ORGANIC CHEMISTRY PILOT

SERVICES OFFERING

Providing access to a wide range of pre-industrial tools for the synthesis, separation, purification and drying of organic intermediates.

Organic synthesis of fine chemicals and specialty intermediates:

- Batch, semi-continuous or continuous chemistry
- Radical polymerization in solution
- Formulation, mixtures

Analytical support / Quality control:

- Development of analytical methods (HPLC, GC, NMR, etc.)
- Analytical monitoring of studies / manufacturing campaigns
- Generation of Analysis Certificates for batch release
- SDS generation

Scale: from the gram to the hundred kilograms

EXPERTISE

Since 2020, in partnership with SOLVAY, AXEL'ONE has built the AdChem4 (Advanced Chemistry Pilot Plant) platform which provides access to synthesis and separation tools allowing the production, processing and conditioning of up to a hundred kg of products. This expertise is also part of the development of bio-sourced, biodegradable, recyclable products in an ecological process.

The associated expertise is:

- Scaling up studies from the laboratory to the pilot workshop
- Sampling at laboratory and pilot scale
- Data acquisition
- Production of batches before industrialization and transfer to the factory

EQUIPMENTS

Batch chemistry synthesis

- 2 pilot halls with ATEX II classification
- Global production capacity of 1000L
- 8 reactors from 16L to 250L:

- Büchi 16L enamelled steel reactor (K40200), Agitation: impeller, Working temperature: -30 ° C to + 155 ° C / Max pressure: 1.4 bar

- Büchi 25L enamelled steel reactor (K40000), Agitation: impeller, Working temperature: -30 ° C to + 155 ° C / Max pressure: 1.4 bar

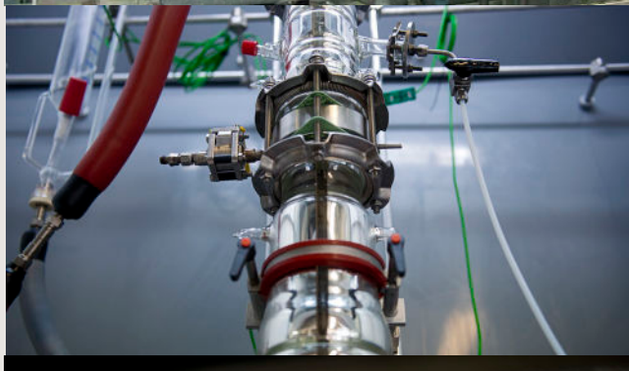
- Büchi 70L enamelled steel reactor (K51000), Agitation: impeller, Working temperature: -15 ° C to + 155 ° C / Max pressure: 1.4 bar

- 2 De Dietrich 100L reactors in enamelled steel (K41000 and K41100), Agitation: impeller
Working temperature: -30 ° C to + 155 ° C / Max pressure: 1.4 bar, Equipped with a distillation column (Montz packing, H 2000 mm, DN 80)

- De Dietrich 250L reactor in enamelled steel (K51000), Stirring: Optifoil D360, Working temperature: -15 ° C to + 155 ° C / Max pressure: 1.3 bar

- Valorel 250L reactor in 316L stainless steel (K42000), Agitation: 3 TA3S turbines, Working temperature: -70 ° C to + 155 ° C / Max pressure: 4 bar, Management of viscous media (<20,000 cP)

- Biazzi 100L hydrogenator in Hastelloy C276, Agitation: double turbine cavitator, Working temperature: 0 ° C to + 155 ° C / Max pressure: 20 bar, Associated with a MOTT candle filter (40L, Pmax: 6 bar, filtration threshold : 0.5 microns)



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EQUIPMENTS

Synthesis in Continuous Chemistry

- 2 Corning G1 reactors (glass & Si-C)
- Temperature range: -60 ° C to 200 ° C
- Pressure range: 1 bar to 18 bar
- High mixing and heat exchange efficiency
- Productivity: 5-10kg / h

Solid / Liquid separation tools

- COGEIM type filter dryer 0.20 m² (150L) in Hastelloy C22
- GUEDU 0.24 m² (100L) type dryer filter in 316TI stainless steel
- ATEX wringer Robatel RC40VXR / 3000G
- Tray drying oven (316L stainless steel) / Clean room for isolation and conditioning

Distillation Tools

- 100L boiler / column 15 theoretical trays (DN 80mm)
- 10L boiler / column 15 theoretical trays (DN 25mm)
- Scraped Film Thin Film Evaporator (Luwa)
- Support of process teams

Additional equipment

- Creaphys DSU100-EX enhancer for isolation of very high purity products (50-100g)
- Büchi atomizer
- Teledyne Isco high-capacity chromatographic purification machine (up to 3kg of silica)

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Organic synthesis reactor in extreme conditions allowing access to operating ranges that are currently inaccessible

Technical characteristics :

- Useful volume: 60L
- Corrosion resistant material (Hastelloy)
- Service range -20 ° C to + 250 ° C at 10 bars
- Agitation handling high viscosity media 500 Pa.s
- Interchangeable stirring (liquid / liquid, liquid / solid, gas / liquid reactions)
- Probes and sensors for on-line monitoring of syntheses / Digitization of data
- Environment allowing a high level of containment (chapel, air supply system)

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