

Qualitative understanding of partition preferences

- Introduction
- ▶ Cavity model
- ▶ Rules for partitioning
- The cavity model in quantitative terms
- ▶ Selftest
- ▼ Problems
 - ↓ ● 1) Give a qualitative explanation
 - ↓ ● 2) Estimate the extraction efficiency
 - ↓ ● Answer
 - ↓ ● 3) Assign partition constants to substances
 - ↓ ● Answer
 - ↓ ● 4) Fuel accident
 - ↓ ● Answer
 - ↓ ● 5) Mixture of similar isomeres ... ?
 - ↓ ● Answer
 - ↓ ● 6) Extraction with pentane or diethyl ether?
 - ↓ ● 7) Prediction of partition constants
 - ↓ ● Answer
 - ↓ ● 8) Assign data to substances
 - ↓ ● Answer
 - ↓ ● 9) Explain saturated vapor pressure
 - ↓ ● 10) Apolar surface
- ▶ Intermolecular interactions in every day life
- FAQ

2) Estimate the extraction efficiency

Organic polymers are often used as absorption agents in the extraction of organic pollutants from water samples. You already have some experience with two of these absorption agents (see first lines of the table). you now would like to estimate, if extraction is sufficiently high for the other substances listed in the table. Please provide a short explanation for your answer. In case the given information does not allow for an answer, please also explain why.

Pollutant	Organic polymer I	Organic polymer II
3-Methylhexane	extraction not sufficient	extraction sufficient
Cyclohexane	extraction sufficient	extraction sufficient
Dibutylether	extraction not sufficient	extraction sufficient
a) Heptan	sufficient extraction, just as with cyclohexan	extraction sufficient
b) Octanal	extraction not sufficient, probably similar to dibutylether	extraction sufficient
c) 1,4-Dichlorobenzene	extraction sufficient, because it is apolar and larger in size than cyclohexane.	extraction sufficient
d) Hexanol	extraction not sufficient, because it is smaller and therefore not as efficient as methylhexanol	extraction sufficient
e) Pentylamin	probably not sufficient, because bipolar like methylhexanol and therefore smaller	bipolar, but smaller than methylhexanol, therefore unresolved

