Financial Results for FYE 3/2020

Securities code: 4109

Beyond the Chemical

1. Consolidated Financial Results for FYE 3/2020

- Financial Summary
- Breakdown of Non-Operating Profit and Loss/Extraordinary Profit and Loss
- Quarterly Operating Profit
- Sales Revenue and Operating Profit by Business
- Transitions in Trade Statistics Value of Anhydrous Hydrofluoric Acid
- Balance Sheet
- Interest-Bearing Liabilities and D/E Ratio
- Cash Flows, Capital Expenditures, Depreciation & Amortization, Research & Development Expenses

<Financial Summary>

(million yen)	FYE 3/2019	FYE 3/2020	Increase/ Decrease	Percentage Increase/ Decrease
Sales Revenue	38,384	33,729	-4,654	-12.1
Gross Profit	7,931	6,685	-1,246	-15.7
Operating Profit	3,523	2,407	-1,116	-31.7
Ordinary Profit	3,810	2,307	-1,502	-39.4
Profit Attributable to Owners of Parent	2,350	1,924	-426	-18.2
Earnings Per Share (yen)	182.06	149.00	-33.06	-18.2
Dividend (yen)	45	45	-	-
ROE (%)	7.3	5.8	-1.5	-20.5

<Breakdown of Non-Operating Profit and Loss/Extraordinary Profit and Loss>

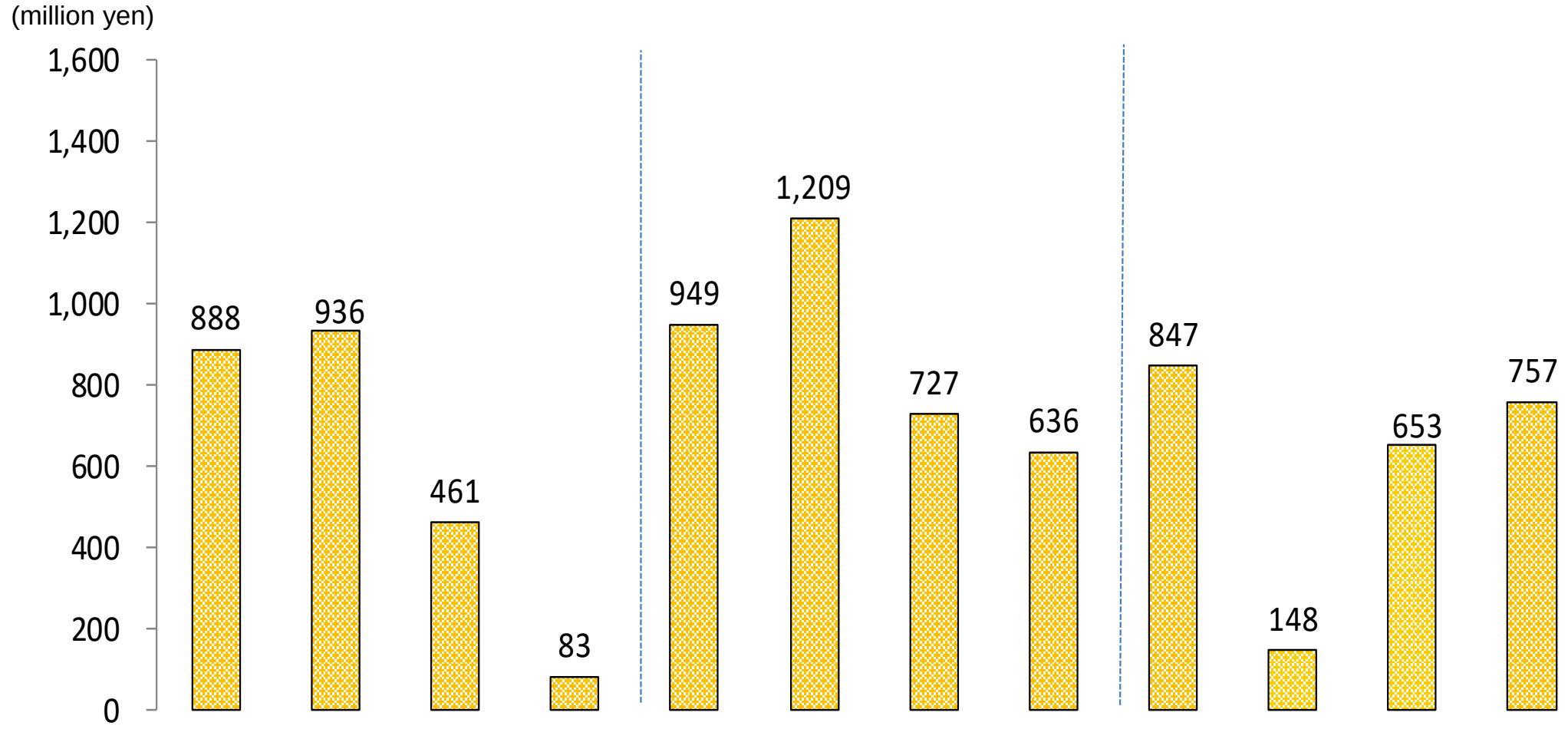
■ Non-operating Profit and Loss

(million yen)	FYE 3/2019	FYE 3/2020
Non-Operating Profit	**588**	**133**
Interest income	21	18
Dividend income	2	3
Gain on valuation of derivatives	305	3
Foreign exchange gains	72	-
Other	186	108
Non-Operating Expenses	**301**	**233**
Interest expenses	40	39
Share of loss of entities accounted for using the equity method	238	29
Foreign exchange losses	-	76
Other	22	87

■ Extraordinary Profit and Loss

(million yen)	FYE 3/2019	FYE 3/2020
Extraordinary Profit	**18**	**42**
Gain on sales of non-current assets	17	42
Extraordinary Losses	**151**	**109**
Loss on abandonment of non-current assets	151	108
Loss on sales of non-current assets	-	0

<Quarterly Operating Profit>

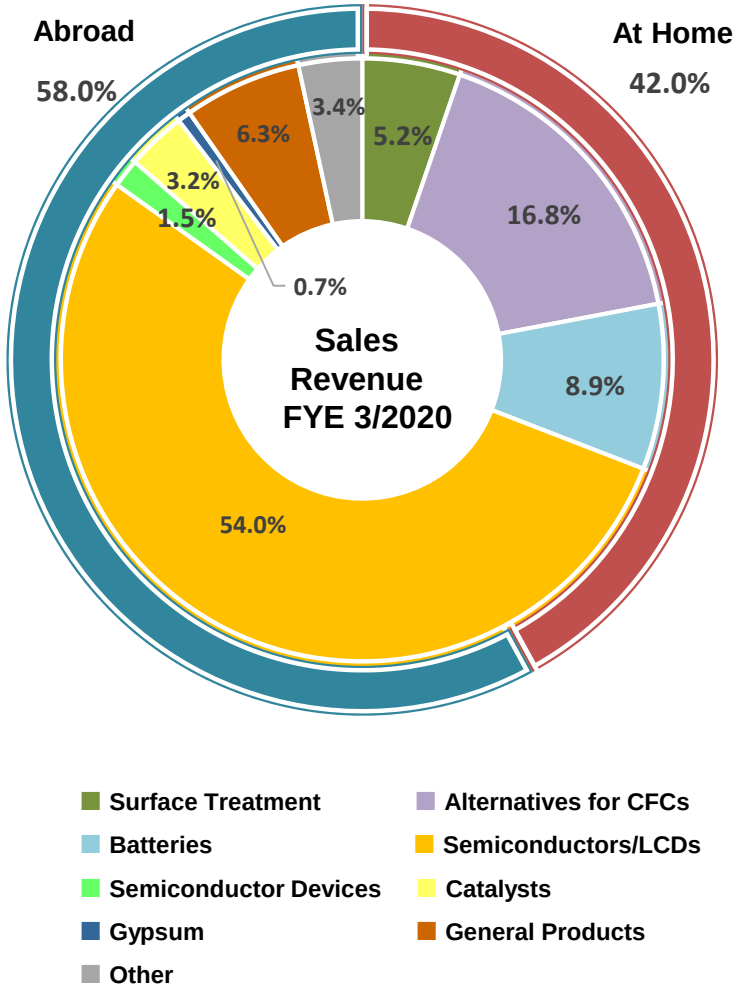


(million yen)	FYE 3/2018				FYE 3/2019				FYE 3/2020			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
Sales Revenue	8,159	8,561	8,314	8,587	10,134	9,323	9,275	9,649	9,733	7,406	7,591	8,998
Operating Profit	888	936	461	83	949	1,209	727	636	847	148	653	757
Operating Profit Margin	10.9%	10.9%	5.5%	1.0%	9.4%	13.0%	7.8%	6.6%	8.7%	2.0%	8.6%	8.4%

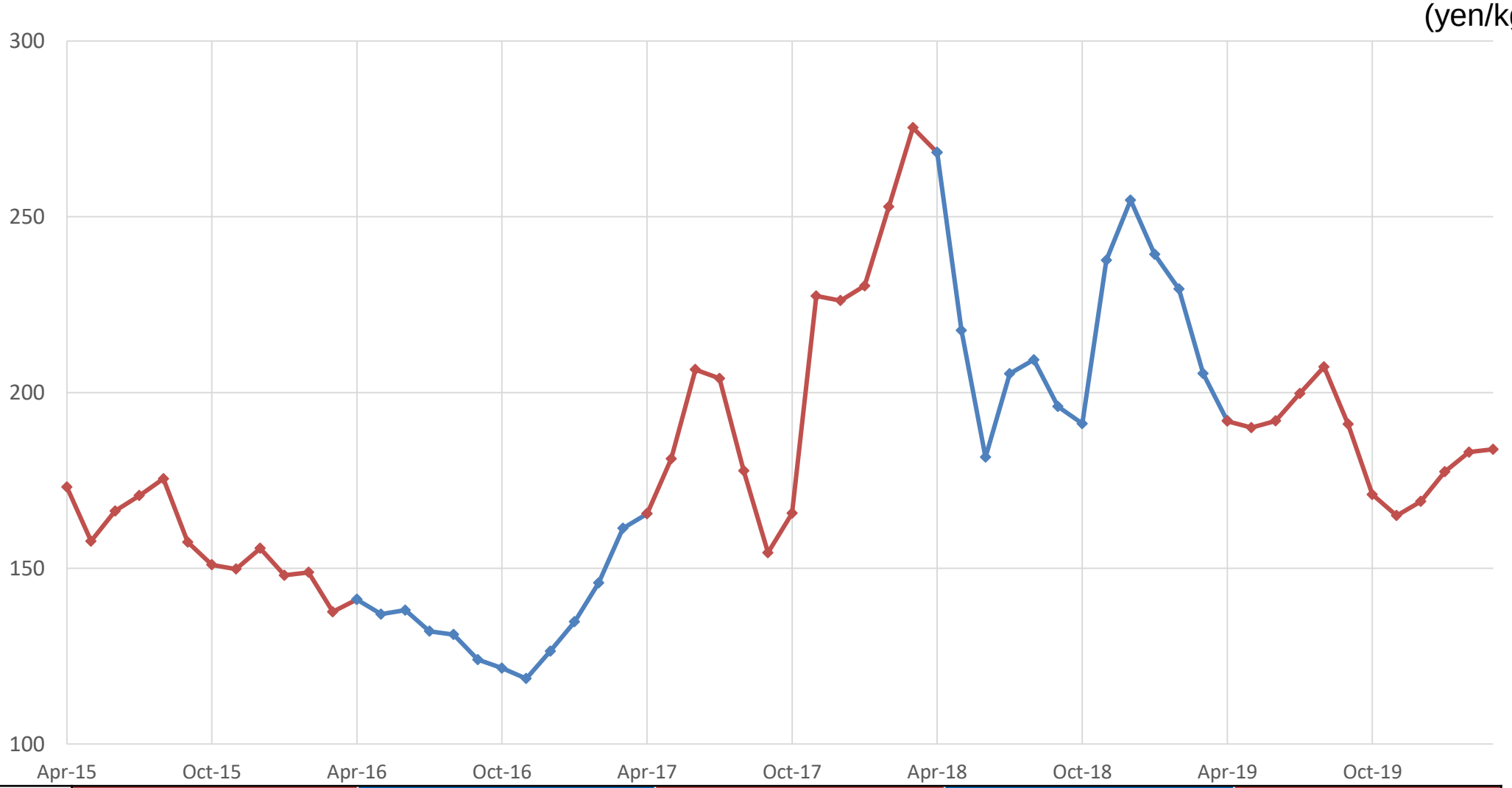
<Sales Revenue and Operating Profit by Business>

(million yen)		FYE 3/2019 Sales Revenue	FYE 3/2019 Operating Profit	FYE 3/2020 Sales Revenue	FYE 3/2020 Operating Profit	Percentage Increase/ Decrease Sales Revenue	Percentage Increase/ Decrease Operating Profit
High-Purity Chemical Business		**33,776**	**3,782**	**29,058**	**2,897**	**-14.0**	**-23.4**
[High-Purity Chemical Business: Breakdown]	Surface Treatment	2,080		1,525		-26.7	
	Alternatives for CFCs	3,618		4,872		34.6	
	Batteries	3,629		2,576		-29.0	
	Semiconductors /LCDs	20,093		15,687		-21.9	
	Semiconductor Devices	633		446		-29.5	
	Catalysts	904		925		2.3	
	Gypsum	176		201		14.3	
	General Products	1,762		1,835		4.1	
	Other	876		988		12.7	
Transportation Business		**4,382**	**726**	**4,429**	**502**	**1.1**	**-30.9**
Medical Business		**-**	**-1,051**	**-**	**-1,035**	**-**	**-**
Other		**225**	**42**	**241**	**36**	**7.0**	**-14.2**

