

# Grain Size



The dhs analysis module grain size enables the **quantitative and standard-compliant evaluation** of micrographic images in order to **determine grain size**.

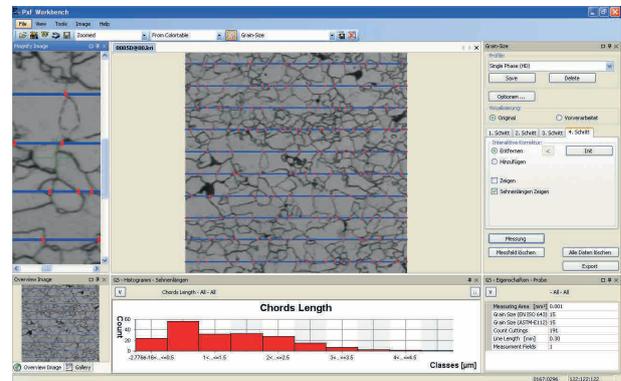
## Image pre-processing

Clearly **structured operating steps** guide the user through each individual phase of the pre-processing and subsequent analysis of images:

The software **can be configured** in many different ways **to suit** a wide **variety of image material**. Interactive **correction modes** even allow you to work with difficult specimens. All parameters **can be stored in „profiles“**, so you can access as many analysis versions as you want with a click of the mouse and each analysis is reproducible. When it ships, the module is already preconfigured with commonly required settings, e.g. for single-phase or multi-phase materials and colour etching!

## Image analysis

After the usual preparation of samples and micrographic image capture, the micrograph is then calibrated and saved. The software now analyses the image content fully automatically and detects grain boundaries **using greyscale characterisation and the line intercept method**. Grain boundaries are automatically reconstructed by using planimetric method.



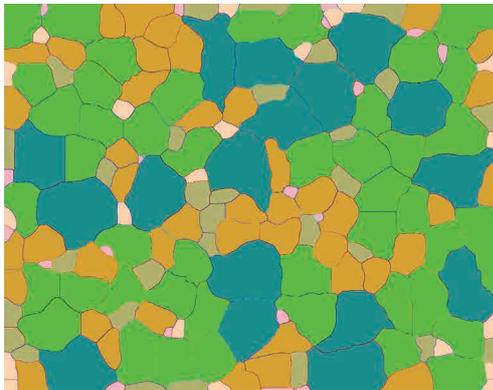
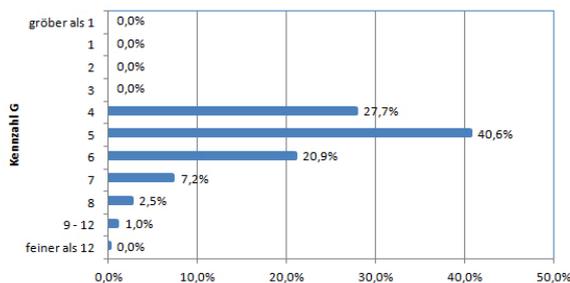
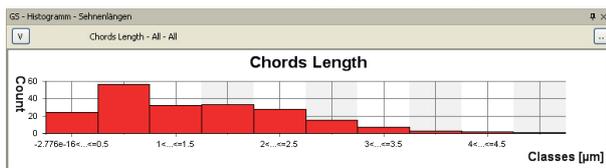
To obtain meaningful **results**, you can analyse **several micrographs** (or even several sections of a specimen) **in a row**.

## Information in the overview

- Analysis of micrographic images using the planimetric and / or line intercept method
- Automatic grain size detection in accordance with the standards DIN EN ISO 643 and ASTM-E112
- Planimetric detection of grain size in accordance with JIS G 0551 (2013)
- Automated analysis results in just four steps
- Includes histogram and detailed transfer of measured values to the **dhs Image Data Base**
- Integrated image pre-processing and interactive correction options

## Analysis result

The results are collected and shown in a **configurable results list** – e.g. including grain size numbers as per DIN EN ISO or ASTM, measuring area, number of sections, line length and much more. Chord length is charted in a diagram and automatically classified by size.



## Software Features

- **Freely configurable** software interface
- Grain size characterisation in **single-phase -ferrite and/or dual-phase -ferrite/pearlite -structures** as per **DIN EN ISO 643** and **ASTM-E 112**
- **planimetric detection** as per **JIS G 0551 (2013)**
- Comprehensive algorithms for image pre-processing
- Analysis using the „**Line Intercept Method**“
- Also suitable for determining grain size in any other structures
- Determination of **grain size numbers** in accordance with the **relevant standards**, as well as the **number of grains per unit area** and **average grain size**
- Analysis of disrupted structures in the **interactive correction mode**
- Transfer of images, histograms and measured values to the **dhs Image Data Base**
- Multi-level „undo“ function
- **Digital zoom, overview display and gallery function**
- Storage of „profiles“ (parameter settings for fast access and activation in day-to-day use)

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