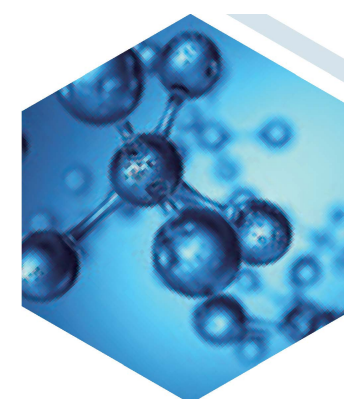




CDMO service in small molecules

Overview of AGC Inc. Fine Chemical division



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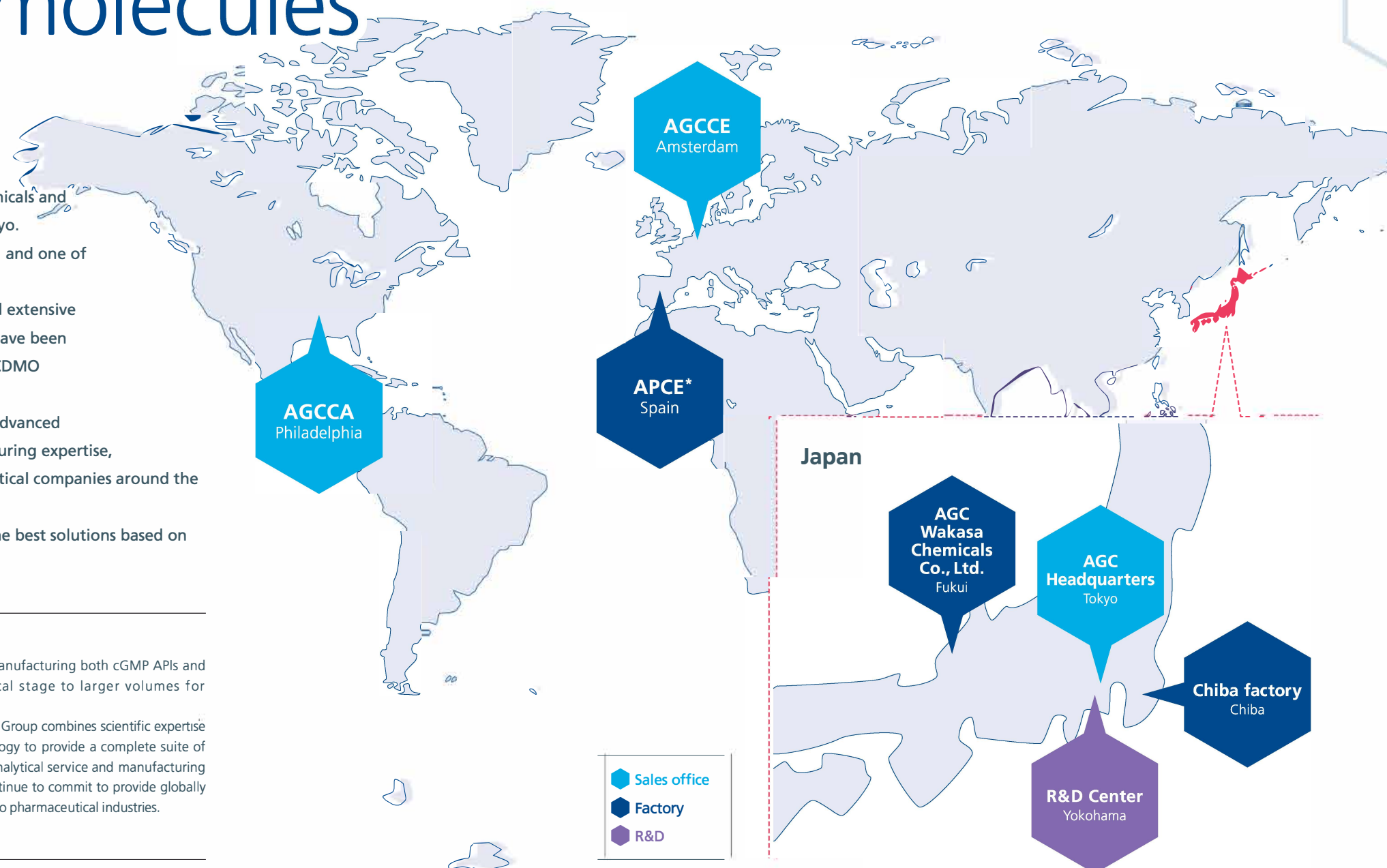
AGC
Your Dreams, Our Challenge

