



Your Dreams, Our Challenge



AGC Integrated Report

2019

For the Year Ended December 31, 2018

Editorial Policy

Based on the Group Vision, **“Look Beyond,”** the AGC Group is implementing “Vision 2025,” its long-term management strategy formulated in February 2016. The Group has begun to publish a new AGC Integrated Report to deepen stakeholder understanding of specific corporate activities and the Group’s management philosophy regarding long-term, sustainable corporate value improvement.

The main objective of this year’s report is to facilitate a multifaceted understanding of the Group’s unique value creation model. It depicts the history of the AGC Group—which has created value indispensable to society since establishment, with a focus on supporting societal evolution over time—and also details the social value AGC currently provides, in a way that is easy for readers to understand. The report also includes detailed descriptions of the Group’s efforts in creating new innovation and business strategies geared toward sustainable growth, and the corporate foundations that support it.

Scope

Reporting Period

Fiscal 2018 (Jan.–Dec. 2018)

Organizations Covered in the Report

AGC Inc. and its 213 consolidated subsidiaries (Group companies in and outside Japan)

Primary Notation and Report Targets Used in the Report

- The AGC Group
Same as “Organizations Covered in the Report” mentioned above.
- AGC Inc./the Company
AGC Inc. (on an unconsolidated basis)

Published May 2019

AGC’s Communication Tools

For all stakeholders

AGC Integrated Report 2019 (This report)

<http://www.agc.com/en/csr/book/>

A broad overview of the AGC Group’s corporate vision, business strategies and activities, all aiming for increased corporate value in the long term



For stakeholders primarily interested in non-financial information

Sustainability Data Book 2019

<http://www.agc.com/en/csr/book/>

A report on policies and efforts towards realizing sustainability, and non-financial data (PDF only)

*This information was published as the “CSR Activity Report (Detailed)” until 2018.



AGC Group Website

<http://www.agc.com/en/>

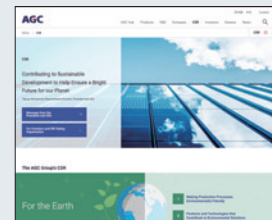
Provides timely information about the AGC Group in extensive detail



CSR Website

<http://www.agc.com/en/csr/>

Introduces the AGC Group’s corporate social responsibility activities and topics



For shareholders and investors

Financial Review

<http://www.agc.com/en/ir/library/financial/>

Reports the AGC Group’s business outline and financial information including consolidated financial statements (PDF file only)



Social media

YouTube

<https://www.youtube.com/channel/UCrUfls-RISZiGawDRsFHnjw>



Facebook

<https://www.facebook.com/agc.global>



Regarding Future Assumption, Forecasts and Plans

Future perspectives described in this report are based on the latest information available to the AGC Group at the time of editing this report. Nevertheless, please note that results and consequences may vary with fluctuations in the business environment.

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AGC Group Vision

“Look Beyond”

Anticipate and envision the future.
Have perspectives beyond our own fields of expertise.
Pursue innovations, not becoming complacent with the status quo.
We will continue to create value worldwide.

Our Mission

AGC, an everyday essential part of our world

—AGC’s unique materials and solutions make people’s lives better around the world every day—

We, the AGC Group, aim to continue being the “first choice” solution provider for our customers by building long-term trusted relationships with them through unique materials and solutions developed using our wide-ranging material and production technologies. We will continue offering products and solutions that customers and society need, thereby making people’s lives better around the world every day.

Our Shared Values

Innovation & Operational excellence
Diversity
Environment
Integrity

Our Spirit

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

The founding spirit of Toshiya Iwasaki, who established Asahi Glass Company in 1907



Brand Statement

Your Dreams, Our Challenge

Never take the easy way out, but confront difficulties

Trust is the best way to inspire people

Strive to develop technologies that will change the world

A sense of mission leads us to advance

For more than a century, AGC has been guided by these founding spirits. Our unique materials, solutions and reliable partnerships have facilitated leading innovations across diverse industries and markets.

Today, by working with others to combine knowledge and advanced technology, we help make ever greater achievements possible, and bring bolder ideas to life.

Your Dreams, Our Challenge



A detailed look at the AGC Group's history of supporting the evolution and development of society, industry and people's lives through unique materials and solutions

Global Business Expansion


<p>1907</p> <ul style="list-style-type: none"> Asahi Glass Company (now AGC Inc.) established in Amagasaki, Hyogo Prefecture, by Toshiya Iwasaki. 	<p>1914</p> <ul style="list-style-type: none"> The first export of flat glass to England. 	<p>1925</p> <ul style="list-style-type: none"> Shoko Glass Co., Ltd. established in China as the company's first business outside Japan. 	<p>1952</p> <ul style="list-style-type: none"> Agreement concluded to export caustic soda electrolysis equipment to Indonesia. 	<p>1956</p> <ul style="list-style-type: none"> Glass manufacturing subsidiary established in India, demonstrating progress in expanding internationally ahead of other Japanese companies.
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Evolution of Products and Technologies

Glass

<p>1909</p> <ul style="list-style-type: none"> Mass production of flat glass using a Belgian method of producing glass with hand-blown cylinders begins for the first time in Japan. 	<p>1928</p> <ul style="list-style-type: none"> Production of flat glass by the Fourcault process begins. 	<p>1938</p> <ul style="list-style-type: none"> Production of tempered glass and laminated glass begins. 	<p>1954</p> <ul style="list-style-type: none"> Production of double-glazing units PairGlass™ begins. 	<p>1956</p> <ul style="list-style-type: none"> Automotive glass business launched on a full scale to respond to rapidly growing demand.
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Chemicals

<p>1917</p> <ul style="list-style-type: none"> In-house production of soda ash, a key raw material for glass, begins in Kitakyushu. 	<p>1933</p> <ul style="list-style-type: none"> Caustic soda production using the ammonia method begins. 	<p>1961</p> <ul style="list-style-type: none"> Production of propylene oxide and propylene glycol begins.
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Electronics

<p>1955</p> <ul style="list-style-type: none"> Manufacture of glass bulbs for television picture tubes begins.
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Ceramics

<p>1916</p> <ul style="list-style-type: none"> In-house production of long-lasting refractory bricks for glass melting furnaces begins. 	<p>1939</p> <ul style="list-style-type: none"> Production of refractory bricks begins at the Iho Plant. 	<p>1960</p> <ul style="list-style-type: none"> Full-scale production of monolithic refractories begins.
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1980

2000

1964
 ■ Entry into the flat glass market in Thailand.

1972
 ■ Glass production operations commence in Indonesia.

1981
 ■ Glaverbel S.A. in Belgium acquired. Full-scale entry in Europe's flat glass market.

1985
 ■ Full-scale entry of the automotive glass business in the United States.

1986
 ■ Full-scale entry of the chlor & alkali business in Indonesia.

1997
 ■ Entry into Russia's glass market.


2007
 ■ Group brand unified as "AGC" to mark its 100th anniversary.

2013
 ■ Entry into Brazil's flat glass market.
 ■ Southeast Asian regional headquarters established in Singapore.

2016
 ■ Automotive glass production base established in Morocco.
 ■ Information gathering and marketing bases established in India and Dubai.


2018
 ■ Bioscience businesses in Japan, the U.S., and Europe consolidated and integrated management as AGC Biologics begins.
 ■ Change of corporate name to AGC Inc.

1966
 • Production of float glass begins.



2005
 • Sales of automotive door glass that blocks infrared rays launched.

2011
 • UV Verre Premium Cool on™ tempered glass for automotive door windows sales begin.




1972
 • Product development of AsahiGuard™ water and oil repellants and Aflon™ COP fluorinated resins begins.

1975
 • Development of the Flemion™ fluoropolymer ion-exchange membrane electrolysis method for manufacturing caustic soda.

1980
 • AZEC System, a new ion-exchange membrane electrolyzer, developed.

1982
 • Production of LUMIFLON™ fluoropolymer resin for coatings begins.




1990
 • CYTOP™ transparent amorphous fluoropolymer developed.

2008
 • High-performance Fluon™ ETFE FILM used for various sports venues at the global sports event in Beijing.

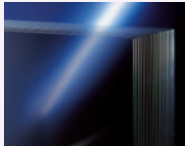
2015
 • Supply of HFO-1234yf, a next-generation automobile refrigerant with a low environmental burden, begins.

2017
 • Acquired leading biopharmaceutical CDMO CMC Biologics.




1985
 • Synthetic Fused Silica Glass production begins.

1995
 • Production of glass substrates for TFT-LCDs begins.




2011
 • Worldwide sales of Dragontrail™ glass for smartphones and tablet computers begins.



2013
 • Production of cover glass for automotive displays begins.

1982
 • High-quality fused cast refractory ZB-X950 development begins.





Takuya Shimamura

Representative Director,
President and
Chief Executive Officer

By providing materials and solutions essential to society, AGC aims for long-term sustainable growth through core businesses and strategic businesses.

Our Future in AGC's Founding Spirit

In September 2019, the AGC Group will celebrate 112 years of business. I am thrilled by the fact that AGC has been able to support people around the world for more than a century. I would like to take this opportunity to reflect on the accomplishments of my predecessors and renew my mindset as a company executive.

Regarding this mindset, I believe there are three points that business managers should keep in mind: (1) always take a long-term perspective (2) foster necessary changes without boundaries and (3) remember the spirit that you started with.

In corporate management, a business must profit through its activities and share the results with its employees, business partners, shareholders and other stakeholders over the long term. To that end, we shouldn't be overly influenced by short-term performance and results, but instead, should focus on making necessary changes to increase the value of our products and services. Additionally, one reason AGC has been successful for over a century is because our predecessors have respected and maintained the

company's "founding spirit." The four tenets of the founding spirit are indispensable for the growth of the AGC Group. Among them, the phrase "A sense of mission leads us to advance" exemplifies our significance as a materials manufacturer and holds the key to our future.

AGC Creates What Society Needs

Our *sense of mission* defines the value we create, and to whom and for what purpose we provide that value. Ultimately, the purpose of a company can be thought of as what the company does to help society progress. For the AGC Group, increasing sales and profits is a goal but not *the* goal. Our ultimate goal is to continue creating what society needs and generate value for our diverse stakeholders.

When AGC was founded, the company's goal was to produce flat glass for the first time in Japan. As Japanese lifestyles became more Westernized, AGC sought to secure a stable supply of architectural flat glass in Japan, believing it would enrich people's lives. To this end, AGC launched its flat glass business and

Founding spirits

- Never take the easy way out, but confront difficulties
- Trust is the best way to inspire people
- Strive to develop technologies that will change the world
- A sense of mission leads us to advance

then started integrated production of flat glass from soda ash, a key raw material of glass production. Since then, we have continued to manufacture what was required by society: with the advent of motorization, automotive glass; when TVs appeared, cathode ray tube glass; and when LCD TVs were born, LCD glass substrates. In the chemicals business, we have moved on from soda ash, a raw material for flat glass, to sodium bicarbonate, vinyl chloride resin, fluorine, and more recently, pharmaceutical and agrochemical intermediates, and biopharmaceuticals.

Some people ask me why AGC deals in electronic components and chemicals. Without knowing our history of responding to the needs of the time, this is a natural question. I am proud of our predecessors' *sense of mission* to develop materials that society needs. AGC's diverse employees and customers as well as technologies and products in the fields of glass, electronics, chemicals and ceramics are the fruits of our predecessors' endeavors. I am sure that they will continue to be the AGC Group's greatest strengths moving forward.

Co-creation of Greater Value with Diverse Stakeholders

Of course, I don't think that having the technologies, products and human resources related to materials will immediately lead us to bright future prospects. Today, our daily lives are inundated with products. Many of them do not provide added value, do not play a social role, and are needed neither by consumers nor society. Continuing to create such products has little benefit and also wastes resources and energy. In recent years the idea of creating shared value (CSV), which creates medium- to long-term growth opportunities in the process of solving critical issues, such as environmental and energy problems, global population growth, food supply problems, poverty, social infrastructure and medical systems in developed and developing countries, is gaining acceptance in corporate society. Proof of this trend can be seen in the progress toward

The AGC Group's Management Policy

AGC plus

The AGC Group adds a "plus" by:

- Providing safety, security, and comfort to society;
- Creating new value and functions for customers and business partners and building trust with them;
- Enhancing job satisfaction among employees; and
- Increasing the Group's corporate value for investors.

achieving the 17 Sustainable Development Goals (SDGs) adopted by the United Nations in 2015, the disclosure of information according to the proposals of the Task Force on Climate-related Financial Disclosures (TCFD)* and the international establishment of environment, social and governance (ESG) activities as a new metric by which companies are measured.

In light of these circumstances, when I was appointed CEO of the AGC Group in 2015, I advocated a management policy called **AGC plus**. This policy emphasizes that AGC's role in society is to create new value together with our stakeholders in all business fields and thereby meet society's needs and solve problems in the long-term, even in the face of an unsure future. **AGC plus** shows all AGC employees that the company they work for plays a genuinely important role in society.

* In May 2019, AGC expressed its agreement with the proposals of the Task Force on Climate-related Financial Disclosures (TCFD) established by the Financial Stability Board (FSB).

Innovating on a 10 to 20 year Timeline

"Creating new value together with our stakeholders" is not just something I've started saying recently—it has been incorporated into our business model ever since the company's founding. The AGC Group supplies raw materials that are used in end products.

These materials may lead to new products and services within a short period of time, akin to those created through Information & Communication Technology (ICT) innovation, but genuine innovation generally takes place over a span of 10 to 20 years, in tandem with our customers' needs.

Based on the characteristics of the industries we are engaged in, we have always placed importance in the relationship of trust with our customers, i.e. leading companies who drive their industries forward and boldly create added value. The hurdles to overcome with our customers are always high, but we have produced many groundbreaking products to date, perhaps due to our company's founding spirit: "Never take the easy way out, but confront difficulties."

The concept of value creation models has attracted attention in recent years. Speaking of our value creation model based on the history and features of the AGC Group, it can be described as follows: "We look at things on a 10- to 20-year scale and anticipate the needs and problems of various industry leaders and any social issues that may subsequently arise. We combine diverse expertise and technologies inside and outside the AGC Group to create new products and solutions, generating profits while improving society and ways of life over the long term."

Achieving Sustainable Growth: Core Businesses and Strategic Businesses

Based on our value creation model, which is backed by our founding spirit and history as foundations for our growth, there are two major responsibilities placed upon me for achieving long-term sustainable growth.

The first is steadily carrying out our three-year medium-term management plan and producing results, continuing to earn the trust of our shareholders and other stakeholders. The second is identifying social issues and growth markets for the next 10 to 20 years from the unique perspective of a materials company, and aggressively creating new businesses without losing our financial focus.



In 2016, we announced our long-term business strategy Vision 2025, which clarifies our position to those outside AGC. Here, under the banner of "a highly profitable, leading global material and solution provider," we define our two categories of business: "Core businesses will serve as solid sources of earnings" and "Strategic businesses will become growth drivers and lead further earnings growth."

Core businesses are those that deepen our existing business. Their aim is to improve products and reduce costs while securing stable earnings by focusing on select areas and fields. In contrast, strategic businesses invest revenue generated from our core businesses in the growth areas of mobility, electronics and life science taking a long-term perspective. We examine this dual approach of core business and strategic business in detail for each business and product, and aim for sustainable growth over three-, five- and ten-year time spans. This policy is reflected in our current medium-term management plan, **AGC plus-2020**, which took effect in fiscal 2018.

One reason for these dual business categories stems from the record profits of fiscal 2010. At that time, with the rapid adoption of flat-screen TVs, most of our profits came from display glass. This business structure is vulnerable to changes in the market, which has caused a decline in unit prices and subsequent declines in corporate performance. From the lessons learned through this experience, in the three years of

Message from the President and CEO

the previous medium-term management plan from 2015–2017, we focused on reforming our business portfolio to ensure that our glass, electronics and chemicals businesses achieved a balanced profit. In our current medium-term management plan up to 2020 we will make a full-fledged start towards achieving AGC's Vision 2025, which entails growth strategies for our core businesses and active investment in strategic businesses, including mergers and acquisitions.

A Stable Revenue Base through Core Businesses

AGC plans to build a long-term and stable earnings base by thoroughly managing its portfolio of core businesses (glass, electronics, chemicals and ceramics).

In the glass segment, we look to increase profitability by setting growth areas and areas where we can outperform our competitors in architectural glass. AGC is the world's largest supplier of automotive glass, and our market share is expected to grow even further in the medium- to long-term as we actively adapt to CASE* and other changes in the business environment.

In the electronics segment, we intend to secure

profits by shifting production of display glass to areas that demand related products, offering larger sizes of glass to meet demand and further reducing costs. In addition, we plan to reorganize the business portfolio within the electronics segment by focusing on electronic materials, such as semiconductor-related and optical filters for smartphone cameras.

In the chemicals segment, including the commodity-dominated chlor-alkali and urethane businesses, we are generating stable revenue as the top integrated manufacturer of goods starting from raw materials in Southeast Asia, partially a result of capacity expansion and mergers and acquisitions in Indonesia and elsewhere. In contrast, the fluorochemicals and specialty chemicals business encompasses a niche product group, but one whose use is expanding globally. We will work to further develop this market moving forward.

* Connected, autonomous, shared, electric: an acronym that represents the continued evolution of the automobile

AGC Group's long-term management strategy: Vision 2025

The AGC Group's core businesses will serve as solid sources of earnings, and strategic businesses will become growth drivers and lead further earnings growth. The AGC Group will continue being a highly profitable, leading global material and solution provider.

Core businesses

Establishing long-term, stable sources of earnings through the portfolio management

- Architectural glass
- Automotive glass (existing)
- Essential chemicals
- Fluorochemicals
- Display glass
- Ceramics

Strategic businesses

Establishing highly profitable businesses through expansion of high value-added businesses

- Mobility
- Electronics
- Life science



Expanding Strategic Businesses through Innovation that Combines Technologies

In 2019, we will make strategic investments with the aim of achieving a profit contribution target of at least 40% for strategic businesses in 2025.

Our strategic businesses of mobility, electronics and life sciences are not directly linked to existing segments or in-house companies, but rather they represent market areas. This is because AGC wants to create innovations that drive growth by combining underlying technologies and the products they make possible, both inside and outside the company. Innovation does not explicitly mean technological innovation; it also occurs when knowledge is created through new combinations of existing technologies. The Group's cover glass for car-mounted displays in the mobility business is a product that applies technology derived from cover glass for smartphones, which is conventionally a part of the electronics business. Likewise, our glass antennas which turn architectural window glass into communication bases are derived from technology for glass antennas for automobiles. With the spread of IoT, 5G and automated driving, these glass antennas could majorly increase added value in the architectural glass business and positively affect growth in the mobility business. The power of chemicals is essential in the development and production of these products. Our EUV mask blanks in the electronics field, which are

used for semiconductor manufacture, are also the amalgamation of a set of the Group's technologies for glass materials, processing and coating.

The life science business, which we have worked in since the 1980s, is an example of how long-term investment in future growth areas can come to fruition. In particular, the CDMO business, which includes manufacturing process development, is growing at a faster pace than expected.

Putting Trust in People to Realize "Your Dreams, Our Challenge"

In addition to the management policies and business strategies described above, human resource development is essential for medium- to long-term growth. In this respect, I try to pursue the founding spirit of the Group: "Trust is the best way to inspire people." I've had conversations with our domestic and overseas employees for the four years since I became CEO to foster empathy for and trust in the Group's management. At first, some employees I spoke to said little in our meetings, but I continued the dialogues with small groups based on the conviction that many management issues are directly connected to problems faced by on-site employees. Through these dialogues, I reaffirmed the incredible quality of personnel in our manufacturing divisions and the many potential leaders in each organization. How can AGC help these employees become the backbone of the next generation? Finding the answer to this question is my greatest responsibility as CEO.

Last year, we changed our company name from Asahi Glass to AGC. This was done to show that we will create value across the globe, utilizing not only glass, but numerous other materials-driven technologies. We intend to share this idea with our employees around the world. With the brand statement "Your Dreams, Our Challenge" at the heart of the AGC Group, we continue working to make people's lives better.



