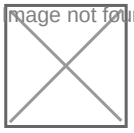
CoPro: Optimisation of the production and procurement of technical gases

Project:
Improved energy and resource efficiency by better coordination of production in the process industries



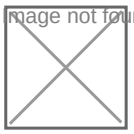
The goal of the CoPro project was to develop and to demonstrate methods and tools for process monitoring and optimal dynamic planning, scheduling and control of plants, industrial sites and clusters under dynamic market conditions, to provide decision support to operators and managers and to progress to automated closed-loop solutions to achieve an optimally energy and resource efficient production.

CoPro brought together 17 partners from 8 EU countries, including 5 industrial end users and 6 technology providing SMEs. The project developed solutions for the **plant-wide optimisation of large plants, for balancing production and consumption in industrial parks for industrial symbiosis**, and addressed **power plant scheduling** and **demand-side response**. It further developed online data analytics for **anomaly detection**, and **decision support** for plant operators and managers. The solutions can be integrated into the IT infrastructure of the plants via an **integration platform** that supports the connection to different IT systems. CoPro developed **model libraries** for the efficient development of advanced optimisation-based solutions and techniques and software for **hybrid modelling** and **model management**.

The developments of CoPro were motivated by and applied to challenging use cases from different sectors of the process industries:

- (Petro-)chemical production;
- Cellulose fiber production;
- Production, formulation and packaging of consumer goods;
- Sterilisation and packaging of food.

CoPro demonstrated that significant savings of energy and resources are possible by using advanced technologies for monitoring, decision support, optimisation, and planning and scheduling.



Sector:

Cement

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Chemicals

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Steel

Summary:

The Problem

- At the ChemPark in Dormagen, Covestro operates several networks for technical gases, which connect Covestro’s internal consumers as well as external clients with the internal production.
- Due to changes in plant operation, the demand within the networks can change several times per day.
- Contracts with multiple suppliers are in place. These contracts are tiered and coupled. The optimal procurement of the gases is a complex task.

The Solution

- An advisory tool for the optimisation of purchases involving contracts with tiered structures and coupling between different raw materials was developed in a cooperation of Covestro and TU Dortmund.
- The best possible solutions are presented to the operators and hints on how to resolve conflicts that result from unfore-seen situations are provided.
- Supply orders can be generated automatically.

Theme:
Plant-wide monitoring - SPIRE02-2016
Keywords:
Technical gases, Operator decision support, Production Optimization, Supply Optimization, Software life cycle
Type:
Case study
Software
Poster

Resources

Link:

Technology Short Description: Optimisation of the production and procurement of technical gases

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Complementary Material:

Poster: Optimisation of the production and procurement of technical gases

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