OLYMPUS®

Your Vision, Our Future

Image Analysis Software

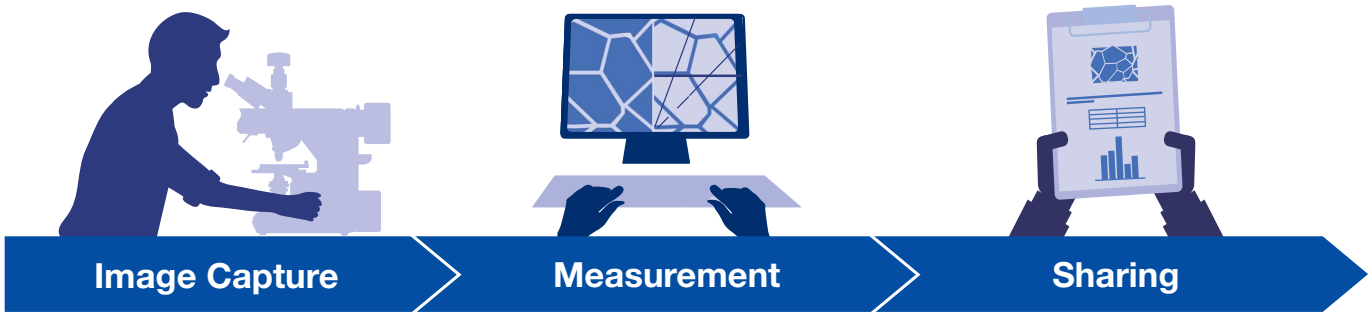
OLYMPUS Stream

Version 2

Focus on Your Solutions

NEW

OLYMPUS Stream, Designed with Your Workflow in Mind



OLYMPUS Stream Makes Processes Easy, Efficient, Reliable, and Repeatable

For experts, technicians, and lab managers in the industry, OLYMPUS Stream offers users guidance through all the necessary steps to acquire sharp and crisp images that are ready for quantitative measurements and reporting. OLYMPUS Stream enables anyone to conduct complex image analysis tasks, from image acquisition to standard reporting, without expert knowledge.

OLYMPUS Stream is flexible and has all the functions necessary to conduct fast and precise observation sessions on a large variety of samples while maintaining data security and measurement reliability.

OLYMPUS Stream Provides Intuitive Solutions for Manufacturing Quality Control and in Materials Research

Intuitive, User-Friendly Interface

An easy-to-use interface guides you effortlessly through every step from image adjustment to report creations and archiving. As a result, you'll find that you can finish your tasks more efficiently, regardless of their complexity.

Designed for Olympus Hardware

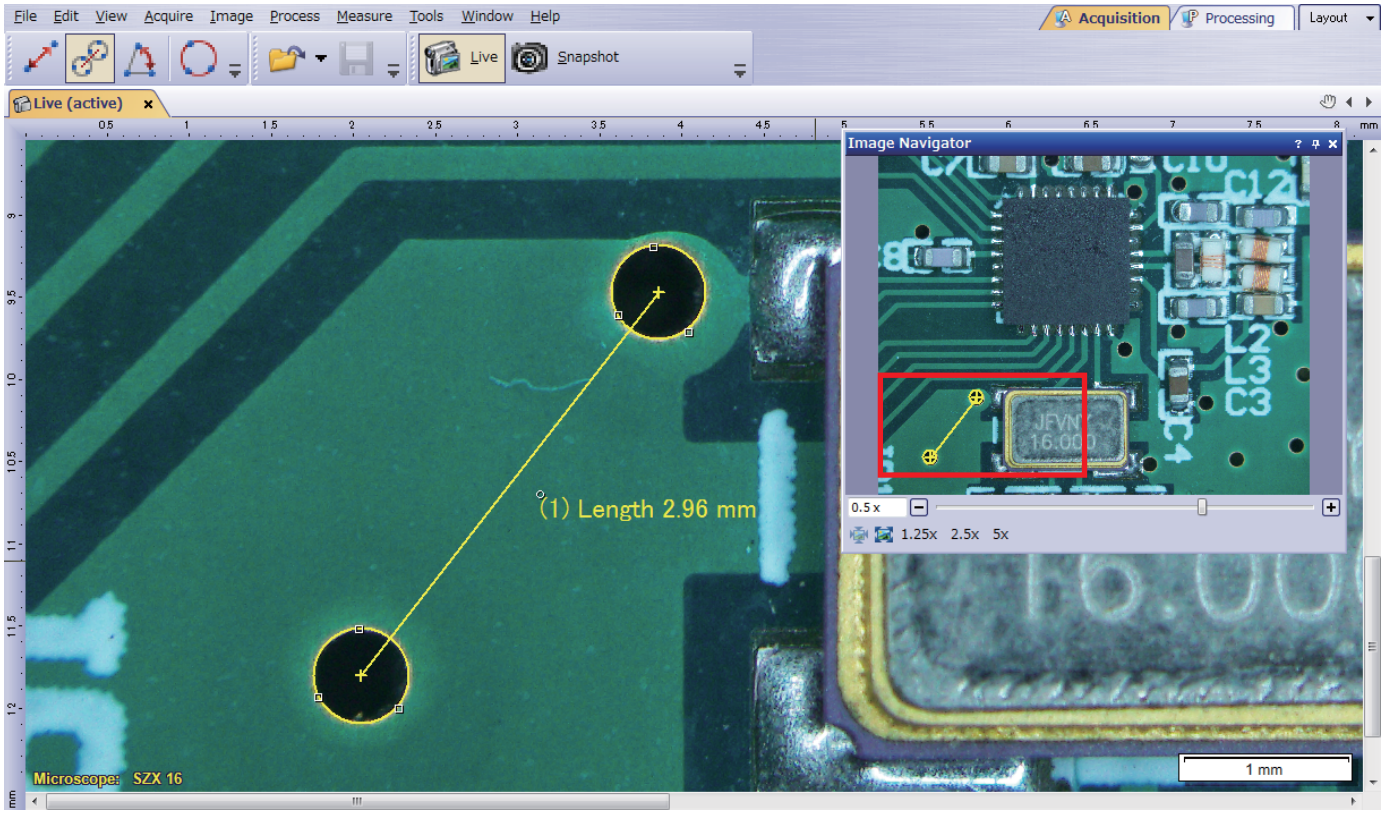
OLYMPUS Stream is designed to work seamlessly with various Olympus microscopes and digital cameras.

