AGH Research Offer

Morphologi 4 - Automated particle characterisation tool for the measurement of particle size and shape

Technical description:

An automated analyzer to simultaneously determine the size, shape and number of particles in a test sample. Ability to test dry powders, emulsions and liquid suspensions in the particle size range 0.5 - 1300 µm.

The measuring system is equipped with the Nikon CFI 60 optical set (2.5x, 5x, 10x, 20x, 50x objectives).

Possibility of applying samples: glass plate for powder dispersion testing, holder for 4 standard microscope slides, wet-cell - an attachment for measuring liquid suspensions.

Registration of color images with a CCD 18MPix digital camera. Pixel size 1.25 µm.

Possibility to determine particle size parameters, particle shape parameters and particle transparency parameters. Results in the form of two-dimensional grain images, repeatability of results, the ability to compare results using a wide range of graphs and diagrams. Possibilities of application in many fields and research, including: pharmacy, soils, polymers, rubbers and plastics, forensic analysis, consumer products, specialty chemicals, energy and environment, refinery industry, food industry, electronics, automotive and aviation, cements, chemical industry, powders and granules, emulsions and suspensions, additive manufacturing (3D printing), microrelief analysis of sediment grains, textural studies of sediments.

Trade name: Malvern Morphologi 4

More details: /equipment/morphologi-4-zautomatyzowany-analizator-wielkosci/

Access type: External

Type of accreditation / certificate: Not applicable

Contact person: Turlej Tymoteusz

Contact person url: https://skos.agh.edu.pl/osoba/tymoteusz-turlej-7978.html

Responsible body: Department of Power Systems and Environmental Protection Facilities

Group / laboratory / team: Laboratory of Basic Physicochemical Properties of Suspensions and Laboratory of Water Protection Devices

Last update date: Nov. 29, 2023, 12:36 p.m.

Year of commissioning: 2022

IDUB research areas:

(PRA 1) Sustainable energy technologies, renewable sources of energy, energy storage, and resource management. Design, production, application, synergy, and process integration
(PRA 3) Water-energy-climate: interdisciplinary approach to sustainable development
(PRA 7) Design, production, and testing of modern materials and the technologies of the future based on a multidisciplinary approach combining materials engineering with chemistry, physics, mathematics, and medicine

Research capabilities:

Properties of the measured particles: size, shape, transparency, number, distribution
Size parameters: equivalent circle (CE), diameter, length, width, circumference, area, equivalent sphere (SE) volume, fiber length
Shape parameters: shape proportion, circularity, elongation, high sensitivity (HS) circularity, compactness, fiber elongation and straightness

Measurement capabilities:

Particle size range: 0.5 - 1300 µm.
Dry powder dispersion.
Measurement of emulsions and suspensions of powders.
Analyzing particles captured on a membrane filter
Sample illumination: white light, transmitted and reflected light, polarizers
Detector18 MP; 4912x3684 pixel color CMOS array; pixel size 1.25 µm x 1.25 µm
Lens (and particle size range): 2.5x, 5x:, 10x, 20x, 50x.

Conditions for providing infrastructure:

All details in direct e-mail or telephone contact.