

SYNFLOW - Innovative Synthesis in Continuous-Flow Processes for Sustainable Chemical Production

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The SYNFLOW vision is the paradigm shift from batch-wise large volume processes in pharmaceuticals, fine chemicals and intermediates production comprising many separate unit operations towards highly integrated but yet flexible catalytic continuous flow processing. For this purpose, SYNFLOW develops a unique integrative approach combining molecular understanding of synthesis and catalysis with engineering science in process design and plant concepts, aiming at an efficiency breakthrough in process development and operation. The SYNFLOW mission is to overcome the traditional way of linear process development providing individual solutions for specific products, and to demonstrate the technological, economic and ecological superiority of truly „designing“ processes by application of advanced chemical and engineering knowledge. The SYNFLOW concept is based on the definition of generic challenges with industrial relevance, represented by Case Studies provided by the industrial consortium members. Catalyst development, studies of the underlying chemical target transformations (synthetic methodology), tailored reaction engineering, conceptual process design and process evaluation interact closely in order to substantiate the SYNFLOW vision. Its success will be demonstrated on a relevant production scale as a reference for the entire European Chemical Industry. The SYNFLOW consortium brings together major industrial producers from the Pharmaceuticals, Fine Chemicals and Intermediates sectors, providers of process technology and technical catalyst supply. A number of high-ranked academic partners ensures the availability of comprehensive expertise for the suggested Case Studies. Dissemination of the results is guaranteed by the participation of DECHEMA and Britest. SYNFLOW presents a holistic approach to central challenges of the European Chemical Industries and therefore a highly promising candidate to fulfill the crucial issues of the NMP-2009-3.2-1 call.

Coordinator

RHEINISCH-WESTFAELISCHE TECHNISCHE HOCHSCHULE AACHEN (Germany)

Other participants

UNIVERSITA DEGLI STUDI DI NAPOLI FEDERICO II

- DANMARKS TEKNISKE UNIVERSITET
- GOETEBORGS UNIVERSITET
- BAYER TECHNOLOGY SERVICES GMBH
- BRITEST LBG
- ASTRAZENECA UK LIMITED
- JOHNSON MATTHEY PLC.
- UNIVERSITATEA DIN BUCURESTI
- FRIEDRICH-ALEXANDER-UNIVERSITAT ERLANGEN NURNBERG
- UNIVERSITE DE RENNES I
- UNIVERSITAT ROVIRA I VIRGILI
- UPPSALA UNIVERSITET
- DECHEMA GESELLSCHAFT FUER CHEMISCHE TECHNIK UND BIOTECHNOLOGIE E.V.
- THE UNIVERSITY COURT OF THE UNIVERSITY OF ST ANDREWS
- THE UNIVERSITY OF WARWICK
- THE UNIVERSITY OF NOTTINGHAM
- CENTRE NATIONAL DE LA RECHERCHE SCIENTIFIQUE
- Evonik Oxeno GmbH

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