Sales Revenue Constituent Ratio of High-Purity Chemicals



<Transitions in Trade Statistics Value of Anhydrous Hydrofluoric Acid> *Reference data



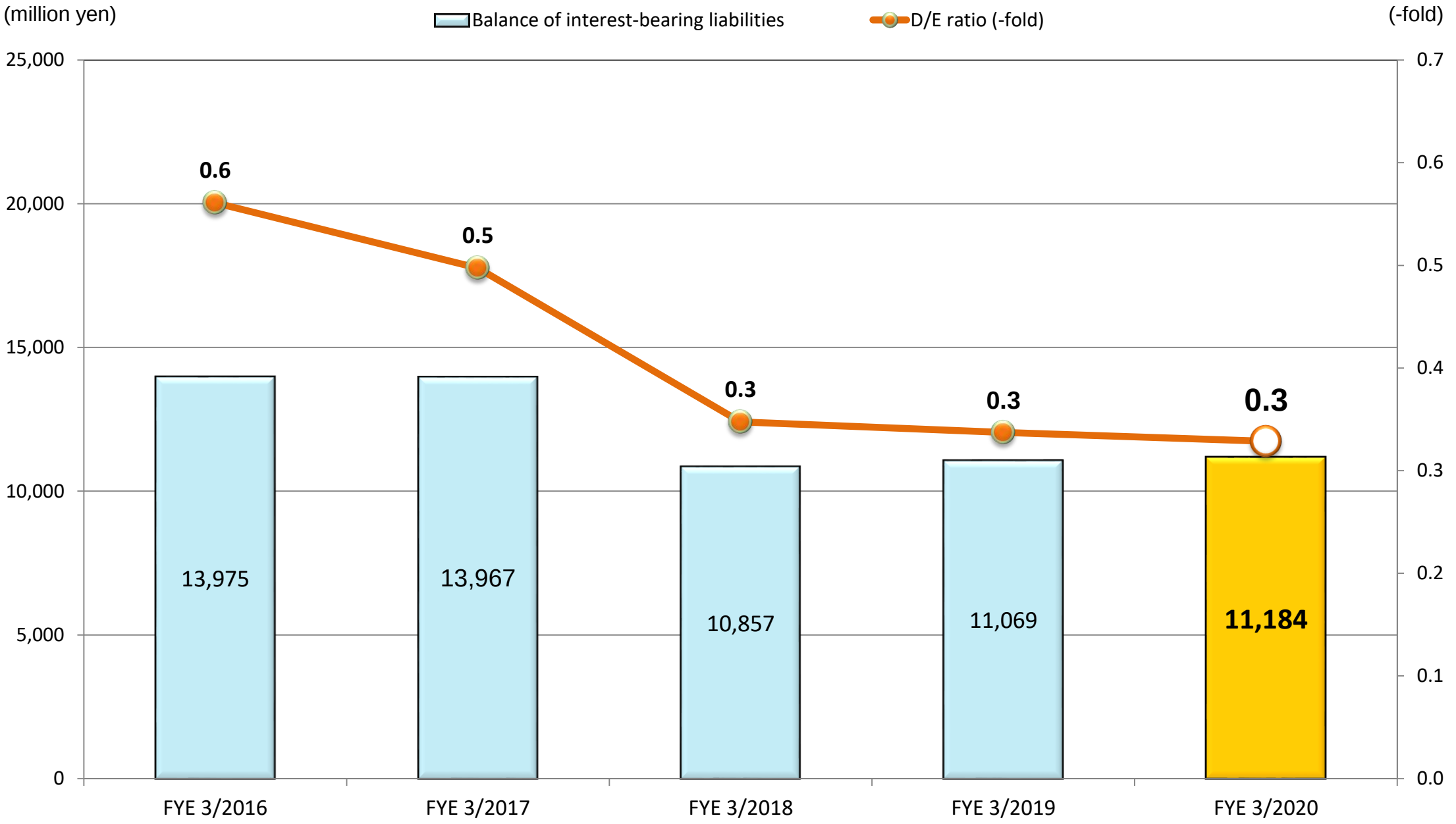
	FYE 3/2016	FYE 3/2017	FYE 3/2018	FYE 3/2019	FYE 3/2020
Average Price	158	135	209	220	186

Source: Prepared by our company based on the Ministry of Finance's "Trade Statistics of Japan" (http://www.customs.go.jp/toukei/info/)

<Balance Sheet>

(million yen)	FYE 3/2019	FYE 3/2020	Increase/ Decrease	Percentage Increase/ Decrease
Assets	55,454	53,216	-2,238	-4.0
Cash and cash equivalents	14,044	13,591	-453	-3.2
Operating receivables	9,678	8,137	-1,541	-15.9
Inventory assets	6,183	5,495	-688	-11.1
Property, plant, and equipment	22,329	22,794	465	2.1
Intangible assets	565	655	89	15.9
Liabilities	21,536	18,487	-3,048	-14.2
Operating liabilities	4,562	3,310	-1,252	-27.4
Interest-bearing liabilities	11,069	11,184	115	1.0
Net Assets	33,918	34,729	810	2.4
Equity capital	32,821	34,033	1,212	3.7
Liabilities and Net Assets	55,454	53,216	-2,238	-4.0

<Interest-Bearing Liabilities and D/E Ratio>



<Cash Flows, Capital Expenditures, Depreciation & Amortization, Research & Development Expenses>

(1) Consolidated Statement of Cash Flows

(million yen)	FYE 3/2019	FYE 3/2020
Cash flows from operating activities	7,345	5,036
Cash flows from investing activities	-3,532	-3,173
Free cash flows (operating CF + investment CF)	3,813	1,863
Cash flows from financing activities	-321	-715
Net increase (decrease) in cash and cash equivalents	3,227	1,133
Cash and cash equivalents, beginning of year	8,930	12,158
Cash and cash equivalents, end of year	12,158	13,291

(2) Capital Expenditures, Depreciation & Amortization, Research & Development Expenses

(million yen)	FYE 3/2019	FYE 3/2020
Capital Expenditures	4,435	3,694
Depreciation & Amortization	3,253	3,236
Research & Development Expenses	1,566	1,513

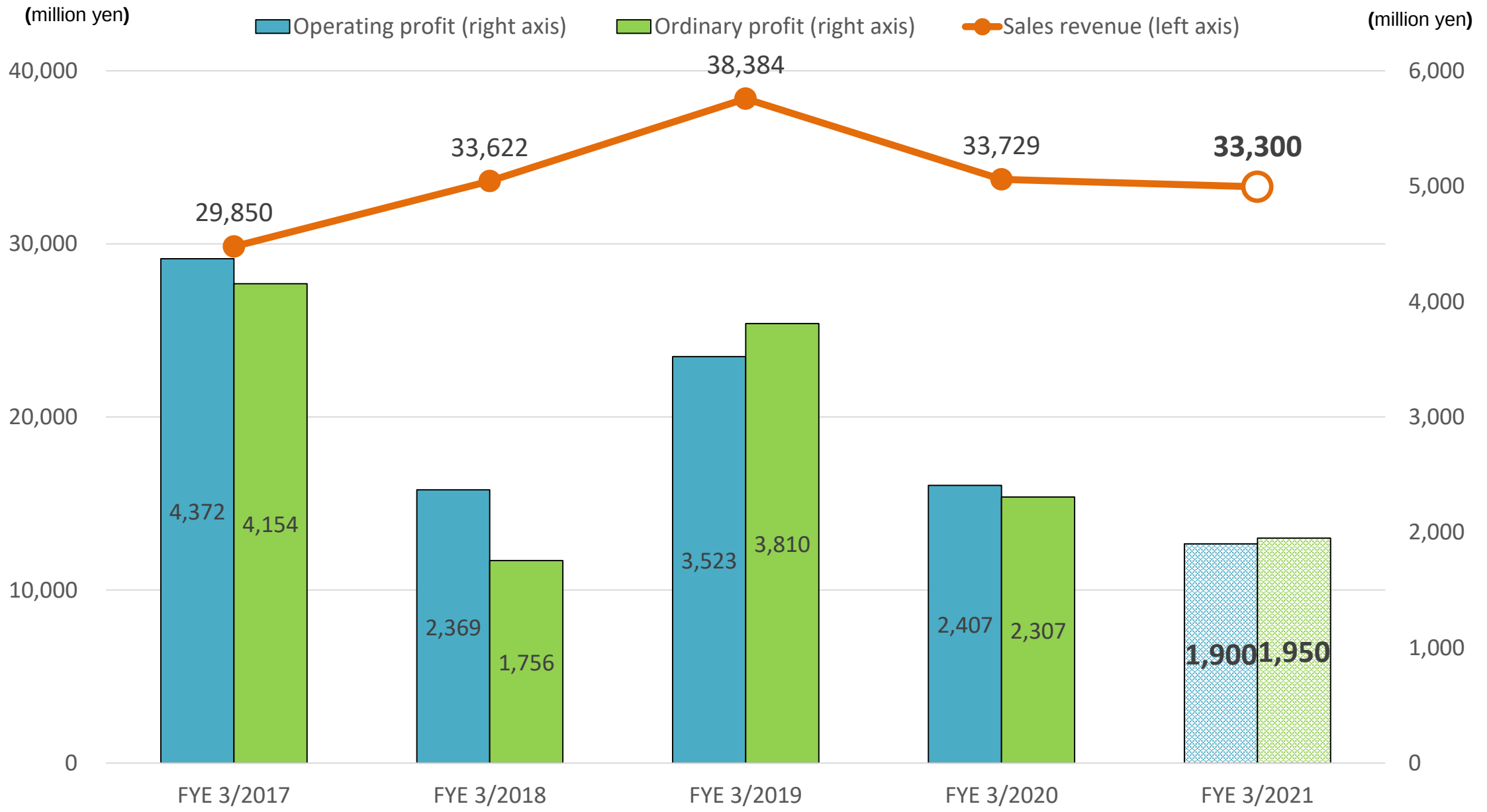
2. Financial Forecast for FYE 3/2021

- Financial Forecast
- Financial Trends
- Forecast on Sales Revenue and Operating Profit by Business

<Financial Forecast>

(million yen)	FYE 3/2020 Actual	FYE 3/2021 Forecast	Increase/ Decrease	Percentage Increase/ Decrease
Sales Revenue	33,729	33,300	-429	-1.3
Gross Profit	6,685	6,600	-85	-1.3
Operating Profit	2,407	1,900	-507	-21.1
Ordinary Profit	2,307	1,950	-357	-15.5
Profit Attributable to Owners of Parent	1,924	1,400	-524	-27.2
Earnings Per Share (yen)	149.00	108.41	-40.59	-27.2
Dividend (yen)	45	45	-	-
ROE (%)	5.8	4.0	-1.8	-30.5
Capital Expenditures	3,694	2,250	-1,444	-39.1
Depreciation & Amortization	3,236	3,130	-106	-3.3
Research & Development Expenses	1,513	1,560	46	3.1

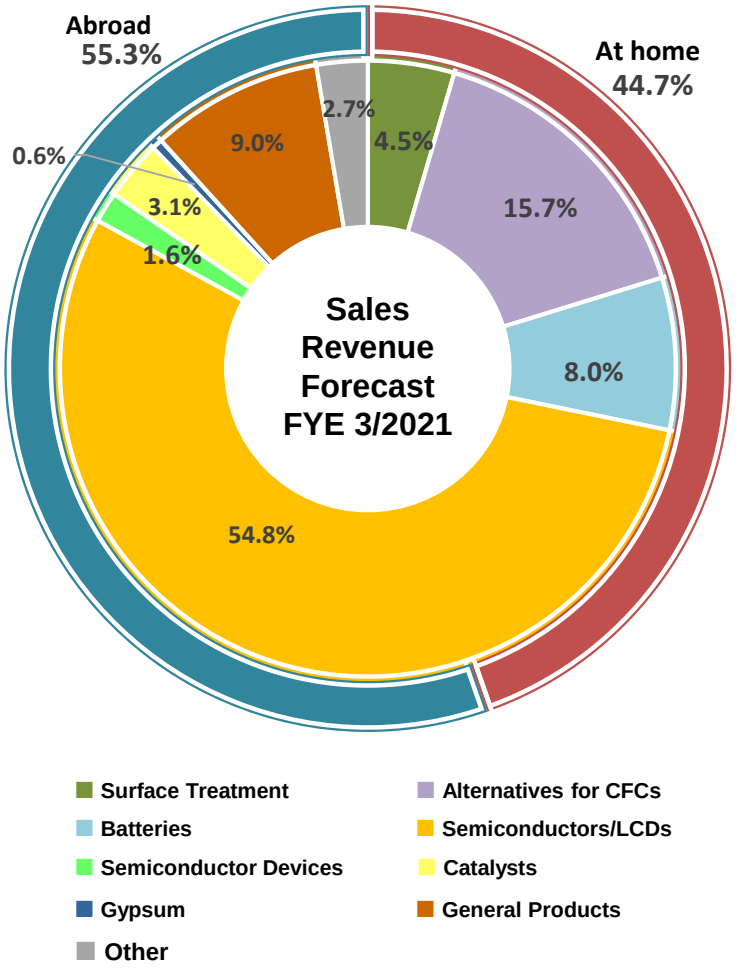
<Financial Trends>



<Forecast on Sales Revenue and Operating Profit by Business>

(million yen)		FYE 3/2020 Actual		FYE 3/2021 Forecast		Percentage Increase/ Decrease	
		Sales Revenue	Operating Profit	Sales Revenue	Operating Profit	Sales Revenue	Operating Profit
High-Purity Chemical Business		**29,058**	**2,897**	**28,670**	**2,420**	**-1.3**	**-16.5**
[High-Purity Chemical Business: Breakdown]	Surface Treatment	1,525		1,300		-14.8	
	Alternatives for CFCs	4,872		4,500		-7.6	
	Batteries	2,576		2,290		-11.1	
	Semiconductors /LCDs	15,687		15,700		0.1	
	Semiconductor Devices	446		460		3.0	
	Catalysts	925		900		-2.7	
	Gypsum	201		160		-20.7	
	General Products	1,835		2,590		41.1	
	Other	988		770		-22.1	
Transportation Business		**4,429**	**502**	**4,420**	**510**	**-0.2**	**1.6**
Medical Business		**-**	**-1,035**	**-**	**-1,050**	**-**	**-**
Other		**241**	**36**	**210**	**20**	**-13.1**	**-44.7**