Optimized for Materials Science

With specific application modules, OLYMPUS Stream provides a unique workflow to produce consistent imaging and repeatable measurements and results.

Intuitive, User-Friendly Interface

Simplicity that Exceeds Expectations



OLYMPUS Stream Provides a Simpler Way to Work

OLYMPUS Stream's dynamic user interface reduces desktop clutter and confusion by displaying only the required tools.

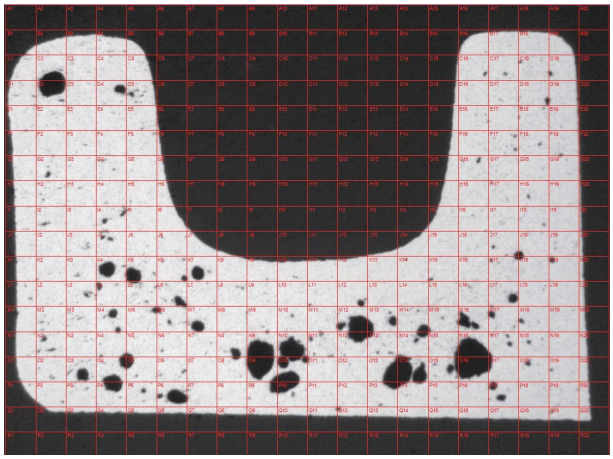
Furthermore, when creating a macro or utilizing advanced customization functions appropriate to a particular workflow, the work becomes much simpler.

Optical inspection and quality control require frequent measurements. OLYMPUS Stream enables you to easily perform basic measurements, such as distance, angles, rectangles, circles, ellipses, and polygons, using the mouse. The measurements provide immediate feedback on the image or in the live data table.

Smart Technologies for Crisp Image Capture

Tools for Live Images

OLYMPUS Stream offers a variety of live functions including live digital reticles, live zoom, live focus indicator, and live image measurement. These tools help provide an immediate understanding of the size of subjects to save time.



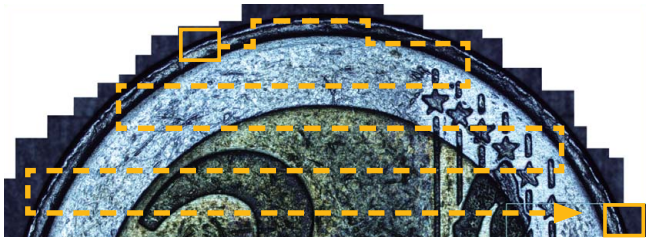
Estimating pore size using live digital reticles
(Cross section of die casting)

Recall Acquisition Setting

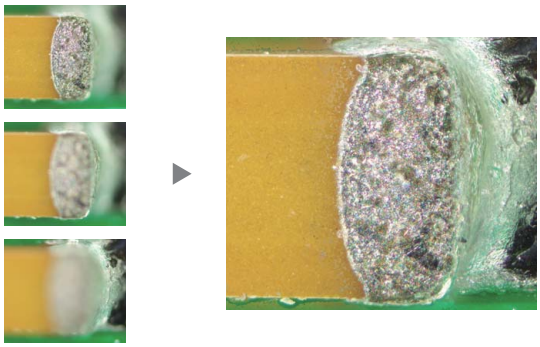
Recall acquisition setting enables users to quickly recall previously used camera settings to enable images are captured with consistent look and feel. When using a motorized microscope, this function can automatically recall previous hardware settings. OLYMPUS Stream also guides the user to manually recall settings when using BX microscopes and stereo microscopes.

