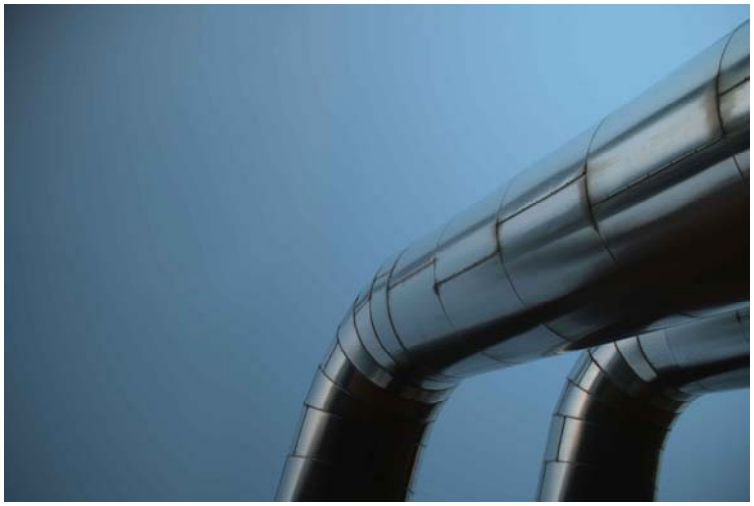
"F³ Factory": Flexible, Fast, and Future Factory

European Chemistry Consortium Coordinated by Bayer Technology Services Starts into the Future of Production



The EU-funded project "F3 Factory" with KIT as a partner intends to change paradigms in chemical industry. (Photo by: fotocase.de)

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Increasing efficiency and flexibility, reducing costs of resources: The factory in the future will be more efficient, more flexible, and save resources much better than today's standards. The EU-funded project "F³ Factory" was launched today as a so far unprecedented program to develop efficient and sustainable processes in chemical industry. For the first time, leading European enterprises of this branch as well as research institutes and universities are working jointly on new technologies and production concepts that go beyond all limits of competition. 25 partners from all over Europe have joined the consortium.

The project will have a duration of four years and a budget of about EUR 30 millions. 18 million Euros will be funded by the EU within the framework of the 7th Framework Programme. F³ Factory stands for "flexible, fast, and future factory": By means of faster and more flexible production methods, the consortium intends to enhance the technical lead of European chemical industry in the world and to

KIT – The Cooperation of
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improve competitiveness. It is aimed at methodologically developing the modular, continuously operated factory (F^3 Factory), standardizing pertinent processes and interfaces, and demonstrating its feasibility in terms of concrete products. Efficiency and scalability of world-scale plants shall be combined with the flexibility of batch-type facilities. Integrated process intensification strategies shall be applied in order to save resources and energy. These two factors cause about 70 to 80% of the production costs and, hence, much more than the factor of labor.

F^3 Factory focuses on the development of concrete products like solvent-free polymers, customer-specific surfactants, high-quality intermediate products, and innovative materials based on renewable resources. A demonstration and development center shall be built at CHEMPARK Leverkusen. Construction is planned to start at the turn of the year 2009/2010 and to be completed by early 2011.

To launch the F^3 Factory, all partners met on June 08 at Bayer Technology Services in Leverkusen. This technology enterprise of the Bayer Group will coordinate the EU project over its duration of about four years. "Today marks the start of a promising and maybe even revolutionary cooperation of European chemical industry. The F^3 Factory bundles vast process know-how of industry and research in a so far unique and multidisciplinary consortium, and the project once more confirms the innovative power of a key branch in Europe", underlined Achim Noack, director of Bayer Technology Services GmbH, at the beginning of the meeting. Not only do climate change and the current crisis of global economy require an increase in efficiency of resource-intensive chemical industry, also the superproportional increase in the costs of resources in the past years makes such concerted actions necessary. In smaller working groups, the project partners agreed on concrete tasks of the first project phase and defined their responsibilities.

The chemistry consortium has defined three paramount objectives: Technical feasibility of the F^3 Factory concept shall be confirmed at the development center. In addition, the project partners want to prove that F^3 Factory processes are much more efficient, ecologically compatible, and sustainable than conventional continuous large-scale processes or small and medium-sized batch-type facilities. Moreover, modular "plug-and-play" technologies shall be developed and optimized.

"Innovative process intensification concepts enormously enhance energy and resource efficiency. This leads to a cheaper and environmentally more compatible production of established substances of mass or fine chemicals, but also to entirely new products of high value added", says Herbert von Bose, head of the Directorate G - Industry Technologies of the general research directorate of the European Commission to justify funding. According to the calculations of the consortium, chemical industry in Europe alone may save about 3.75 billion Euros by implementing the F^3 Factory concept in existing production facilities. Additionally, new markets might be opened up.

The F^3 Factory consortium comprises: Arkema, AstraZeneca, BASF, Bayer Technology Services, Britest, Buss-SMS-Canzler, Centre National de la Recherche Scientifique CNRS, Coatex, Technical University of Denmark, Ehrfeld Mikrotechnik BTS, Institut National Polytechnique de Lorraine - ENSIC, Evonik Degussa, Forschungszentrum Karlsruhe, Institute of Catalysis & Surface Chemistry PAS, Institute of Chemical Process Fundamentals, KTH Royal Institute of Technology, Process Design Center, Rhodia, RWTH Aachen, Technische Universität Dortmund, Eindhoven University of Technology, University of Newcastle, Universität Paderborn, Procter & Gamble, Ruhr-Universität Bochum. The partners are from Belgium, Denmark, Germany, France, Great Britain, the Netherlands, Poland, Sweden, and the Czech Republic.

The Karlsruhe Institute of Technology (KIT) is the merger of the Forschungszentrum Karlsruhe, member of the Helmholtz Association, and the Universität Karlsruhe. This merger will give rise to an institution of internationally excellent research and teaching in natural and engineering sciences. In total, the KIT has 8000 employees and an annual budget of 700 million Euros. The KIT focuses on the knowledge triangle of research – teaching – innovation.

The Karlsruhe institution is a leading European energy research center and plays a visible role in nanosciences worldwide. KIT sets new standards in teaching and promotion of young scientists and attracts top scientists from all over the world. Moreover, KIT is a leading innovation partner of industry.

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