

**Company Profile
&
The 2nd QT of Fiscal Year ending March 2019**

**(2019 April-September)
Business Results**

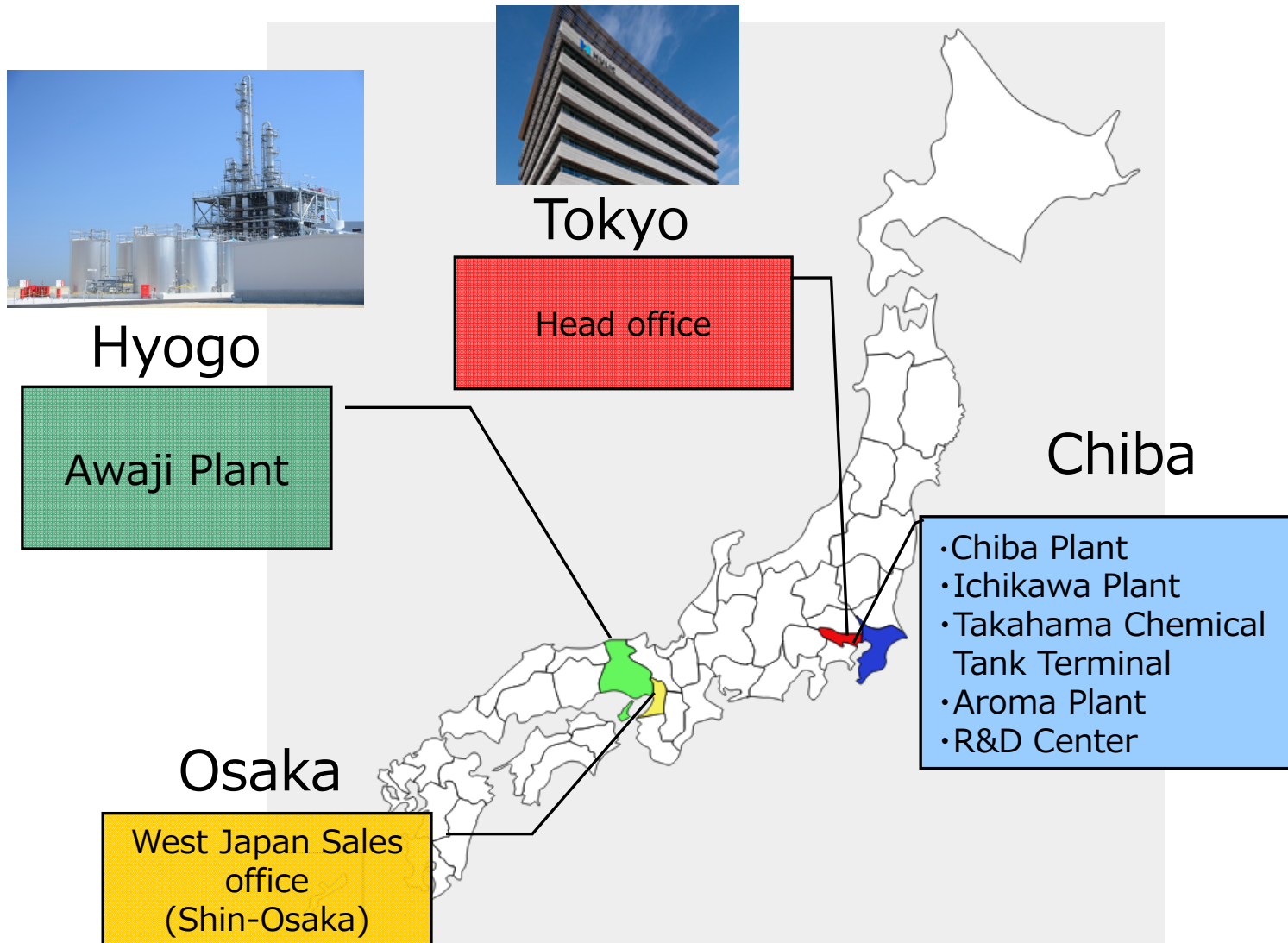


November 2019

Corporate Outline

- Establishment : September 27, 1954
- Top Management : Yujin Kimura, President
- Paid-In Capital : 1,618 Million yen (As of March 31, 2019)
- Net Sales : 18,183 Million yen (for the year ended March 31, 2019)
- Employees : 656 (As of March 31, 2017)
- Listed Market : Tokyo Stock Exchange JASDAQ Market
- Securities Code : 4970

Site Map



Tokyo

Head office



Hyogo

Awaji Plant



Chiba

- Chiba Plant
- Ichikawa Plant
- Takahama Chemical Tank Terminal
- Aroma Plant
- R&D Center

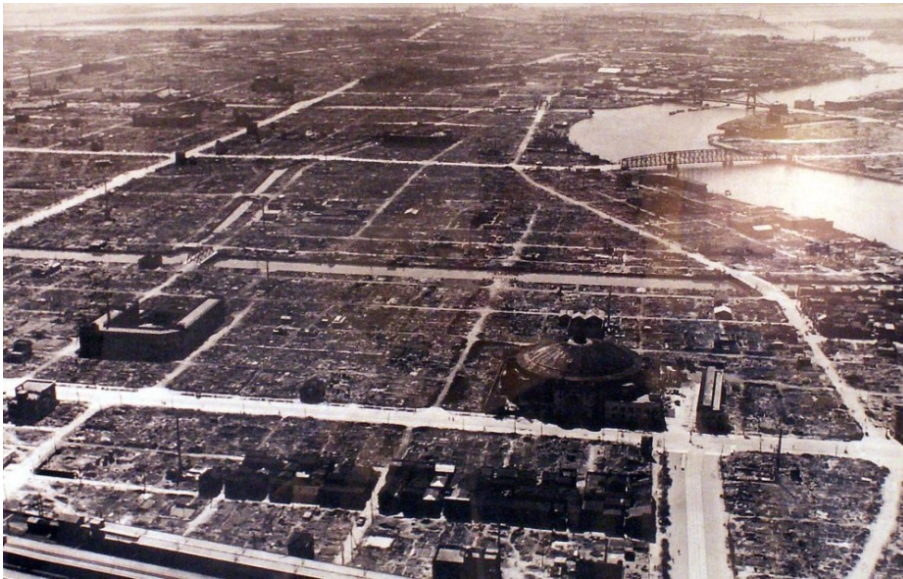
Osaka

West Japan Sales office (Shin-Osaka)

Origin of company name

Differences between those possessed and those not possessed = Science and technology and strategy in Reconstruction of Japan after world war II.

“Our founder wanted to start a business that contributes globally from Asia based on chemical technology”, then he named it “Toyo Gosei Kogyo”.



A scene of Ichikawa City's Baraki in 1966 (Showa 41). Rice harvesting.

Under the environment, our founder did self-study about distillation technology, designed and made distillation tower and boiler.

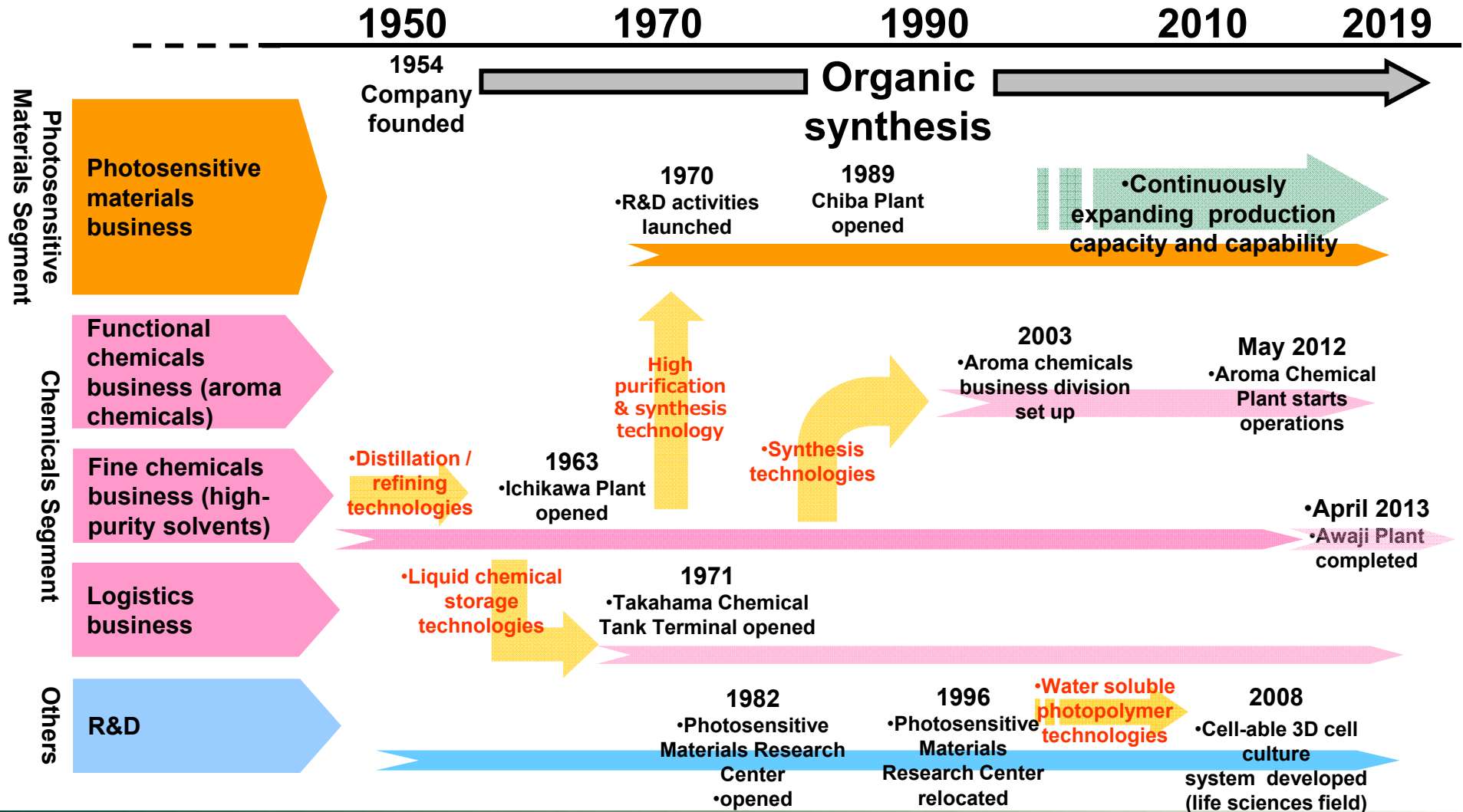
Source : City Ichikawa Nature Museum

Management Policy

1. Make what is needed in the times
2. Making something that other companies cannot make (Global niche top)
3. Research & Development and technology at the core in the business
4. Don't give up, do it simply honestly and sincerely

