Semiconductor-Related Business Briefing

AGC Inc.

June 2, 2026

Your Dreams, Our Challenge

Contents

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Semiconductor-Related Businesses:

AGC Group Technology Development Strategy and Semiconductor-Related Businesses

Group Philosophy

Your Dreams, Our Challenge

The aspiration at the time of founding — Inherited thoughts ››››› **Now**

I want to contribute to the development of society through the domestic production of flat glass.

Founder Toshiya Iwasaki

Take on difficult challenges with determination

“Look Beyond”

Our Purpose

“AGC, an everyday essential part of our world”

We ***“Look Beyond”*** to make people’s lives better around the world by delivering our unique materials and solutions.

Our Shared Values

- **Innovation & Operational Excellence**
- **Sustainability for a Blue Planet**
- **One Team with Diversity**
- **Integrity & Trust**

Our Spirit

“Never take the easy way out, but confront difficulties.”

Evolution of AGC Group Products and Services

- Embodying the spirit of our foundation, we have continued to provide materials and solutions that meet the needs of each era.

Construction boom (Japan)

World War I

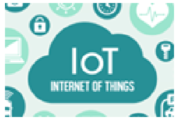
Motorization/ Coming of the era of TV

Increased awareness of the environment and health

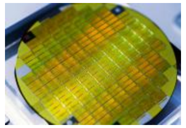
Advances in biotechnology

Advances in digital and communications technology

Diversification of drug discovery modalities



Full-scale spread of IoT



Next-generation semiconductors and high-speed communications

1907 **1910s** **1950s** **1970s** **1990s** **2000s** **2010s** **2020s**

Foundation of Asahi Glass Flat glass business

Refractory bricks for glass melting furnace (ceramics business)

Soda ash for glass raw materials (chemicals business)

Automotive glass

Television picture tube

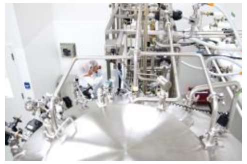
Ion exchange membrane for caustic soda production

Small molecule pharmaceuticals and agrochemicals intermediates

Alkali-free glass for LCD

Alternative CFCs that do not destroy the ozone layer

Filters for tone correction for digital cameras



Biopharmaceuticals CDMO

CMP slurry for semiconductor processes

Chemically strengthened glass for smartphone

Cover glass for car-mounted displays

Low GWP environmentally friendly solvent

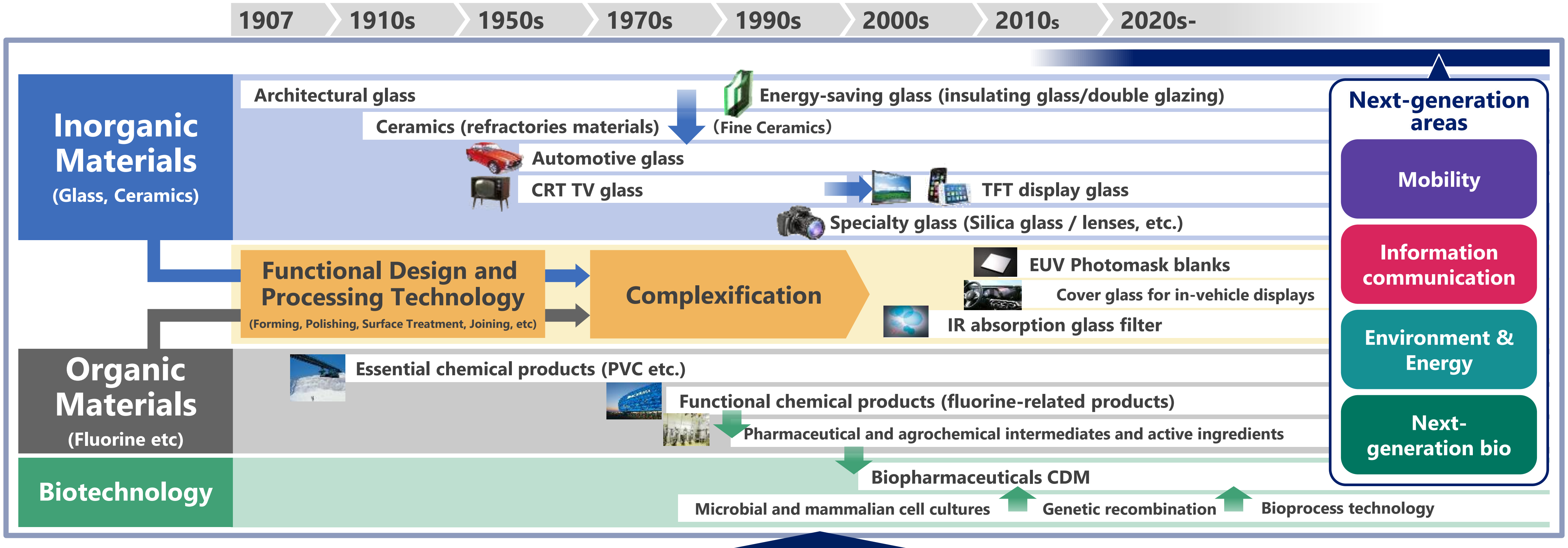
EUV photomask blanks

Glass antenna that transforms windows into cellular base stations

Unique Materials and Solutions

AGC's technological strengths

Material technologies with unique advantages (inorganic/organic), design and processing technologies enabling high functionality, black-boxed manufacturing technologies (glass processes, chemical processes, bioprocesses), and common infrastructure technologies.



Manufacturing Technology	Plant engineering/ Process technology/ *Monozukuri** capabilities (Know-how for stable mass production)
Common infrastructure technology	Analysis technology/ Simulation technology/ DX related technology

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*Quality manufacturing

Medium to Long-term Initiatives for Value Creation

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2015 2016 2017 2018 2019 2020 2021 2022 2023 2024 2025 2026 2027 2028 2029 2030

Corporate transformation Chapter 1

Defined "Core businesses" and "Strategic businesses" and promoted the ambidextrous way of business management

Corporate transformation Chapter 2

Clarified the direction of the Group's business portfolio transformation and declared on the acceleration of the initiative

Vision 2030

By providing differentiated materials and solutions, AGC strives to help realize a **sustainable society and become an excellent company** that grows and evolves continuously.

AGC Group's Ambidextrous Management

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Overall Strategy

Leveraging the core businesses and the strategic businesses as two wheels, we will shift to an optimal business portfolio and continuously create economic and social value.

Core Businesses

Establishing long-term, stable sources of earnings by increasing competitiveness of each business

- Architectural Glass
- Automotive (existing)
- Display
- Essential Chemicals
- Ceramics

Strategic Businesses

Create and expand highly profitable businesses that will become future pillars by using AGC's strengths in high-growth fields


Mobility


Electronics


Life Science


Performance Chemicals

Strategic Business Performance Trend

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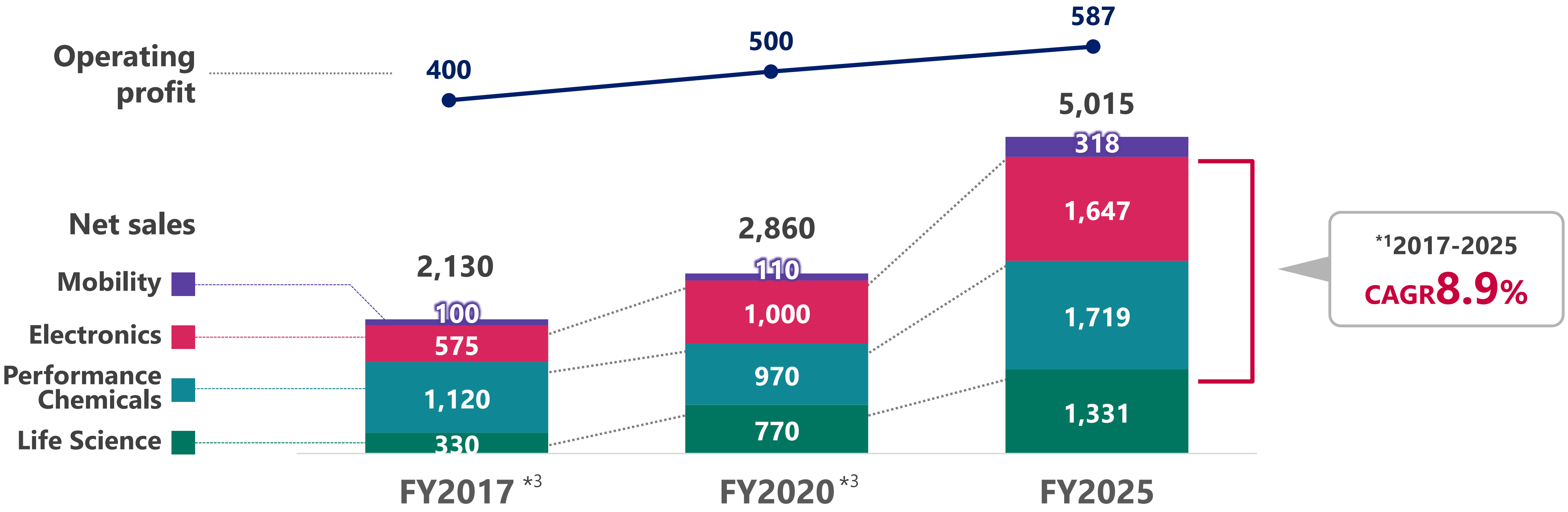
- Net sales from strategic businesses have increased by approx. 2.4 times from 2017.
- The average sales growth rate for Electronics and Performance Chemicals including semiconductor-related businesses was 8.9%[*1].