CDMO service in small molecules

AGC Inc., formerly Asahi Glass Co., Ltd. is a world-leading manufacturer of glass, chemicals and high-tech materials, headquartered in Tokyo. It is the largest glass company in the world and one of the core Mitsubishi companies. With unique fluorination technologies and extensive experience in process development, AGC have been engaged in the synthetic pharmaceutical CDMO business for over 30 years. In active pharmaceutical ingredients and advanced intermediates development and manufacturing expertise, AGC is tried and trusted across pharmaceutical companies around the world. The AGC Group takes pride in providing the best solutions based on our unique technologies.



AGC has vast experience manufacturing both cGMP APIs and intermediates from clinical stage to larger volumes for commercial production. With locations globally, AGC Group combines scientific expertise and market-leading technology to provide a complete suite of solutions in development, analytical service and manufacturing your products. AGC will continue to commit to provide globally unified high-quality services to pharmaceutical industries.



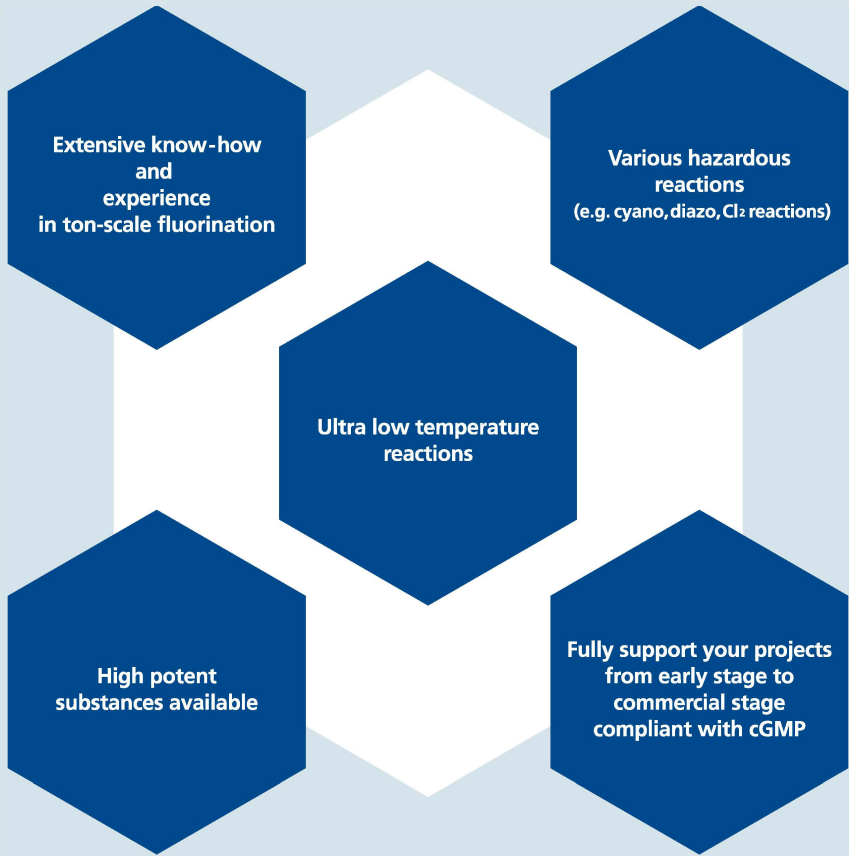
*AGC Pharma Chemicals Europe, S.L.U.

AGC's services

AGC's services are based on a specialized technologies and complement production facilities which support customers projects.

