



UNIVERSITY of MISKOLC
Faculty of Materials Science and Engineering
**Antal Kerpely Doctoral School of Materials Science
& Technology**



Sorption and Catalysis

Dr. Janos Lakatos

COURSE DESCRIPTION

2017.

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Sorption and catalysis

Dr. Janos Lakatos

Lecturer

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Recommendation

The lecture is proposed for all students of the Kerpely doctoral school, especially in the field of chemical technology and polymer technology.

Language

Hungarian or English.

Scope

The objective of the course is to teach the principles of sorption and homogen and heterogen catalysis.

Methodology

For larger student numbers, the course is held in contact lectures. The time of contact courses is based on agreements with the students. In case of 1-2 students, keywords are given of the corresponding block. Basic questions are also given for the blocks. 3 meetings are held during which answers for the basic questions, the students' questions and fundamentals are discussed.

Topics

- *Phenomena of sorption*
- *Classification of sorption and description of the equilibrium by isotherms*
- *Application of sorption in the separation technology*
- *Application of sorption in characterisation of solids*
- *Principle of catalysis*
- *Role of catalysis in chemical reactions, most important case of catalysed processes*
- *Structure and preparation of catalysts*
- *Most important cases of homogen catalysis*
- *Most important cases of heterogen catalysis*
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References

1. Kirk-Othmer (Ed.): Kirk-Othmer Encyclopedia of Chemical Technology, 5th Edition, John Wiley & Sons, Inc., 2007.

2. Handbook of heterogen catalysis Ed.:Közinger et al. John Wiley and Sons, Inc. (1999) Online ISBN: 9783527610044
3. Olaf Deutschmann, Helmut Knözinger, Karl Kochloefl, Thomas Turek: Heterogenous Catalysis and Solid Catalysts Ullmann's Encyclopedia of Industrial Chemistry Wiley-VCH Verlag GmbH & Co. KGaA (2002)

Exam

Oral exam which consist of a) analysis of a sorption isotherm and b) answers of two questions one related to sorption and one to catalysis.

Complex exam questions

1. Phenomena of sorption
2. Classification of sorption and description of the equilibrium by isotherms
3. Application of sorption in the separation technology
4. Application of sorption in characterisation of solids
5. Principle of catalysis
6. Role of catalysis in chemical reactions, most important case of catalysed processes
7. Structure and preparation of catalysts
8. Most important cases of homogen catalysis
9. Most important cases of heterogen catalysis

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