Sales Revenue Constituent Ratio of High-Purity Chemicals



3. STELLA CHEMIFA CORPORATION

- Corporate Profile/Sales Office Locations/Plant Locations
  (as of March 31, 2020)
- List of Affiliated Companies
- High-Purity Chemical Business

<Corporate Profile/Sales Office Locations/Plant Locations(as of March 31, 2020)>

◆ Corporate Profile

Corporate Name	STELLA CHEMIFA CORPORATION
Head Office	Meiji Yasuda Seimei Osaka Midosuji Bldg. 10F, 4-1-1 Fushimi-machi, Chuo-ku, Osaka City, Osaka
Founded	February 1916
Established	February 1944
Capital Fund	4,829,782,512 yen
Representatives	Representative Director, President and Chief Executive Officer: Aki Hashimoto Representative Director, Senior Managing Executive Officer (Products Management Group): Kiyonori Saka
URL	https://www.stella-chemifa.co.jp/

◆ Sales Offices

Osaka Sales Department	Meiji Yasuda Seimei Osaka Midosuji Bldg. 10F, 4-1-1 Fushimi-machi, Chuo-ku, Osaka City, Osaka
Tokyo Sales Department	Marunouchi Trust Tower North 12F, 1-8-1 Marunouchi, Chiyoda-ku, Tokyo

◆ Factory Addresses

Sanpo Factory	7-227 Kaisan-cho, Sakai-ku, Sakai City, Osaka
Izumi Factory	1-41 Rinkai-cho, Izumiotsu City, Osaka
Kitakyushu Factory	1-1 Kurosakishiroishi, Yahatanishi-ku, Kitakyushu City, Fukuoka

<List of Affiliated Companies>

Base	Logo	Corporate Name	Business Segment	Head office
At home		STELLA CHEMIFA CORPORATION	High-Purity Chemical Business	Osaka, Japan
		BLUE EXPRESS, Inc.	Transportation Business	Osaka, Japan
		BLUE AUTO TRUST Co., Ltd.	Other Business	Osaka, Japan
		STELLA PHARMA CORPORATION	Medical Business	Osaka, Japan
Abroad		STELLA CHEMIFA SINGAPORE PTE LTD	High-Purity Chemical Business	Singapore
		STELLA EXPRESS PTE LTD	Transportation Business	Singapore
		Blue Express (Shanghai) International Trade Inc.	High-Purity Chemical Business	China
		Blue Express (Shanghai) International Freight Forwarding Co., Ltd.	Transportation Business	China
		Zhejiang Blue Star Chemical Co., Ltd.	High-Purity Chemical Business	China
		FECT CO.,LTD	High-Purity Chemical Business	South Korea
		Quzhou BDX New Chemical Materials Co., Ltd.	High-Purity Chemical Business	China

<High-Purity Chemical Business>

Our products, fluorine compounds, are still used in the manufacture of various products.

Segment Name	Main Product	Applications
Surface treatment	Hydrofluoric acid for industrial use	Used for acid cleaning of stainless steel and for thinning glass substrates for LCDs
Alternatives for CFCs	Anhydrous hydrofluoric acid	Material for chlorofluorocarbon and fluorine resin
Batteries	Additive for batteries Lithium hexafluorophosphate	Additive for electrolytes to improve the performance of lithium-ion secondary batteries Electrolyte for lithium-ion secondary batteries
Semiconductors and LCDs	High-purity hydrofluoric acid	Cleaning solution for silicon wafers and LCDs Solar batteries
	High-purity buffered hydrofluoric acid	
Semiconductor devices	High-purity fluoride (CaF_2, PbF_2, MgF_2, AlF_3 and others)	Lens material for i-line steppers and cameras
	Potassium fluoride	Auxiliary agent for manufacturing tantalum for tantalum capacitors
General Products	Tin fluoride	Quasi-drug

Semiconductors and LCDs

- Features of Our Products and New Products
- Results and Forecast of World Semiconductor Market Scale by Product
- Development of a New Memory Market
- Maintenance and Strengthening of Quality Edge
- Change of Shipping Volume of High-Purity Hydrofluoric Acid (Semiconductors and LCDs)

<Features of Our Products and New Products>

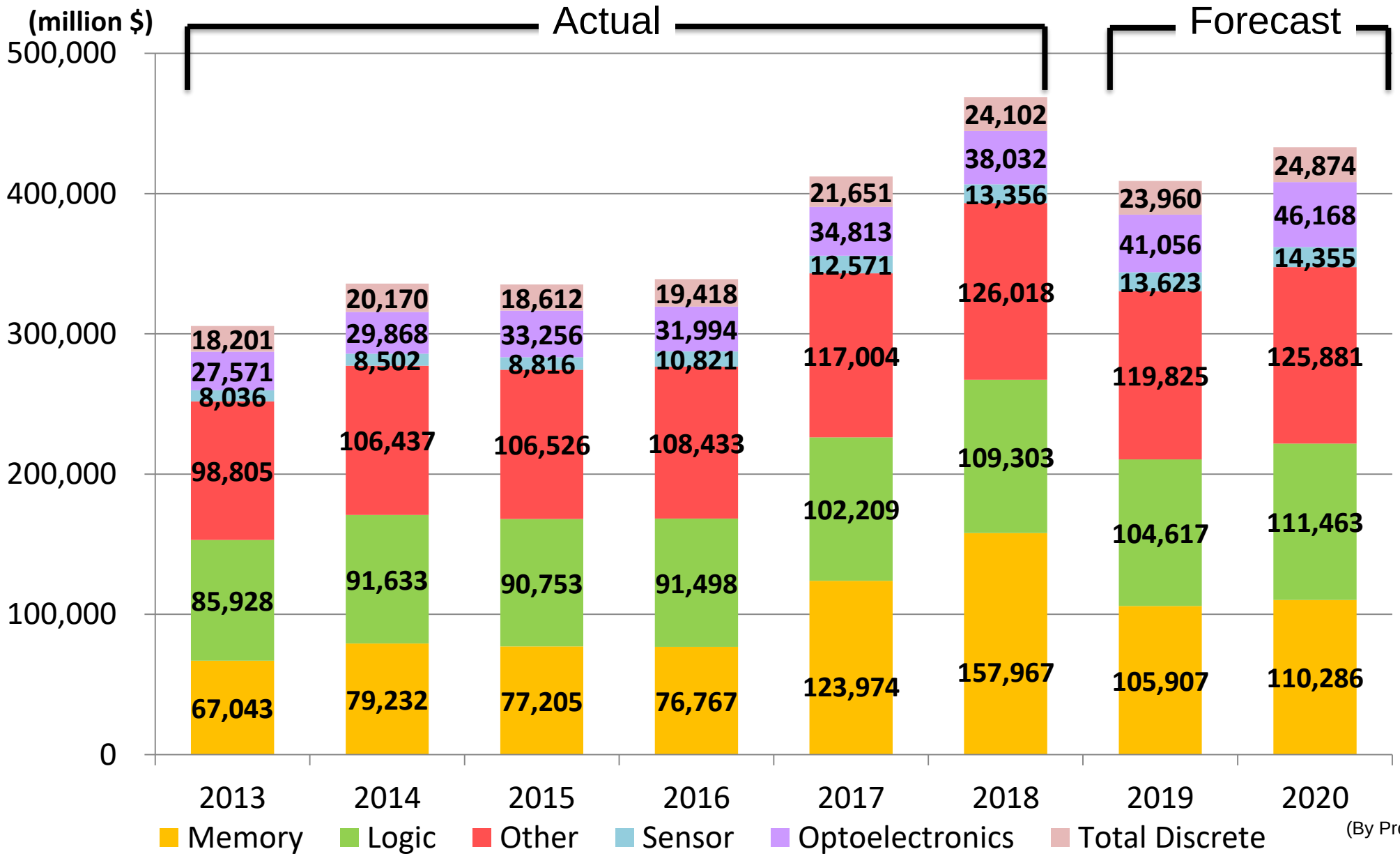
(1) With our ultra-purification technology and ultra sensitive technology, we are able to supply the ultra-high-purity hydrofluoric acid and the ultra-high-purity buffered hydrofluoric acid with the best quality in the world.

(2) Products Lineups are readied to respond the customer requirements, including like suppression of adhering particles, and suppression of increased roughness of wafer surfaces, and others.

Product name (Semiconductors and LCDs)	Description
Ultra-high-purity hydrofluoric acid	An ultra-high-purity chemical used for wet cleaning of silicon wafers in manufacturing semiconductors, FPDs, solar batteries, and MEMS
Ultra-high-purity buffered hydrofluoric acid	A chemical mixed with 50% hydrofluoric acid and 40% ammonium fluoride solutions
LL BHF	BHF with various functionalities made possible by adding a surfactant
LAL BHF	BHF that contains a surfactant has enabled it to achieve extended service life and given other advantages by optimizing the concentration of ammonium fluoride at 15% to 25%, about half the concentration of ammonium fluoride contained in conventional BHF.
Ex-LAL BHF	An environmentally friendly BHF with a maximum ammonium fluoride concentration of 5% and added surface-active properties that give it a longer life than any other type of BHF
HSN Series	A functional BHF for etching silicon nitride with selectivity to silicon oxide, which is expected to be mainly used in the next-generation DRAM manufacturing process
LPL BHF	A silicon oxide etchant with minimum damage to silicon or polysilicon film

Joint development of etchant for next-generation non-silicon semiconductor wafers is currently underway.

<Results and Forecast of World Semiconductor Market Scale by Product>



Source: World Semiconductor Trade Statistics Inc. (WSTS)

< Development of a New Memory Market >

Manufacturer	Base Name	Produced Item	Wafer Size	Production Capacity	Plan
Samsung Electronics	X2	3D-NAND	12 inches	20K wafers/month	Review plan to increase production to 65K wafers/month by the end of 2020.
	P2	DRAM	12 inches	15K wafers/month	Transferring the investment for X2 to P2 and increasing production to 60K wafers/month by the end of 2020.
SK Hynix	M15	3D-NAND	12 inches	25K wafers/month	The plan to increase production to 50K wafers/month by the end of 2020 is uncertain.
	M16	DRAM/NAND	12 inches		To be completed by the end of 2020.
	C2F	DRAM	12 inches	20K wafers/month	
Kioxia	Y6	3D-NAND	12 inches		Plan to start phase 2 mass production by the end of 2020.
	K1	3D-NAND	12 inches		Plan to start phase 1 mass production by the end of 2020.
	Y7	3D-NAND	12 inches		Construction to start in December 2020 and be completed in 2022.
Micron Technology	Fab15	DRAM	12 inches		New building under construction (F2 building).
	Fab16	DRAM	12 inches		New building under construction (A3).
ChangXin Memory Technologies (CXMT)	Phase1	DRAM	12 inches	10K wafers/month	Currently 5K wafers/month. Shelve plan to increase production to 20K wafers/month by the end of 2020.
Yangtze Memory Technology (YMTC)	Phase1	3D-NAND	12 inches	20K wafers/month	Currently 20K wafers/month. Planning to increase production to 50K wafers/month by the end of 2020.

Source: STELLA CHEMIFA

Continuous focus on market trends and increase market presence by flexible and quick decision-making.

<Maintenance and Strengthening of Quality Edge>

◆ SA Grade HF quality ◆

Product technology generation	≥28 nm	1X nm	10 nm ≥
Our product grade	SA/SA-X	SA-XX	SA-XXX
Metal impurities level	<100 ppt	< 10 ppt	< 1 ppt
Management size of particle	0.2/0.1um	0.05um	Further strengthening particle management

1ppt = 1 trillionth = 12N (Twelve nine)

With introducing the world's most advanced analytical instruments.