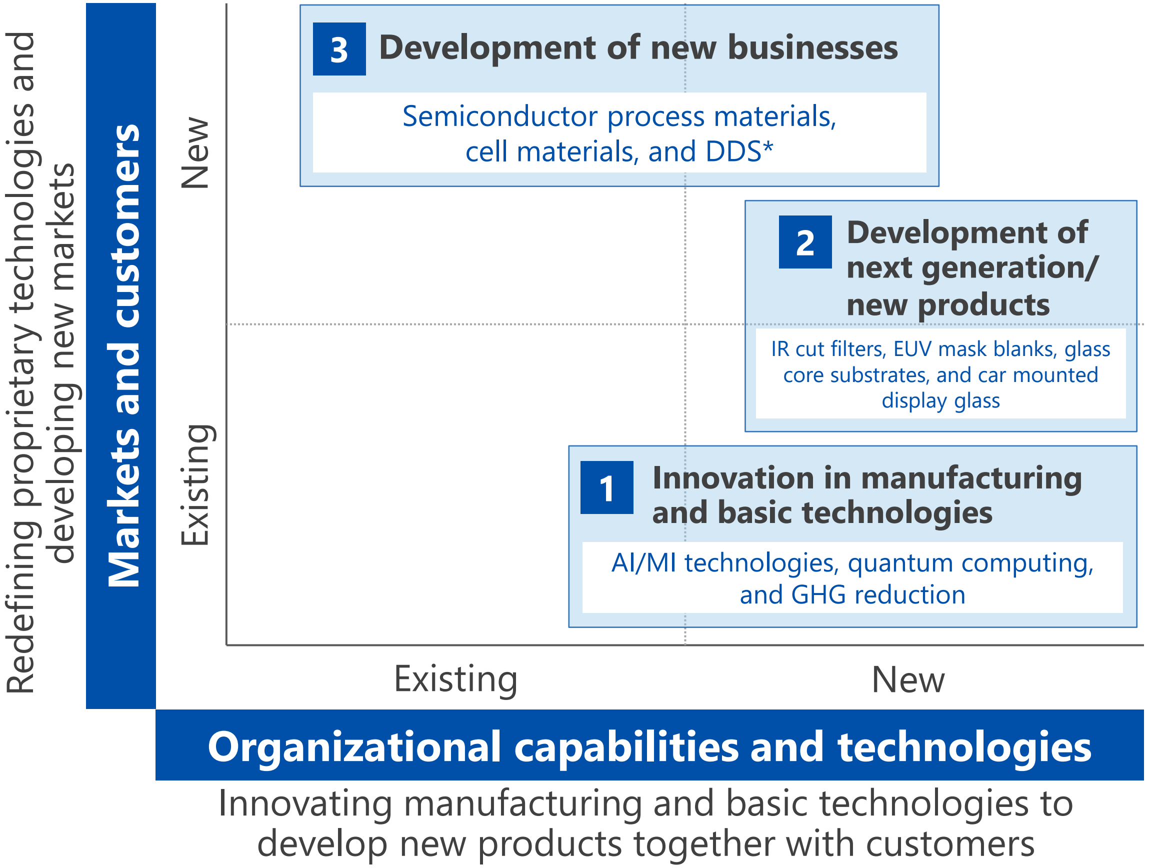
Performance trend of strategic businesses[*2] (100 million JPY)



[*2] New definition of strategic business revised in February 2024 [*3] FY2017 and FY2020 sales and operating profit figures are approximate
※ As a result of [*2][*3], some figures differ from those previously published

R&D Investment Direction

- We will accelerate the ongoing portfolio transformation through technology development.
- We will select development areas according to market and technology perspectives, and increase the share of strategic areas in R&D investment.



3 Development of new businesses

Semiconductor process materials, cell materials, and DDS*

2 Development of next generation/ new products

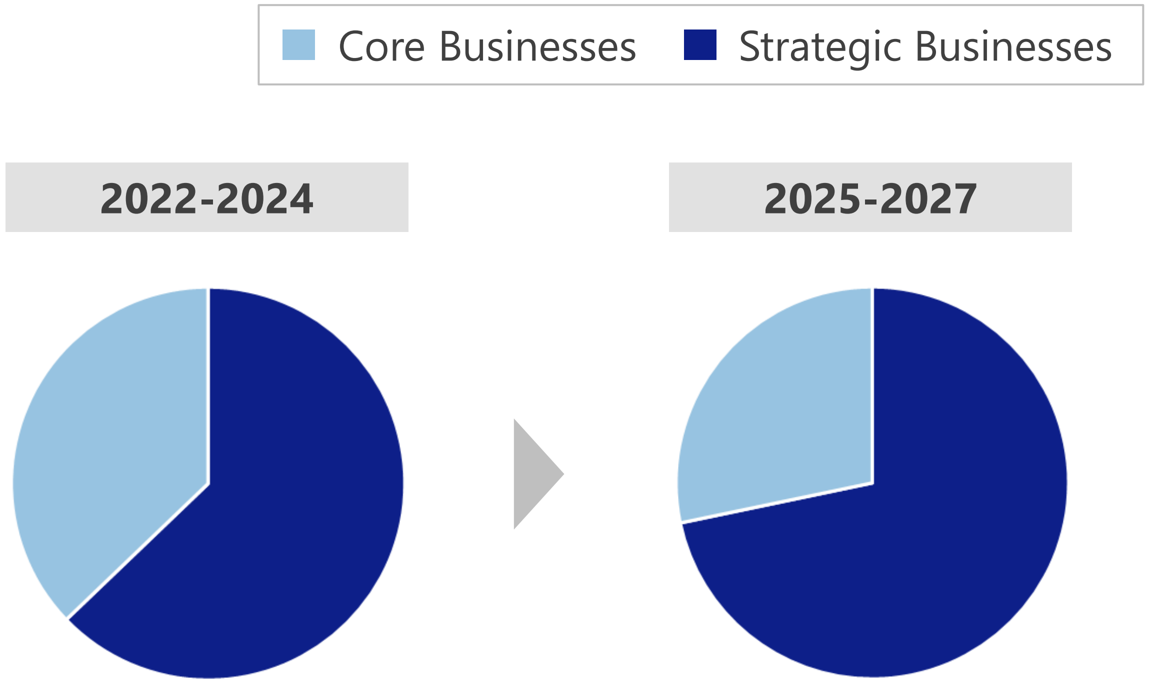
IR cut filters, EUV mask blanks, glass core substrates, and car mounted display glass

1 Innovation in manufacturing and basic technologies

AI/MI technologies, quantum computing, and GHG reduction

Innovating manufacturing and basic technologies to develop new products together with customers

R&D investment areas



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*DDS: Drug Delivery System（Technologies that deliver drugs to the required site in the body, in the required amount, and for the required duration）

Seven Key Technology Fields and Focus Areas

- Resources to be allocated to the selected "Seven Key Technology Fields" and their corresponding "Focus Areas."

AGC's Technologies

Materials Technology
- Inorganic Materials (Glass/Ceramics)
- Organic Materials (Fluoropolymer, etc.)

Complexification
- Functional Design and Processing Technology (Forming, Polishing, Surface Treatment, Joining, etc)

Manufacturing Technology

Common Basic Technology

Key Technology Fields

Next Growth Drivers

Next Gen. Life Science
- CDMO Process Technology for Antibody Drugs
- CDMO modality development
- Pharmaceuticals raw materials

Next Gen. Electronics
- Next Gen. Interface & Sensing Components
- Semiconductor Related Materials
- Telecommunication Components

Next Gen. Mobility
- Advanced functional glazing
- On-board Sensing & Communication
- xEV Components

Environmental & Energy
- Energy Storage Components
- Hydrogen Energy Components
- Components for Renewable Energy & Energy Saving

DX & Environmental

Digital Revolution
- Digital infrastructure
- Development and Prototyping
- Design and Manufacturing

Environmentally Friendly Organic Materials Process
- Sustainable Functional Materials
- Sustainable Process
- Carbon Net Zero

Environmentally Friendly Inorganic Materials Process
- Resource Circulation
- Environmentally friendly ceramics production process
- Environmentally friendly glass melting process

Evolution of Semiconductor-Related Technology Development

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1980s 1990s 2000s 2010s 2020s 2030s

▲Invention of flash memory

▲Launch of "Famicom" video games

▲Practical application of the blue LED

▲Earth Simulator achieved world's top speed

▲iPhone release

▲iPad released

▲Quantum computers

▲Victory of AlphaGo

▲Commercialization of EUV lithography

▲Launch of ChatGPT

Process node 3.0µm 1.0µm 350nm 130nm 45nm 14nm 5nm 2nm Å-generation

Generated data volume 1～2EB/year ～2ZB/year ～180ZB/year

Lithography light source i-line（365nm） Krf（248nm） Arf（193nm） Arf immersion EUV（13.5nm） Beyond EUV

AGC Group products

Inorganic

1985
Start production of synthetic quartz
(Lens materials for lithography equipment)

1986
Start production of SiC heat-treatment jigs

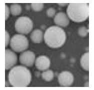
1992
Start production of frit paste in Koriyama
(Silica for sealing materials)

2003
Start production of CMP slurry

2003
Participation in semiconductor consortium for EUV mask blanks

2015
Start production of carrier glass for packaging

2017
Start production of EUV mask blanks

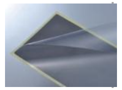


2021
Development of a process for spherical hollow silica particles
(Silica for sealing materials)

2020
Decision to drastically expand EUV mask blanks production

2019
Started CCL business through acquisition

Organic



1989
"Fluon® ETFE FILM" Adopted for electronic applications
(Release film)

1990
Start production of "CYTOP™"
(Raw material for pellicle)

2005
Start production of Anti-reflection coating material

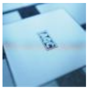
2007
Commercialization of FFKM fluoroelastomer

2017
"AMOLEA™ 1224yd" obtained international certification
(Refrigerant for data centers)