Quick Panorama and Extended Depth of Focus

OLYMPUS Stream software enables the creation of images for samples that extend beyond the standard depth of focus or the field of view. The instant Extended Focus Image (EFI) function uses the fine focus adjustment to intuitively combine many images taken at different Z-levels to build a single combined image that is entirely in focus. Instant Multiple Image Alignment (MIA) enables users to create panoramic images by simply moving the XY stage. A motorized stage is no longer necessary.



Instant MIA image of a coin



Instant EFI image of a capacitor on PCB

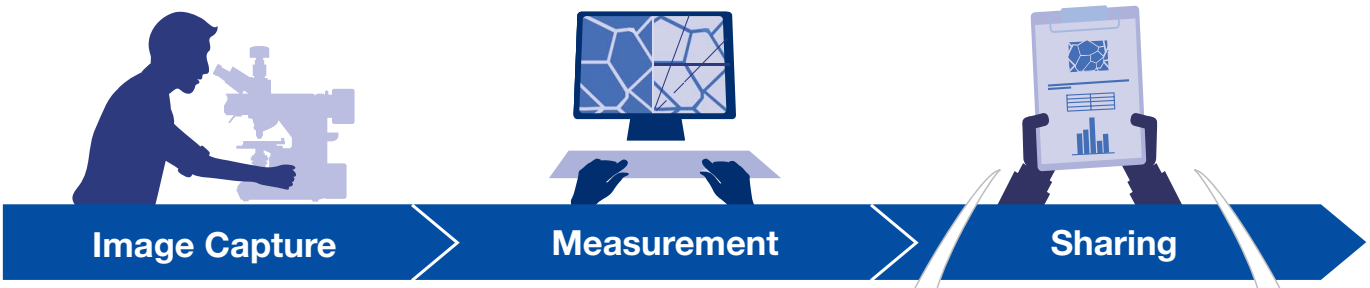
Save Time on Repeated Tasks

I'd like to take a large area image repeatedly and efficiently.

I cannot remember the order of functions to be used.

I want to create and edit a report quickly.

I need to update this report with a new image and measurement.



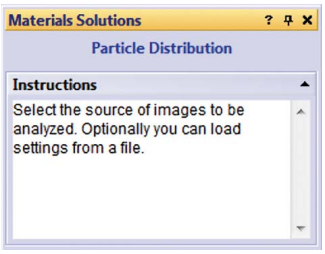
I'd like to show the image with the magnification.

I need to create a report that answers the requirements of my customer.

Guided Operation for Dedicated Purpose Analysis

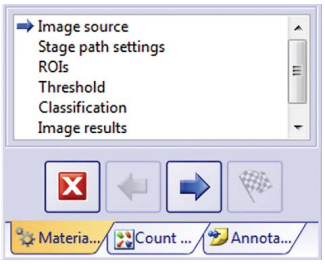
When performing image analysis, it is often difficult to remember how to perform a function or the correct order of functions necessary to generate a report with proper images and results. OLYMPUS Stream offers intuitive tools to perform complex image analysis tasks in compliance with most common international standards. This reduces the amount of necessary training and enables more time for completing the task, rather than remembering how to do it. When using a motorized stage, the alignment feature speeds up your work on multiple sample locations. Please refer to pages 11–15 for more materials solutions information.

User Guidance



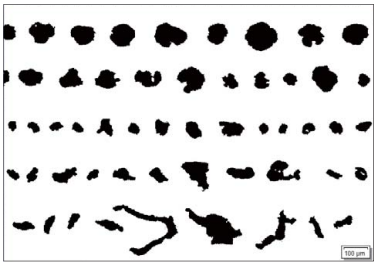
Instructions are shown for the current operation

Workflow Progress



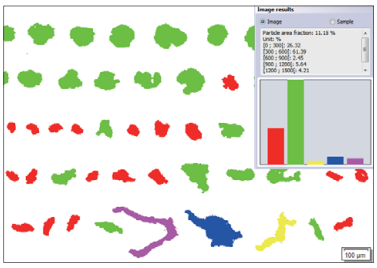
Progress visible at a glance and the intuitive button boxes are straightforward

