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SPIRE-05-2015

PRINTCR3DIT

Full Title: Process Intensification through Adaptable Catalytic Reactors made by 3D Printing

Aim:

The concept of PRINTCR3DIT is to employ 3D printing to boost process intensification in the chemical industries by adapting reactors and structured catalysts to the requirements of the reaction. This manufacturing technique is particularly useful in reactions where diffusion, mixing and/or heat transfer are limitations against reaching higher performance. The utilization of the concept of 3D printing will also reduce the resource utilization of reactor and catalyst manufacture, energy consumed (

Concept:
The methodology will be applied to three markets of fine chemicals, specialty chemicals and fertilizers, ranging from few tons to millions of tons of production per year. This demonstrates the enormous versatility of 3D printing for reactor and catalyst designs that cannot be improved with traditional building and design tools. For all these processes, the challenges to be solved are thermal management, innovative reactor design and flow distribution.

Start date:
01/10/2015

End date:
30/09/2018