

Financial Results for FYE 3/2020

Securities code: 4109

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

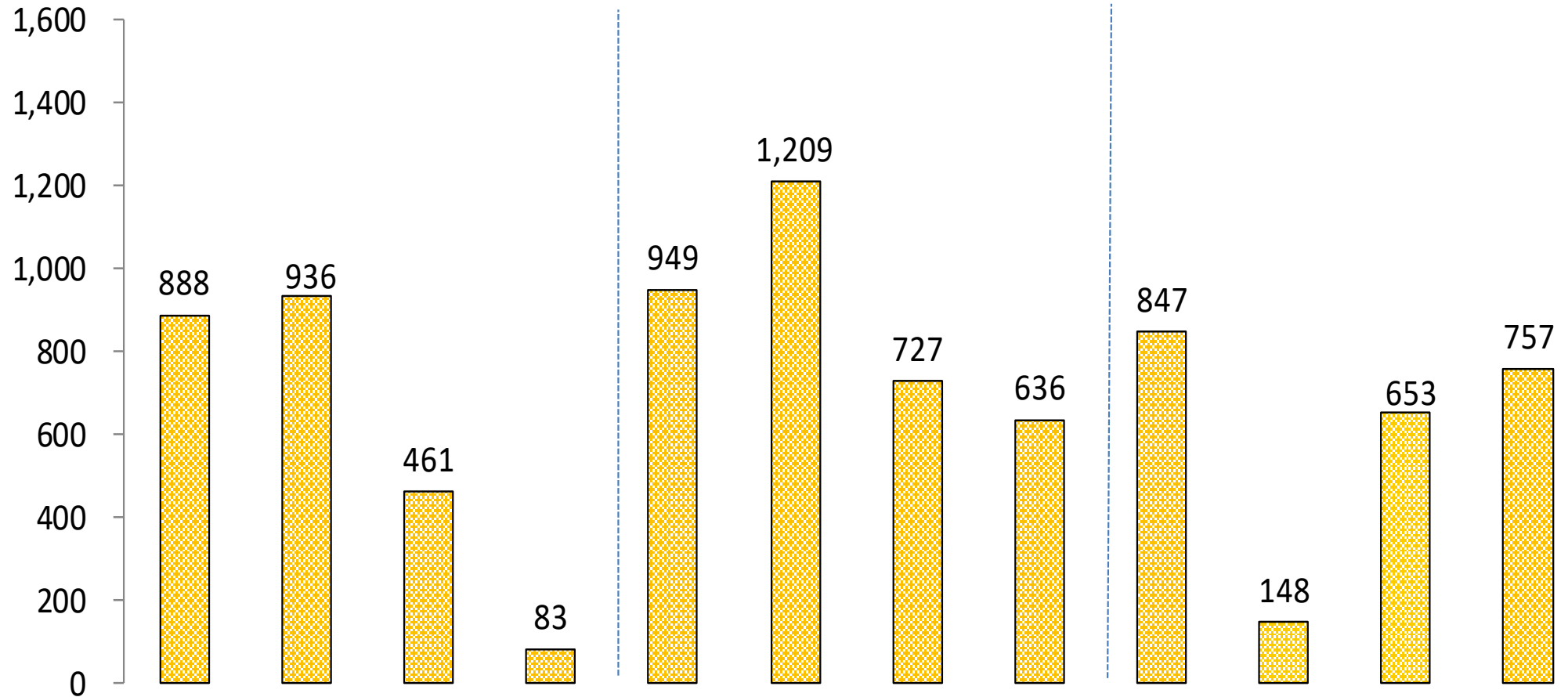
| (million yen) | FYE 3/2019 | FYE 3/2020 |
|---|------------|------------|
| Non-Operating Profit | 588 | 133 |
| Interest income | 21 | 18 |
| Dividend income | 2 | 3 |
| Gain on valuation of derivatives | 305 | 3 |
| Foreign exchange gains | 72 | - |
| Other | 186 | 108 |
| Non-Operating Expenses | 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)

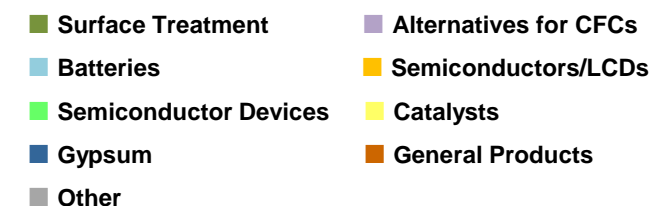
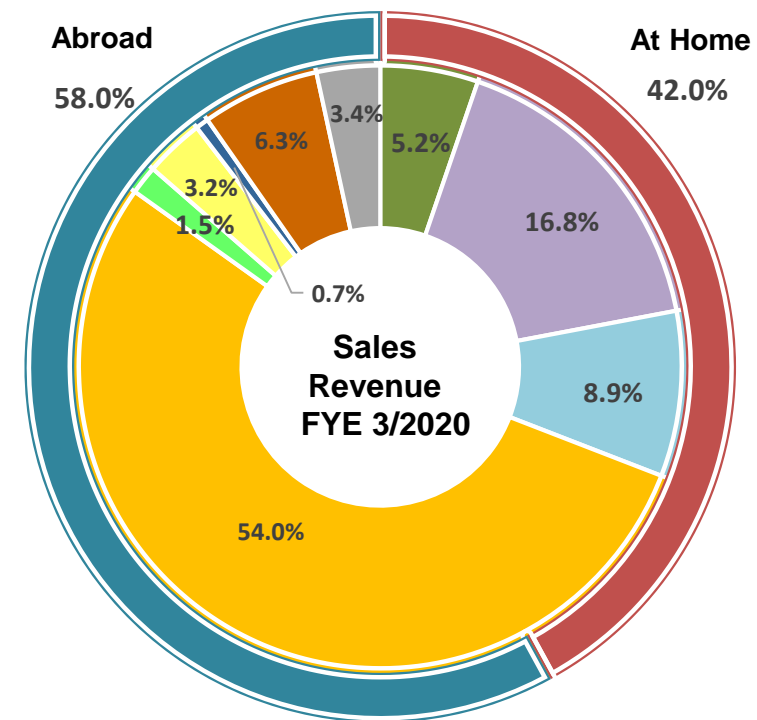


| (million yen) | FYE 3/2018 | | | | FYE 3/2019 | | | | FYE 3/2020 | | | |
|-------------------------|------------|-------|-------|-------|------------|-------|-------|-------|------------|-------|-------|-------|
| | 1Q | 2Q | 3Q | 4Q | 1Q | 2Q | 3Q | 4Q | 1Q | 2Q | 3Q | 4Q |
| Sales Revenue | 8,159 | 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% |

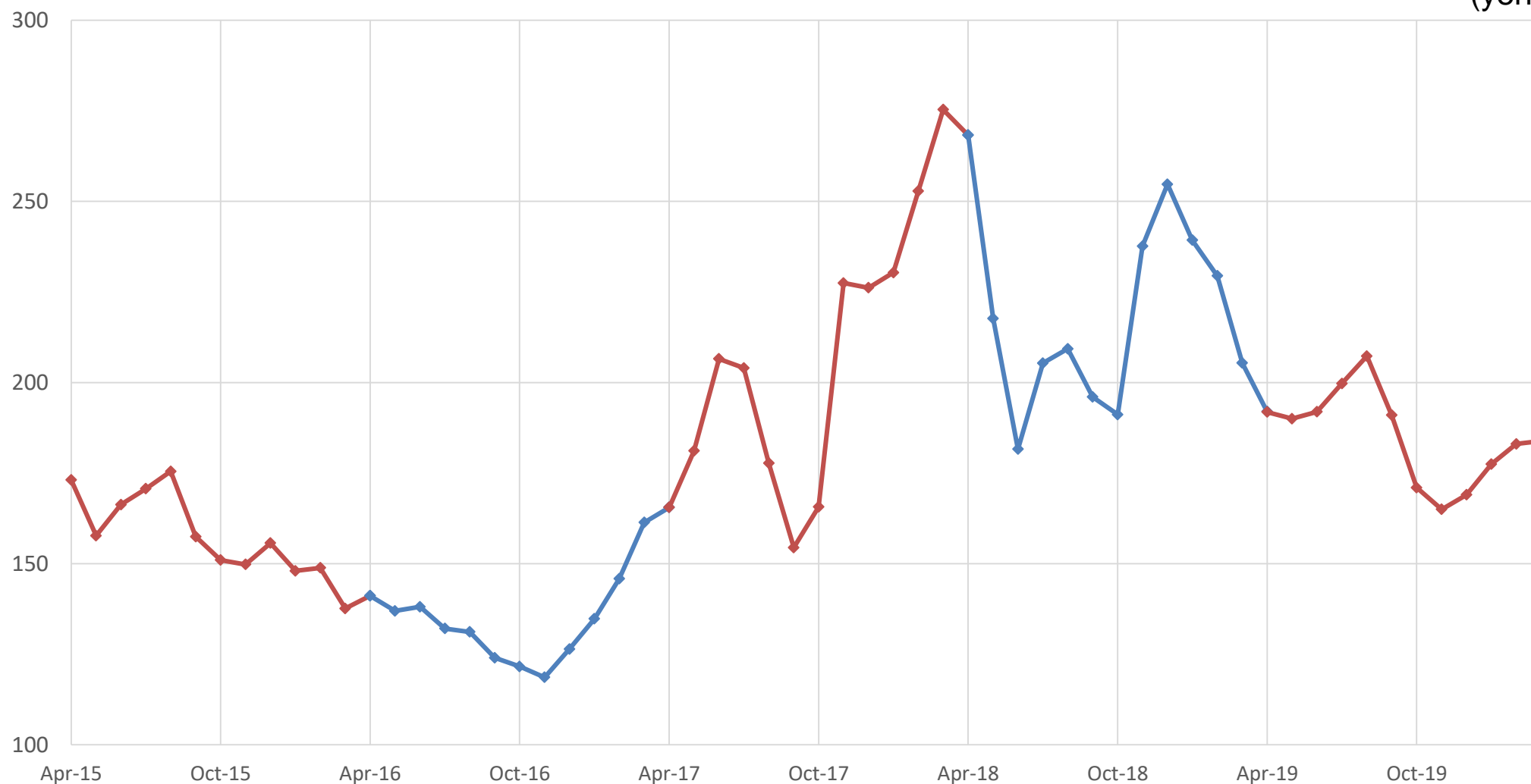
<Sales Revenue and Operating Profit by Business>

| (million yen) | | FYE 3/2019 | | FYE 3/2020 | | Percentage Increase/Decrease | |
|--|-----------------------|---------------|------------------|---------------|------------------|------------------------------|------------------|
| | | Sales Revenue | Operating Profit | Sales Revenue | Operating Profit | Sales Revenue | 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 (yen/kg)