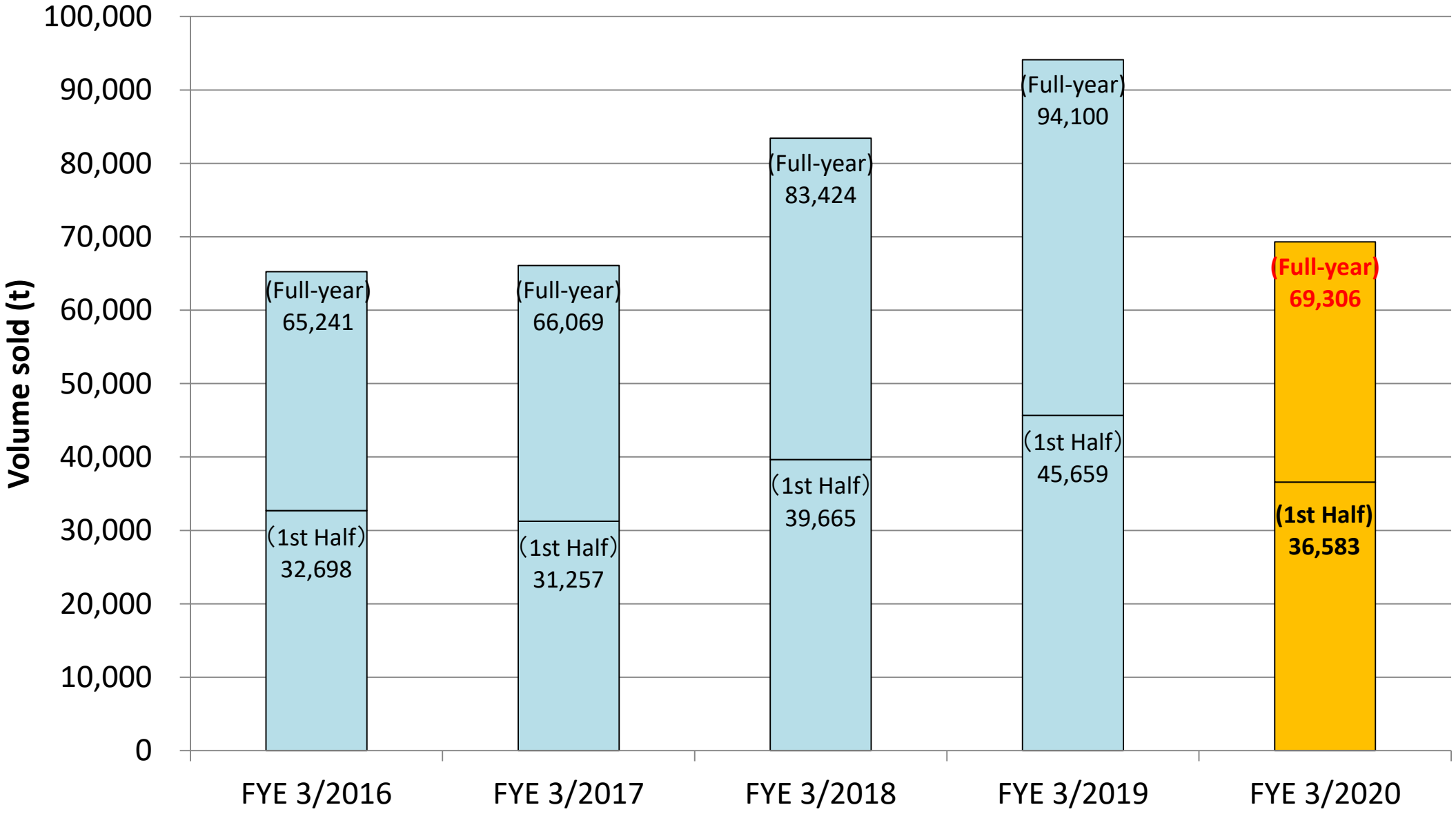
©RION CO., LTD.

Liquid-borne particle counter

©Thermo Fisher Scientific K. K.

High resolution ICP-MS

<Change of Shipping Volume of High-Purity Hydrofluoric Acid (Semiconductors and LCDs)>



Batteries

- Features of Our Products/Business Development in China
- Widespread Use of EVs and the Future of Mobility
- EV Applications Drive Lithium-ion Secondary Battery Market Growth
- Construction Rush for Giant Battery Plants
- Sales Results and Forecast of Additives for Lithium-ion Secondary Battery

<Features of Our Products>

(1) Used as main material comprising the lithium-ion secondary batteries and commercialized ahead of other companies.
(2) Because of the product's high purity, it is being used for high-performance lithium-ion secondary batteries.

Product Name (Related to Batteries)	Description
Additive for batteries	Additive for electrolytic solution to improve the performance of lithium-ion secondary batteries
Lithium hexafluorophosphate	Electrolyte for lithium-ion secondary batteries

<Business Development in China>

- **Quzhou BDX New Chemical Materials Co., Ltd. (established in December 2015)**
- **Capital fund: 95 million Chinese yuan (STELLA CHEMIFA's stake: 25%)**
- **Some of the facilities used to manufacture electrolytes for lithium-ion secondary batteries were relocated to this joint venture company. (Maximum production capacity: 1,300 t/year) The joint venture company uses the relocated facilities to produce electrolytes for lithium-ion secondary batteries and sells them in and outside China.**

<Widespread Use of EVs and the Future of Mobility>

Environmental (emissions) regulations and industrial development in each countries

⇒ Support policies with subsidies for the spread of EVs

Contributing to the development of the EV market

Development of a new mobility society

- Enhanced convenience in urban means of transport
- CASE; advancement and electrification of vehicle controls
- Maas; spurring new mobility businesses

CASE (Connected, Autonomous, Shared, Electric)
Maas (Mobility as a Service)

Development of social systems designed for EVs will drive EV sales up

<EV Applications Drive Lithium-ion Secondary Battery Market Growth>

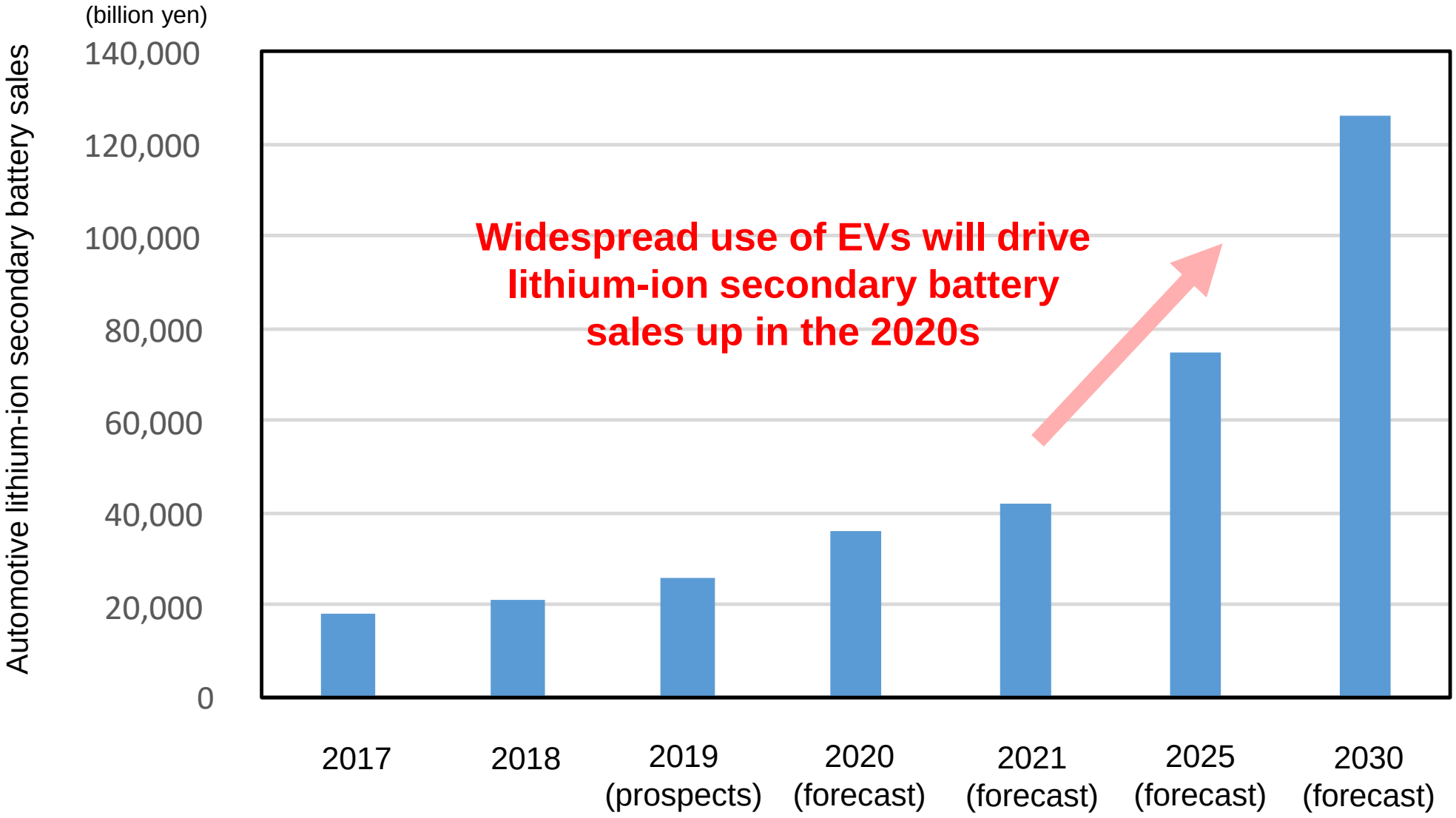


Fig. Change in sales in automotive lithium-ion secondary battery (results and forecasts)
(Source: Materials released by Fuji Keizai)

<Construction Rush for Giant Battery Plants> *Source: STELLA CHEMIFA

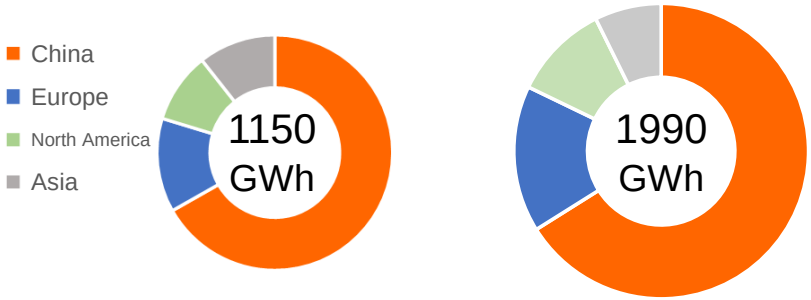
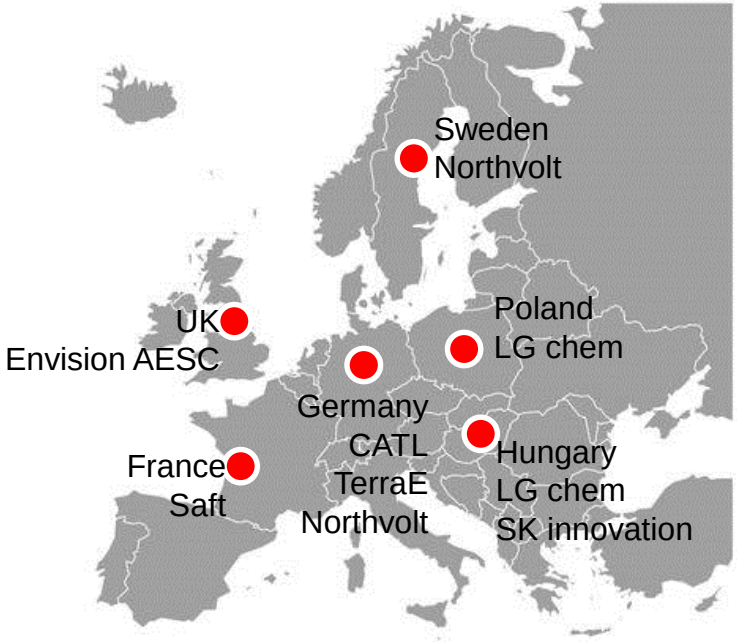
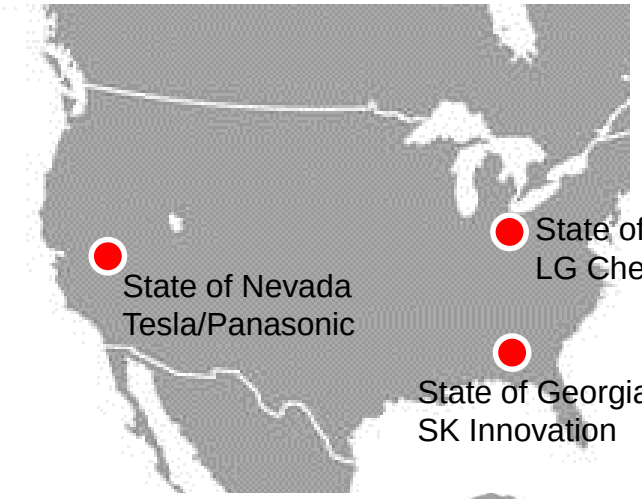


Fig. Change in production capacity for lithium-ion secondary batteries by region (output-basis)





The medium-term demand for batteries for EVs will be supplied by Giga plants, which are being constructed around the world.

