The dhs analysis module Calotte automatically calculates the layers thickness for calotte grindings according to the standard EN 1071-2:2002 Part 2: Determination of layer thickness by the cup grinding method.

The cup grinding method is used for samples that cannot or should not be dissected. Even with very thin layers, it allows a better assessment, as the layers are cut diagonally instead of vertically.

**Calotte grinding method**

To grind the calotte, a hardened steel ball is rotated.

As soon as the coating has been penetrated the projected area can be analysed with the dhs Image Data Base.

**Parameter for calculation**

The following parameters form the basis for calculating the layer thickness \( S \) and must be determined as objectively as possible using the micrograph that was recorded with the microscope:

- Diameter of grinding ball \( R \)
- Inside and outside ring diameter at the respective layer edge \( d \) \( D \)

**Information in the overview**

- Measurement based on EN 1071-2:2002, Part 2: Determination of coating thickness by the cup grinding method
- Edge detection automatic or manual depending on the quality of the image
- Generation of measurement series files for several images
- Transfer of all images and measurements to the dhs Image Data Base for easy documentation and archiving
Detection
Depending on the image quality, edge detection is automatic or according to manual definition of up to five points on the edge of the layer (ellipse approximation).

During measurement, the intensity and also the colour information of the image are processed. Layer determination is fully automatic depending on the condition of the sample. It is also possible to determine the layer boundaries semi-automatically or interactively. If required, complete measurement series files can be generated for several images.

Parameters to be determined
- Layer thicknesses of all measured circular layer structures
- Number of measured layers
- Depth of penetration into the substrate
- Total penetration depth into the sample
- Number of measurement iterations
- Average layer thickness from all individual measurements
- Standard deviation

Documentation
All image data, measurements (diagrams, tables, statistics) are transferred to the dhs Image Data Base for archiving and documentation.

Logs are then generated with MS Word and MS Excel. You can then easily compile images, text, and tables to create a report.