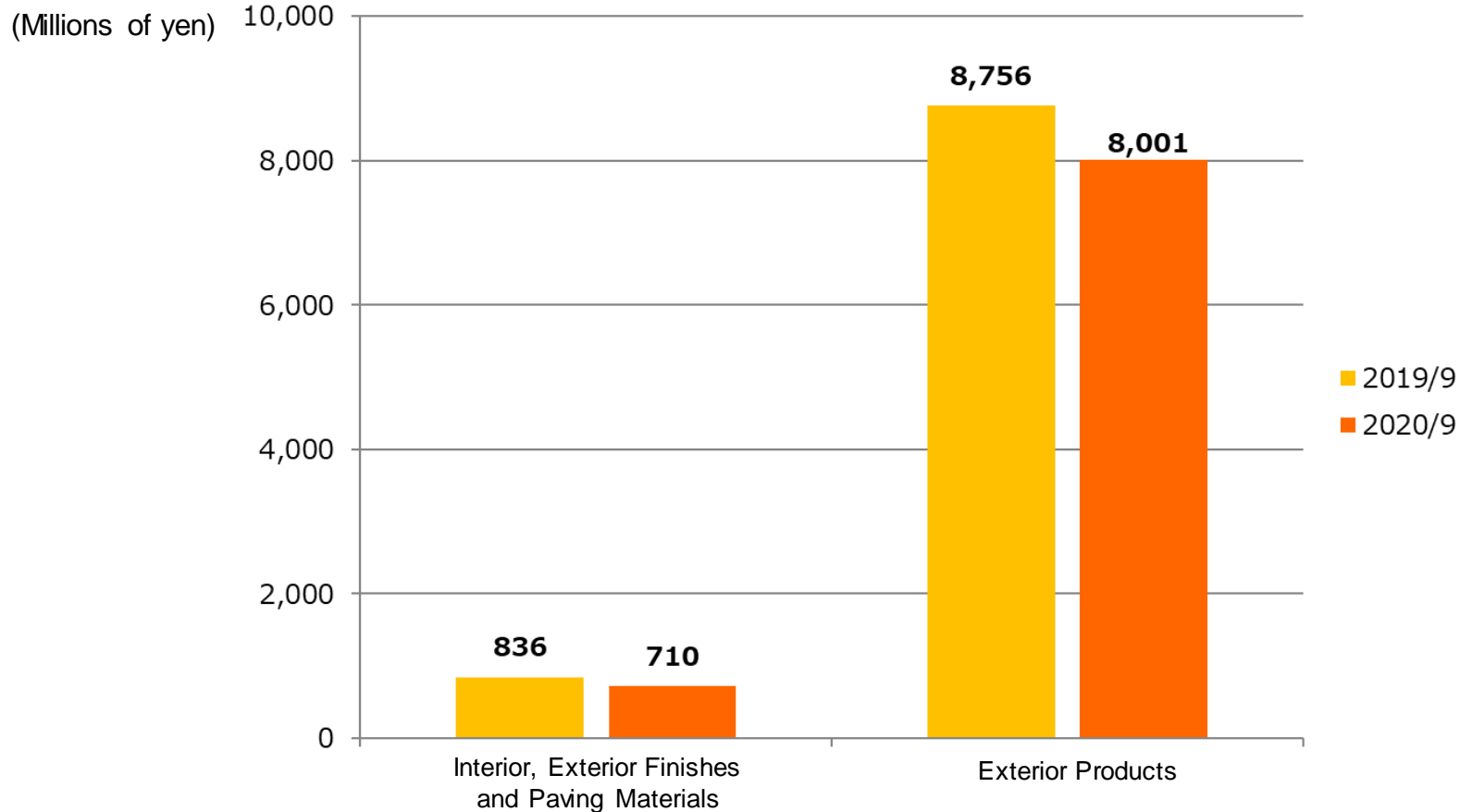
## II – 4. Overview of Sales by Segment (Chemical Products)

(Millions of yen)



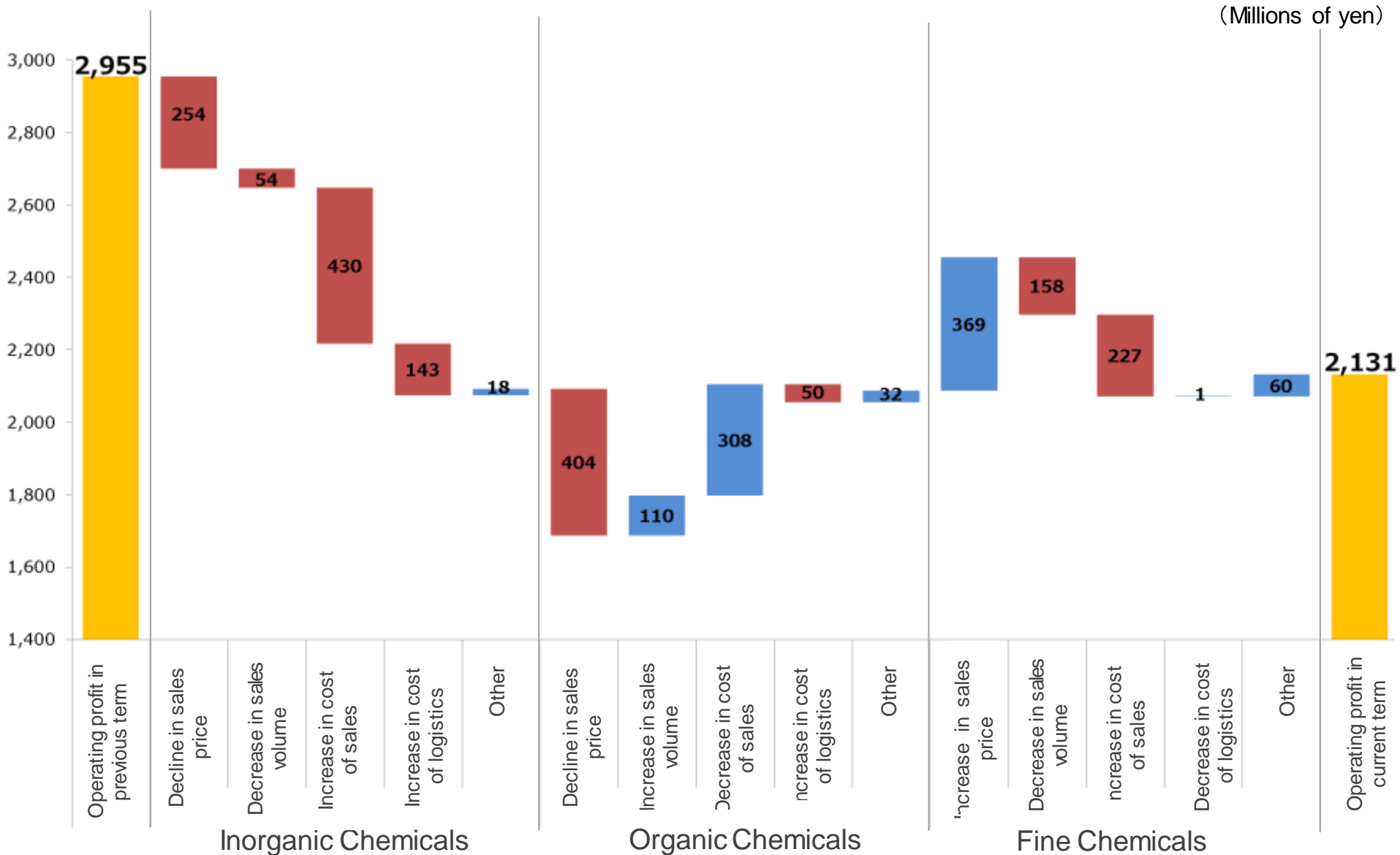
- ◆ Sales of Insoluble sulfur, remained sluggish, affected by the global production adjustments for automobiles amid the spread of COVID 19. However, sales are on a recovery track as production activities bottomed out in the first quarter and are returning to normal gradually. Sales of carbon disulfide and sodium sulfate remained sluggish.
- ◆ Regarding Chlorinated Isocyanurates, sales of agents for swimming pools were stagnant in the domestic market, affected by the cancellation of swimming lessons at schools due to the spread of COVID-19, while sales remained strong in the U.S. market with increased demand for agents for home swimming pools.
- ◆ Regarding Fine chemicals for the automotive industry fell below the previous year's result, affected by the production adjustments for automobiles.

## II – 5. Overview of Sales by Segment (Housing Material Products)



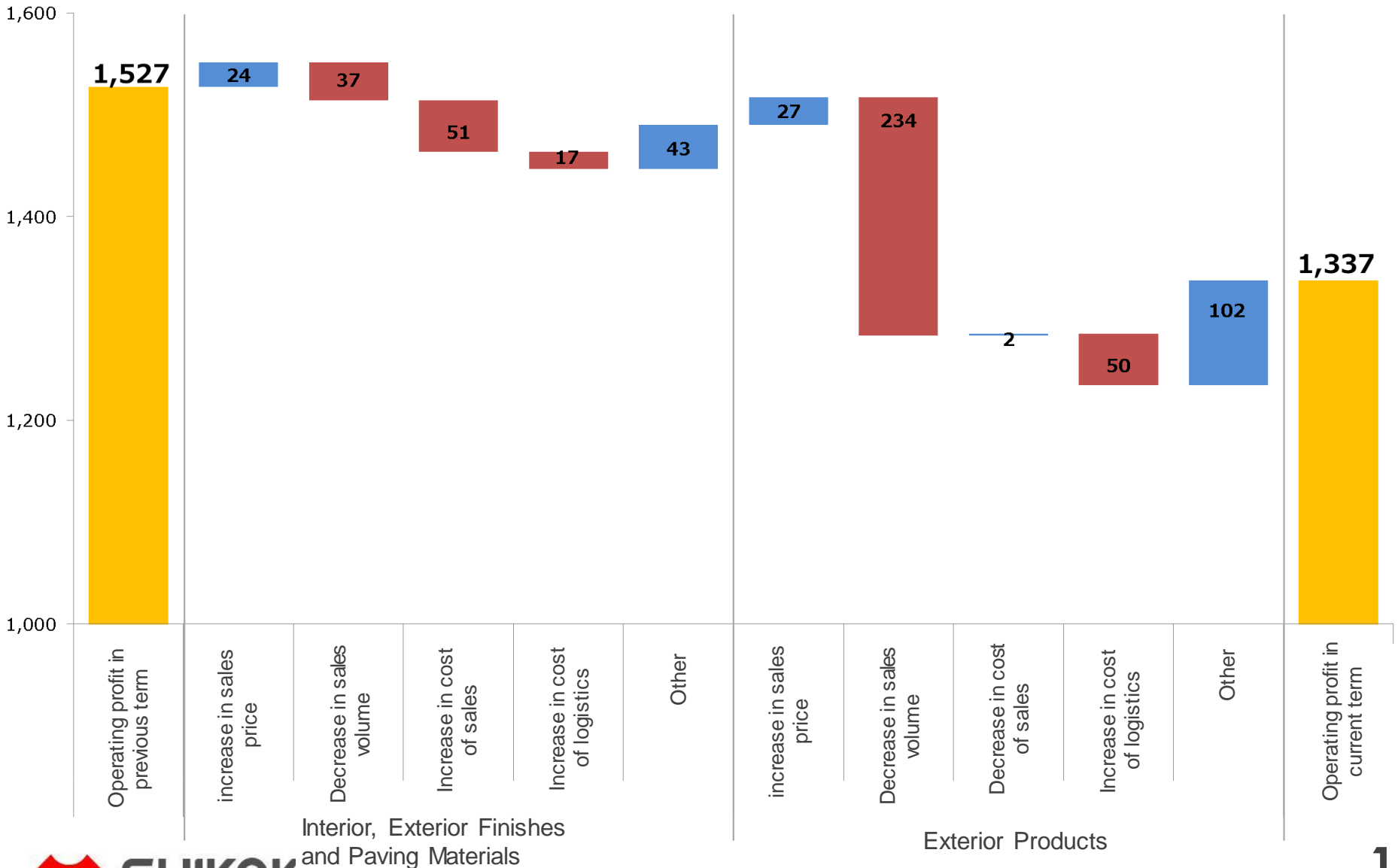
- ◆ Sales of Insoluble sulfur, remained sluggish, affected by the global production adjustments for automobiles amid the spread of COVID 19. However, sales are on a recovery track as production activities bottomed out in the first quarter and are returning to normal gradually. Sales of carbon disulfide and sodium sulfate remained sluggish.

