TARGET GROUPS

The main target groups of PRINTCR3DIT:

- Equipment and reactor manufacturers
- 3D printer producers
- Material and catalyst producers
- Scientific R&D community within the chemical industry, manufacturing, and materials science
- Universities and high schools for implementation of 3D printing in the chemical engineering education

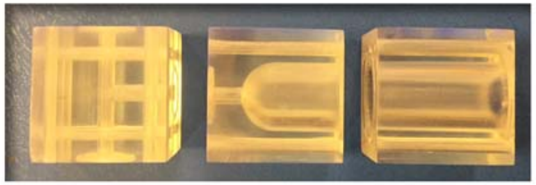

Figure 5. *Educational toolkit developed in the project; 3D printed components for assembling of various chemical processes.*

PRINTCR3DIT CONTEST

The contest gives students and young researchers the opportunity to design and manufacture a chemical reactor that can be 3D printed .The most creative and educational reactor will be awarded. For more information visit:
www.printcr3dit.eu

CONSORTIUM

YARA
INSTITUTE OF CHEMICAL PROCESS FUNDAMENTALS OF THE CAS
ARKEMA INNOVATIVE CHEMISTRY
amtech high throughput technology
BIOSYNTHIS BIODEGRADABLE & FUNCTIONALISED INGREDIENTS
canoe
SICAT BETA SIC CATALYST SUPPORTS
PRODINTEC FACTORY OF FUTURE
JM Johnson Matthey
U.PORTO FEUP FACULDADE DE ENGENHARIA UNIVERSIDADE DO PORTO
ACM ADVANCED CERAMICS-MATERIALS
SINTEF
THE LINDE GROUP

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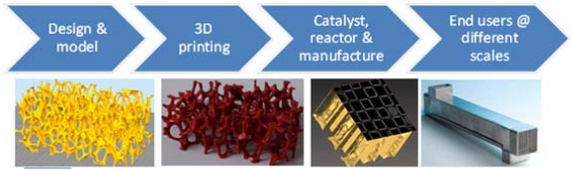
Project webpage: www.sintef.no/projectweb/

PRINT CR3DIT

Process Intensification through Adaptable Catalytic Reactors made by 3D Printing



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INTRODUCTION

Additive manufacturing, popularly known as 3D printing, is already applied in the aerospace, automotive, medical and lifestyle product industries, but the application in chemical industries is still very limited at the moment. Hybridizing 3D printing with traditional manufacturing can help Europe pave the way to a new paradigm in the design of advanced reactors and catalysts in the very near future.

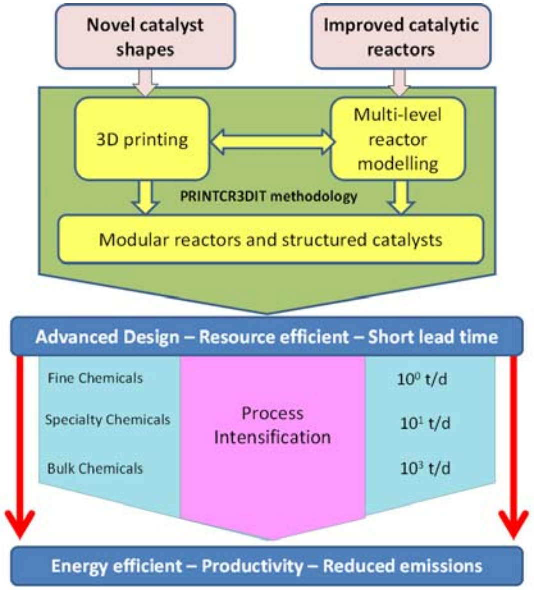

Figure 1. *The concept of PRINTCR3DIT: Employment of 3D printing to boost process intensification in the chemical industries.*

PROJECT OBJECTIVE

The main objective of PRINTCR3DIT is the implementation of a methodology to integrate 3D printing in the advanced design, modelling and manufacture of structured catalysts and catalytic reactors with significant cost reductions, new, more accessible design strategies and faster lead times.

INITIAL RESULTS

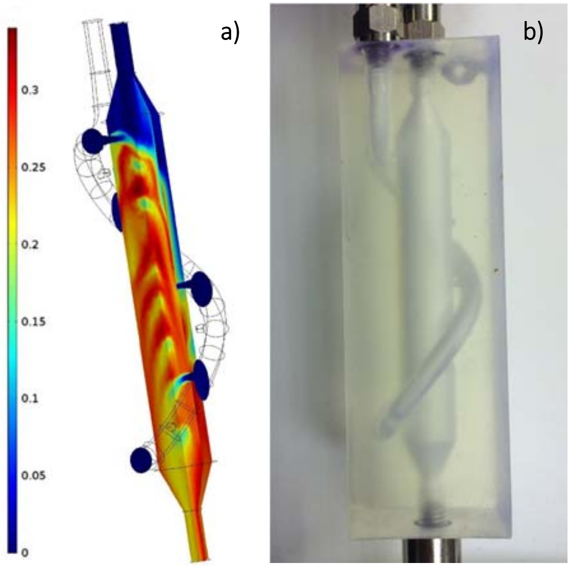

Figure 2. *Utilisation of modelling tools to derive reactor geometry for optimal reactant dosing and mixing. a) model; b) polymer 3D printed reactor.*

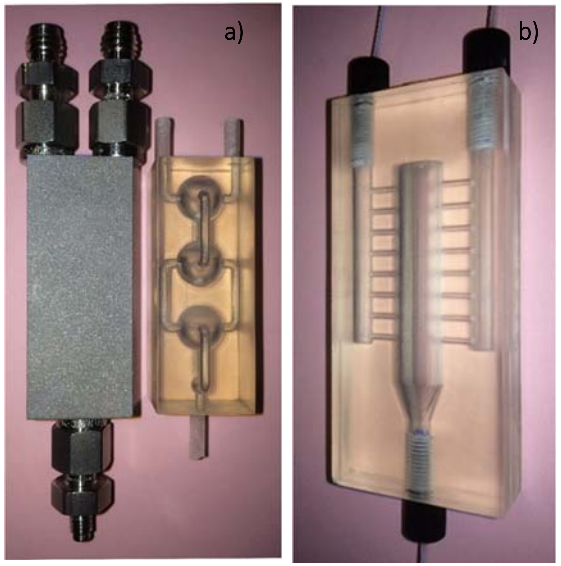

Figure 3. *Novel 3D printed reactors/mixers for a) slow reactions and b) fast reactions.*

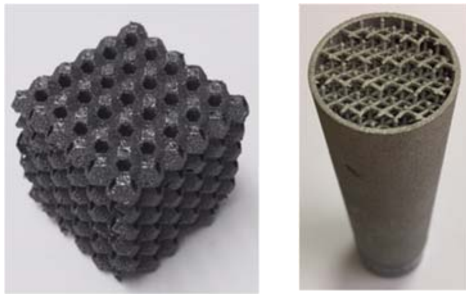

Figure 4. *3D printed metal foams as potential catalyst supports.*