2018
Global launch of "AMOLEA™ AS-300"
(Fluoro cleaning solvent)

Under development

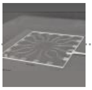
TGV*



Post-CMP cleaner

Silica for sealing materials

Optical waveguide



Build-up film

Low dielectric under fill

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*TGV: Through Glass Vias

Product lineup by semiconductor manufacturing process

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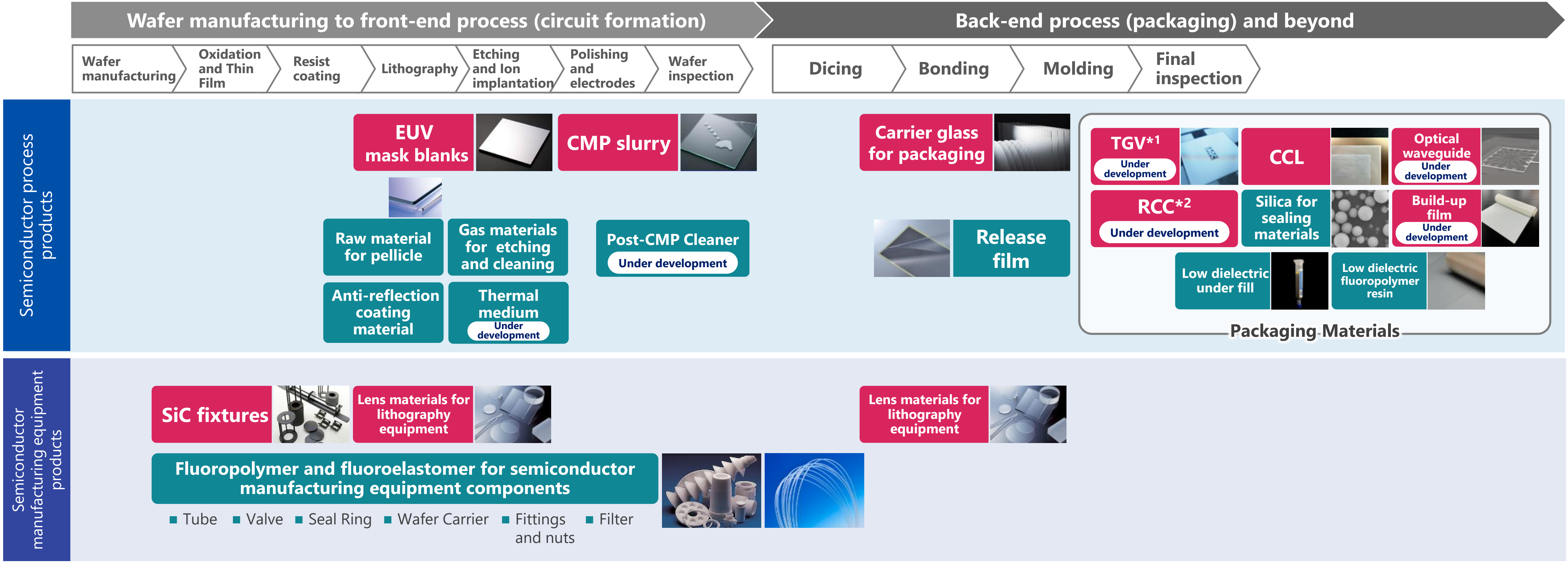
- We provide diverse products for semiconductor manufacturing, achieving a high market share.
- Going forward, we will also focus on packaging materials, a growth area.

Semiconductor-related Products

🟥 Electronics 🟩 Performance Chemicals



Wafer manufacturing to front-end process (circuit formation)

Wafer manufacturing → Oxidation and Thin Film → Resist coating → Lithography → Etching and Ion implantation → Polishing and electrodes → Wafer inspection

Back-end process (packaging) and beyond

Dicing → Bonding → Molding → Final inspection

Semiconductor process products

- EUV mask blanks
- CMP slurry
- Raw material for pellicle
- Gas materials for etching and cleaning
- Post-CMP Cleaner Under development
- Anti-reflection coating material
- Thermal medium Under development
- Carrier glass for packaging
- Release film

Packaging Materials

- TGV*1 Under development
- CCL
- Optical waveguide Under development
- RCC*2 Under development
- Silica for sealing materials
- Build-up film Under development
- Low dielectric under fill
- Low dielectric fluoropolymer resin

Semiconductor manufacturing equipment products

- SiC fixtures
- Lens materials for lithography equipment
- Lens materials for lithography equipment
- Fluoropolymer and fluoroelastomer for semiconductor manufacturing equipment components
  - Tube
  - Valve
  - Seal Ring
  - Wafer Carrier
  - Fittings and nuts
  - Filter

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*1 TGV: Through Glass Vias *2 RCC: Resin Coated Copper

Semiconductor-Related Businesses : Electronics

Electronics – Key Features of Technology & Development

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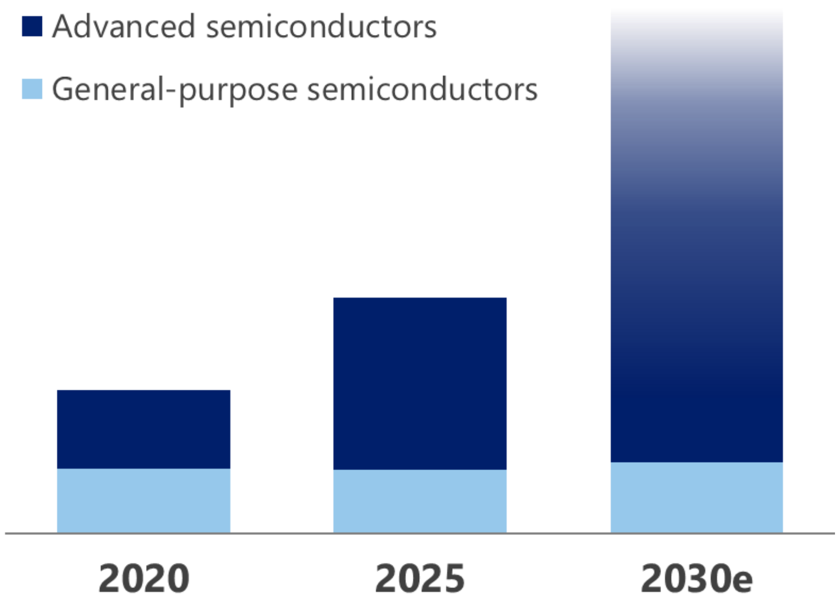
Providing AGC's unique solutions through the integration of material, processing, and design/evaluation technologies.

		Materials	Processing	Design and evaluation
AGC's technologies		Inorganic: High-purity glass and ceramics Organic: Fluororesins, polymers, and fluorinated solvent	■ High-precision grinding, dispersion, and polishing ■ High-precision coating and patterning ■ Laser and molding technologies for miniaturization and high-aspect-ratio structures	■ Composition design and optical design ■ High-performance inspection equipment ■ Proprietary simulation technologies tailored to customers' manufacturing processes
Product examples	**CMP slurry**	Inorganic + Organic	Abrasive particle synthesis + dispersion	Composition design + analysis + polishing evaluation
	Mask blanks	Inorganic (ultra-low thermal-expansion glass materials)	Ultra-flat polishing + thin-film coating	Glass composition design+ film structure design + defect inspection
	CPO (related components)	Organic (polymers) + inorganic (glass)	Photolithography + etching	Optical design + optical property evaluation

Strategy for Semiconductor Field – Electronics

- Focusing on materials for advanced semiconductors, with plans to expand sales of packaging materials.
- Strengthening partnerships with leading companies, along with proactive technology development and production capability enhancement.

Sales trend of the Electronics company's semiconductor-related business



Existing front-end semiconductor materials **Materials for semiconductor manufacturing equipment**	■ Strengthening partnerships with leading companies ■ Focusing on next-generation product development to maintain and increase the share of advanced products
New products for back-end (packaging) processes	■ Proposing composite materials that combine organic and inorganic technologies ■ Providing optimized solution proposals that include adjacent layers ■ Accelerating development through open innovation

Semiconductor-related Business – Marketing

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We will continue to strengthen relationships with end users and leading companies, focusing on cutting-edge and next-generation technologies.

- Maintaining global bases in the U.S., Taiwan, Korea, China, and Europe to directly engage with end users
- Providing timely supply of next-generation products through solution proposals
- Creating synergies in the semiconductor field through collaboration between Electronics Company and Chemicals Company

Europe New!
- 🟠 AGC Electronics Europe
- 🟠 AGC Multi Material Europe

Korea
- 🟠 AGC Electronics Korea
- 🟠 🔵 🟣 AMMK

Japan
- 🟠 🟣 Headquarters, R&D Center
- 🔵 Kansai Plant
- 🔵 🟣 AGC Display Glass Yonezawa
- 🔵 🟣 AGC Electronics
- 🔵 🟣 AGC Seimi Chemical
- 🔵 🟣 AGC Techno Glass
- 🟠 🔵 🟣 Optical Coatings Japan

U.S.
- 🟠 🔵 🟣 AGC Electronics America
- 🟠 🔵 🟣 AGC Multi Material America

Received the “Supplier Award 2025” from ZEISS SMT

China
- 🟠 AGC Chemicals Trading (Shanghai)
- 🟠 🔵 AGC Multi Material (Suzhou)

Singapore
- 🟠 🔵 🟣 AGC Multi Material Singapore
- 🟠 AGC Asia-Pacific

Taiwan
- 🟠 🟣 AGC Electronics Taiwan

Received the 2026 EPIC Supplier Award from Intel

🟠 Sales 🔵 Manufacturing 🟣 Development

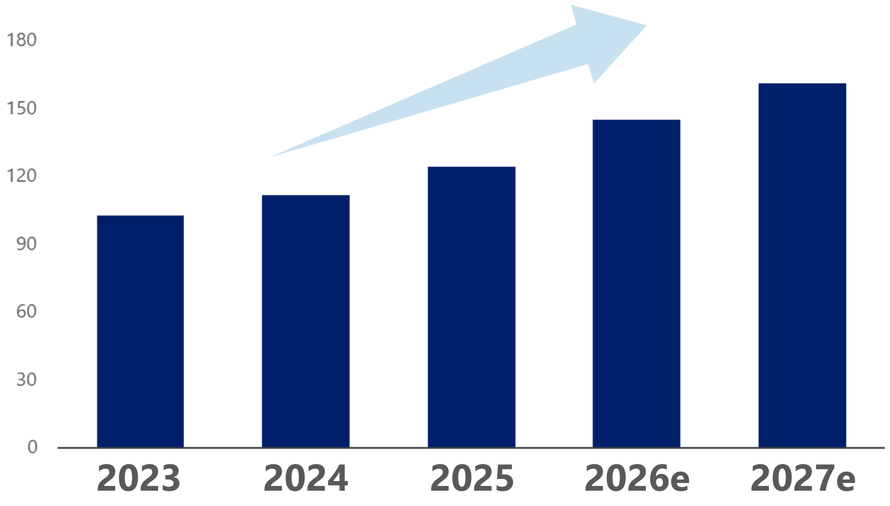
①Lens Materials for Lithography Equipment

Market overview

Market growth

- The semiconductor market is driven by AI and data centers.
- Major advanced semiconductor manufacturers continue to invest at high levels, and the equipment market is expected to remain solid over the medium-term.