1 Acquire Image

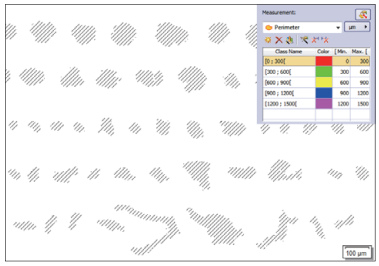


Test image for roundness shape factor

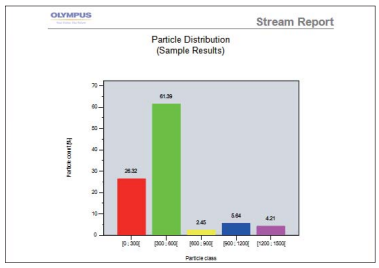
3 Analyze Image



2 Process Image



4 Create Report



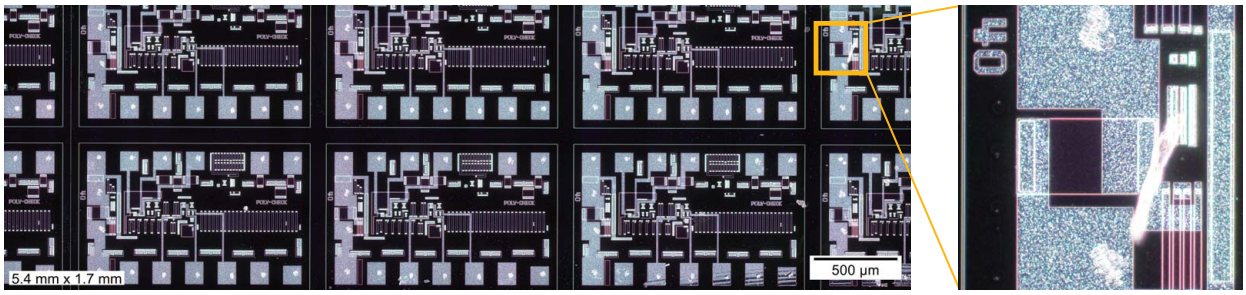
Automatic Calibration Helps Eliminate User Variation

The automatic calibration feature uses a standard micrometer to calibrate the microscope and automatically generates a calibration report. This eliminates user variability in the calibration process for more reliable measurements. For example, if you undertake periodic magnification calibration maintenance using a manual calibration method, the value may differ based on how tired you are when conducting the calibration. With the Automatic Calibration function, the calibration value is always reliable because it is automatically calculated with the averaged value from more than 10 points.

*The recommended calibration sample is DSX-CALS-HR or OB-MM1/100 (for reflected for transmitted light abservations).

Automatic Tools for Efficient Image Acquisition

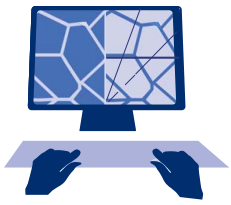
When creating large, high-resolution automated images using the Multiple Image Alignment (MIA) function, the combination of OLYMPUS Stream with a motorized stage provides a fast results. OLYMPUS Stream utilizes contrast-based software autofocus to rapidly acquire images of high-contrast surfaces. It is even possible to combine EFI and MIA in the automatic mode.



Sharp and high-contrast MIA image of integrated circuit (IC) pattern (darkfield observation with 20X objective lens)

Efficient Report Creation

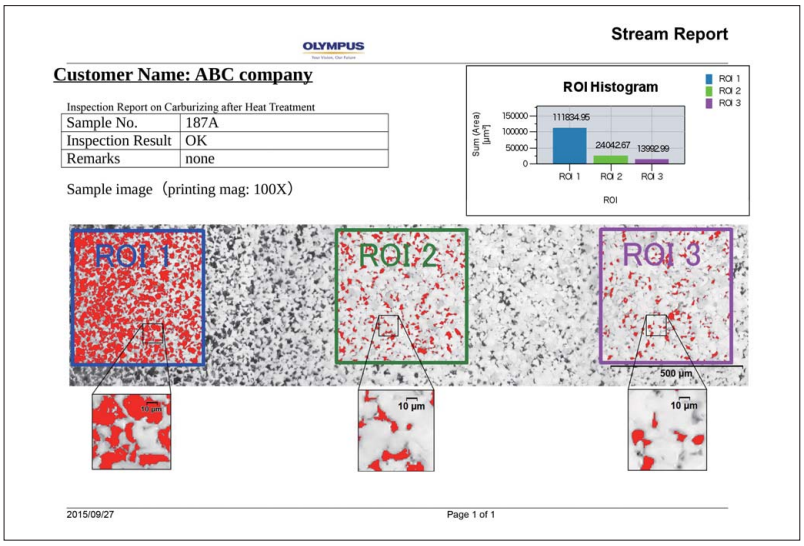
Creating a report often takes longer than capturing the image and taking the measurements. OLYMPUS Stream provides intuitive report creation to repeatedly produce smart and sophisticated reports based on pre-defined templates. Editing is simple and reports can be exported to Microsoft Word, Excel, or PowerPoint. In addition, OLYMPUS Stream reporting enables digital zooming and magnification on acquired images. Report files are a reasonable size for easier data exchange by email.