Committed to the highest levels and cGMP quality standards AGC focuses on:

- Extensive know-how and experience in ton-scale fluorination
- Various hazardous reactions (e.g. cyano, diazo, Cl₂ reactions)
- Ultra low temperature reactions
- High potent substances available
- Fully support your projects from early stage to commercial stage compliant with cGMP



AGC Inc., Chiba Factory

CMP(Chiba Multi Plant) Chiba, Japan

Key Fact
Multi plant for clinical stage / commercial production for APIs and Intermediates
cGMP compliant
High potent substances handling (OEL:1~10µg/m³)
Ultra low temperature reaction (-100°C)

Equipment	Material	CMP		CMP2	
		Capacity(L)	Unit	Capacity(L)	Unit
Reactor	Hastelloy	1,000	1	5,000	1
	Stainless steel	2,000	1	10,000	2
		3,000	1		
		1,000	1		
	Glass lining	2,000	1	10,000	3
		3,000	1		
		6,000	1		
	Subtotal	18,000	7	90,000	9
Distillation tower	Stainless steel	2,500	1	5,000	1
Centrifuge filter	ETFE lining	Φ42inch	1	Φ48inch	1
Vibration dryer	Hastelloy	1,000	1	-	-
Conical dryer	Glass lining	1,000	1	5,000	1
Filter dryer	Stainless steel	(1m ²)	1	(4m ²)	1
	Hastelloy	-	-	(4m ²)	1

FMP (Fluoro Multi Plant) Chiba, Japan

Key Fact
Non-GMP
High temperature / pressure gases reactions
Unique fluorine raw materials production

Equipment	Material	Capacity(L)	Unit	Temperature (°C)
Reactor	Glass lining	150~480	2	-30~180
	Stainless steel	60	1	~400
	Hastelloy	550~2,400	5	-10~200
Distillation tower	Stainless steel	150~2,400	5	40~200



AGC Wakasa Chemicals Co., Ltd.

Obama plant

Obama Fukui, Japan

Key Fact

cGMP compliant / Non-GMP
Registered starting materials & raw materials

Equipment	Material	Capacity(L)	Unit	Temperature (°C)
Reactor	Glass lining	100~5,000	23	-30~150
	Stainless steel	100~5,000	22	-50~210
	Hastelloy	300	1	-50~150
Distillation tower	Stainless steel, Glass lining	75~1,000 (T/P:6~15)	3	-
Centrifuge filter	Stainless steel, Fluororesin coating	Φ20~48inch	8	-
Vertical vacuum rotation dryer	Stainless steel	2,000~4,000	2	-
Filter dryer	Stainless steel	300~1,700	3	-
Vibration dryer	Stainless steel	300	1	-
Conical dryer	Glass lining	1,000~2,000	2	-

Kaminaka plant

Kaminaka Fukui, Japan

Key Fact

Als & intermediates
Agrochemical manufacturing up to several thousand MTs

Equipment	Material	Capacity(L)	Unit	Temperature (°C)
Reactor	Glass lining	2,000~13,000	26	-30~150
	Stainless steel	5,000~14,000	16	-50~150
	Alloy 20	8,000	1	-
	Hastelloy	7,000	2	-50~150
Centrifuge filter	Stainless steel coating	Φ48 inch	5	-
Vertical vacuum rotation dryer	Stainless steel	4,000	3	-
Conical dryer	Glass lining	3,000	1	-
Distillation tower	Stainless steel	3,000 (T/P:12)	1	-



AGC Pharma Chemicals Europe S.L.U.

Former API site of Boehringer Ingelheim.

First FDA registered site in Europe for AGC to broaden its pharmaceutical CDMO business.

Barcelona, SPAIN

Key Fact

cGMP compliant
Designed to handle from development phase to commercial APIs
Strong track record. No critical observations since 2007
~ 6 times by FDA, latest 2017. 3 times EMA, latest 2018. 9 times by PMDA, latest 2017~

Equipment	Material	Capacity(L)	Unit
Reactor	Glass lining, Stainless steel, Hastelloy	~ 6,000	42
Distillation tower	Glass lining, Stainless steel	~ 4,000	4
Centrifuge filter	Stainless steel, Hastelloy, Fluororesin coating	~ 550	11
Paddle dryer	Stainless steel, Hastelloy	~ 3,500	6
Conical dryer	Glass lining, Stainless steel	2,000	3
Filter dryer	Stainless steel, Hastelloy	~ 2,500	5