Semiconductor manufacturing equipment market*
（billion USD）



Strength

- Manufactured based on AGC’s long-standing expertise and R&D in glass, chemicals, and ceramics.
- Holding the No.1 share in synthetic quartz lens materials for ArF lithography tools, also used in various optical components for semiconductor processes.
- High transmittance from deep UV to infrared, excellent optical homogeneity, and high laser durability.

Strategy

- Maintaining a high market share by leveraging properties optimized for lithography lenses.
- Driving business growth by capturing expanding demand for semiconductor manufacturing equipment materials.

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* Source：Gartner

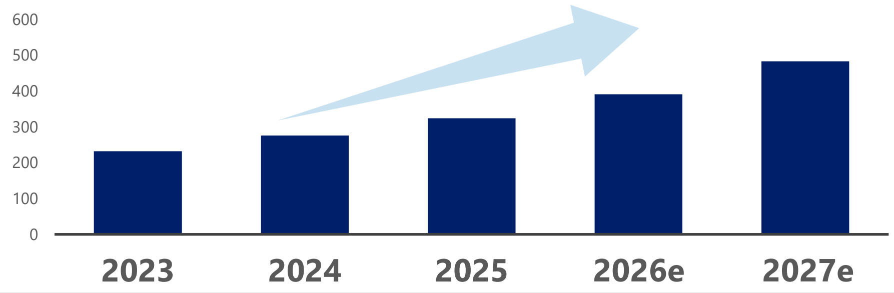
②EUV Mask Blanks

Market overview

Shipment volume

- The growth in shipments of EUV lithography equipment is accompanied by increased use of EUV mask blanks.

Shipments of EUV lithography equipment [*1] (units)



Technological development

- Developing next-generation products that can improve throughput and resolution of lithography systems for each semiconductor device generation and lithography system model.

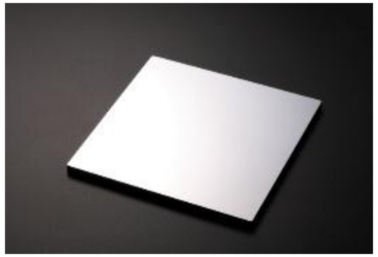
Device Generation	Lithography System	Development Status of AGC
Logic 7~2nm DRAM D1Z~D1D	Low NA (NA0.33)	Completed
Logic 1.4~0.7nm DRAM D0X～	High NA (NA0.55)	Under development
Logic <0.7nm	Hyper NA (NA>0.7)	Under development

Strength

- The sole blanks manufacturer in the world that covers the whole production process from glass materials to polishing and deposition.
- Strengths include flexibility to customer requests, technical proposals and support to customers.
- In-house film structure design capability.

Strategy

- Continue to invest intensively in line with market growth.
- Armed with strong technological capabilities, we will drive the development of next-generation blanks for leading-edge nodes.



AGC is one of the market's leading two players worldwide

[*1] Source: estimated based on ASML materials and data from research companies; cumulative.

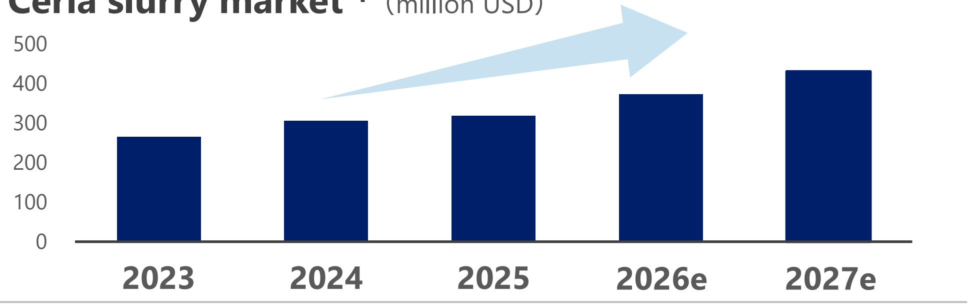
③CMP Slurry

Market overview

Market growth

- Ceria slurry market growth tracks the expansion of the semiconductor market.

Ceria slurry market[*1] (million USD)



Use cases of CMP slurry in semiconductor manufacturing processes

Front-end process

Manufacture semiconductor chips on the wafer

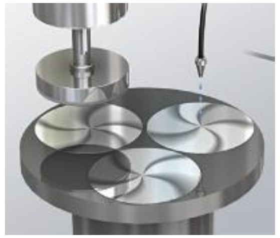
- Device formation
- Interconnect formation
- Wafer inspection

Back-end process

Packaging the chip

- Assembly process
- Inspection process

Used in planarization within device/interconnect formation and during assembly.



Strength

- Technological development capabilities that enable integrated production from raw material abrasive powder to slurry.
- Providing high-quality slurry and solutions to meet customers' design rules and processes.
- Flexibly aligning our technology with customers' needs, while ensuring consistent quality stability.

Strategy

- Maintain leading position in ceria slurry
- Expanding sales to new applications (3D mounting[*2], etc.)

[*1] Estimated by AGC based on data from research company materials.

[*2] A technology that achieves higher integration by vertically stacking semiconductor chips and interconnecting.

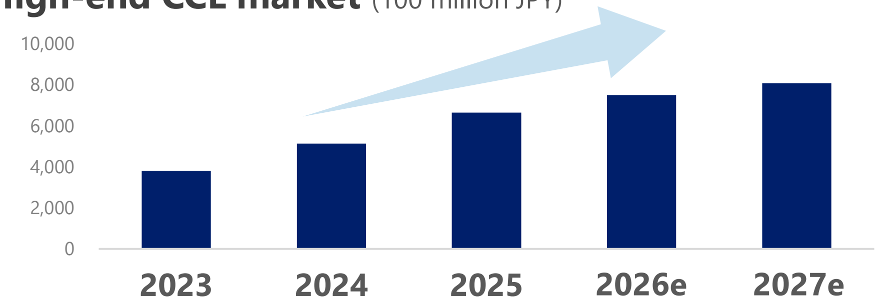
④CCL（Copper Clad Laminates）

Market overview

Market growth

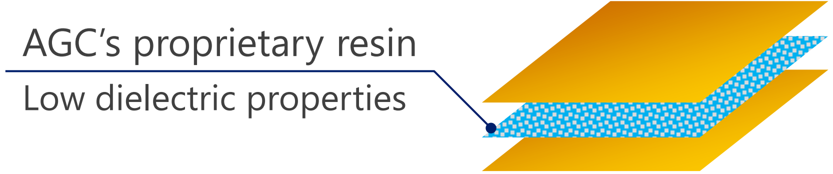
- Driven by demand for AI data centers.

High-end CCL market*(100 million JPY)



Technological development

New product Multilayer PCB Materials METEORWAVE™ ELL Series



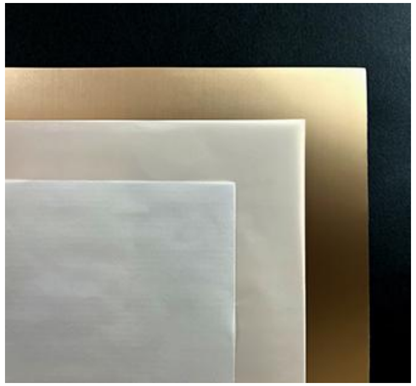
- AGC's proprietary resin enables equivalent performance even while using a one-grade-lower glass cloth than other companies in the industry.
- Our value lies in stable supply as well, without being affected by tight supply and demand for advanced glass cloth.

Strength

- Offers a wide range of products.
- Material development technology centered on low dielectric loss resins, resin coating technology, and electrical property evaluation technology.
- Low dielectric loss enabled by our chemical-related technologies.

Strategy

- Expanding sales for AI data center applications.
- Expanding into a wide range of businesses, such as high-speed communications, automotive, and aerospace/space applications.



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* AGC estimates based on research company materials.

Initiatives in Semiconductor Packaging

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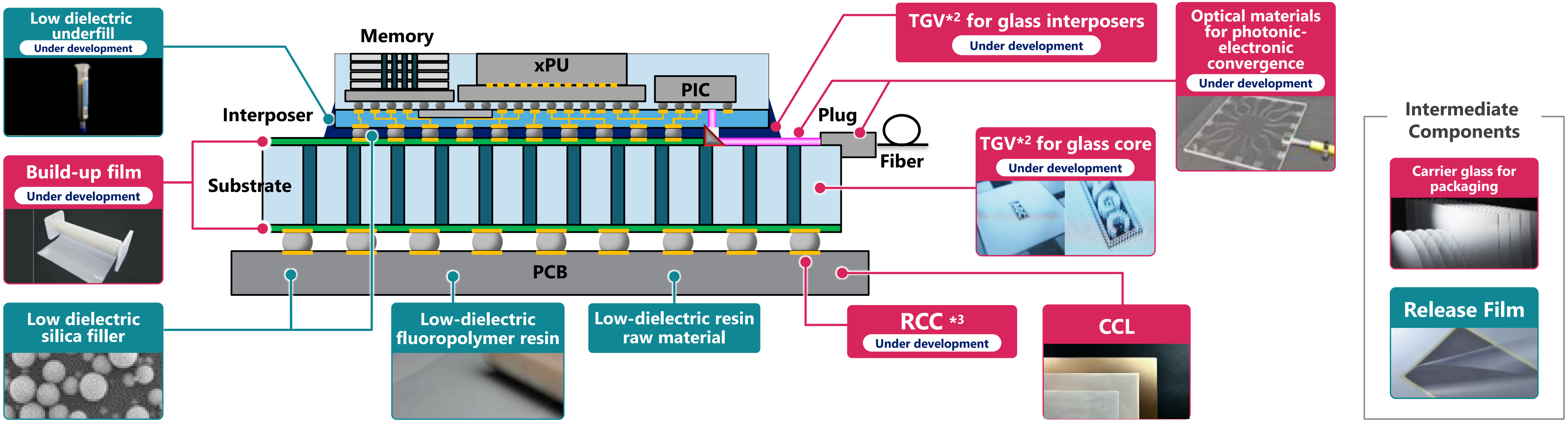
- Today, differentiation comes from combining front-end miniaturization with back-end processes, including assembly and packaging.
- On top of the materials portfolio focused on conventional front-end processes, we are leveraging the assets held by the Electronics segment and the Chemicals segment to offer wide range proposals covering all layers*1
- This enables us to advance “solution proposals” that materializes an optimized package as a whole, including adjacent layers.

