

Phases and pores



The dhs Phases and Pores Analysis module enables **automatic detection, calculation and visualisation of the area ratios and porosity** of the binarised microstructure image for a comprehensive particle analysis.

Detection

The microstructure is automatically converted to greyscale values and binarized directly if required. The **greyscale range** of the sample image is **set** by the threshold-value controller or directly in the histogram.

You choose whether you want to determine phases or pores and allocate your parameters and the colour code accordingly.

The **analysis results** are immediately grouped, sorted and displayed in the desired parameters.

For pores:

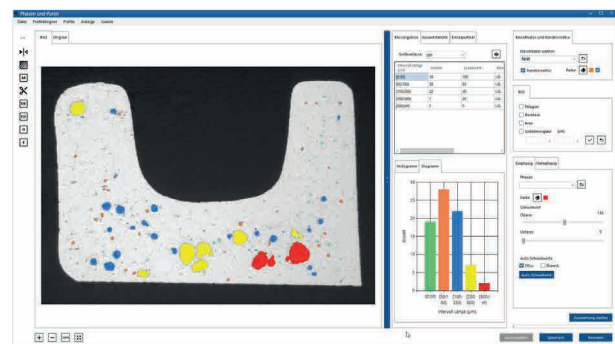
- Total number of particles and percentage per size class
- Variance
- Maximum
- Standard deviation
- Median
- Minimum
- Average value
- Evaluations of several grey values at the same time possible

For phases

- Absolute area
- Area %
- Number of particles
- Input and display of limit values (referred to the absolute area or the percentage area, or number of particles)
- Evaluation ok / not ok (text can be defined)



Porosity analysis



Analysis of area ratios

Single and whole statistics are output as required

Information at a glance

- Calculation of the porosity and area ratio of the binarised microstructure image
- Depiction and determination of limit values
- ROI (as a circle, rectangle, freehand)
- All software settings can be saved in profiles and re-accessed
- Simple integration of the measurement results in the database

Visualisation

The selected parameters and their proportional distribution are directly visualised on-screen in the previously defined colour in **real time**.

Features

- When the limit value is exceeded, the bar colour changes to the limit colour.
- Comprehensive measurements (area, circumference, min./max., Feret, Euler, shape factor) provided
- The **ROI (Region of interest)** is selected with a rectangle, circle or polygon
 - > a standard size can be saved in the profile for
 - a circle or rectangle
 - > **ROI can be moved in any direction**
- Erosion and dilatation of unneeded image components
- Cutting particles (interactive separation)
- Median filter
- **Image zoom** with mouse or scroll wheel
- Mirror image (horizontal / vertical)
- **Edge correction** by means of edgeboard contact
- Individual and serial image analysis
- **Setting options can be saved in profiles** and reproduced
- Whole profile can be saved via all settings
- Automatic threshold for one-phase analyses

Result depiction / Documentation

The **result table** is exported into **MS Excel™** at the press of a button – a **bar chart** is created **automatically** and the resolution and font size can be adjusted individually.

All three tables (result, statistics, individual particles) are saved in the database

and are integrated into the image data:

A field is written in the database for each phase:

phase index, phase name, number of particles, area, percentage area ratio, colour, limit-value reference, limit value, evaluation, phase limit

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