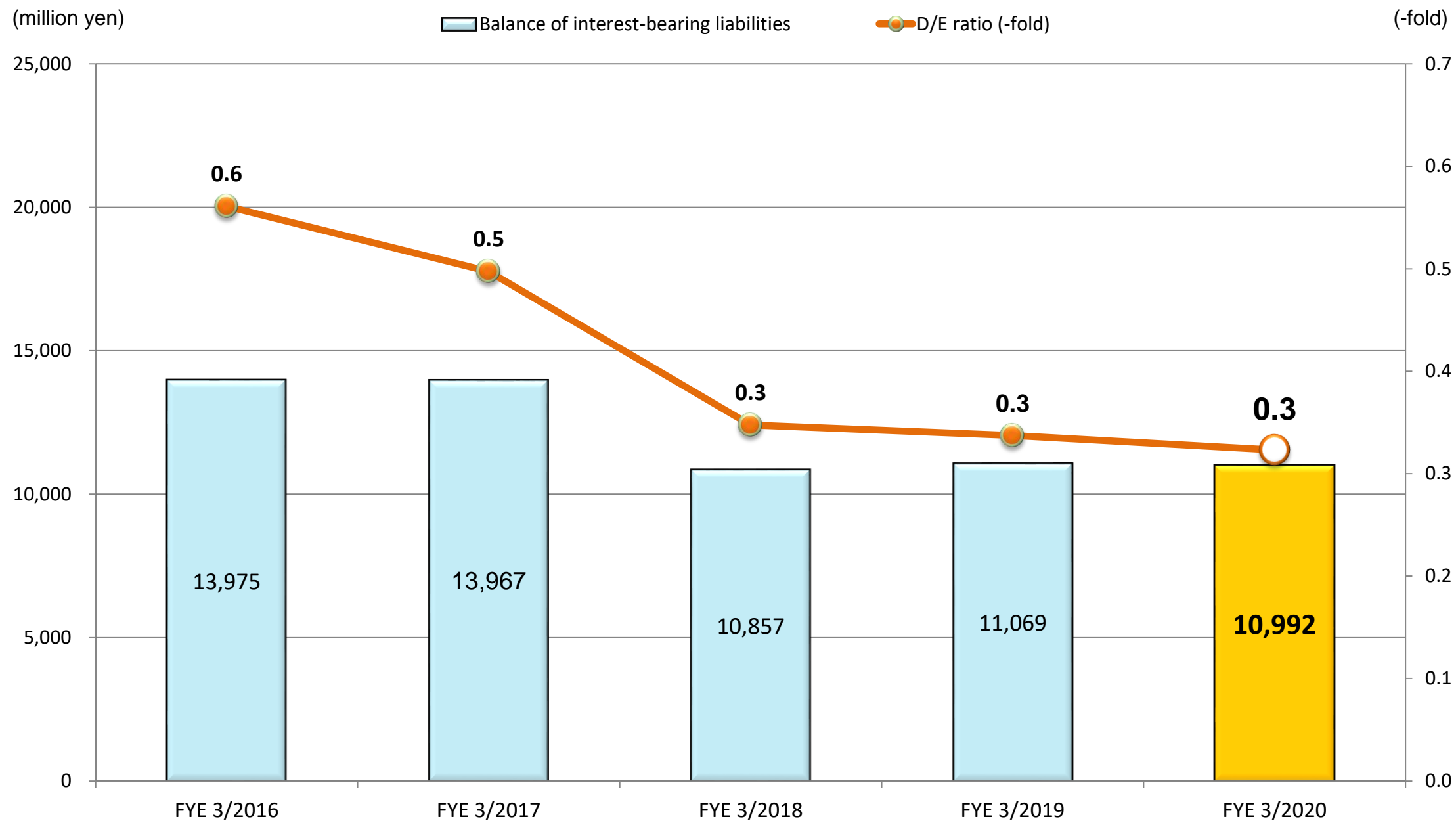
| | FYE 3/2016 | FYE 3/2017 | FYE 3/2018 | FYE 3/2019 | FYE 3/2020 |
|---------------|------------|------------|------------|------------|------------|
| Average Price | 158 | 135 | 209 | 220 | 186 |

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 | 10,992 | -76 | -0.7 |
| 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 |

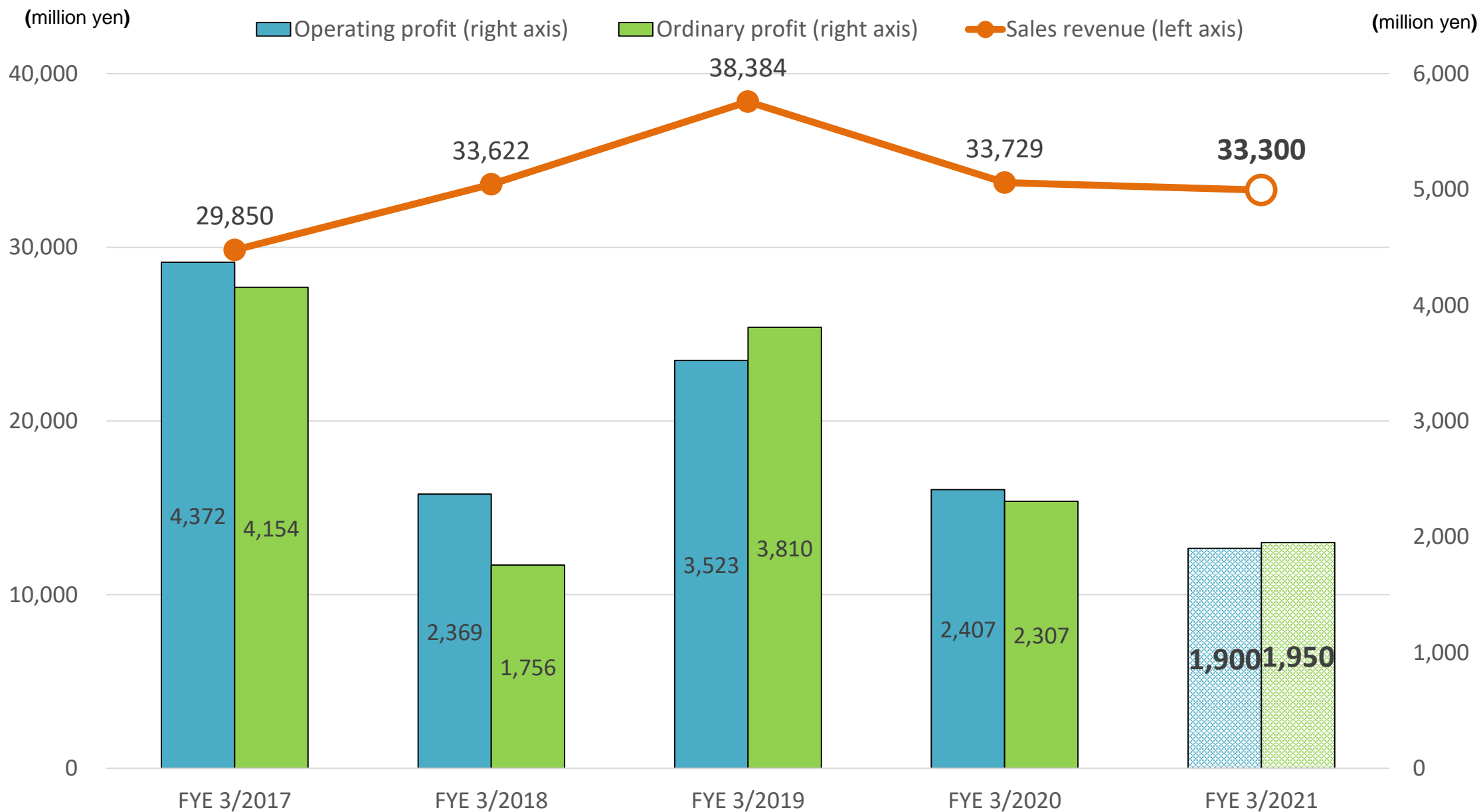
2. Financial Forecast for FYE 3/2021

- 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 |

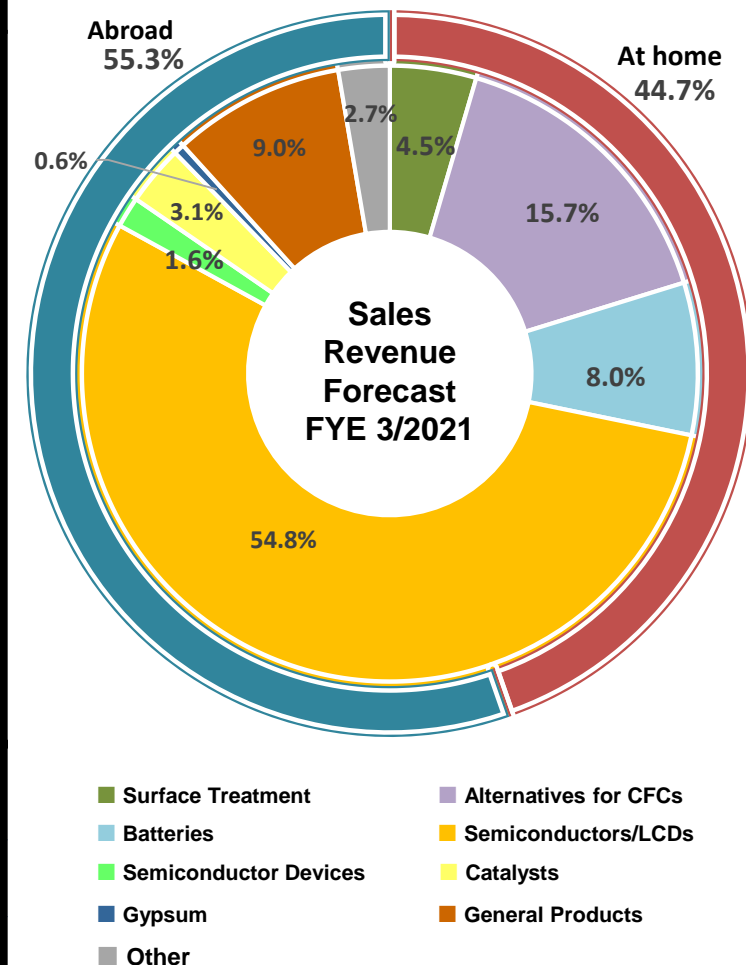
<Financial Trends>



<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)