Solutions for Semiconductor Packaging

🟥 Electronics 🟩 Performance Chemicals



Low dielectric underfill
Under development

Build-up film
Under development

Low dielectric silica filler

Low-dielectric fluoropolymer resin

Low-dielectric resin raw material

TGV*2 for glass interposers
Under development

Optical materials for photonic-electronic convergence
Under development

TGV*2 for glass core
Under development

RCC *3
Under development

CCL

Intermediate Components

Carrier glass for packaging

Release Film

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*1Top layer (logic/HBM, etc.) , interposer, package substrate, and PCB substrate *2TGV: Through Glass Vias *3 RCC: Resin Coated Copper

Semiconductor-Related Businesses : Performance Chemicals

Performance Chemicals and Fluorochemicals

- Fluorochemicals exhibit multiple superior characteristics simultaneously, **making them difficult to be replaced with alternative materials—particularly in the highly demanding semiconductor sector.**

AGC's Performance Chemicals

Background

- Competitive business foundation utilizing in-house resources (chlorine, hydrofluoric acid, natural gas etc.) developed through an integrated production system which started from brine electrolysis,
- Fluorochemicals business expanded with growing demand for high-performance materials by industrial advancement after 1960s,

Strength

① Fluorochemical synthesis technology	Robust development and mass-production capabilities built on advanced synthesis technologies for fluorochemicals, which are inherently difficult to handle.
② Supply chain	A strong and cost-competitive supply chain that begins with brine electrolysis and extends through in-house production of hydrofluoric acid and *TFE, ultimately leading to a wide range of fluorochemicals.
③ Resource procurement & recycling	Recovering fluorine that was previously discarded and re-utilizing it as "Circular Fluorspar™", aiming to achieve both stable procurement and enhanced sustainability.
④ Group synergies	**Leveraging synergies withing the group—including the Electronics segment**, a core supplier to semi manufacturers—proposals spanning materials, components, and processes.

Use cases and required performance of fluorochemical products in the semiconductor field

	Heat/Cold Resistance	Chemical resistance	Weatherability / Durability	Water and oil repellency	Mechanical characteristics	Electrical characteristics	Optical characteristics
Fluoro polymer/elastomer for semi manufacturing equipment	●	●	●				
Release films	●		●	●	●		
Pellicle raw materials	●	●	●	●		●	●
Heat-transfer fluids	●	●					
Packaging materials	●			●		●	

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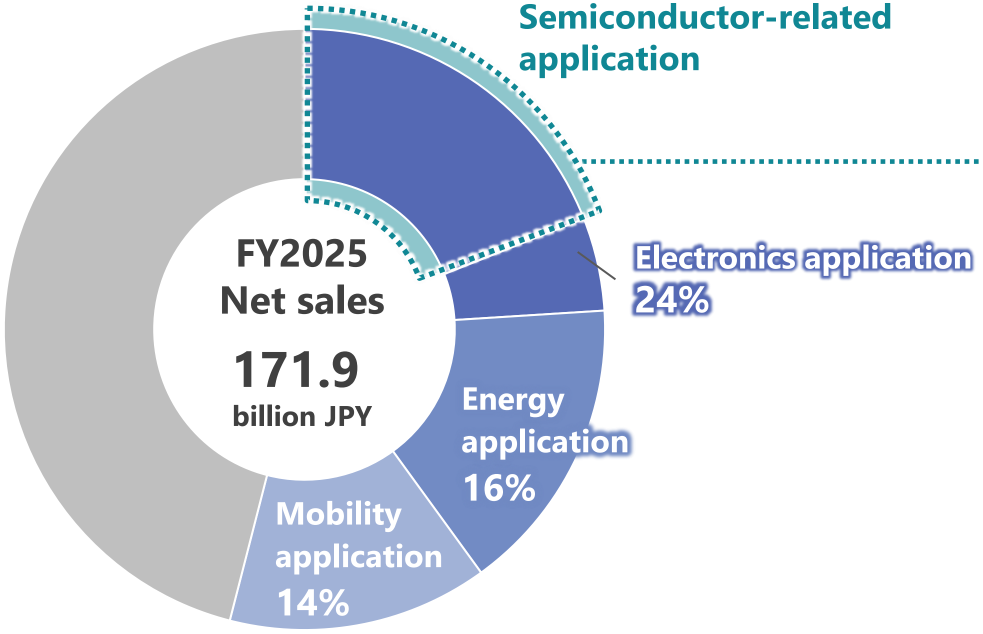
*TFE: tetrafluoroethylene

Strategy for Semiconductor Field – Performance Chemicals

- Capture growing demand for semi-related materials by leveraging differentiated fluorochemical synthesis technologies, advanced development and mass-production capabilities and strong cost competitiveness developed through its robust supply chain.
- Accelerate development of semi process materials that meet customer needs by utilizing strong customer relationships and synergies with the Electronics segment and other AGC Group units.

Sales composition of Performance Chemicals[*1] for semiconductor-related applications (Image)



Existing areas where fluoropolymers and fluoroelastomers have traditionally been used

A Semiconductor manufacturing equipment products

Meet expanding demand by leveraging differentiated technologies (heat resistance and chemical resistance), and newly added production capacity[*2].

<Key features of AGC's fluoropolymers and fluoroelastomers>

- Timely development and supply meeting market needs such as heat resistance and plasma resistance.
- Stable supply of high-purity materials with low metal and low particle contamination through continuous improvement of clean manufacturing environments.
- Partial use of "Circular Fluorspar™"[*3] to effectively utilize fluorine, a scarce resource.

Future business expansion areas

B Semiconductor process products

Building on established customer relationships, expand into semiconductor process materials and accelerate deployment into high-speed communication material markets.

- In addition to contributing to lower GWP, we will develop semiconductor process materials and packaging materials that support miniaturization and high-speed data transmission required for AI semiconductors and AI data centers.

[*1] Performance Chemicals as a Strategic Business [*2] AGC to Expand Production Capacity for Fluorochemical Products [*3] Aiming to Realize a "Circular Fluorine Society

① Fluoropolymer and Fluoroelastomer Components for Semiconductor Manufacturing Equipment (AFLAS^{TM} FFKM) 1/2

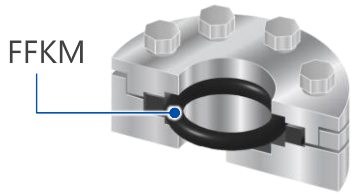
A Semiconductor manufacturing equipment products

Market overview

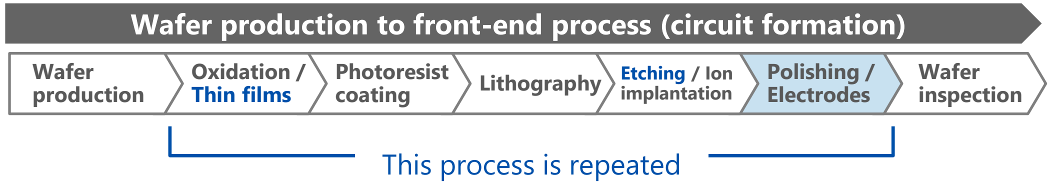
What is FFKM	■ Common name for perfluoroelastomers ■ **A high performance fluoroelastomer** with a fully fluorinated structure in which all hydrogen atoms are replaced by fluorine.
Applications	Used as sealing materials inside semiconductor manufacturing equipment.
Required characteristics	■ **Resistant to a wide range of chemicals**, including acids, bases, solvents, and oxidizers. ■ **Maintains long term elasticity and sealing performance under high temperature conditions.**
Market growth	■ Demand for FFKM continues to grow each year in line with increasing semiconductor demand. ■ Although demand fluctuates with equipment utilization rates, stable replacement demand is expected. (In etching processes, the harsh plasma environment requires replacement once every quarter.)

FFKM application areas

Cross-sectional Image of a CVD Chamber (Partial)



Used to seal substrates in deposition (CVD) and etching processes



Wafer production to front-end process (circuit formation)

Wafer production → **Oxidation / Thin films** → **Photoresist coating** → **Lithography** → **Etching / Ion implantation** → **Polishing / Electrodes** → **Wafer inspection**

This process is repeated

Supply chain

FFKM	Sealing materials	Semiconductor equipment
AGC	O-ring Manufacturers	Semiconductor Equipment Manufacturers Semiconductor Manufacturers Semiconductor Manufacturers

① Fluoropolymer and Fluoroelastomer Components for Semiconductor Manufacturing Equipment (AFLAS™ FFKM)） 2/2

A Semiconductor manufacturing equipment products

Strength

- **Industry leading heat and plasma resistance**, enabling stable performance even under extremely harsh plasma environments
- **Commercialized PO-based*1 FFKM with excellent chemical resistance ahead of competitors, without using emulsifiers or fluorinated polymerization solvents.**

Future initiatives

1 Response to technology trends

- As semiconductor miniaturization advances, manufacturing processes are becoming increasingly severe.
- Even higher chemical, heat and plasma resistance are required for FFKM sealing materials.

FFKM applications Used in semiconductor manufacturing equipment, industrial plants, food processing, and the oil & gas industry.

