Horizon2020 Information Days on Public-Private Partnerships

Brokerage event
21 October 2014

REDIRE

REACTION **DI**SPLACEMENT IN INTENSIFIED **RE**ACTORS

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SPIRE
Sustainable Process Industry through Resource and Energy Efficiency

ARKEMA
INNOVATIVE CHEMISTRY

Sales: 6.1 B€
14000 employees (1200 in R&D)
90 W.W. plants

High Performance Materials

World of high value and innovative solutions

- Specialty polyamides
- Fluoropolymers
- Adorption/filtration (CECA)
- Organic peroxides

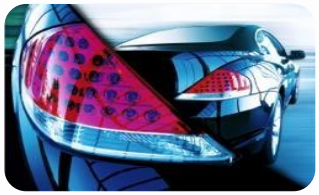



Industrial Specialties

Global and integrated industrial niches

- Thiochemicals
- Fluorochemicals
- PMMA (Altuglas International)
- Hydrogen peroxide



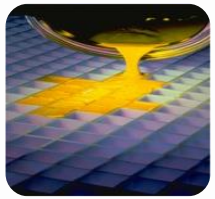



Coating Solutions

Solutions for decorative paints, industrial coatings and high-growth acrylic applications

- Acrylics
- Coating resins
- Photocure resins (Sartomer)
- Rheology additives (Coatex)






Application domains

- Refrigeration
- Automotive and Transport
- Water & Environment
- Building
- Pulp & Paper treatment
- Food Industry
- Renewable Energy
- …

PROJECT IDEA

Development of membrane reactors to displace the reaction equilibrium In condensation reactions, e.g. esterification, etherification,…

- Many industrial equilibrium limited condensation reactions yielding water or methanol
- Use of pervaporation membranes to shift equilibrium

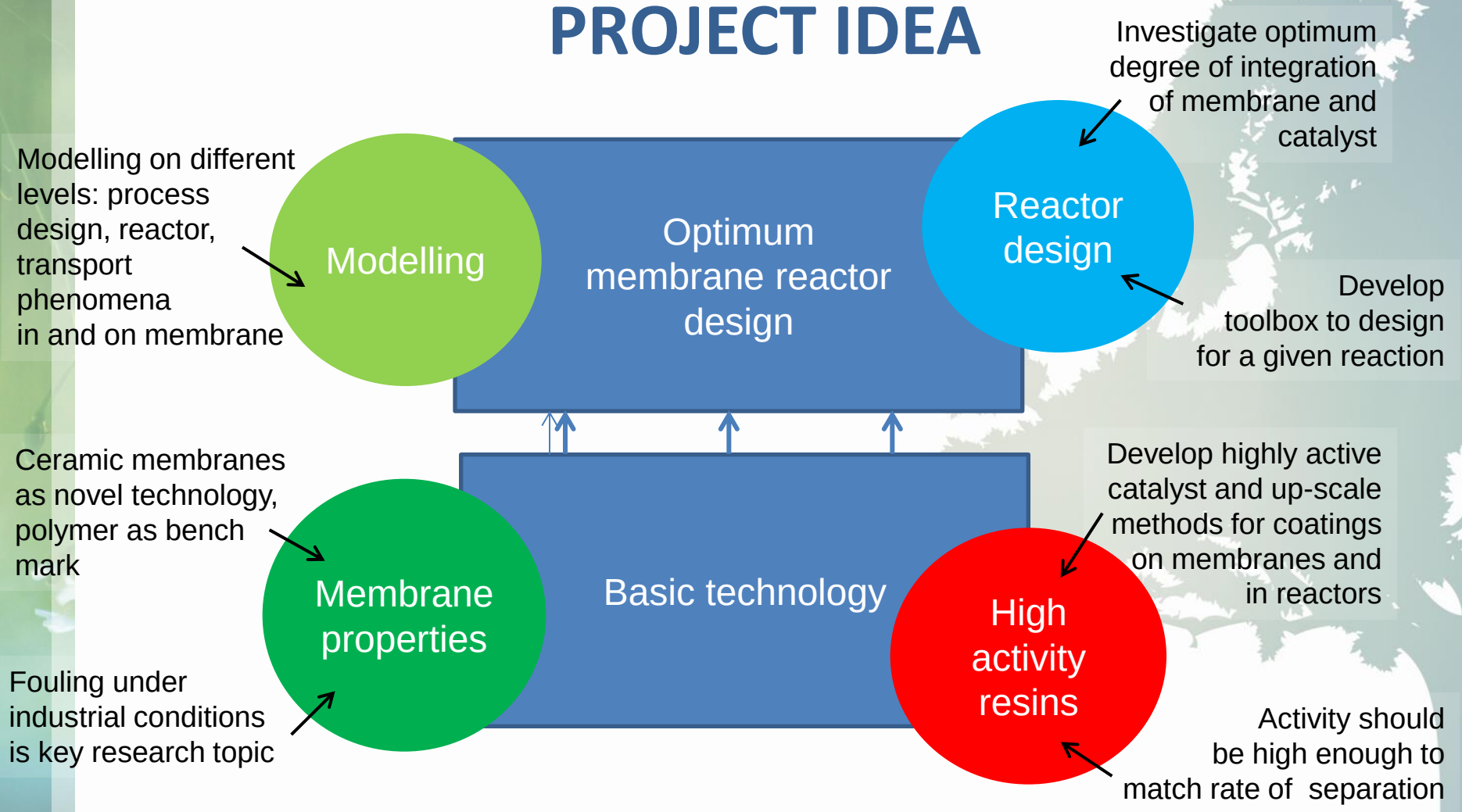
Key project results:

- Membrane reactor test on-site end-user
- Toolbox to select membrane reactor design based on reaction (membrane type, degree of integration)
- Clean-up and regeneration methods and material strategies to avoid fouling

Key Component Process -> KA 2.4: More efficient systems and equipment

SPIRE 05-2015 "New adaptable catalytic reactor methodologies for Process Intensification".

PROJECT IDEA



Key Component Process -> KA 2.4: More efficient systems and equipment

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EXPECTED IMPACT

Impact of REDIRE

- Previous studies on esterification with membranes, have shown 30% productivity increase, 40% lower OPEX and 25% lower CAPEX are possible in industrial processes
- Developing a toolbox for selection and design of membrane reactors gives end-users opportunity to screen their processes
- Global membrane industry is a rapidly growing billion Euro business, with many opportunities for Europe

EXISTING PROJECT CONSORTIUM

partners identified & commitment expected

x → Catalyst producer

x → Module manufacuring

? → Technology providers

? → End-users

?

Membrane manufacturing

PERVATECH
selective ceramic membranes process design

ARKEMA
INNOVATIVE CHEMISTRY

knowledge infrastructure

? — Catalyst

ECN — Membrane reactor design and testing

LRGP Laboratoire Réactions et Génie des Procédés — Membrane testing

DTU Technical University of Denmark — Modelling

CONTACT DETAILS

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