# II – 6. Analysis of Increase/Decrease in Chemical Segment Profit



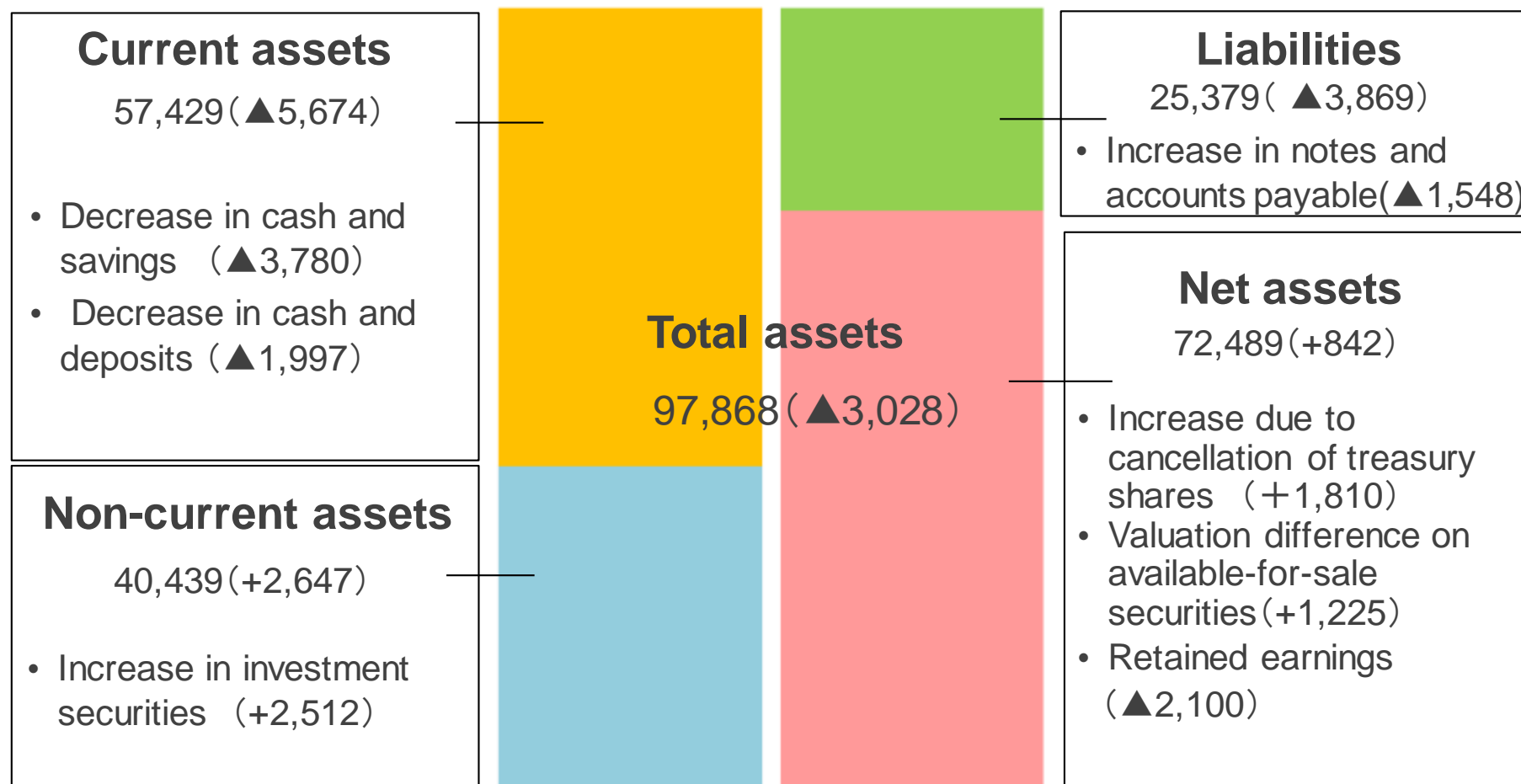
# II – 7. Analysis of Increase/Decrease in Housing Material Segment Profit

(Millions of yen)



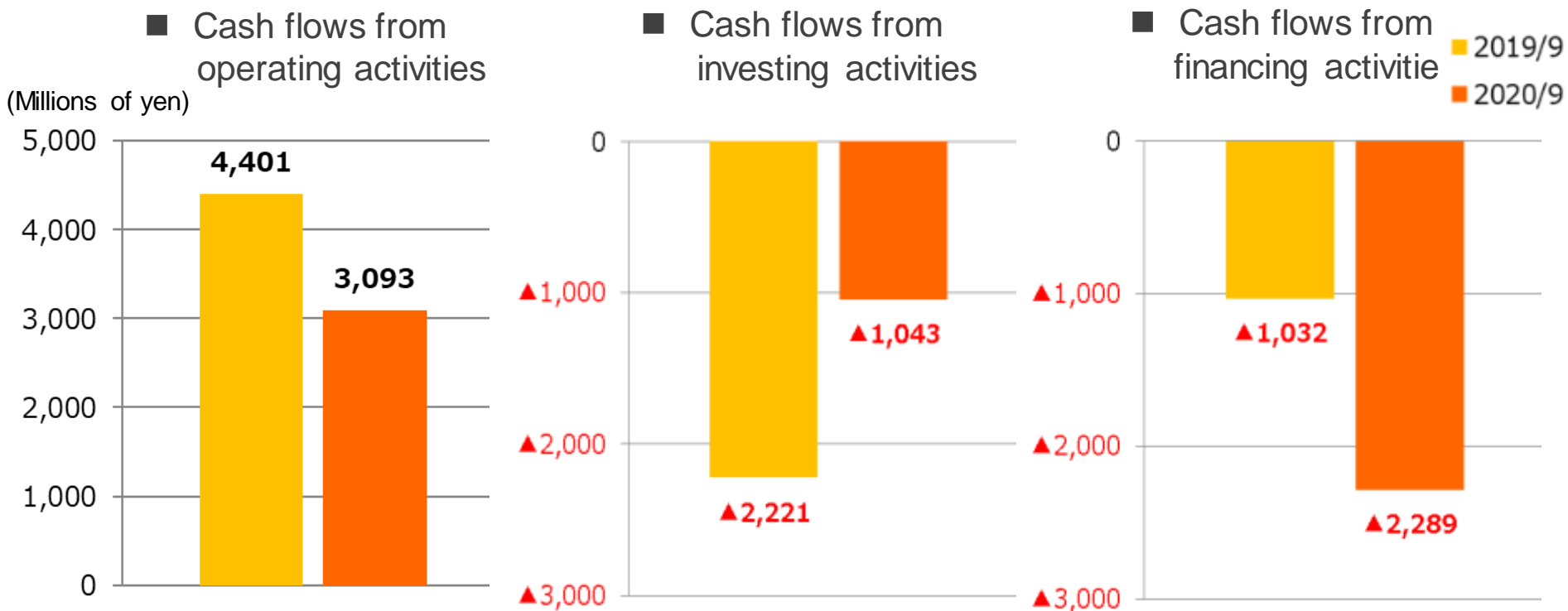
## II – 8. Consolidated Balance Sheets

\*The value in ( ) indicates the ratio compared to March 2020  
(Millions of yen)



ROE	5.4%
Capital-to-asset ratio (%)	73.3%

## II – 9. Consolidated Statements of Cash Flows



Revenue decreased due to the decrease in net profit for the current term before adjustment for taxes (▲818 million yen) and the decrease in trade receivables (▲707 million yen).

Although expenditure increased due to the acquisition of investment securities (▲2,243 million yen), it also decreased due to the revenue from redemption of securities (+3,500 million yen).

Expenditure increased due to acquisition of treasury shares (▲1,605 million yen).

# **Ⅲ. Forecast of Financial Results for the FY2021**



### Ⅲ – 1. The full-year financial results forecast

※The full-year financial results forecast has been changed from the most recent plan (announced on July 28, 2020).

