



národní  
úložiště  
šedé  
literatury

## **Engineering Aspects of Catalysis in Microreactors**

Křišťál, Jiří  
2014

Dostupný z <http://www.nusl.cz/ntk/nusl-175709>

Dílo je chráněno podle autorského zákona č. 121/2000 Sb.

Tento dokument byl stažen z Národního úložiště šedé literatury (NUŠL).

Datum stažení: 19.04.2024

Další dokumenty můžete najít prostřednictvím vyhledávacího rozhraní [nusl.cz](http://nusl.cz) .

## **Engineering aspects of catalysis in microreactors**

Jiri Kristal\*, Petr Stavarek, Zuzana Vajglova, Magdalena Drhova, Jana Pavlorkova, Petr Kluson, Vladimir Jiricny

*Institute of Chemical Process Fundamentals of the ASCR, v. v. i., Rozvojova 135, 165 02, Prague 6, Czech Republic. Tel.: 220 390 237;*

\* Corresponding author: [kristal@icpf.cas.cz](mailto:kristal@icpf.cas.cz)

### **Abstract**

Microreactors are said to be very efficient tools for the process intensification and kinetic and mechanistic studies of many types of catalyzed reactions. Is this really true or are there also any disadvantages of this approach? Are the microreactors the universal solutions or should we expect difficulties during their implementation in the given process? Is the scale-up of microreactors as simple as advertised? Is micro always better?

We will try to answer these and similar questions by giving examples of several cases, in which we studied microreactors in relation to different catalytical systems. The presented cases will include the heterogeneously catalyzed gas phase reactions (oxidation of SO<sub>2</sub>, hydrogenation of 2-methylpropene), heterogeneously catalyzed enzymatic glycerolysis of vegetable oil, photochemical debromination of PBDE, and homogeneously catalyzed photochemical oxidation of 4-chlorophenol. We will present some surprising results and comparisons with conventional reactors.