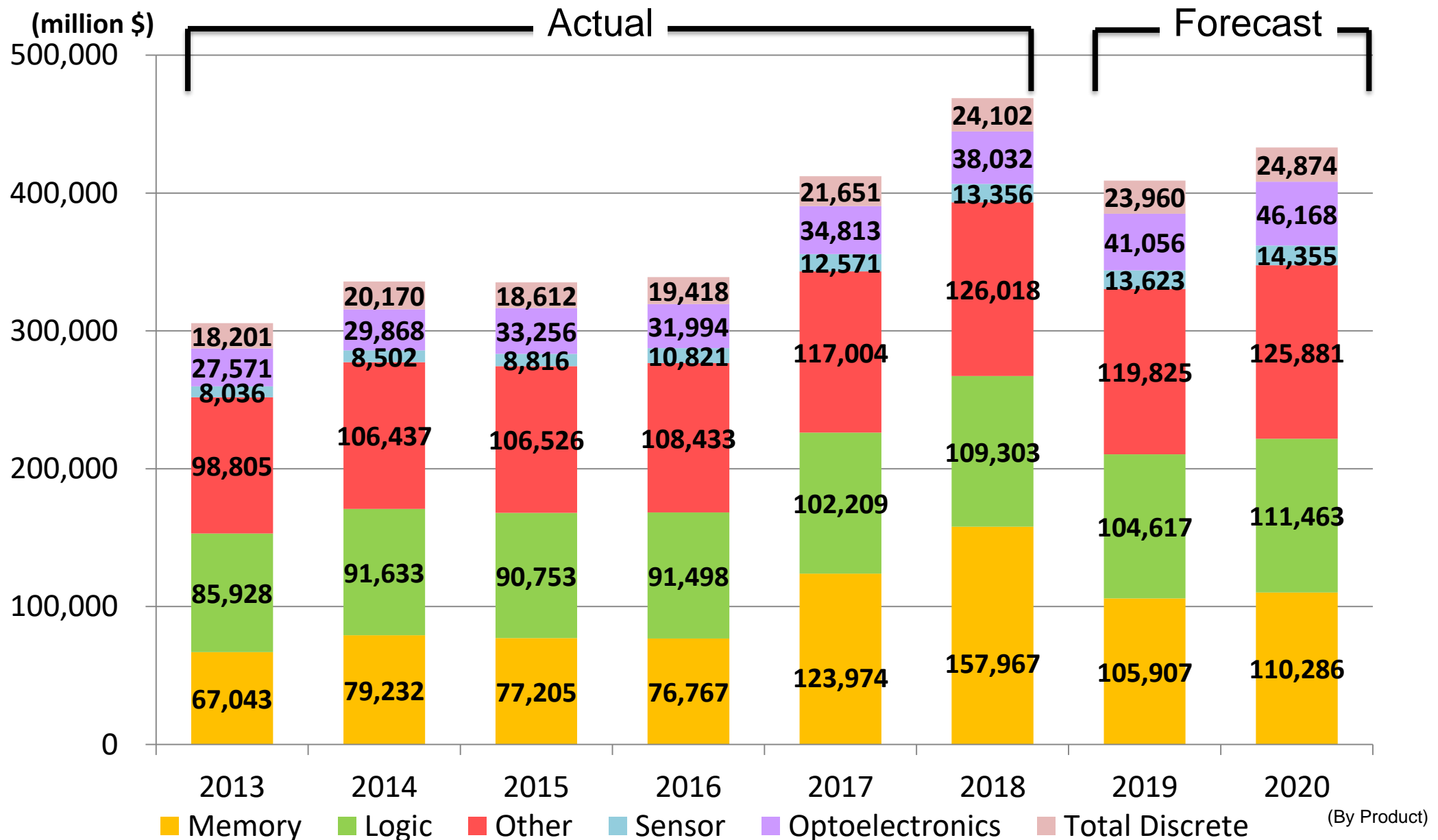
<Features of Our Products and New Products>

- (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. Shelf 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 | 0.2/0.1μm | 0.05μm | <u>Further strengthening particle management</u> |

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

With introducing the world's most advanced analytical instruments.



©RION CO., LTD.

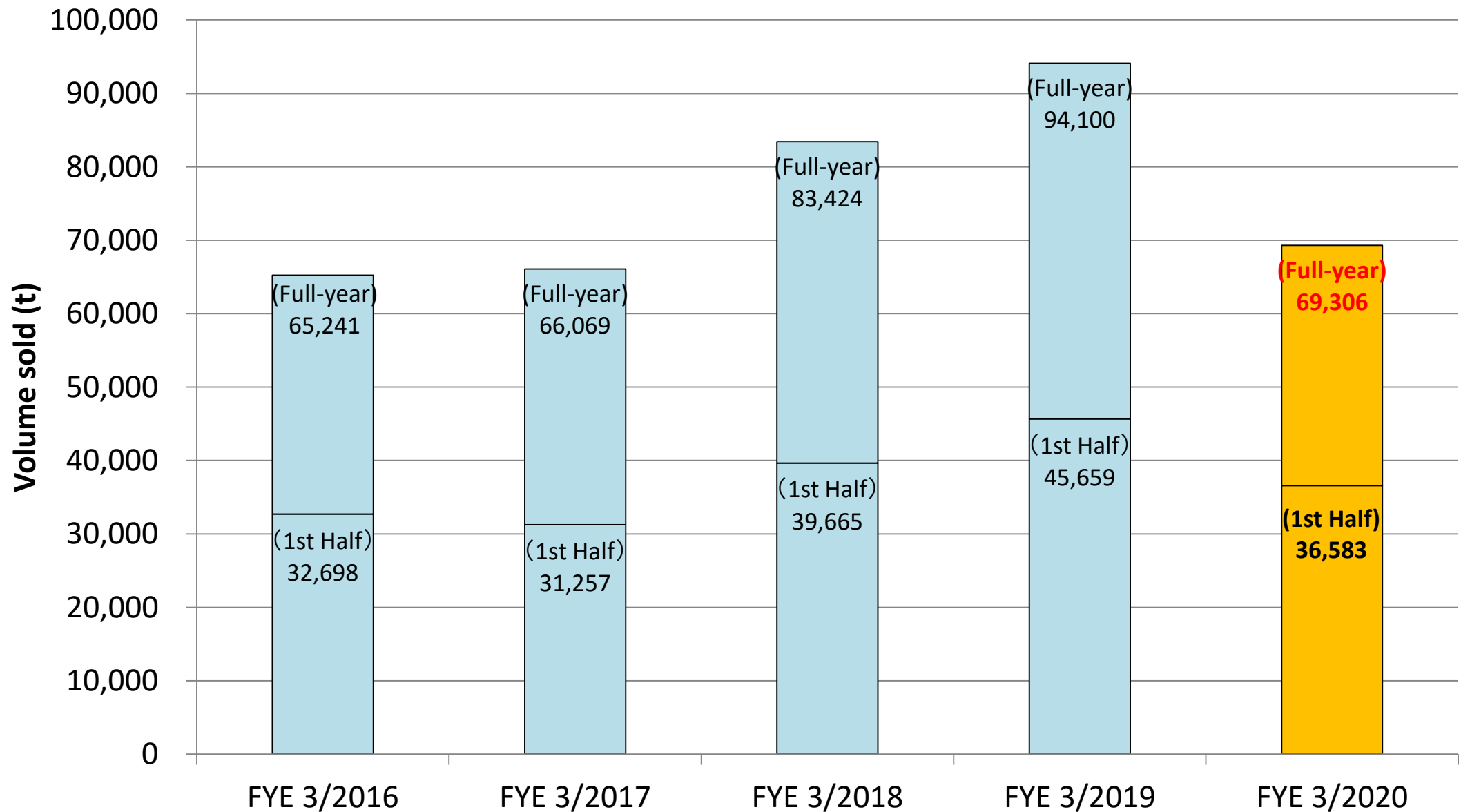


©Thermo Fisher Scientific K. K.

Liquid-borne particle counter

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>

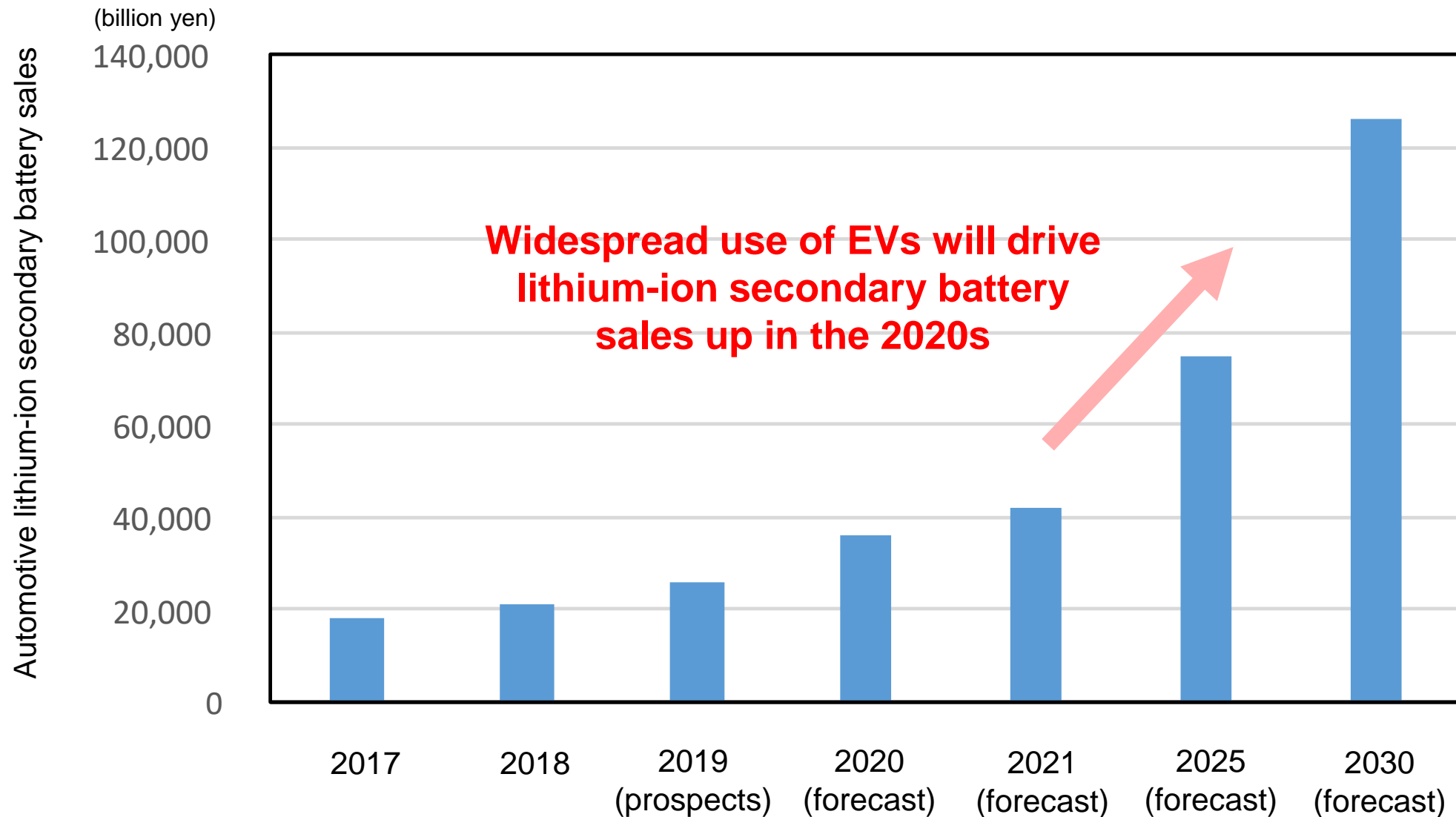


Fig. Change in sales in automotive lithium-ion secondary battery (results and forecasts)
(Source: Materials released by Fuji Keizai)