(Billions of yen)

		FY 2020	FY 2021 (Actual values for the first half)	Increase of amount	Changes
Net sales	1st half	25.6	23.4	▲ 2.2	▲ 8.9%
	2nd half	25.8	25.5	▲ 0.2	▲ 1.1%
	full year	51.5	49.0	▲ 2.5	▲ 5.0%
Operating income	1st half	3.5	2.6	▲ 0.9	▲ 26.9%
	2nd half	4.2	4.1	0.0	▲ 2.1%
	full year	7.8	6.8	▲ 1.0	▲ 13.4%
Ordinary income	1st half	3.6	2.8	▲ 0.8	▲ 22.2%
	2nd half	4.3	4.1	▲ 0.2	▲ 5.0%
	full year	8.0	7.0	▲ 1.0	▲ 12.7%
Net income attributable to owners of the parent	1st half	2.5	1.9	▲ 0.6	▲ 24.1%
	2nd half	3.0	2.8	▲ 0.2	▲ 6.5%
	full year	5.6	4.8	▲ 0.8	▲ 14.4%

\*Exchange rate assumed: 105 yen/US dollar, 120 yen/Euro

## III – 2. Business Forecast by Segment (Consolidated)

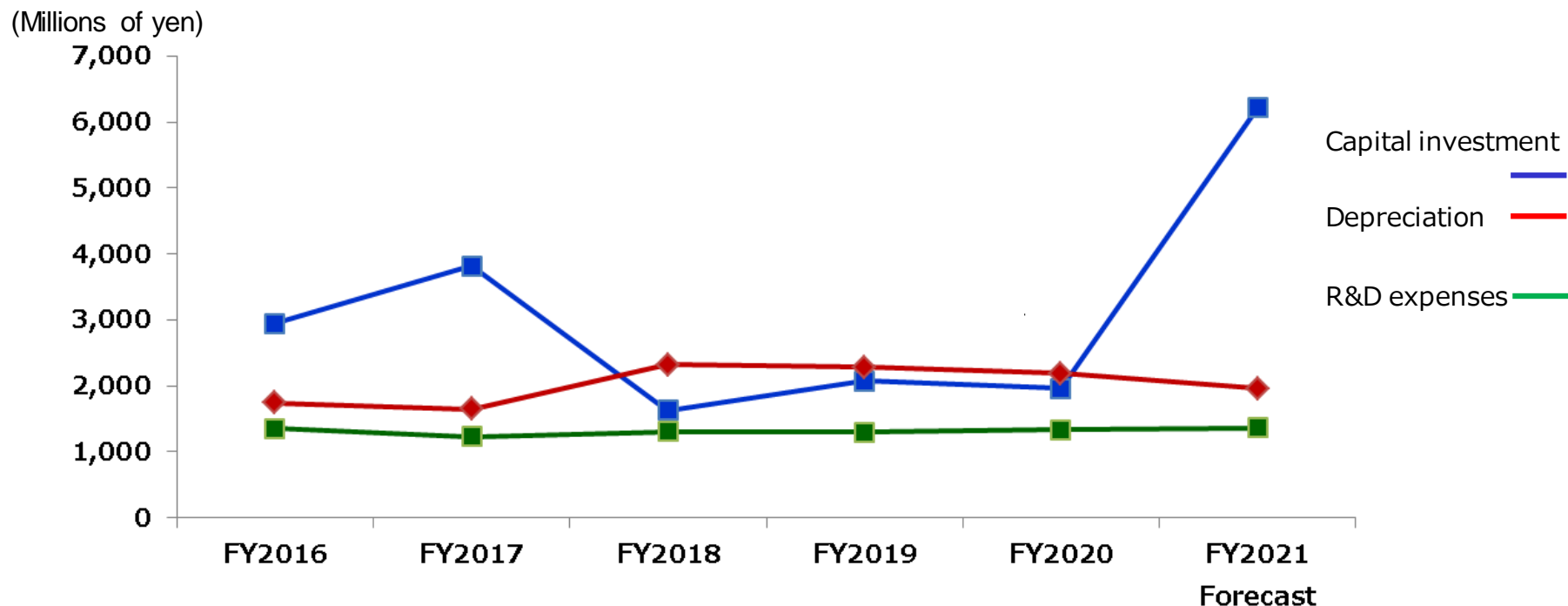
※ The full-year financial results forecast has been changed from the most recent plan (announced on July 28, 2020).

(Billions of yen)

		FY 2020	FY 2021 (Actual values for the first half)	Increase of amount	Changes
<b>Net sales</b>					
<b>Chemical operations</b>	<b>1st half</b>	15.7	14.2	▲ 1.5	▲ 9.2%
	<b>2nd half</b>	14.4	14.1	▲ 0.3	▲ 1.8%
	<b>full year</b>	30.1	28.3	▲ 1.8	▲ 6.0%
<b>Housing Materials operations</b>	<b>1st half</b>	9.5	8.7	▲ 0.8	▲ 9.2%
	<b>2nd half</b>	11.0	11.0	0.0	0.0%
	<b>full year</b>	20.6	19.7	▲ 0.9	▲ 4.4%

<b>Segment Profit</b>					
<b>Chemical operations</b>	<b>1st half</b>	2.9	2.1	▲ 0.8	▲ 27.9%
	<b>2nd half</b>	2.7	2.5	▲ 0.2	▲ 7.4%
	<b>full year</b>	5.6	4.6	▲ 1.0	▲ 17.9%
<b>Housing Materials operations</b>	<b>1st half</b>	1.5	1.3	▲ 0.2	▲ 12.4%
	<b>2nd half</b>	2.4	2.5	0.1	4.2%
	<b>full year</b>	3.9	3.8	▲ 0.1	▲ 2.6%

### III – 3. Capital investment, Depreciation, R&D expense (Consolidated)

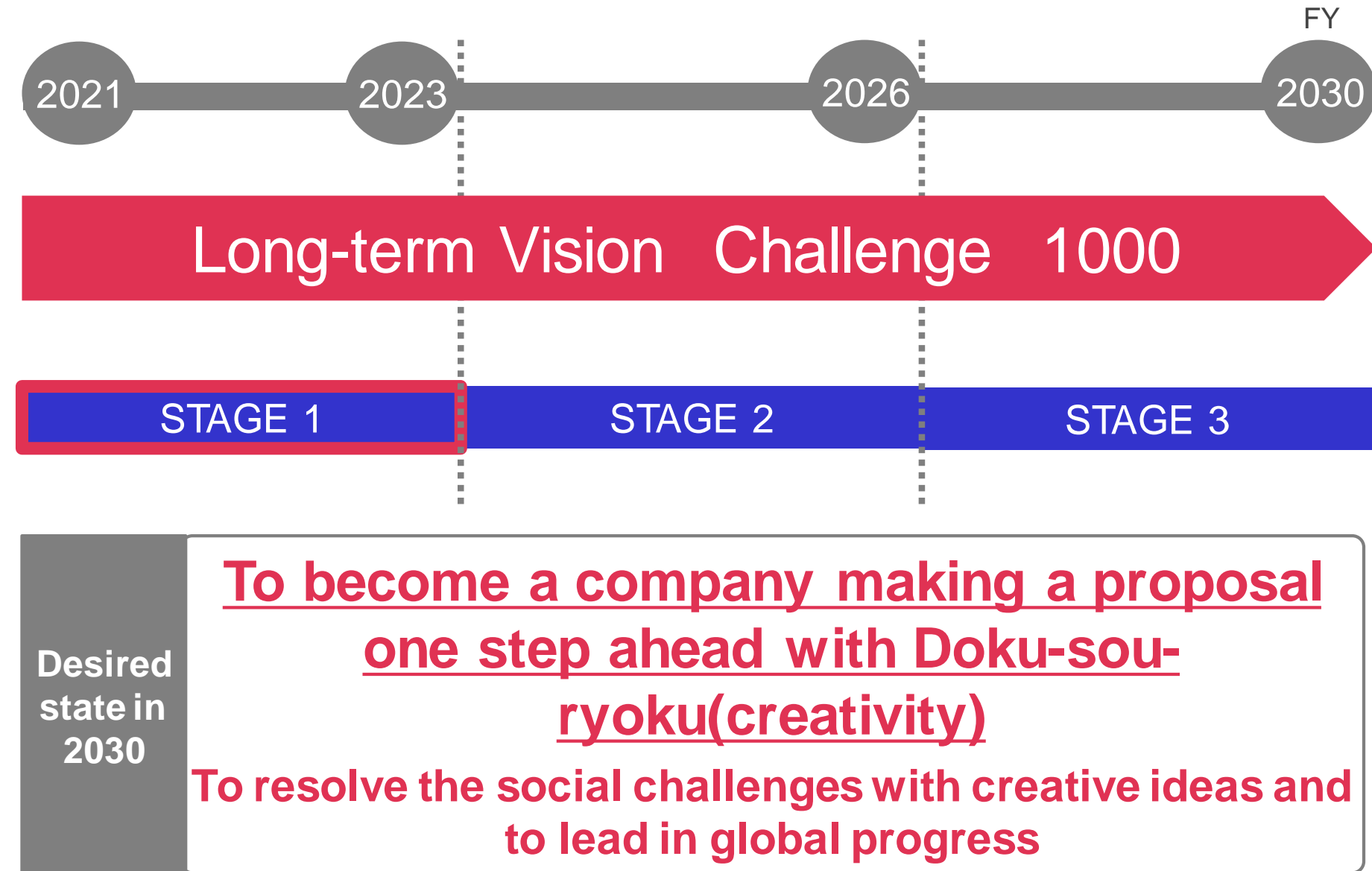


(Millions of yen)

	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021 Forecast
Capital investment	2,952	3,815	1,628	2,073	1,961	6,221
Depreciation	1,747	1,645	2,318	2,281	2,189	1,959
R&D expenses	1,358	1,235	1,310	1,295	1,338	1,362

