# Press release for ChemSpec 2010

## Small chemical plants start flowing

### Small microstructures fighting against big pots

The continuous flow has been introduced to the production of pharmaceutical agents and fine chemicals. And it is becoming a serious competition for batch technology in sophisticated processes. The engineers at Microinnova have already shown that they belong to the world's best in the realisation of micro-reactor concepts at full production scale. In the field of fine chemicals, a micro-reactor with a throughput of 3 tons per hour was realised several years ago.[Ref1] In May 2010, these engineers put into operation a pharmaceutical plant with a throughput of 200 l/h - the most powerful of its kind in Europe that is based on the micro-reactor technology.

Within the European research project COPIRIDE[Ref2], Microinnova Engineering cooperates with partners, such as Evonik-Degussa and the Institute for Micro-Technology Mainz, to develop the chemical plant of the future and its infrastructure. In the European CAEC[Ref3] research project, they, together with partners like Novartis, develop a concept in the field of separation technology.

At the Chemspec 2010 fair in June in Berlin, Microinnova will, for the first time, introduce three different concepts on how to realise the advantages of micro-reactors and flow chemistry at full production scale. Big enterprises, such as Roche, Sigma Aldrich and Sandoz, cooperate with Microinnova Engineering, and they are putting all their efforts into the realisation of such concepts.

**1. Plant Redesign-Concept**

This concept integrates, at adequate points, micro-reactors or other micro-structured components into existing production plants to reach considerable improvements. This is based on the approach to achieve best results and still keep the interventions as small as possible.

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## 2. Unit Operation-Concept

The unit operation concept realises, in the form of a SKID construction, a chemical process step in a plant with all related aggregates and measuring devices. That way, individual reaction steps in a continuous process can be realised without changing the other process steps.

## 3. Modular Multi Purpose Concept

The modular multi-purpose plant concept combines the advantage of batch technology, its flexibility, with the advantage of continuous process management, its process performance. The variably combinable and replaceable modules, such as the feed module, the reactor module or the residence-time module, make it possible to create temporary chemical plants for a wide range of different purposes adjusted to the respective product.

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**ChemSpec Exhibition stand:**
Halle 22 Stand CS13
**Speech:**
Exhibitor Showcase
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**Press photos: Andrea Hrastnik**
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**Copyright-free photos (transmission on request)**

Photo 1

Photo 2

Photo 3

Photo 1: Production plant with UNIT OPERATION concept, including micro-reactor

Photo 2: Helpless glance from the past

Photo 3: Yes! That‘s really an efficient process.

Reference 1:Kirschneck et al.; *Chem.Eng.Technol.* **2007**, 30(3), 305-308

Reference 2: http://www.copiride.eu/

Reference 3: http://caec.bci.tu-dortmund.de/