

Transition of the processing industries towards a more sustainable model of manufacturing is crucial in ensuring continued growth and global competitiveness. Achieving this requires the adoption of novel reactor technologies, greener reactions and an increase in the use of intelligent systems within the processing industries. **COOPOL** will develop new methods and tools for modelling and control, based on real-time sensing, which will facilitate the development of a new paradigm of intensive, low-impact, sustainable chemical processes.

### Research objectives will be:

- The development of intensive 'smart-scale' reactor technology with real-time feed-back control
- A novel sensor-fusion approach for on-line inference of process parameters in the polymerisation process
- Utilisation of new types of sensors and model-based experimental analysis for advanced models of polymerisation processes
- Creation of realistic optimisation models and economic objectives

**COOPOL** will deliver scientific and technological advances leading to significant improvements in industrial polymer processes by developing advanced control and optimisation technologies applied to conventional reactors, and by implementation of new reactor technologies leading to improvements in product quality and increased productivity. Control and Real-Time Optimisation of Intensive Polymerisation Processes  
This project is financially supported by the 7th Framework Programme of the European Commission (grant agreement number 280827)

### Further Information

Please visit our website at: [www.coopol.eu](http://www.coopol.eu)

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### Control and Real-Time Optimisation of Intensive Polymerisation Processes



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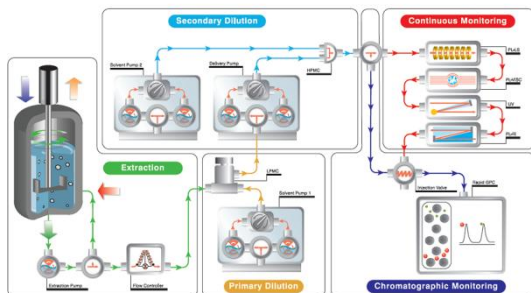
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## Overview

COOPOL (Control and Real-Time Optimisation of Intensive Polymerisation Processes) is an EU collaborative research project. Its goal is to achieve a significant increase in the product quality of polymerisation reactions for intensified semi-batch and 'smart-scale' continuous polymerisation processes in the chemical industry.

A collaboration of industrial and academic partners, including BASF, the world's leading chemical company, the project will deliver a significant advance in the state-of the art in model-based predictive control. The new processes developed will be benchmarked against current industrial processes, including technological, economic, risk and environmental factors leading to the rapid transfer of research into innovation.



## Partners

The project consortium consists of 8 partners from 4 European countries: university research groups, small and medium sized companies, and BASF, the world's leading chemical company.



The project is coordinated by



## Project Activity

Research is split into four multi-disciplinary themes:-

### **'Smart-scale' and intensified semi-batch polymerisation**

Generation of the reaction data for the development and validation of the models used in control applications

### **Observation**

Development of on-line real-time process sensors and analytical instrumentation

### **Modelling**

Development of models of polymerisation for use on different length and time scales

### **Operation, Control and Evaluation**

Design and testing of novel approaches to model-based real-time optimisation for on-line operation and control

The developed control models, sensor approaches and reactor technology will be validated by the end-user for potential implementation.

