AdChem4

ADVANCED CHEMISTRY PILOT PLANT

FOR AN INDUSTRIAL SCALE-UP

A project for the pooling of pilot tools for the transition to industrial scale through four key themes...

The Adchem 4 platform (a partnership between Syensqo and the Axel'One platform) offers industrial players in the Chemistry-Materials-Environment sector access to shared prototyping tools and associated expertise. The platform includes a wide range of state-of-the-art pilot tools for the pre-industrial scale-up of new products and/or new processes.

POLYMERIZATION PILOT

The pilot tools provided enable the synthesis of new, high-performance "clean" (bio)polymers. They utilize expertise in polycondensation, thermal transfer, and agitation of viscous media, as well as the shaping of molten products into divided solids. A new pilot line has been constructed to produce innovative materials, enabling synthesis at extremely high temperatures and pressures through circular or more climate-neutral processes, sometimes not feasible under standard polycondensation conditions

AREAS OF EXPERTISE

- Transition to Prototyping at a Scale of 100 kg
- Validation of production conditions for industrialization.

WASTEWATER TREATMENT

The resources available for the treatment of industrial effluents address the challenges of the circular economy. The pilot tools on the platform can be used to evaluate all treatment/recovery pathways for aqueous effluents (biological, coagulation/flocculation, precipitation, membrane separation, oxidation, etc.) under controlled conditions. The tools are designed to handle effluents classified as hazardous (toxic, carcinogenic, mutagenic, reprotoxic) and will ultimately enable the management of several liters of treatment.

AREAS OF EXPERTISE

- Feasibility of Treatment and/or Recovery of Pollutants
- Industrial Expertise and Pre-Dimensioning of Treatment Processes.

AdChem4 is led by Syensqo in partnership with the Axel'One platform.

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ORGANIC CHEMISTRY PILOT

The platform provided includes a wide range of pre-industrial tools for the synthesis, separation, purification, and drying of organic intermediates for fine and specialty chemistry. A new pilot line has been built to explore areas of chemistry currently inaccessible with existing tools, under extreme conditions in terms of temperature, pressure, corrosion, high reactivity, raw material toxicity, gas/liquid exchanges, and more. This line is also equipped with online analytical instruments (such as Raman and Infrared) to facilitate reaction and selectivity control.

AREAS OF EXPERTISE

- Scale-Up and Pilot Studies
- Data Acquisition
- Sampling at the laboratory scale (100g-1kg) and pilot scale (10-100kg).

SOLID CHAIN

The pre-industrial tools available enable the flexible and efficient study of generation, separation, drying, and shaping of solids. A new versatile infrastructure (mineral or organic synthesis / aqueous or organic media) will be built to conduct studies on technological feasibility and scale-up under severe pressure and temperature conditions at a scale of 50-100 liters, within a fully integrated environment.

AREAS OF EXPERTISE

- Selection and Pre-Dimensioning of Technologies for Generation, Isolation, Drying, and Shaping of Solids
- Powder Shaping
- Industrialization of Processes.

SYENSQO
ADVANCING HUMANITY

AdChem4
ADVANCED CHEMISTRY PILOT PLANT

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Find the technical datasheets on :
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