

AGC Fine Chemicals



AGC Pharma Chemicals Europe, S.L.U.

Your Dreams, Our Challenge

AGC – Global Company

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Your Dreams, Our Challenge



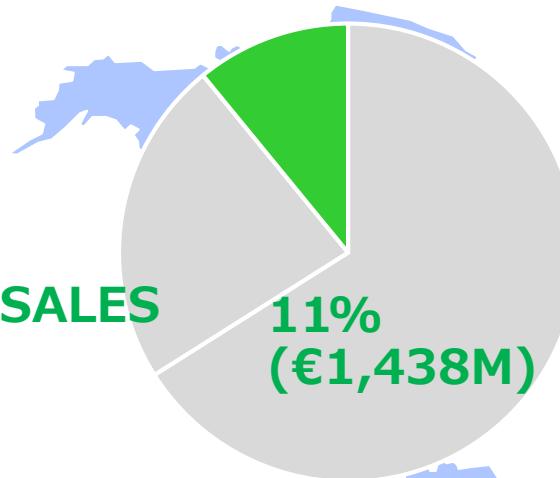
Net sales : € 12,650 million

OP : € 847 million

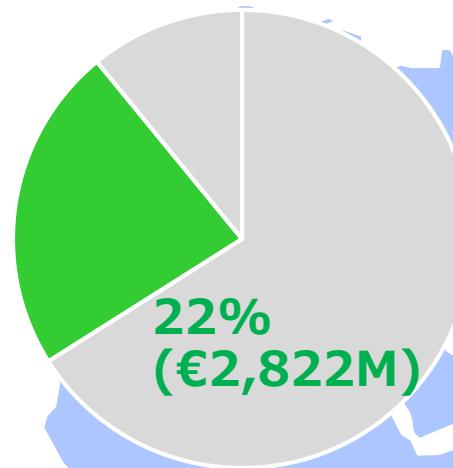
Group Employees : 55,600

Results of FY2019

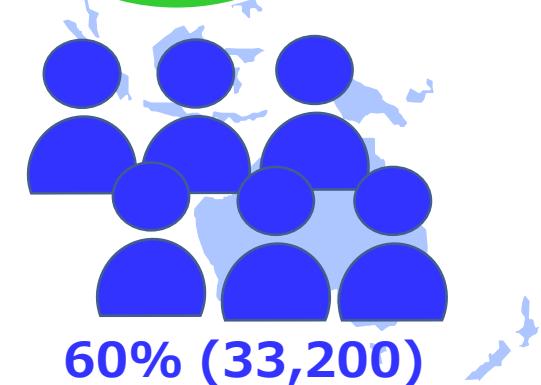
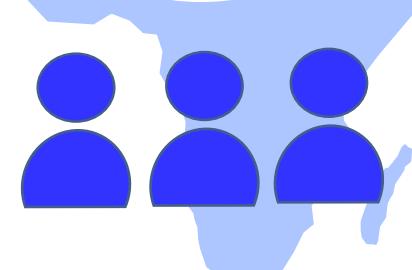
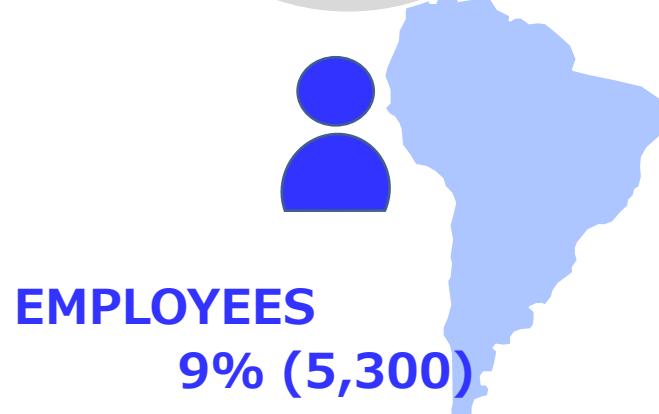
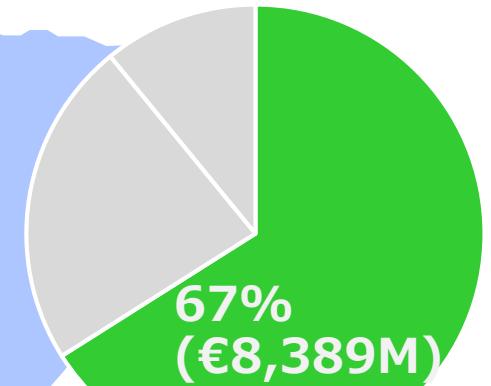
US



