



» Heating Microscope with Automatic Image Analysis Software

The Hesse Instruments heating microscope is a complete testing system designed to easily determine the high-temperature characteristics of a wide range of materials. Its method of measurement is based on thermo-optical analysis.

Automatic contour recognition and evaluation of the silhouettes of a test object are used to identify its characteristic temperatures according to DIN 51730,

Technical Data

The Hesse Instruments heating microscope is completely operated by the software: From input of test parameters to evaluation and documentation of measured data.

A key feature of the software is the automatic image analysis. With it, the silhouettes of a test object can be analyzed objectively and precisely. During test runs, the evaluation takes place in the background, so that

ISO 540 and CEN/TS 15404 and 15370-1. Characteristic points – and a sintering temperature as well – are calculated using fixed algorithms. The method is based on quantitative analysis of the test object height and width (optical dilatometry).

Thanks to the automatic software evaluation, precise and reproducible results are obtained independently of the person who performed the measurements.

e.g. storing of a photo or end of the test is connected with preset criteria.

The menu navigation is self-explanatory and designed to accommodate laboratory work sequences. During test runs, the current silhouette of the test object, its temperature and dimensional change is followed up – both, by numeric values and images for a quick glance.

Technical Data

Image Analysis-Software EMI 2.3

Determination of characteristic temperatures	... based on automatic contour recognition, fixed algorithms and in accordance with DIN 51730:2007 and DIN 51730:1984 (Hesse Instruments) ISO 540:2008-06 CEN/TS 15370-1:2006 and CEN/TS 15404:2006
Documentation of test parameters	Sample and material identification, operator, instrument identification, date of measurement, heating program and criteria for automatic image storage According to the requirements of good laboratory practice, these data cannot be changed in retrospect
Definition of test conditions	Input of temperature time profiles with up to 7 segments Heating rates between 1 and 80 K/min and dwell times of up to 4 hours
Criteria for image storage	Input of criteria for automatic storage of images: definition of time and temperature interval, area change, corner angle as well as contact angle change, shape factor
Memory for methods	Memory for heating programs Memory for criteria of storing images
Measurement progress	Visualization of the measurement progress with an image of the sample silhouette, numerical values and graphics on the screen
Storage of photos	Automatic or manual; user activated images can be taken at any time
End of test	Measurements can be finalized by reaching the pre-set end temperature, the criterion "Flow" or by intervention of the user (data measured will be stored)
Documentation of test results	Short report or detailed reports as tables, diagrams or a succession of photos
One-page short report	Documentation of all necessary information on the sample and its test and evaluation parameters; record of the characteristic temperatures – each one with image and temperature value including all geometric parameters of the silhouette
Tables	All measured data are documented in a comprehensive table; these data are protected against unintended or intended change; the table includes running number, time, temperature, geometric parameters of the sample silhouettes such as shape factor, area, height, width, height/width, corner angle (left and right), contact angle (left and right) The table can be copied to other data formats or printed out
Diagrams	... several parameters of a single measurement ... one parameter of several measurements in one diagram ... sample temperature vs. time curve The graphics of test results can be printed or copied to usual data formats e.g. spreadsheet programs
Images	All stored images can be displayed on the screen – statically or in a film-like fast-motion – or printed out.
Storage and archiving of data	Measured data that are not of current interest can be archived tamper-proof and space-saving; they can be restored if needed again
System requirements, Minimum capacity	PC with standard features: WinXP, two serial ports (RS232), one parallel port, one free PCI-slot for standard PCI-card, printer

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