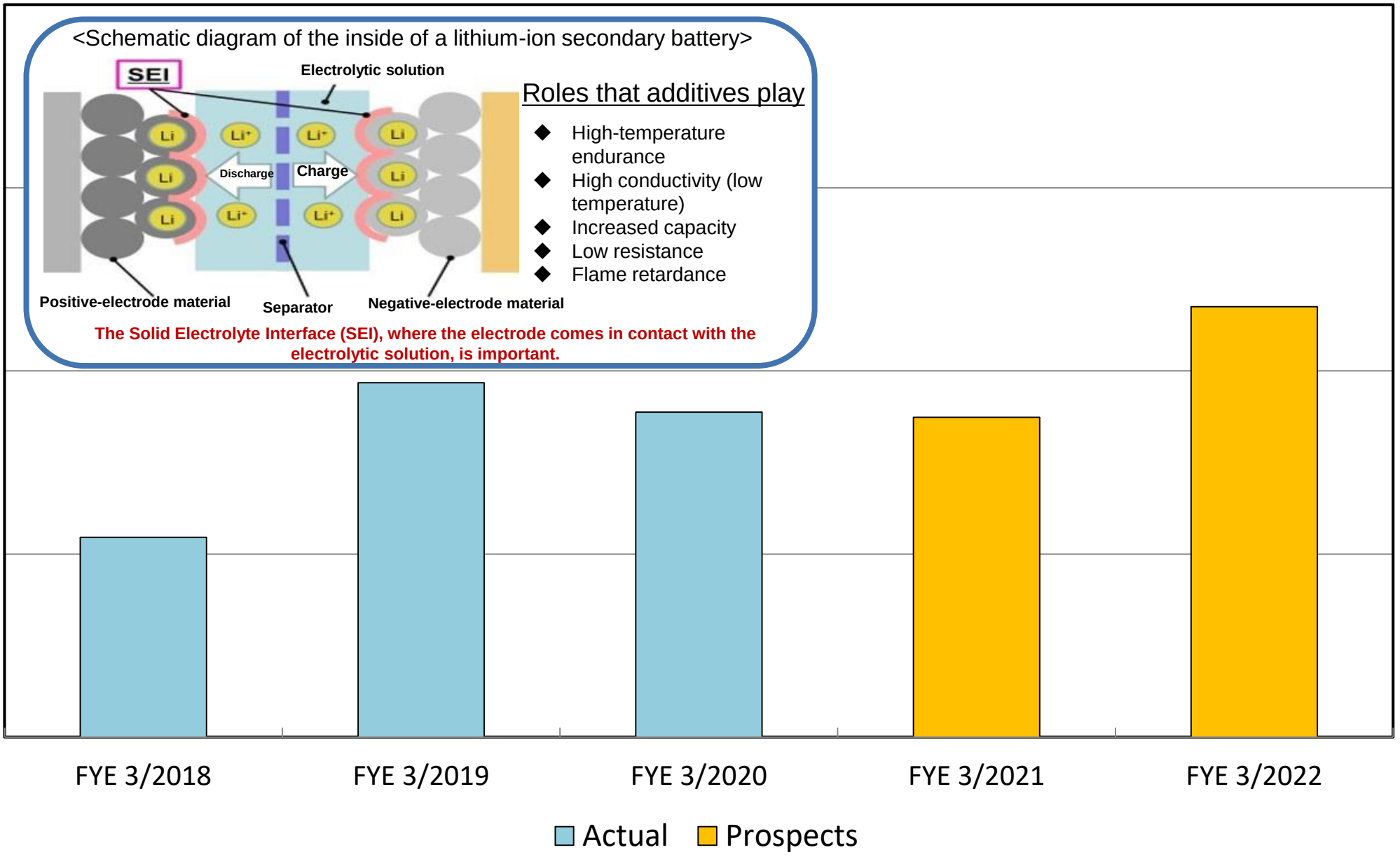
<Sales Results and Forecast of Additives for Lithium-ion Secondary Battery>

<Schematic diagram of the inside of a lithium-ion secondary battery>

Roles that additives play

- High-temperature endurance
- High conductivity (low temperature)
- Increased capacity
- Low resistance
- Flame retardance

The Solid Electrolyte Interface (SEI), where the electrode comes in contact with the electrolytic solution, is important.



GMP-related

- GMP (Good Manufacturing Practice)
- Oral Care-related ~ Tin Fluoride (SnF2) ~

< GMP (Good Manufacturing Practice) >

The GMP inspection by USFDA for tin fluoride, an active ingredient of OTC anticaries drugs, was completed in November 2017.

Obtained official approval by a public organization in the US

Started selling GMP-certified products in 2018

Inside Izumi Factory (Izumiotsu City, Osaka)

Standards for Manufacturing Control and Quality Control for Drugs and Quasi-drugs

Three principles:

“Reducing human errors to the lowest level"

“Preventing contamination and product quality loss"

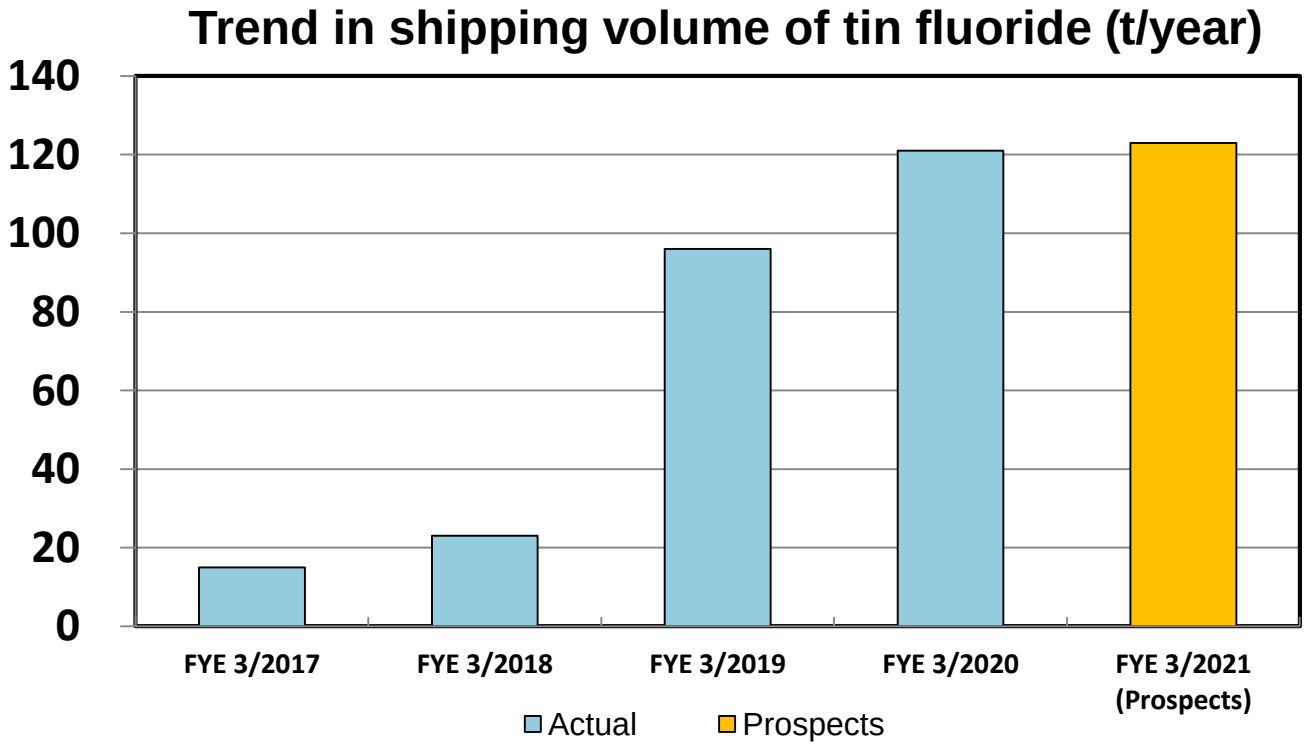
“Designing systems to assure high product quality"

<Oral Care-related ~ Tin Fluoride (SnF2) ~>

<Actions of fluorine on teeth>

- To suppress Streptococcus mutans from producing acid (Cavity prevention)
- To promote tooth remineralization
- To form acid-resistant teeth (to form fluorapatite)

We expect to see big demand mainly in Europe and the US, where there is strong interest in dental health and beauty.



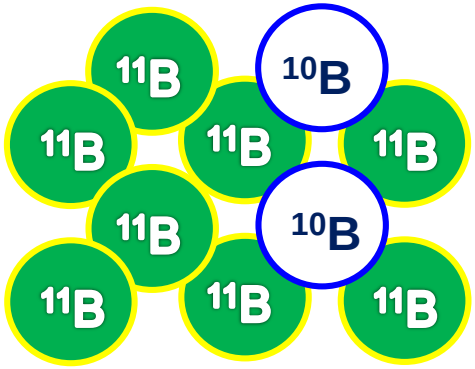
Others

- Establishment of Enrichment Technology/Features of Enriched Boron/Applications of Enriched Boron Compounds

<Establishment of Enrichment Technology/Features of Enriched Boron/ Applications of Enriched Boron Compounds>

■ Establishment of enrichment technology

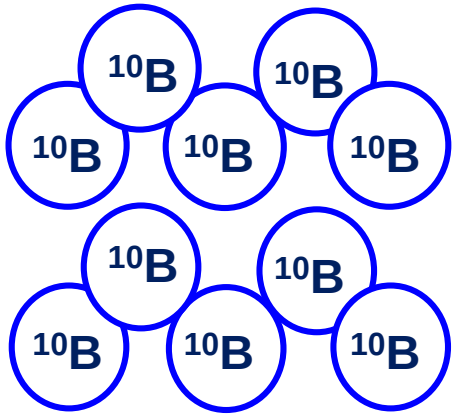
STELLA CHEMIFA established mass production technology of 10B for the first time in Japan.
In November 2000, the only enrichment plant in Japan was established.



Enrichment and separation

<The only ^{10}B enrichment plant in Japan>
(completed in November 2000)

Generation



■ Features of enriched boron

10B offers properties of remarkably high neutron absorption capacity, and by increasing 10B concentration, the absorption capacity is improved significantly.

■ Applications of Enriched Boron Compounds

- Neutron-absorbing material of spent nuclear fuel transportation and storage containers
- Material of control rods of nuclear reactors and rack material of spent nuclear fuel pools
- Excess reaction control of pressurized-water reactors by dissolving into primary cooling water.
- **Cancer drug for boron neutron capture therapy (BNCT)**

4. Medical Business

- Corporate Profile (as of March 31, 2020)
- Development of New Radiotherapy Technology
- Obtained Marketing and Manufacturing Approval for Head and Neck Cancer Drug Steboronine® IV Drip Bag 9000 mg/300 mL
- Efforts to Expand the Indication of BNCT
- Participation in Development of Imaging Diagnostic Technology

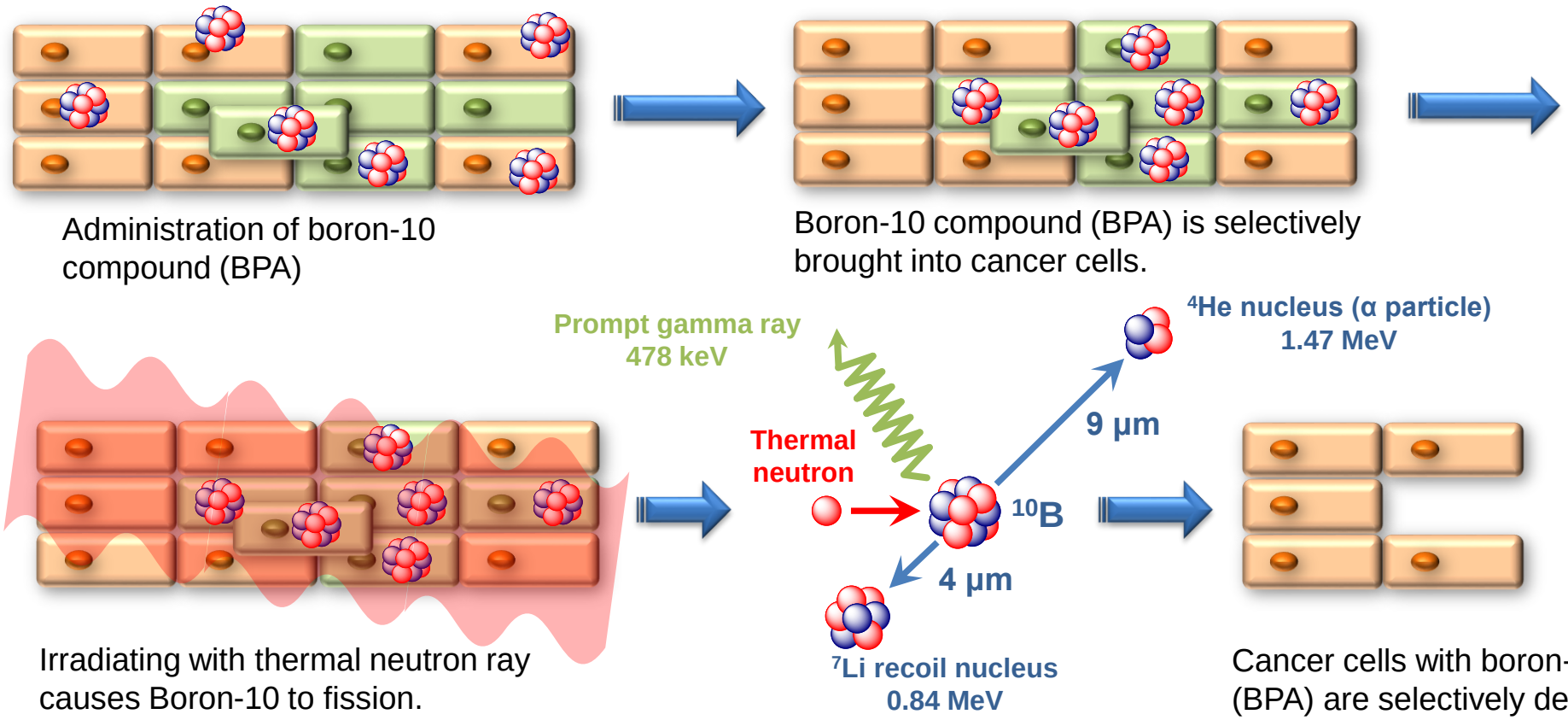
<Corporate Profile (as of March 31, 2020)>

Corporate name	STELLA PHARMA CORPORATION
Head Office	3-2-7 Koraibashi, Chuo-ku, Osaka City, Osaka
Representative	President: Tomoyuki Asano
Established	June 2007
Capital Fund	1,900,000,000 yen
Business Lineup	Research and Development, Manufacture, and Marketing etc. of Drugs and Medical Devices
Shareholders	STELLA CHEMIFA CORPORATION INCJ, Ltd. Sumitomo Heavy Industries, Ltd.
Business Offices	Sakai Drug Discovery Research Center (Naka-ku, Sakai City, Osaka) Tokyo Office (Chuo-ku, Tokyo)

STELLA PHARMA

<Development of New Radiotherapy Technology –BNCT–>

Boron Neutron Capture Therapy (BNCT) is a particle beam radiation therapy, which specifically damages cancer cells by making the best of nuclear fission reactions between boron-10 and thermal neutrons with low energy.