Europe



Japan/Asia

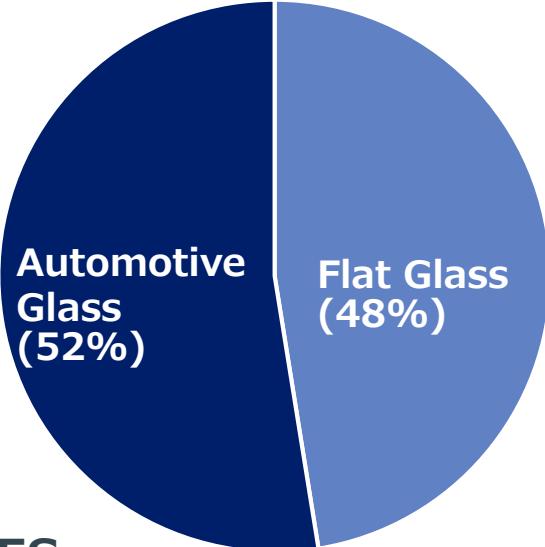


※Sales and operating income by region are before eliminations and cross regional expenses, therefore, the total amounts of sales and operating income for geographic segments do not agree with total sales and operating income of the AGC Group.

Business Overview

Results of FY2019

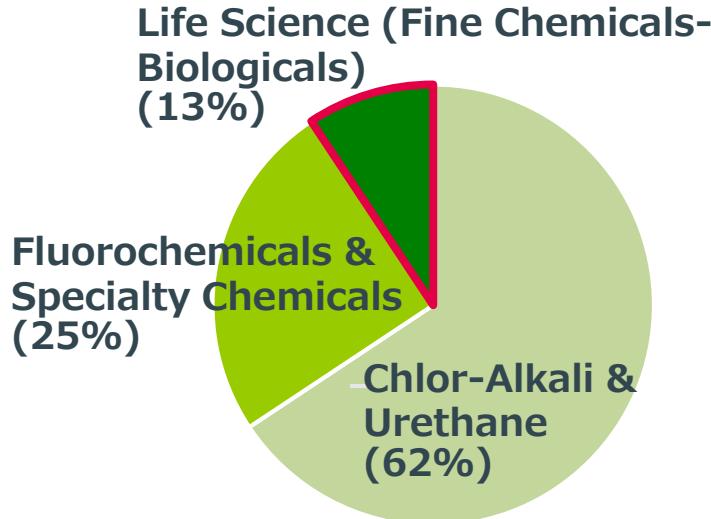
Glass



SALES 49% (€6,191M)



Chemicals

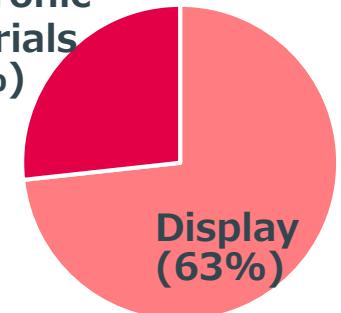


31% (€3,965M)

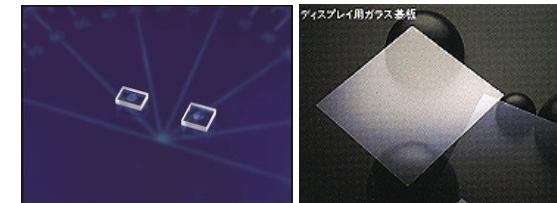


Electronics

Electronic Materials (33%)



18% (€2,306M)



Ceramics

2% (€0,63M)

※Sales composition is calculated without inter-segment sales/transfers.

※Sales and operating income by segment are before eliminations; therefore, the total amounts of sales and operating income for business segments do not agree with total sales and operating income of the AGC Group.

Life Sciences is one of the strategic pillars of AGC

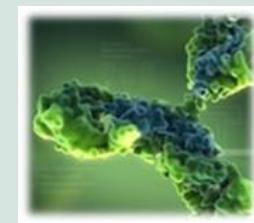
Mobility



Electronics



Life Science



Bioscience CDMO

Fine Chemicals CDMO (Pharma + Agro)

AGC Life Science Global service network

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May 2020
AGC Biologics
Colorado, US