AGC's FFKM lineup

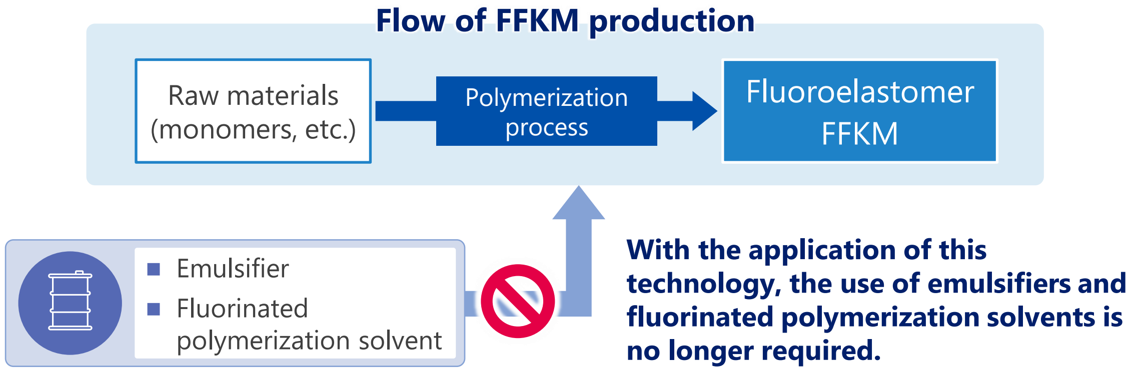
PO-based*1 FFKM

Performance		High-Temperature Grade				
		～200℃	200℃	250℃	300℃	300℃~
	Standard grade	Future development areas	PM-1100	PM-3000	PM-5000 PM-5500	Future development areas
	Plasma-resistant grade			CP-4010 PM-3500	CP-7000	
	Low-melting grade(excellent processability)		PM-1200			

2 Response to emerging market needs

- Recovering discarded fluorine and recycling it as "Circular Fluorspar™*2". Achieving **industry-leading recycling levels** to strengthen differentiation.
- Developing FFKM without the use of emulsifiers or fluorinated polymerization solvents.

Innovative polymer manufacturing technology （Surfactant Free & Fluoro Solvent Free）



With the application of this technology, the use of emulsifiers and fluorinated polymerization solvents is no longer required.

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[1] Po-based materials: Processing method that uses organic peroxides to crosslink rubber molecules. Features include heat resistance below 300°C and excellent chemical resistance within that temperature range.

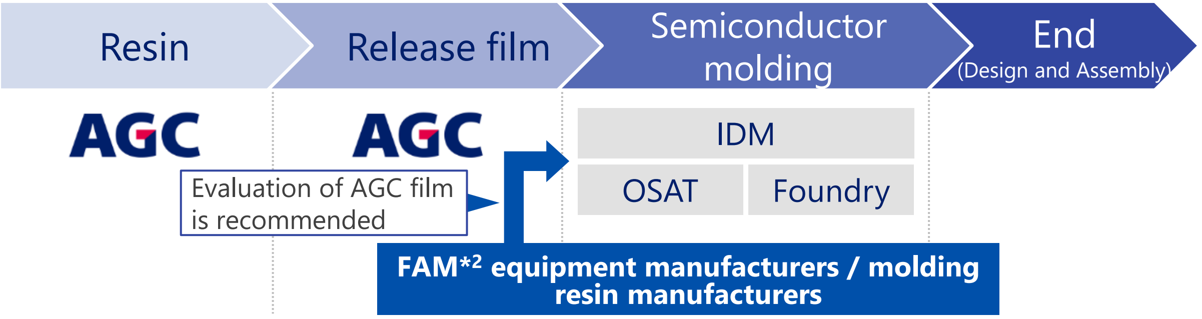
[2] Derived from recycled fluorspar https://www.agc-chemicals.com/jp/en/company/vision/innovationstory/vol02/index.html

② ETFE-based Release Film (Fluon™ ETFE FILM) 1/2

Market overview

Applications	Release film used in the semiconductor back-end molding process (consumable)
Required characteristics	Release properties / Mold-following capability Heat resistance / Purity Cushioning properties
Market	■ **AGC share: No.1 in the world**[1] ■ Correlates with semiconductor production volume. Expected to increase in quantity in line with market growth ■ Also used in HBM

Supply chain



Resin → Release film → Semiconductor molding → End (Design and Assembly)

AGC

AGC

Evaluation of AGC film is recommended

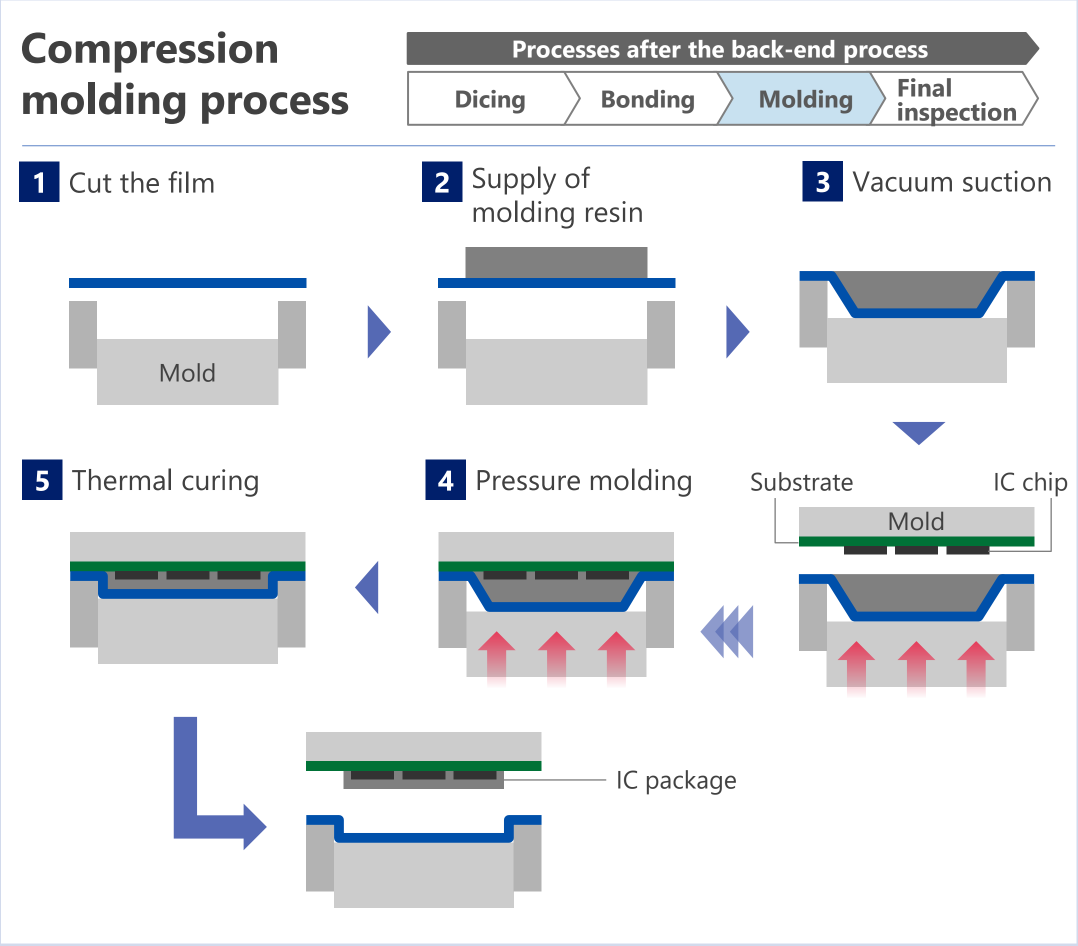
IDM

OSAT

Foundry

FAM[2] equipment manufacturers / molding resin manufacturers

Illustration of how release films are use



Compression molding process

Processes after the back-end process

Dicing → Bonding → Molding → Final inspection

1 Cut the film

2 Supply of molding resin

3 Vacuum suction

4 Pressure molding

5 Thermal curing

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[1] Based on sales / estimates by AGC

[2] FAM: Film Assisted Molding A high-precision molding method in semiconductor packaging that uses film during resin molding.

② ETFE-based Release Film (Fluon^{TM} ETFE FILM) 2/2

B Semiconductor process products

- By integrating proprietary resin design and molding technologies, **we maintain the world's No.1 share in semiconductor release films.**
- We will expand into next-generation molding processes that accommodate increasing package sizes.

Strength

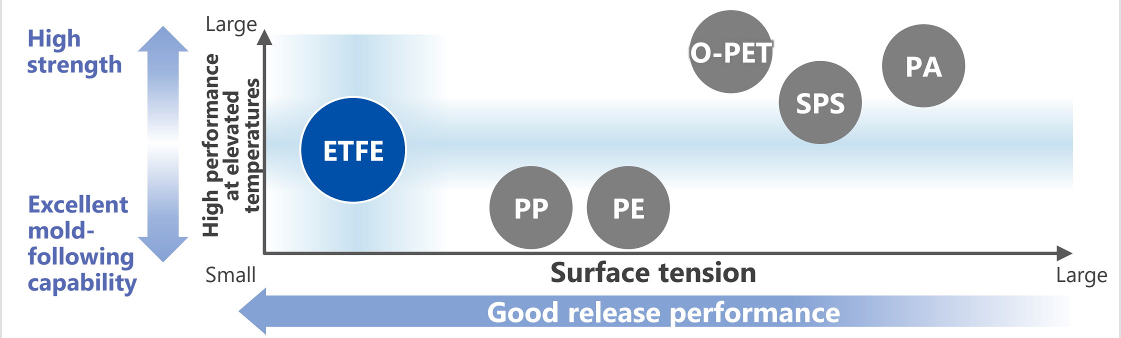
- **Achieving strength, mold-following capability, and release performance simultaneously—properties difficult to balance with other materials—establishing the industry's de facto standard.**

➡ Customizable solutions are available.

- The world's No.1 ETFE resin supplier and **the only company capable of integrated development and production—from raw resin to film—for semiconductor applications.**
- Strong relationships with equipment manufacturers and semiconductor manufacturers.

➡ As molding processes is highly stringent in changes, switching suppliers is extremely difficult, enabling us to maintain a high market share.

Advantages of ETFE resin

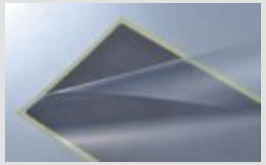


Future initiatives

- Maintaining high share in the existing (general-purpose semiconductor) market
- Strengthening development for cutting-edge packages such as HBM
- Development and expansion of AGC's proprietary antistatic film lineup.

