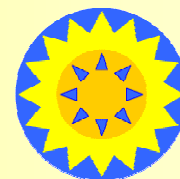


Facilitation of industrial homogeneous catalysis processes using solvent resistant nanofiltration

F.P. Cuperus

SolSep BV
Solutions for Separations



SolSep Membranes

The UF and NF membranes of SolSep BV are especially designed for applications in organic solvents. Typical applications are: acetone recovery in oleochemistry, hexane recovery, solvent recovery in paints and polymer synthesis, recovery of homogeneous catalysts, down stream processing of building blocks etc.. Typical retentions are 95% in various solvents (see table).

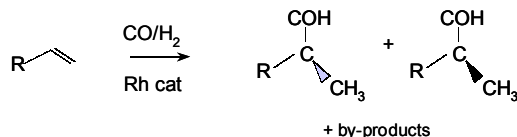
target	flux ¹	R ²	Mw ³	solvent
sterols	2	93	500	acetone
b-block	50	80	350	pentane
veg.oil ⁴	10	95+	900	acetone
oil ⁵	90	97	900	hexane
h.-cat.	5	95+	500	acetone

¹ L/sqmhbar; ²%; ³Da; ⁴ fractionation; ⁵ deacidif.

Concept in Catalysis

Homogeneous catalysis is developing more and more from a technology used on large-scale polymerization to a flexible tool for the synthesis of high-added value products. The latter is mostly performed on limited scale using batch-wise production.

Reaction: Hydroformulation of alkenes to aldehydes

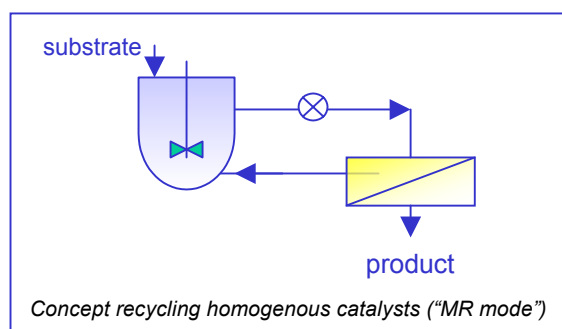


Advantage of homogeneous catalysis concepts

- chemoselective
- regioselective
- enantioselective
- low T & P

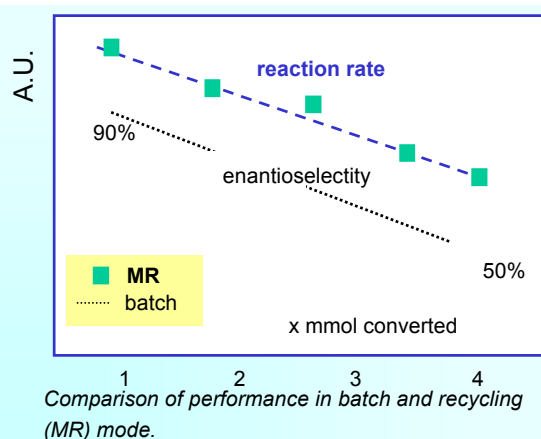
A drawback of the present homogeneous catalysis concepts still lays in reclamation of the catalysts.

SolSep produces spiral wound membrane elements that can be used for easy regeneration of homogeneous catalysts.



Results

Catalyst activity in MR-mode is not negatively influenced by the membranes. The catalyst is preserved and can be re-used more easily than in classical batch mode. This leads to lower cat costs.



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