Shinji Miyaji

Representative Director, Executive
Vice President, CFO and CCO

Maintaining active growth investment through optimal financial balance

Business Portfolio Optimization Based on BU Analysis and Evaluation

During the fiscal year ending December 31, 2018, the global economy surrounding the AGC Group maintained a moderate recovery, but the impact of trade disputes and other problems became apparent toward the end of the fiscal year. In Japan, the economy continued a trend of moderate improvement thanks to factors including government economic policy. Consumer spending increased in the United States and recovery remained stable in Russia and Brazil. On the

other hand, the growth rate in Europe slowed from the second half of the fiscal year, and negative signs appeared for consumer spending in China.

Under these circumstances, the AGC Group steadily promoted the growth strategies of each business based on the medium-term management plan **AGC plus-2020**, which was implemented for the first time in fiscal 2018. As a result, consolidated net sales increased by 59.4 billion yen (4.1%) from the previous fiscal year, up to 1,522.9 billion yen, due to increased shipments in each business and the

Financial index

(Millions of yen)

	IFRS		
	2016/12	2017/12	2018/12
Net sales	1,282,570	1,463,532	1,522,904
Operating profit	96,292	119,646	120,555
Profit before tax	67,563	114,424	128,404
Profit for the year attributable to owners of the parent	47,438	69,225	89,593
Return on equity*	4.3	6.1	7.7

* Return on equity = Profit for the year attributable to owners of the parent/Total equity attributable to owners of the parent

consolidation of companies acquired in the previous year. While affected by factors such as the increase of raw material and fuel prices, operating profit increased by 0.9 billion yen year-on-year to 120.6 billion yen (+0.8%). Profit before tax was 128.4 billion yen, up 14.0 billion yen (+12.2%), mainly due to improvement in "other income and expenses." Profit for the year attributable to owners of the parent was 89.6 billion yen, up 20.4 billion yen (+29.4%), mainly due to a year-on-year decrease in income tax expenses.

Return on equity (ROE), which is one of AGC's management indicators, also improved from 6.1% to 7.7% year-on-year, within striking distance of the mid-term target of an "ROE of 8% or more in FY2020." The Group will strive to achieve this target and further strengthen its earning structure, with the goal of achieving an ROE of 10% or more in 2025.

In order to realize the Group's long-term business strategy, Vision 2025, it is necessary to build a stable revenue base by optimizing the Group's portfolio of core businesses: glass, electronics, chemicals and ceramics. These core businesses are divided into concise business units (BUs) that are allocated resources based on independent evaluations.

Earnings before interest, taxes, depreciation and amortization (EBITDA)*1, representing cash generating

capacity, and return on capital employed (ROCE)*2, representing capital efficiency, are used as internal control indices in the profitability evaluation of each BU. BUs that do not meet these criteria are considered zero-base and may be eligible for business withdrawals or other options.

In order to increase ROCE, it is important to reduce operating assets, which form the denominator (divisor) of the ratio, as well as efforts to increase the profit, which is the ratio's numerator. Therefore, I am urging each BU to be aware of the need to expand profits and reduce operating assets. This may not prove to be the easiest of tasks, but I am making each BU aware that they must take independent action in this regard.

*1 EBITDA: Income before interest payments and tax payments, and before depreciation and amortization of tangible fixed assets and amortization of intangible fixed assets

*2 ROCE: Profit divided by operating assets

Strengthening Three Strategic Businesses and Promoting M&As from a Sound Financial Position

To realize Vision 2025, a further prerequisite will be to increase profitability by expanding our new high value-added businesses. Under **AGC plus-2020**, we will position the three areas of mobility, electronics, and life science as strategic businesses rather than

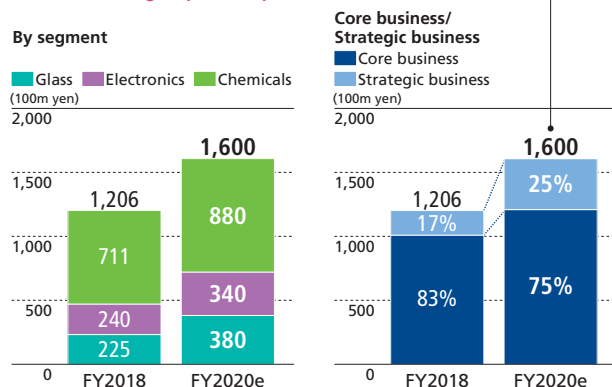
Management target toward 2025

-Achieve a record operating profit
-Increase the profit contribution ratio of strategic businesses to 40% or more of the Group's total operating profit

	2018	2020 target	2025 target
Operating profit (100m yen)	1,206	1,600 or more	2,292 or more (record high)
ROE	7.7%	8.0% or more	10.0% or more
Strategic business Contribution ratio	17%	25% or more	40% or more
D/E	0.43	0.5 or less	0.5 or less

FY2020 OP structure (to-be image)

Target: Strategic businesses account for 25% or more of the group's total profit



*The above graphs do not include "Ceramics/Other" segment and elimination, thus the sum total doesn't make the group's operating profit.

Message from the CFO

segments, and promote their development as new growth drivers. Already, our efforts in life science, including pharmaceuticals, agrochemicals and biopharmaceuticals, and in electronics, including semiconductor-related materials and materials for next-generation high-speed communications, have contributed to profits. From 2021 onwards, the mobility area will also gradually begin to contribute to our business performance.

In the fiscal year under review, the profit contribution ratio from these three strategic businesses increased from 10% to 17% year-on-year. The goal of **AGC plus-2020** is to increase this ratio to 25% or more by 2020, and we intend to further boost the profit contribution ratio to 40% or more by 2025.

Aside from measures to strengthen our strategic businesses, we are also actively promoting M&A.

Post-merger integration (PMI) is important for truly successful M&A. Accordingly, the AGC Group establishes PMI groundwork before it acquires a company, ensuring a systematic integration process. We view the period of 100 days after the acquisition as particularly important. We formulate a detailed plan for this period and make practical adjustments in accounting, human resources, IT and general affairs, to ensure that the AGC Group's basic policy, code of conduct, compliance policy and other guidelines

permeate throughout the acquired company, allowing both corporate cultures to integrate smoothly.

Our recent large mergers and acquisitions include the 2017 acquisitions of the Thai polyvinyl chloride (PVC) manufacturer Vinythai and Danish biopharmaceutical manufacturer CMC Biologics. In each case, PMI functioned outstandingly and performance improved. Building on our glass segment, which we already implement on a global level, we will also boost our reputation as a global company by amplifying the M&A effects in the chemicals segment.

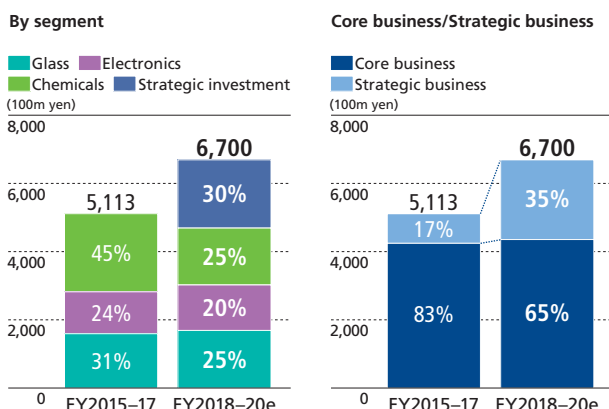
Sound finance is essential to the foundation of an aggressive M&A strategy. The AGC Group uses a debt-to-equity (D/E; interest-bearing debt/net assets) ratio of 0.5 or less as one indicator of financial soundness. In the future, although this number may rise above 0.5 in the short term due to strategic large-scale acquisitions and other factors, we plan to maintain 0.5 or less in the long run.

Global Integrated Management for All AGC Members to Maximize Their Potential

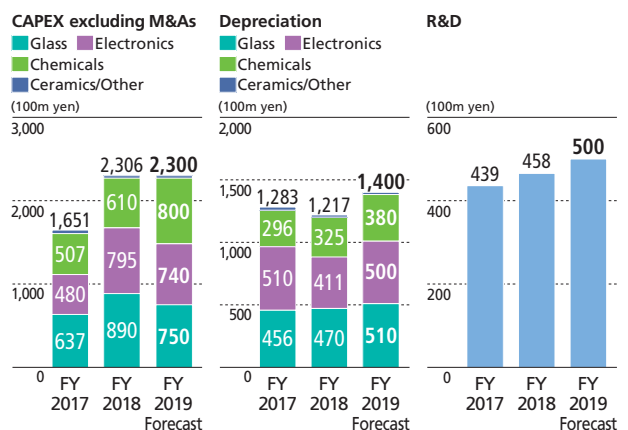
In recent years, ESG investment has expanded even in Japan in consideration of non-financial information regarding the environment, society and governance as well as other factors in asset management. Today, for companies to grow consistently and increase in corporate

Investment allocation (to-be image of CAPEX/M&As)

Make a shift to active and well-focused investment strategies



CAPEX/Depreciation/R&D



value, the ESG perspective is becoming essential.

Among the various initiatives that lead to the improvement of corporate value, the AGC Group has focused in particular on the advancement of human capital.

Since its founding, the AGC Group has promoted the idea of a “chosen few” and has strived to secure truly talented personnel. At the same time, we have fostered a “culture of an open company” in which employees call each other by name rather than title, and the president himself travels to workplaces and communicates with young staff members. We believe that this kind of corporate culture creates an environment that brings out the skills of each and every personnel and maximizes their performance. Companies invest in human capital in order to generate value efficiently, and I think the essence of the “reform of working styles” that is now under discussion in Japanese society is an integral part of this concept. And so is diversity. New value cannot be created unless people who hold different values and who possess different kinds of creativity are included.

Applying a corporate culture and management system cultivated in Japan often becomes an issue when globalizing and operating a business overseas. However, in the case of our Group, since we moved to a “global integrated management” system in 2002, we

established a headquarters function in Belgium for part of our businesses and introduced a global operations system that includes a process of job grading that enhances the global utilization of human resources.

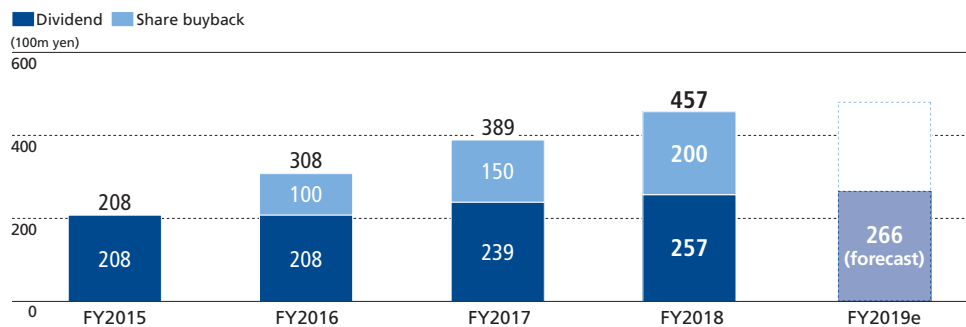
In the life science business mentioned above, when we add an overseas company to the Group, we rapidly bring it under global integrated management, and our wealth of experience cultivated in the fields of glass and electronics allows us to achieve growth through synergistic effects. We plan to utilize the strengths we have accumulated to expand our strategic businesses globally in the future.

In closing, I would like to discuss the distribution of profits to our shareholders. With annual dividend payment per share maintained at the current term’s expected payment amount (or more) as a base, the AGC Group aims for a consolidated total shareholders’ return of 50% or more (including acquisition of treasury shares) in profit distribution. Going forward, we will strive to return profits to our shareholders, comprehensively taking into account consolidated performance and future investment plans.

We look forward to your continued understanding and support for our Group.

Shareholder return

Total shareholder return



Dividend per share/year	90 yen	90 yen	105 yen	115 yen	120 yen (plan)
Consolidated total return ratio	49%	65%	56%	51%	50% or more (policy)

AGC Founder Toshiya Iwasaki's Dream: Modernizing Japan through Domestic Flat Glass Production

"Never take the easy way out, but confront difficulties." In his efforts to create a company supporting society, realize Japanese domestic production of flat glass and contribute to Japan's modernization, AGC Group founder Toshiya Iwasaki summoned immense determination in the face of adversity. After the Meiji Restoration, Japan was modernizing under a mantra of encouraging new industry, but Iwasaki was keenly aware that Japan's flat glass industry was far behind the rest of the world. As a family member of the Mitsubishi *zaibatsu* (conglomerate), he had a bright future ahead of him, but instead, he devoted himself to realizing domestic production of flat glass—a feat that had proven beyond the abilities of his predecessors. His efforts contributed significantly to Japan's industrial modernization while greatly boosting Japan's industrial production. In September 1907, Asahi Glass Co., Ltd. (now AGC) was founded. After an



Founder Toshiya Iwasaki

initial trial phase, the company started operation of Japan's first flat glass plant. It was later able to supply its own refractories and soda ash—essential to glass production—and built its own integrated flat glass production system.

Since then, the AGC Group has expanded from glass production to a wide range of fields including electronics, chemicals and ceramics, and now has over 100 years of experience in technological innovation. The spirit of the founder, who prioritized developing new technologies and contributing to a prosperous society, is embodied by all members of the AGC Group to this day.



Mass production of flat glass using a Belgian method of producing glass with hand-blown cylinders begins for the first time in Japan (1909)



In-house production of long-lasting refractory bricks for glass melting furnaces begins (1916)



Part I AGC's Current Status

Surpassing its current status as the world's number one glass maker, AGC is now undergoing transformation as a leading materials manufacturer

The AGC Group: Providing a Broad Range of Materials and Solutions Worldwide

Description of Business

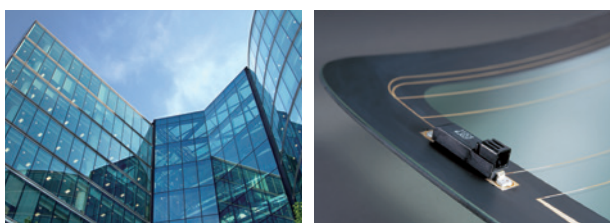
(December 2018)

Glass

Net sales: **757.5 billion yen**

Operating profit: **22.5 billion yen**

- Architectural glass Net sales: 358.9 billion yen
- Automotive glass Net sales: 397.3 billion yen

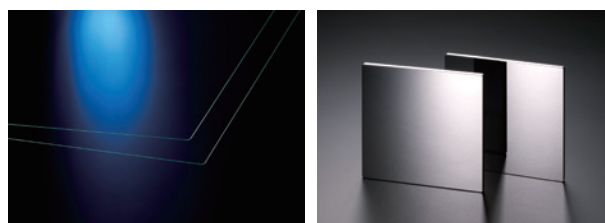


Electronics

Net sales: **252.6 billion yen**

Operating profit: **24.0 billion yen**

- Display Net sales: 183.4 billion yen
- Electronic materials Net sales: 66.9 billion yen



Chemicals

Net sales: **484.4 billion yen**

Operating profit: **71.1 billion yen**

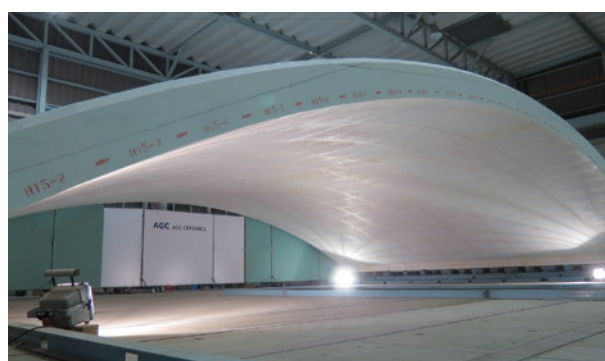
- Chlor-alkali and urethane Net sales: 316.6 billion yen
- Fluorochemicals and specialty chemicals Net sales: 120.5 billion yen
- Life Science Net sales: 44.9 billion yen



Ceramics/Other

Net sales: **79.0 billion yen**

Operating profit: **2.8 billion yen**

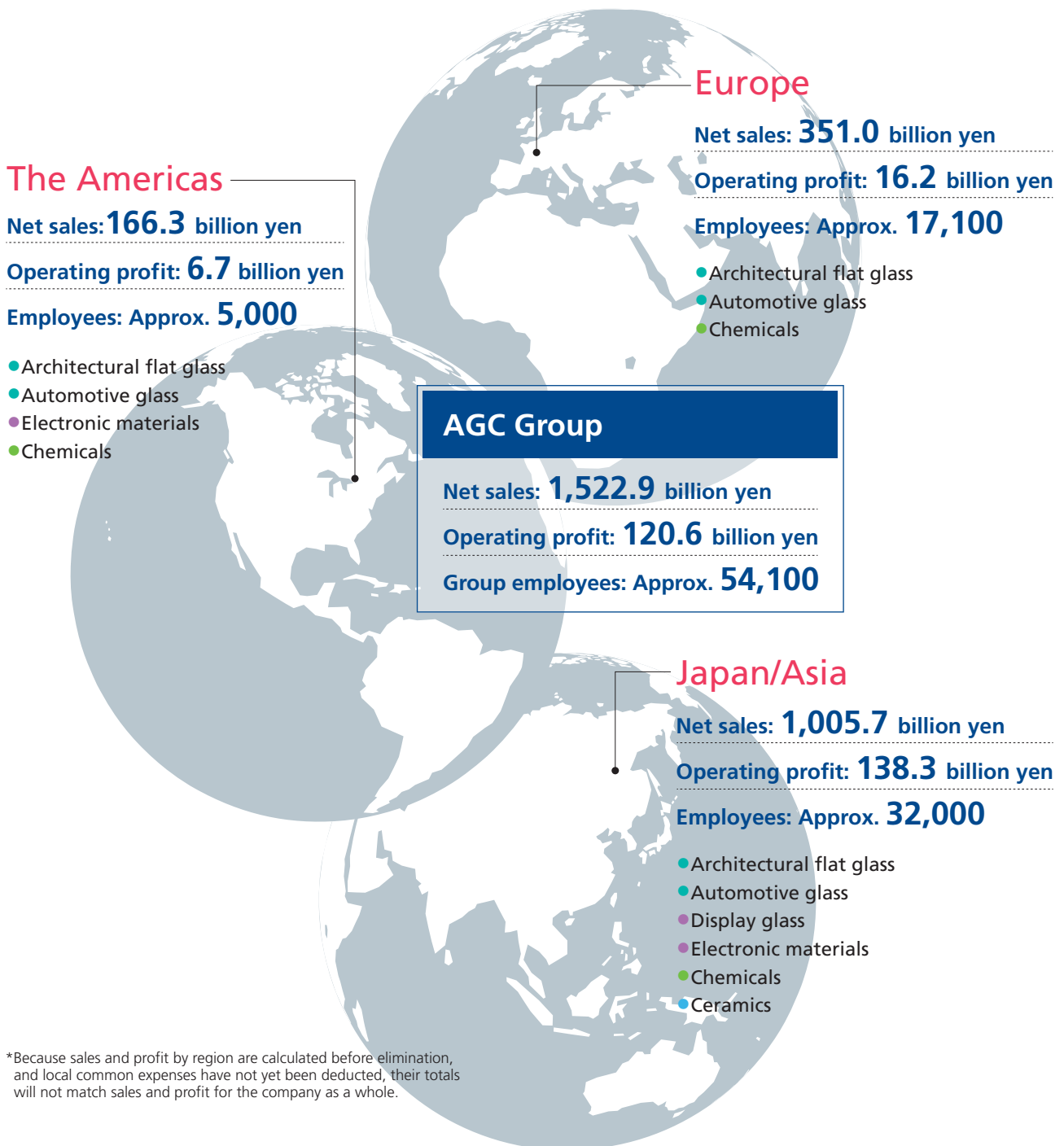


*Sub-segment net sales utilize net sales to external customers.
*Because sales and profit by segment are calculated before elimination, their totals will not match sales and profit for the company as a whole.