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

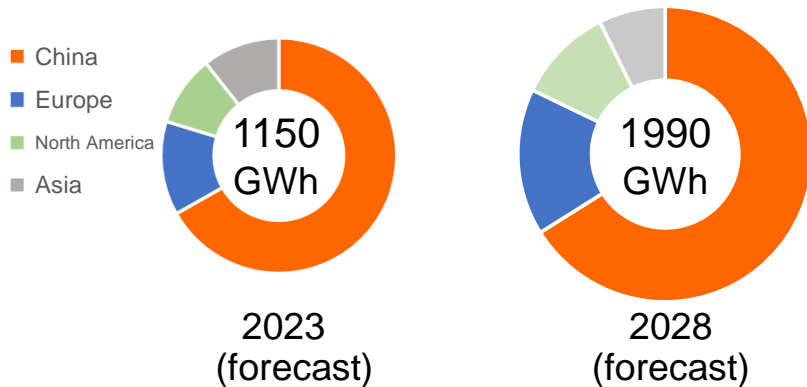
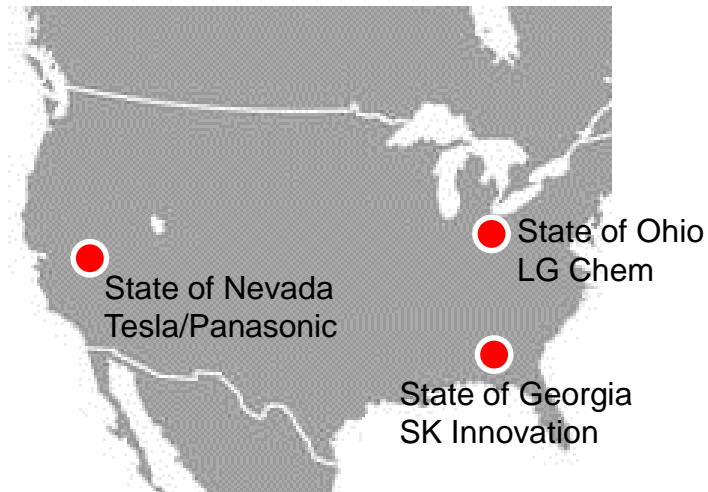
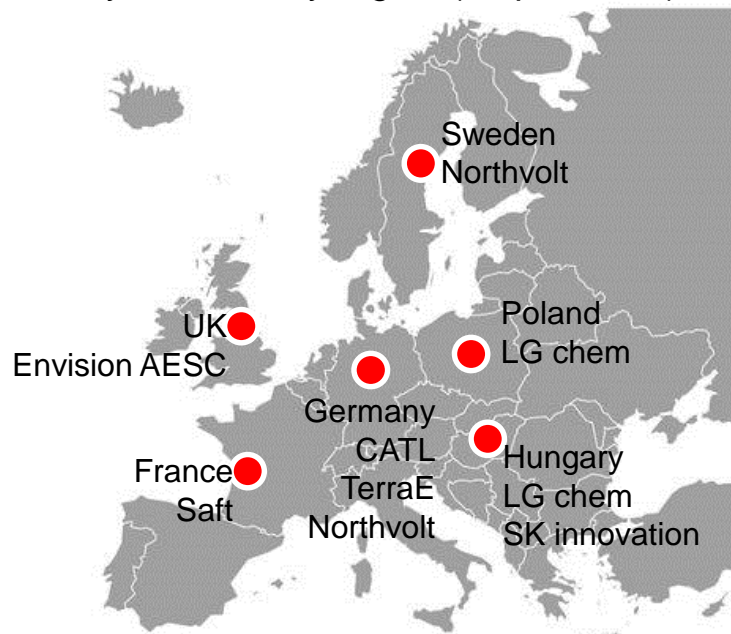
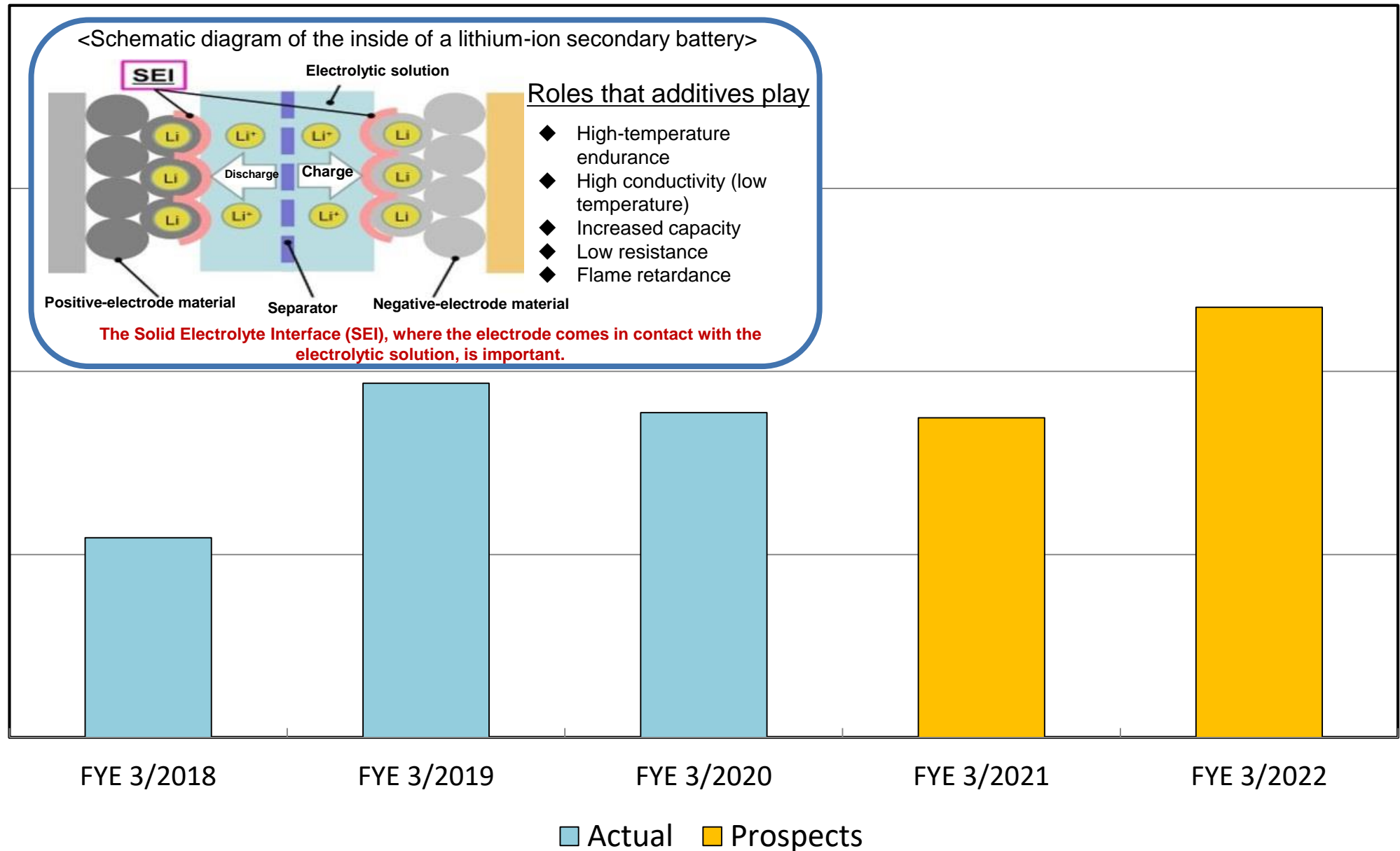


Fig. Change in production capacity for lithium-ion secondary batteries by region (output-basis)



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>



GMP-related

- GMP (Good Manufacturing Practice)
- Oral Care-related ~ Tin Fluoride (SnF_2) ~

< 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



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”

Inside Izumi Factory (Izumiotu City, Osaka)

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

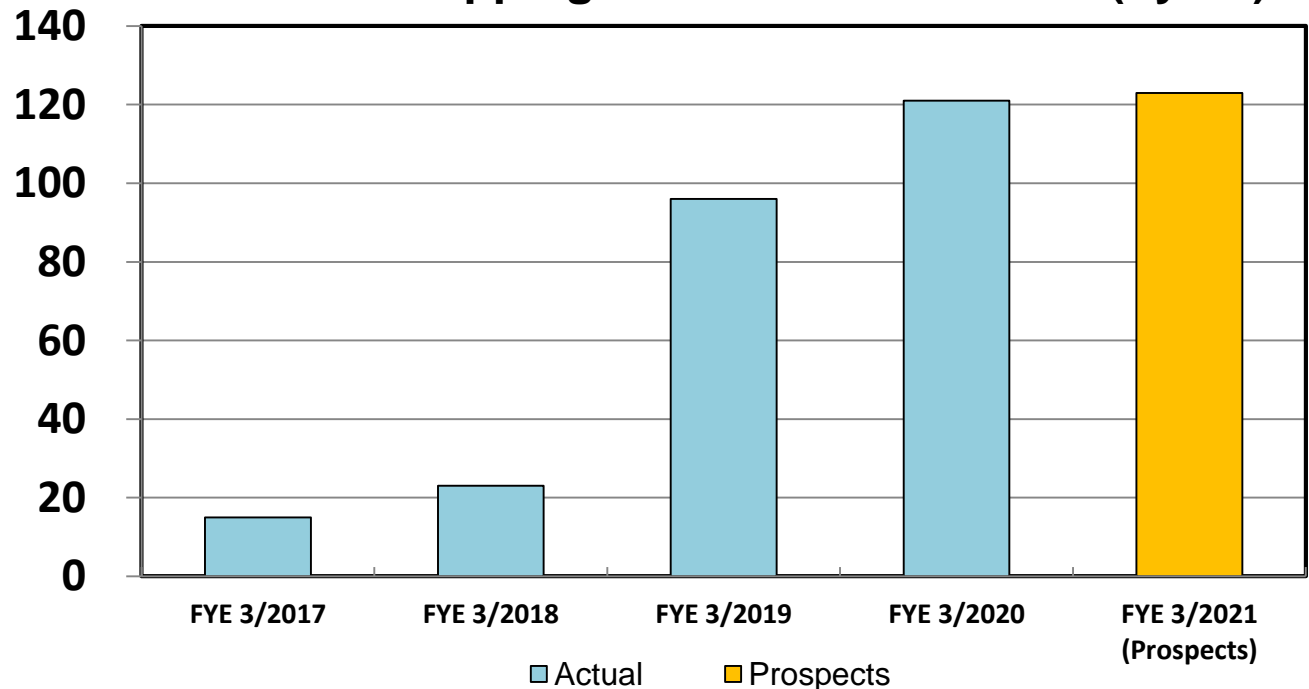
<Actions of fluorine on teeth>

- 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.



