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Template for presentation of new research equipment



Anton Paar MCR 302 rheometer

Analysis of flow and deformation behaviour of materials



Enables performance of rheology tests on a variety of materials in rotational and oscillatory mode using different measuring systems: cone-plate, plate-plate and concentric cylinders. Measuring system allows simulation of coating processes, polymer/gel cross-linking, etc.

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Büchi B-395 Pro encapsulator

Formation of beads and core-shell microcapsules



Device disintegrates extrudable solutions into equally-sized droplets, followed by chemical or physical solidification. Beads are produced with single nozzle system (150 μm to 2000 μm), while concentric nozzles fabricate core-shell morphology (400 μm to 1800 μm in diameter).

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Christ Beta 2-8 LSCplus freeze dryer

Preparation of porous materials



Freezeing solidifies samples and shapes their morphology; freeze drying removes frozen water through sublimation, preventing pore collapse and resulting in porous structures. Ice condenser can reach down to -90°C , while T-programmable shelves and temperature sensors enable a multi-phase design of the drying process and its control.

Owner institution: University of Maribor - FERI

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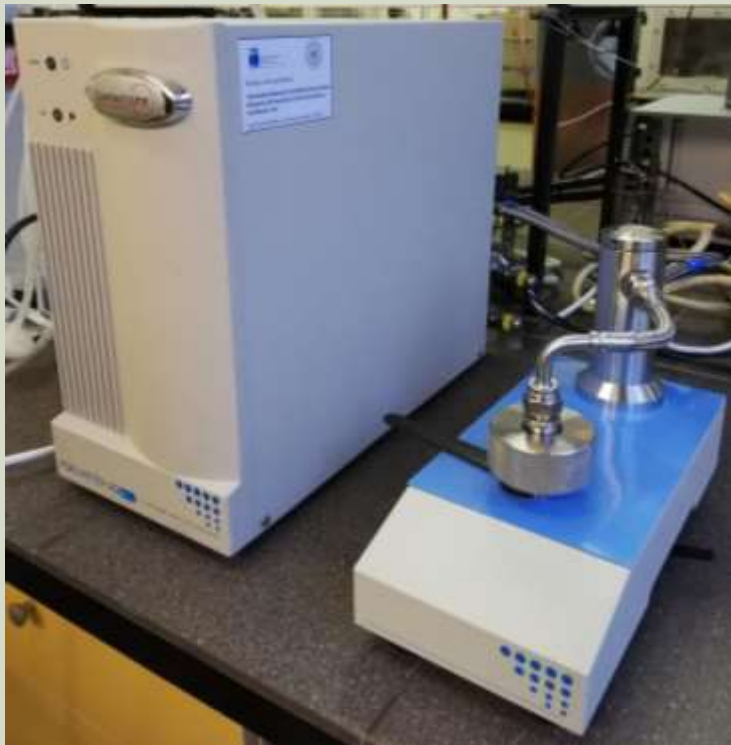
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Quantachrome Anton Paar 3G-ZH capillary flow porometer

Analysis of through pores in flat samples



Based on liquid expulsion technique it quantifies pore size distribution, permeability, mean pore size of through pores. Amount of flow through the sample is measured in dependence of the pressure applied. Pressure range: from ambient to 35 bar. Pore size distribution range: from 0.013 μm to $>500 \mu\text{m}$.

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Optical Interrogator, Micron Optics Si155-ST-01-1460-1620

4 channel - Optical sensing spectrum interrogator



The si155 is an industrial grade fan-less optical sensing interrogator. Featuring both static and dynamic full spectrum analysis, the si155 provides long-term, reliable and accurate measurements of hundreds of sensors on 4 parallel, 160 nm wide channels.

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Newport Femtosecond laser workstation

Femtosecond laser micromachining and FBG inscription workstation



Femtosecond laser system/workstation allow for:

- precision micromachining (micro-milling and micro-drilling) of various materials (glasses, ceramics, metals, plastics, etc.),
- inscription of Bragg gratings into optical fibers and bulk glass slides, and
- controlled photo-polymerization and structure creation in the micrometer scale range.

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Topica TeraScan 1550

Frequency-domain terahertz platform for CW-THz spectroscopy



With high terahertz power and dynamic range TeraScan 15550 enables contact free industrial quality control, non-destructive testing with combination of imaging and spectroscopic methods, material research, gas detection and fundamental physics research.

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NYFORCE TECKNOLOGI AB Laser welder for optical fibres

Optical fibre welding



The welder is based on welding technology with the implementation of a CO₂ laser. A special technology called Axicon Splicing allows the user to "design" a laser beam i.e. changes the area and radius of the active zone and laser output. The latter enables welding of special optical fibers of different dimensions, producing long and even tapering of the fiber structures (so-called "tapering") and production of other special photonic structures.