The AGC Group has established a global business foundation based on the three pillars of Japan/Asia, Europe and the Americas. The Group strives to create new value with globally top-class, diverse material technologies, a broad customer base and advanced production techniques as its strengths, cultivated from over 110 years of experience in our Glass, Electronics, Chemicals and Ceramics businesses.

Global Expansion

(December 2018)

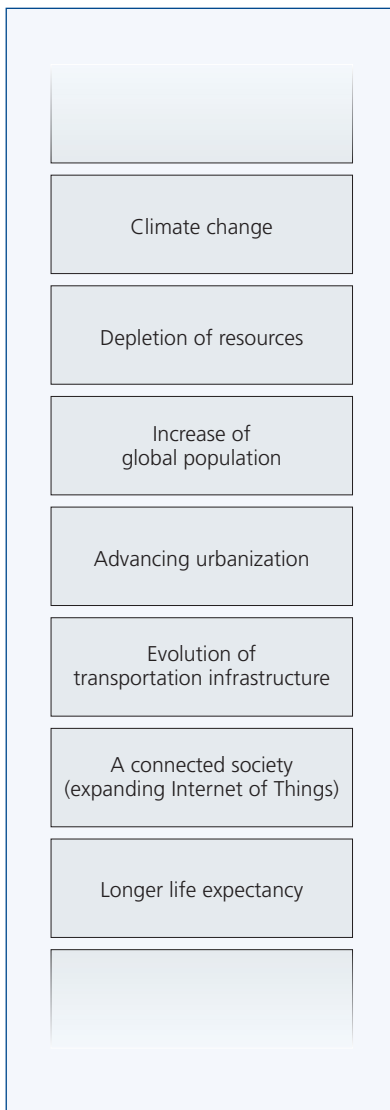


*Because sales and profit by region are calculated before elimination, and local common expenses have not yet been deducted, their totals will not match sales and profit for the company as a whole.

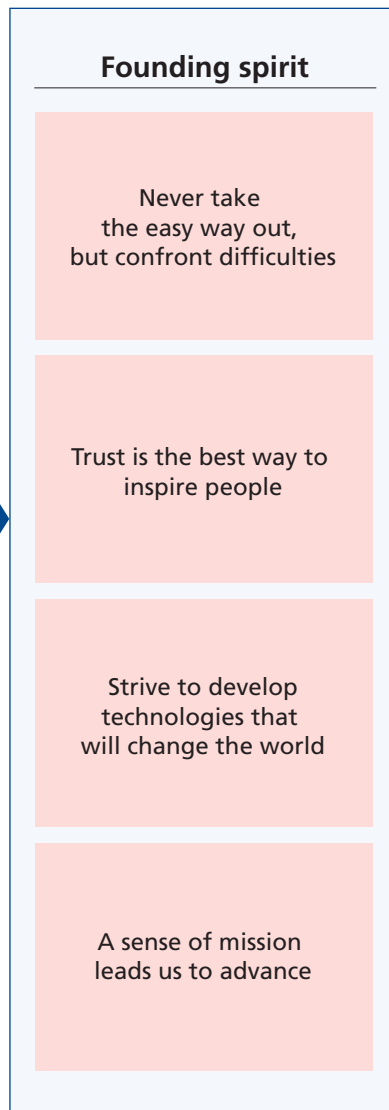
From the origin of our founding spirit,
we will focus on the future
and create new value and trust

Your Dreams,

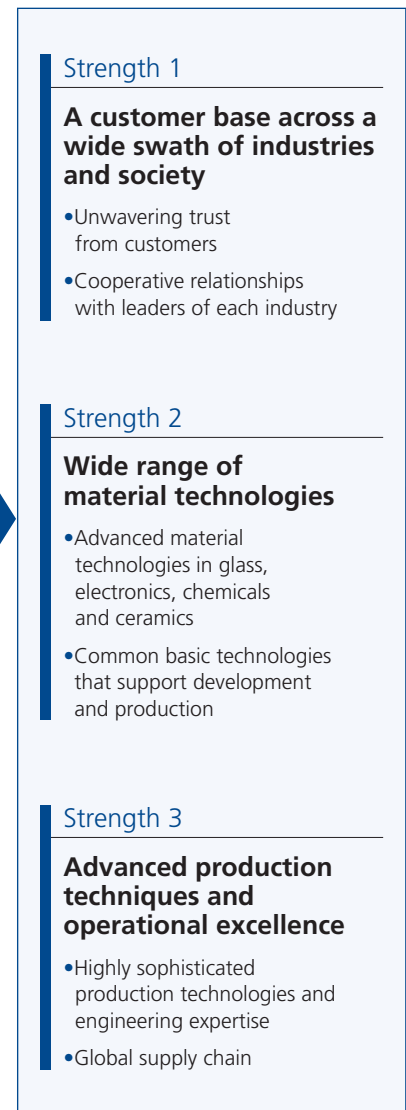
The Social Changes Surrounding the AGC Group



The AGC Group's Origin



The AGC Group's Strengths



The following represents the Group's value creation model as set forth in the CEO message at the beginning of this report. During the drafting of this report, we took another look at our founding spirit, the Group Vision, history, products and technologies, then created this model through multiple management discussions. The AGC Group will stay focused on the future, continuing to create new value and trust.

Our Challenge

The AGC Group's Value Creation Process



Implementation of Long-Term Growth Strategy

The AGC Group's long-term management strategy "Vision 2025"

By 2025, the AGC Group's core businesses will serve as solid sources of earnings, and strategic businesses will become growth drivers and lead further earnings growth. In 2025, the AGC Group will continue to be a highly profitable, leading global material and solution provider.

Core businesses

Establishing long-term, stable sources of earnings through portfolio management

- Architectural glass
- Automotive glass (existing)
- Essential chemicals
- Fluorochemicals
- Display
- Ceramics

Strategic businesses

Establishing highly profitable businesses through expansion of high value-added businesses

- Mobility
- Electronics
- Life science

Value Creation

For the world

- Provision of safety, security and comfort

For customers and business partners

- Creation of new value and functions
- Creation of trust

For employees

- Creation of job satisfaction

For investors

- Creation of corporate value

For a sustainable society

- Contributions to the resolution of social issues



Strength 1

A customer base across a wide swath of industries and society

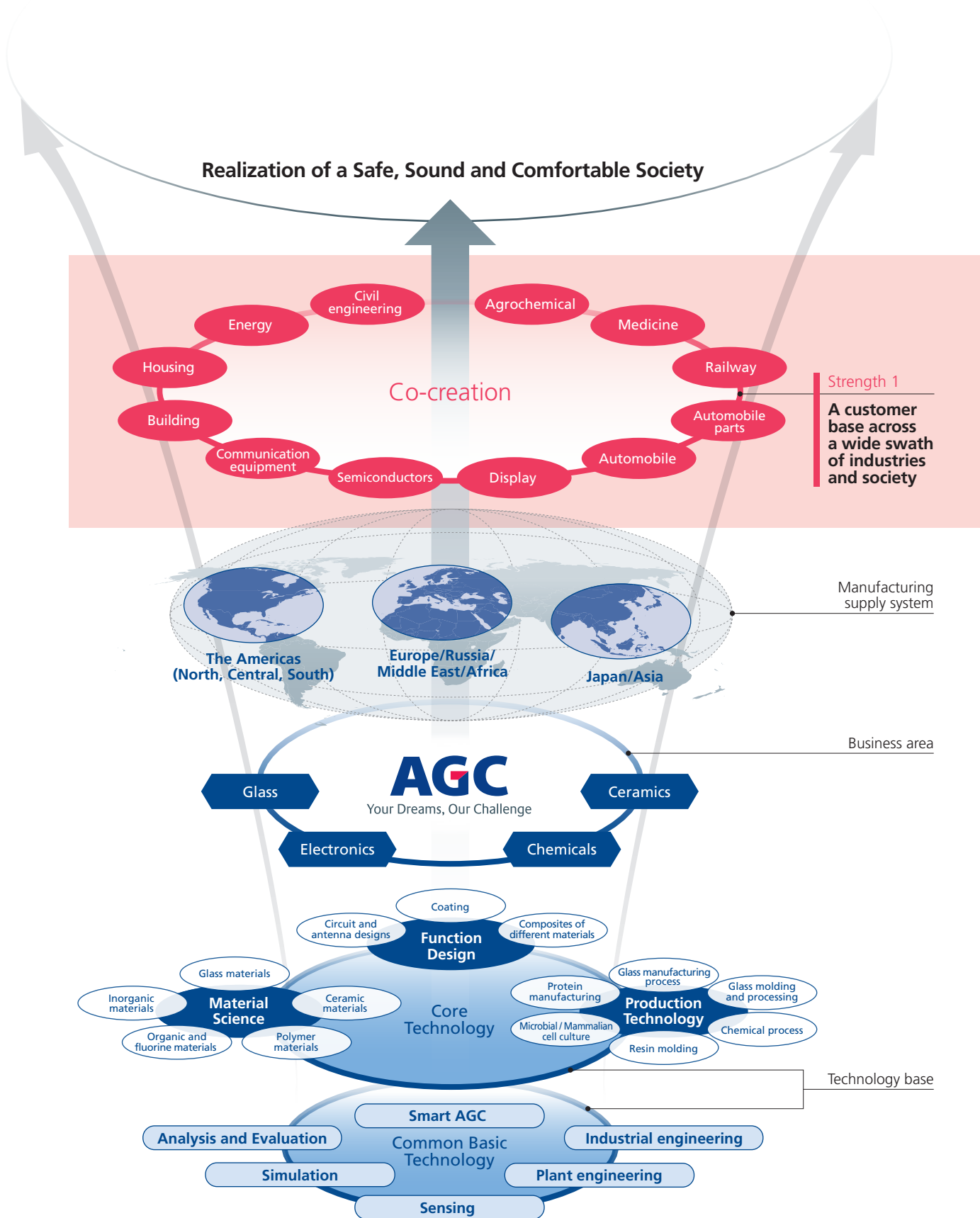
Discovering New Applications Using Contacts with Diverse Markets

Across its 110-year history, the AGC Group has expanded its business areas to new industries. Its reach extends to every corner of urban and daily life infrastructure, from housing and buildings, to automobiles, railways, TVs, smartphones, semiconductors, solar power, paints, medicines, food and water treatment. Taking advantage of these diverse market contacts, the Group is constantly creating new applications from a market perspective.

Co-creating Alongside Customers, Utilizing Trusting Relationships

Materials alone cannot provide value to the end user—collaboration is essential with customers who use them to create final products. The AGC Group has always created value alongside the top companies of each era. Moving forward, the Group will continue to create new value by leveraging its relationships of trust with customers across many industries.





Strength 2

Wide range of material technologies

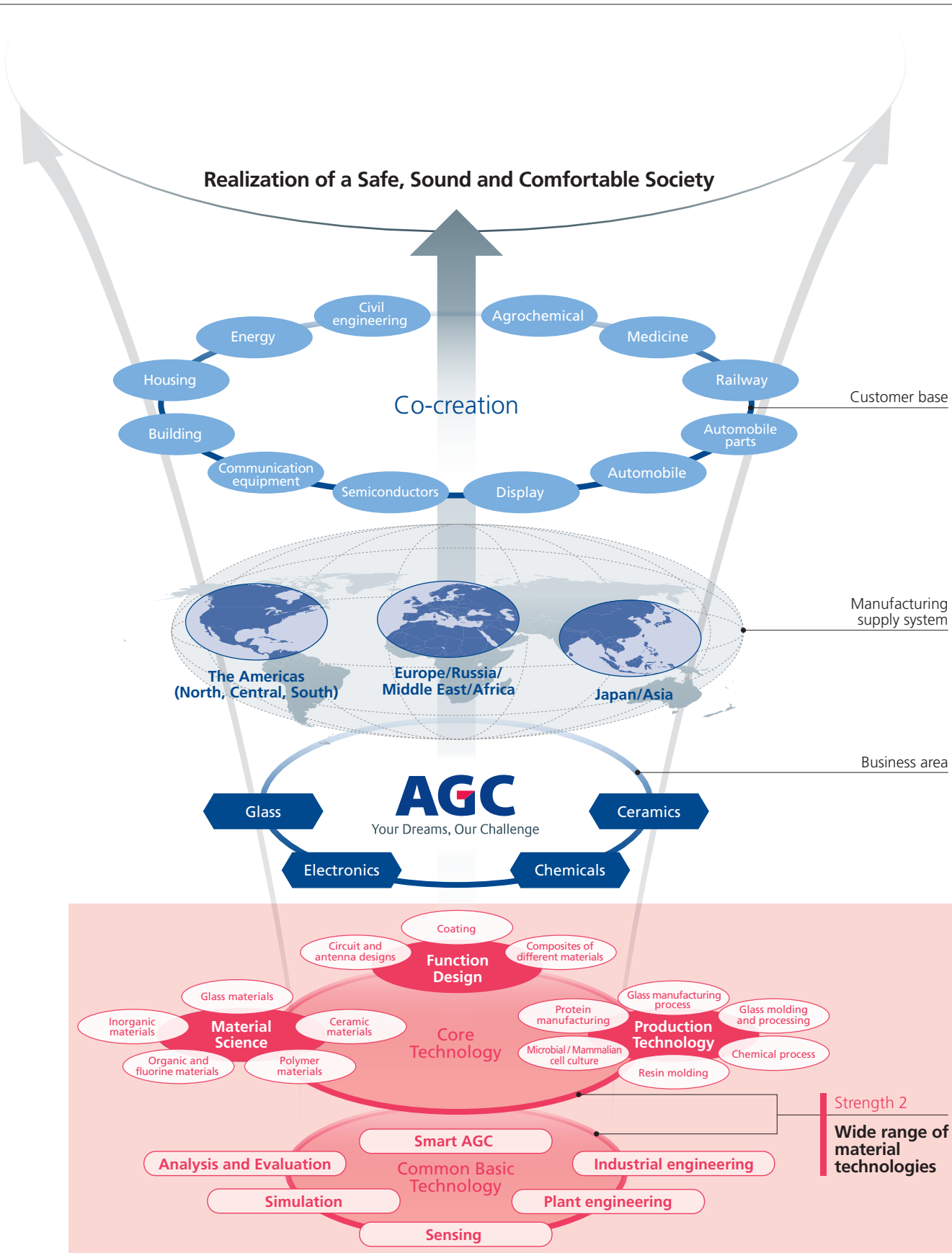
Technology Expansion Creates Customer Expectations

The AGC Group has a wide range of material technologies, from glass, to electronics, chemicals, ceramics and bioscience. We believe that this wealth of technology instills faith in our customers regarding our capacity for problem solving. The AGC Group explores the infinite possibilities of individual materials and conducts research and development to exceed its customers' expectations.

Leading to New Value through Forward-Looking Development of Technology

It takes 10 years or more to develop a new material technology, so it's not enough to start work on a given technology *after* ascertaining customer needs. The AGC Group approaches material technology development by forecasting long-term changes in society, the market and technology, as well as the needs of end users and customers. When the Group develops materials technologies by looking forward and matching the future needs of its customers, it creates new value.





Strength 3

Advanced production techniques and operational excellence

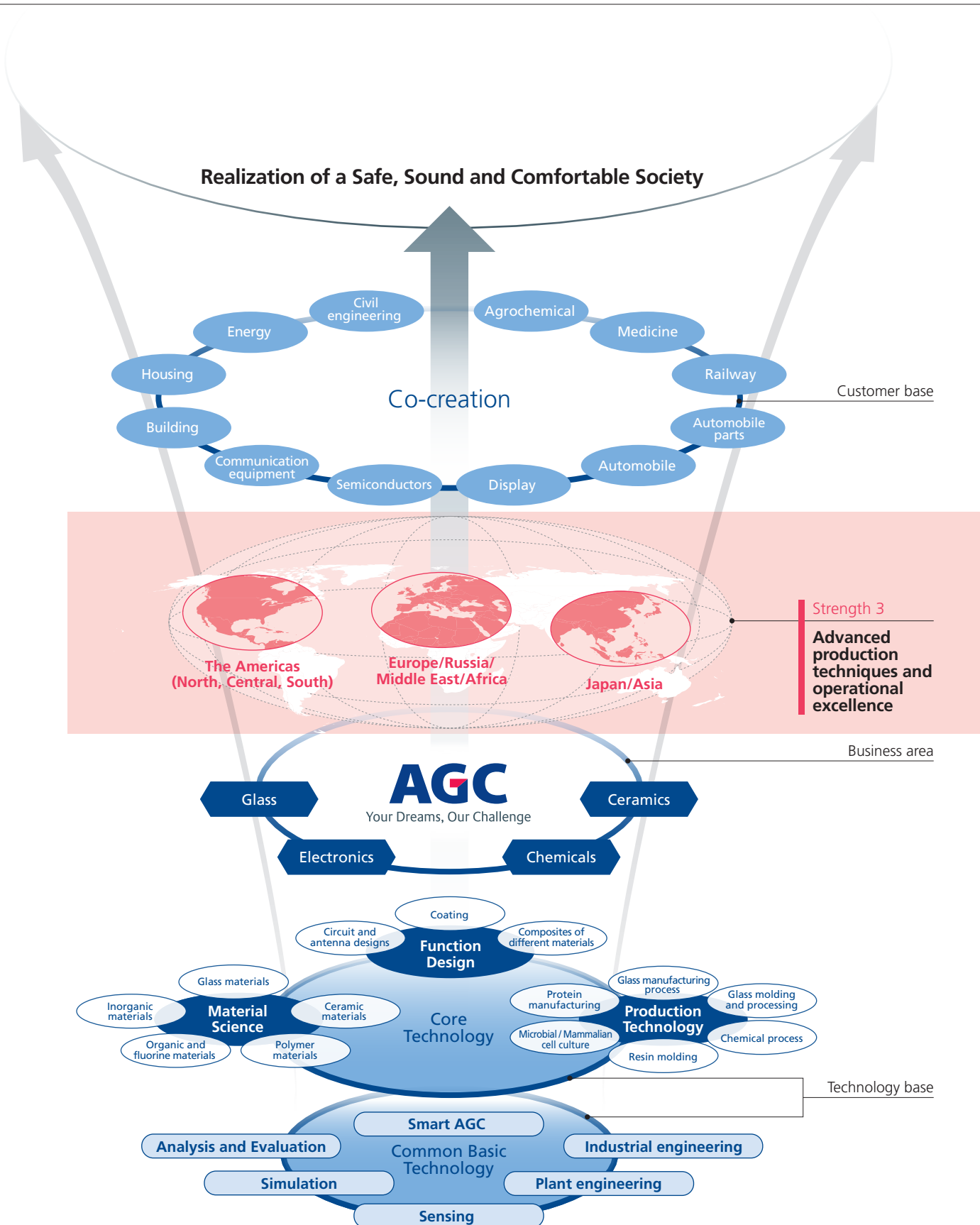
High Quality Products Realized through Manufacturing Technology and Equipment Development

The AGC Group focuses on the development of manufacturing technology and equipment essential to product development in all its businesses. We believe that function, quality and appropriate cost of our products will be realized by fully incorporating technology and equipment developed in-house. Improvement of on-site technology and skills is also essential in manufacturing. To this end, we have established the Productivity Innovation Division at the AGC Group's headquarters for this initiative, and continue to refine operational excellence at manufacturing sites through scientific methods, including industrial engineering.

Manufacturing Strengths Evolving in Sync with Digital Technology

The Smart AGC Promotion Division, established in 2017, is working on manufacturing process innovations using digital technology. For example, in the display business, AGC logs and manages data related to manufacturing, equipment installation and quality assurance at the single product level to improve customer trust. In the automotive glass business, the Group utilizes data from customers to realize digital manufacturing that facilitates a quick launch of the manufacturing process. In addition, in the Technology General Division the Group is taking on projects to replace and improve the skills of veteran technicians and skilled workers in the glass manufacturing process with artificial intelligence (AI). The Group is utilizing the latest digital technology to drive further evolution of the manufacturing strengths it has cultivated across its 110-year history.





SCENES

Around the world, various social issues are coming to the fore. The AGC Group's diverse materials and solutions are contributing to solving these issues.

