Integrated Control and Sensing for Sustainable Operation of Flexible Intensified Processes

Fact Sheet

Project Information

CONSENS
Grant agreement ID: 636942

Funded under
H2020-EU.2.1.5.3.

Project website

Overall budget
€ 5,997,550

EU contribution
€ 5,997,550

Coordinated by
BAYER AKTIENGESELLSCHAFT
Germany

Start date
1 January 2015

End date
31 December 2017

Objective

Intensified continuous processes are a key innovation of the last decade for the production of high quality, high value and customer-specific products at competitive prices in a sustainable fashion. To realize the potential of this technology, key steps must be made towards long-term stable, tightly controlled and fully automated production. The goal of the CONSENS project is to advance the continuous production of high-value products meeting high quality demands in flexible intensified continuous plants by introducing novel online sensing equipment and closed-loop control of the key product parameters. CONSENS will focus on flexible continuous plants but the results will be transferable also to large-scale continuous processes. The research and development is driven by industrial case studies from three different areas, spanning the complete value chain of chemical production: complex
organic synthesis, speciality polymers, and formulation of complex liquids. Innovative PAT technology will be developed for online concentration measurements (mid-resolution process NMR), for the online non-invasive measurement of rheological properties of complex fluids, and for continuous measurements of fouling in tubular reactors. New model-based adaptive control schemes based on innovative PAT technology will be developed. The project results will be validated in industrial pilot plants for all three types of processes, including validation in production containers that have been developed in the F3 Factory project. Further, methods for sensor failure monitoring, control performance monitoring and engineering support for PAT-based solutions will be developed. The exploitation of the new technologies will be facilitated by a tool for technology evaluation and economic impact assessment. A Cross-sectorial Advisory Board supports the transfer of PAT technologies and adaptive control to neighboring sectors of the European processing industry.

Field of science
/social sciences/economics and business/economics/sustainable economy

Programme(s)

Topic(s)

Call for proposal
H2020-SPIRE-2014

Funding Scheme
RIA - Research and Innovation action

Coordinator

BAYER AKTIENGESELLSCHAFT

Address
Kaiser-wilhelm-allee 1
51373 Leverkusen
Germany

Activity type
Private for-profit entities (excluding Higher or Secondary Education Establishments)

EU contribution
€ 914 000
## Participants (14)

### ARKEMA FRANCE SA
- **Country:** France
- **EU contribution:** € 139 500
- **Address:** Rue Estienne D Orves, 92700 Colombes
- **Activity type:** Private for-profit entities (excluding Higher or Secondary Education Establishments)

### TECHNISCHE UNIVERSITAT DORTMUND
- **Country:** Germany
- **EU contribution:** € 626 000
- **Address:** August Schmidt Strasse 4, 44227 Dortmund
- **Activity type:** Higher or Secondary Education Establishments

### NEDERLANDSE ORGANISATIE VOOR TOEGEPAST NATUURWETENSCHAPPELIJK ONDERZOEK TNO
- **Country:** Netherlands
- **EU contribution:** € 804 865
- **Address:** Anna Van Buerenplein 1, 2595 DA Den Haag
- **Activity type:** Research Organisations

### PROCTER & GAMBLE SERVICES COMPANY NV
- **Country:** Belgium
- **EU contribution:** € 312 210
<table>
<thead>
<tr>
<th>Organisation</th>
<th>EU contribution</th>
<th>Address</th>
<th>Activity type</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLARIANT PRODUKTE (DEUTSCHLAND) GMBH</td>
<td>€ 400 000</td>
<td>Bruningstrasse 50, 65929 Frankfurt Am Main</td>
<td>Private for-profit entities (excluding Higher or Secondary Education Establishments)</td>
</tr>
<tr>
<td>INVITE GMBH</td>
<td>€ 645 023,75</td>
<td>Kaiser Wilhelm Allee 50, 51373 Leverkusen</td>
<td>Research Organisations</td>
</tr>
<tr>
<td>BASF SE</td>
<td>€ 300 250</td>
<td>Carl Bosch Strasse 38, 67063 Ludwigshafen Am Rhein</td>
<td>Private for-profit entities (excluding Higher or Secondary Education Establishments)</td>
</tr>
<tr>
<td>BUNDESANSTALT FUER MATERIALFORSCHUNG UND -PRUEFUNG</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Organisation</td>
<td>Country</td>
<td>EU contribution</td>
<td>Address</td>
</tr>
<tr>
<td>--------------</td>
<td>---------</td>
<td>-----------------</td>
<td>---------</td>
</tr>
<tr>
<td>Germany</td>
<td></td>
<td>€ 365 000</td>
<td>Unter Den Eichen 87, 12205 Berlin</td>
</tr>
<tr>
<td>Italy</td>
<td></td>
<td>€ 207 000</td>
<td>Via Universita 40, 09124 Cagliari</td>
</tr>
<tr>
<td>Germany</td>
<td></td>
<td>€ 326 875</td>
<td>Ludwig Krohne Str 5, 47058 Duisburg</td>
</tr>
<tr>
<td>France</td>
<td></td>
<td>€ 300 625</td>
<td>25 Rue De Clichy, 75009 Paris</td>
</tr>
</tbody>
</table>

Contact the organisation.
<table>
<thead>
<tr>
<th>Organisation</th>
<th>EU contribution</th>
<th>Address</th>
<th>Activity type</th>
</tr>
</thead>
<tbody>
<tr>
<td>INNO TSD</td>
<td>€ 210 875</td>
<td>Place Joseph Bermond Ophira I 06560 Sophia Antipolis Valbonne</td>
<td>Private for-profit entities (excluding Higher or Secondary Education Establishments)</td>
</tr>
<tr>
<td>COATEX SAS</td>
<td>€ 188 326,25</td>
<td>Rue Ampere 35 Zi Lyon Nord 69730 Genay</td>
<td>Private for-profit entities (excluding Higher or Secondary Education Establishments)</td>
</tr>
<tr>
<td>ATLAN-TEC SYSTEMS GMBH</td>
<td>€ 257 000</td>
<td>Hanns Martin Schleyer Strasse 18A 47877 Willich</td>
<td>Private for-profit entities (excluding Higher or Secondary Education Establishments)</td>
</tr>
</tbody>
</table>

**Last update:** 16 July 2020  
**Record number:** 193445  
**Permalink:** [https://cordis.europa.eu/project/id/636942](https://cordis.europa.eu/project/id/636942)