

Digital Image Processing analySIS Overview analySIS Family

Materials Science Image-Processing Solutions



ANALYSIS – SOLUTIONS FOR DIGITAL IMAGE-PROCESSING

Taking proven methods down innovative, digital paths

Demands regarding product quality, process assurance and economic profitability are rising steadily. New technologies such as digital microscopy and image processing are becoming increasingly important for industrial production. These systems do not simply reduce the immense manual and visual efforts involved in quality control. They also automate familiar inspection methods, making them more ergonomic and faster. Inspection results are objective and reproducible as individual user influence is minimised via automated image processing.

Quality and process assurance today are based on proven methods, on experts' knowledge and evaluative skills as well as on strict national and international standards. Working jointly with well-known firms and experienced users from an enormous range of industry and research sectors, Olympus has developed specialised image-processing solutions for metallographic applications. The aim is making lab workflows as efficient as possible. The result? A family of software products so broad in scope that it spans the range of tasks today's materials labs are faced with – received orders to analysis and report generation.

With its handy modular structure, each member of this family can be easily expanded via specialised software extensions – be it basic image acquisition or complex automated image analysis and documentation. This family of products also includes application-specific comprehensive solutions, the Inspector series as well as our premium service and training programme.







Navigation

Integrated image database



3-D view, generated by overlaying height and image data



Metallographic image analysis

IMAGE PROCESSING FOR INDUSTRIAL AND METALLO-GRAPHIC APPLICATIONS

The Olympus analySIS software family presents a range of image-processing solutions specially designed for materials labs. The range of products spans simple single workstation solutions for first-time buyers as well as value-for-money multi-user systems, including complex networking of entire labs hooked up to company intranet, extranet and Internet systems. The Olympus analySIS family comprises flexible and high-performance software solutions for digital image acquisition, image processing, analysis and evaluation, image archiving, document management and report generation.

analySIS start

Entry-level solution for metallographic image acquisition

A analySIS start is a high-performance image acquisition system with total software control of camera and microscope. Use analySIS start to acquire perfect images, count particles, measure dimensions, calculate distances and much more – all at the click of a button.

analySIS work

Basic-level solution for metallographic documentation

B Alongside the analySIS start functions, analySIS work offers what users need for all elementary metallography tasks. Just like analySIS start, there's image acquisition and analySIS work has an extended range of interactive measurement functions as well as structured archiving and professional report generation.

analySIS docu

Image-processing system for advanced documentation and measurement tasks analySIS docu is the most comprehensive documentation member of the analySIS family. This version offers numerous valuable image acquisition and image display functions in addition to all the functions analySIS work has. This includes acquiring images at infinite depth of focus and 3-D visualisation functions.

analySIS auto

Automated image analysis for metallographic applications

analySIS auto additionally offers many functions for particle-oriented image analysis with multifaceted classification options. Furthermore, fully automated execution of analysis sequences, including stage control, is supported.

analySIS pro

Professional metallographic image analysis system

analySIS pro is the highest expansion level of the Olympus analySIS product series for the materials sciences. Complex image analysis tasks are effortlessly taken care of by analySIS pro and automatically finished, one after the other. New methods for tracking objects, image filtering as well as particle analysis via intercept are included. analySIS pro also offers an integrated software development environment. E Embedded specimen Carbon fibre compound material



APPLICATION-ORIENTED SOFTWARE EXTENSIONS

The requirements, tasks and processes in metallography labs, research and development departments and in quality assurance and process control are as varied as they are numerous. That's why all products of the Olympus analySIS series, starting with analySIS docu can be extended via additional software modules for specific applications.

Grain-size analysis according to line-intercept method

Analysing grain size using the intercept method is done via application of all standard line-intercept patterns. Horizontal, vertical, diagonal, circular and combined line configurations are supported. Grain-size analysis is performed according to accepted national and international norms.