*** This image was prepared to illustrate the mechanism of BNCT. In the actual therapy, the details differ.**

<Obtained Marketing and Manufacturing Approval for Head and Neck Cancer Drug Steboronine® IV Drip Bag 9000 mg/300 mL –BNCT–>

We obtained approval for indication in unresectable locally progressive or locally recurrent head and neck cancers in March 2020. As a drug for BNCT, this will be used in combination with a neutron radiation device and a treatment support program.

BNCT approved. The therapy will start!

World first approval of a drug for BNCT!

Boron preparation ステボロニン®

BNCT therapy system (NeuCure™)

BNCT dose calculation program (NeuCure™ Dose Engine)

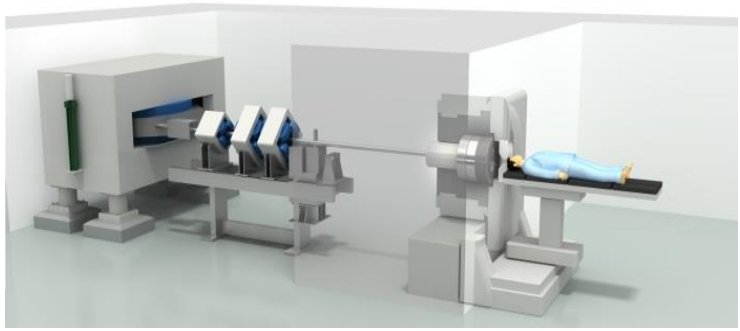


Image: Provided by Sumitomo Heavy Industries, Ltd.

<Efforts to Expand the Indications of BNCT –BNCT–>

To expand the indications for BNCT, a development project is underway in which multiple accelerators are being used mainly for diseases that have shown some results in clinical studies. These accelerators are installed at Southern TOHOKU Hospital, Osaka Medical College Hospital, and National Cancer Center Hospital.

Brain tumor
(recurrent malignant glioma)

A phase II study is underway.
(Under the consultation of the Prioritized Review System for innovative medicines [SAKIGAKE Designation System])

Head and neck cancer
(recurrent head and neck cancer)

We have obtained marketing and manufacturing approval for pharmaceutical products.

Melanoma/angiosarcoma

A phase I clinical study is underway.

* Started in November 2019.

Recurrent high-grade meningioma

A physician-led phase II study is underway.
(An investigational new drug has been provided)

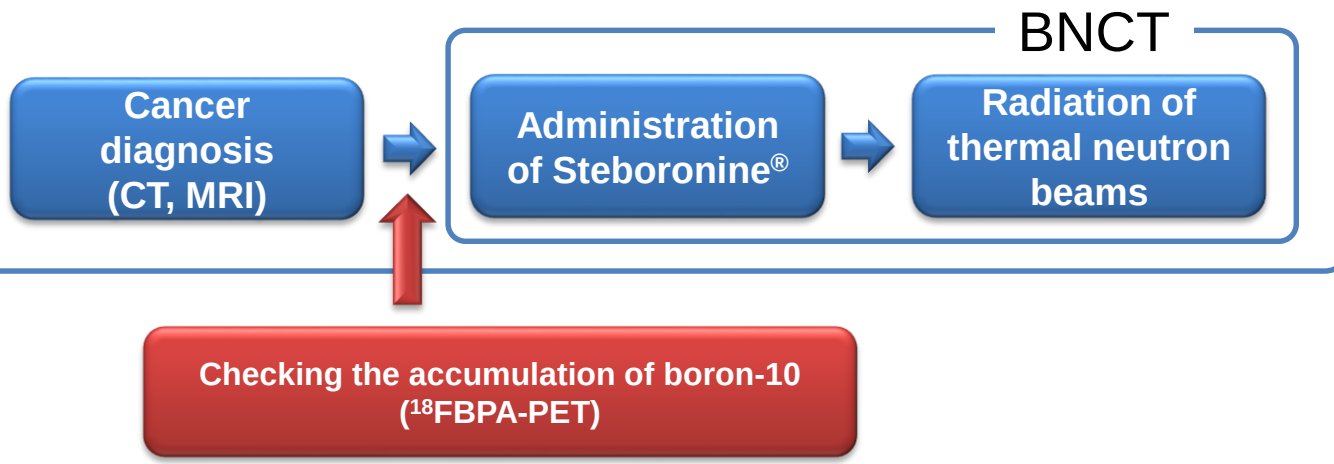
<Participation in Development of Imaging Diagnostic Technology –PET Diagnosis–>

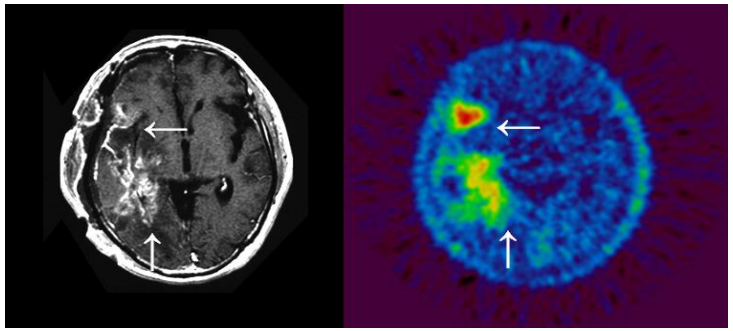
The “PET diagnosis” that attracts attention as a technology useful for the early detection of cancers. We have undertaken the development of ^{18}FBPA, which has been studied as a new drug to be used for the technology.

Features of ^{18}FBPA-PET

- It is expected that ^{18}FBPA-PET will contribute to the development of BNCT because the accumulation of the boron-10 against cancer can be checked beforehand (before treatment).

Current BNCT scheme





(Left) MRI image of brain tumors
(Right) ^{18}FBPA-PET image of brain tumors

Photo: Courtesy of Professor Ono at Kyoto University Research Reactor Institute

5. Transportation Business

- Corporate Profile (as of March 31, 2020)
- Transportation System by Cooperation with Domestic Bases
- Overseas Bases
- Activity Policy 1
- Activity Policy 2
- Activity Policy 3

<Corporate Profile (as of March 31, 2020)>

Corporate Name	BLUE EXPRESS CORPORATION
Head Office	10 Ohamanishi-machi, Sakai-ku, Sakai City, Osaka
Representative	Representative Director and President: Kiyonori Saka
Established	June 1991
Capital Fund	350,000,000 yen
Business Lineup	Common motor trucking/International intermodal transport Warehousing/Customs clearing agent/Sales, rental and lease of containers, tanks, etc. Automobile maintenance services/Business related to life insurance and non-life insurance agent, etc.
URL	http://www.blue-express.co.jp/

<Transportation System by Cooperation with Domestic Bases>

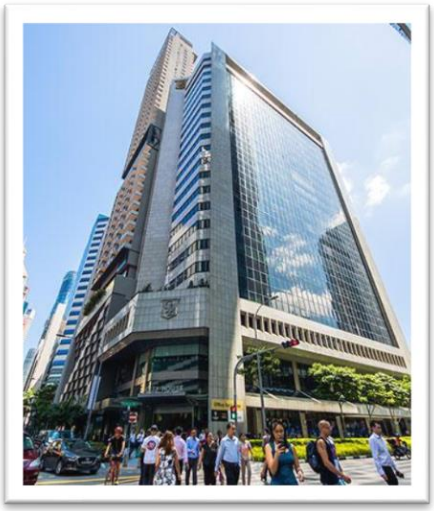
● Shipping terminals

Sendai Office
Kanto Office
Yokohama Office
Shimizu Office
Nagoya Office
Ohama Office
Kobe Office
Kitakyushu Office

★ Customs clearance sites

Ohama Office
Osaka Office
Yokohama Office

<Overseas Bases>



Singapore

Stella Express (Singapore) Pte Ltd

China (Shanghai)

Blue Express (Shanghai) International Trade Inc.

Blue Express (Shanghai) International Freight Forwarding Co., Ltd.

<Activity Policy 1>

1. To enhance compliance capability

- ○ To stop reckless driving and overworking through the use of dashboard cameras and digital tachographs, and revisions to fleet tracking operations, etc.
- ○ To improve long-haul transportation (consider changing mode of transport) in order to mitigate excessive driver workload

❑ Our mission is to pioneer the future of logistics services with an eye to discovering a better tomorrow and an undying commitment to the pursuit of safety and sustainability.

- ▸ All our offices have been G-Mark certified (given to business establishments with excellent safety standards)
- ▸ Obtained ISO 14001
  Certificate No.: JQA-EM5789
  Certified locations: Headquarter, Sanpo Office Transport Section
  Yokohama Office, and Warehouse Division
  Operations covered: Freight transportation, warehousing, container services, and customs clearance

❑ Ensure compliance across the Blue Express Group

- ▸ Blue Auto Trust Co., Ltd.
- ▸ Blue Express (Shanghai) International Freight Forwarding Co., Ltd.
- ▸ Blue Express (Shanghai) International Trade Inc.
- ▸ Stella Express (Singapore) Pte Ltd

<Activity Policy 2>

2. To carry out intra-group operations safely and accurately

○ Working in line with Stella Chemifa's business policies, make investments aimed at relocating and expanding offices that serve as our transportation hubs and systematically hire drivers and customs specialists with an eye to enhancing the safety and accuracy of intra-group logistics.

○ To work on the effective use of buildings to prepare for future transport volume growth.

★ Offices planning to relocate/expand

(1) Sendai Office

(2) Kitakyushu Office

Headquarters new hazardous materials warehouse
Completed in December 2018

Headquarters Sanpo Office
Completed in April 2018

Nagoya Office
Relocated in February 2020

<Activity Policy 3>

3. To seek international intermodal logistics services and make business deals with a keen focus on profits.

- To, as a hazardous materials transport expert, seek added value for international intermodal logistics services, which includes transport, customs clearance, and container services.
- To make business deals with a keen focus on profits
- To focus on business transactions aimed at ensuring optimal operations

Transportation

Storage

- **High-purity chemicals**
- **Poisonous and deleterious substances**
- Hazardous materials
- High-pressure gas
- General cargo, etc.