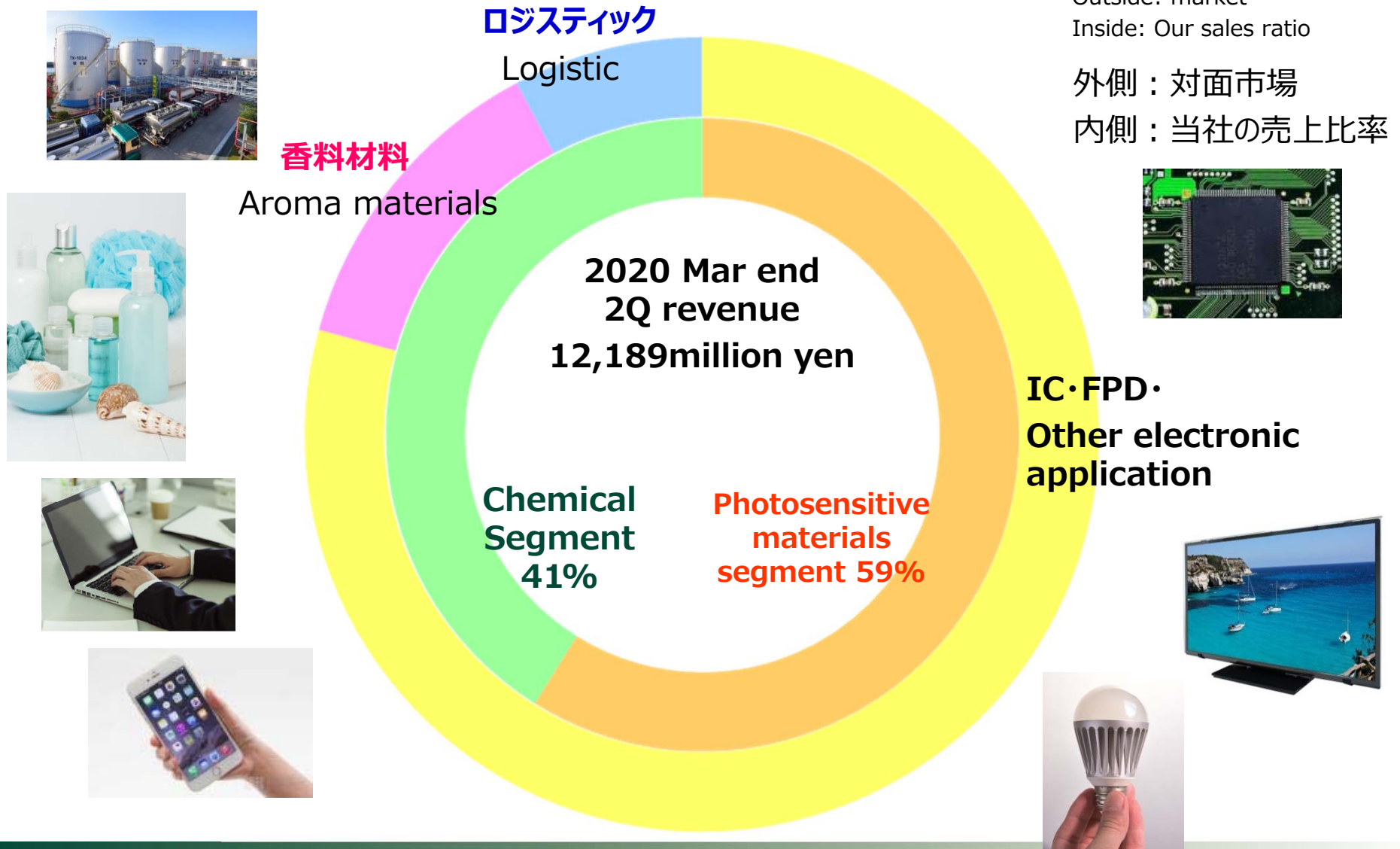
•Our Business History

- Since established in 1954, the Company expanding business in the functional chemicals field by leveraging our strengths in organic synthesis and purification technologies.
- Always estimate market's need to expand business



Business portfolio

- 80% sales from IC/FPD/Electronic application



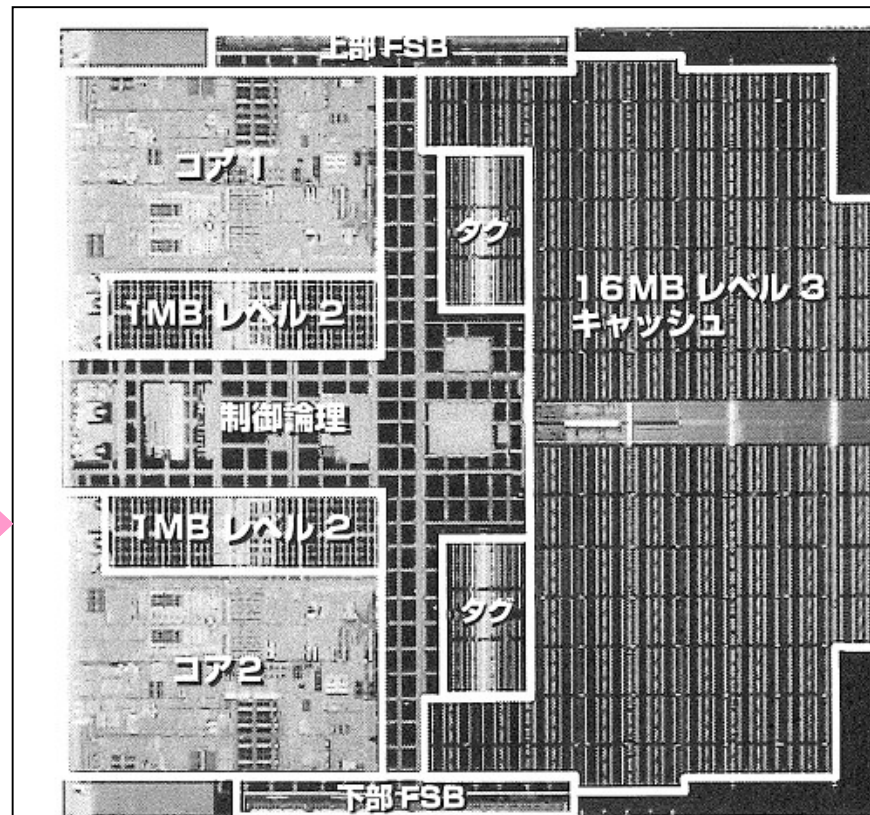
Photosensitive materials products,

Electronic materials products

High-purity solvents

Inside of IC Chip

- Intel's IC Chip: Photo of CPU(Central Processing Unit)



1nm=0.000001mm

Line width : 700nm~20nm
Production Technology :
65nm node, 8 layers Cu wire
of Transistors : 1.3 billion
Chip area : 435mm²
Level 2 cache : 1MB
Level 3 cache : 16MB
Operating frequency : 3.4GHz
Power-supply voltage : 1.25V
power consumption : 150W (peak)
110W (average)

図 1.15 インテル社製 Xeon (Tulsa) プロセッサの機能ブロック図
(2006年8月発表, FSB: 800MHz)

<http://www.eos.ncsu.edu/e115/text.php?ch=6&p=processors>

Intel's Xeon (Tulsa), Processor's function structure
(Present on Aug 2006, FSB: 800MHz)

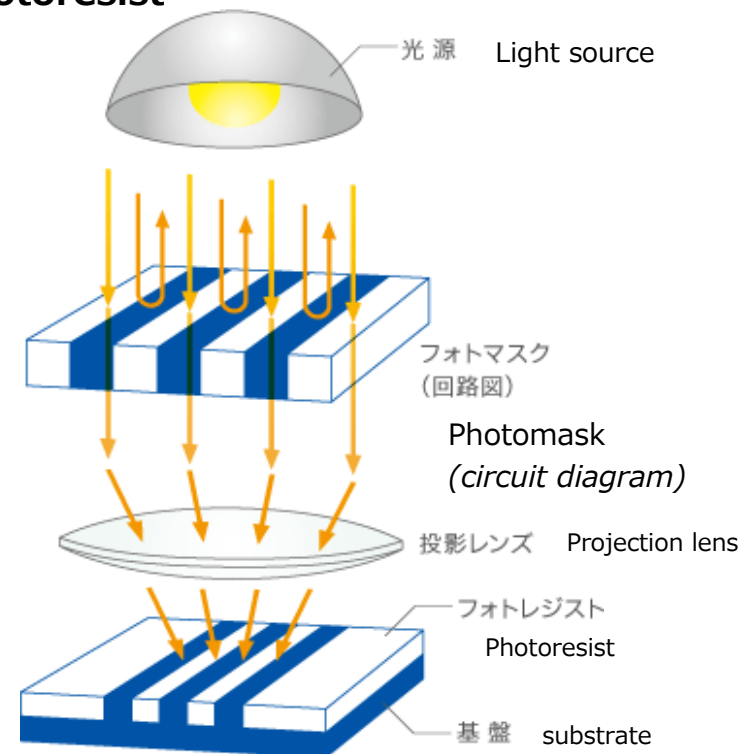
Photolithography in Semiconductor and FPD

- High definition FPD = Minimum line width
- Performance of CPU/Memory (IC) = Minimum line width

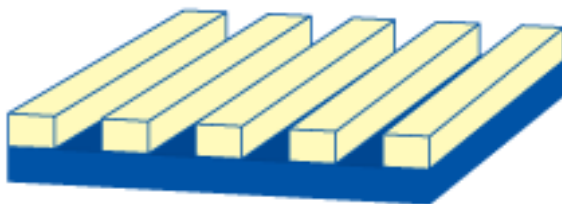
1. Coating photoresist on the substrate



2. Exposure via photomask as transferring image to coated photoresist



4. Developing by developer to get the pattern



3. Chemical reaction on the exposure area

Composition of photoresist

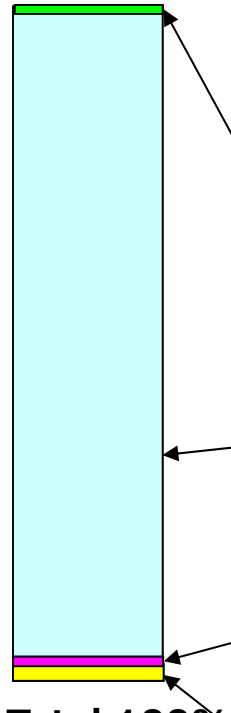
- Toyo Gosei's photosensitive materials are a critical component in photoresists used to make semiconductors and FPDs.



Photoresist (liquid form)

*Blended with other materials by photoresist makers

Common photoresist composition ratio



Additives

High-purity organic solvent (PGMEA, EL etc.)

Photosensitive materials

PAG: Photo Acid Generator
PAC: Photo Acid Compound
Several% to several tens% for polymer

Polymer (Resist resin, Base polymer) ~10%

•Our main products

Business Overview Photosensitive Materials/Chemicals (Solvents)