**IV. Long-term Vision**  
**Challenge 1000**  
**“STAGE 1”**  
**Progress Status**

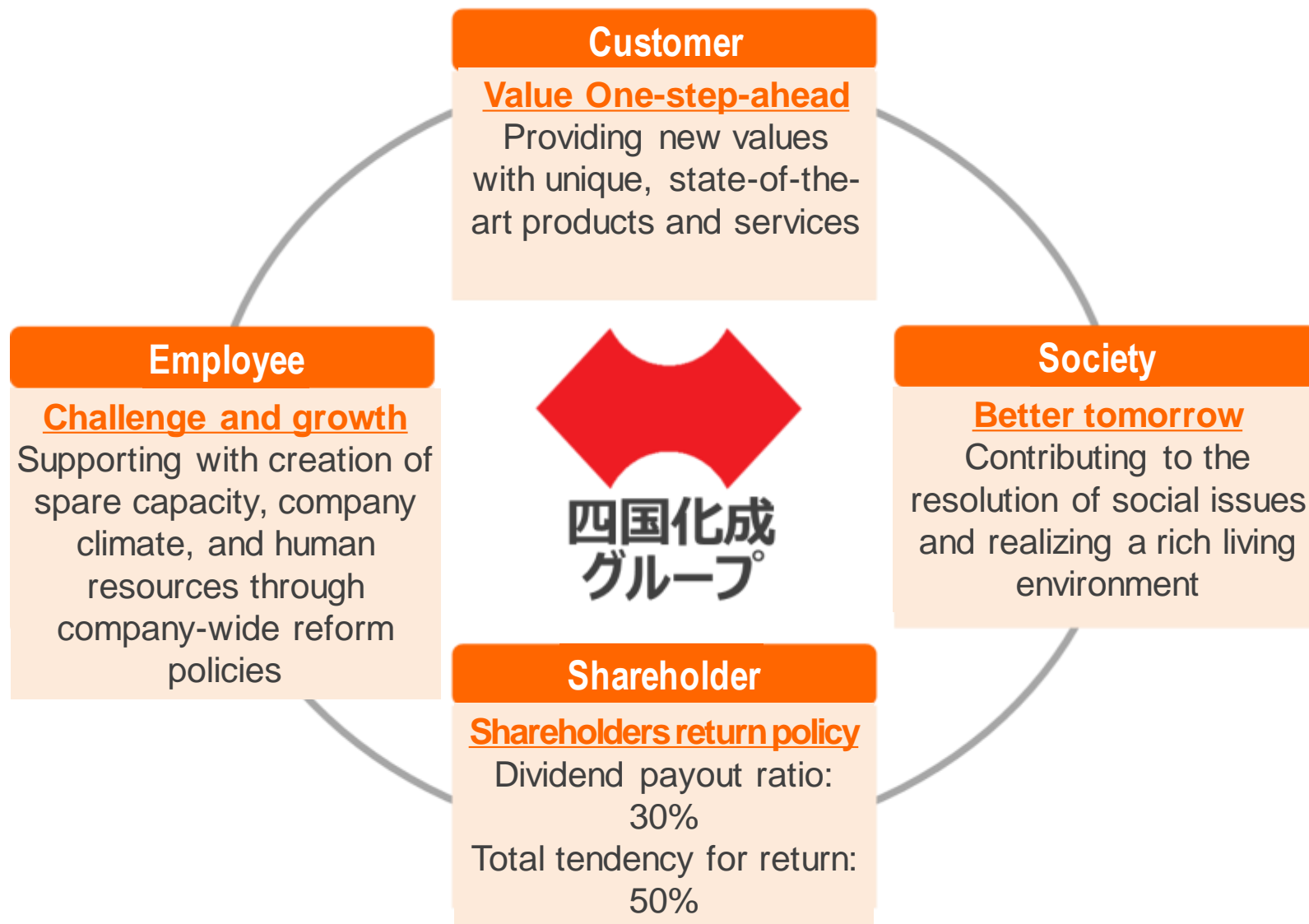
## IV – 1. Milestones of Challenge 1000



## IV – 2. Outline of Challenge 1000

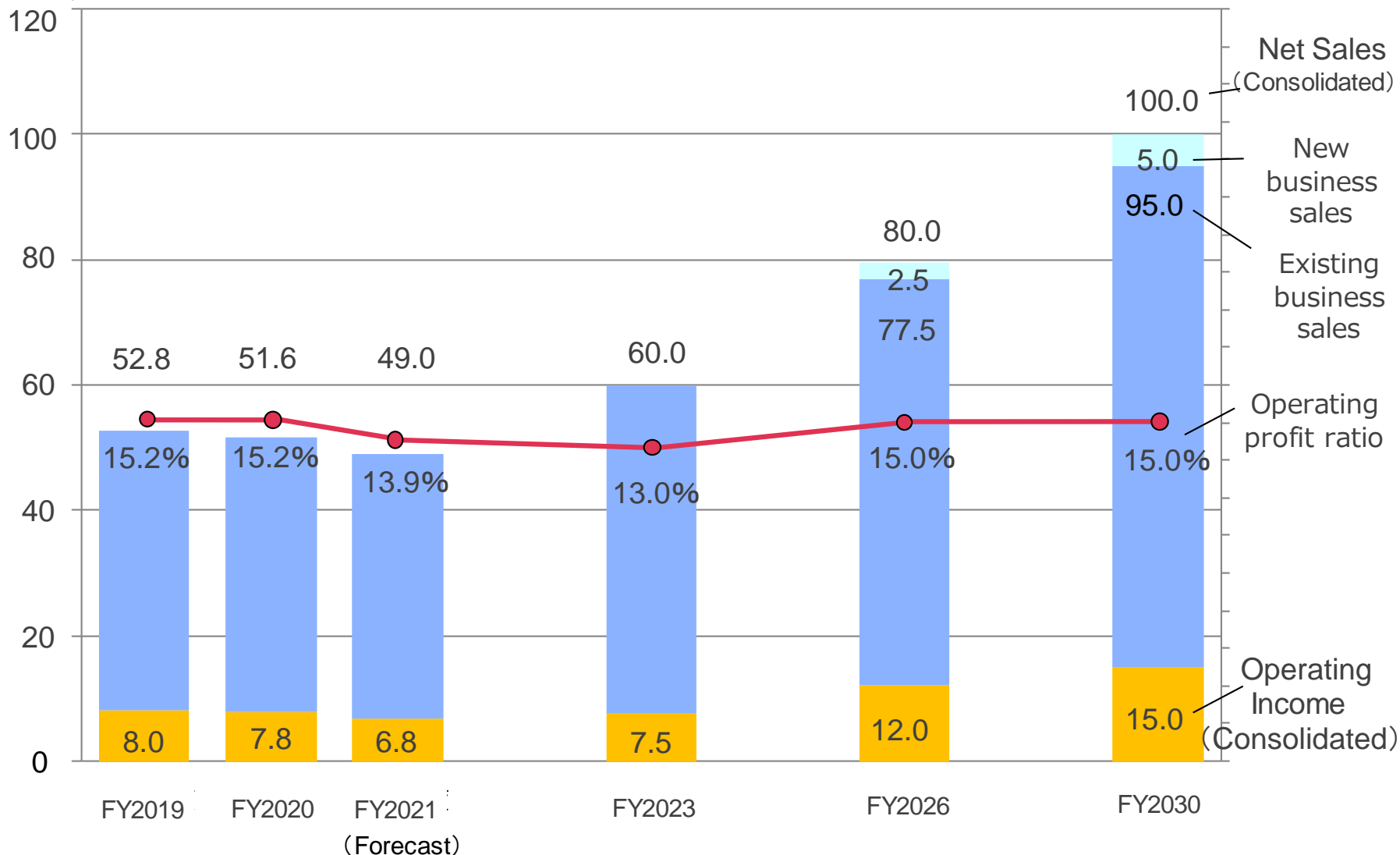


## IV – 3. Yonpou Yoshi (Contributions to Stakeholders)



# IV – 4. Milestones of Challenge 1000

(Billions of yen)





# IV – 5. Pillar for Strategy (Policy for business reform)

## sanitary devices

### ◆ Internet sales of final consumer products

Internet sales of “NEO-CHLOR Stick,” a sanitizer product.

We will continue to focus on developing products that protect the sanitary environment.



## chemical for ballast water treatment

### ◆ Improvement in supply system

To increase the sales of “NEO-CHLOR MARINE,” the chemical for ballast water treatment, a new plant is currently under construction within the premises of Tokushima Plant.

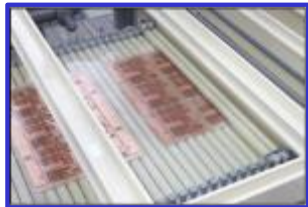
It is scheduled to be completed in July 2022.



## GliCAP

### ◆ Activities for approval ongoing

Evaluation is currently being conducted at the production facilities of a customer to achieve adoption of “GliCAP” for application in 5G communication boards.



## Housing Materials

### ◆ Substantiating the high strength product lineup

We have prepared a rich lineup of high-strength exterior products that are resistant to large-scale disasters such as typhoons.



## IV – 6. Pillar for Strategy (Companywide reform policy)

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### Creation of values

- ◆ **Establishment of Shikoku Chemicals quality policy**  
It was stipulated to “increase the levels of not only products but also all activities.”
  - ◆ **Efforts to explore new businesses**  
Ideas were solicited from employees of all group companies.
- 

### Creation of reserve energy

- ◆ **Implementation of telework as a reform in way of work**  
Construction of an environment where employees are encouraged to work and create new values with the introduction of telework and sales efficiency improvement tools.
- 

### Creation of human resources

- ◆ **Setting up the desired image of human resources, and devoting efforts to recruit and develop human resources**  
Defining the desired image of human resources as “human resources with a sense of mission who think by themselves and take on challenges,” and focusing on securing and developing excellent human resources.
-

## IV – 7. Pillar for Strategy (Proactive investment)

### New establishment of a fine chemical multiplant at Kitajima Office, Tokushima Plant

- ▶ Demands for semiconductors have been growing since the arrival of the IoT era.
- ▶ Needs for high-quality, high-function materials are growing among manufacturers who manufacture and develop semiconductor process materials.
- ▶ Construction of a plant equipped for high quality such as low metal control has been decided in order to produce state-of-the-art semiconductor process materials.
- ▶ Its construction began in February 2020 with approximately 2.5 billion yen in investment, and it is scheduled to be completed in July 2021.



### Construction of a new plant for chlorinated Chlorinated Isocyanurates at Kitajima Office, Tokushima Plant

- ▶ Globally, the impact of transboundary movements of aquatic organisms in ballast water in concurrence with the traffic of ships on the ecosystems has turned serious. There are also many areas where it is difficult to secure clean water, and solution of the social issues such as improvement in the water sanitation environment is urgently demanded.
- ▶ It was decided to build a new plant to respond to the increasing demands for Chlorinated Isocyanurates for purposes such as improving water environment.
- ▶ Its construction began in September 2020 with approximately 5 billion yen in investment, and it is scheduled to be completed in July 2022.



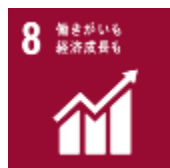
## IV – 8. Pillar for Strategy (Contribution to SDGs)

### Chemical operations



#### ◆ NEO-CHLOR MARINE

Chlorine treatment chemical to prevent damages to the environment in concurrence with the ejection of organisms contained in ballast water. Contributes to the protection of the ecosystems.



#### ◆ Gliccoat-SMD

Rust preventive agent for printed wiring boards which boasts the world's top share. Since this product is water-soluble, it can provide a work environment friendly to both people and the earth.

## IV – 9. Pillar for Strategy(Contribution to SDGs)

# Housing Materials operations



3 すべての人に  
健康と福祉を



4 質の高い教育を  
みんなに



11 住み続けられる  
まちづくりを



3 すべての人に  
健康と福祉を



4 質の高い教育を  
みんなに



11 住み続けられる  
まちづくりを



13 気候変動に  
具体的な対策を

### ◆ Diatomaceous earth walls series

Wall material mainly consisting of diatomaceous earth.