Customs clearance

Container services

6. Future Activities

- Involvement/Integration of Our Technologies in Society
- Chemicals for Semiconductor Device Manufacturing 1
- Chemicals for Semiconductor Device Manufacturing 2
- Chemicals for Semiconductor Device Manufacturing 3
- Future Energy Devices 1
- Future Energy Devices 2
- Future Energy Devices 3
- Functional Fluoride 1
- Functional Fluoride 2
- Functional Fluoride 3

<Involvement/Integration of Our Technologies in Society>

Chemicals for Semiconductor Device Manufacturing

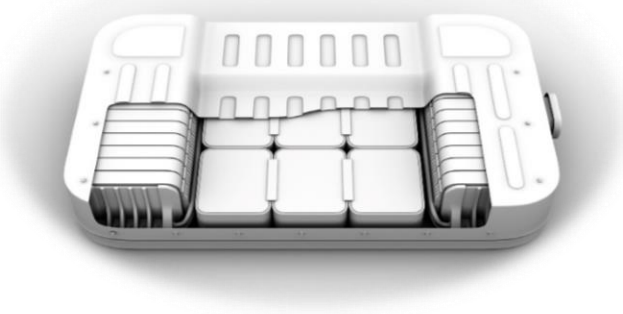
For LSI miniaturization technology that supports an IT-driven society

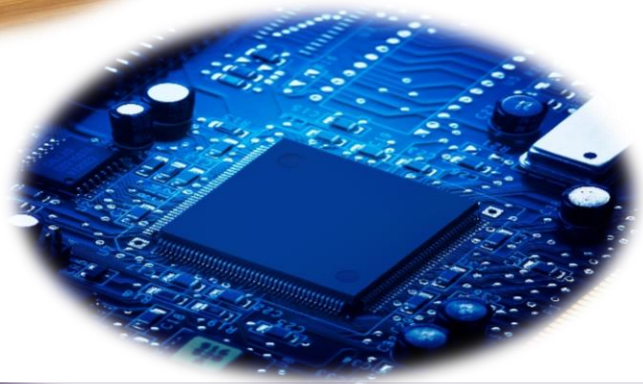
Future Energy Devices

Development and proposal of materials for next-generation batteries

Functional Fluoride

Applying fluorine technology to light-emitting devices and future communication devices





<Chemicals for Semiconductor Device Manufacturing 1>

Working with customers and universities to develop chemicals for future semiconductor device manufacturing

Customer Needs

Memory | Sensor | Discrete | Optical | Logic

Developing chemicals for new types of power semiconductors

Developing chemicals for existing and future memories

Enhancing performance of existing products

<Chemicals for Semiconductor Device Manufacturing 2>

Developing chemicals for existing and future memories

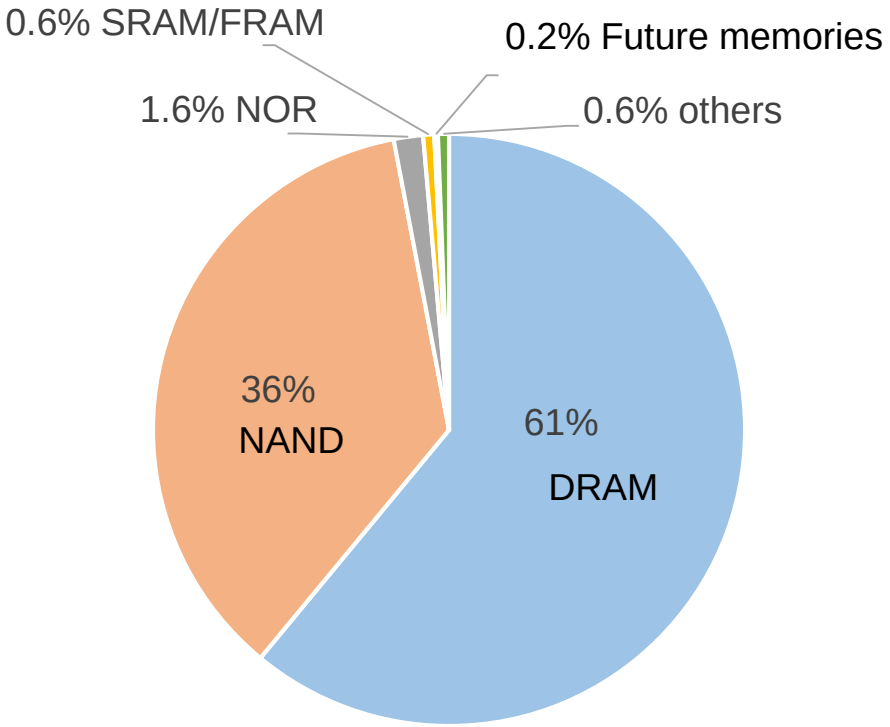


Fig. Market share by memory in 2018
(Total amount: $165 billion)

Source: "Status of the Memory Industry" Repot (May 2019) by Yole

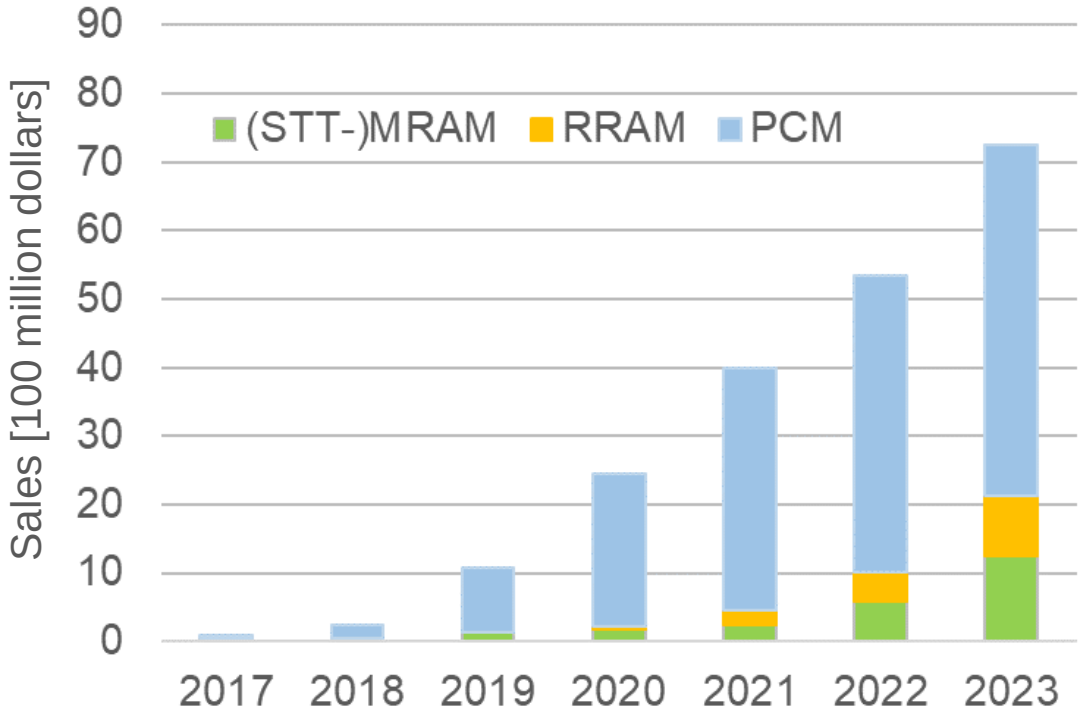


Fig. Market forecast of future memories

Source: "Status of the Memory Industry" Repot (May 2019) by Yole

Developing high-performance chemicals for the cutting-edge processes of DRAM and NAND, And submitting proposals to our customers.

Conducting surveys to grasp the needs of future memories manufacturing.

<Chemicals for Semiconductor Device Manufacturing 3>

Developing chemicals for future power semiconductors

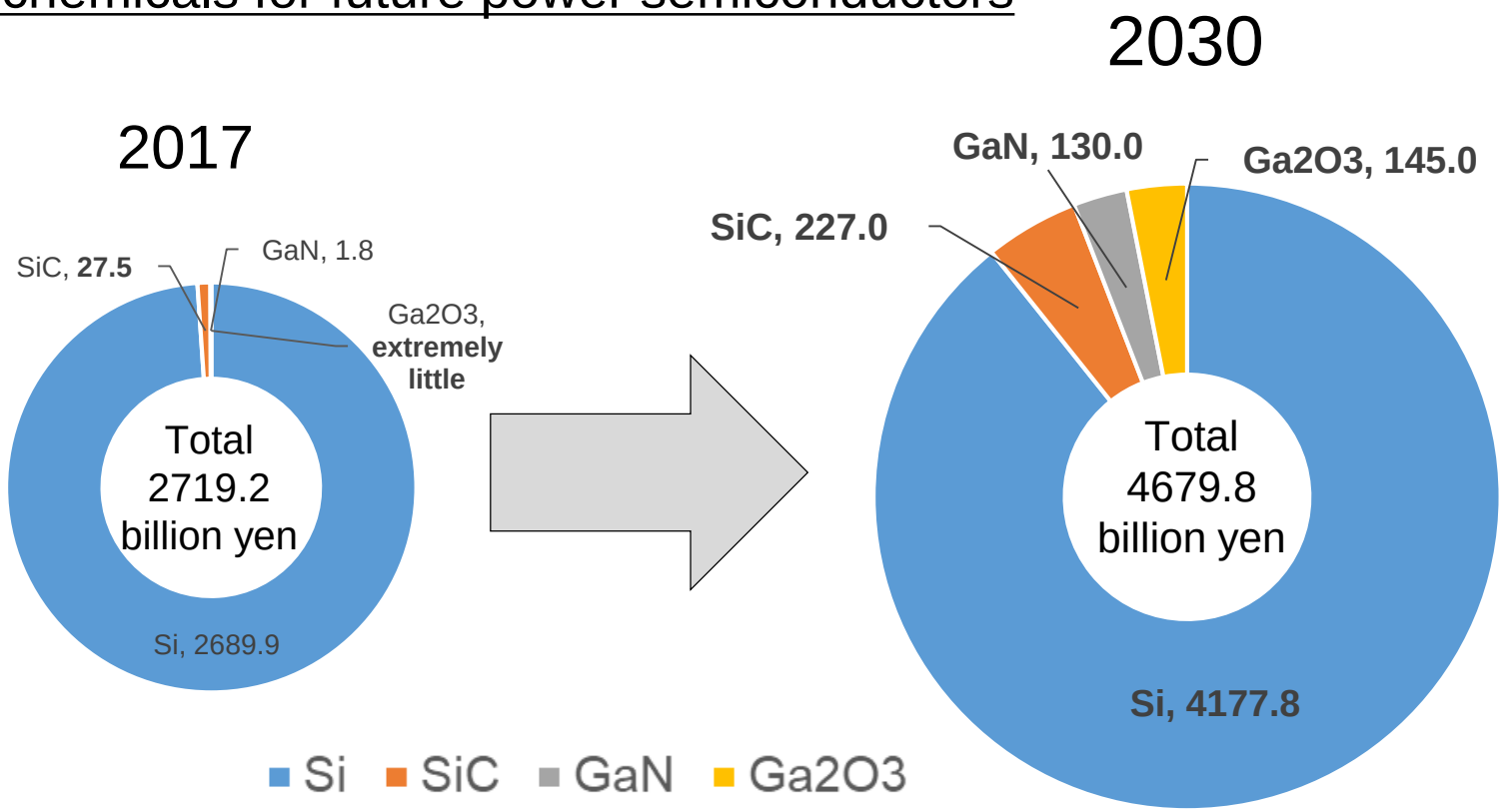


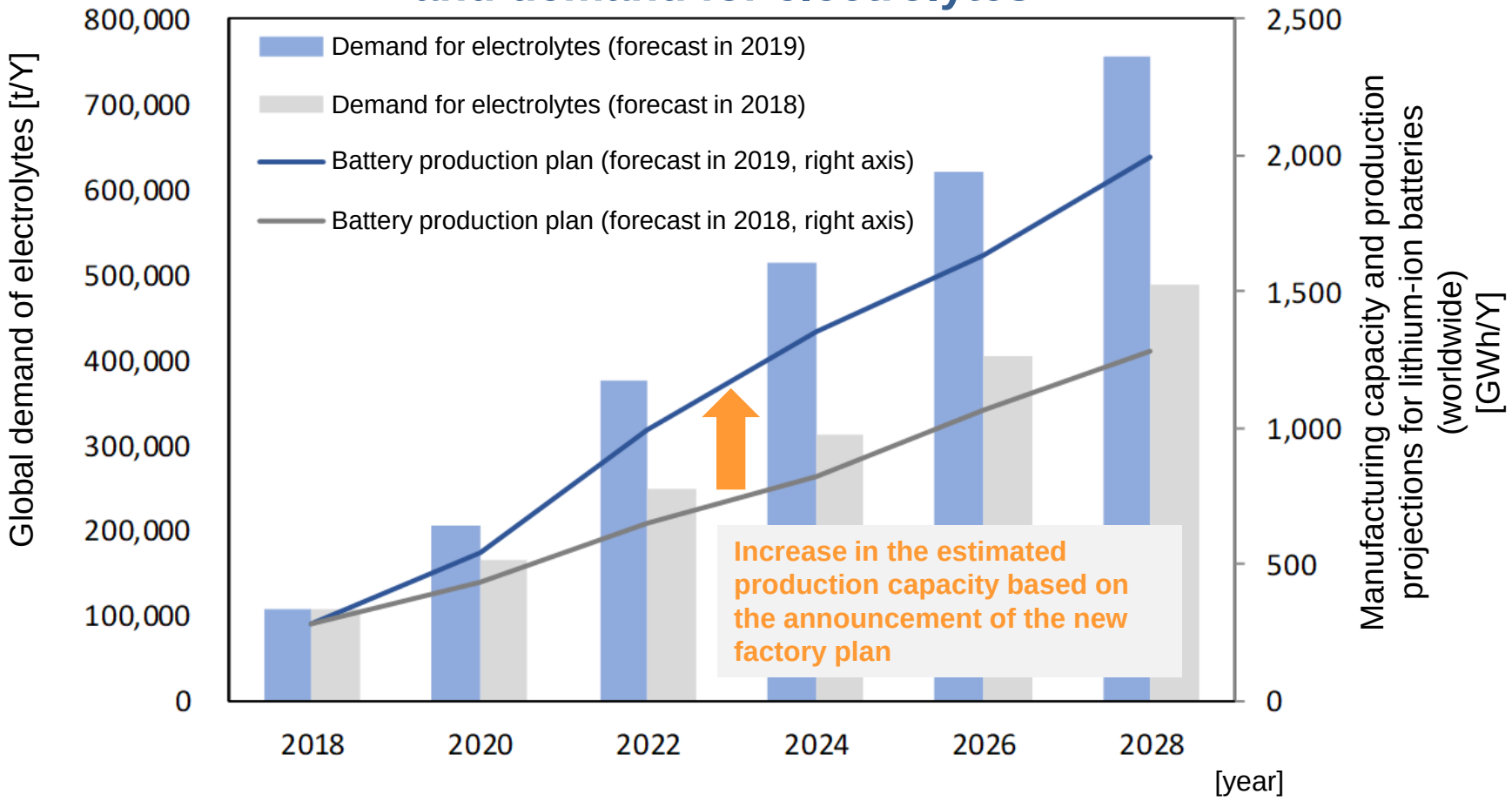
Fig. Market transition of power semiconductors
(*Results of 2017 and forecast for 2030)

