

Secoya Crystallization Technology

Scalable continuous crystal production process



From an innovative crystallization technology to a product

The Secoya Crystallization Technology (SCT) is based on the optimized use of reactors to augment the nucleation rate of a molecule in solution. This technique offers a high control of nucleation at time scales wherein nucleation takes place, as confirmed on a large variety of different molecules. These reactors both shorten the contact time and allow at the same time nucleation to be as fast as physicochemically possible.

Thanks to its robustness, the process can be transferred from lab to production scale with the same set of parameters.

> Applications

Secoya Crystallization Technology enables to nucleate small organic and inorganic molecules in a controlled way. This results in the direct production of the desired crystalline material size from 1 to 400 μm with a narrow distribution.



> Equipment



SCT-LAB
[g scale]



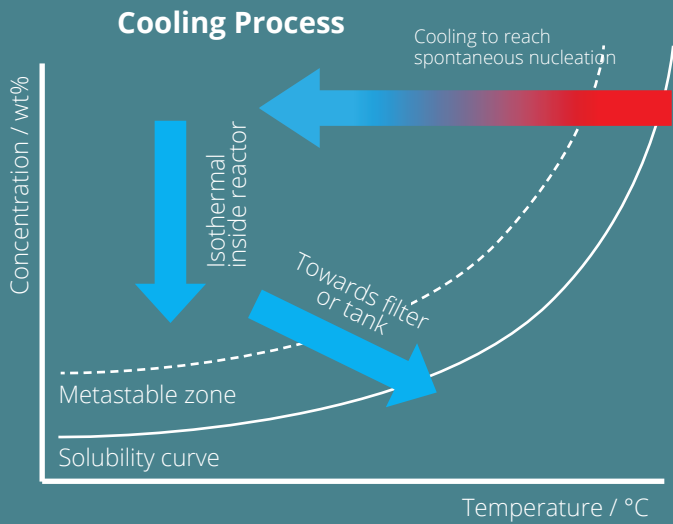
SCT-PILOT
[kg scale]



SCT-ICE
[ton scale]

We developed a range of instruments from laboratory (SCT-Lab) to industrial scale ensuring a seamless scale-up while maintaining a tight control of particle size and distribution. All systems can be equipped for reactive, cooling and antisolvent crystallization. Versions are available for isolators, ATEX proof, high temperatures and corrosive solvents.

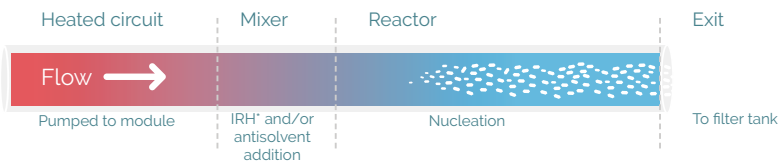
> Ultrafast screening of your novel molecules



Characteristics

- Cooling and antisolvent crystallization on the same device
- Fast screening of nucleation conditions
Low material consumption
- Wide parameter range and large particle size range possible for same molecules
- Seamless scale-up
- Suitable for all OEB classes.
Ideal for BCS class II and IV products.

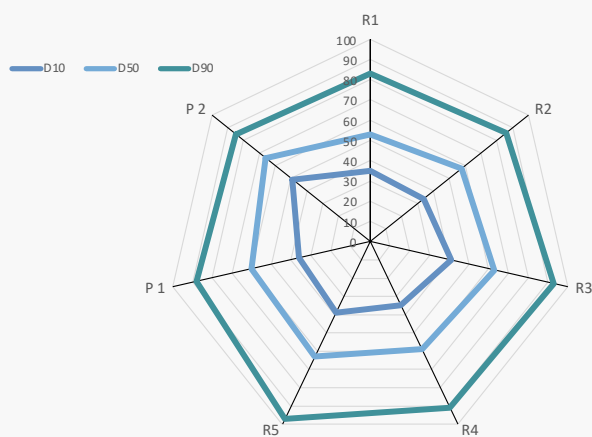
> Innovative nucleation flow



* Internal Resistive Hydrodynamics, see Rimez et al., Crystal Growth & Design (2018)

Technology Specifications

- Preheated solution between 25 and 85°C
- Precooled antisolvent addition between 5 and 85°C
- Temperature controlled reactor container (0 to 60°C)
- Single-use, easily connected inserts and reactors
- Flow rates per line: 1 to 60 mL/min, independent operated pumps
- Standalone software



Lactose crystallization tests: extrapolation of results using identical parameters for both lab scaled testing (R1-R5) and pilot testing (P1 and P2).

> Seamless scale up from lab test to production validation

Thanks to the robustness of the crystallization technology, the parameter set is determined during the laboratory scale screening phase to achieve the desired particle size and distribution. This set is validated at pilot scale during kilogram testing before parallelization towards production scale.

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