A broad customer base, materials technology, advanced production technology and operational excellence. Taking advantage of these strengths, the AGC Group will combine its knowledge and technology with that of its customers—the industry leaders of our time—to solve social issues and introduce solutions based on its value creation process.



Ensuring Safe and Secure Water Resources

Advanced water purification technology is essential for drinking water and industrial use. The AGC Group contributes to the supply of safe water resources that can be used with confidence through materials technology.



Providing Drinking Water Safe for Everyone

The AGC Group supplies sodium hypochlorite for sterilization of tap water, and thereby protects a lifeline for human beings. In developing countries, the Group is working to provide ion-exchange membranes that desalinate well water to turn it into drinking water.

Related products | • Sodium hypochlorite • Ion-exchange membrane SELEMION™

Supporting the Creation of Cities That Can Withstand Disasters

The main issue arising from earthquakes occurring directly beneath an urban area is damage to and collapse of buildings. The AGC Group also works to spread the use of disaster safety glass for buildings through activities such as donating disaster safety glass to elementary schools that act as shelters during times of disaster, thereby helping ensure the safety of buildings against earthquakes and other disasters.

Related products | •Disaster safety glass for buildings



Supporting the Development of the "IoT Society"

Semiconductor devices such as high-performance processors, memory, and various sensors are supporting the construction of smart cities with advanced ICT use. The AGC Group supports the development of the IoT society by supplying parts and materials essential to the manufacture of semiconductor devices.

Related products | •Synthetic quartz glass •EUV mask blanks
 •CMP slurry •Glass frits
 •Silicon carbide
 SiC ROICERAM™-HS



Expanding the Applications of Digital Signage

Digital signage has recently become more common in urban settings and offers more functionality as a new communication tool. The AGC Group has developed a product that can turn all glass surfaces into digital signage, helping to expand its use.

Related products | •Digital signage on glass inforever™

Building Comfortable and Resilient Smart Cities

In this age—the Fourth Industrial Revolution—the question of how to create a sustainable global society is increasingly pressing, and we are seeing more and more cities become "smart" cities. In the future, the AGC Group will provide advanced technology to support the realization of smart cities.



Special Feature



Saving Energy in Buildings

Increasing the heating and cooling efficiency of living spaces is an effective approach to achieving energy saving and reducing greenhouse gas emissions. The AGC Group provides eco-friendly glass that enhances both heating and cooling in buildings and houses, and is continuing to disseminate this technology and improve its functionality.

Related products | • Low-E double glazing glass



Saving Energy in Automobiles

Energy saving is now a major theme in the automotive sector as hybrid cars are becoming popular and vehicles are increasingly computerized. The AGC Group offers a variety of solutions to improve automobile energy efficiency, such as reducing the weight of the vehicle body and improving the efficiency of the air conditioning and heating.

Related products | • Automotive glass (Coolverre™, UV Verre Premium™, and more)

Responding to Climate Change

Natural disasters associated with climate change are occurring more frequently around the world as a result of global warming. The AGC Group works to reduce greenhouse gas emissions associated with its business activities and provides solutions that contribute to energy saving, energy creation, and other efforts in this field.

Eco-Friendly Air Conditioners and Refrigerants for Cooling and Freezing

The impact of air conditioners and refrigeration units on global warming is significant and, as urbanization progresses, the impact will only grow. The AGC Group has successfully developed refrigerants with extremely low global warming potential (GWP). The Group is contributing to the manufacture of eco-friendly air conditioners and refrigeration units by popularizing these refrigerants.

- Related products
- Environment-friendly fluorine-based solvent/refrigerant AMOREA™



Switching to Renewable Energy

There is a global movement to switch from fossil fuel-based energy to renewable energy to help alleviate the climate change problem. The AGC Group provides refractory materials used in biomass power generation boilers as well as related engineering services.

- Related products
- Boiler refractories and engineering for biomass power generation



Special Feature



Further Evolution in Safe and Comfortable Mobility

The mobility society is undergoing a new evolutionary phase with the commercialization of automated driving technology, the rise of car sharing services, and the emergence of a new concept called Mobility as a service (MaaS).

The AGC Group provides material solutions that support the creation of a safe and comfortable mobility society.



Continuing Digitalization of Automobiles

A trend that symbolizes the evolution of cars is emerging: connected, autonomous, shared, electric (CASE). The AGC Group provides a variety of materials and technologies that support this evolution of vehicles. By so doing, the Group supports the creation of mobility in the IoT era.

Related products

- Glass antennas (5G compatible)
- Heads-up display
- Anti-fog glass eView™ (a world first)*
- Electric heat anti-fog glass HEATLITE™ W*

*Increases visibility in electric vehicles (EV), which cannot use waste heat from engines to de-fog glass.

Protecting Comfortable Driving

Ultraviolet (UV) rays adversely affect human skin and can cause skin cancer. The AGC Group focuses on developing UV blocking glass in order to protect drivers from UV light while driving. Having acquired the world's first US Skin Cancer Foundation certification, AGC supports the creation of vehicles that realize safe and comfortable driving.

Related products

- UV-cut glass
- UV Verre Premium™
- UV Verre Premium Cool on™
- UV Verre Premium Privashield™





Helping to Solve Food Supply-Related Problems

The world's population is expected to grow rapidly in the coming years, reaching 10 billion by 2055. Food will become a major social issue as the global population increases. The AGC Group contributes to the improvement of agricultural productivity through the provision of superior agrochemical substances and intermediates, helping to solve food supply-related problems through continued technological advancement.

Related products | • Agrochemical substances and intermediates

Supporting the Medical Field

Medicine supports progress in longevity, and medical devices support technological advances in the medical field. The AGC Group supports reliable diagnosis and medical examinations by providing high definition display glass used in medical monitors.

Related products | • Glass substrates for displays used in medical monitors



Supporting Glaucoma Treatment

Glaucoma is a disease that causes blindness. According to the World Health Organization (WHO), 65 million people worldwide suffer from glaucoma and 8.4 million people are blind due to this disease. In collaboration with Santen Pharmaceutical Co., Ltd. the AGC Group has developed the world's first glaucoma treatment that can be kept at room temperature, greatly improving the quality of life of glaucoma patients everywhere.

Related products | • Tafluprost Ophthalmic Solution glaucoma treatment

Realizing a Society Where People Can Lead Long and Healthy Lives

Advances in medical treatment have led to longer life spans, especially in developed countries. However, food supply problems are becoming apparent as the global population grows rapidly. The AGC Group is contributing to improving the quality of life of people living in diverse societies through display glass and life sciences solutions.



Glass

The AGC Group provides diverse products and solutions as a leading architectural glass and automotive glass manufacturer

Architectural Glass Business

Creating stable cash influx through selection and concentration while contributing to solving social issues by providing functional products

Business Activities

- AGC succeeded in production of flat glass in Japan for the first time in 1909 and now has top global market share
- Sales composition ratio: Japan / Asia: 33%, Europe: 54%, The Americas: 13%
- In the field of float flat glass for houses and buildings and fabricated glass for architectural use, AGC has developed high-performance glass such as heat insulating/shielding glass and laminated glass that excels in crime prevention uses
- AGC will respond flexibly to customer needs depending on their region, providing products including transparent glass sheets as materials and functional building materials, contributing to a reduction of stress on the environment through functional products

Main Products

Multi-layered glass, laminated glass, fireproof/fire-resistant glass, tempered glass, heat ray reflection/absorption glass, soundproof glass

Outline of FY2018

Net sales: 358.9 billion yen
(up 10.9 billion yen from the previous year)

- Generally high shipment volumes
- Sales prices improved in all regions on the back of strong demand

- Manufacturing costs and direct sales costs increased due to soaring fuel prices

Our Challenges

- Concentrate management resources in growth areas and areas with competitive advantages (investment in South America, withdrawal from the Philippines, etc.)
- Expand sales of high value-added products that are resistant to fluctuations in market conditions (multi-layered glass, special metal film-coated glass, etc.)
- Maintain an optimal operation system while keeping in mind the balance of demand and supply
- Improve efficiency by promoting digitization from manufacturing to customer service
- Contribute to the realization of a low energy consumption society through glass

Automotive Glass Business

To contribute to the realization of a safe, comfortable and connected mobile community, AGC will identify, develop and enable provision of affordable products, technologies and services to advance global mobility, safety and sustainability

Business Activities

- AGC has established technology development bases in Japan, Europe and North America (23 glass production bases worldwide), and secured a high global market share by providing high quality products, services and solutions globally

Automotive Glass Global No. 1

(Based on fiscal 2017 estimates by AGC)



Architectural glass



Automotive glass

- Sales composition ratio: Japan / Asia: 52%, Europe: 30%, The Americas: 18%
- AGC offers a large lineup in the areas of automotive laminated glass and tempered glass, including glass that cuts infrared and ultraviolet light, water-repellent glass that ensures good visibility even in rainy weather, light controlling glass that can alter the amount of transmitted light, and glass antennas that help establish clear communication
- AGC leads the world in cover glass for car-mounted displays using low-reflectivity coating

Main Products

Laminated glass, tempered glass, privacy glass, water repellent glass, glass antennas, module assembly windows, laminated side glass, laminated acoustic glass, snow melting windshields, cover glass for car-mounted displays

Outline of FY2018

Net sales: **397.3 billion yen**

(up 11.3 billion yen from the previous year)

- Good shipments in Asia including Japan and Europe
- Manufacturing and direct sales costs increased due to soaring transportation costs

Our Challenges

- Realize breakthroughs in manufacturing technology, promote sweeping cost reductions, and lead the world in quality and cost competitiveness
- Create solutions that support the next generation and high value-added product expansion
- Make cover glass for car-mounted displays promptly profitable and develop new business

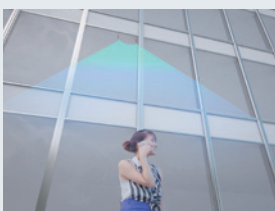
In Focus

Development of a Glass Antenna to Create the World's First Base Station Window

Together with NTT DOCOMO, AGC has developed the world's first* glass antenna capable of radio wave transmission and reception. This glass antenna is transparent and thus, inconspicuous like transparent glass. It has no impact on landscape or interior design, and suppresses the attenuation and reflection of radio waves that occurs when the waves pass through regular window glass. The antenna can also be affixed to existing window glass from inside a room.

AGC and NTT DOCOMO plan to deploy this product to LTE base stations from the first half of 2019, and are investigating development of a glass antenna that will support 5G communication.

*According to AGC's research



AGC's Automotive Glass Production Plant in Morocco Begins Operations

The AGC Group's automotive glass production plant in Morocco—its first base in the African continent—began production in early 2019. It is the 23rd location worldwide where the AGC Group has an automotive glass plant.

The plant has an annual production capacity equivalent to 1.1 million units, including automotive laminated glass and automotive tempered glass. Through highly efficient production equipment, it can produce automotive glass to meet the demand for high value-added products and services in Southern Europe and North Africa.



Electronics

The AGC Group offers high value-added products and solutions that support the evolution of the displays and electronics industries, using its special manufacturing methods and production technologies

Display Business

Generate a long-term stable cash influx by responding to the shift to a rapidly growing China market and the enlargement of panel sizes

Business Activities

- The AGC Group leverages its special manufacturing methods and advanced production techniques to increase its global competitiveness, while focusing on developing glass products for next-generation display devices.
- The AGC Group focuses on developing applications utilizing the characteristics of “thin, light and strong” specialty glass. The Group is also expanding its product lineup including cover glass for electronic devices used in smartphones and tablets, and glass substrate for photovoltaic devices using these technologies.

Main Products

Glass substrates for TFT-LCDs, glass substrates for OLEDs, specialty glass for display applications, glass for photovoltaic devices, fabricated glass for industrial use

Outline of FY2018

Net sales: 183.4 billion yen

(down 12.2 billion yen from the previous year)

- With the LCD panel market growing steadily due to an increase in display panel sizes, the Group secured the second largest global market share in glass substrates for TFT-LCDs
- Shipments of glass substrates for TFT-LCDs increased compared to the previous year, and the Group recorded

its largest shipment volume to date. The decline in sales prices waned

- Delivery volume of specialty glass for display applications also increased compared with the previous year, but the disposal of some inventory caused profit decrease

Our Challenges

- Aim to develop manufacturing bases tailored to this market shift, and produce larger size glass including Generation 11, given that TFT-LCD glass substrate demand is expected to grow further due to increasing LCD panel sizes in the Chinese market
- Invest to nurture businesses that will continue to generate cash influx in the 2020s

Electronic Materials Business

Provide high-performance products to the growing electronics market, contributing to the development and prosperity of the next generation of society

Business Activities

- In its electronic materials business, the AGC Group contributes to the most advanced sectors of the electronics industry by applying the leading-edge technologies it has fostered in its glass, chemicals, and ceramics businesses, including material, processing, surface treatment and molding technologies.
- The Group offers a wide range of products in this area, from synthetic quartz glass—an area in which the

Glass substrates for TFT-LCDs
No. 2 worldwide

Quartz materials for stepper lenses
No. 1 worldwide

*AGC estimate on FY2017 sales basis



Cover glass for electronic devices



Glass substrates for TFT-LCD

Group has the top global share—to EUV* mask blanks, high-purity SiC jigs and other semiconductor process materials, optoelectronics materials including color tone correction filters for smartphones and digital cameras, and materials for displays such as glass frits and pastes used in insulation and sealing.

*Abbreviation of extreme ultraviolet: Extreme ultraviolet rays with a wavelength of 13.5 nm or less

Main products

Semiconductor process materials, optoelectronics materials, display materials

Outline of FY2018

Net sales: **66.9 billion** yen
(up 1.8 billion yen from the previous year)

- With the global semiconductor-related market expanding in the medium to long term, shipments of

semiconductor-related products such as CMP slurry and new EUV mask blank products increased.

- Due to the decrease in shipments of smartphones in the market, shipments of optoelectronics materials decreased compared to the previous year.

Our Challenges

- As the global semiconductor market in the world is expected to grow, expand earnings by leveraging the strengths of semiconductor-related products, such as CMP slurry and EUV mask blanks, which are widely used in highly advanced technologies
- Expand sales of new products in the optoelectronics materials area to growth markets, leveraging the Group's strengths in product differentiation based on our unique materials and technologies, and high-performance, high-value-added products

In Focus

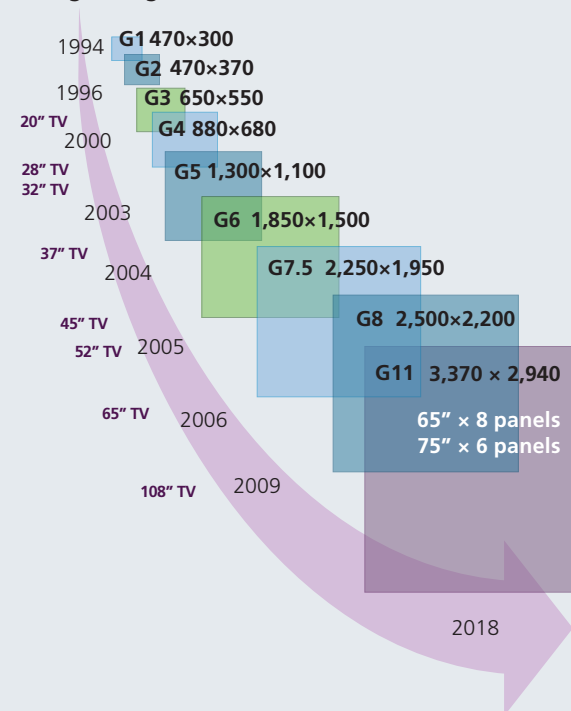
AGC Group Furnace for Generation 11 TFT-LCD Glass Substrates Commences Operation in China

In recent years, the production volume of TFT LCD panels has increased in China, and the demand for glass substrates is also rapidly expanding. In response to this increase in demand, the AGC Group has established a supply system by setting up processing bases in Kunshan, Jiangsu Province, and Shenzhen in Guangdong Province, and a raw glass sheet manufacturing base in Huizhou, Guangdong Province.

In the future, demand for TFT LCD panels that use Generation 11 glass substrates* is expected to significantly increase. Therefore, in 2019, the AGC Group began operating to glass substrates in the sizes required for Generation 11 panels, and aims to establish a supply system that maximizes cash generation in the LCD glass substrate business.

*Size of the Generation 11 glass substrate: 3,370 mm x 2,940 mm

Changes of glass substrate size (mm)



Chemicals

The AGC Group's diverse products—from basic chemicals and fluorine-based high-performance chemicals to biopharmaceuticals—help create a thriving, safe and secure society while promoting environmental conservation

Chlor & Alkali, Urethanes Business

The No. 1 supplier by far in the fast-growing Southeast Asia region, expanding business in sync with regional economic development

Business Activities

- AGC provides versatile basic chemicals such as caustic soda and polyvinyl chloride (PVC) that are essential for various industries
- The Group has production bases in Japan and Southeast Asia, and has the top market share in Southeast Asia (based on production volume)
- Production ratio: Japan: 30%, Southeast Asia: 70%
- Manufacturing and sales of urethane products used in products such as insulating materials and car seats, essentials for comfortable living

Main Products

Chlor-alkali products: caustic soda, polyvinyl chloride resin (PVC), vinyl chloride monomer (VCM)

Urethane products: propylene oxide (PO), propylene glycol (PG), polypropylene glycol (PPG)

Outline of FY2018

Net sales: 316.6 billion yen
(up 36.6 billion yen from the previous year)

Our Challenges

- Demand is strong in Southeast Asian countries due to a continued high growth rate of GDP, thus the Group will aim to grow chlor-alkali business in accordance with this rise in GDP
- The Group will expand its production capacity in response to growing demand in Southeast Asia and maintain its position as the No. 1 supplier in the future

Fluorochemicals, Specialty Chemicals Business

Providing new value to society through top fluorine materials that fill a global niche

Business Activities

- Highly rated for its products' resistance to heat, chemicals and weather, including the fluoropolymer Fluon™ ETFE, which has the top share in the world in this area
- The Group provides advanced products to various industrial fields and for various devices such as automobiles, aircraft, semiconductors, construction, electronics and air conditioners

Main Products

Fluoropolymers, fluoroelastomers, fluoropolymer films, fluoropolymer resin for coatings, fluorinated gas and solvents, fluorinated water and oil repellents, solutions for separating various chemicals, fluorinated anti-fouling coatings

Outline of FY2018

Net sales: 120.5 billion yen
(up 2 billion yen from the previous year)

Our Challenges

- The Group will strengthen its manufacturing system as the demand for fluorine materials is strong in many fields and stable business growth is expected
- Fluorine materials with low transmission loss are attracting attention as materials for next-generation high-speed communications such as 5G communications, and demand is growing

Fluoropolymer (Fluon™ ETFE) Global No. 1

(Based on fiscal 2017 estimates by AGC)



Fluorinated resin films for a football stadium



Contracting for development and manufacture of pharmaceutical and agrochemical substances and intermediates

Life Science Business

Leveraging the AGC Group's strengths, expand in the growing prescription drug market and the agrochemicals market essential for stable food production, contributing to the well-being of people all over the world

Business Activities

- The Group fulfills diverse customer needs globally, from process development through manufacturing of pharmaceutical and agrochemical active substances and intermediates, including biopharmaceutical drug substances
- AGC provides these services globally, with current sites in three regions: Japan, US, and Europe
- Pharmaceutical companies are increasingly outsourcing their drug substance production, and the need for CDMOs*1 is on the rise. In one example, to effectively respond to such demand AGC introduced highly efficient and versatile single-use bioreactors*2 in its mammalian cell culture operation ahead of its competition.