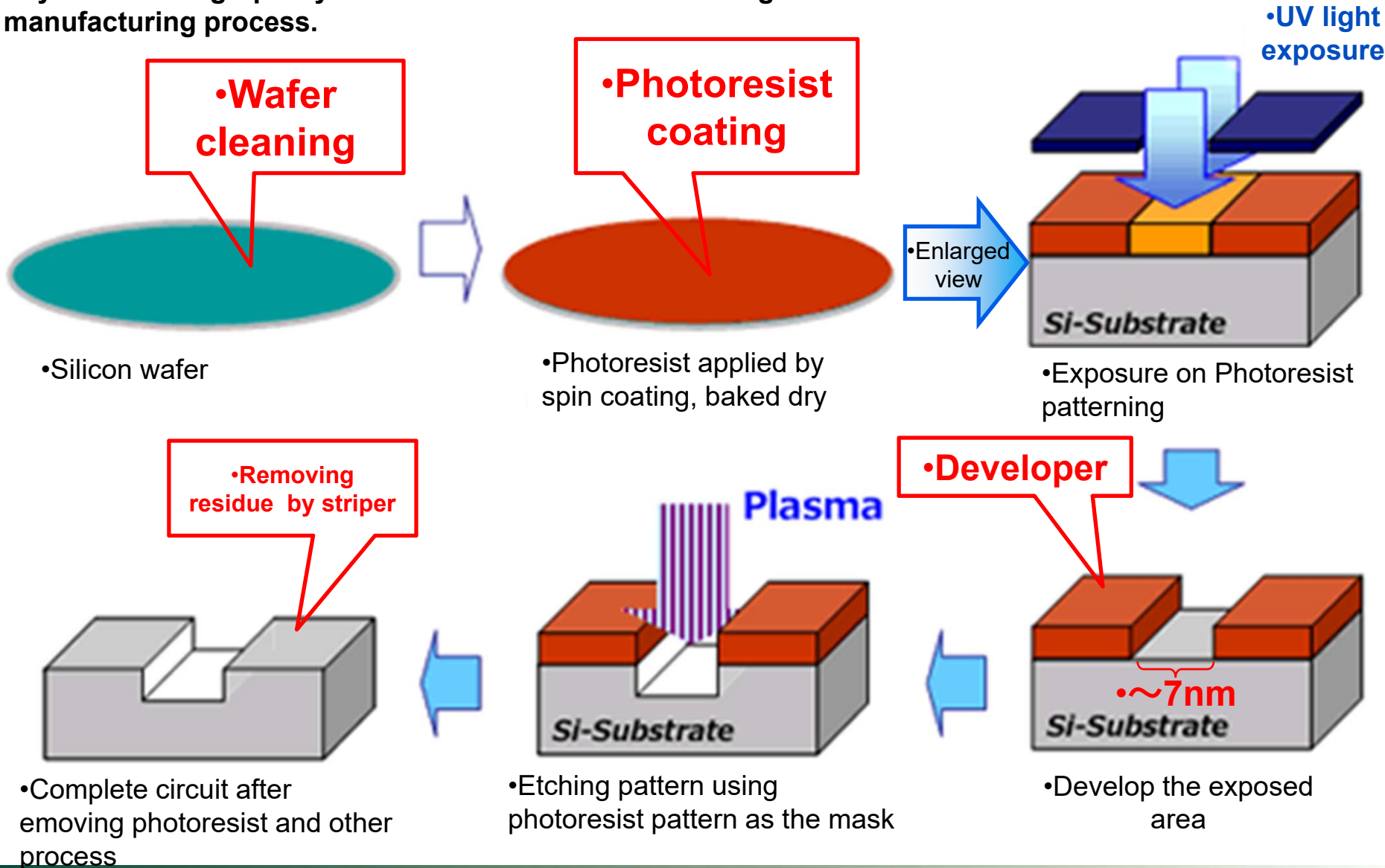
Toyo Gosei supplies photosensitive materials to customers worldwide. These materials play a key role in determining the performance of semiconductors and FPD.

Semiconductors' application is diversifying in growing market such as IoT, which is driving growth in photosensitive material demand.



Business Overview high-purity solvents

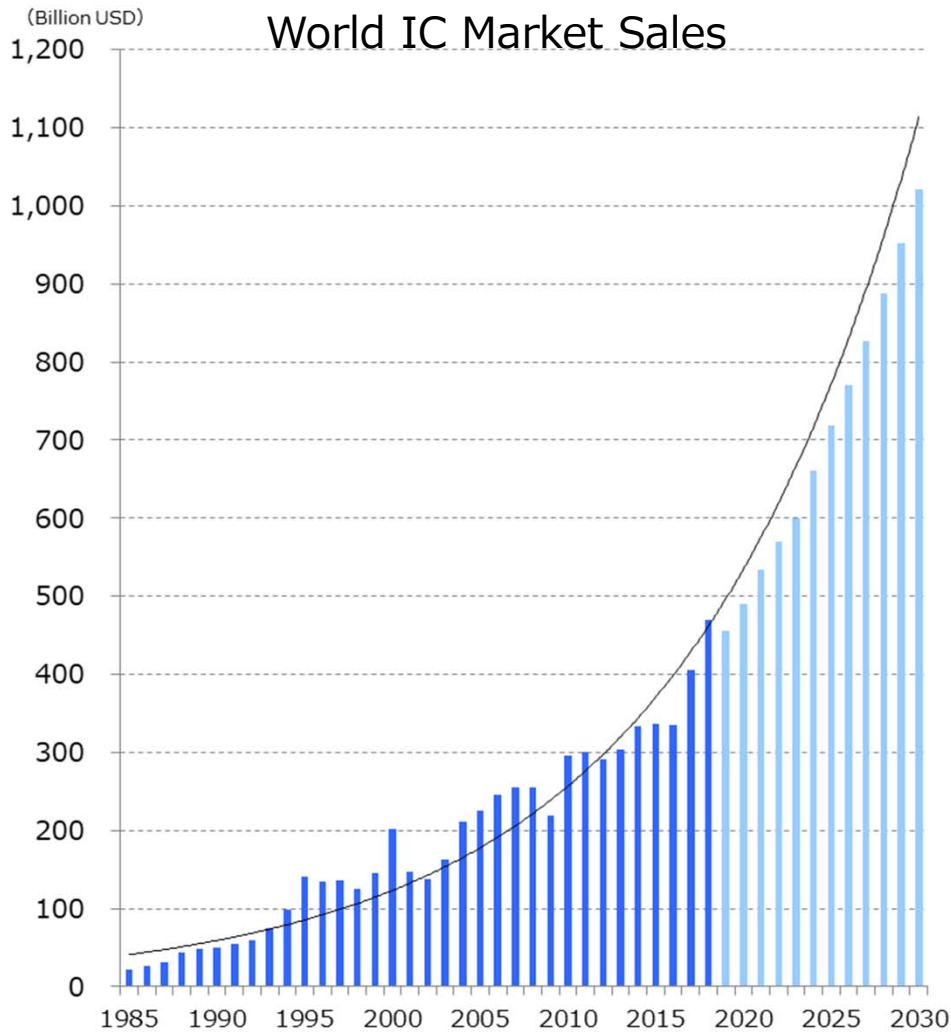
Toyo Gosei's high-purity solvents are used in various stages of the semiconductor manufacturing process.



Semiconductor Market Development & Projection

世界半導体売上高

World IC Market Sales



出所：WSTS、富士キメラ総研より当社作成

Source: WSTS & Fuji Chimera Research Institute, Inc

(2019年以降は予測)

For 2019-2030 as Projection

2017 result 21.6% growth

2018 result 13.7% growth (WSTS)

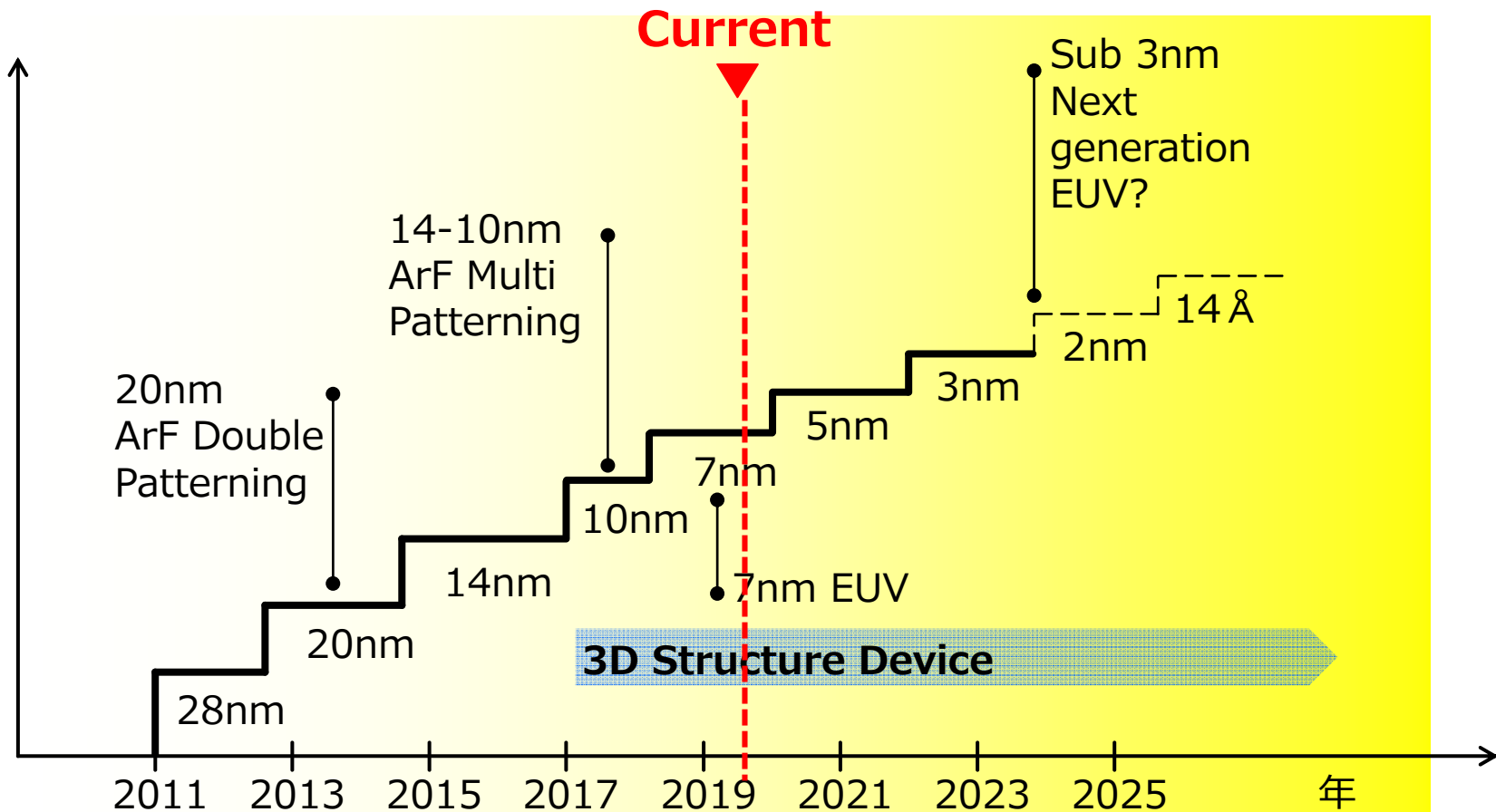
2019 projection **-13.3% down** (WSTS 2019.8)

2020 projection 4.8% growth (WSTS 2019.8)

- › IC market had big growth in 2017 & 2018, then slow down from 2018 autumn
- › Logic IC keep steadily growth
- › As medium and long term projection, IC market continuous growing under AI, IoT, CASE, 5G application expanding

