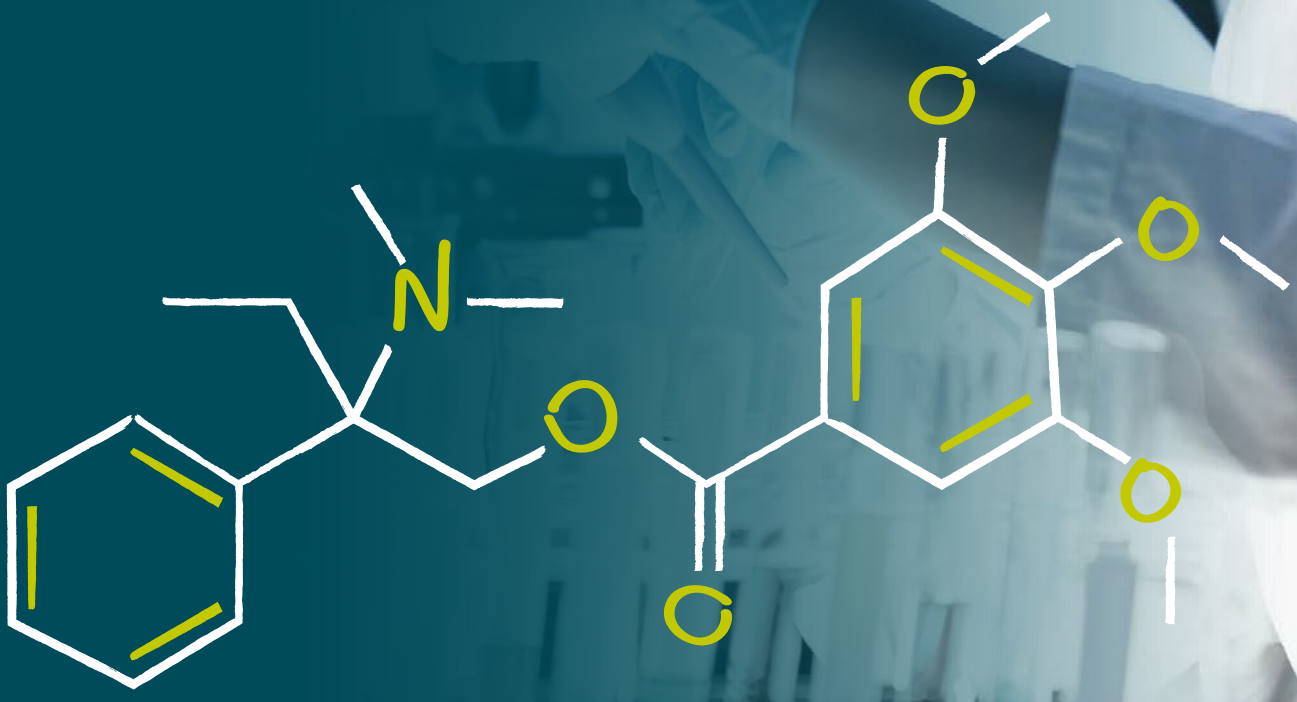
Zach
Zambon Chemicals

WHERE YOUR MOLECULES TAKE FORM



Zambon

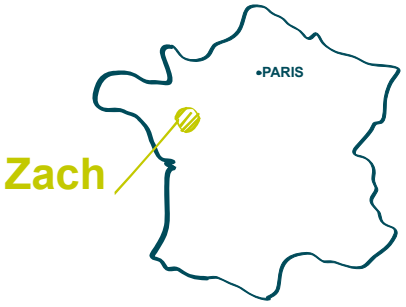
VISION

We put our **passion**
and **talents** into products
and services
to deliver **innovative**
and **sustainable**
solutions
for humain health.

