

RESEARCH PROJECT

 Institute
Life Technologies

Continuous microreactor with immobilized catalyst

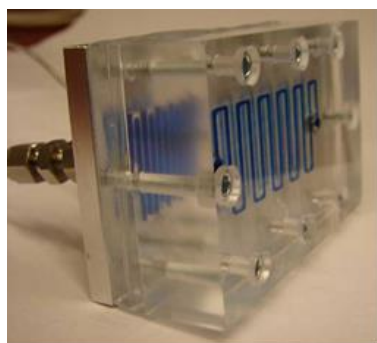
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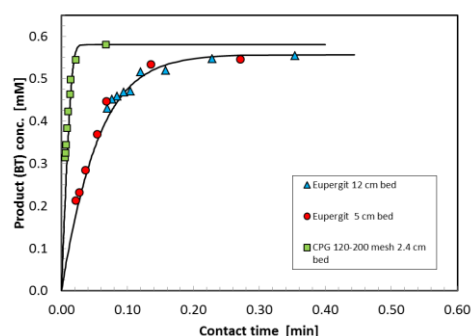
Description Microreactors allow the running of reactions under extremely well-controlled conditions, using limited amounts of reagents and with a high degree of safety. It was the main objective of this HES-SO Call project to design a low-cost, multi-purpose microreactor suitable for heterogenous catalysis.

The reactor was designed and built at the HE-ARC, based on calculations made at EIAF for pressure drop and channel geometry. Various materials and configurations were tested, which eventually led to the building of a PDMS square microchannel (1x1x250 mm) sandwiched between a stainless steel base plate and an acrylate block.

The α -chymotrypsin catalyzed hydrolysis of BTEE by was chosen as a model reaction. Controlled pore glass proved to be far superior to Eupergit the immobilization of chymotrypsin. The immobilized enzyme was easy to insert into the microchannel, allowing the reaction to be easily monitored and characterized using an in-line spectrometer.



The MPC V4 microreactor is made of PDMS. It was designed and built at the HE-ARC



Hydrolysis of BTEE by chymotrypsin immobilized on Eupergit and CPG

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