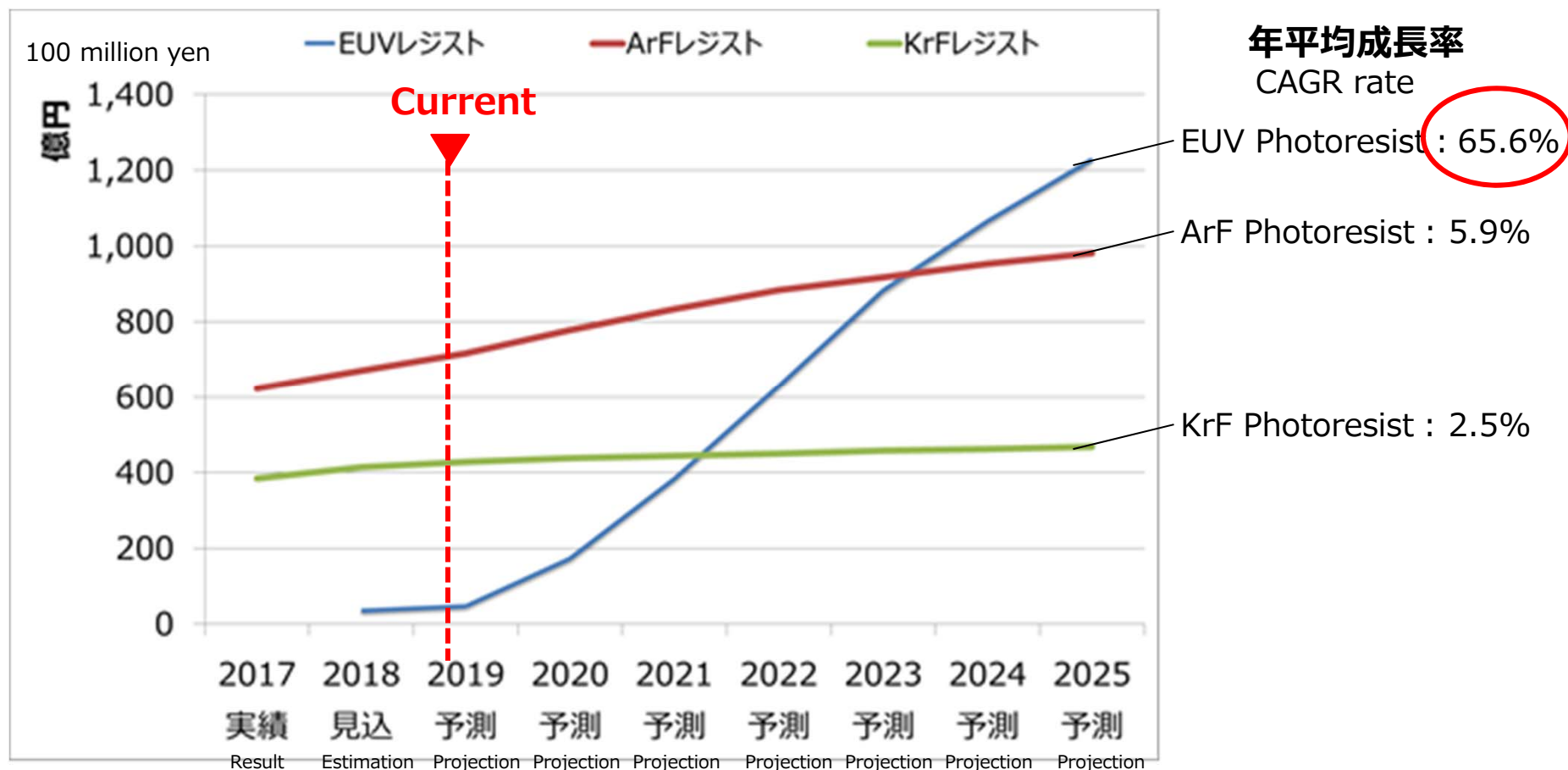
Lithography Technology Down Sizing

- Semiconductor Node (Line Width) continues to be down size to 7 nm as mas production at Year 2018
- Suppose to be down size to 2 nm level in 2025
- In accordance with line width down size, 3D structure, severe quality control for process materials, surging need more high purity photosensitive materials



Photoresist Market Development

- EUV photoresist: trial to mass production in 2018, after 2019 volume sale will start
- EUV photoresist will overtake KrF photoresist market size in 2021 and ArF photoresist market size in 2023.

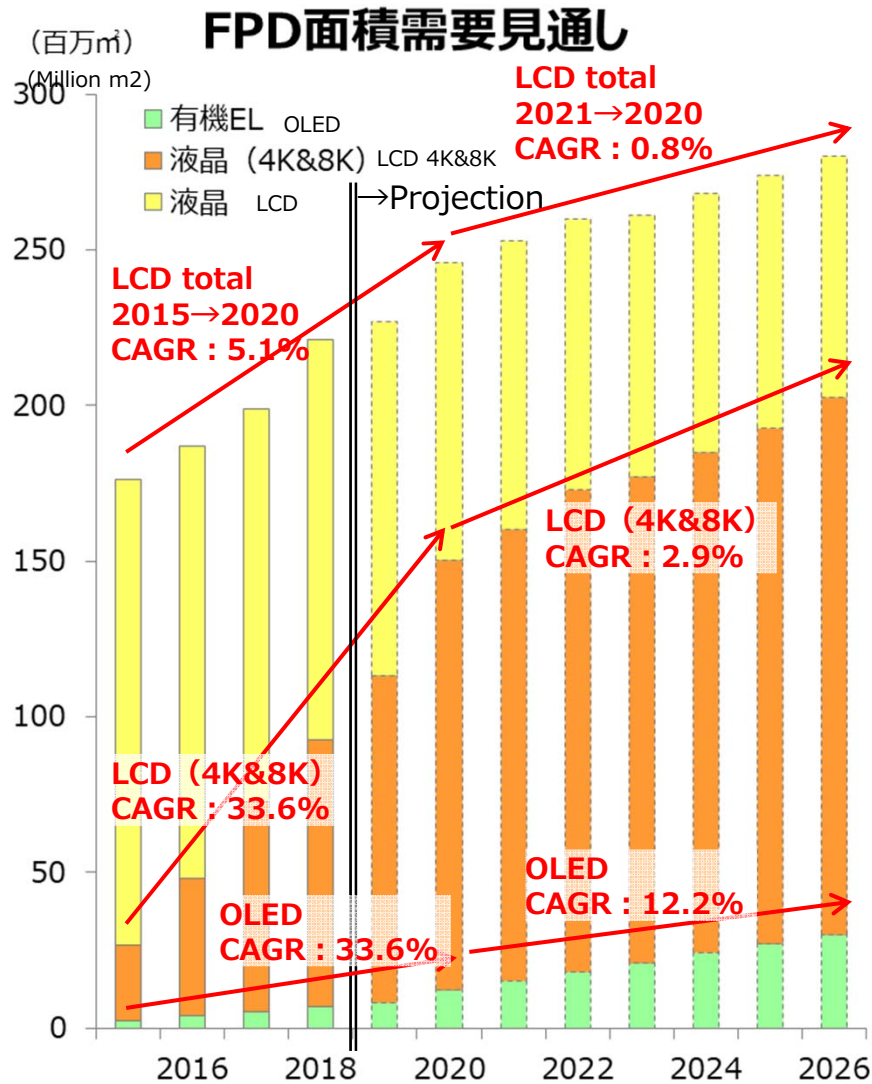


Source: Fuji Chimera Research Institute, Inc

「 & (オンゲストローム) 半導体プロセス材料/技術の展望調査 (2018年7月) 」より当社作成

FPD Market Trend

Demand outlook for FPDs (surface area)

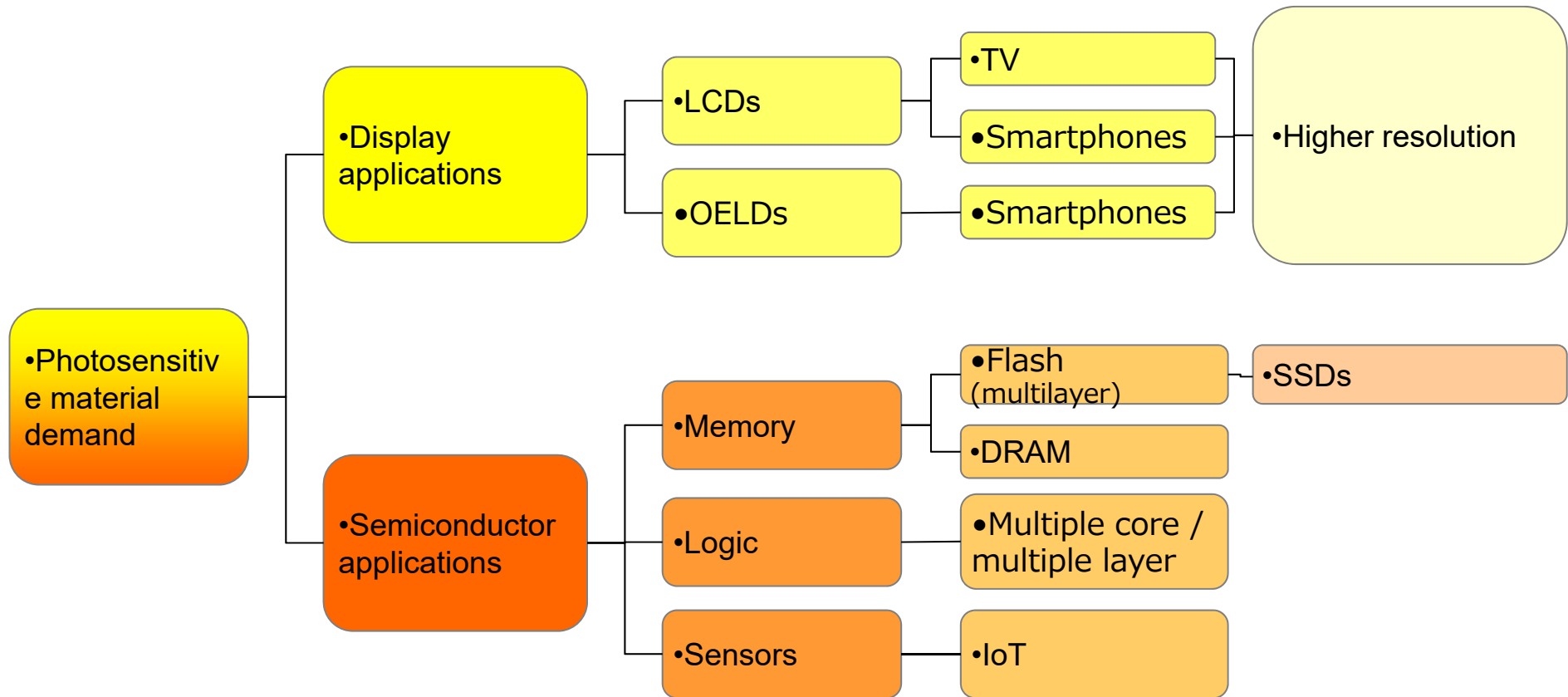


Source : IHS Marketing

- For 2017-2018, LCD FPD productions shifted South Korea to China
- New big FPD plants in China has been completed, now over-supply market
- FPD demand as surface are has 5% CAGR till 2020, then slow down afterwards
- Slow down as area demand, but higher definition demand is growing as 4K8K· OLED and etc. growth
- FPD application will diversifying to home applicants, car, signage display and etc. in addition to PC, smart phone and tablet PC.

Key demand driver for Photosensitive Materials/ EL Solvent

Demand for photosensitive materials will be driven by market growth, and by the need for new types of materials as semiconductor and display technologies become more advanced.