We are committed to offering **Active Pharmaceutical Ingredients** (API) and **advanced intermediates** for the pharmaceutical industry

100 m^3
REACTOR CAPACITY

EXPERIENCED PROJECT MANAGEMENT TEAM



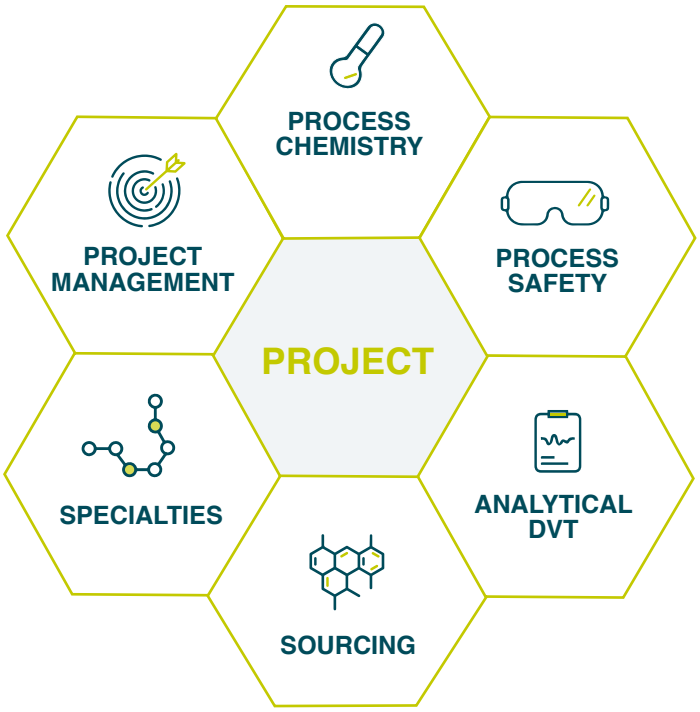
ZACH IN **FEW WORDS**

- A STRONG TRACK RECORD
- A **GMP KILOLAB PLANT**
- A **GMP PILOT PLANT**
- A BROAD RANGE OF **TECHNOLOGIES** IN A **FLEXIBLE** MANUFACTURING FACILITY
- HANDLING OEL DOWN TO **1 µg / m^3**
- **SPRAY-DRYING** OF APIs & **LOW ENDOTOXIN EXCIPIENTS**
- **ISO 14001 CERTIFICATION** SINCE 2002

REGULATORY & GLOBAL COMPLIANCE

FDA | ansm | Pmda | KFDA

R&D **MISSION** & **FACTS**



We provide to our customers the **highest level of science** through an **innovative R&D approach**

- **CLINICAL API DRUG DEVELOPMENT**
- **QUALITY by DESIGN (QbD APPROACH)**
- **CONTINUOUS FLOW CAPABILITIES IN SILICO MODELING**

R&D **FACILITIES**

PROCESS CHEMISTRY LABS

(0.1 – 10 lt glass reactors, including O_3, H_2 and flow chemistry; 24 standard and walk-in fume-hoods)

KILO-LAB

(15 lt and 30 lt glass reactor skids, 0.07 m² agitated filter; -80°- 150°C)

PROCESS SAFETY LAB

(DSC, TGA, RC1, ARC; 5 fume-hoods)

ANALYTICAL LABS

(HPLC, UPLC, GC, HPLC-MS, HRMS-TOF, GC-MS, HS-GC-MS, 400MHz NMR; 5 fume-hoods)

OUR **PILOT PLANT**

11 REACTORS WITH A TOTAL **CAPACITY OF 5100 L**

5 GLASS LINED REACTORS **(100 TO 600 L)**

6 STAINLESS STEEL REACTORS **(50 TO 1000 L)**

3 FILTER DRYERS **(0.2 TO 0.7 m²),** 2 IN CLEAN ROOMS

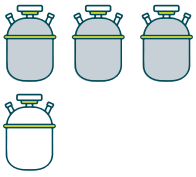
2 HYDROGENATION REACTORS **(400 L & 1000 L, 5 bar)**

- **CRYOGENIC UNIT** STAINLESS STEEL **(70 L)**
- **TEMPERATURE RANGE (FROM -80°C TO +150°C)**
- **WIPED FILM EVAPORATOR**
- **PILOT SCALE PLUG-FLOW CONTINUOUS REACTOR AND MSMPR CRYSTALLIZATION SKID**

OUR **REACTORS**

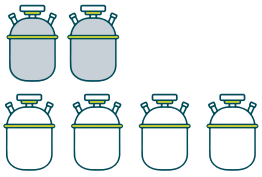
STAINLESS STEEL **GLASS LINED**

4 **1000 to 2000** L

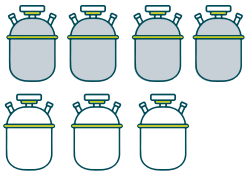


*1 cryogenic (-90°C)