➡ Adoption in advanced applications requiring electrostatic discharge protection

Final product image



③ Pellicle Raw Material （CYTOP™） 1/2

Market overview

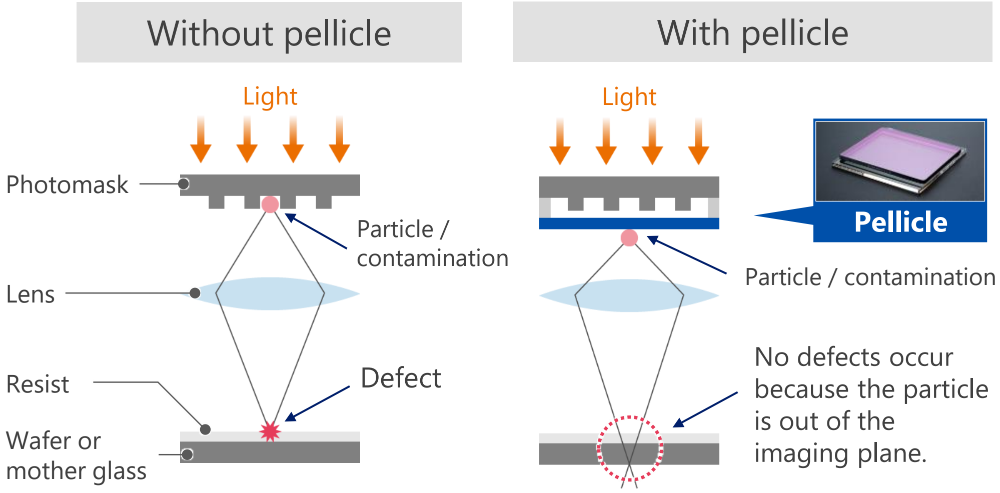
Applications	- Protective film used as a cover for photomasks - Prevents foreign particles from adhering to the photomask and being transferred onto the silicon wafer during the lithography process in semiconductor manufacturing.
Required characteristics	UV durability and high UV transmittance
Market growth	- The pellicle market grows in line with the expansion of semiconductor manufacturing equipment and increasing demand for photomasks. - Even in mature semiconductor manufacturing field*, the market continues to grow steadily, supported by the long-term operation of major logic and memory semiconductor production lines.

Supply chain

Raw resin materials	Pellicle	Photomask	Semiconductor
AGC	Pellicle manufacturer	Photomask manufacturer	
		Semiconductor manufacturer	

AGC supplies the resin materials used as raw materials for pellicles

Illustration of pellicle operation



Particles attached to the mask are transferred onto the wafer through the lithography process, causing pattern defects.

Particles on the surface of the pellicle are not transferred onto the wafer through the lithography process, allowing pattern defects to be avoided.

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*Semiconductors manufactured with established production technologies and used in fields with long-term stable demand, such as consumer electronics, industrial equipment, and automotive applications

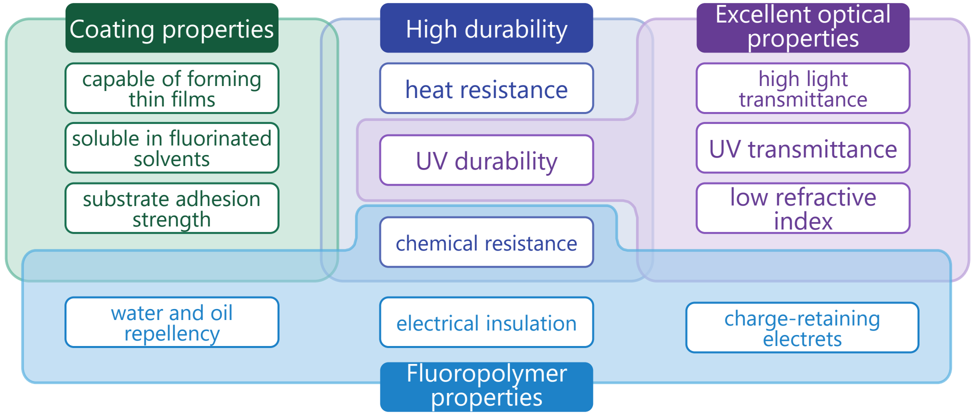
③ Pellicle Raw Material （CYTOP™）2/2

B Semiconductor process products

- CYTOP™ is used in a wide range of fields, such as electronics, information and communications, and life sciences.
- Leveraging its high durability and excellent optical properties, **we have established a position with virtually no substitutes for major ArF/KrF pellicle raw materials.**

Strength

- Capable for thin-film coating as it is solution-based.
- The amorphous structure provides high transparency.
- Delivers different properties simultaneously, such as “electrical insulation”, “water and oil repellency”, “UV transmittance”, and “chemical resistance”.



Coating properties
capable of forming thin films
soluble in fluorinated solvents
substrate adhesion strength

High durability
heat resistance
UV durability
chemical resistance

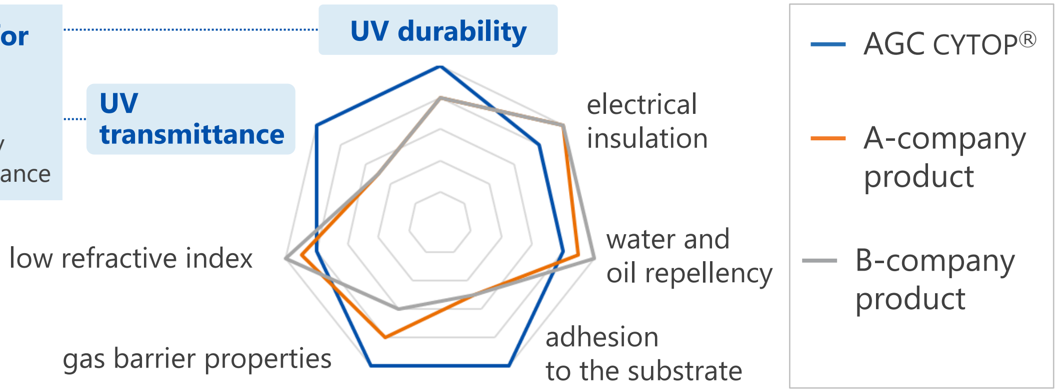
Excellent optical properties
high light transmittance
UV transmittance
low refractive index

water and oil repellency
electrical insulation
charge-retaining electrets
Fluoropolymer properties

Differences from fluoropolymer competitor products (image)

- Advanced pellicle raw material, featuring excellent thin-film formation technology and outstanding weatherability and reliability.
- Not easy to be substituted with competing products due to its high compatibility with photomasks and exposure processes.

Key factors for pellicle applications
- UV durability
- UV transmittance



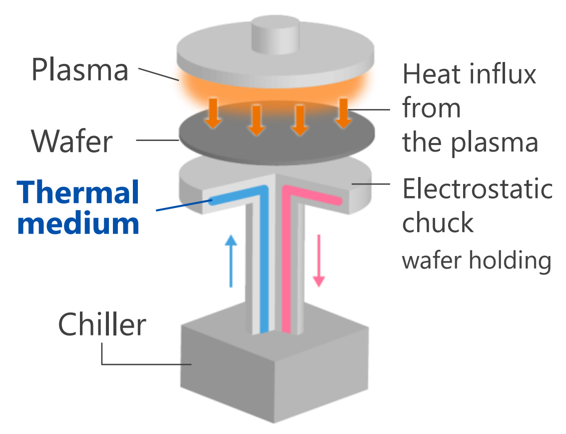
*Since EUV light at its wavelength does not pass through the CYTOP® film, it is not used for EUV applications. The ArF/KrF market is expected to grow steadily in the coming years.

④ Thermal Medium for Semiconductor AMOLEA™ AF-164（Under Development）1/2

Market overview

Applications	Precise temperature control in semiconductor manufacturing processes (deposition, etching, and ion implantation).
Required characteristics	■ Non-flammability, high thermal conductivity, thermal stability, and electrical properties ■ Low GWP

Illustration of thermal medium use in the etching process



Reasons for requiring a thermal medium

- Large amounts of heat are generated locally and instantaneously.
- With the increasing number of process steps and further structural miniaturization, precise temperature control directly impacts yield and device performance.

➡ Precise temperature control is required.

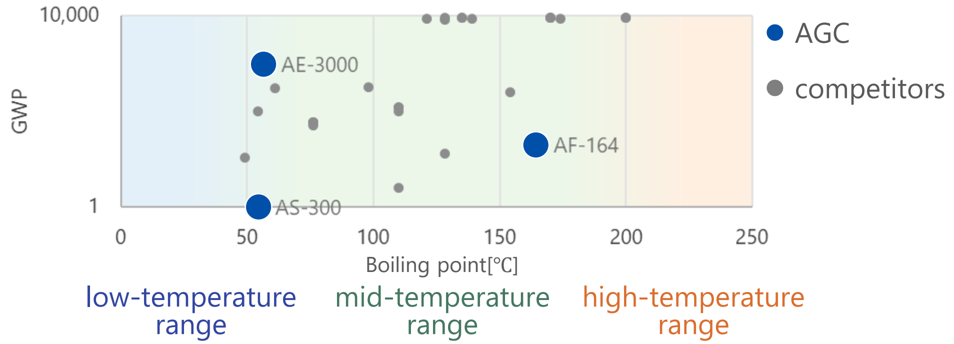
Market size

AGC is advancing its development with a focus on the mid-latitude region, where demand is expected to be large.

Product lineup of fluorine-based liquids for use as thermal media

Market size ➤ 30 billion JPY (AGC estimate)

Applications ➤ Semiconductor manufacturing, chemical production, power generation, data centers, and others.



Market growth

The semiconductor thermal medium market is driven by AI servers, with growth of over 10% per year.

④ Thermal Medium for Semiconductor AMOLEA^{TM} AF-164（Under Development）2/2

B Semiconductor process products

- Newly developed AMOLEA^{TM} AF-164 with a competitive advantage. Built based on relationships with equipment manufacturers fostered through fluoropolymer and fluoroelastomer supply, as well as the know-how gained through the development and mass production of refrigerants and cleaning agents.
- Continue to expand the business by exploring further applications in semiconductor manufacturing processes.