Outlooks: Photosensitive materials Application, Wave length and Line Width

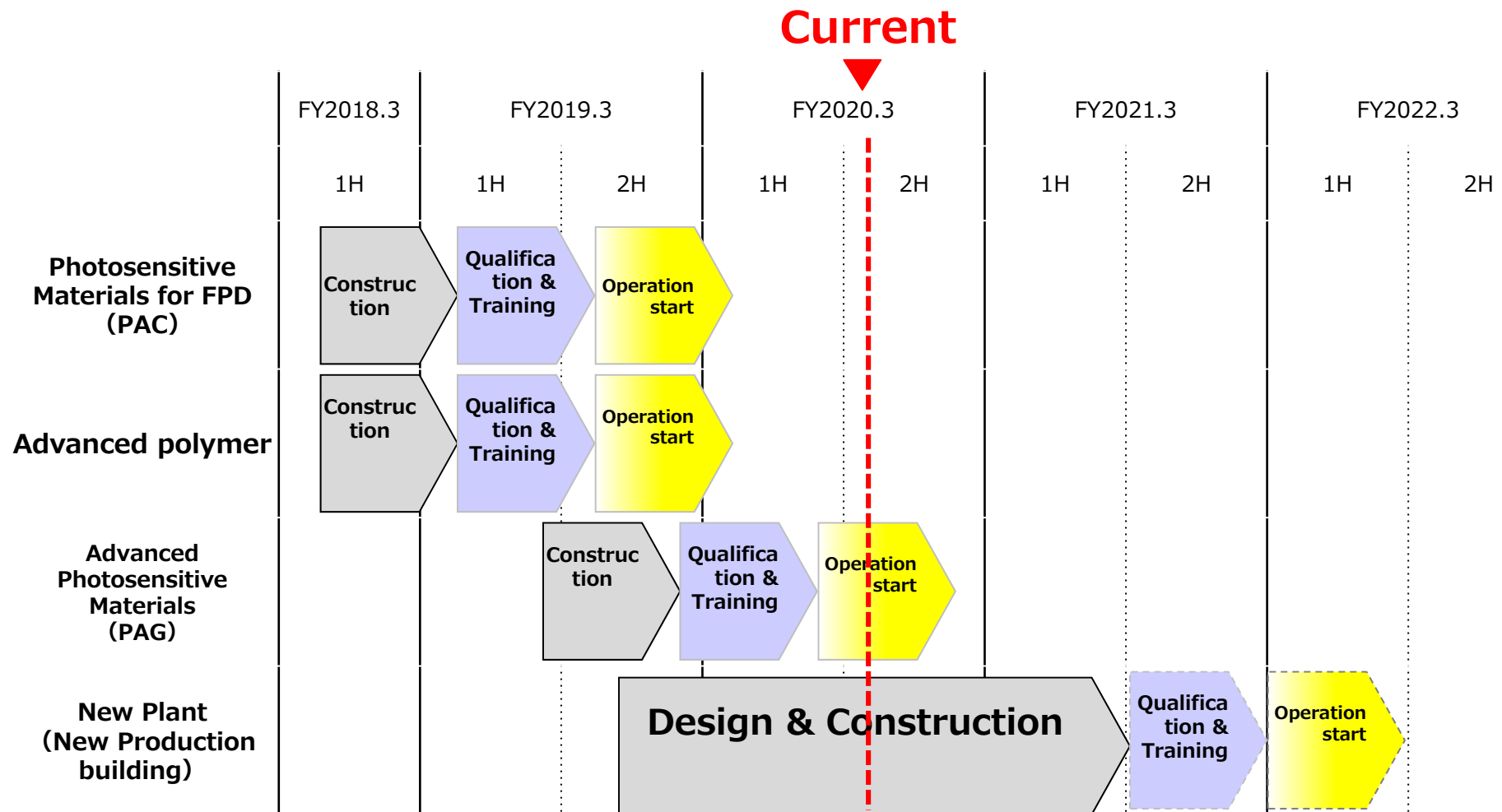
- Continue down size of photoresist line width need EUV process
- Started mass production supply for EUV materials in 2019
- TGC continue to improve quality of photosensitive materials and diversifying product line up to satisfy customer's needs

= stagnant
 = growing

		FPD		IC								
		g + h + i line	I line	G line	I line	KrF	ArF	ArF Immersion	ArF DP	ArF MP	EUV	
Node		~2,000nm	~1,000nm	~700nm	~200nm	~110nm	~65nm	~45nm	~22nm	~7nm	~5nm	~2nm ?
Application	TV, PC	Small & Mid size Panel	IGBT, LCD driver, LED		DRAM/NAND memory (recovery in 2020 as projection)				New generation DRAM (2020~)			
		Smart phone and etc.	Back-end process materials CMOS sensor			Advanced logic LSI ⇒ steady			New Generation Logic LSI Start EUV process in production			
Market	Stagnant	Stagnant and gradually growth	Gradually growth	expanding	stagnant	steady	expanding		CAPEX in progress		R&D	
TGC Products	Photo Active Compound (PAC) EL high purity solvents					Photo acid generator (PAG) Polymer EL Ultra high purity solvents						

Photosensitive Materials Capacity Up Investment

- On going capacity up project to meet market demand increasing
- Completed capacity up project for the existing plant as plan. After customers' qualification process, starting products shipment from new line accordingly.
- New production plant construction to be completed in 2020 as on going in the planned schedule.



Photosensitive Materials (Chiba Plant) Construction status

- For meeting to medium term demand growth, new production building construction is on-going as plan to be completed in 2020 summer.
- After customer qualification (taking about 6 months), we plan to start product shipment in spring

The drawing of new production building at completion



Construction status as of Oct 31 2019



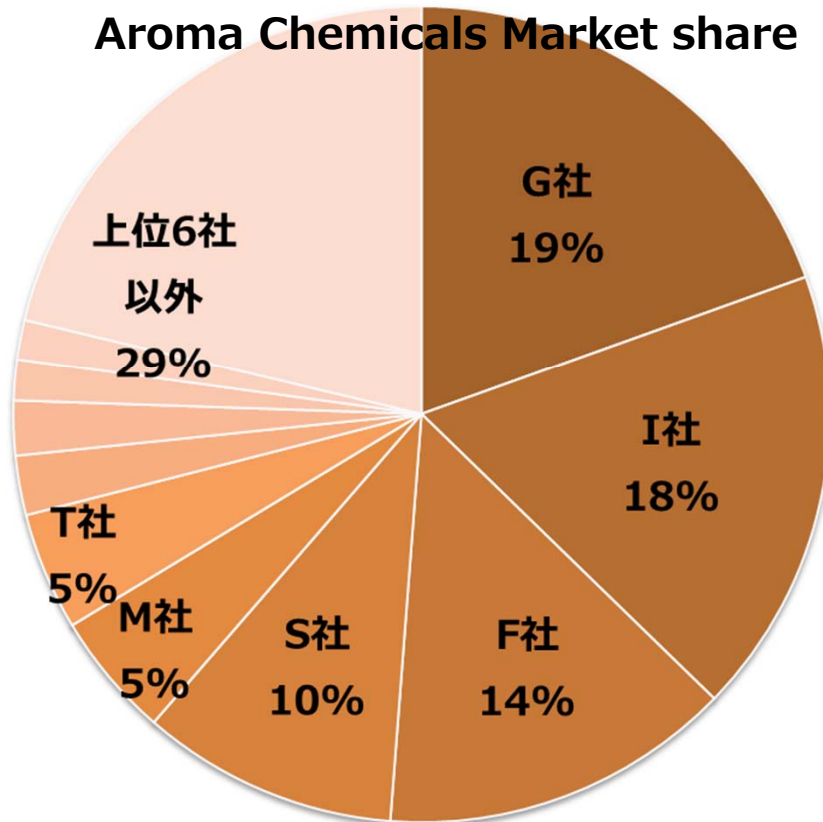
Aroma chemicals products,

**Chemicals logistics
and storage services**

Aroma Chemicals Market

世界香料市場シェア

Aroma Chemicals Market share

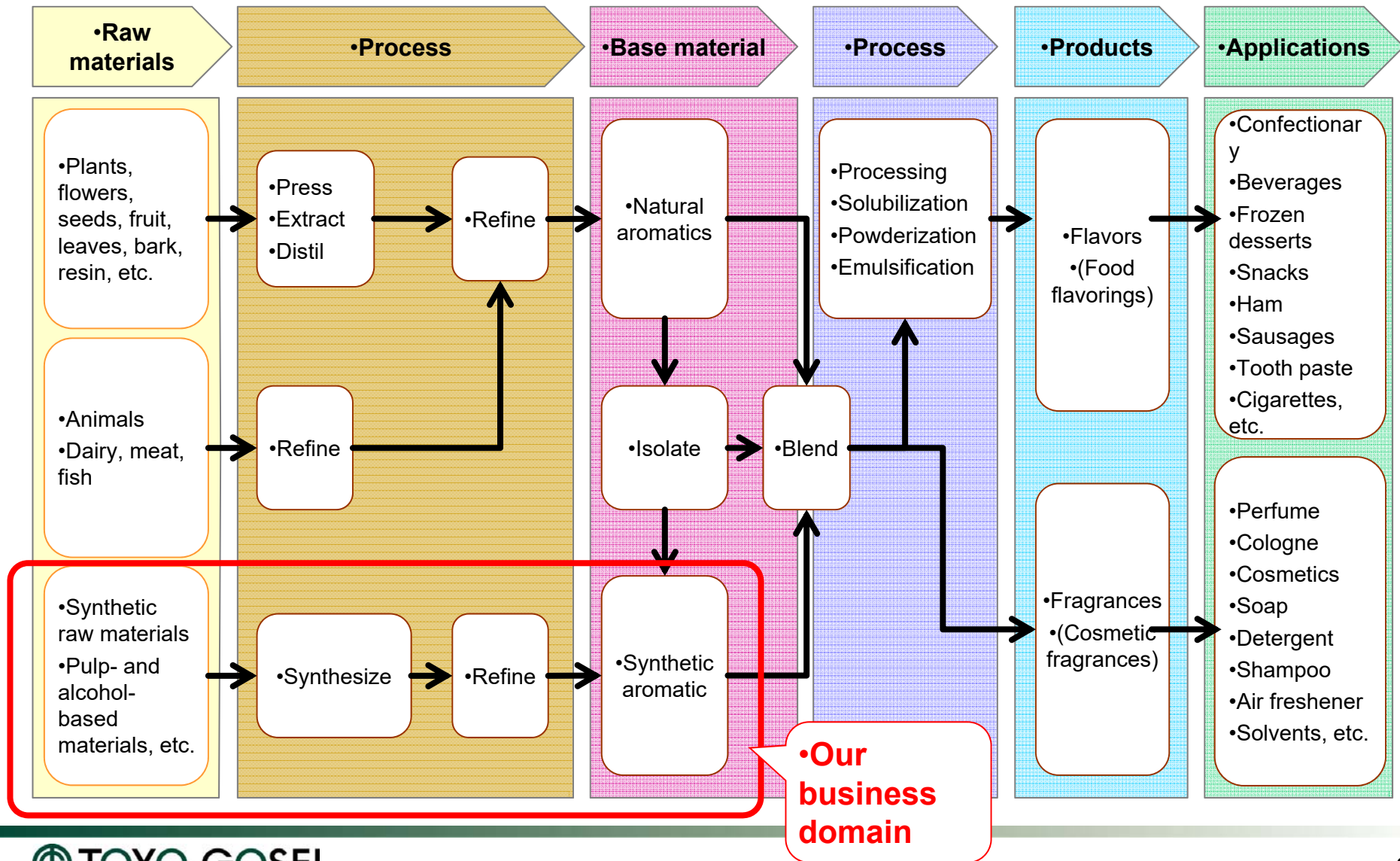


- The global aroma chemicals market is expanding at CAGR 3-4% steadily
- The top six suppliers dominate 70% of the global market.
- Major suppliers is activity doing the M&A to increase their global market share, which is lead to oligopolization.
- TGC is a few selected aroma chemical key materials to mainly major global aroma chemicals companies. Our market share is estimated around 30-40% in our segment
- Global niche top position

出所 : Leffingwell & Associates

Business Overview Chemicals (Aroma Chemicals)

Aroma chemical flow from raw materials through to finished products



Logistic Business (Advantage of Takahama Chemical Oil terminal)



Terminal has 65 bonded storage tanks with various volumes, capable of holding chemicals with different grades and properties



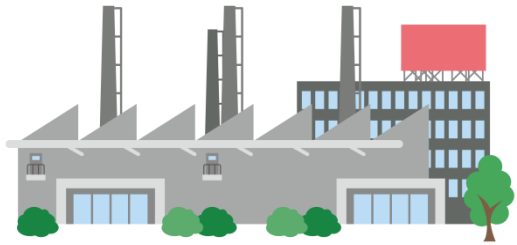
Receives 70 vessels per month



•Largest shipment volume in the Kanto region: 80-100 Tank lorry car per day

- Toyo Gosei's chemical logistics terminal distributes liquid chemicals made in Japan or overseas to plants across the Kanto region-biggest chemicals distribution hub as largest shipment volume in Tokyo bay area
- Only chemical tank terminal run by chemicals company and handling variety of package, own certified analytical laboratory for the high-quality storage management as providing service for wide range chemicals
- Prime location close to expressway network (about a few minutes from Chidoricho IC) shorted delivery time to northern Kanto area where are major chemical users located. Possible to three round delivery a day is appreciated by customers in shortage of tank lorry driver.
- Strict regulations in the Fire Service Act make it difficult for new competitors to establish new operations in the Tokyo Bay area

Logistic Business model



① Liquid chemicals made in Japan or overseas coming to Takahama by chemical tanker



② Transfer chemical to tank from tanker



③ Storage at tank



④ Transfer chemicals to tank lorry and other package from tanks



⑤ Deliver to users in Tokyo metropolitan area

Completion of New Expressway contribute turnover rate

- Completion of Tokyo-Gaikan Expressway in 2018 further improved transport access to northern Kanto area as shortening delivery time
- # of Round trip per day increased which contribute higher operation rate at Takahama chemical oil terminal



Business Results for the 2nd QT of FY2020

(2019 April-September)

Business Highlight for the 2nd QT of FY2020

- Revenue increased to 12,189million yen (YOY+1,012million yen,+9.1%)
- Although depreciation and labor cost increasing for expanding production capacity of photosensitive materials, advanced products sales growth well rather than compensated cost increase
- Operation profit increased +45.7% YOY, Ordinary profit increased +26.4% YOY, Net profit

(Million yen)	Previous Year Same Period Result	FY2020 2Q Projection	FY2020 2Q Result	YOY		Comparison with Projection	
				I/D Amount	I/D %	I/D Amount	I/D %
Revenue	11,177	12,500	12,189	+1,012	+9.1%	△311	△2.5%
Operating Profit	801	1,000	1,168	+366	+45.7%	+168	+16.8%
Ordinary profit	842	900	1,064	+222	+26.4%	+164	+18.2%
Net profit	550	600	693	+142	+26.0%	+93	+15.5%
FX Rate	¥113/\$	¥107/\$	¥107/\$				

The summary of the Business Result FY2020 1H

■ Revenue

- ✓ 12,189million yen (YOY+1,012million yen,+9.1%)
- ✓ Photosensitive Materials Segment: Sales growth mainly thanks to advanced product including new EUV generation products.
Chemicals Segment: Solvent sales for Electronic application decreased mainly due to stagnant sales in conventional application, but sales in high-end application keep growth. Aroma chemicals sales increased. Logistic business kept high operation.