MS-Word

MS-Excel

MS-PowerPoint



Professional report summarizing particle counting data

Designed for Olympus Hardware

Modular Approach to Build Your System

OLYMPUS Stream is a powerful and user-friendly tool for making measurements because it was developed for Olympus microscopes with the assistance of experienced microscope users. This means that there's no need to manually record the optical parameters of Olympus UIS2 objectives when used with a conventional microscope. Furthermore, magnification calibration is not required when importing Olympus DSX and LEXT images into Stream. The OLYMPUS Stream software system can be purchased in a variety of packages designed to fit various needs from the entry-level OLYMPUS Stream Start to advanced packages.

Configurable

Olympus microscope control

- Upright, inverted, and stereo frames
- Nosepieces and illuminators, both motorized and coded
- Function assignment to hand set

Reliable data

Automatic recognition

- Microscope unit names
- Observation conditions
- Correct magnification

OLYMPUS Stream

Olympus cameras

- Well-balanced color tuning
- Image processing including HDR
- On-line shading correction

High image quality

Seamless data import for post-processing

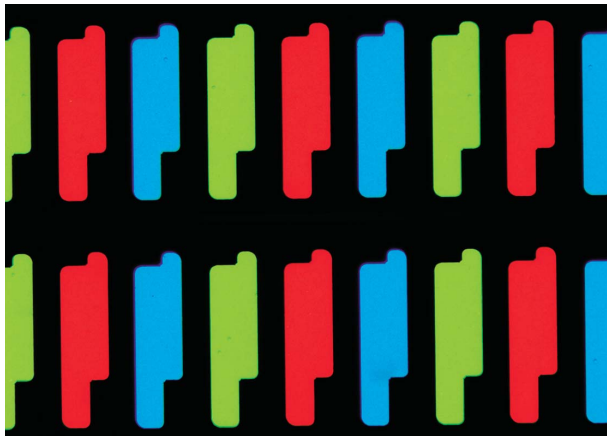
- DSX digital microscope
- LEXT laser microscope
- Other lab-based imaging systems

Seamless sharing

Olympus Digital Cameras

Color fidelity

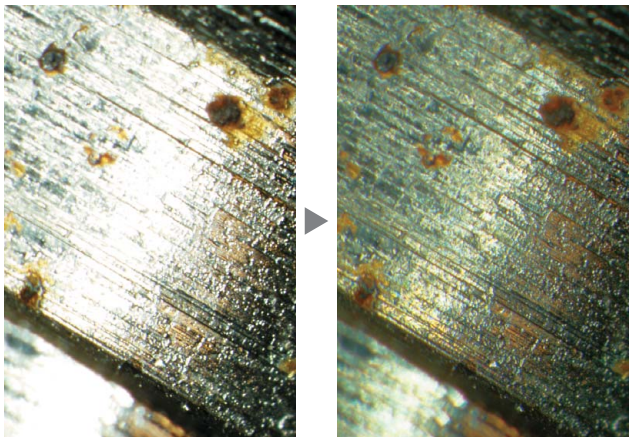
Seeing a sample as it is, with true color over many complex elements, is important for reproducible and high-quality measurements. Olympus' expertise in optics have enabled us to develop optimally balanced color tuning.