Feb 2017
AGC Biologics
Seattle, US



Feb 2017
AGC Biologics
Copenhagen,
Denmark



Mar 2019
AGC Pharma Chemicals Europe
Barcelona, Spain



Aug 2020
AGC Biologics
Milan, Italy



AGC Tokyo, Japan



GMP Facilities (FC & Bio) Chiba



AGC Wakasa (FC)
Fukui

PR&D (FC & Bio)
Yokohama



Aug 2016
AGC Biologics
Heidelberg
Germany



AGC now offers services all over the world

AGC - Fine Chemicals Small molecules - Pharma and Agro CDMO in Japan and Spain

- **Two cGMP plants:**

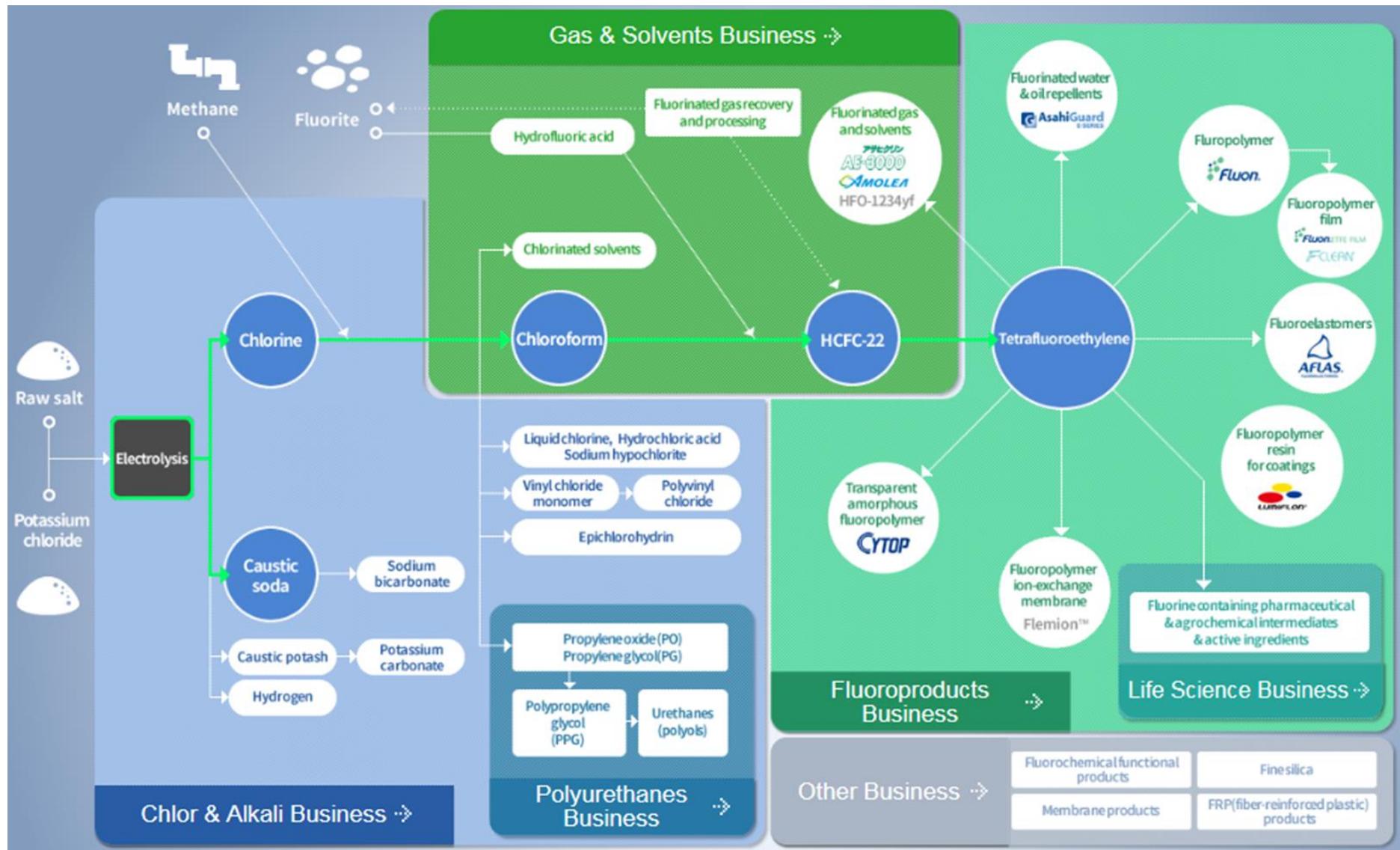
- CMP: Supports your clinical phase projects
- CMP2: Started operations from early 2020 - ideal size ($\sim 15 \text{ m}^3$ vessels) for high volume commercial phase manufacturing
- Key facts:
 - Multi purpose plant for clinical stage/commercial production for APIs and Intermediates
 - High potent substances handling (OEL:1~10 $\mu\text{g} / \text{m}^3$)
 - Ultra low temperature reaction (-100°C)
 - Hydrogenation