Trend in shipping volume of tin fluoride (t/year)



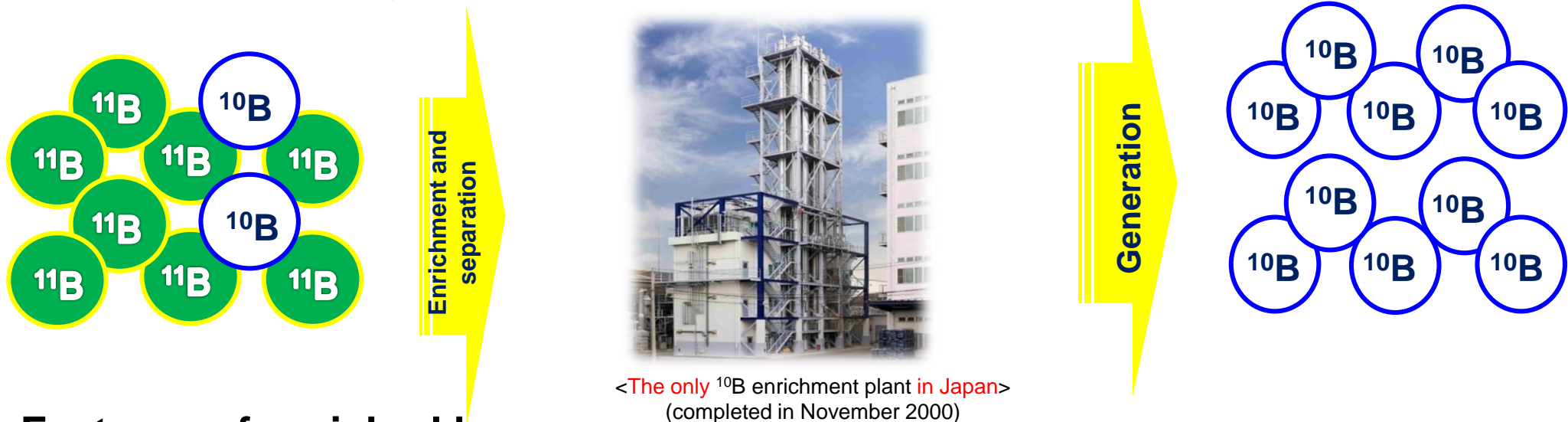
Others

- 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 ^{10}B for the first time in Japan.
In November 2000, the only enrichment plant in Japan was established.



■ Features of enriched boron

^{10}B offers properties of remarkably high neutron absorption capacity, and by increasing ^{10}B 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)>

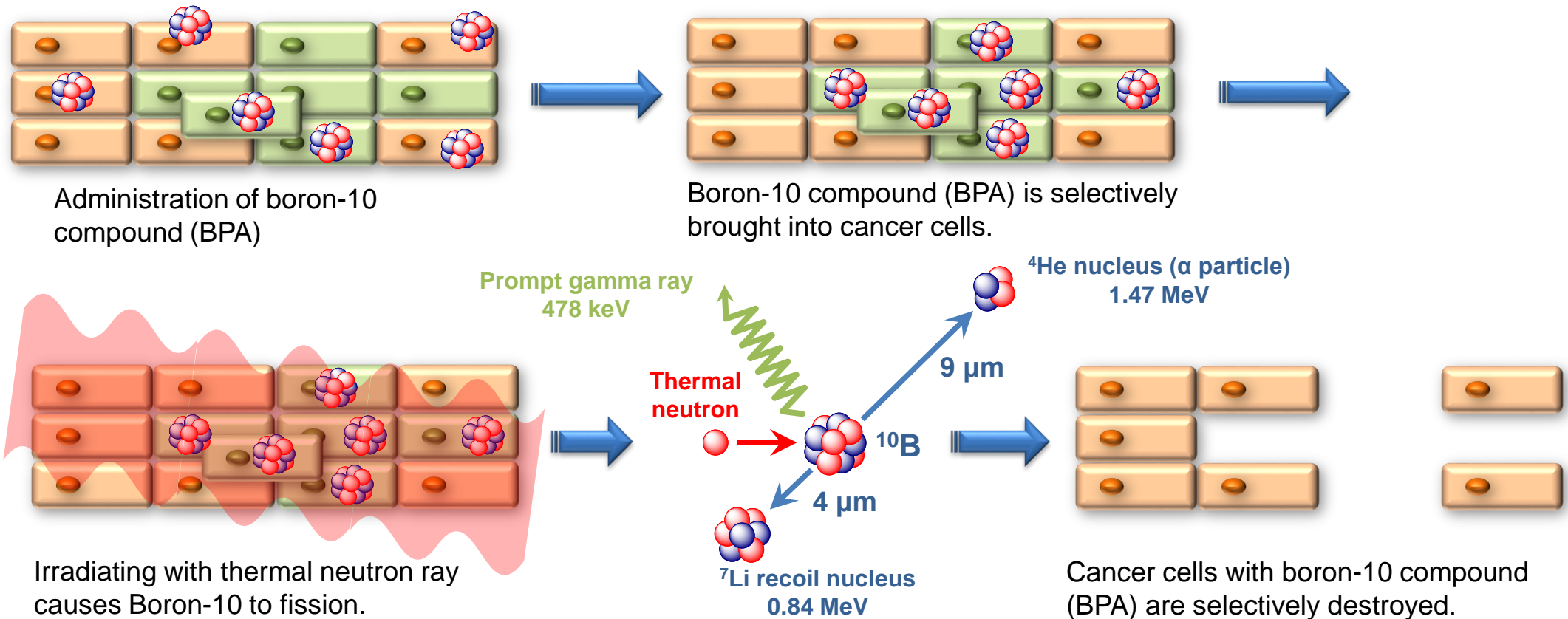
| | |
|-------------------------|---|
| Corporate name | STELLA PHARMA CORPORATION |
| Head Office | 3-2-7 Koraibashi, Chuo-ku, Osaka City, Osaka |
| Representative | President: Tomoyuki Asano |
| Established | June 2007 |
| Capital Fund | 1,900,000,000 yen |
| Business Lineup | Research and Development, 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)**

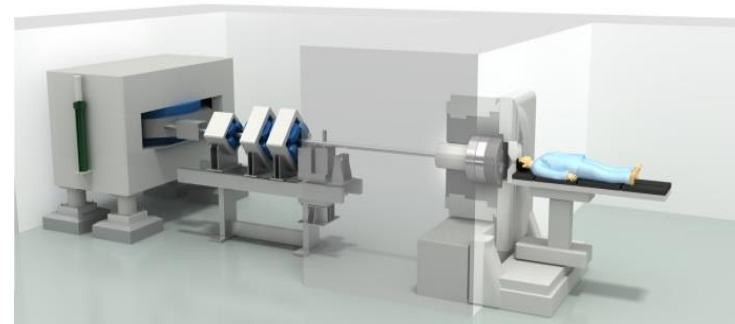


Image: Provided by Sumitomo Heavy Industries, Ltd.

<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)

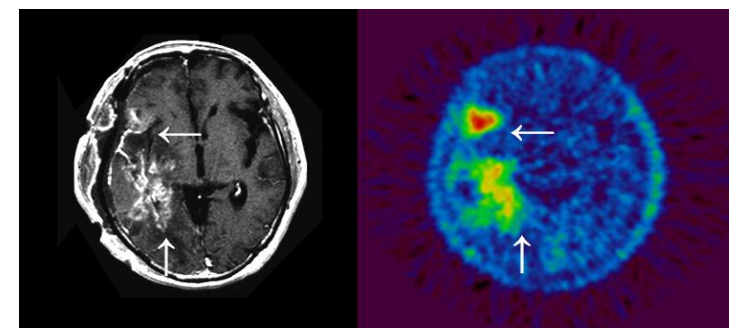
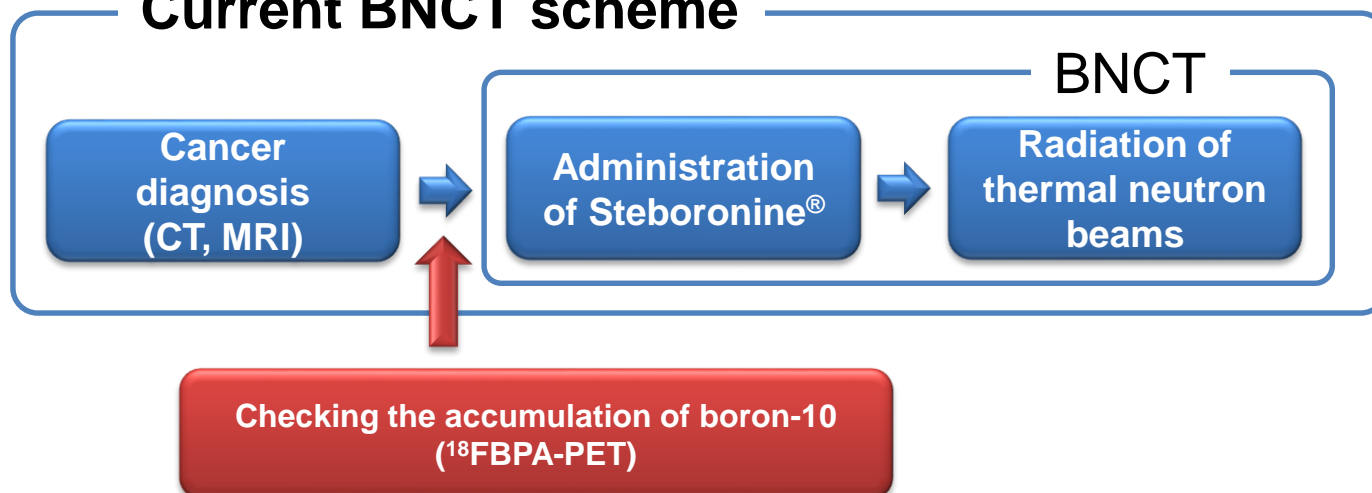
<Participation in Development of Imaging Diagnostic Technology –PET Diagnosis–>