*1 CDMO: Contract development & manufacturing organization. A company which is contracted to manufacture drug substances as well as the development of such manufacturing processes

*2 Single-use bioreactors: Bioreactors that use a disposable vessel, reducing the need for cleaning processes and minimizing the risk of contamination

Main Services and Businesses

Acting as a CDMO for the production of pharmaceutical and agrochemical intermediates and active substances

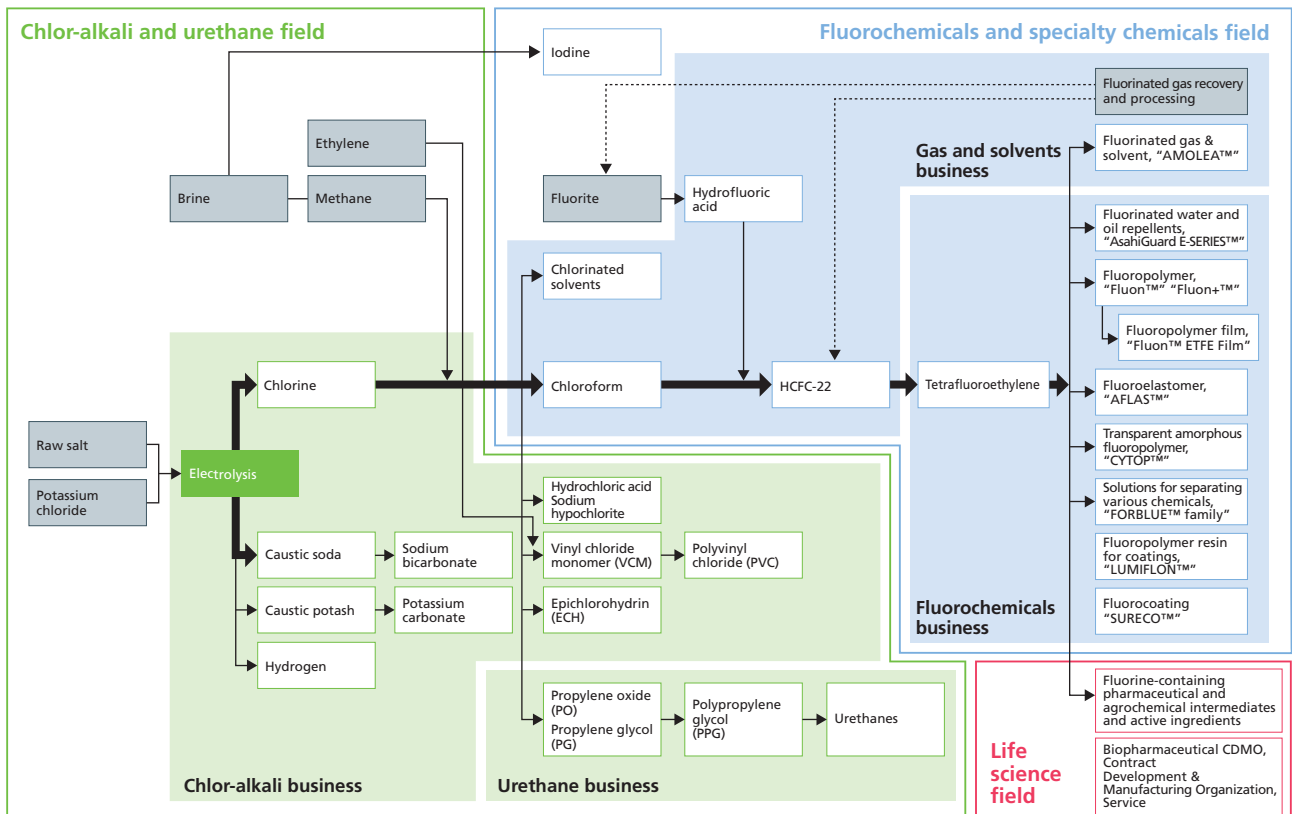
Outline of FY2018

Net sales: 44.9 billion yen
(up 8.3 billion yen from the previous year)

Our Challenges

- AGC will continue to provide high-quality and timely services based on its strengths, including expertise in the utilization of single-use bioreactors and its deep rooted fluorine technologies
- The AGC Group will achieve worldwide growth and further expand its CDMO business
- AGC will also embark on a challenge to produce new types of biopharmaceuticals, including next-generation antibodies and more

The AGC Group's Chemical Chain



Chemicals

In Focus

History of the AGC Group's Life Science Business

•Synthetic Drug and Agrochemical Business
 The AGC Group started its R&D activities in drug discovery in the 1980s. The first order that came in for its third party production business was for fluorine intermediates. In 1998, Wakasa AGC Fine Chemicals Co., Ltd. (now AGC Wakasa Chemicals Co., Ltd.) was established in Obama, Fukui Prefecture. Now, in addition to the Obama Plant, the Group has expanded its operations to include a plant in Kaminaka, which manufactures drug substances and intermediates for pharmaceuticals and agrochemicals.

Subsequently, in 2008, the Group launched Tafluprost, a drug substance for glaucoma treatment eye drops jointly developed with Santen Pharmaceutical Co., Ltd.

•Bioscience Business

AGC has been researching and developing gene expression since the 1980s, and in 1997 developed a proprietary protein production technology (ASPEX) using fission yeast. In 2000, the Group established a biopharmaceutical drug substance manufacturing facility based on its expertise and entered into a contract protein manufacturing business covering everything from development of production processes to manufacturing drug substances. Later, in 2008, a new plant—ten times larger than the previous facility—was built in Chiba prefecture, as the number of orders for contract manufacturing had increased significantly. The Group now manufactures multiple commercial drug substances, and has grown into the No. 1 biopharmaceutical contract manufacturing company in Japan.

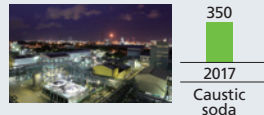
From 2016 to 2017, with the aim of expanding its business in the US and Europe—the regions which account for the majority of the world's demand—AGC acquired the German company Biomeva and the Danish company CMC Biologics. The Group will continue to build its network of worldwide operations to meet the needs of its diverse customers.

AGC Begins Evaluations to Expand the Capacity of Its Chlor-Alkali Business in Thailand

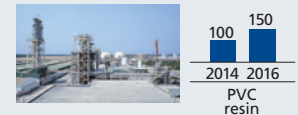
AGC has begun evaluation of expansion of the production capacity of its Thailand-based group company Vinythai PCL as part of its initiative to expand its chlor-alkali business in Southeast Asia, and has begun procedures to apply to the area's environmental authorities for an environment and health impact assessment. The annual production capacity after this expansion, which will be used as the basis for this assessment, has been put at 590,000 tons of caustic soda, 830,000 tons of vinyl chloride monomer (VCM), and 860,000 tons of polyvinyl chloride (PVC). AGC plans to continue evaluation of this expansion and, based on the findings of the environment and health impact assessment, come to a final decision.

In Thailand, AGC acquired Vinythai PCL in 2017, significantly expanding its business infrastructure. AGC is currently undertaking measures toward integrating the business with the nearby AGC Chemicals (Thailand) Co., Ltd. to increase the synergy of the two companies, such as plans to lay pipe between the two companies to share chlorine produced from electrolysis, thereby allowing for flexibility with raw materials.

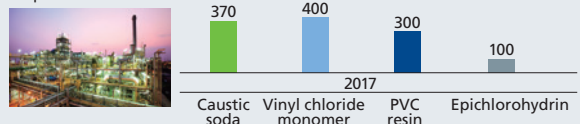
AGC Chemicals Thailand Co., Ltd. Established in 1964 (thousand tons / year)



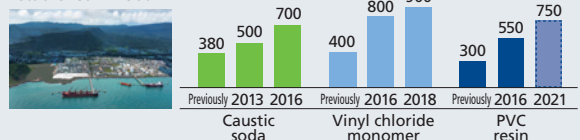
AGC Chemicals Vietnam Co., Ltd. Acquired in 2014 (thousand tons / year)



Vinythai Public Co., Ltd. Acquired in 2017 (thousand tons / year)



P.T. Asahimas Chemical Established in 1986 (thousand tons / year)



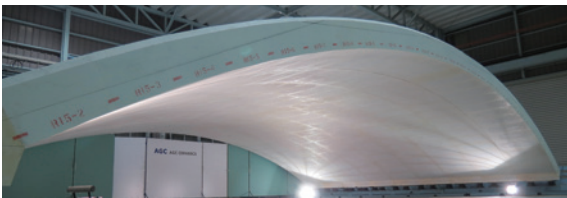
Ceramics

The AGC Group offers a variety of products and solutions that contribute to innovation in glass production processes and environmental conservation

Ceramics Business

Business Description and Main Products

- The Group's roots in the ceramics business go back to 1916, when it began manufacturing refractories for glass furnaces. Nowadays, AGC Ceramics provides refractories for various types of high-temperature equipment.
- In the glass furnace plant area, AGC provides high-quality refractories, engineering services including furnace design and construction support, as well as remote operation monitoring systems. These contribute to energy saving, long product lifespans and stable operation of glass furnaces while reducing costs throughout product lifecycles.
- In the high temperature plant area, which includes products such as steel and incinerators, AGC provides



Fused cast refractory bricks for glass melting furnace crown

solutions using monolithic refractories that contribute to energy saving and reduce stress placed on the environment by industrial furnaces.

- The Group also develops and provides high-performance ceramics and ceramic molding materials for castings.

Our Dream

AGC aims to be a company that develops and manufactures a wide range of ceramic products, from refractory products to fine ceramics. Further, AGC will provide society with high value-added solutions combining engineering that achieves energy usage reductions, resource conservation and high efficiency, in order to contribute to protecting the global environment.

Our Challenges

AGC aims to be a highly profitable and globally



Castable refractories for industrial furnaces

outstanding solutions provider, with a core business centered on refractories and engineering as a long-term, stable profit base, and a strategic business focused on high-performance ceramics driving further profit growth.

In Focus

Launching new materials to promote innovation in the casting manufacturing process

In April 2017, AGC Ceramics launched Brightorb™, a ceramics molding agent for 3D printers.

Brightorb™ consists of extremely fine-particle ceramic beads and an inorganic binder, and has been very well received by customers as a ceramic molding material for use in casting. Recently, it is being used as a new mold material for high-precision casting. There are high hopes for it as a new material driving innovation in the casting manufacturing process.



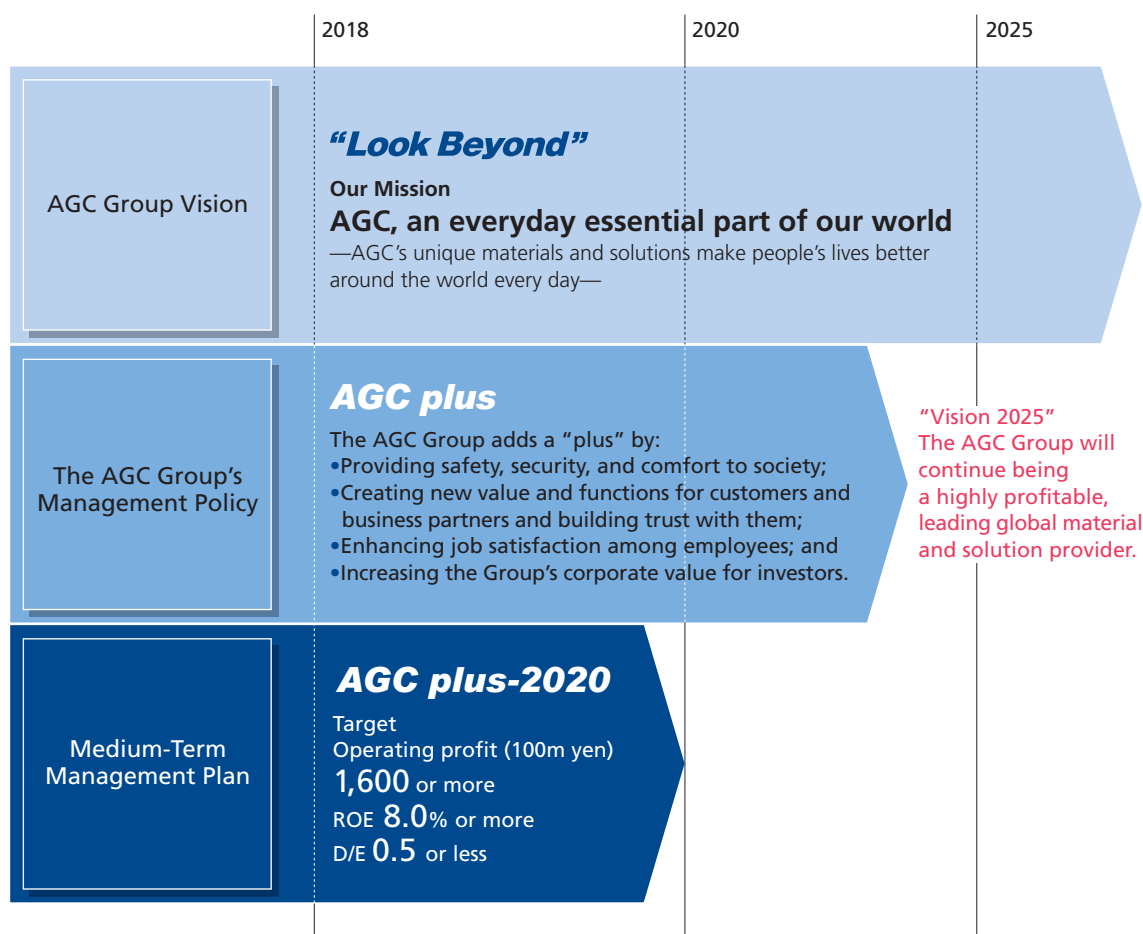
Brightorb™ modeled with a 3D printer

Providing Extra Value to All Our Stakeholders

As stated in the Group Vision, **“Look Beyond”**, the AGC Group has always sought to provide unique materials and solutions for the betterment of people’s lives worldwide in line with the times and with social changes.

The **AGC plus** management policy highlights this unchanging attitude of the AGC Group, which is also a promise to our stakeholders. The Group provides its customers and business partners with new value and

functions to realize safety, security and comfort around the globe. As a result, the Group earns the trust of its customers and business partners, and Group employees find true job satisfaction in their work. As the AGC Group grows, we provide our investors with returns in the form of improved corporate value. Through the creation of these cyclical benefits, the AGC Group is an integral part of the world, and provides all its stakeholders with extra value.





Part II AGC's Future

**Creating the next-generation material solutions
that support the creation of a sustainable society**

Vision 2025 and **AGC plus-2020**

The AGC Group predicts changes in the needs of its customers and society from a long-range perspective, promoting its medium-term management plan under a 10-year long-term management strategy

The AGC Group's Long-Term Management Strategy, Vision 2025

Emphasizing Strategic Investment and Asset Efficiency in Resource Allocation to Become an Excellent, Highly Profitable Leading Global Material and Solution Provider

In February 2016, the AGC Group released Vision 2025, a management strategy which established its long-term course for group management, in order to provide new value to society, customers and all other stakeholders, and to continue to grow as an excellent, highly profitable leading global material and solution provider.

This long-term management strategy features the two mainstays of the Group's Vision: (1) core businesses which provide stable earnings over the long-term, including Glass, Chemicals, Displays and Ceramics, and (2) strategic businesses which emphasize the fields of Mobility, Electronics and Life Science, driving the growth of the whole Group. Balanced management resource

allocation allows the AGC Group to invest in M&As and technology development, add value to products, boost productivity and prioritize asset efficiency. From a long-term perspective, the AGC Group is building a robust business portfolio that responds to changes in its management environment by expanding the strategic businesses that drive the growth of the Group, and using core businesses to generate stable profit.

Medium-Term Management Plan, **AGC plus-2020** Implementing Growth Strategies Through Core and Strategic Businesses to Build Vision 2025's Foundation

Based on its long-term management strategy, the AGC Group is promoting its medium-term management plan, **AGC plus-2020**, with the three years from 2018 to 2020 as a planning period. During these three years, a foundation for the Vision's realization are being established.

AGC Group's long-term management strategy, Vision 2025

The AGC Group's Core Businesses will serve as solid sources of earnings, and Strategic Businesses will become growth drivers and lead further earnings growth. The AGC Group will continue being a highly profitable, leading global material and solution provider.

Business Targets

Operating profit: **229.2 billion yen** ROE: **10.0%** Strategic business contribution ratio: **40%** D/E: **0.5** or less

Core businesses

Establishing long-term, stable sources of earnings through the portfolio management

Strategic businesses

Establishing highly profitable businesses through expansion of high value-added businesses

- Mobility
- Electronics
- Life science

The AGC Group is proactively investing in growth while maintaining sound financial health, and income from recently conducted M&As is steadily increasing. Starting in 2020, the effects of this investment in growth will begin to manifest in earnest, and we anticipate a marked increase in profits.

•Growth Strategy for Core Businesses

In general, we are promoting a core business growth strategy from the perspectives of “regions where we can win” and “productivity improvement.”

From a regional perspective, we are identifying “regions where we can win,” where we anticipate medium- to long-term growth in architectural glass and chlor-alkali etc., and can let our strengths work towards implementing business strategies. Regarding “productivity improvement,” we are introducing new technologies and equipment at production bases for automotive glass and glass substrates for displays,

increasing our value and responding to growing demand. We will bolster our competitiveness through balanced investment and secure a top position in our target regions and market segments.

•Growth Strategy for Strategic Businesses

In our strategic businesses, we will keep a close watch on the macro environment, focus on fields where we anticipate long-term market growth and innovation—allowing us to utilize the AGC Group’s technologies and customer base—and work to expand high value-added businesses.

In the three strategic business fields of mobility, electronics and life science, we will steadily grasp increasing demand for semiconductors and biopharmaceuticals as a market opportunity, and will implement proactive, bold M&As and facility enhancements, working to establish businesses that will become a growth engine for the Group.

Business targets by 2025

	FY2018		FY2020 target		FY2025 target
Operating profit (100m yen)	1,206	▶	1,600 or more	▶	2,292 or more (record high)
ROE	7.7%	▶	8.0% or more	▶	10.0% or more
Strategic business contribution ratio	17%	▶	25% or more	▶	40% or more
D/E	0.43	▶	0.5 or less	▶	0.5 or less

Yoshinori Hirai

Representative Director,
Executive Vice President, CTO



Promoting business and HR incubation with an eye on R&D and new business development focused on future social issues

Research and Development Themes That Can Be Commercialized through Macro Trend Backcasting

It is not uncommon for the practical applications of a new material to take 10, 20, or even 30 years from the fundamental research stage. As a result, we cannot begin development when our customers' needs for new materials become apparent—by then, it is too late. The AGC Group takes a long-term perspective and conducts R&D in anticipation of the characteristics and functions of technologies and materials needed in the future. We need to respond to our customers' demands in a timely manner—it is important to have one's "technology drawer" in good order.

Every few years, the AGC Group produces a Technology Outlook detailing a long-term roadmap for the Group's R&D based on future society, industry and technology trend reports published by public and private research institutes inside and outside Japan. This is how we backcast from macro trends, strategically narrowing down themes that are promising for commercialization and allocating focused R&D resources.

In the process of creating new businesses through technological advances, we look for opportunities by taking a "product-out" perspective on a product's technological strength and unique

traits, and also a "market-in" perspective that considers long-term market growth potential and the opinions of industry-leading companies.

Thus far, AGC Group researchers have developed many new technologies and created many new businesses. However, business creation requires a deep repertoire of business skills and technical knowledge. Thus, there have been many cases in which technically promising commercialization plans have faltered midway. The Business Development Division is a specialized organization for business incubation established at the AGC Group in 2011 to move through the "valley of death" that impedes the creation of new businesses.

The Challenge of Creating New Businesses—Incubating Businesses and Human Resources

The AGC Group manages the process from technology innovation to business incubation in five stages: Stage 0 = creating ideas, Stage 1 = conceptualization, Stage 2 = feasibility verification, Stage 3 = development and Stage 4 = commercialization.

The Business Development Division looks at the commercialization plans that emerge after Stages 0 to 1 and selects promising plans based on whether they feature (1) a market where long-term growth can be

expected, (2) suitability from the perspective of the AGC Group customers and technology assets and (3) a business model that will generate long-term sustainable profits and relationships with customers.

The Business Development Division then commences the incubation process for a new business, which comprises business feasibility evaluation, prototype development, process development, equipment development and finally, commercialization. In Silicon Valley in the U.S., a number of incubation agencies provide professional support—including funding—to startups with unique technologies and business plans. As an in-house incubator that turns original ideas into viable projects, the Business Development Division works closely with our R&D section and business divisions, including professional development and support, injection of funds, strategy planning and skill provision.