6 **2000 to 3000** L



7 **3000 to 4000** L



*3 autoclaves (up to 10 bar)

1 **4000 to 6000** L

4 **6000 to 8000** L

2 **8000 to 10000** L

CORE **CHEMISTRY**

			BATCH SIZE
REDUCTION	Catalytic H_2	Pd/C, Pt/C, PtO_2, Ir/C	**100s kg**
	Asymmetric H_2	RhL*, RuL*	**10s kg**
	C=C, C=O	LAH (pwdr, sln), DIBAL (sln), $LiAlH(OtBu)_3$, BH_3, CBS rdxn	**10s – 100s kg**
	C–O cleavage	TES, TIBAL (pure, sln)	**100s kg – MTs**
OXIDATION	H_2O_2	H_2O_2 / H_2WO_4 Alk_2S oxdn	**100s kg**
	Periodate, permanganate	$NaIO_4$, 75°C; $KMnO_4$, 25°C	**10s kg**
	Asymmetric	Sharpless	**100s kg**
	Ozonolysis	SS 50 / 1500 l, cryo	**100s kg**
METALATION, ALKYLATION, C–C FORMATION	Lithiations	AlkLi, LDA, LiHMDS, Li / $NH_{3(l)}$	**10s – 100s kg**
	DMS, DES alkylation	room / high T	**MTs**
	Eschweiler-Clarke	HCHO / HCOOH	**MTs**
	Cyanation	KCN, NaCN	**100s kg**
	Grignard	Mg or AlkMgX/ether; VinylMgCl, -80°C	**100s kg**
	Pd-cat coupling	Heck, Suzuki	**10s – 100s kg**
MISCELLANEOUS	High T/P aminolysis	Aq. NH_3, 160°C / 8 bar	**100s kg**
	Mitsunobu	Ph_3P, DIAD	**10s kg**

SPRAY DRYING CAPACITIES

A sustainable technology for an **efficient drying**

LABORATORY (BUCHI B-290)

- 1 – 10s gr scale
- Closed loop
- Familiarization and process development

PILOT (PSD1)

- Few kg/h
- Tens of Kg of product
- Closed loop
- Equipment in clean room
- ATEX environment
- Scale up and/or 10s kg
- GMP Manufacturing

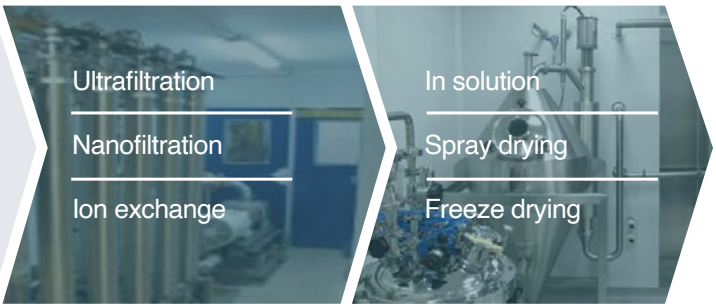
COMMERCIAL (2 PSD2)

- 5 to 30kgk/h
- 100s kg to 10s of tons
- Open Loop
- Sanitization design
- GMP manufacturing

A NEW PSD2 QUALIFIED
BY END OF 2026

PURIFICATION OF MACROMOLECULES

MOLECULE TYPE	CHEMICAL MODIFICATION	PURIFICATION	ISOLATION
Peptide like	Activation	Ultrafiltration	In solution
Carbohydrates	Protection	Nanofiltration	Spray drying
Cyclodextrins	Functionalization	Ion exchange	Freeze drying
Aminoacid derivatives			



From pilot to tens of tons/year

Bacterial control

- ✓ Equipment sanitization
- ✓ Purified water
- ✓ Low endotoxin content

Zach
Zambon Chemicals

WE CREATE VALUE TRANSFORMING RESOURCES INTO FINAL PRODUCT

FOR INFORMATION

NICOLAS GIRARD
Commercial Director
Mobile +33 6 76 06 52 10
nicolas.girard@zambongroup.com

SERGIO KREIMERMAN
Business Development Manager
Mobile +33 7 65 18 68 49
sergio.kreimerman@zambongroup.com

Find out more

Zach System SA

Z.I. la Croix-Cadeau
C.S. 10079 - 49242 Avrillé - France
Tel: +33 (0) 2 41 96 61 61
www.zachsystem.com