A people-friendly interior material that absorbs the harmful formaldehyde and breaks it down into non-hazardous substances.

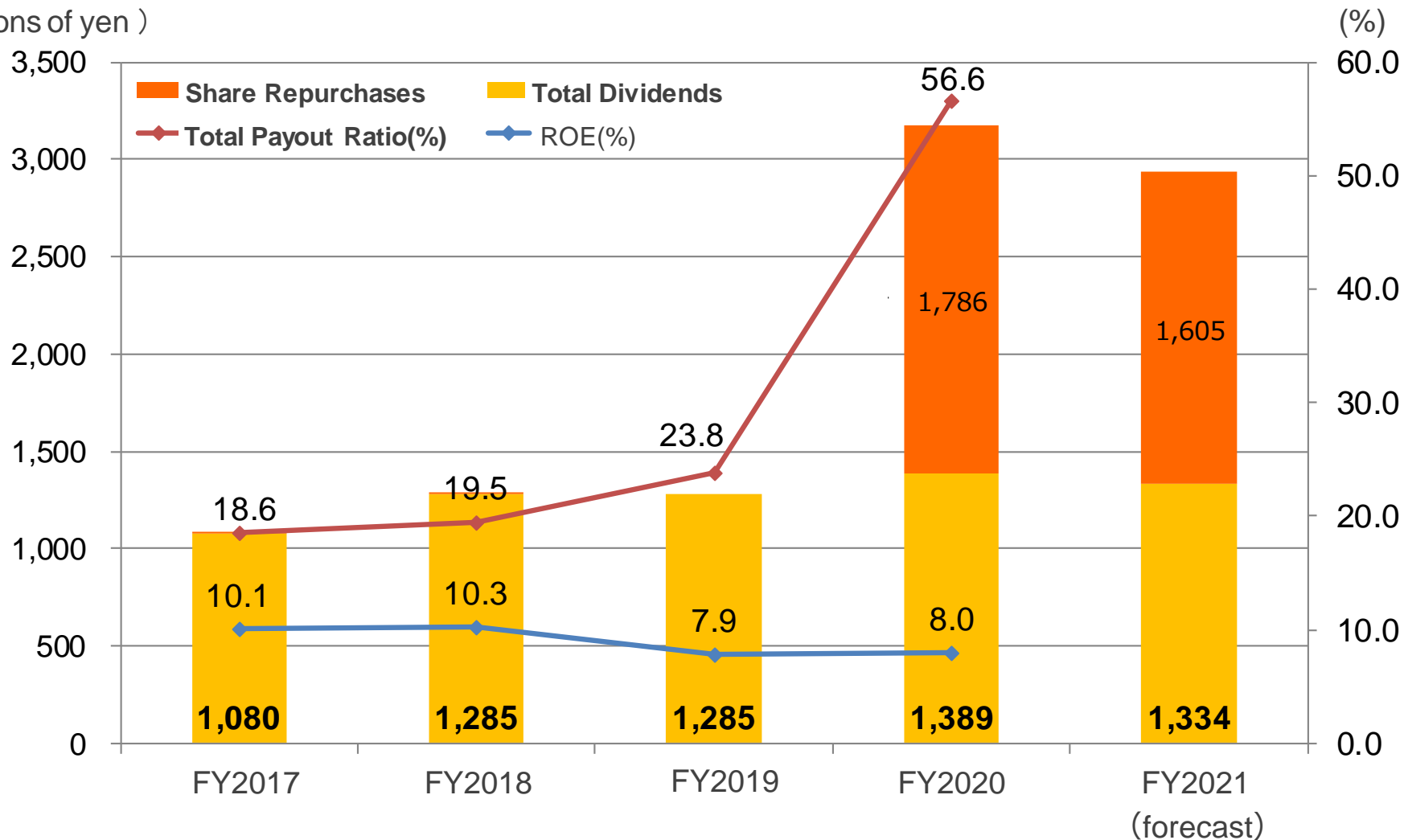
### ◆ Art Wall

External fence combining aluminum frame and decorative materials.

The light-weight main body structure is designed to minimize damage even in case of collapse.

# IV – 10. Shareholders return–Transitions in Dividend Payouts–

( Millions of yen )



Dividends per share (annual)	18.5	22.0	22.0	24.0	24.0
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**Thank you for listening.**

# V. References

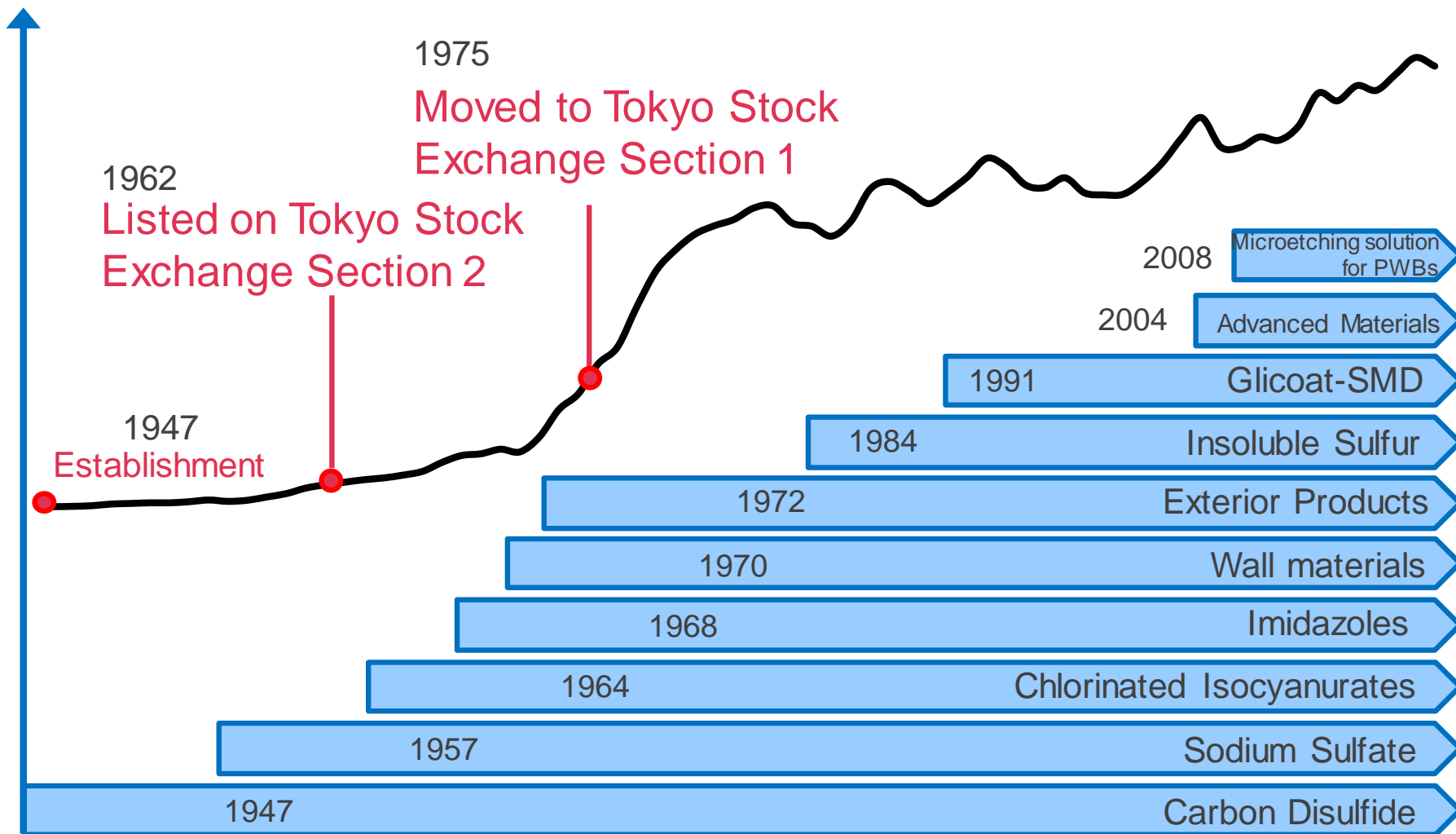


# V – 1. History

Oct 1947	Established in Marugame, Kagawa Prefecture with a capital of 2 million yen as a producer of <b>carbon disulfide</b> (=> <b>inorganic chemical products</b> )
Oct 1957	No. 1 Tokushima Plant (now Tokushima Plant's Yoshinari location) was constructed and began operations in the production of <b>sodium sulfate</b> (=> <b>inorganic chemical products</b> )
May 1961	CMC production began at No. 1 Tokushima Plant. We applied CMC to wall material later
Jun 1962	No. 2 Tokushima Plant (now Tokushima Plant's Kitajima location) was constructed
Oct 1962	The Company's shares were listed on the Second Section of the Tokyo Stock Exchange
May 1964	Japan's first operations to produce <b>chlorinated isocyanurates</b> (=> <b>organic chemical products</b> ) were launched at No. 2 Tokushima Plant
Dec 1969	The Company began production of OSP (Organic Solderability Preservative) (which was later called <b>Gliccoat-SMD</b> (=> <b>Fine Chemicals</b> )) for PWBs (Printed Wired Board) and other electronic components
Sep 1970	The Company began production in the field of housing materials, launching production of <b>interior finishes (JULUX)</b> at No. 2 Tokushima Plant
Jun 1972	The Company began production and sales of <b>accordion gates</b> (=> <b>Exterior Products</b> )
Mar 1975	The Company moves its share listings from the Second to First Sections of the Tokyo Stock Exchange and Osaka Securities Exchange
Jul 1975	Tadotsu Plant was constructed in Tadotsu, Kagawa Prefecture
Nov 1975	Full-scale production of <b>imidazole</b> (=> <b>Fine Chemicals</b> ) began at No. 2 Tokushima Plant (test production began in 1968)
Jun 1981	The Company opened a representative office in Los Angeles (which later became an overseas subsidiary as SIC in 1985)
Jul 1984	Production of <b>insoluble sulfurs</b> (=> <b>Inorganic Chemicals</b> ) began at Marugame Plant
Sep 1992	The Research Center (now R&D Center) was constructed in Utazu, Kagawa Prefecture
Oct 1995	Ranzan Plant was constructed in Ranzan, Saitama Prefecture
Jul 2006	Shikoku (Shanghai) Co., Ltd. was established in Shanghai
2008	The Company began sales of <b>a roughening agent for PWBs</b> (=> <b>Fine Chemicals</b> ), and constructed a new plant for Gliccoat-SMD at Marugame Plant
Aug 2013	Tokushima Advanced Chemicals Plant-3 (TAP-3) facility was constructed at Tokushima Plant
Sep 2014	Converted Nippon Ryutan Kogyo Co., Ltd., the only carbon disulfide production company in Japan, into a consolidated subsidiary
Apr 2015	Offices were established in Taiwan and Singapore
Oct 2016	Physical Testing Laboratory was constructed at R&D Center
Mar 2017	Insoluble sulfur production facilities were enhanced
Apr 2017	Converted Nippon Koki Co., Ltd. into a subsidiary