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

Features of ^{18}F FBPA-PET

- ☆ It is expected that ^{18}F 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}F 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

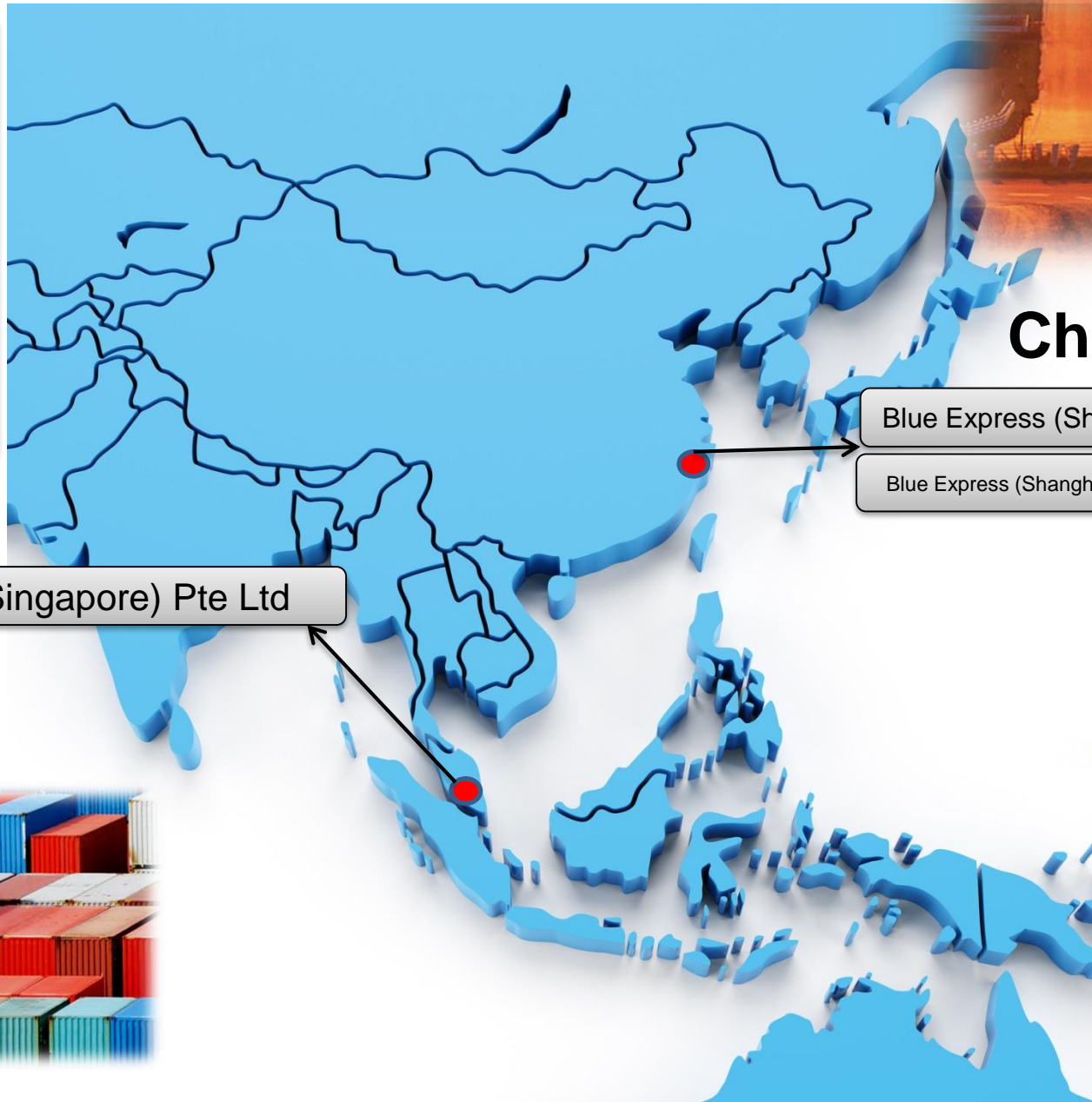


<Overseas Bases>



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



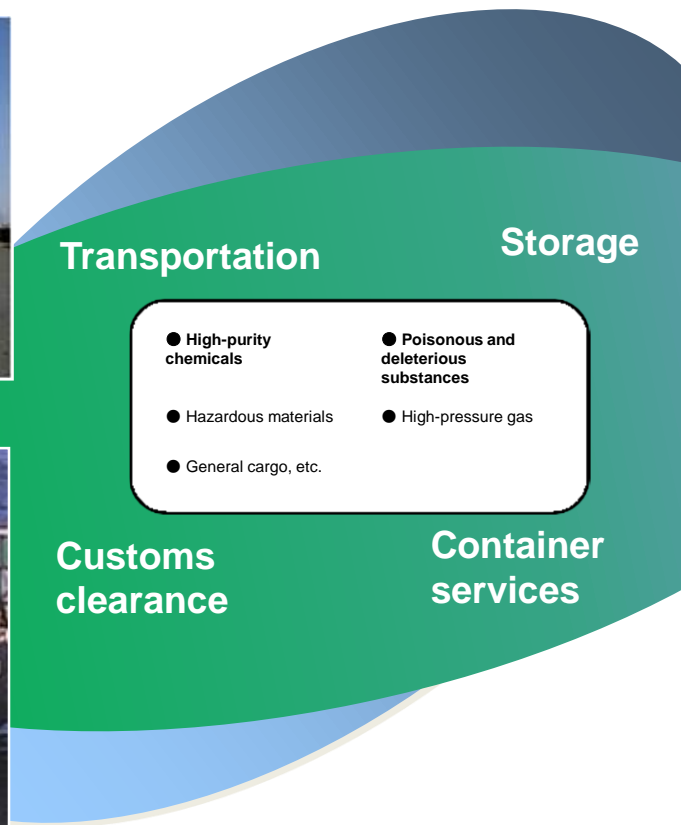
Nagoya Office
Relocated in February 2020



<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



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

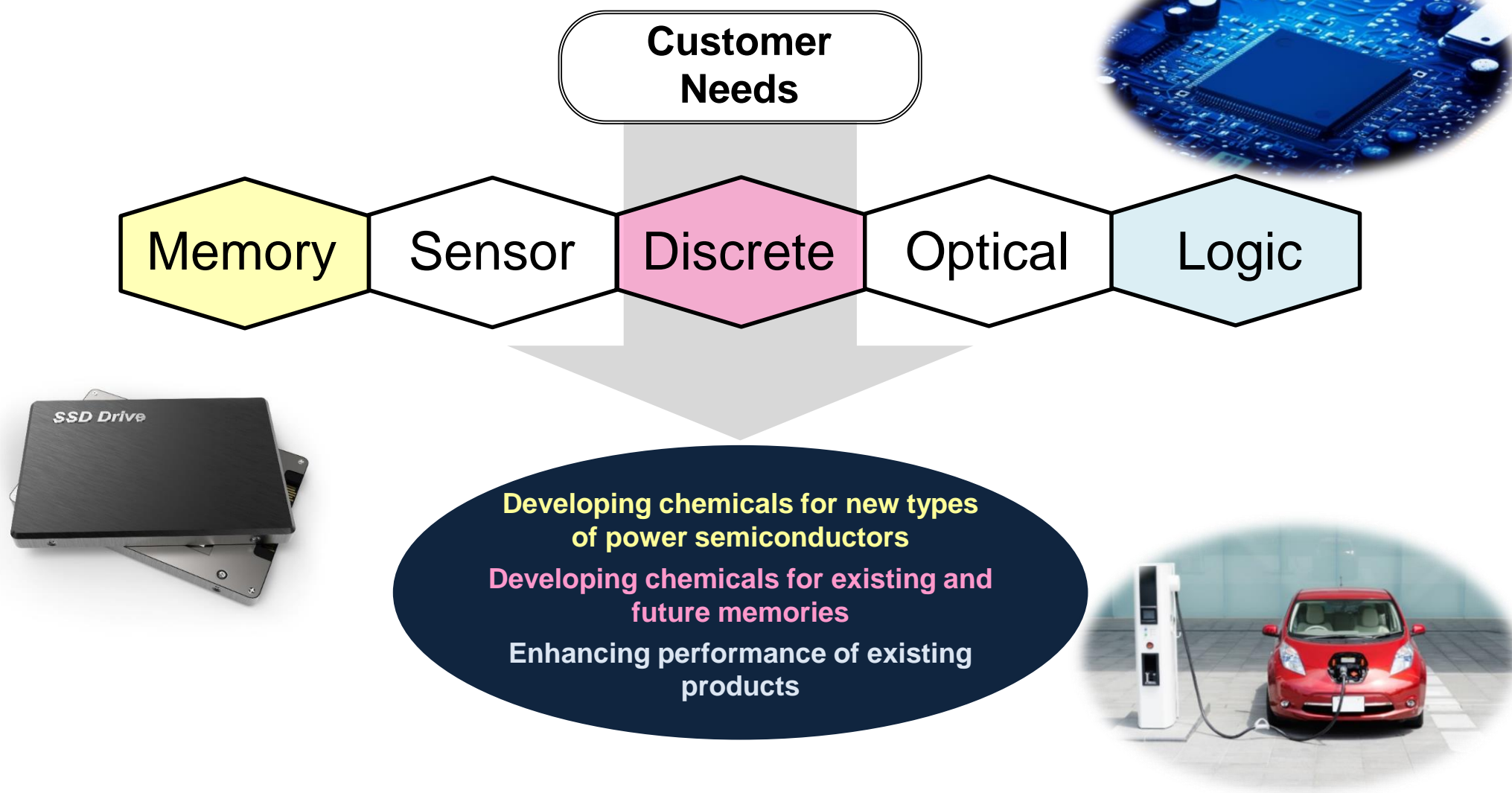
Functional Fluoride

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



<Chemicals for Semiconductor Device Manufacturing 2>

Developing chemicals for existing and future memories

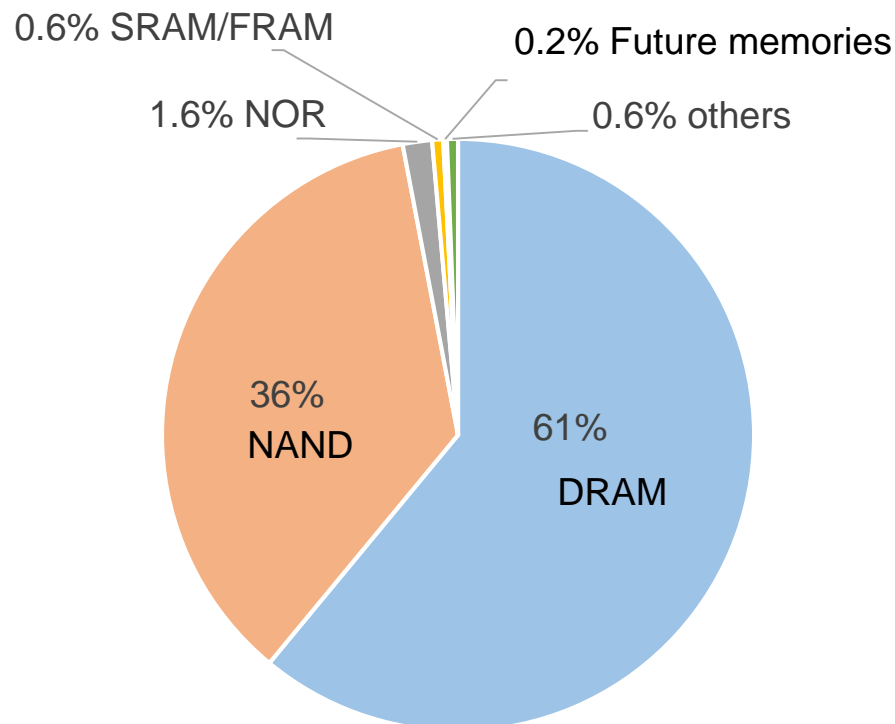


Fig. Market share by memory in 2018
(Total amount: \$165 billion)

