

Open cell foams as catalyst support: Experimental and computational study of bio-oil upgrading



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Introduction

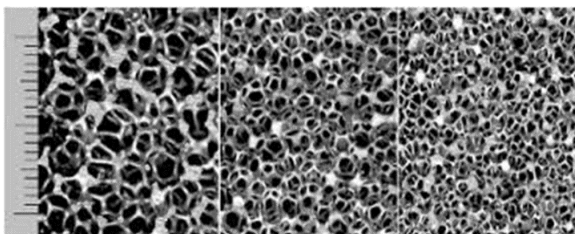
In conventional catalytic reactors, chemical conversion takes place at the immobilized catalytic sites on a solid. In such reactors, the volume fraction of solids are high which causes significant pressure losses. An open-cell foam is a good alternative for solid packings. In this project, the potential of open-cell foams for industrial scale reactors is investigated.

Project summary

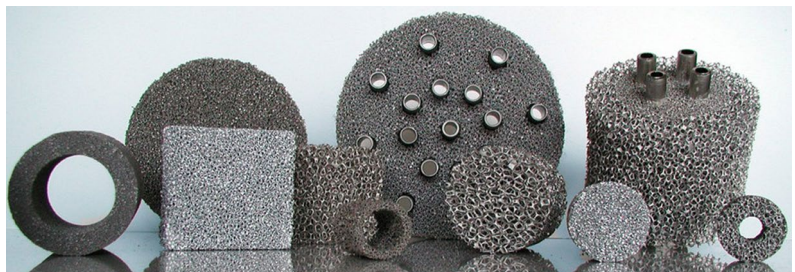
A lab-scale set-up will be used to characterize the performance of the open cell-foams by carrying out a model reaction. Foams are coated with thin layers of catalytically active materials as they function as efficient catalyst support.

The feasibility of such structures are only proved only at the lab-scale. So, for the up-scaling study, the coating procedures and stability of the catalytic coating has to be investigated.

So, a combined experimental and computational study is used to investigate the mass and heat transfer effects in foams.



10 ppi 20 ppi 40 ppi



Project goals

- Kinetic studies
- Mass and heat transfer studies
- Reactor modelling
- Feasibility of catalyst regeneration
- Optimize the design for scale-up

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