# V – 2. History and Sales Trends

Net Sales



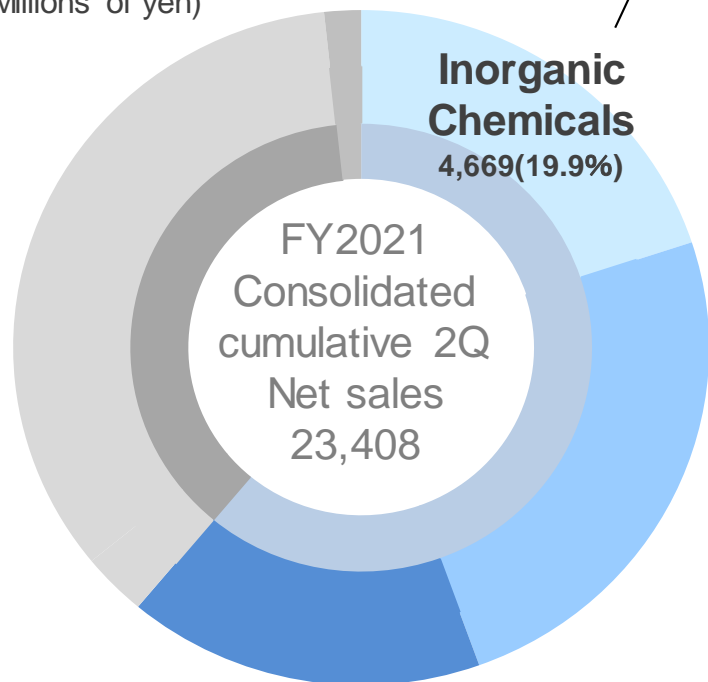
# Chemicals operations

## Chemicals operations

# ① Inorganic Chemicals

# V – 3. Inorganic Chemicals

(Millions of yen)



## [Major products]

- Carbon Disulfide ...Essential materials for chemical fiber rayon
- **Insoluble Sulfur** ...**Rubber vulcanization agent**
- Sodium Sulfate ...Warm bath effect accelerator for bath additives  
Synthetic detergent cleaning aid



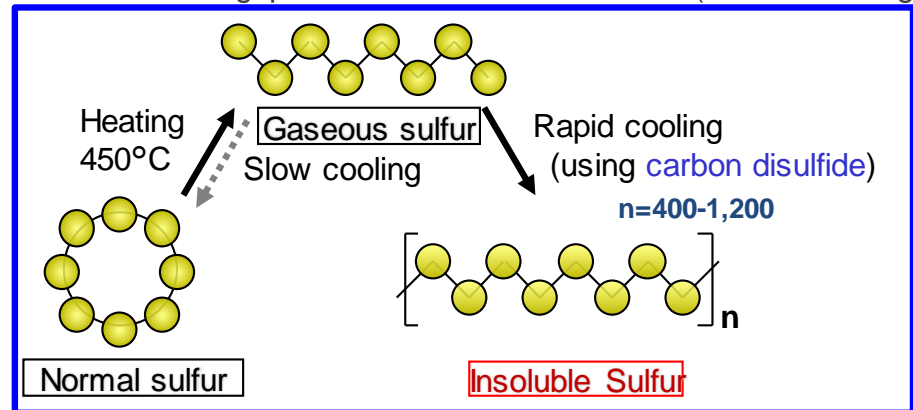
# V – 4. Insoluble Sulfur-Product Introduction-

- Application: Vulcanizing agent for rubber
- Main customers: Domestic and overseas tire manufacturers
- The raw material rubber is hard, and it acquires the characteristic to extend and contract by adding sulfur and heating (vulcanizing).
- When normal sulfur is used in the production process of radial tires, sulfur blooming (deposition) occurs on the surface of rubber and cause poor adhesion of rubber. Since insoluble sulfur is dispersed in the material rubber, it can be used to suppress blooming.
- For production of insoluble sulfur, polished handling technique for the company foundation product “carbon disulfide” is required.
- High quality is demanded in insoluble sulfur by tire manufacturers.
- In March 2017, production facility expansion was completed, and our production capacity was increased to 1.3 times.

■ Insoluble Sulfur



■ Manufacturing processes for insoluble sulfur (schematic diagram)

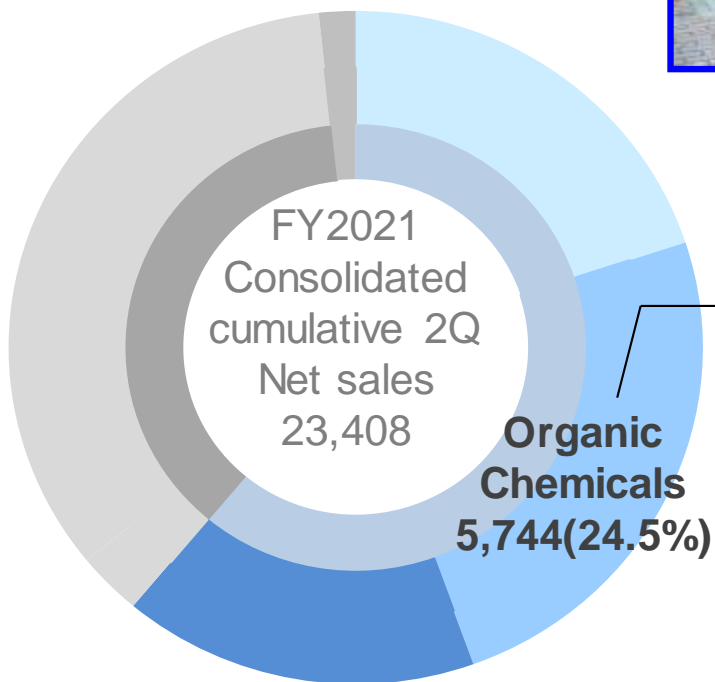


**Chemical operations**

**②Organic Chemicals**

# V – 5. Organic Chemicals

(Millions of yen)



## [Major products]

- Chlorinated Isocyanurates (NEO-CHLOR) ... for swimming pool and septic tank disinfectants
- HIPOLKA ... Wastewater/sludge treatment agent

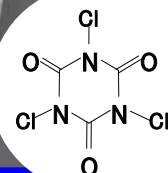




# V – 6. Chlorinated Isocyanurates-Product Introduction-

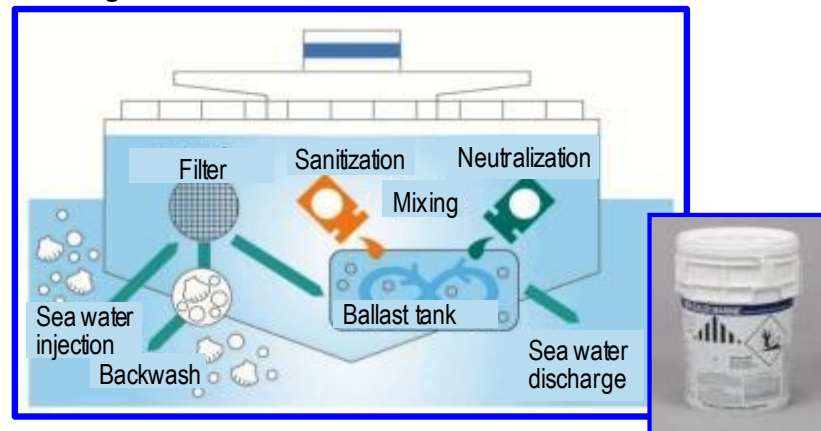
- Applications: Sanitizing agent for swimming pools and septic tanks, chlorine-based sanitizing agent for spas and home baths
- Main customers: Swimming pool operators, schools, general consumers (U.S.)
- Main component: Chlorinated Isocyanurates
- Compared to other disinfectant agents for swimming pools, “NEO-CHLOR” is characterized by longer duration in outdoor pools and little quality deterioration even after a long period of storage, as it undergoes little degradation caused by ultraviolet rays.
- It delivers strengths in “NAPIX,” an automatic chlorine feeder for swimming pools and business baths.
- Utilizing the strong oxidation, bleaching, and cleaning power of chlorine, we are developing various fields of application such as industrial and home sanitary field, ballast water (seawater used as weight on the bottom of the ship) treatment, drinking water application, and sanitation management applications in various facilities.

## ■ NEO-CHLOR Product group



Chlorinated Isocyanurates

## ■ Image of ballast water sanitization



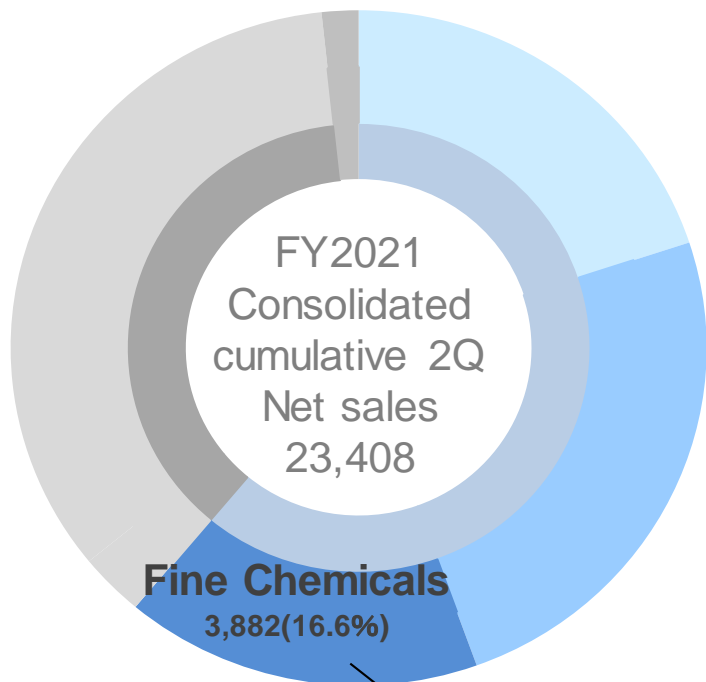
「NEO-CHLOR MARINE」

# Chemical operations

## ③ Fine Chemicals

# V – 7. Fine Chemicals

(Millions of yen)