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

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

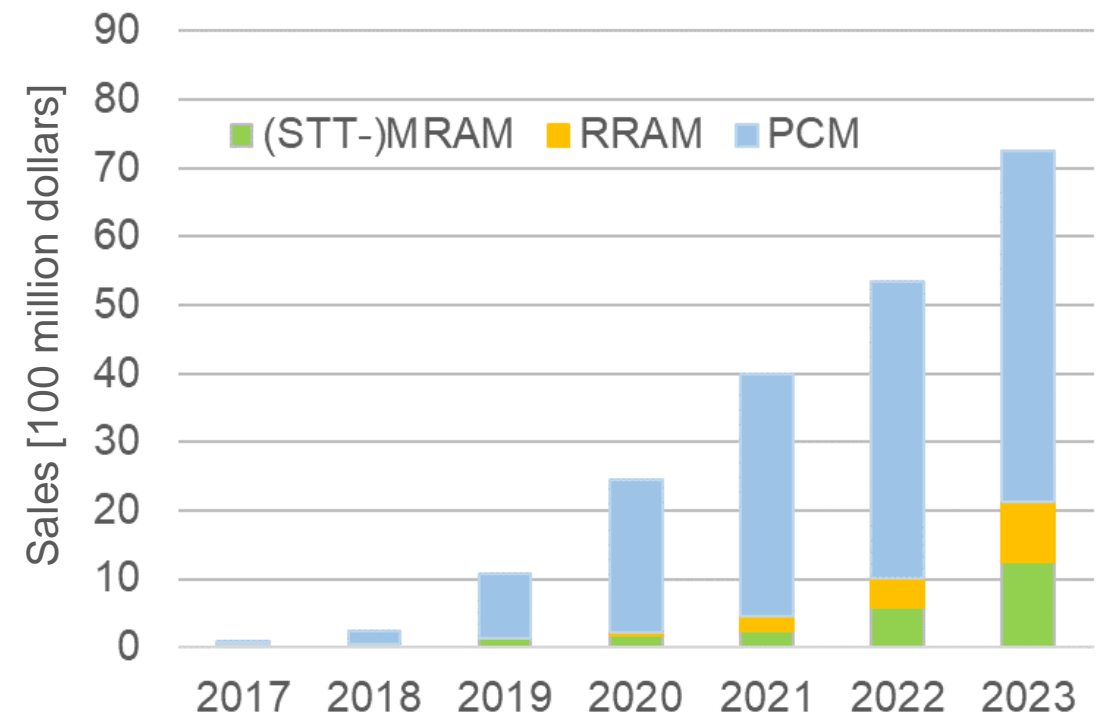


Fig. Market forecast of future memories

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

Conducting surveys to grasp the needs of future memories manufacturing.

<Chemicals for Semiconductor Device Manufacturing 3>

Developing chemicals for future power semiconductors

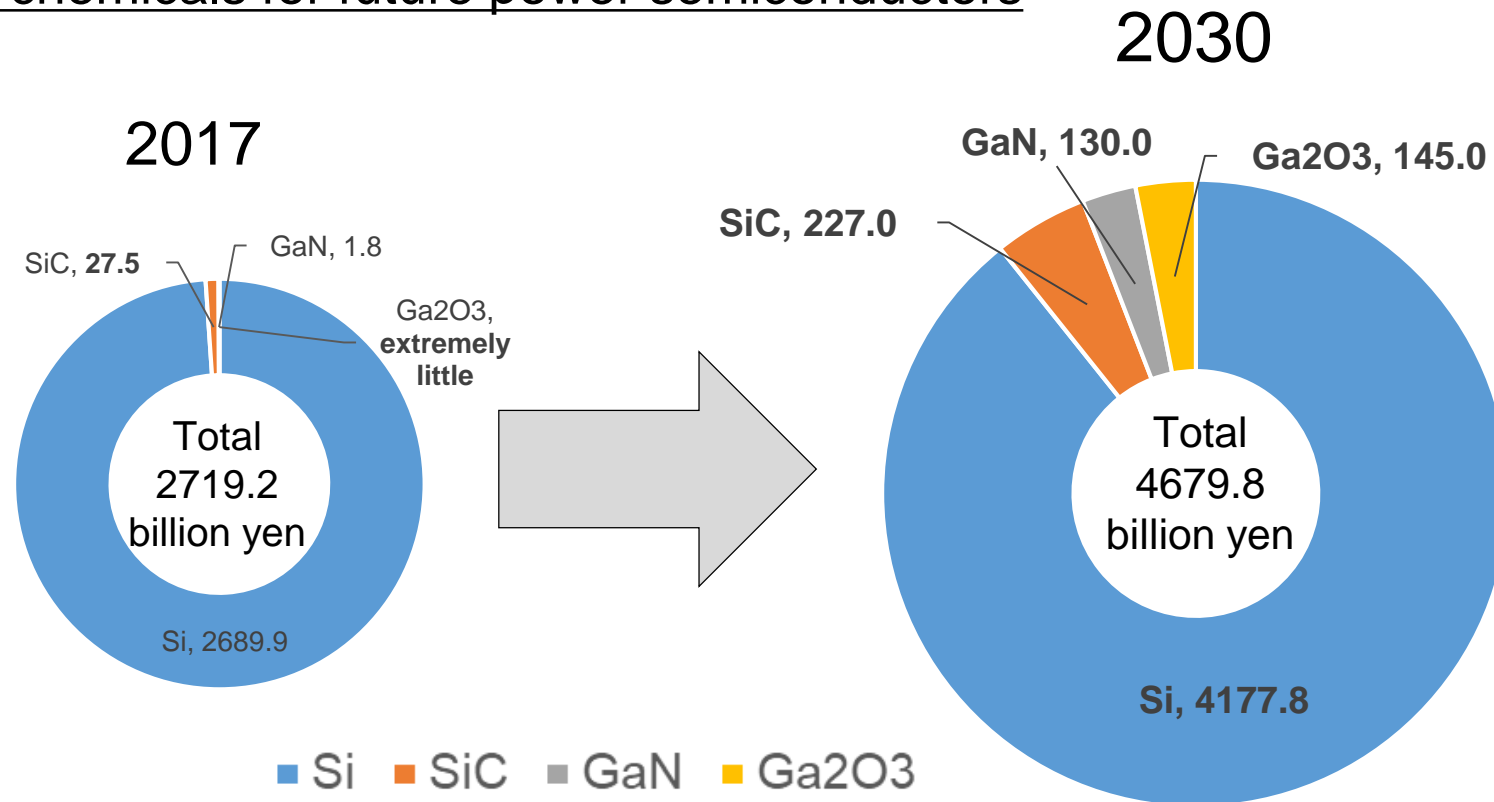


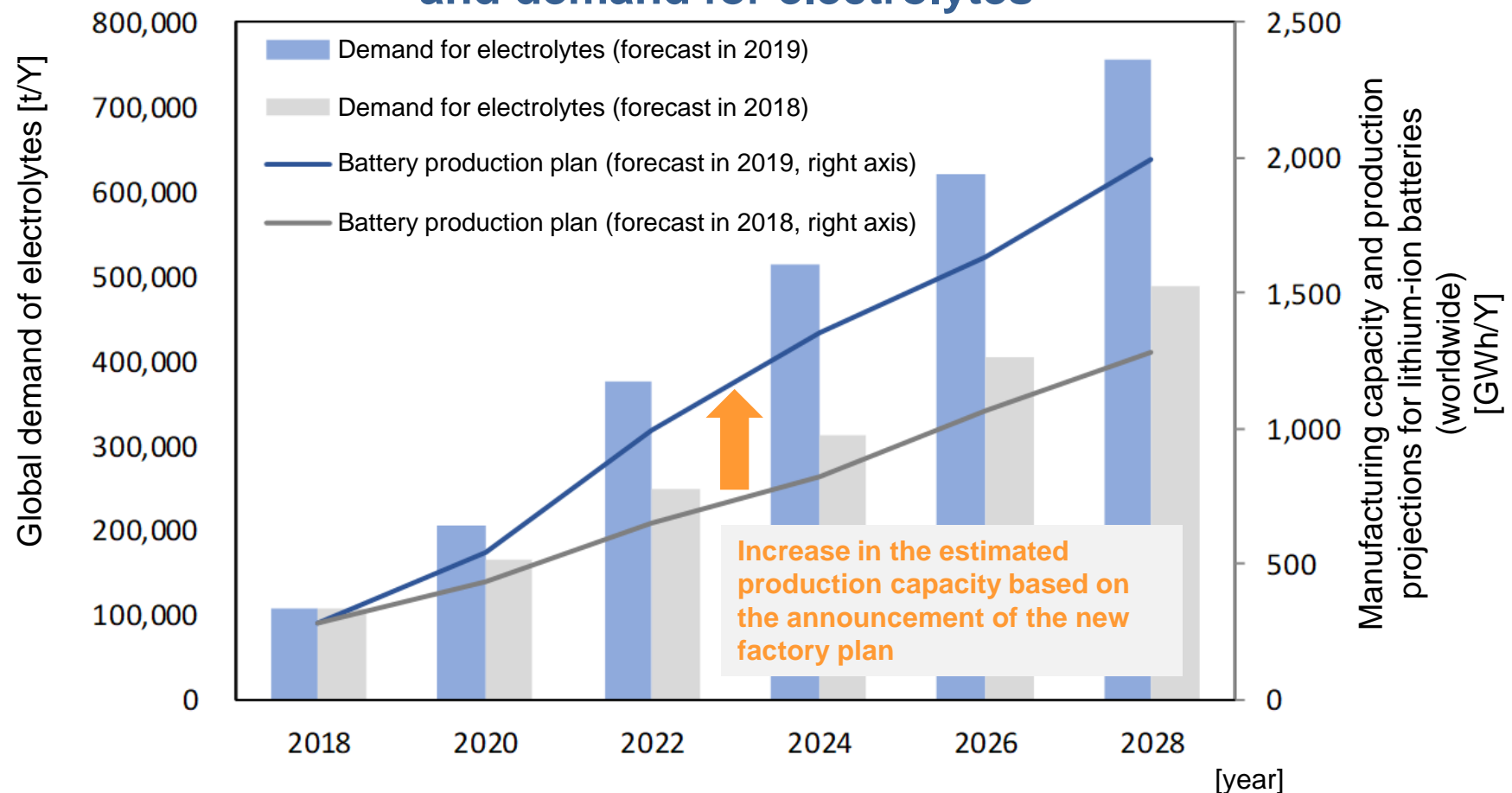
Fig. Market transition of power semiconductors
(*Results of 2017 and forecast for 2030)