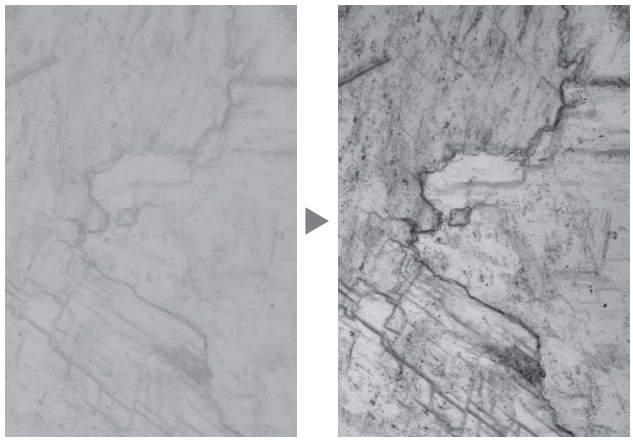
LED color filter

Easily inspect images for materials science

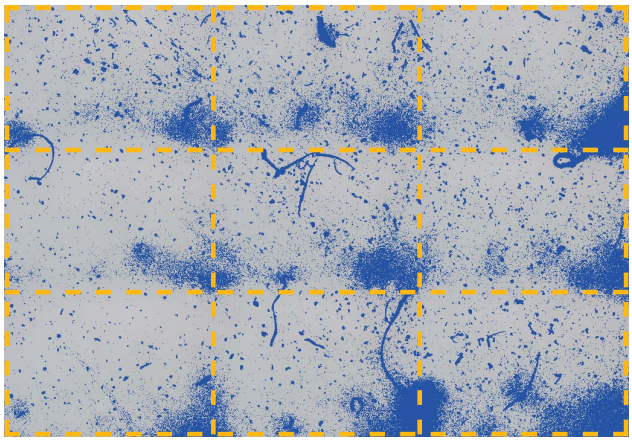
OLYMPUS Stream supports a broad range of Olympus digital cameras and provides a variety of common functions to make inspection or materials analysis easy and precise.



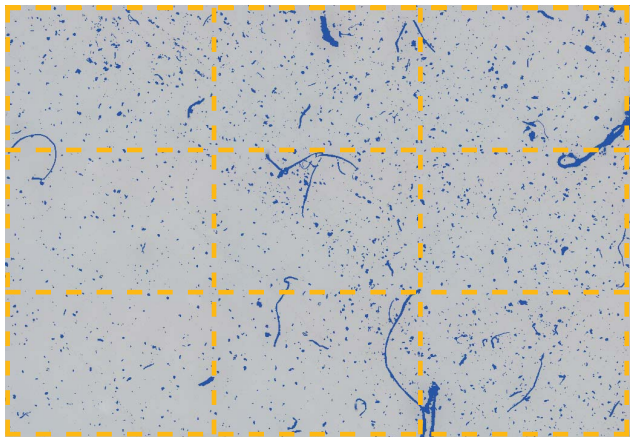
Clearly exposed for both dark and bright parts by HDR
(Sample: Fuel injector bulb)



Contrast enhancement by HDR
(Sample: Sliced magnesite)



3 × 3 MIA image: Raw image illustrating shading where images were stitched together
(Sample: Residue on membrane filter)



3 × 3 MIA image: Tiled image with shading correction
(No visible tiles make threshold setting in image analysis easier)

•Please refer to the camera overview catalog for details.

Optimized for Materials Science

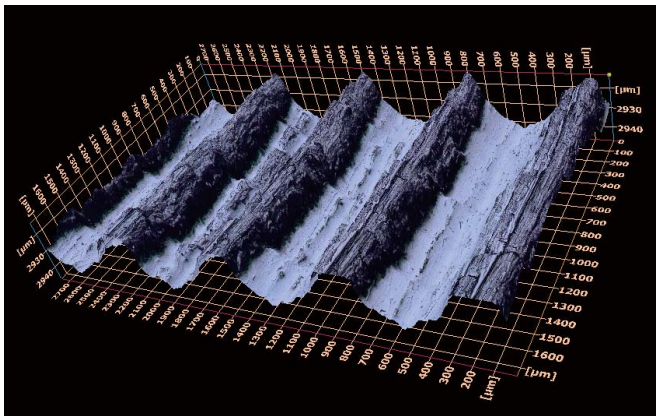
The Right Solution for Your Inspection Needs

The field of materials science is very demanding in terms of requiring repeatable results to fulfill internal or external standard operating procedures. Most of these requirements are enforced as standard business requirements and must be taken into account.
OLYMPUS Stream is expandable with a unique series of optional solutions to facilitate individual inspection, measurements, and analysis with a simple and reliable workflow. OLYMPUS Stream is a solution-oriented product that offers a variety of applications for various materials science analysis.

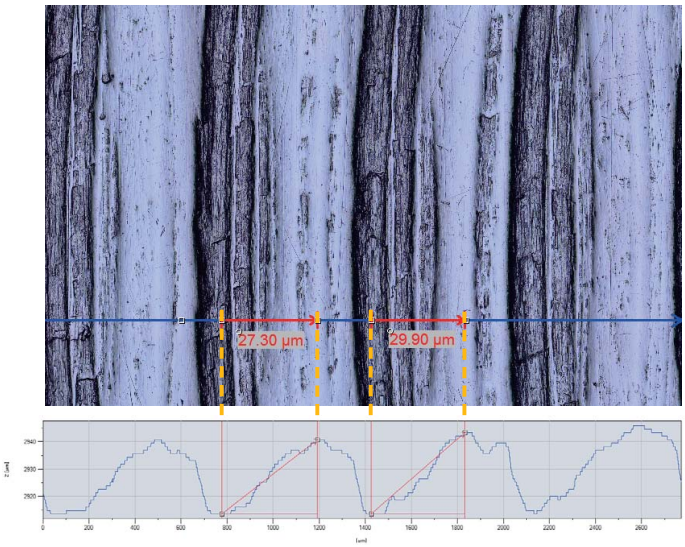
Olympus industrial microscopes support metallurgical analysis solutions