AF-164

- A fluorinated solvent with a boiling point of 164℃ as a single chemical substance.
- Used in semiconductor manufacturing etching processes

Strength

- With AF-164 alone, a wide temperature range can be covered. No need to switch between multiple thermal medium, **reducing customers' equipment operation and procurement burdens and helping lower total costs.**
- Small environmental impact with low GWP.
- Low geopolitical risk. Produced domestically in Japan from upstream raw materials.

Comparison with competing products

Product	Manufacturer	Operating temperature range for use in the mid-temperature band		GWP (environmental considerations)	Country of manufacture (geopolitical risk)
AF-164	AGC	◎	-30～130℃ (-60 0 130)	◎	◎
-	B-company	○	-10～100℃ (-60 0 130)	×	×
-	C-company	○	-30～90℃ (-60 0 130)	○	○
-	D-company	○	-30～80℃ (-60 0 130)	○	◎
-	E-company	×	-60～60℃ (-60 0 130)	◎	?

⑤ Post-CMP Cleaner（Under Development) 1/2

Market overview

Applications	A cleaning solution used to remove micro-particles and chemical residues remaining on the wafer surface after the CMP (chemical mechanical polishing) process in semiconductor front-end processes.
Required characteristics	High cleaning performance and low damage to the substrate and wiring materials.
Competitors	Chemical manufacturers for semiconductors
Market growth	■ With the expansion of CMP processes, demand is expected to increase steadily. ■ Driven by semiconductor miniaturization, steady growth is expected to continue.

Supply chain

Raw materials → Slurry → Semiconductor

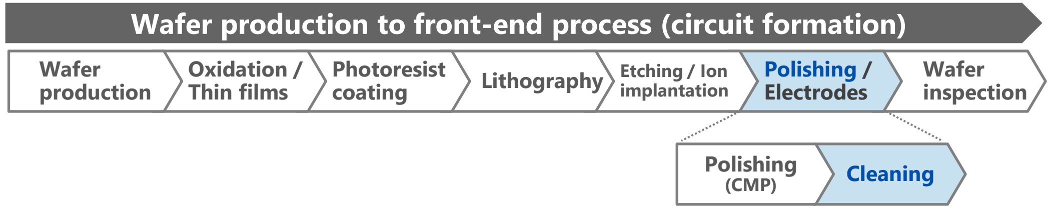
Polishing (CMP): AGC → AGC → Semiconductor manufacturers

Cleaning: Cleaning solution raw material manufacturers → AGC → Semiconductor manufacturers

Ensuring process compatibility

Raw materials → Cleaning solution → Semiconductor

Process flow and illustration of the Post-CMP cleaner



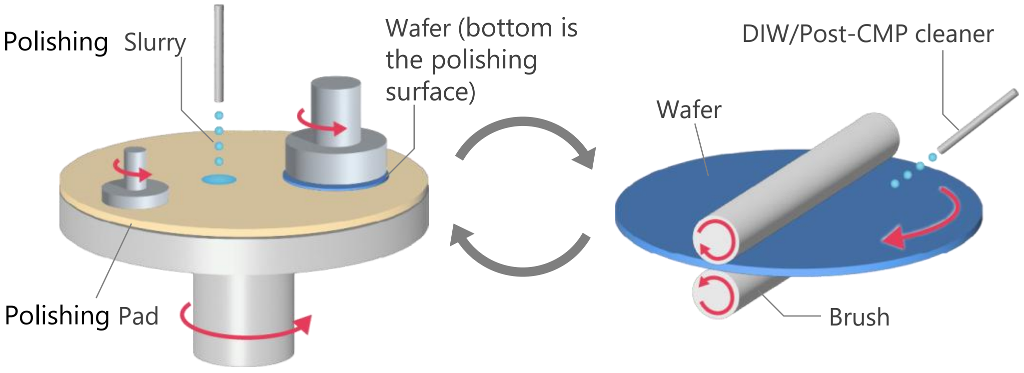
Wafer production to front-end process (circuit formation)

Wafer production → Oxidation / Thin films → Photoresist coating → Lithography → Etching / Ion implantation → Polishing / Electrodes → Wafer inspection

Polishing (CMP) → Cleaning

Total Solution for CMP process

Polishing (CMP) Electronics segment	Post-CMP cleaning Chemicals segment



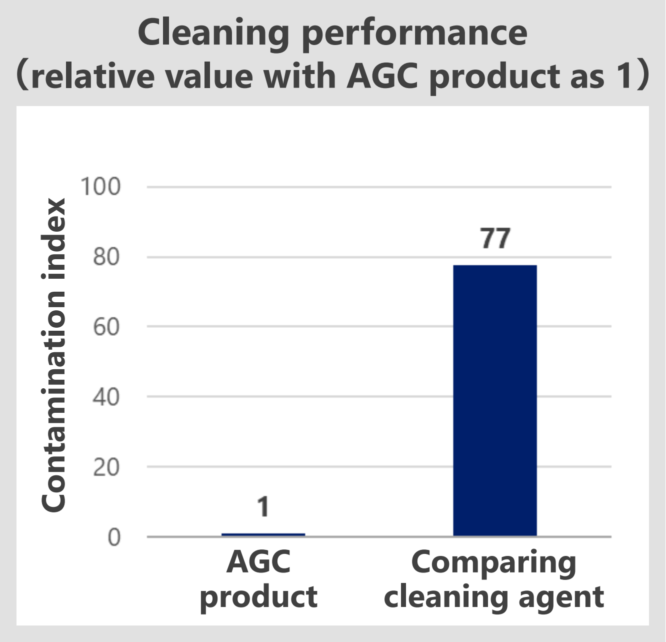
⑤ Post-CMP Cleaner（Under Development) 2/2

B Semiconductor process products

- Provide a total solution covering from CMP slurry to post-CMP cleaning solution leveraging collaboration between the Electronics and Chemicals segments,
- Established a Chemicals Technical Center*In Hsinchu, Taiwan, where many semiconductor-related companies are concentrated, driving initiatives end-to-end, from understanding customer needs to proposing products and services, and developing new products.

Strength

- Competitive advantage across the entire process **leveraging its know-how and accumulated technologies specialized in ceria-based CMP slurry**.
- CMP slurry performance based desing.
- **Performance suitable for cleaning after the CMP process** than water or conventional surfactants.



Future initiatives

- Develop a total CMP solution leveraging its technical foundation in ceria-based CMP-related materials.
- Target demand for leading-edge nodes and advanced packaging.
- Stable growth centered on high-value, eco-friendly products.

Technical Center housed in a building at Taiwan's Hsinchu "Damyuan Science Park,"

＊AGC Establishes a New Technical Service Site in Taiwan for Chemical Products Focused on Semiconductor and Electronic Materials

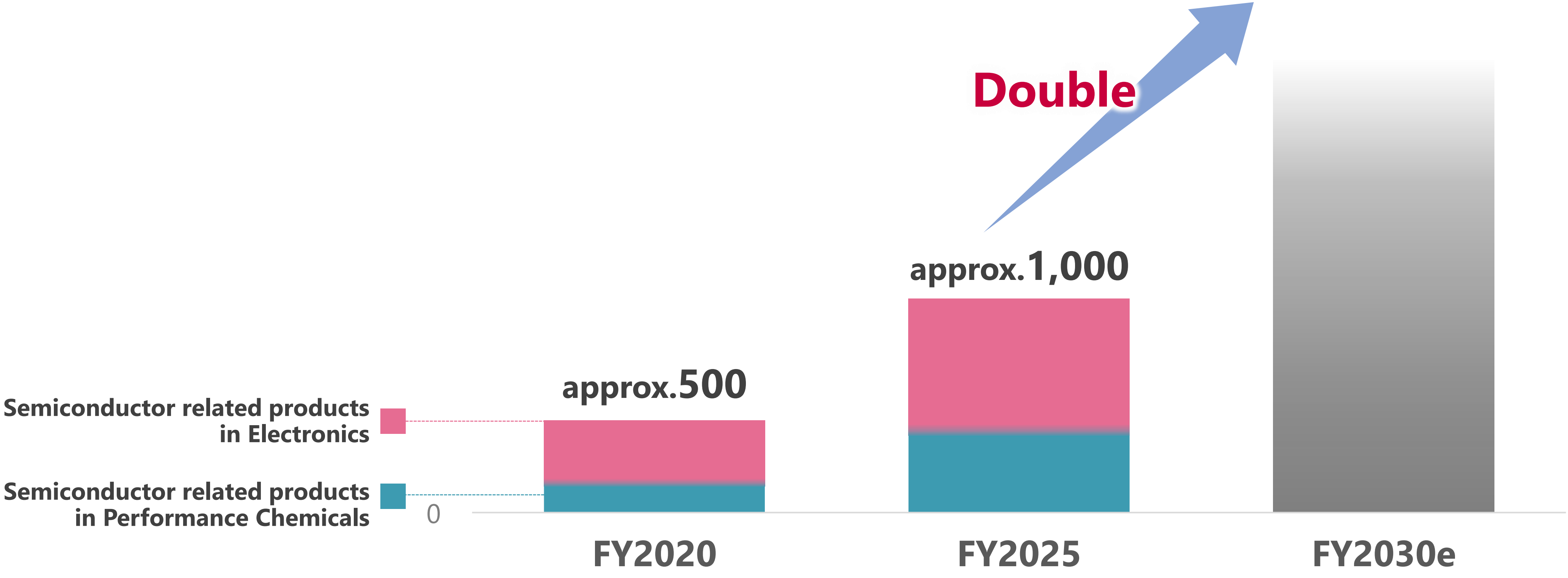
Your Dreams, Our Challenge

Conclusion

Semiconductor-Related Businesses Sales Trend

- Aim to double our 2025 revenues by 2030, leveraging AGC's full capabilities.
- Existing products will continue to drive growth.
- Focus as well on development and launch of new products, including packaging materials.

Semiconductor-related businesses sales trend (100 million JPY)



END

AGC

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