Source: Fuji Keizai Group

- **GaN power devices → Developing new chemicals in joint research with universities**
- **Ga₂O₃ 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

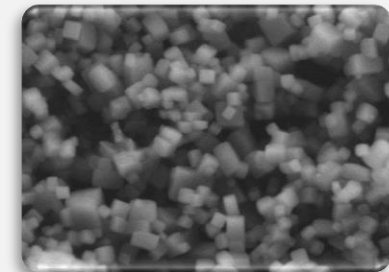
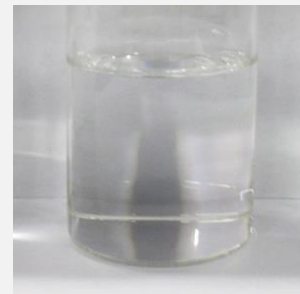


Image of electrode additive

Electrolyte



Proposing materials for electrolyte





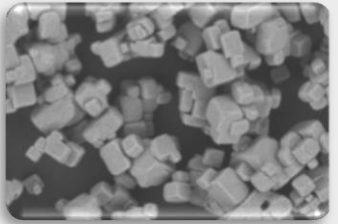

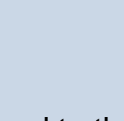

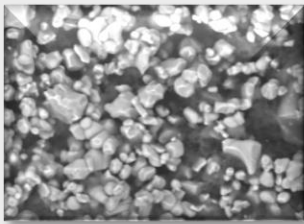







Appearance of a new additive

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>

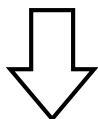
Low refractive index material

Fluoride nanoparticles with low refractive index for antireflection coatings

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

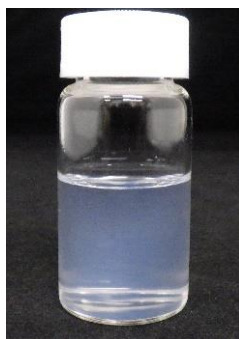


Refractive index
 $n = 1.38$ (existing product)



$n = 1.31$
(under development)

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

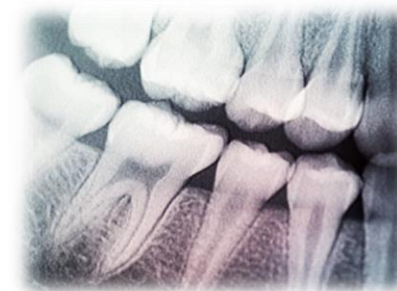


Radiation shielding material

(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

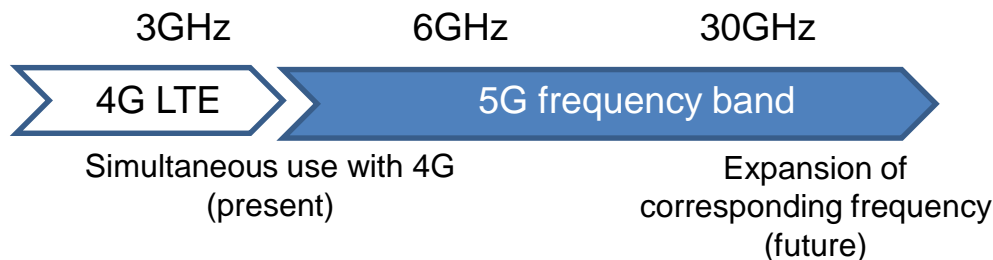
<Functional Fluoride 2>

Developing materials for future network devices

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

Expectation for 5th generation mobile communication system

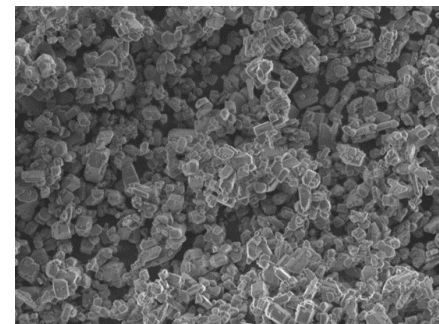
- (1) High-speed and large-capacity data transmission
- (2) Low-latency communication
- (3) Multiple simultaneous connections



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



Deployment to communication infrastructure



Materials for high-frequency use

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

Under evaluation at parts manufacturers in Japan and overseas



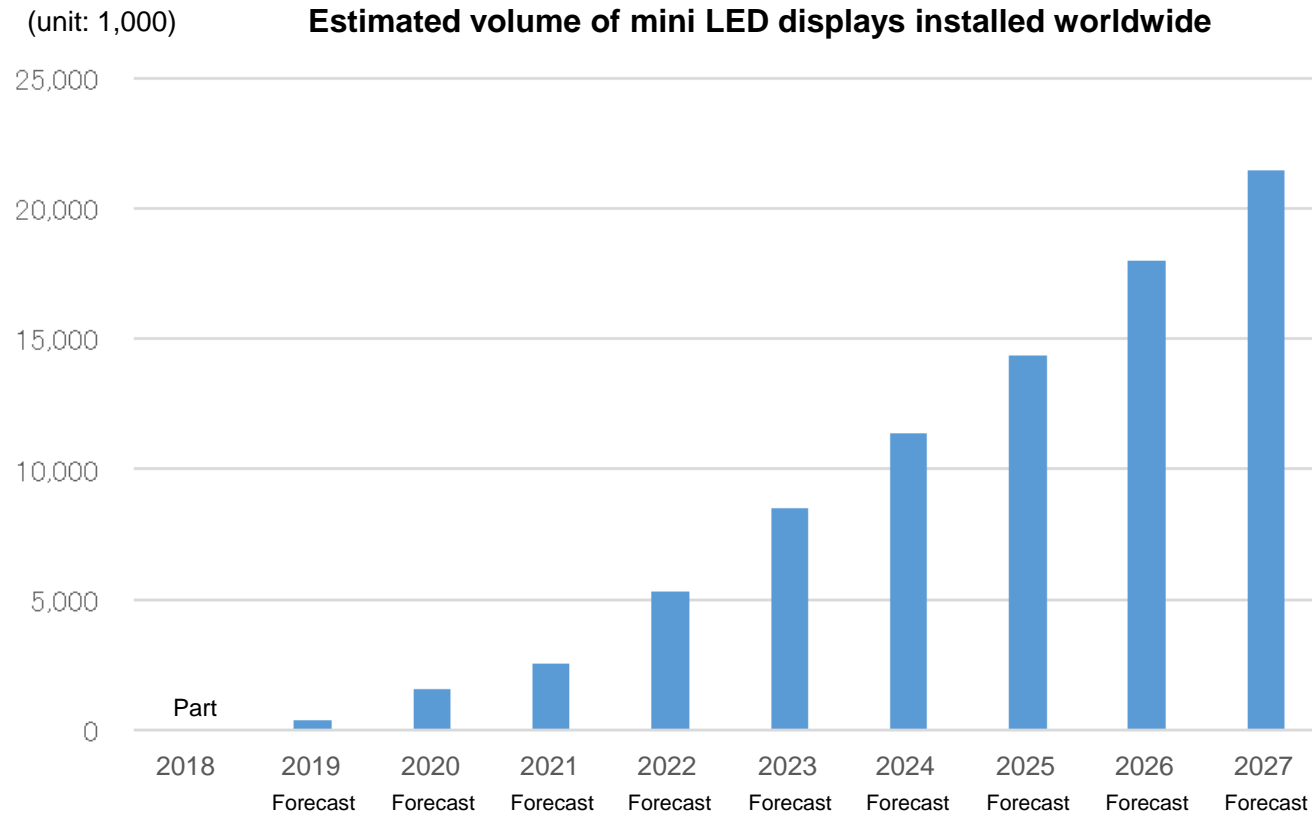
Deployment to communication terminals



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

<Functional Fluoride 3>

Phosphor and its related materials



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

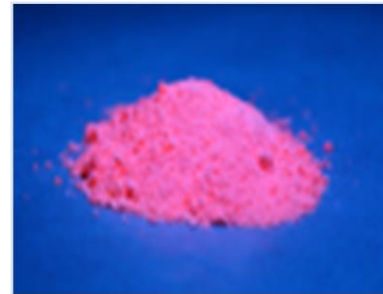
Source: The current situation and future prospect of LED Display Market/2019 - Micro LED and mini LED -(Yano Research Institute Ltd.)

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

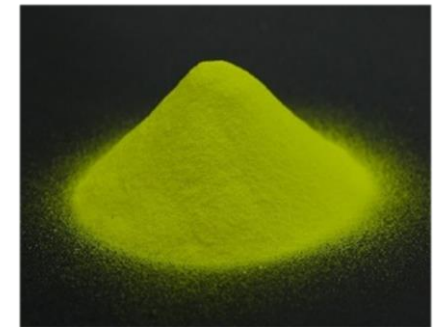
<Functional Fluoride 3> **Phosphor and its related materials**

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

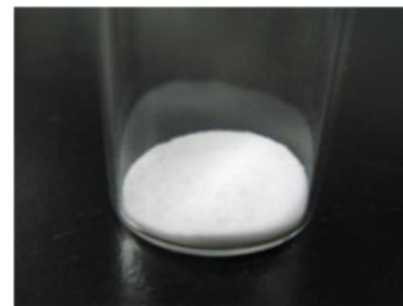
LSA-61A Red phosphor



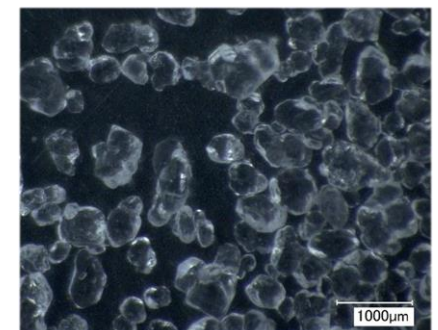
NSM Raw materials for phosphor



**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



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