■ Operation profit

- ✓ 1,168million yen (YOY+366million yen,+45.7%)
- ✓ Although investment cost (labor, depreciation etc.) for the capacity improvement in photosensitive materials segment increased, the profit increases as contribution of sales expansion mainly from high-end application both in photosensitive materials and EL solvents.

■ Ordinary profit

- ✓ 1,064million yen (YOY+222million yen,+26.4%)
- ✓ JPY appreciation against USD kept compared to as of 2019 March end , no FX impact was counted into the statement.

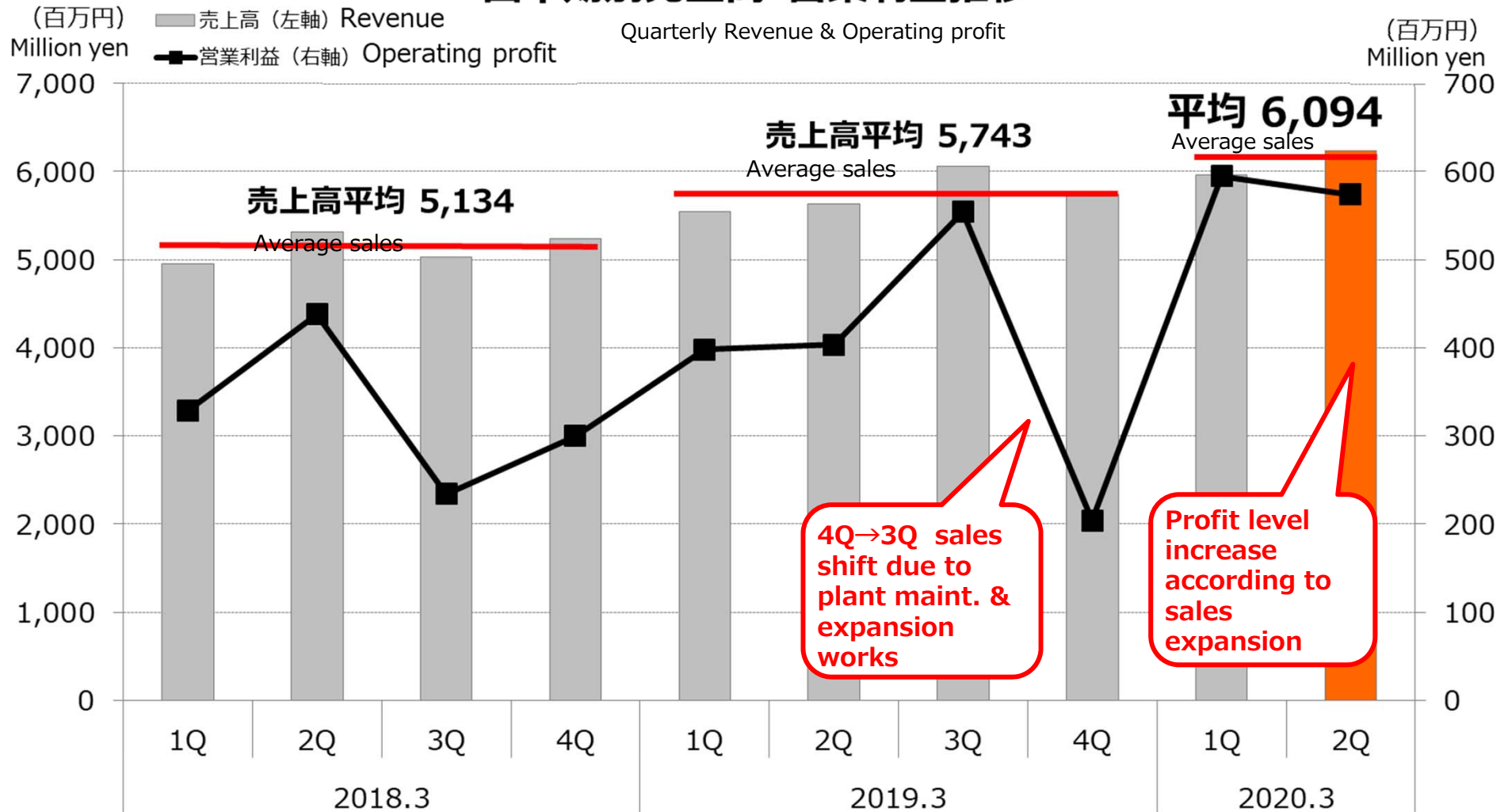
■ Net profit

- ✓ 693million yen (YOY+142million yen,+26.0%)

Quarterly Sales & Operating profit trend

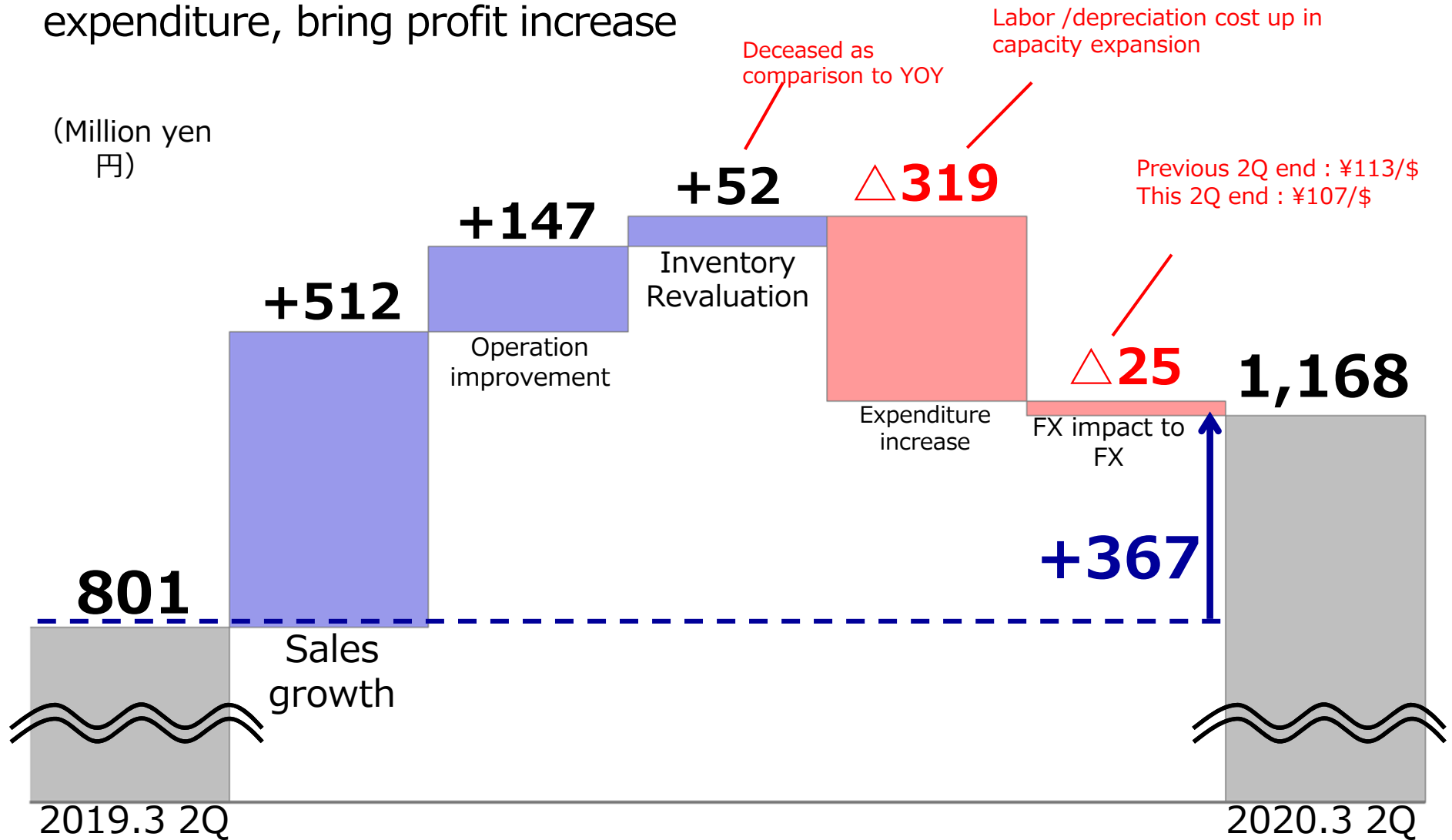
- Quarterly sales & operating profit steadily increasing

四半期別売上高・営業利益推移



Operating profit, factors for increase/decrease

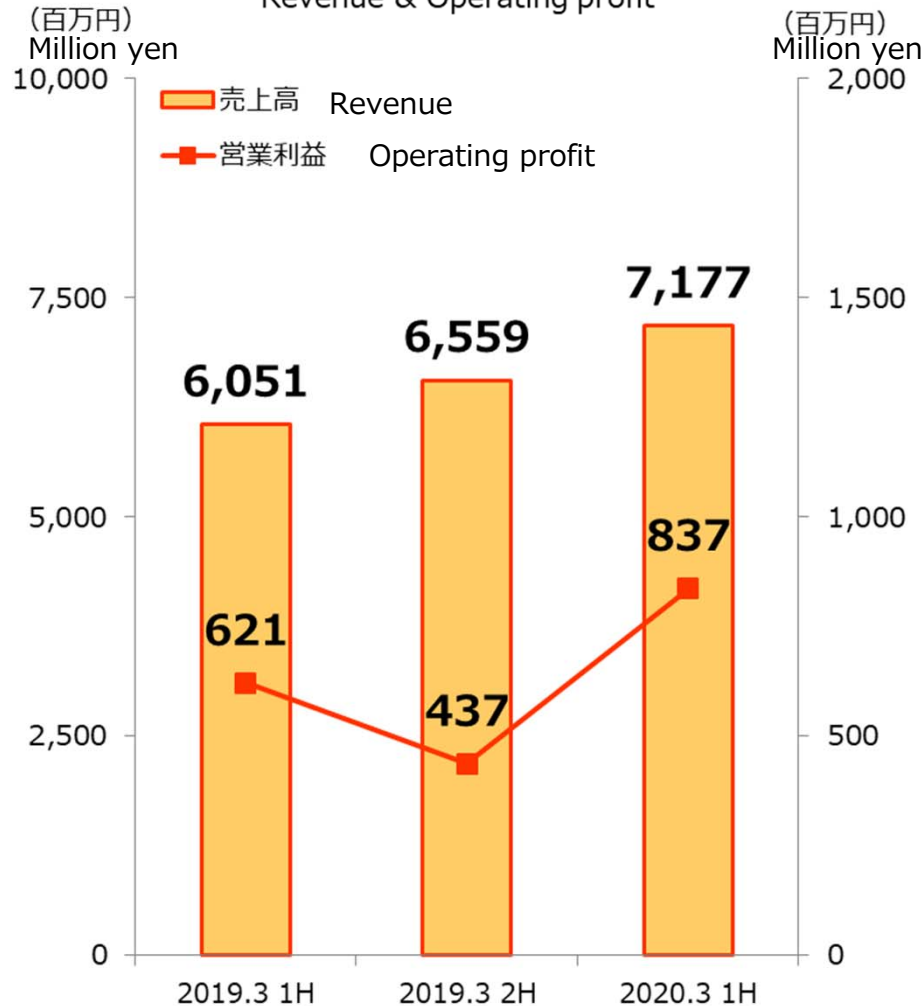
- Sales growth more than compensates capacity up investment expenditure, bring profit increase