Source: Fuji Keizai Group

- **GaN power devices → Developing new chemicals in joint research with universities**
- **Ga_2O_3 power devices → Collecting information by maintaining technological connections with our customers**

<Future Energy Devices 1>

Production planning for lithium-ion batteries and demand for electrolytes



Announcing a series of plans for new battery factories, primarily for EVs
We are developing battery materials, including electrolyte additives, and are promoting user assessments

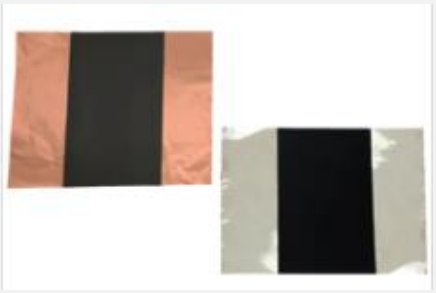
Source: Benchmark mineral Intelligence

<Future Energy Devices 2>

Developing materials for high-performance lithium-ion secondary batteries

Improvement of battery performance and durability in EV batteries

Positive electrode
・
Negative electrode



Proposing materials for electrode layer

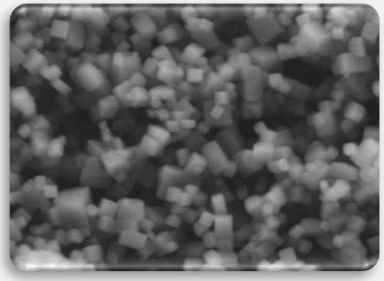
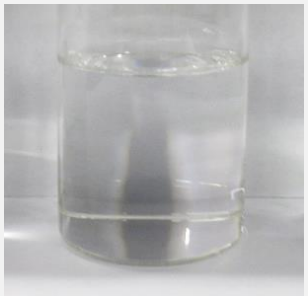


Image of electrode additive

Electrolyte



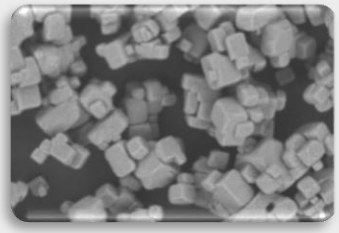
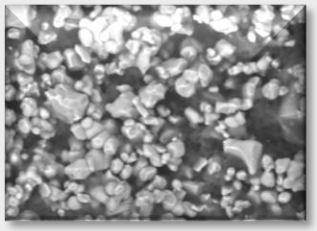
Proposing materials for electrolyte

Appearance of a new additive

Proposing materials that better meet customer needs, to improve battery performance and safety

<Future Energy Devices 3>

Developing materials for Future Energy Devices

Target and status	Safety	Resources	Battery capacity	Development product
Metal-ion secondary batteries Mass production of high-purity electrolytes	(equal to that of lithium-ion secondary batteries)	○ Na, Ca, etc. Small risk of scarcity	○ Large capacity with multiply charged ions (Ca, etc.)	  High-purity electrolyte
All-solid lithium-ion secondary batteries Making proposals to users following the establishment of evaluation system	○ Small ignition risk	(equal to that of lithium-ion secondary batteries)	○ Large capacity with Li metal anode	 Material for all-solid batteries
Fluoride-ion secondary batteries Aiming for use as candidate materials for batteries	○ Small ignition risk (All-solid batteries)	○ Fluoride Small risk of scarcity	○ Large capacity	 Fluoride-ion conductor material  Molded electrolyte

<Functional Fluoride 1>

Low refractive index material

Fluoride nanoparticles with low refractive index for antireflection coatings

Ensures antireflection and other optical functions of cutting-edge devices without compromising the design

Refractive index
n = 1.38 (existing product)

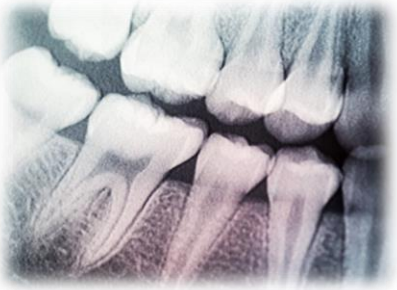
n = 1.31
(under development)

Developed super-low-refractive-index fluoride-nanoparticle dispersion and currently preparing prototypes.

Radiation shielding material

(1) X-ray shielding (contrast) material

Protective goggles for X-ray therapy



Fluoride Nanofiller with X-ray radiopaque for dental contrast materials

Preparing

(2) Neutron-beam-shielding material

Protecting a camera with neutron-beam-shielding transparent resin

Conducting joint research with universities

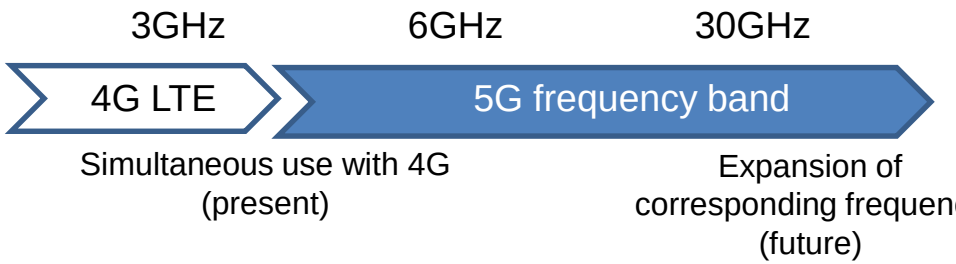
<Functional Fluoride 2>

Developing materials for future network devices

Proposing materials for high-frequency communication devices such as 5G

Expectation for 5th generation mobile communication system

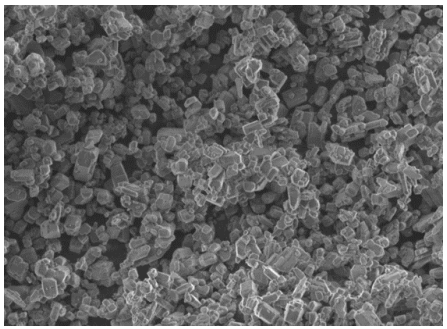
(1) High-speed and large-capacity data transmission
(2) Low-latency communication
(3) Multiple simultaneous connections



Aim to achieve results at the time of launch of 5G services

Deployment to communication infrastructure

Deployment to communication terminals



Materials for high-frequency use

Restriction of communication transmission loss (low permittivity/low dielectric constant)

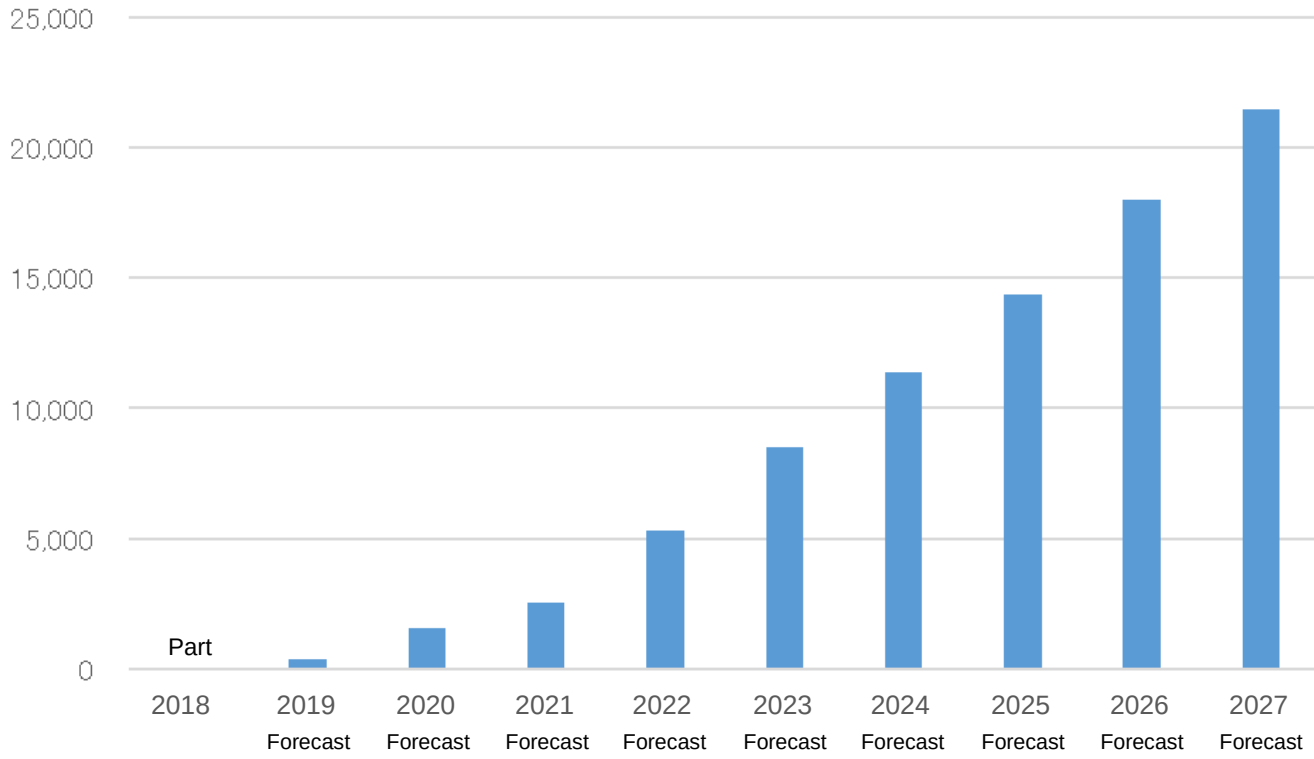
Under evaluation at parts manufacturers in Japan and overseas

Making proposals for materials to be used in future communication infrastructure that will support high-speed communication as well as IoT devices

Phosphor and its related materials

(unit: 1,000)

Estimated volume of mini LED displays installed worldwide



Note: Based on the volume of applications using mini LED displays (small LEDs between 100 μm and 200 μm in size)

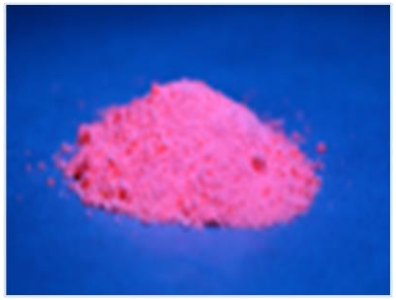
Source: The current situation and future prospect of LED Display Market/2019 - Micro LED and mini LED -(Yano Research Institute Ltd.)

Installation of displays and meter panels in vehicles is expected to lead the increase in volume of mini LED displays.

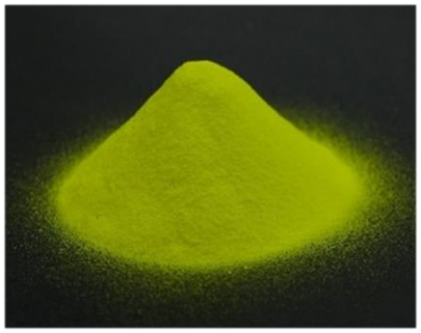
Phosphor and its related materials

Development of high-efficiency, long-life fluoride phosphor materials utilizing our company's core technology

LSA-61A **Red phosphor**

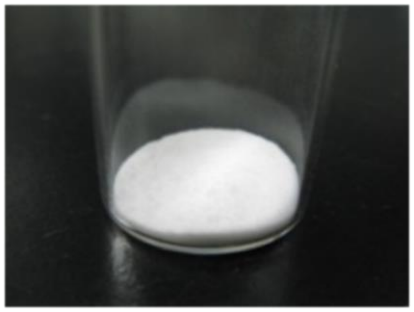


NSM **Raw materials for phosphor**

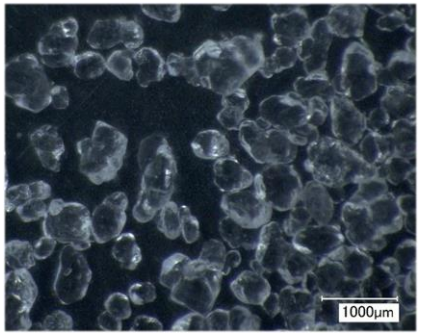


MgF2 nanoparticles
CaF2 nanoparticles

Filler for LED sealant



PBFS **Raw materials for phosphor**



Corporate slogan

Beyond the Chemical

Beyond the Chemical

We are drawing upon our strengths in the chemical field, whose growth we have nurtured so far, and moving toward even greater development in the future.

High-purity chemical business field	Transportation business field	Medical business field

Items related to the business forecast posted in this presentation material are created based on the information available as of the date of this announcement. We do not guarantee any future financial results. The actual business results may be different from assessment figures due to future events. Please note that the information stated in this presentation material may be changed without any prior notice. We shall not assume any responsibility for any damages etc. resulting from any mistake in any information posted in this presentation material.
This presentation material is created to help you understand our businesses.
Please kindly note that it is your sole responsibility to make any decision on your investment.