

Gas adsorption for the analysis of porous solids

Surface analysis

Gas adsorption is used to characterize the pore structure of solids. For this purpose, the sample is cooled to a constant temperature after preparation (external preparation station) and then a certain amount of gas is dosed into the sample chamber. This causes some of the gas molecules to accumulate on the outer and inner surface of the solid. This process is used to determine surfaces, but also to analyze pores.

By using different gases, the specific requirements of different samples (particularly small pores, very small surface area, etc.) can be taken into account.

We offer our customers the necessary practical and theoretical support for these investigations.

Gas adsorption measuring system with separate sample preparation station.

Industries

- Process industry
- Gas industry
- Ultrapure gas users
- Automotive industry
- Supplier industry
- Adsorbent manufacturer
- Adsorbent users

Technological specifications

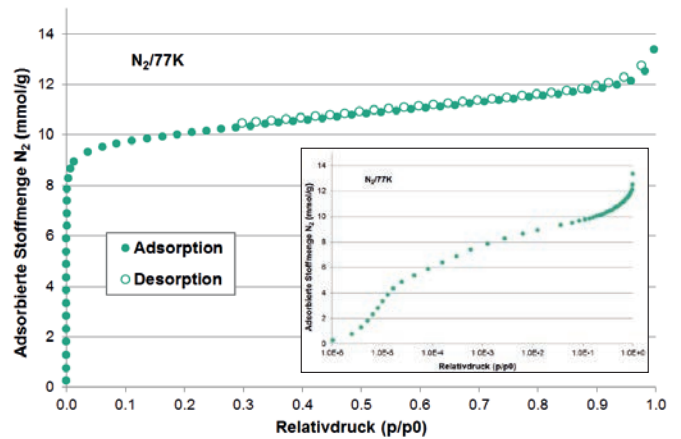
- Volumetric gas adsorption measuring devices (3Flex-Micromeritics; Belsorp Max II Microtrac) for the determination of adsorption parameters such as: internal surface area, pore volumes, pore size distribution
- Selection of various adsorptive gases possible
- External sample preparation station (Smart VacPrep)
- 6 vacuum stations: With the help of programmable temperature ramps and holding times, samples can be pretreated independently of each other.

Our service

- Volumetric measurement of adsorption isotherms
- Interpretation and critical assessment of the data
- Support in the development and evaluation of innovative adsorbents

Your benefit

- Their adsorbents are well researched and optimally adapted to the field of application.
- Knowledge of the pore structure provides an insight into the processes taking place.
- Adsorption is an energy-efficient process - your benefits are lower electricity costs and CO₂ savings.



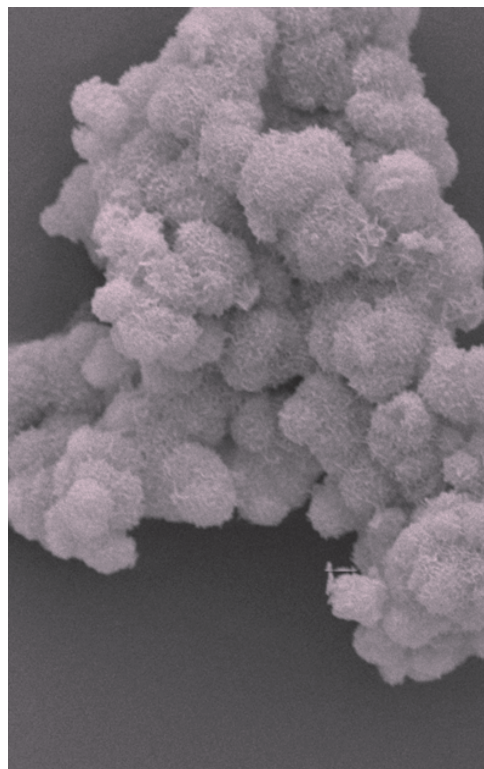
Isotherm of a microporous crystalline material.

Left: Quality characteristics for activated carbon | Large surface areas and the distribution of meso- and micropores are decisive for the product.

Right: SEM image of a MOF material (metal-organic framework).

Keywords

- Characterization of adsorbents
- Development of customized adsorbents
- Design of adsorption processes



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