To this end, the division holds people with a Master of Business Administration (MBA) or doctorate (Ph.D.) as the business and technology masterminds behind the operation. It also involves other resources, such as researchers, engineers and marketing personnel from other business divisions, pushing the project forward in a flexible manner according to the stage of business development.

One of the major aims of establishing the Business Development Division is incubating human resources alongside the business through flexible allocation of human resources experienced in business creation. Creating a new business is more likely to end in failure

Technology innovation to business incubation



than success. However, even if they fail, the knowledge and experience gained are valuable assets that cannot be gleaned from existing businesses. In Silicon Valley, there are many cases of failed businesses being evaluated highly by funds or incubators, and subsequently finding great success on a second attempt. During the course of work at the AGC Group, we have hit the wall and returned to the drawing board, or given up completely, more than once. However, this does not mean we consider these to be negative experiences. Rather, provided that the timing for withdrawal was appropriate and it is determined that we avoided further losses, we assess them in a positive light. At the AGC Group, we will continue to foster in-house entrepreneurs by giving another chance not only to those who succeed, but also to those who fail.

Building a Seamless R&D Organization, Accelerating Open Innovation

The AGC Group is also working to strengthen its R&D organization to accelerate technological innovation. One representative effort in this regard is the Group's new R&D facility, scheduled to open in 2020.

At the AGC Group to date, R&D activities have been conducted at two different locations. Basic research and product development have been conducted in the Hazawa area of Yokohama, while manufacturing process development and facility development have been located in the Tsurumi area of Yokohama (within the Keihin Plant). As a result, the R&D structure was divided geographically, which meant

Message from the CTO

it did not allow for optimal exchange across both areas.

The Group therefore decided to combine these functions into a new R&D facility to be built in the Keihin Plant. One goal of this initiative is significantly improving development speed through seamless coordination in development across departments from the early stages.

Establishing a co-creation space for open innovation with external parties such as customers, universities, public research institutes and companies with which the AGC Group has technology partnerships is also a major goal. Specifically, together with customers, public research institutes and partner companies, the Group plans to set up a lab space in a new research and development building where people can prototype new products and evaluate their performance. This will be accompanied by an exhibition and communication space to display the AGC Group's technologies and products for our wide range of stakeholders.

Through initiatives such as the above, the AGC

Group is rapidly strengthening open innovation, as the Group's business has largely changed from a traditional B-to-B model to a B-to-B-to-C model. For example, even when developing automotive window glass, we cannot offer truly valuable products unless we understand the products our customers—car manufacturers—want, in addition to the products in demand by general consumers—the car drivers. Popular products that have been proposed, developed and commercialized under this B-to-B-to-C model include UV cut glass (UV Verre Premium™) and UV & IR cut glass (UV Verre Premium Cool on™). In order to accelerate the development of end-user oriented materials, co-creation with customers who are face-to-face with end users on a daily basis is essential.

In summary, innovation is the creation of socially meaningful value through novel combinations of technologies and ideas. In order to realize this effectively, the Group considers it necessary to break away from a closed innovation model and promote open innovation in various forms, including joint research and technology alliances with customers, companies from other industries, universities and research institutes, and also, mergers and acquisitions.

Completed facility (illustration)

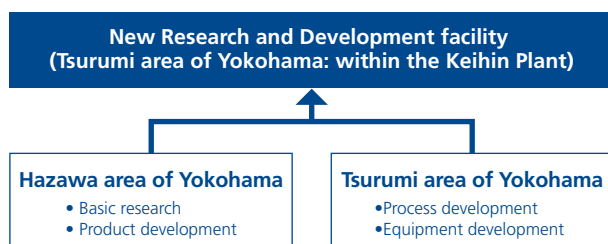


Outline of new Research and Development facility

Construction site: Keihin Plant site
(Tsurumi Ward, Yokohama)

To be completed: June 2020

New R&D structure



Innovation Taking a Long-Term Perspective, Achieving Sustainable Business Growth and Solving Social Issues

The AGC Group has positioned Mobility, Electronics and Life Science as strategic businesses in its long-term business strategy Vision 2025, originally announced in 2016. In these strategic business areas, the Group will seek to understand social issues taking a long-term perspective, create new social value and generate new business to further drive earnings growth.

The AGC Group has been promoting research and development in Life Science since the 1980s. Changes in the business environment had once forced the Group to drastically reduce the scale of its research. However, thanks to steadily continuing research without completely withdrawing, we have

recently expanded our contract development and manufacturing businesses for biopharmaceuticals and synthetic pharmaceutical and agrochemical intermediates. We will continue to expand global manufacturing and sales through M&A and facility expansion, and develop R&D with a view to entering the field of gene therapy and regenerative medicine in the future, aiming for sales of over 65 billion yen in 2020 and over 100 billion yen in 2025.

In the Electronics business, we have launched our EUV photomask blanks business. EUV photomask blanks are used to manufacture next-generation high-end semiconductors. In this particular business, we will be aiming for sales of at least 20 billion yen in 2020—four times sales in 2018—and 40 billion yen in 2025. We are also promoting the commercialization of materials for next-generation high-speed 5G communications, and are aiming for over 60 billion yen in sales of them by 2025.

Since the 2000s, the Mobility business has been commercializing its own high-performance components, including glass antennas with built-in antenna functionality and cover glass for car-mounted displays. The products currently under development are expected to make a full-scale profit contribution after 2021. In light of future evolution in the Mobility area, we are

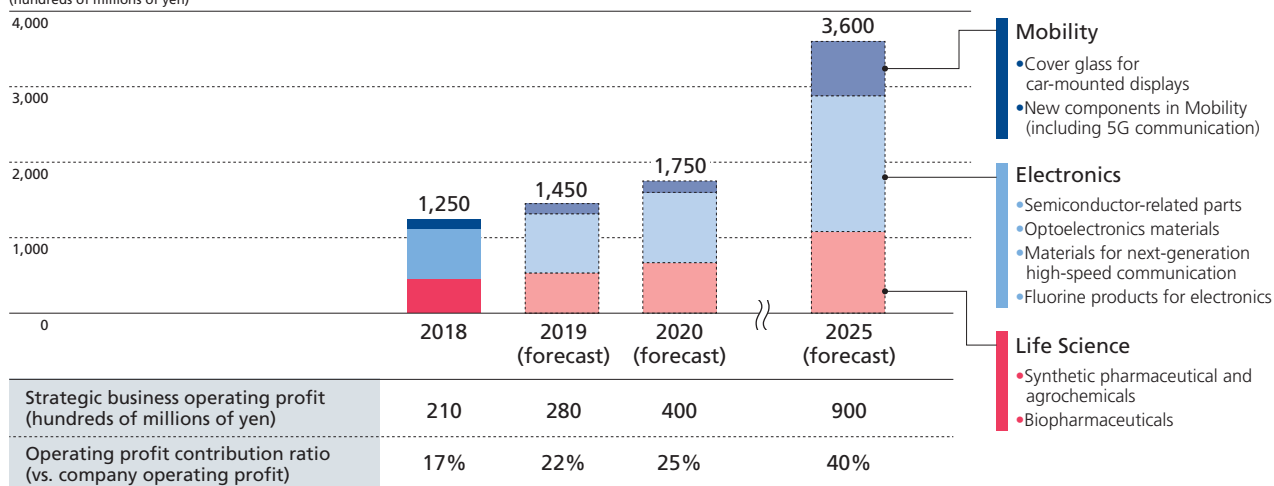


working on miniaturization and high functionality for sensors and communication devices, as well as new technologies and products that can contribute to the evolution of human-machine interfaces.

These strategic businesses have all been backcasted from long-term macro trends, and we have been working on development and commercialization in these areas through co-creation with our customers. On the topic of macro trends, we have incorporated a social issue-centric perspective. SDGs have recently been attracting attention, but the AGC Group has a history of always making solutions to social issues a business opportunity, creating solutions through collaboration with customers. The AGC Group will continue to pursue innovation from a long-term perspective to realize sustainable business growth and find solutions to social issues.

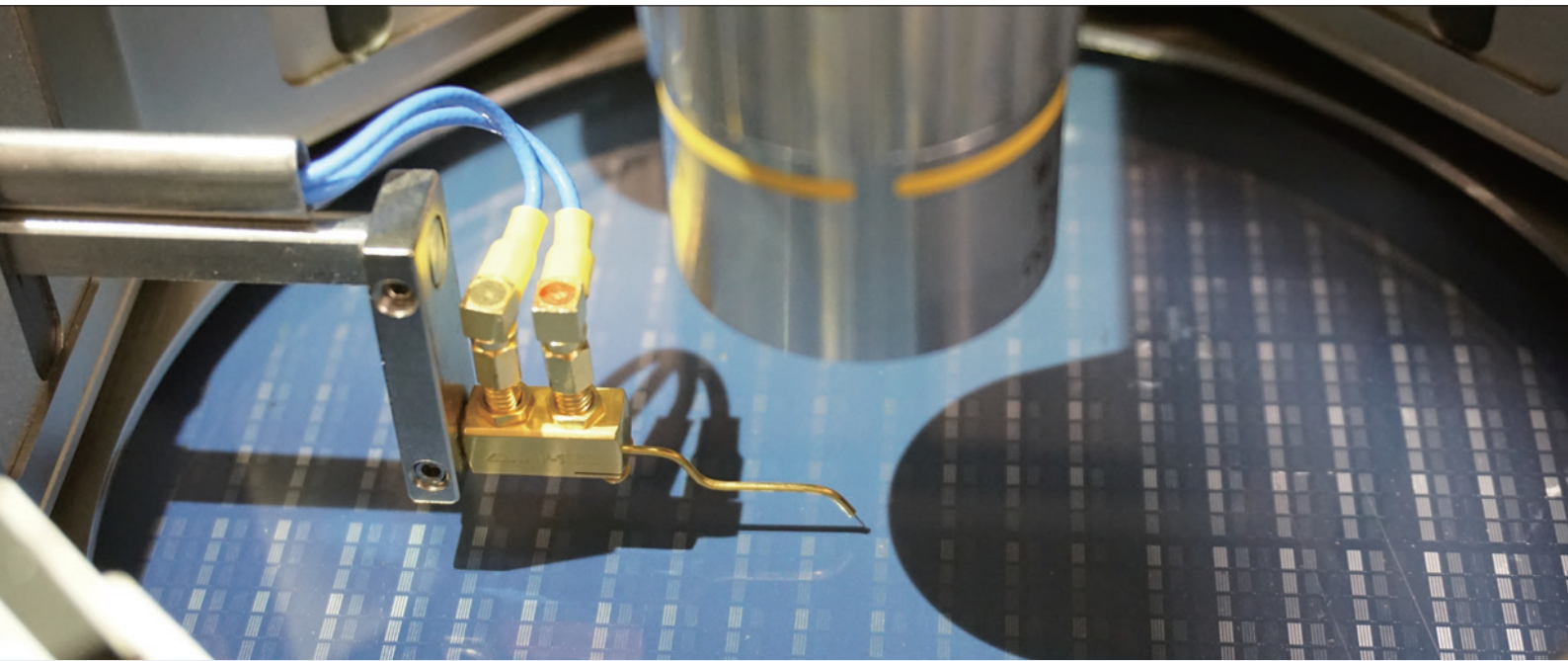
Strategic business sales

(hundreds of millions of yen)



Main products and businesses

- Mobility**
 - Cover glass for car-mounted displays
 - New components in Mobility (including 5G communication)
- Electronics**
 - Semiconductor-related parts
 - Optoelectronics materials
 - Materials for next-generation high-speed communication
 - Fluorine products for electronics
- Life Science**
 - Synthetic pharmaceutical and agrochemicals
 - Biopharmaceuticals



Pioneering the **Future** of Semiconductor Device Manufacturing Technology

Development and Commercialization of EUV Photomask Blanks for Next-Generation Manufacturing Processes

Extreme Ultraviolet (EUV) lithography technology holds great promise as a manufacturing process essential to next-generation semiconductor manufacturing processes. The AGC Group has succeeded in developing EUV photomask blanks, the state-of-the-art composites that are essential to this new process, by integrating AGC's core technologies, including glass materials, glass processes and coatings. As a new growth driver for AGC's strategic Electronics business, the AGC group has been preparing to mass manufacture these EUV photomask blanks.



Yoshiaki Ikuta
Director of Blanks business unit
Advanced Materials Division
Electronics Materials General Division
Electronics Company

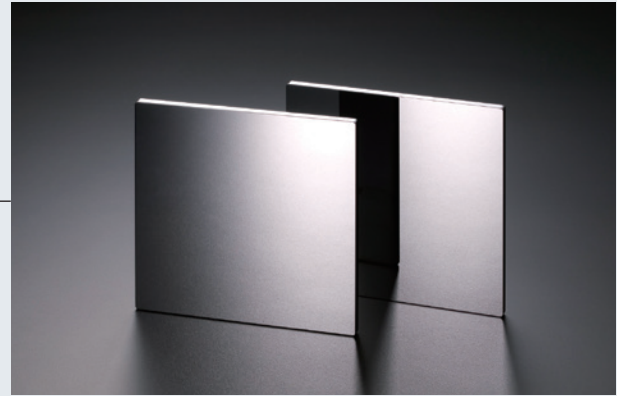
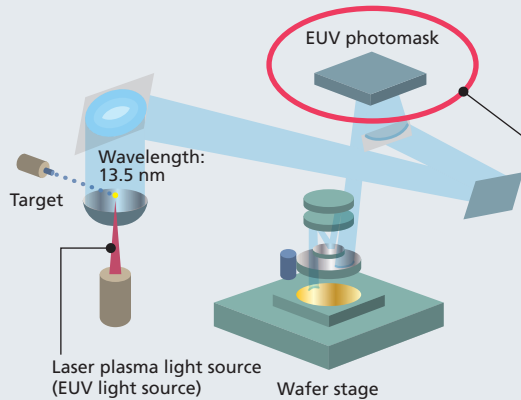
The Next Generation of Ultra-High Resolution Lithography Technology

From Big Data to AI, IoT, cashless payments, 5G data communications and self-driving cars, innovations in information technology will continue to transform society. Advances in semiconductor microfabrication technology, including optical lithography, have supported the higher performance and miniaturization of the semiconductor integrated circuits indispensable to IT innovations, including those mentioned above. Current lithography technology uses a light source with a wavelength of 193 nm or more. Although this technology has allowed circuit patterns to be miniaturized through manufacturing processes such as

multiple exposures, a line width of 20 nm is considered to be the technical limit of the size currently possible through this technology. Further miniaturization requires next-generation lithography, and the spotlight is on extreme ultraviolet (EUV) lithography technology for the next generation of semiconductor manufacturing process.

Using light with a wavelength of 13.5 nm, EUV has the advantage of being able to produce complex and minute circuit patterns with a line width of 20 nm or below in a single, simple lithography process. However, in order to use light with a wavelength of 13.5 nm—an order of magnitude smaller than ever before—it was necessary to develop basic technologies from scratch. For example, there was no substrate

Overview of the EUV exposure system



EUV photomask blanks

material available for photomasks (the plate with the master copy of the integrated circuit pattern of the semiconductor device on its surface) that can transmit 13.5 nm light, so a reflective mask had to be developed, instead of the conventional transmissive type.

Meeting Critical Quality Requirements through Vertical Integration of Technologies

In response to a request to participate in a joint development project from SEMATECH in the United States, an international semiconductor technology development consortium, in 2003 AGC embarked on research and development of EUV photomask blanks (the glass plate without the integrated circuit pattern). However, developing this technology turned out to be full of challenges against various technical limitations. The flatness and the tolerance of defects (particulate contamination by foreign substances) required for the photomask blanks are extremely strict in order to reproduce the integrated circuit pattern precisely with the EUV light which is shorter wavelength by one order of magnitude. Even if approximately 15 cm² blanks were expanded to the size of a 150 m² baseball field, the size of the acceptable surface irregularities would still be 13.5 microns or less. Defects also must be minimized—at most, there can only be a few foreign bodies the size of grains of cedar pollen present in the substrate.

Although the technical requirements were more challenging than ever before, the AGC Group has made efforts to overcome these technical limitations through a

trial and error process utilizing the AGC Group's strengths, vertically integrating AGC Group technologies including glass materials, glass processing and coatings. This success is the result of everyone involved working together under the policy of nurturing electronics as a pillar for the future of our business.

Production Capacity Tripled by 2020

As a result of these efforts, we developed EUV photomask blanks suitable for the mass manufacturing of semiconductor devices around 2014. The AGC Group now has the capacity for high volume manufacturing of the EUV photomask blanks by synchronizing the mass production of semiconductor devices with EUV lithography. In 2018, AGC decided to significantly increase in the production capacity of the EUV photomask blanks, planning to triple the current production capacity by 2020 and increase their revenue to over 40 billion yen by 2025.

As the world's only EUV photomask blanks manufacturer capable of integrated production from glass materials through to coatings, the AGC Group will continue not only to provide EUV photomask blanks to semiconductor device manufacturers, but also will develop technologies to realize even higher quality EUV photomask blanks. Moving forward, the Group will support the stable production of next-generation semiconductors by developing and supplying high-quality EUV photomask blanks, further contributing to the development of our information society.

Benefitting Society Above All Else: Research, Development and Personnel for the Next Generation

The Asahi Glass Foundation was established in 1933 as a public interest incorporated foundation with the initial purpose of providing research support in the field of applied chemistry, the starting point of the AGC Group. Since then, the foundation has benefited society by expanding the scope of its activities, including subsidizing research and scholarships that support subsequent generations and recognizing individuals and groups that have greatly contributed to solving global environmental problems.

As the scope of the foundation's activities has expanded, it continues to support society. The Blue Planet Prize, which honors individuals and organizations inside and outside Japan that have helped solve global environmental problems, was founded in 1992, the year in which the Earth Summit was held. Each year, the Group awards individuals and organizations that have achieved outstanding results, and more than 50 individuals and organizations have been recognized to date. Due to an increase in the number of foreign students studying in Japan, scholarships have been

provided to foreign students since 1990. In 2012, after the Great East Japan Earthquake, scholarships were given to high school students who had experienced difficulties due to the disaster.* Moving forward, the Asahi Glass Foundation will continue its efforts to benefit society while closely monitoring which areas of society are most in need of support.

*The foundation is not currently taking applications for this scholarship.



The Blue Planet Prize is named after a quote from astronaut Yuri Gagarin, the first person ever to look at the Earth from space: "The Earth is blue." The name of the prize also emphasizes our hope that the Earth will be the communal home of humanity for all eternity.

Commendation program

- "Environmental Doomsday Clock"
- Global environmental award "Blue Planet Prize" (since 1992)

Help solving environmental issues

Research grant program

- Research subsidies for universities in Japan, Thailand and Indonesia
Grants provided since its foundation:
Approx. **8,000** projects
Approx. **10** billion yen

Building foundations for next-generation

Scholarship program

- Scholarship for Japanese and international students
- Scholarship for students affected by the Great East Japan Earthquake
Scholarship provided since its foundation:
4,095 students/
Approx. **2.9** billion yen

Developing human resources who will contribute to society



Part III A Management Foundation Supporting Growth

Strengthening the management foundation that supports our growth and evolution as a leading materials manufacturer

Fundamental Approach

Under the AGC Group Corporate Governance Basic Policy, the AGC Group strives to strengthen and improve its corporate governance with a view to ensuring its sustainable growth and raising the AGC Group's corporate value over the medium and long term.

AGC has chosen to have a company structure featuring an Audit & Supervisory Board, and manages the entire AGC Group beyond the boundaries of the parent and its subsidiaries. A basic policy within the Group is to clearly separate management oversight and management execution within the corporate governance system. This not only strengthens the management oversight, but also allows the corporate and business execution functions to be clearly divided within the corporate governance system, and accelerates decision-making in business execution.