3-Dimensional Measurement and Line Profiles

New materials, new techniques, and the drive towards nano-technology demand higher standards of measurement and quality control. Without the appropriate tools for 3D imaging, it is impossible to quantitatively analyze images from a sample. The OLYMPUS Stream 3D solution provides coded and motorized Z control and instant EFI with height map capability to measure a 3-dimensional sample.
Data obtained: 3D Surface View, 3D Measurement, 3D Profile Measurement



3D surface view (roughness test sample)

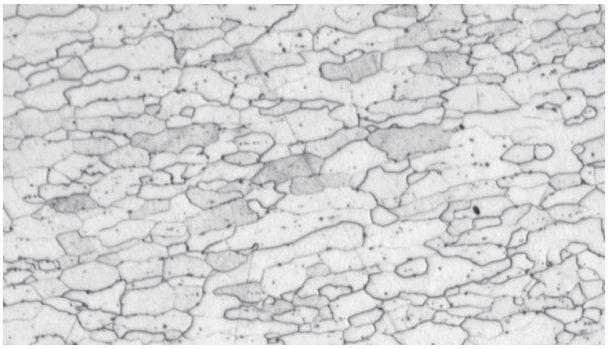


Single view and 3D profile measurement

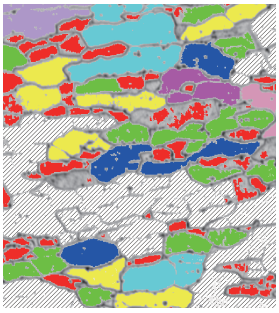
Count and Measure Solution

Detecting objects and measuring size distribution are among the most important applications in digital imaging. OLYMPUS Stream Count and Measure utilizes advanced threshold methods to reliably separate objects (e.g. particles, scratches) from the background. More than 50 different object measurement and classification parameters are available including shape, size, position, and pixel properties. Two classification parameters can be selected simultaneously. An OLYMPUS Stream Desktop license and Count and Measurement Solution can also be used to support the DSX510 or DSX510i Digital Microscope for particle analysis common to metallography evaluation and similar applications.

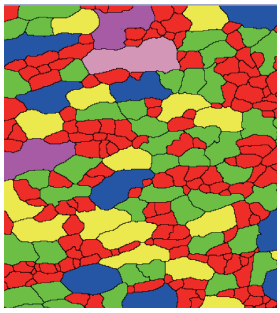
Data obtained: Number of detected particles, Individual measurement results and Class histograms



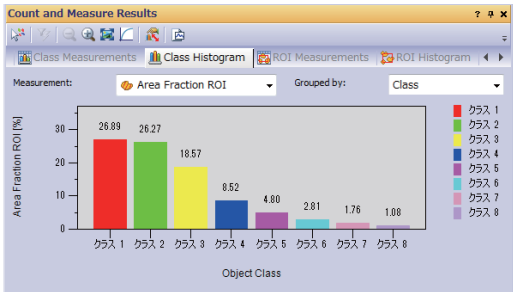
Etched steel microstructure (original image)



Grain boundary detection by conventional software



Grain boundary detection utilizing powerful “Separate Objects” filter



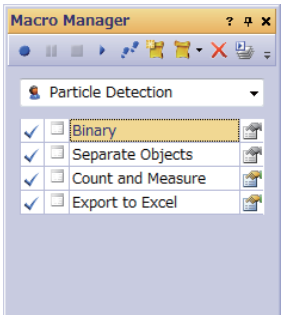
Recommended Functions

Efficient analysis

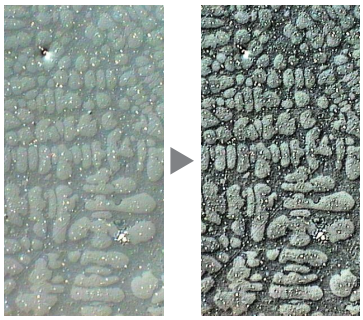
OLYMPUS Stream provides a way to preset complex imaging and measuring tasks with the Macro Manager. The set of tasks can then be performed with a single click. This capability also allows consistent output when different operators are using the Count and Measure solution.

Powerful image filters

OLYMPUS Stream has a variety of useful filters for edge detection, smoothing, and other purposes. For example, the “Separate Objects” filter, “DCE” (Differential Contrast Enhancement) filter, and “Grayscale” filter help make threshold setting and particle detection easier.