Photosensitive Materials segment

売上高・営業利益

Revenue & Operating profit



Revenue : 7,177 Million yen

(YOY+1,126million、+18.6%)

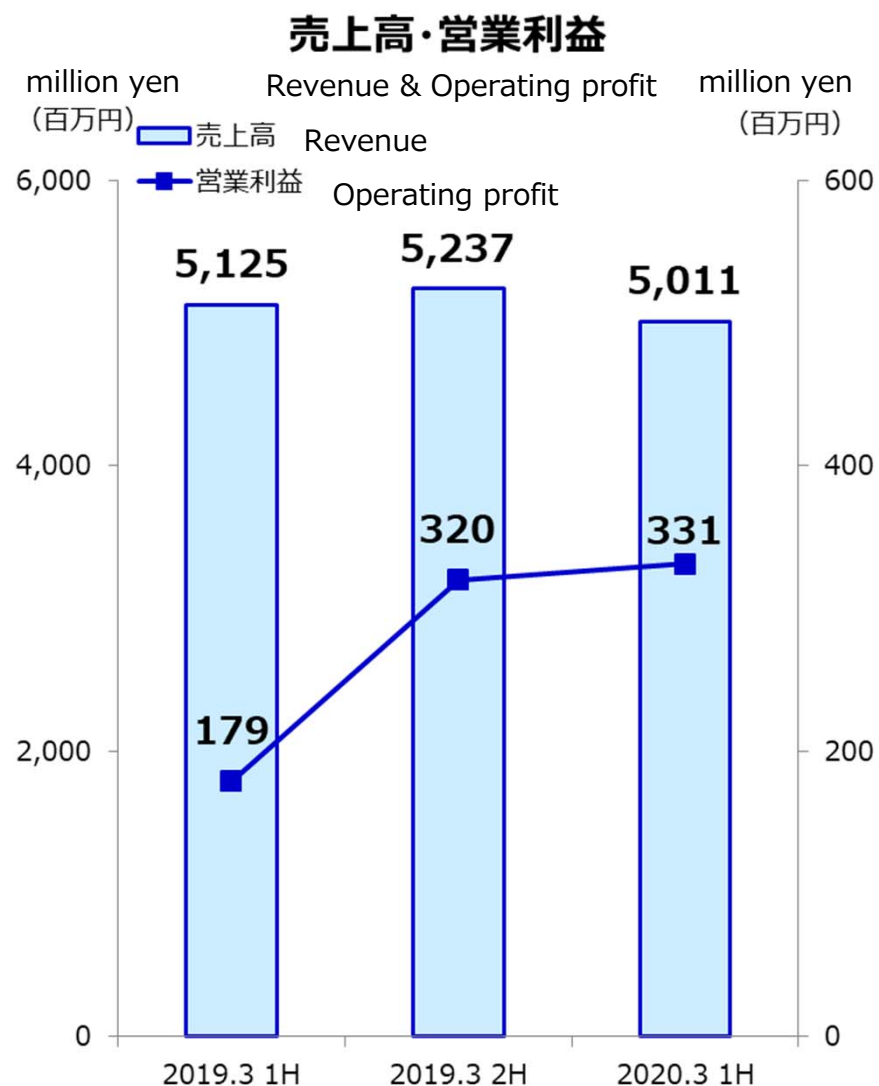
- Products for Logic application and high-end semiconductor application (ArF、EUV generation) keep good sales
- Sales with new products (back-end semiconductor process) increase
- Impact from stagnant market situation in memory IC and FPD

Operating profit : 837million yen

(YOY+215million yen、+34.7%)

- Although investment cost (labor, depreciation etc.) for the capacity improvement increased, the profit increases as contribution of sales expansion

Chemicals Segment



Revenue : 5,011million yen

(YOY Δ 114million、 Δ 2.2%)

- Stagnant memory IC market and commodity EL solvent impact to sales decrease
- EL solvent sales for high-end semiconductor process increase
- Aroma sales for mainly oversea increase
- Logistic business keep high operation

Operation profit : 331 million yen

(YOY+151million yen、+83.9%)

- Valued add product sales contribute to profit improvement

Profit & Loss Statement

- Revenue +12,189 million yen,+1,012million yen,+9.1% on YOY
- High-end product sales contributed to gross & operating profit higher growth rate, resulted as gross profit +17%, operating profit +45.7% on YOY
- Ordinary profit contained no FX gain (previous year FX gain 71million yen), FX loss in this term as 51million yen

(Million yen)	FY2019 Mar ending 2Q	FY2020 March ending 2Q	I/D Amount	I/D Rate
Revenue	11,177	12,189	1,012	9.1%
COGS	8,866	9,485	619	7.0%
Gross Profit	2,310	2,703	393	17.0%
Selling Exp.	1,509	1,535	26	1.8%
Ope. Profit	801	1,168	366	45.7%
Non-Op Profit	107	34	△72	△68.0%
Non-Op Exp.	66	137	71	206.8%
Ordinary profit	842	1,064	222	26.4%
Extraordinary P&L	0	△33	△33	—
Profit before Tax	842	1,031	188	22.4%
Tax	291	337	45	15.7%
Net Profit	550	693	142	26.0%

[Gross profit +393,
Ope Profit+366]
Revenue growth (+9.1%)
COGS (+7.0%)、
Selling Exp. (+1.8%)
Well controlled COGS &
Selling Exp resulted in higher
Ope profit growth

[Non-Op profit △48,
Non-Op loss +51]
No FX gain, but FX loss in
this term

Balance Sheet

- Execution of the payment for capacity up investments in photosensitive materials segment brought cash $\Delta 2,177$ million yen, tangible asset +989 million yen
- Share holders' equity resulted in +653 million yen thanks to net profit increase

(million yen)	2019.3 end	2019.9 end	I/D amt
Current asset	17,228	14,810	$\Delta 2,418$
Cash	5,412	3,234	$\Delta 2,177$
Account receivable	4,314	4,250	$\Delta 64$
Inventories	6,822	7,162	340
Others	679	162	$\Delta 516$
Fixed assets	19,637	20,612	975
tangible assets	18,566	19,555	989
Intangible assets	417	393	$\Delta 23$
Invest/others	653	662	9
Assets total	36,865	35,422	$\Delta 1,442$

[Cash $\Delta 2,177$]
 [Tangible asset 989]
 * because of photosensitive Materials segment CAPEX payment

(million)	2019.3 end	2019.9 end	I/D amt
Liabilities	28,024	25,907	$\Delta 2,117$
Account payable	3,094	2,750	$\Delta 344$
Interest-bearing debt	17,984	17,591	$\Delta 393$
Others	6,945	5,566	$\Delta 1,379$
Net assets	8,841	9,515	674
Shareholders' equity	8,830	9,483	653
Revaluation & others	11	31	20
Liabilities & Net assets total	36,865	35,422	$\Delta 1,442$

[Equity ratio]
 26.9% (YOY+2.9pt)

Cash Flows Statement

- CF of operating activities : 1,645million yen thanks to WIC improvement activities well on-going
- CF of investing activities : $\Delta 3,293$ million yen due to CAPEX payment for capacity expanding activates in photosensitive materials segment
- CF of financing activities : $\Delta 499$ million yen because of Interest-bearing debt partial refund

Million yen	2019.3 end 2Q	2020.3 end 2Q	I/D Amt
CF of operating activities	656	1,645	989
Profit before income taxes	842	1,031	188
Depreciation	930	1,063	133
Account receivable variance (+ means decrease)	$\Delta 447$	64	511
Inventories Variance (+ means decrease)	$\Delta 593$	$\Delta 340$	253
Accounts payable variance (+ means increase)	$\Delta 55$	$\Delta 344$	$\Delta 288$
Other	$\Delta 18$	172	191
CF of investing activities	$\Delta 1,749$	$\Delta 3,293$	$\Delta 1,543$
Free Cash Flows	$\Delta 1,093$	$\Delta 1,647$	$\Delta 554$
CF of financing activities	615	$\Delta 499$	1,115
Effect of FX rate change on cash and cash equivalents	27	$\Delta 30$	$\Delta 58$
Net variance in cash and cash equivalents	$\Delta 449$	$\Delta 2,177$	$\Delta 1,728$
Cash and cash equivalents at end of period	1,663	2,822	1,158

[Acc. Receivable decrease, inventories decrease, acc. Payable decrease]

Mainly controlling inventories level contributed to WIC management improvement

[CAPEX CF $\Delta 3,293$]
CAPEX payment for capacity expanding activates in photosensitive materials segment