Framework for Management Oversight Structure and Role of the Board of Directors

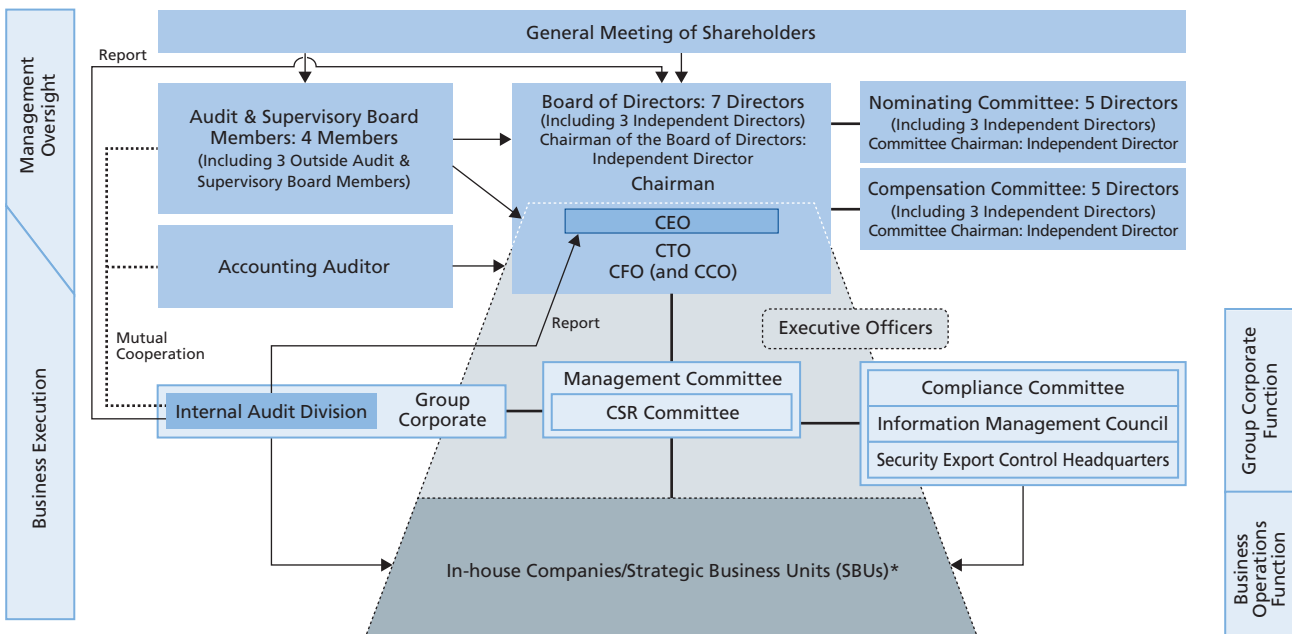
The Board of Directors of AGC consists of seven directors, each appointed to a one-year term, and includes three independent directors, including one female director*¹. The Board is responsible for the approval of the AGC Group's basic policies and monitoring its management.

The Company first employed independent directors in 2002 in an effort to enhance the management oversight function. Independent directors are appointed in compliance with the requirements under the Companies Act of Japan as well as the Company's own selection criteria designed to ensure director independence.

Independent directors monitor issues concerning the Group's business management and offer advice to the Board of Directors from an independent and objective standpoint, based on their extensive experience in global corporate management and knowledge of corporate governance related issues. In principle, meetings of the Board of Directors are chaired by an independent director.

*1 As of March 28, 2019

The AGC Group's Corporate Governance Structure (As of April 1, 2019)



*An in-house company is defined as a business unit with net sales exceeding 200 billion yen which conducts its business globally. At present, there are four in-house companies: the Building & Industrial Glass Company, the Automotive Company, the Electronics Company and the Chemicals Company. Business units smaller than this are defined as strategic business units (SBUs).

Structure and Roles of the Nominating Committee and Compensation Committee

AGC established its Nominating and Compensation committees in 2003 as voluntary advisory committees of the Board of Directors. The chairmen of both committees are independent directors.

Committee Activities in Fiscal 2018

	Number of members	Duties	Number of meetings held
Nominating Committee	5 Directors (of which 3 are independent directors)	Deliberate on candidates for director and executive officer positions, and make recommendations to the Board of Directors	13 times
Compensation Committee	5 Directors (of which 3 are independent directors)	Deliberate on the compensation system for directors and executive officers, directors' compensation limits and bonuses to be reported to the general shareholders meeting, and the amount of compensation for executive officer	8 times

Structure and Role of the Board of Audit & Supervisory Board Members

Audit & Supervisory Board members audit the performance of directors by attending important meetings, including meetings of the Board of Directors and the Management Committee, and by holding regular meetings with representative directors. The corporate auditors also enhance the effectiveness of auditing by exchanging views and checking information concerning audit results and other matters in cooperation with accounting auditor and the Internal Audit Division.

Of the four Audit & Supervisory Board members, three (including one woman) are outside Audit & Supervisory Board members.*²

*2 As of March 28, 2019

Number of meetings of the Board of Directors and the Board of Audit & Supervisory Board Members in FY2018

	Meetings held
Board of Directors	14 times
Audit & Supervisory Board	14 times

Framework for Management Execution

At the AGC Group, the management execution function is the responsibility of executive officers below the president & CEO. As an advisory committee to the president & CEO, the Company has established the Management Committee and discusses business management monitoring and decisions regarding management execution.

A system of in-house companies (quasi-subidiaries within the Group) has been introduced and a global consolidated management system has been adopted with regard to business execution. Much of the responsibility and authority for business execution has been delegated to the in-house companies and strategic business units.

Internal Control

The AGC Group established Basic Items for Internal Control with the aim of confirming that the Group's business execution systems, including the compliance system, function appropriately.

Basic Items for Internal Control

- Compliance program
- Information retention and management system with respect to business operations
- Risk management system
- System to ensure efficient and effective business execution
- System for reporting from Group companies to AGC
- Audit & Supervisory Board members' audit system

Furthermore, the Company adopted an internal control reporting system in compliance with Japan's Financial Instruments and Exchange Act, and on that basis, created the AGC Group Internal Control over Financial Reporting Implementation Regulations, and is maintaining the system to ensure sound financial reporting.

Changes in Corporate Governance

AGC has been working to strengthen and enhance its corporate governance since 2002. The Group established voluntary Nominating and Compensation committees in 2003, and in 2005 implemented progressive activities such as appointing three independent directors. In 2011 an independent director was appointed as chairman of the Board of Directors in order to further enhance the objectivity and transparency of management. Since then, the Group's corporate governance system has continuously evolved.

For its efforts to date, in 2017 the Group received the highest rating in Quality Score, a governance evaluation given by Institutional Shareholder Services (ISS), a company that provides shareholder voting advice in the US. In the areas of composition of the Board of Directors, executive compensation, shareholder rights, auditing and risk management, AGC was awarded a rating of (1), the highest possible rating.

Evaluation of the functionality of the Board of Directors

Method of Evaluation of the Functionality of the Board of Directors

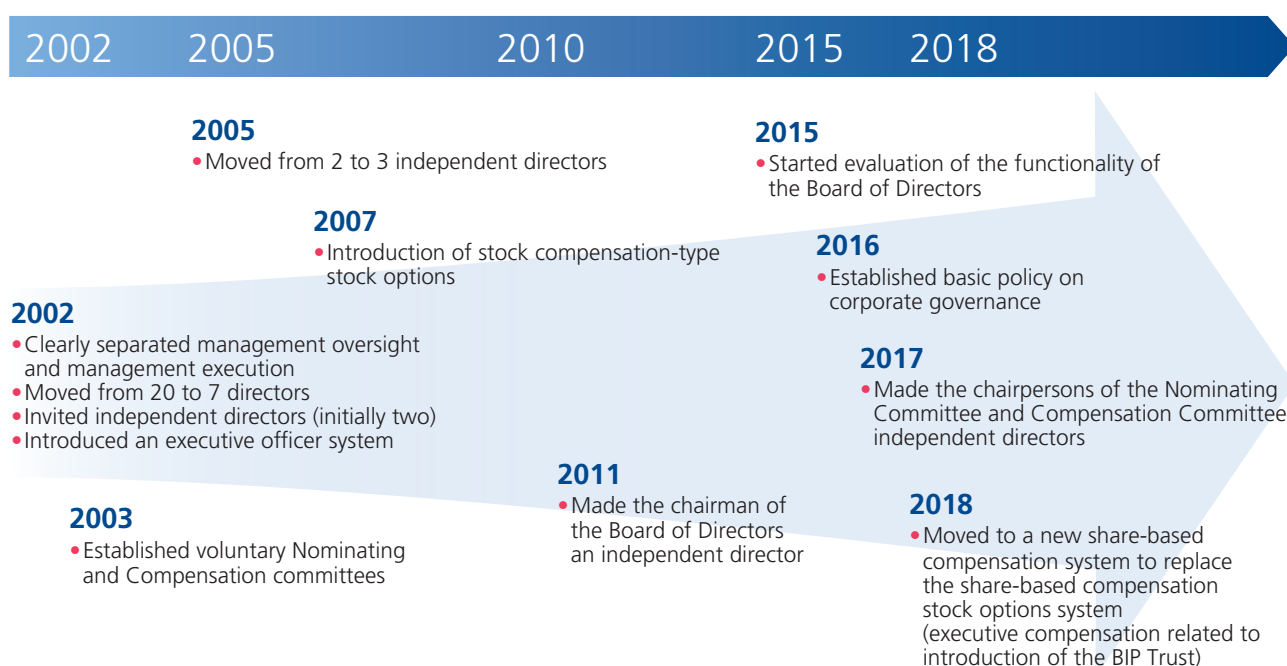
AGC analyzes and evaluates the functionality of the Board of Directors every year.

In 2018, the Group conducted an evaluation of functionality based on self-evaluations by all the directors in the Board of Directors. First, each director evaluated the functionality of the Board by answering questionnaires and taking part in individual interviews. They then reported their evaluation results to the Board and discussed measures to improve functionality.

Summary of Evaluation Results and Future Efforts

Following the evaluation, it was concluded that AGC's Board of Directors and the Advisory Committee were able to hold lively discussions due to the small and open atmosphere, are appropriately managed and functioning correctly. This latest evaluation of functionality by self-assessment was the third such evaluation, and the evaluation has been generally

History of AGC Governance Reform



improving year by year.

In the 2017 evaluation, the issue of enriching strategic discussions was listed as an area for improvement, and in the 2018 evaluation the measures taken to improve this area met with a positive evaluation.

AGC will address the issues raised in the 2018 evaluation, continue to maintain an appropriate operating system comprising the Board of Directors and the Advisory Committee, and continuously work to improve the functions of the Board of Directors and other entities.

Development and Appointment of Human Resources in Management

Since 2002, the AGC Group has separated the management oversight and management execution functions, and has been operating the business units (companies/SBUs) together as a global group. From the beginning, the Group has been strategically working to develop and promote human resources in management, including appointing company presidents from countries other than Japan in its Architectural Glass and Automotive Glass businesses.

Specifically, for the purpose of improving the quality of the entire group and business management in a long-term and sustainable manner, the AGC Group will identify personnel from across the Group who may be appointed as Group management personnel, and encourage them to acquire the necessary experience and knowledge to be involved in management through strategic placements and training.

In addition, within the Nominating Committee, independent directors discuss and share information regarding human resources, such as requirements for directors and other executives at the AGC Group, programs for training successor candidates, and plans for placement and development. The Nominating Committee met 13 times in 2018 and held in-depth discussions. In addition, at the Global Leadership Session, a training program for general managers, an independent director gives lectures and discussions are conducted based on actual business management experiences. Through such efforts involving independent directors, the Group is working to enhance the set of candidates who will be responsible for the Group's management in the future.

The AGC Group's Leader Training Programs

Global programs

- AGC Institute

Global Leadership Sessions (GLS) Started in 2004 and targeted at general managers

Global Leadership Journey (GLJ) Started in 2004 (revised 2018) and targeting senior managers

Participants will deepen the leadership skills necessary to contend with the sweeping changes of today's global management environment through debates and interaction with external experts and business leaders, and direct communication with top management.

Regional programs

- AGC University

AGC University Asia Started from 2003

AGC University Europe Started from 2008

AGC University America Started from 2008

AGC University Japan Started from 2007

■ Targeted at potential future business leaders

Participants, who are expected to become the business leaders of the next generation, will acquire global leadership skills through discussions with various members.

Country programs

- AGC Management College

AGC Management College China Started from 2006

AGC Management College

Southeast Asia Started from 2009

■ Targeted at young, middle-class managers

Participants, who are expected to become core managers, will acquire management knowledge and leadership mindsets.

Compensation System

Basic Philosophy on Compensation System

In its Compensation Principles, the AGC Group sets out its basic stances and philosophies on overall compensation for officers as follows.

- The compensation system shall be one that enables the Company to attract, secure and reward diverse and talented personnel, in order to establish and expand the Company's edge over its peers
- The compensation system shall be one that promotes continued improvement of corporate value, and in this way allows shareholders and management to share gains
- The compensation system shall be one that gives motivations to achieve performance goals relating to management strategies for the AGC Group's continuous development
- The decision-making process of determining compensation shall be objective and highly transparent

Compensation Determination Method

The Compensation Committee deliberates on matters such as the compensation system and level for directors and executive officers based on the Compensation Principles, makes proposals regarding them to the Board of Directors, and verifies the results of compensation payments in order to increase the objectivity and transparency of the compensation determination process.

Compensation to Directors and Corporate Auditors

in Fiscal 2018

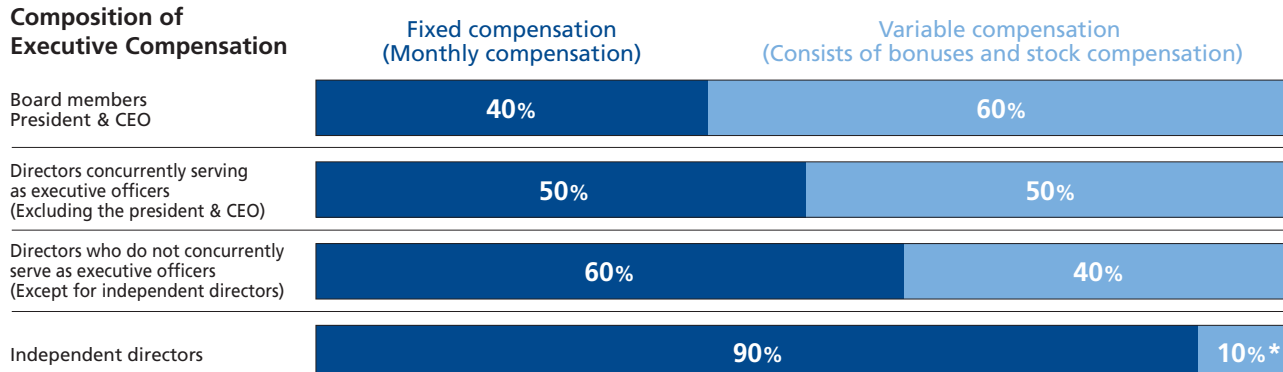
	Number of recipients	Total payment (millions of yen)
All directors	7	570
Independent directors only	3	50
All Audit & Supervisory Board members	5	98
Outside Audit & Supervisory Board members only	4	63

Composition of Compensation

For the AGC Group, which provides materials and solutions that tackle development from a long-term perspective, medium- and long-term technological development and investment in human resources and equipment are sources of competitiveness in addition to the Group's single-year business strategy. Accordingly, the Group has introduced an incentive system as one of the means for its executives to have a balanced view of the short, medium, and long term, and to further motivate them to achieve their goals for each time frame.

In addition to bonuses linked to organizational performance in a single year, the Group has introduced stock-based compensation, in which the number of shares granted is determined on the basis of performance and other factors within the period of the medium-term management plan. Under the stock-based compensation system, those granted shares must keep them while in office. This is done with the aim of motivating them to contribute to the improvement of corporate value over the medium to long term, and create mutual interests between the executives and shareholders.

Composition of Executive Compensation



*Only stock compensation

Risk Management/Compliance

Risk Management Structure

The AGC Group has established the AGC Group Enterprise Risk Management Basic Policies and has formulated a system for risk management and crisis response.

As regards risk management, important risk factors in the Group are defined based on internal regulations, and the risk management status is regularly discussed and monitored at management meetings and within the Board of Directors at AGC. In addition, individual risks in the Group's business operations for each business or project are analyzed by the Corporate Sections, in-house companies, and the strategic business units (SBUs), who also investigate appropriate management measures in light of the risks. When necessary, the Group Management Committee and Board of Directors deliberate on matters of concern. In addition, with regard to risks pertaining to the AGC Group's compliance, the environment, disasters, quality and other factors, each division within the Group formulates and disseminates guidelines and other material, and conducts training and monitoring as appropriate.

With regard to crisis response, the Group has established a crisis management reporting line that promptly and reliably reports and shares information with the President and CEO and executive officers in accordance with internal rules in preparation for any unforeseen situations that may have a significant impact on the Group's business performance and financial position. In addition, a Group Taskforce Headquarters is immediately established at the discretion of the president and CEO and executive officers, which allows the Group to create a system that facilitates a prompt and appropriate initial response.

Compliance Structure

AGC has appointed a chief compliance officer (CCO) as the person in charge of overseeing and promoting the AGC Group's compliance system. This position is held by an executive officer to whom authority has been

transferred from the president and CEO. Under the CCO, the Group has established global compliance leader and Global Compliance Committee, as a specialized organization for legal and corporate ethics compliance that plans and implements compliance measures within the Group. To behave strictly according to laws and corporate ethics, the AGC Group has formulated the AGC Group Code of Conduct, which defines common global compliance matters as well as compliance matters specific to certain countries and regions. Moreover, the Group uses a compliance system, and provides education and training on the topic of compliance.

To deal with reports and consultations related to compliance, the AGC Group has established a reporting/consulting counter (helpline). All AGC employees and executives of subsidiaries are obliged to submit a pledge that they will comply with the code of conduct.

The status of the group's compliance and the operating status of the notification and consultation system related to compliance are regularly reported to the Board of Directors of AGC. In addition, the AGC Group has established a Group legal management system in order to understand information on important legal issues and regularly report these issues to the Board of Directors.

With regard to internal audits of the Group, the Internal Audit Division and audit personnel assigned to each area audit the legality and appropriacy of the management and operation systems and business execution based on the annual audit plan and other guidelines. The results are reported to the president and CEO, and regularly reported to the Board of Directors. To ensure the credibility of the Group's financial reports based on the Financial Instruments and Exchange Act, the Group has stipulated the AGC Group Internal Control over Financial Reporting Implementation Regulations and has developed an internal control system for financial reporting.

Board of Directors, Audit & Supervisory Board Members and Executive Officers

(As of March 28, 2019)

Board of Directors



Kazuhiko Ishimura
Director, Chairman



Takuya Shimamura
Representative Director,
President & CEO



Yoshinori Hirai
Representative
Director, Executive
Vice President, CTO



Shinji Miyaji
Representative Director,
Executive Vice
President, CFO, CCO



Masako Egawa
Outside Director
Chairman of the Board
of Directors*
Appointed in March 2014
Member of the Nominating
Committee and Compensation
Committee
Professor, Graduate School of
Business Administration,
Hitotsubashi University



Yasuchika Hasegawa
Outside Director
Appointed in March 2017
Chairman of the Nominating
Committee and Member of
the Compensation Committee
Corporate Counselor of the
Board of Takeda
Pharmaceutical Co., Ltd.

*Appointed Chairman of the Board of Directors in March 2019. Preceded by Hiroshi Kimura, who retired in March of the same year.



Hiroyuki Yanagi
Outside Director
Appointed in March 2019
Chairman of the Compensation
Committee and Member of the
Nominating Committee
Representative Director and
Chairman of the Board of
Yamaha Motor Co., Ltd.

Executive Officers

• **President & CEO**
Takuya Shimamura
CEO

• **Executive Vice Presidents**
Yoshinori Hirai
CTO

Shinji Miyaji
CFO, CCO

Masao Nemoto
President of Chemicals Company

• **Senior Executive Officers**
Marehisa Ishiko
President of Automotive
Company

Jean-François Heris
President of Building & Industrial
Glass Company

Yoshinori Kobayashi
President of Electronics Company

Kenzo Moriyama
GM of Corporate Planning
General Div.