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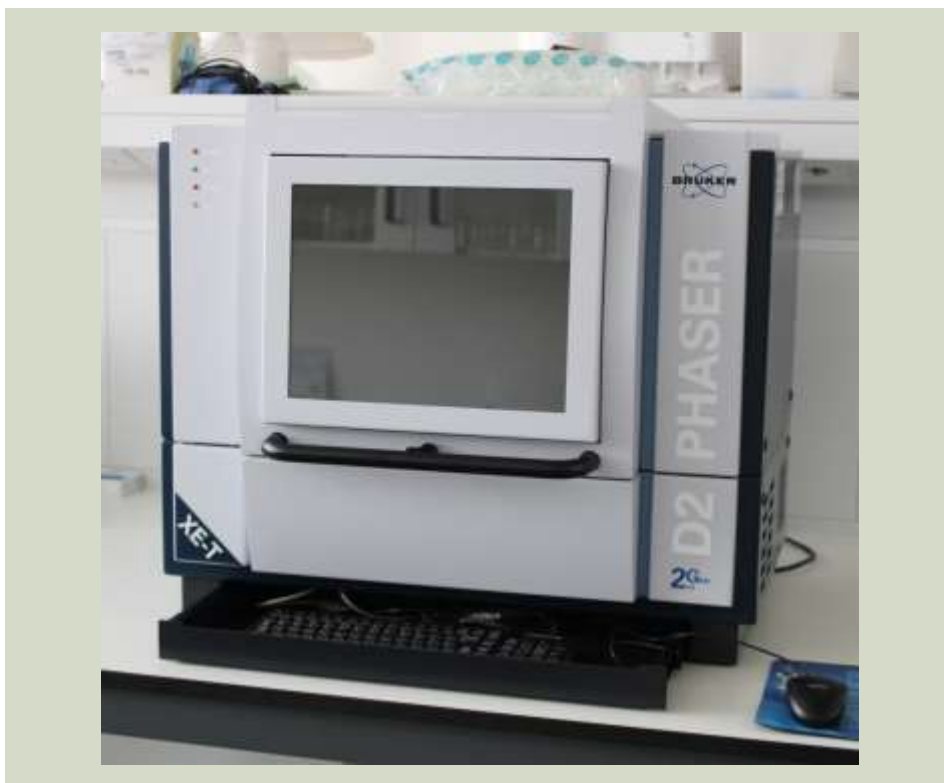
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BRUKER D2 Phaser X-ray powder diffraction

Structure characterization



Desktop X-ray powder diffractometer for structural analysis of various materials; identification and quantitative analysis of various phases, crystallinity level, crystal lattice dimensions and crystal sizes.

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CARBOLITE MTF Tube Oven

Preparation of carbon materials



Single zone tube furnace with a maximum heating temperature of 1200° C with integrated ceramic work tube and an additional work tube made of impermeable aluminum ceramics for processes in inert atmosphere. The pyrolysis furnace enables calcination of inorganic particles and carbonation of polymeric materials.

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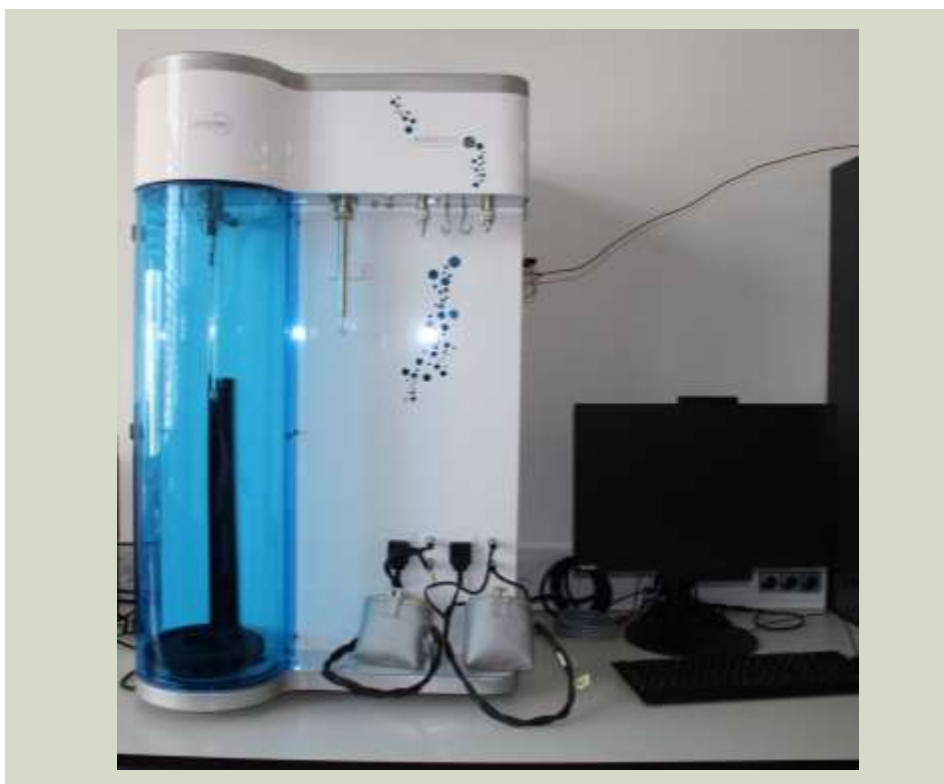
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Quantachrome Anton Paar AUTOSORB IQ physiosorption

BET analysis



Determination of the specific surface area, size and distribution of meso- and micro-pores of materials of different shapes in the pore diameter range from 0.5 to 500 nm via the principle of adsorption of gas molecules. The apparatus consists of three separate analysis stations which allow simultaneous analysis of three powder samples.

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Perkin Elmer TGA 8000

Thermal analysis



The TGA instrument enables reproducible determination of temperature decomposition and studies of material combustibility, sample volatility, moisture and solvent content, and oxidation stability. Measurements can be performed in the temperature range from -15°C to 1200°C .

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