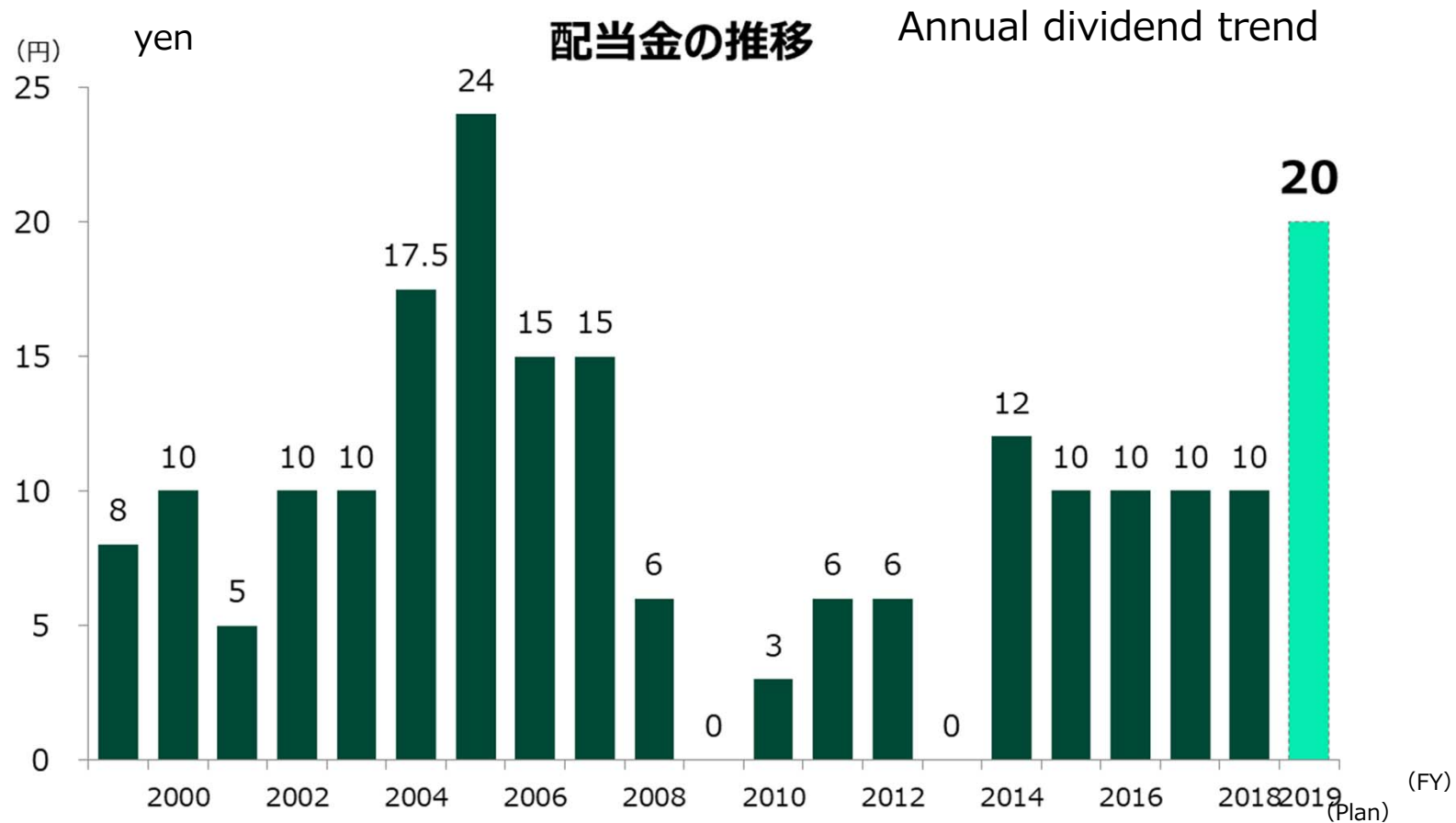
FY2020 Mar ending Projection

- Sales growth continue in 2H and YOY revenue growth as plan
- 2H Profit will decrease due to expenditure for regular plant maintenance and labor cost increase for new production under constriction as total cost up 350million yen compared to 1H.
- Original planned FX rate is ¥107/\$ (1H result107/\$, 2H plan ¥105/\$)
- FX sensitivity : ¥1 /USD depreciation impact to revenue 65million yen/year, Operation profit 30million yen/year

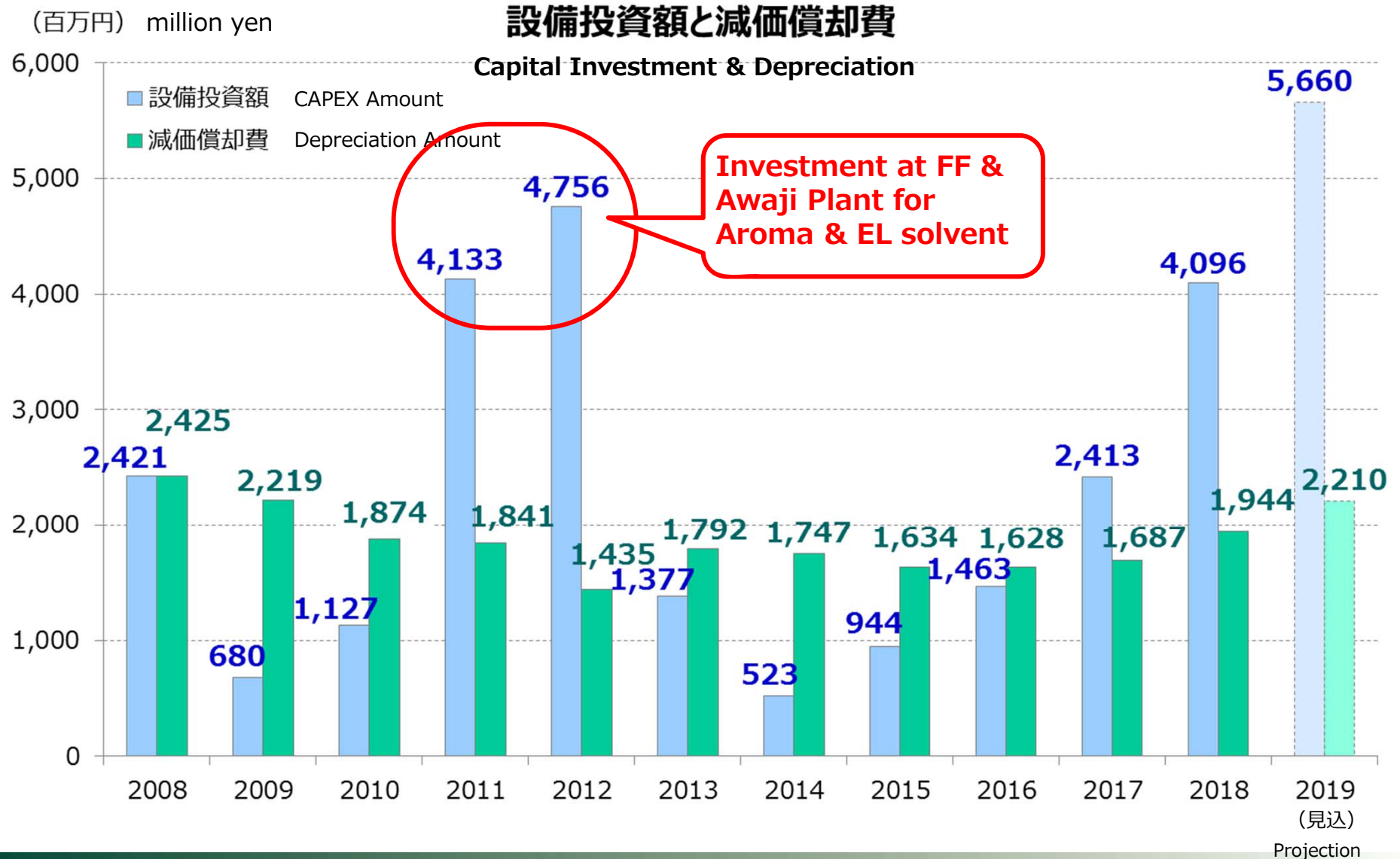
(Million yen)	FY2020 Mar end Original projection	2020 Mar end 2Q Result	Progress Rate
Revenue	25,500	12,189	47.8%
Operating profit	1,800	1,168	64.9%
Ordinary profit	1,700	1,064	62.6%
Net profit	1,600	693	43.3%

Shareholder Return

- In FY2019, annual dividend 10 yen→20yen as plan
- Stable dividend is shareholder return policy, which will count also financial condition and future business development



Capital Investment & Depreciation History



Medium Term Plan TGC300 (2018 Aug 10 release)

■ Concept

Usage of Electronic Device in Daily life continue to expand, in line with minimizing device structure and improving performance, more high purity and functionality materials are being required more in market.

More improving ultra high purification technology as TGC's historical advantage and enhancing stable supply system to satisfy customer's quality requirement, which will realize innovative talent, organization and business development

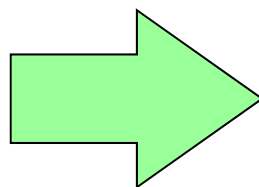
■ Vision of TGC300

Sincerely proving solution for customer's agenda and technical issue by unique approach, become world #1 "DANTOTSU"(ultra outstanding) company in high quality and productivity.

■ Target for FY2023 March ending

2018 Mar end result

Revenue: 20.5billion yen
Ordinary profit : 1 billion yen
Ordinary profit % : 5.3%

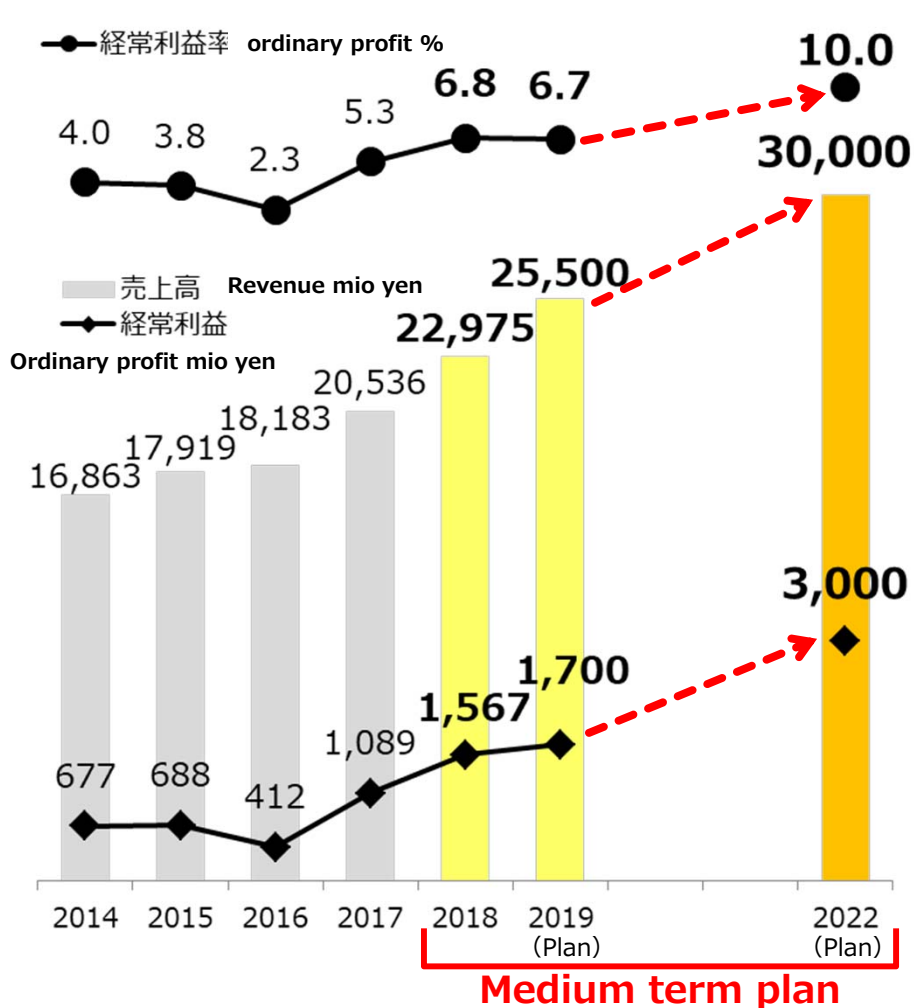


2023 Mar end target

Revenue: \geq 30 billion yen
Ordinary profit: \geq 3 billion yen
Ordinary profit %: \geq 10%
Capital investment: 12 billion yen
(Strategic investment for 5yrs)

TGC300 progress

- Medium-term management plan “TGC300” is on going as we planed



- 1st year resulted as beyond plan (Revenue+2%、ordinary profit+16%)
- 2nd year as FY2020 Mar end 1H resulted in 2% less sales and 15% better profit compared original projection in this year
- Medium-term management plan is on going as we planed

For the future

In about half a century from the dawn of semiconductors industry, through technology to meet the needs of the world, we always work earnestly for developing unique high-purity technology, synthetic technology and manufacturing technology, then we reached the current competitive position in the market.

With the widespread use of high-speed communication worldwide, the connection of all electronic devices require data process on time, and AI technology is now being applied for variety of applications. The demand for electronic materials is increasing rapidly with our sophisticated and variety of products. Under such social changing, we are moving forward to achieve the goals of the medium-term business plan “TGC300”. We commit to meeting the expectations of our customers, financial institutions, investors and other stakeholders who are supporting us by working together to realize a future better society and improve our corporate value.

We highly appreciate your continued support to TGC.

独創的な視点で世界へ

Individual Development, to the global Chemical

東洋合成工業株式会社

(見通しに関する注意事項)

本資料の業績予想は、現時点において見積もられた見通しであり、これまでに入手可能な情報から得られた判断に基づいております。

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