

## **COPIRIDE - Combining process intensification-driven manufacture of microstructured reactors and process design regarding to industrial dimensions and environment**

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The ultimate ambition of COPIRIDE is to develop a new modular production and factory concept for the chemical industry using adaptable plants with flexible output. This concept will be superior, intellectual property (IP) protected, and enable a much wider spread of know-how and education of this skill-intensive technology. Key functional enabling units are new production-scale, mass-manufactured microstructured reactors as well as other integrated process intensification (PI) reactors realising integrated processes.

This will lead to a substantial reduction in costs, resources & energy and notably improves the eco-efficiency. To ensure the competitiveness of European (EU) manufacturing businesses, PI technology / know-how is transferred from leaders to countries (and respective medium & small industries) with no exposure in PI so far, but with a track record in sustainability, and to the explorative markets food and biofuels.

A deeply rooted base will be created for IP rights (Copyright, © = COPIRIDE) by generic modular reactor & plant design and new generic processes via Novel Process Windows, facilitating patent filing. Due to the entire modular plant concept comprising all utilities far beyond the reaction & processual parts - a holistic PI concept is provided, covering the whole development cycle with, e.g., safety & process control & plant approval. Features, inter alia, are fast plant start-up and shut-down for multipurpose functionality (flexibility in products), sustainable & safe production, and fast transfer from lab to production & business (time-to-market).

Industrial demonstration activities up to production scale with five field trials present a good cross-section of reactions relevant to the EU chemical industry. The economic impact in COPIRIDE is 10 Mio /a (cautiously optimistic) to 30 Mio /a (optimistic) by direct exploitation.

### **Coordinator**

**INSTITUT FUER MIKROTECHNIK MAINZ GMBH (Germany)**

### **Other participants**

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LASERZENTRUM SCHORCHT GMBH (Germany)

ITI ENERGY LIMITED (United Kingdom)

WETZEL GMBH (Germany)

EVONIK DEGUSSA GMBH (Germany)

ABO AKADEMI (Finland)

CHEMTEX ITALIA SRL (Italy)

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UNIVERSITAET STUTTGART (Germany)

MICROINNOVA ENGINEERING GMBH (Austria)

UNIVERSITY OF NEWCASTLE UPON TYNE (United Kingdom)

POLITECNICO DI TORINO (Italy)

ECOLE POLYTECHNIQUE FEDERALE DE LAUSANNE (Switzerland)

TECHNISCHE UNIVERSITEIT EINDHOVEN (Netherlands)

**Start date** 01/09/2009

**End date** 28/02/2013

**Duration** 42 mesi

**Project cost** 16.92 million euro

**Project Funding** 11 million euro

**Subprogramme Area** Implementation of process intensification strategies in industrial scale

**Contract type** Large-scale integrating project