Takashi Misu
GM of Human Resources Div.

Hideyuki Kurata
GM of Technology General Div.

• **Executive Officers**
Tadayuki Oi
Senior Vice President of Building
& Industrial Glass Company

Kimikazu Ichikawa
Chief Representative of AGC
Group for Asia Pacific

Shigekuni Inoue
GM of Production Technology
Div., Technology General Div.

Seigo Washinoue
GM of Display Glass General Div.,
Electronics Company

Kazuaki Koga
GM of Essential Chemicals
General Div., Chemicals Company

Masahiro Takeda
Regional President for Asia
Pacific, Building & Industrial Glass
Company

Tatsuo Sugiyama
Regional President for Americas,
Automotive Company

Takahisa Sugiyama
GM of Electronic Materials
General Div., Electronics Company

Jean-Marc Meunier
Regional President for Europe,
Automotive Company

Naoki Sugimoto
GM of New Product R&D Center,
Technology General Div.

Fumiaki Hayashi
GM of Purchase & Logistics Div.

Katsufumi Yajima
Senior Vice President of
Automotive Company

Toshiro Kasuya
GM of Finance & Control Div.

Tadashi Hiraoka
GM of Technology Management
General Div., Chemicals Company

Philippe Bastien
Regional President for Europe,
Building & Industrial Glass
Company

Toshihiro Ueda
Chief Representative of
AGC Group for China

Atsushi Ichikawa
GM of Innovative Technology
Research Center, Technology
General Div.

Yoshio Takegawa
GM of Strategy & Planning Div.,
Corporate Planning General Div.

Satoshi Takada
GM of Business Development Div.

Hiroyoshi Kitagawa
GM of Performance Chemicals
General Div., Chemicals Company

Audit & Supervisory Board Members

Tetsuo Tatsuno
Yoshiyuki Morimoto (Outside)
Akio Sakumiya (Outside)
Yaeko Takeoka (Outside)

Message from the Chairman of the Board of Directors



An Outside Director's Most Important Role: Maintain Objectivity to Help the Company to Grow Sustainably

Hiroshi Kimura Outside Director

(Resigned as director in March 2019. Served as chairman of the Board of Directors until resignation.)

Representative director and president, chief executive officer, then chairman of the Board at the Japan Tobacco Group etc., before becoming an Honorary Company Fellow. Promoted globalization of the business and large-scale M&A, among other achievements. Outside director at AGC since 2013. Resigned as director in March 2019.

AGC has a total of seven board members, of which three are outside directors. This compact setup speeds up decision-making, yet allows us to incorporate diverse perspectives of the outside directors, who have management experience in and corporate governance knowledge of industries other than AGC's. This brings effective governance to the company. AGC has had an outside director as the chairman of the Board of Directors since 2011, and I have played this pivotal role since 2016. In my role, I have focused on conducting efficient and thorough deliberations within the limited time available, which aids in effective decision-making. By clearly communicating this way of thinking, I believe I have aided in creating concise, focused content regarding the company, and improved the quality of discussions without having to explain every last detail.

The most important role an outside director plays is contributing to the sustainable growth of a company. To that end, I've asked for relevant information on important proposals to be provided in advance, which I have been able to get. Further, by holding the Board of Directors' meetings at factories and similar sites, I have been able to talk directly with local executives, which has been a great opportunity to understand AGC's

business activities and employees.

As I retire as an outside director at AGC, I would like to reiterate my thoughts about the company.

AGC's history goes back over 110 years. I believe that the founder's spirit of the company is still valid today, and that AGC should be managed on this basis. This brings about an important issue: how can we instill the founder's spirit globally, as the company actively implements mergers and acquisitions? Also, it's important to consider how to realize global management—in the true sense of the term. For employees in countries with different cultures and values to share the same vision, we cannot simply export Japan's system wholesale. We will need to match Japanese methods to the practices of other countries. Management needs to further evolve to make full use of diverse global human resources. This is essential for future sustainable growth.

The sustainable development of a company requires an active response to environmental changes. I would like AGC to be a game changer that creates a new tomorrow, something completely fresh compared to today. I believe that the AGC of the future must identify as an organization that embraces change.



Advice on the CEO Appointment Process and Other Issues for More Enhanced Governance

Masako Egawa Outside Director

Professor, Graduate School of Business Administration, Hitotsubashi University. Possesses a wealth of knowledge as an expert in corporate governance. Outside director at AGC since 2014. Chairman of the Nominating Committee until March 2019. Chairman of the Board of Directors from March 2019.

Corporate governance is like a computer operating system. If the operating system—the foundation of the company—is not rock solid, the strategies derived from its applications, including management, finance and human resources will not function well. Moreover, there is no “correct answer” that applies to all companies. Every company needs constant improvement and more effective measures, which is a never-ending journey. For this reason, we regularly hold meetings with AGC outside directors and Audit & Supervisory Board members, as well as with only the outside directors, which stimulate discussions within the Board of Directors and improve governance.

Looking back on my time at AGC, it is clear that its business management has improved through actively soliciting advice from its outside directors. For example, by designing a process that reviews investment decisions at all stages, we increased the probability of investment success. This helped plan further investment strategies and improved other aspects of investment discipline. Generally speaking, corporate governance tends to focus on “defensive” matters including management and supervision, but I believe this should be conducted in tandem with “offensive” governance

to increase corporate value. Maintaining a balance between these two sides is important.

I served as chairman of the Nomination Committee until FY2018. In this role, I emphasized objectivity in selecting top management. I also attempted to create transparency in management of proceedings, incorporating diverse and objective perspectives. Furthermore, at Board of Directors’ meetings, I attempted to provide convincing explanations based on committee discussions.

To ensure sound corporate management, it is essential to cultivate candidates for CEO, CTO, CFO, general managers of business divisions and other managers that can shoulder the responsibility of management. In the process of selecting future business managers, we are working on a system that will identify a wide range of candidates in advance, develop them through various means including training courses and external assessment coaching and conduct reviews. I hope that our human resource development activities, alongside our system of successor planning, will produce steady results and improve the corporate value of AGC.



Having Achieved Optimal Governance, Diversity Is Paramount to Globalizing Our Business

Yasuchika Hasegawa Outside Director

Representative Director, Chairman of the Board, then corporate counselor of the Board of Takeda Pharmaceutical Co., Ltd. President of Japan Pharmaceuticals Manufacturers Association, then representative and executive secretary at the Japan Association of Corporate Executives. Outside director at AGC since 2017. Chairman of the Compensation Committee until March 2019. Chairman of the Nominating Committee since March 2019.

I was appointed as an outside director three years ago, and I believe that the Board of Directors has remained highly functional during my tenure. We strived to engage in sincere discussions and emphasize consistent decision making at our meetings. In addition, the board features an open corporate culture, and we hold frank discussions, regardless of rank or position. This is a notable feature of AGC.

In the evaluation of the Board of Directors' effectiveness in fiscal 2017, the issue of "enriching strategic discussions" was listed as an area for improvement, and in this regard, success has been seen in the past year. I believe that both the quantity and quality of discussions has improved. The head of each business unit explains their business strategy at these meetings, and they take ample time to answer questions.

I believe we have strong and effective governance at AGC, but one challenge still remains: promoting diversity. We currently have one female outside director and Audit & Supervisory Board member respectively, and there aren't any female executives within the company. If we wish to achieve further growth as a global company and improve our corporate value, we need to promote diversity in our executives and employees. This can be done by appointing directors, Audit & Supervisory Board members and executive officers regardless of age, nationality or other factors. AGC should establish medium- and long-term policies

that promote diversity among our executives, in light of the unique characteristics of our business.

I was chairman of the Compensation Committee in fiscal 2018, and in this capacity I focused on creating and implementing the framework of the compensation system, keeping in mind internal and external accountability.

With regard to the executive compensation system, in fiscal 2018, the Company introduced the so-called "new stock compensation system for directors and executive officers." This system abolishes conventional stock options, replacing them with a stock ownership plan that is more closely linked to mid-term results and revised to function more effectively as an incentive. At the time of the system revision, the committee repeatedly discussed the need to raise the stock compensation limit in order to enhance incentives. This raise was approved at the general shareholders' meeting, and I believe the new system is functioning as intended.

Lastly, throughout my tenure at AGC I have been convinced that a company that has been creating new value for over 110 years has proved it has ample strengths and possibilities. As outside directors, we make full use of these strengths and possibilities in addressing future social issues that require new solutions, while providing supervision and advice in helping AGC achieve sustainable growth.

Financial Highlights

Organizations covered in the report: AGC Inc. and its consolidated subsidiaries

Reporting Period: Consolidated fiscal year ending December 31

All numeric data up to and including FY2011 is based on Japan's financial reporting standards.

From FY2012 the data is based on International Financial Reporting Standards (IFRS).

	2009 J-GAAP	2010 J-GAAP	2011 J-GAAP
Business results			
Net sales	¥1,148,198	¥1,288,947	¥1,214,672
Ordinary income	86,682	229,205	165,663
Recurring profit	87,207	226,806	166,739
Profit before tax			
Profit for the year attributable to owners of the parent	19,985	123,184	95,290
Depreciation	136,672	109,966	110,056
CAPEX	124,937	117,439	152,705
R&D	44,958	39,399	46,442
Cash flows from operating activities	180,683	285,669	152,223
Cash flows from investing activities	(115,563)	(124,644)	(123,581)
Free cash flow	65,120	161,025	28,641
Major Investment Indices			
Market value	¥1,025,140	¥1,107,467	¥ 746,737
Return on equity*1	2.7%	15.8%	11.8%
Return on assets*2	4.8%	12.9%	9.6%
Price/earnings ratio (PER) (times)	51.29	8.99	7.89
Price/book value ratio (PBR) (times)	1.36	1.37	0.92
Return on invested capital (ROIC)	1.4%	8.9%	7.1%
EBITDA*3	187,323	308,401	259,444
Earnings (per share)*4,5	85.20	489.20	379.40
Cash dividends per share (yen)*5	80.00	130.00	130.00
Consolidated total return	94%	25%	40%
Asset and efficiency indicator			
Total assets	¥1,781,875	¥1,764,038	¥1,691,556
Property, plant and equipment	928,285	861,395	842,563
Inventories	176,546	176,353	194,325
Trade receivables	225,480	237,962	233,675
Total asset turnover (times)*6	0.64	0.73	0.70
Fixed asset turnover (times)*7	1.22	1.44	1.43
Inventory turnover (months)*8	2.9	2.6	2.8
Receivables turnover (months)	2.3	2.2	2.3
Stability			
Equity*9	¥ 754,883	¥ 808,242	¥ 807,432
Equity ratio	42.4%	45.8%	47.7%
Debt-to-equity ratio (times)*10	0.74	0.60	0.57

*1 (J-GAAP) Return on equity = Net income/shareholders' equity
(IFRS) Return on equity = Profit for the year attributable to owners of the parent/equity attributable to owners of the parent

*2 Return on assets = Operating profit/total assets

*3 Earnings before interest, tax, depreciation and amortization = Profit before taxes + depreciation + Interest expenses

*4 Profit for the year attributable to owners of the parent in IFRS.

*5 The Company consolidated its common shares at a ratio of 5 shares to 1 share on July 1, 2017.

Accordingly, per share data are calculated on the assumption that the consolidation of shares is conducted at the beginning of fiscal 2007.

Millions of yen

2012 IFRS	2013 IFRS	2014 IFRS	2015 IFRS	2016 IFRS	2017 IFRS	2018 IFRS
¥1,189,952	¥1,320,006	¥1,348,308	¥1,326,293	¥1,282,570	¥1,463,532	¥1,522,904
101,751	79,894	62,131	71,172	96,292	119,646	120,555
74,998	44,381	41,163	84,522	67,563	114,424	128,404
52,512	19,023	20,475	46,287	53,362	79,297	101,991
48,433	16,139	15,913	42,906	47,438	69,225	89,593
117,856	135,751	137,200	137,381	121,803	128,226	121,668
155,334	138,480	118,170	125,103	126,025	165,095	230,598
47,074	46,882	44,758	38,927	39,212	43,912	45,755
170,165	167,371	135,790	187,170	203,637	203,504	189,287
(158,646)	(145,978)	(108,754)	(115,951)	(113,596)	(209,560)	(194,450)
11,519	21,392	27,035	71,218	90,041	(6,055)	(5,162)
¥ 723,394	¥ 755,867	¥ 680,791	¥ 804,604	¥ 920,461	¥1,102,752	¥ 758,663
5.8%	1.6%	1.4%	3.9%	4.3%	6.1%	7.7%
5.6%	4.0%	3.0%	3.5%	4.8%	5.7%	5.4%
14.94	46.81	42.77	18.75	19.40	16.15	8.59
0.80	0.70	0.61	0.74	0.84	0.93	0.67
2.9%	1.0%	0.9%	2.6%	2.9%	4.1%	5.0%
200,044	186,570	185,905	228,381	195,767	249,880	259,425
197.25	68.65	67.90	184.85	204.25	300.65	397.58
130.00	90.00	90.00	90.00	90.00	105.00	115.00
69%	129%	131%	49%	65%	56%	51%
¥1,916,394	¥2,120,629	¥2,077,338	¥1,991,262	¥1,981,451	¥2,228,560	¥2,235,776
956,806	1,059,946	1,066,193	982,296	937,869	1,060,601	1,108,934
208,031	236,611	239,497	235,374	227,284	261,708	277,014
244,396	260,901	262,091	241,294	241,476	260,497	260,111
0.66	0.65	0.64	0.65	0.65	0.70	0.68
1.32	1.31	1.27	1.29	1.34	1.46	1.40
3.0	2.7	2.8	2.9	3.0	2.8	2.9
2.4	2.3	2.3	2.3	2.3	2.1	2.1
¥ 908,304	¥1,087,216	¥1,113,126	¥1,094,172	¥1,095,438	¥1,184,034	¥1,137,204
47.4%	51.3%	53.6%	54.9%	55.3%	53.1%	50.9%
0.56	0.50	0.42	0.40	0.37	0.38	0.43

*6 Total asset turnover = Net sales/total assets

*7 Tangible fixed asset turnover = Net sales/tangible fixed assets (property, plant and equipment)

*8 Inventory turnover = Inventories/(cost of sales /12)

*9 Shareholder's equity = Net assets - treasury shares - minority interest

*10 Debt-to-equity ratio = Interest-bearing debts/net assets (equity)

Corporate Information

(As of December 31, 2018)

Head Office	1-5-1, Marunouchi, Chiyoda-ku, Tokyo 100-8405 JAPAN
Company Name	AGC Inc.
Founded	September 8, 1907
Incorporated	June 1, 1950
Representative	Takuya Shimamura Representative Director, President
Capital	90,873 million yen
Consolidated Subsidiaries	213 (including 176 overseas)

External evaluations

The major SRI (socially responsible investments) indices, CSR ratings, etc., for which the AGC Group has been selected are as follows.

AGC has been selected for two consecutive years to be listed in the FTSE Blossom Japan Index and MSCI Japan ESG Select Leaders Index adopted by the Government Pension Investment Fund (GPIF).

AGC's Chiba and Kashima plants acquired the highest rank of Gold for two consecutive years from the CSR evaluation service EcoVadis.

For its efforts to date, in 2017 the AGC Group received the highest rating in QualityScore, a governance evaluation given by Institutional Shareholder Services (ISS), a company that provides shareholder voting advice in the US.



MSCI  2018 Constituent
MSCI Japan ESG
Select Leaders Index

THE INCLUSION OF AGC Inc. IN ANY MSCI INDEX, AND THE USE OF MSCI LOGOS, TRADEMARKS, SERVICE MARKS OR INDEX NAMES HEREIN, DO NOT CONSTITUTE A SPONSORSHIP, ENDORSEMENT OR PROMOTION OF AGC Inc. BY MSCI OR ANY OF ITS AFFILIATES. THE MSCI INDEXES ARE THE EXCLUSIVE PROPERTY OF MSCI. MSCI AND THE MSCI INDEX NAMES AND LOGOS ARE TRADEMARKS OR SERVICE MARKS OF MSCI OR ITS AFFILIATES.



Stock Information

(As of December 31, 2018)

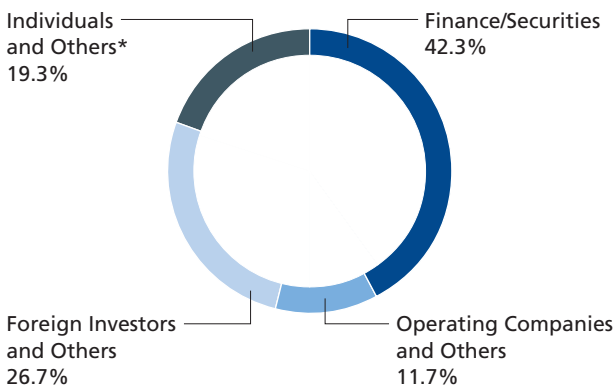
Information on Stocks

Stock listing	Tokyo
Industry	Glass and Ceramics products
Securities code	5201
Unit number of shares	100
Fiscal year	From January 1 to December 31
Ordinary General Meeting of Shareholders	March

Stocks

Stock authorized	400,000,000 shares
Stock issued	227,441,381 shares
Total number of shareholders	59,814

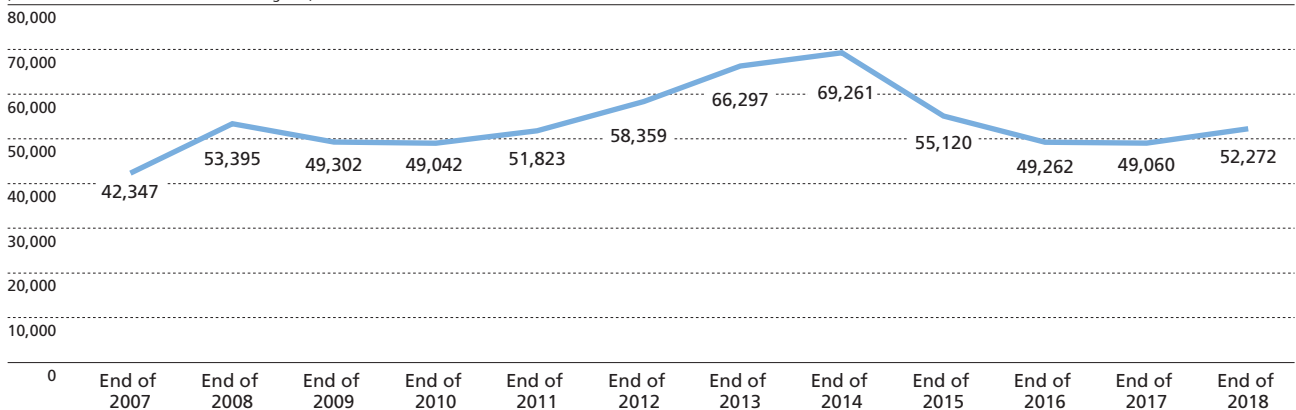
Stock Information



* 2.6% of treasury stock is included.

Shareholder Numbers

(Shareholders who own at least one trading unit)



Major Shareholders

	Number of Shares Held (1,000 shares)	Percentage of Total (%)
The Master Trust Bank of Japan, Ltd. (Trust Account)	16,425	7.42
Japan Trustee Services Bank, Ltd. (Trust Account)	11,419	5.16
Meiji Yasuda Life Insurance Company	9,615	4.34
Barclays Securities Japan Limited	6,000	2.71
The Asahi Glass Foundation	5,874	2.65
Mitsubishi Estate Co., Ltd.	4,540	2.05
Asahi Glass Business Partner Shareholding Association	4,160	1.88
Tokio Marine & Nichido Fire Insurance Co., Ltd.	4,036	1.82
Japan Trustee Services Bank, Ltd. (Trust Account 5)	3,879	1.75
Japan Trustee Services Bank, Ltd. (Trust Account 9)	3,738	1.69

* In addition to the above, AGC Inc. holds treasury stock of 5,944,972 shares.

AGC Inc.
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