- **Fluoro Multipurpose Plant (FMP)**

- Non-GMP facilities
- High Temp/Pressure gases reactions
- Scale-up from Lab to Commercial



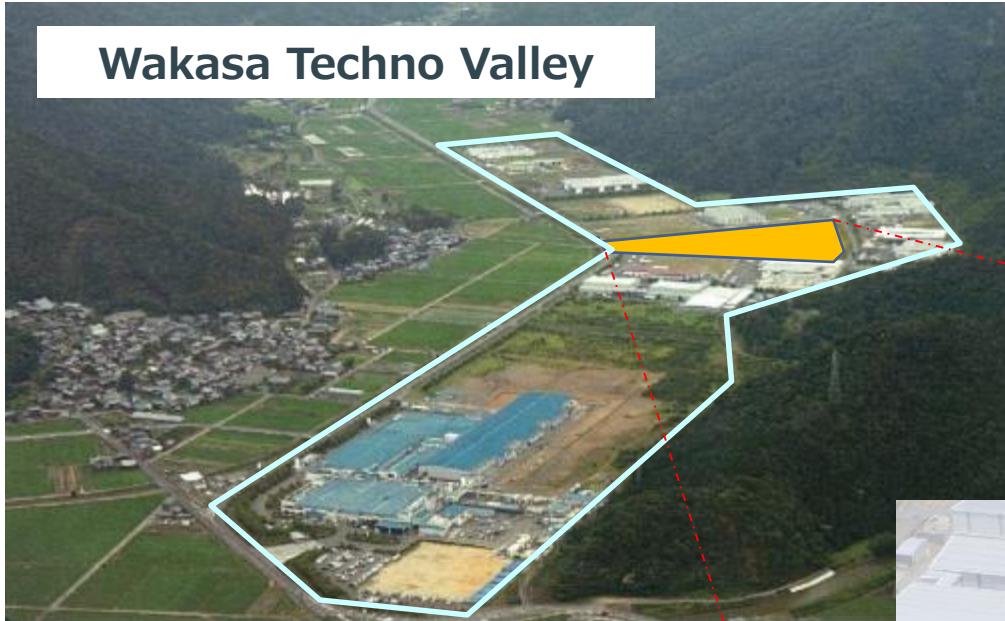
AGC's F-Chemical chain as building blocks



- **3 Units:**

- cGMP compliant unit (Prostaglandines)
- Non-GMP unit for Agrochemicals
- Non-GMP unit for Registered starting materials & raw materials





Site Area
28,400m²

Multi purpose plant for AIs & IMs for agrochemicals up to several 1000MT





Kashima Chemicals
1968, AGC's Share 78.8%
C3 Chemistry (Allylchloride, Epichlorohydrine)

C3 derivatives

Chlorination

- IPC (2-chloropropane)
- 2-CPEN (2-chloropropene)
- TCP (1,2,3-trichloropropane)

Hydroxylation

- CPD (3-chloro-1,2-propanediol)
- 1,3-DCH (1,3-dichloro-2-propanol)

Amination

- APD (3-amino-1,2-propanediol)
- Allylamine (3-amino-1-propene)

- AGC acquired Malgrat Pharma Chemicals, former API plant of Boehringer Ingelheim 1st March 2019
- Since September 2019 operational as **AGC Pharma Chemicals Europe** (*)
- **First FDA registered site in Europe** for AGC to broaden its pharmaceutical CDMO business



(*) see presentation: AGC Pharma Chemicals Europe

Three Synthesis Facilities and Pilot Plant

- cGMP compliance
- Production capability is set up in a multipurpose concept for the production of small molecule
- The facilities provide 120 m³ of total reactor capacity with vessel sizes of up to 6 m³
- Process chemistry can be conducted at temperatures between -20°C and +190°C



- **Fluorination technology**
 - Nucleophilic fluorination
 - Halogen exchange
 - Diazo-fluorination
 - Electrophilic fluorination
 - Electrolytic fluorination
- **Building blocks with “F” components**
 - Delivered from tetrafluoroethylene
 - As fluorine containing gas components
 - Others
- **C3 compounds** (propylene-based chemicals)
- **Ultra-low temperature reaction** ($\sim -100^{\circ}\text{C}$)
- **Hydrogenation**
- **Hazardous reactions** (e.g. cyano, diazo, Cl_2 reactions)
- **High Potent API (OEL: 1-10ug/m³)**
- **General organic reaction**
 - Friedel-Crafts
 - Grignard
 - Cross coupling
 - Oxidation/reduction

END

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