## [Major products]

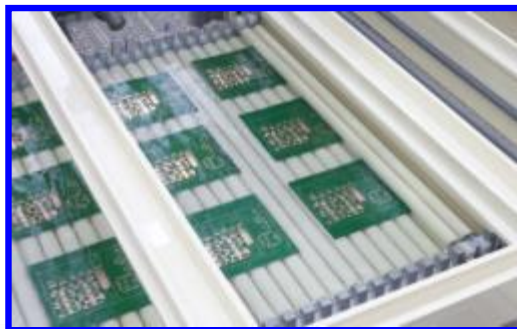
- **Gliccoat-SMD...** Water-soluble rust preventive agent for printed wiring boards (OSP)
- **Advanced & Specialty Chemicals...**  
Imidazoles (curing agent of epoxy resin)  
Resin modifier, raw material for drug
- **THEIC** ... Raw material for heat-resistant wire varnish
- Solder resist

# V – 8. OSP: Organic Solderability Preservative-Product Introduction-

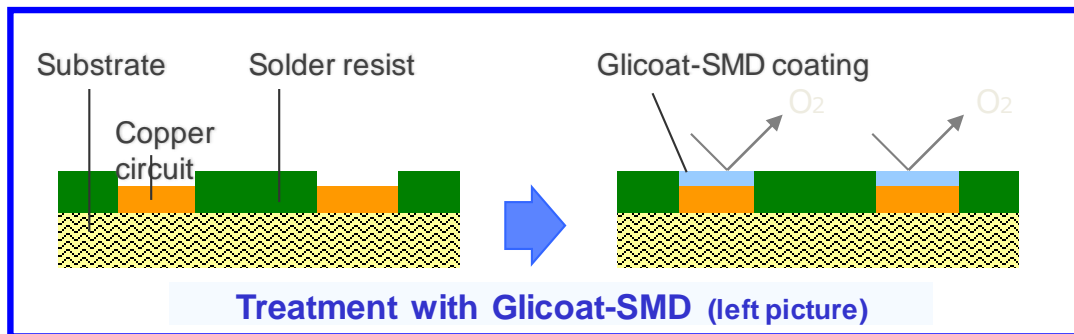
- Application: Water-soluble rust preventive agent for printed wiring boards [OSP: Organic Solderability Preservative]
- Main customers: Printed wiring board manufacturers all over the world
- By forming an organic coating on the copper circuit of the printed wiring board to prevent oxidation of the exposed copper circuit, it ensures good soldering performance in the implementation process, and contributes to reliable electronic component manufacture.
- The main component of OSP is imidazole, which has a property to selectively undergo chemical reaction with copper. Our strength is that we are also an imidazole manufacturer and can synthesize the main ingredient to suit the required properties of OSP.
- While rust preventive agents for printed circuit boards include metal plating in addition to OSP, the percentage of OSP is still increasing.
- Gliccoat-SMD has acquired a lot of material designations from major electrical manufacturers, and has become an industry standard.

By increasing the environmental performance ahead of other companies, we are increasing the adoption results for automotive electrical components and semiconductor package boards.

- Printed wiring boards going through Gliccoat-SMD treatment tank



- Treatment with Gliccoat-SMD (schematic diagram)

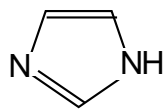


# V – 9. Advanced & Specialty Chemicals-Imidazoles

- Application: Curing agent and curing accelerator for epoxy resin\*, raw material for drugs
- Main customers: Resin material manufacturers and drug manufacturers
- Imidazole is used in a wide range of applications, including curing agent for epoxy resin and urethane resin, raw material of **drugs and agricultural chemicals**, and **raw material** of various industrial chemicals such as **rust preventive agents**.
- The majority of our company sales come from application as an epoxy resin curing agent. Epoxy resin which used imidazole as a component has optimal properties for **electrical and electronic component applications**.
- We have a lineup of various imidazoles to support the diverse curing speeds and properties demanded by the users.
- In the fields where competitive products (non-imidazole products) were strong, there is a movement for customers to newly adopt imidazole to improve the product performance.

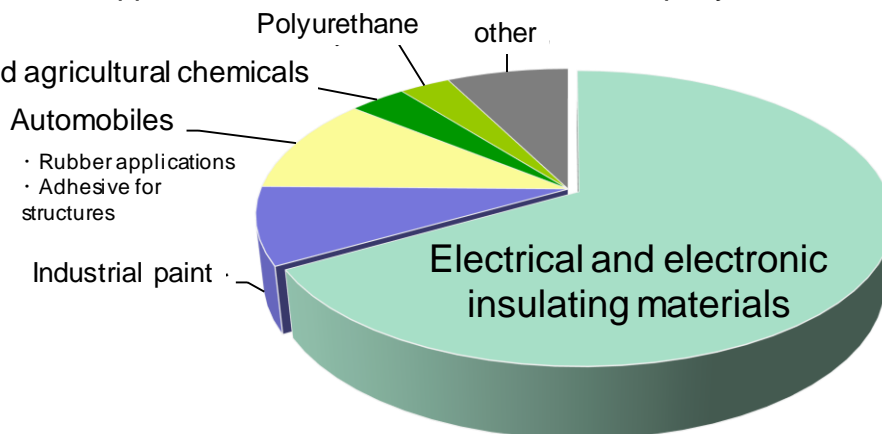
\*Epoxy resin: A collective term for resin-like compounds with epoxy groups that readily react at the ends of a molecule, and thermosetting synthetic resins that are formed by polymerizing the compounds with curing agents. Used in printed circuit boards, paints, etc. in addition to adhesives.

## ■ Electronic part using epoxy resin (example)



Imidazole

## ■ Applications of imidazoles from our company



# V - 10. Advanced & Specialty Chemicals-Imidazoles

## Engine CPU

[Laminated plate, sealing agent, solder resist ink]

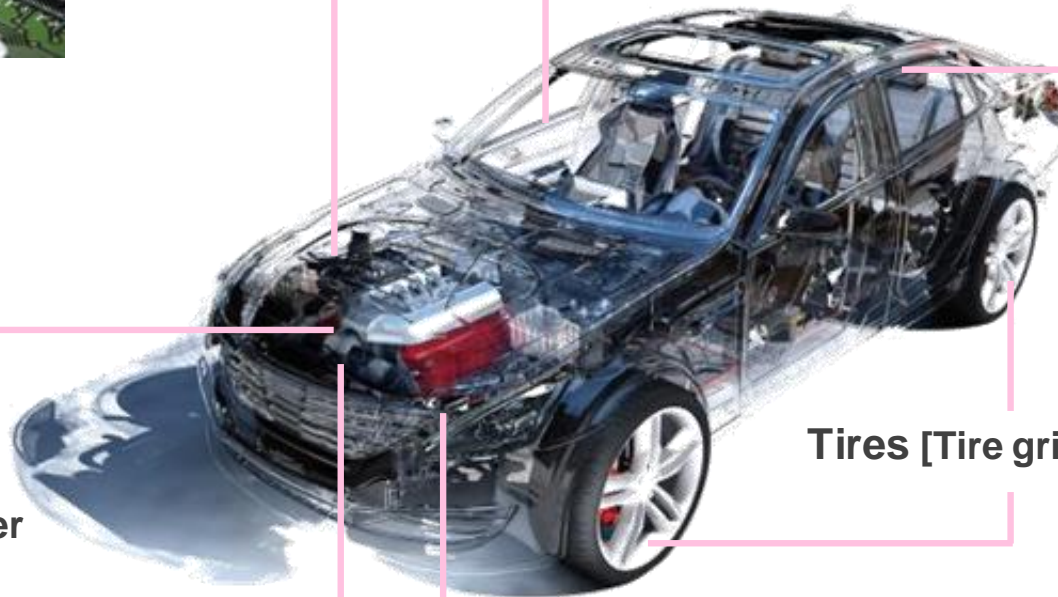


## Engine hood

[CFRP (reinforced carbon fiber)]

## Car navigation system

[Liquid crystal sealing material]



## Frame structure

[Adhesive for structures]

Tires [Tire grip improving agent]

## Electric motor

[Insulating powder paint]



## Air hose

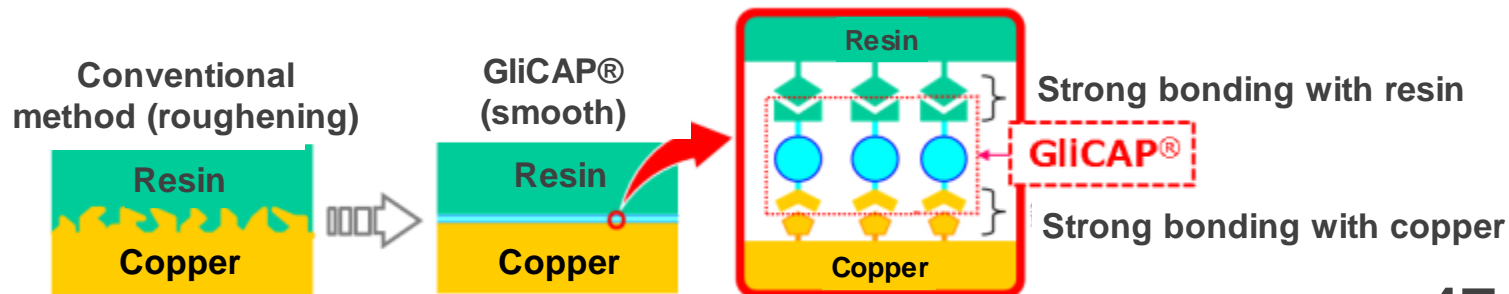
[Acrylic rubber agent]



# V – 1 1. Focused Products (Printed Wiring Boards Agents)

## ■ GliCAP®

- Adhesion improving agent between copper circuit and resin on printed wiring boards.
- Conventionally, unevenness was formed on surface by roughening (etching) the copper so that the adhesion to resin was improved by “mechanical bonding” (anchor effect).
- As the performance of semiconductors is improved, it is becoming more difficult to roughen the copper on package boards implementing high performance semiconductors, with the copper circuit width decreasing to ultrafine level.
- Copper circuits with smooth surface are required for high-frequency server boards for which further acceleration is being demanded to achieve practical application of the 5th generation mobile communication system (5G), since transmission loss is caused by the unevenness of the copper surface in the high-frequency range.
- GliCAP® has both properties to “strongly bind to resin” and “strongly bind to copper,” and can improve the adhesion “chemically” without roughening the copper surface.
- We are including applications other than those in printed circuit boards for GliCAP® in the future.