Planimetric grain-size determination

F The planimetric measurement method determines grain size via grain boundary reconstruction and the resulting grain area. Thanks to integrated process automation, it is easy to define fixed task sequences and run them repeatedly at the push of a button.

Cast iron analysis with automatic graphite detection

G Cast iron is evaluated either automatically or manually. Each graphite particle is automatically detected and evaluated with regard to shape and size. In addition, the carbon-corrected ferrite/pearlite ratio is evaluated.

Inclusion analysis

Analysing non-metallic inclusions is no trouble, no matter how large the field of view. Standards-compliant classification distinguishes between sulphidic and oxidic inclusions. Where the latter is concerned, oxides are further subdivided into dissolved, striped and spheroidal.

Concrete analysis

Analysing voids of air within concrete is compliant with the following norms: DIN 1048 and EN 480-11 via the size distribution (L300 content) and the average distance of these voids (distance factor).

Filter inspection

This extension analyses and classifies residue particles on circular filters. The results provided are particle and classification maps as well as particle data.

Layer thickness measurement via calopreps

Layer thickness is determined via automatic evaluation of calopreps.

Planimetric grain size analysis



Cast iron analysis

H System solutions

analySIS Filter Inspector





analySIS Inspector series



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Analysis report conforming to standards

COMPREHENSIVE SYSTEMS FOR SPECIALISED TASKS

Via the analySIS Inspector series, Olympus offers fully automated systems. Software and hardware components are so precisely attuned that high exactitude and reproducibility are ensured regarding the measurements, analyses and evaluations conducted. All products of the analySIS Inspector series subscribe to the same usage concept.

analySIS Filter Inspector

Cleanliness can affect the lifespan and functionality of technical components. This comprehensive system, consisting of microscope, motor stage with controller, digital camera and filter inspection software, was designed for fast analysis at high resolution. The number of residue particles on the entire filter is determined precisely. Images are acquired of the entire filter and the acquired images are analysed and classified automatically. The detection algorithm reduces possible user error to a minimum.

analySIS Inclusion Inspector

Non-metallic inclusions in steel are the cause of dangerous and serious material defects such as brittleness and a wide variety of crack formations. analySIS Inclusion Inspector is a comprehensive solution consisting of hardware and software components for standards-compliant analysis and documentation of the distribution of non-metallic inclusions. This allows users to determine how pure the steel is. Analysing non-metallic inclusions is no trouble, no matter how large the field of view. Classification distinguishes between sulphidic and oxidic inclusions. Where the latter is concerned, oxides are further subdivided into dissolved, striped and spheroidal.

analySIS Cast Iron Inspector

Cast iron is a material commonly used by the metal-processing industry. The quality and properties of cast iron are primarily determined by its graphite content. analySIS Cast Iron Inspector is a comprehensive system for evaluating the morphology and distribution of graphite within iron. The analySIS Cast Iron Inspector, consisting of a microscope, digital camera, motor stage with controller and evaluation software, is a comprehensive system for fully automated optical analysis, classification and documentation of the microstructure of graphite contained within cast iron. The graphite's shape and size are evaluated and the carbon-corrected ferrite/pearlite ratio is determined.

analySIS ParticleInspector

Particle analysis enables users to quantitatively record and analyse image objects. analySIS Particle Inspector is a comprehensive system for fully automated optical particle analysis, classification and documentation. Threshold-based evaluation of image particles determines particle parameters such as area, size, shape, location, density and intensity and also enables assessments restricted to selected areas or object classes.

Specifications



System diagram



The manufacturer reserves the right to make technical changes without prior notice.



OLYMPUS LIFE AND MATERIAL SCIENCE EUROPA GMBH Postfach 10 49 08, 20034 Hamburg, Germany Wendenstrasse 14-18, 20097 Hamburg, Germany Phone: +49 40 23 77 30, Fax: +49 40 23 77 36 47 E-mail: microscopy@olympus-europa.com www.olympus-europa.com