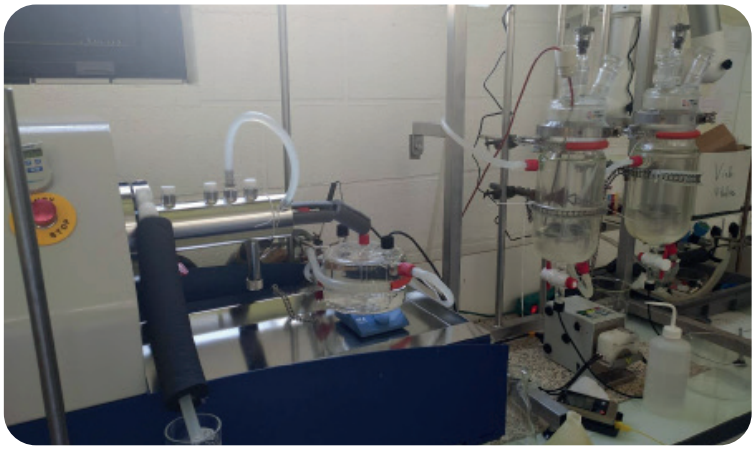
CONTINUOUS CRISTALLISATION
with a Couette-Taylor type reactor

Production of active pharmaceutical ingredients (APIs) is traditionally carried out in batch processes. But over time, the batch production method has revealed certain weaknesses, especially variation in product quality from one batch to another. Conversely, the continuous production method ensures better productivity and more constant product quality.

Carnot I2C Institute

Scientific / technological breakthrough

To achieve continuous crystallisation, Carnot I2C Institute has opted for a Couette-Taylor type reactor. The new reactor it has designed offers better adaptability with tighter temperature control and the possibility of adjusting the space between the two concentric cylinders. Internal cylinders with different diameters mean that it is modular, which increases the adaptability of the technology through a variable range shear effect on the suspension. Regulating the two cylinders at different temperatures enables the maturation effects of the population of crystals, which speeds up the homogenisation kinetics for chemical purity, structural purity, and constant morphology and size.



Competitive advantage for the economic stakeholders

Some compounds can be purified by means of crystallisation but several steps are involved. Moreover, in batch operations, it is not easy to control the attributes of the particle population and batches may be non-compliant in respect of: (i) the presence of several polymorphic varieties (ii) inadequate particle size (iii) particle morphology unsuited to good filtration and/or free flow of the powder for subsequent shaping operations. With increased productivity, the Couette-Taylor crystallisation reactor offers a significant improvement in the above points for a range of production scales: from laboratory and pilot to mass production.

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