# V – 1 2. Focused Products (Advanced & Specialty Chemicals)

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## ■ Advanced materials

- Advanced materials at our company refer to the products (compounds) that can improve various functions by blending them as materials for electronic parts such as **semiconductors** that are used in **electronic devices**, etc.
- Demands for improvement in the properties of resin materials to be used (heat resistance, electrical properties, etc.) are increasing as electronic devices evolve, and there are increasing opportunities to consider the functional materials of our company.
- The range of examination for the functional materials of our company is quite wide, and examinations are being made even with **carbon fiber reinforced plastics (CFRPs)** that are used as structural materials for automobiles and aircrafts with a purpose to improve heat resistance and strength.
- Using the organic synthesis technology cultivated with imidazole and isocyanuric acid, our company is committed to research and development of new functional material products.
- Construction of a plant equipped for high quality such as **low metal control** has been decided in order to produce state-of-the-art semiconductor process materials.

Its construction began in February 2020, and is scheduled to be completed in July 2021.





# V – 1 3. Focused Products (Advanced & Specialty Chemicals)

- A new isocyanuric acid derivatives
  - We developed this material by utilizing isocyanuric acid synthesis technology we have accumulated.
  - It has excellent heat resistance, light resistance, and transparency, and is used as a **modifier** for **sealing agent**, etc.
- **New adhesion improver**
  - A **resin modifier** that improves adhesion to inorganic materials such as metals through addition to the resin. Since it delivers adhesion equivalent to the conventional modifiers while having no sulfur content, it can improve the metal corrosivity, which was a problem with the conventional product.
  - We are developing its application in a wide range of resin materials including epoxy system commonly used in electronic parts, acrylic system, urethane system and polyimide system.
- Benzoxazine
  - A **resin** with excellent heat resistance, flame resistance and electrical properties.
  - Examination is being made as a semiconductors **sealing agent** and **carbon fiber reinforced plastics (CFRPs)**.

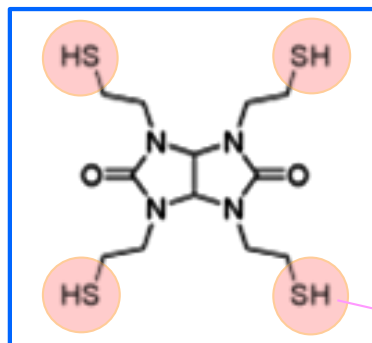
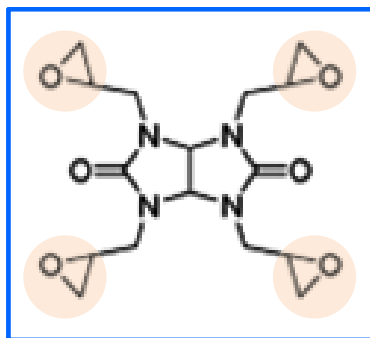
■ Benzoxazine



# V – 1 4. Focused Products (Advanced & Specialty Chemicals)

## ■ Glycoluril derivatives

- A multi-functional resin modifier with transparency and high heat resistance.
- It has 4 functional groups and is expected to form hardened materials with a high crosslinking density.



Thiol group

## ■ Glycoluril derivatives



## Glycoluril derivatives

- Products having a thiol groups (-SH) as a functional group will rapidly cure with epoxy resin at a low temperature. Compared to the conventional modifiers, cured resin has excellent heat resistance, moisture resistance, acid resistance, alkali resistance, and hardness, and it can significantly improve the resistance to heat and moisture, which had been a problem.
- It has been adopted in the field of electronic materials that continue to advance in performance and miniaturization.

# Housing Materials operations

## **Housing Materials operations**

### **④ Interior, Exterior**

# **Finishes and Paving Materials**

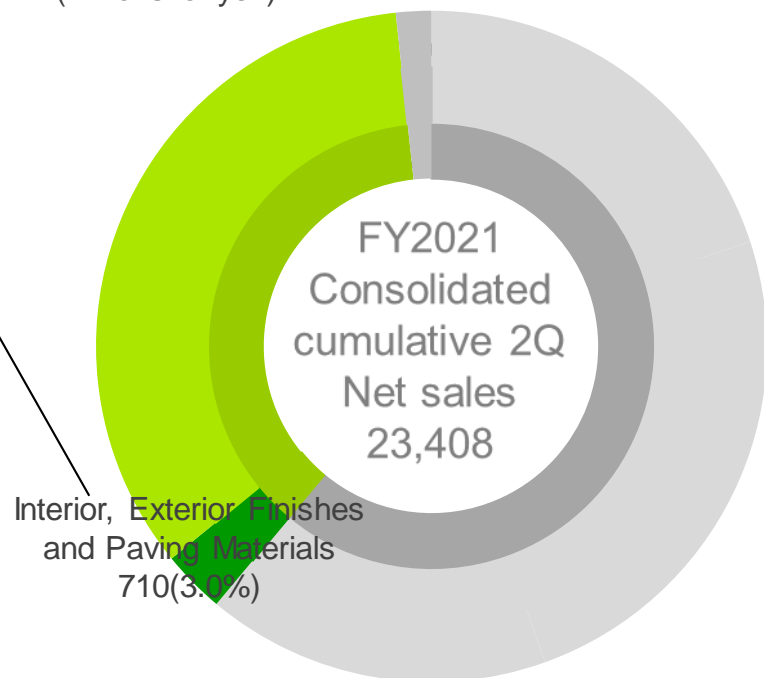
# V – 1 5. Interior, Exterior Finishes and Paving Materials

## [Major products]



- Interior materials (silicate walls, natural material walls)  
Plastered wall materials with moisture control function and harmful chemical substance and daily odor adsorption/decomposition function
- Exterior materials  
Wet exterior material for housing
- Paving materials  
Natural stone paving materials, recycled glass paving materials  
Rubber chip paving materials

(Millions of yen)



# V – 1 6. Interior, Exterior Finishes and Paving Materials

## □ Interior materials

- The business started with “JULUX,” the first industrial product for plastered wall material in Japan, which was developed for in-house chemical glue CMC application.
- While Juraku wall, which is a traditional Japanese wall, was constructed as plasterers compounded the materials and build the wall at each site, the wall material of our company can deliver uniform quality by simply adding the specified amount of water to the pregranulated/compounded material.
- In recent years, vinyl cloths, etc. which are quick to install, have become the mainstream interior material in housing. However, plastered walls are attracting attention again because they are friendly to human health and have high capability of absorbing chemical substances such as formaldehyde, which causes sick house syndrome, as well as odor.

■ Interior materials



■ Interior materials



# V – 17. Interior, Exterior Finishes and Paving Materials

- Exterior and paving materials
  - We also expand our business to “exterior” to cover the outside of buildings and exterior parts, and “paving” to cover the surfaces of roads and approaches.
  - Our exterior materials come in wide variations including colors and can create subtle expressions as they are finished manually to the texture of the surface. As paving materials, we offer materials such as natural stone, natural sand, and rubber chips.
  - For exterior materials and paving materials, we create synergistic effects by making use of our sales channels for exterior products.

■ Paving materials



■ Paving materials



# Housing Materials operations

## ⑤ Exterior Products



# V – 1 8. Exterior Products

## [Major products]

### Home Exterior Products

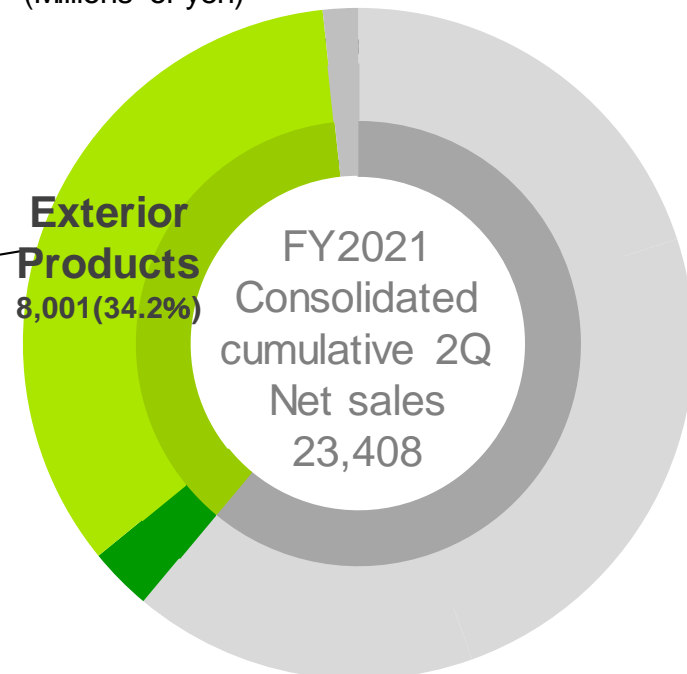
- Gates, fences, car ports, and decks
- Accordion gates (expansion type gates)
- Art Wall (aluminum system fence)

First product in industry which was developed by our company

### Decorative Exterior Products

- Large gates, fences, pathway shelters, bicycle parking spaces
- Garbage accumulation storage (first product in industry which was developed by our company)
- Green roof, etc.

(Millions of yen)



# V – 19. Home Exterior Products

- In 1971, when the motorization was rapidly progressing, we devised an “accordion gate,” which can be easily opened and closed with an expansion mechanism, and which can respond to the residential situation with limited space in Japan, and it became the standard for gates in front of the car shed.
- Since then, we have continued to add to the product lineup for general gates, car sheds (car ports), fences, deck materials, terraces, etc.
- We also devote our efforts in design, in addition to our focus on functions, and won the first “G mark” (current Good Design Award) in the exterior industry in 1984.
- ‘Fun roof,’ our terrace roof with a simple design which harmonizes to the house using flat, wood-like ceiling materials received the 2019 Good Design Award.

■ Terrace



■ Car port



■ Accordion gate



# V – 2 0. Decorative Exterior Products

■ Pathway shelter



■ Bicycle parking space



■ High strength car stops



■ Garbage accumulation storage



# V – 2 1. Efforts in Housing Materials Business

- We are adding to the lineup of high-strength exterior products that are resistant to wind and snow and promoting sales expansion, based on the fact that large-scale disasters such as typhoons have been recently happening one after another over the country.
- We are developing the strength standards and qualities cultivated through landscape products to housing exteriors, and working on development of high-strength products.
- As parts of the lineup of high-strength products, we have commercialized fences for detached houses, and independent terraces in addition to the large fences, archways, bicycle parking spaces, and car ports.

■ Fences



■ Shelter



■ Car port



■ Fences



■ Terrace



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