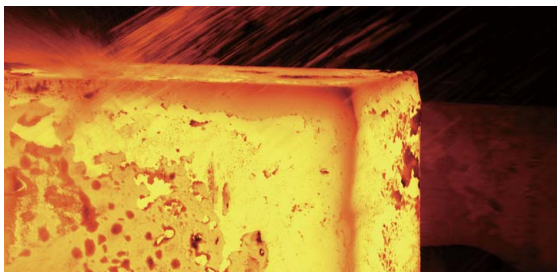


Example of Macro Manager setup for Count and Measure



Enhanced contrast using the DCE filter (Dendrite in aluminum casting)

Solutions for Metallography (Metal/Casting Industries)



Traditionally, metallography is the study of the microscopic structure of metals and alloys using optical, digital, and laser scanning microscopes. More recently, as materials have evolved, metallography has expanded to incorporate materials ranging from electronics to composites used in sporting goods. By analyzing a material's microstructure, its performance and reliability can be better understood. Today metallography is used in materials development, incoming inspection, production and manufacturing control, and failure analysis. Metallography is essential for product reliability.

Grain Sizing in Microstructure Using the Intercept Counting Method

This solution is for manual ferritic or austenitic grain size measurement of steel. It gives a single averaged value using the different available standards (ASTM E112-12; ISO 643:2012; JIS G 0551:2013; JIS G 0552:1998; GOST 5639-82; GB/T 6394-2002 and DIN 50601:1985).

Key features

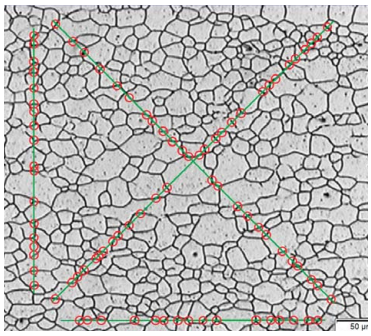
- Counts the number of grain intercepts with patterns
- Direct visualization of pattern andgrain boundaries
- Select from multiple standards

Typical applications

- Metallic materials and other types of materials with geometric structure
- Non-twinned materials (ferrite, aluminum, BCC metals)

Associated functions

- Various image filters
- HDR



Grain sizing intercept solution
(Microstructure with ferritic grains)

Grain Sizing in Microstructure Using the Planimetric Method

This solution is for automatic grain size distribution measurement on etched microstructures (it also works on aluminum microstructures) using the different available standards (ASTM E112-12; ISO 643:2012; JIS G 0551:2013; JIS G 0552:1998; GOST 5639-82; GB/T 6394-2002 and DIN 50601:1985).

Key features

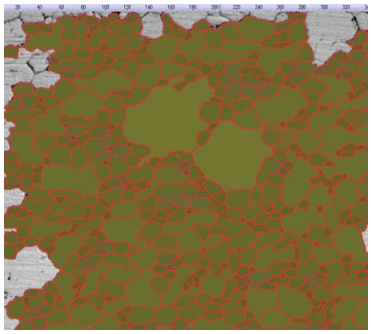
- Counts the number of grains included in the image
- Powerful grain boundary reconstruction by the separator filter
- Select from multiple standards

Typical applications

- Metallic materials and other types of materials with geometric microstructure
- Thermally processed metals

Associated functions

- Various image filters
- HDR



Grain sizing planimetric solution
(Microstructure with ferritic grains)

Graphite Nodularity Evaluation

This solution automatically evaluates graphite nodularity and content in cast iron samples (nodular and vermicular types). The form, distribution, and size of graphite nodes are classified according to the ISO 945-1:2008; ASTM A247-10; JIS G 5502:2001; KS D 4302:2006; GB/T 9441-2009; ISO 16112:2006; JIS G 5505:2013; ASTM E2567-11 (for nodularity only); ASTM E2567-13 (for nodularity only) and NF A04-197:2004 (for form only) standards. This solution also assists with determining the ferrite-pearlite ratio in cast iron cross-sections.

Key features

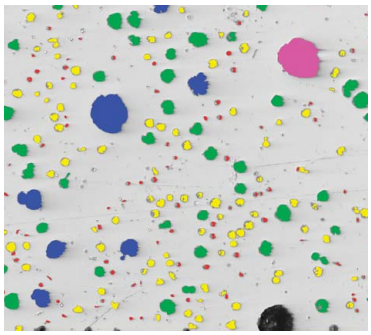
- Measures both the ferrite-pearlite ratio (on etched samples) and graphite distribution (on non-etched samples)
- Measures the distribution of vermicular graphite using standard charts
- Select from multiple standards

Typical applications

- All cast iron samples (metallic parts requiring high strength, castability, etc.)

Associated functions

- Grayscale mode



Cast iron solution
(Ductile cast iron showing nodular graphite)

Rating Non-Metallic Inclusion Content in High-Purity Steel

Classify non-metallic inclusions using the image of the worst field or worst inclusion found manually on the sample. This solution provides results in accordance with ASTM E45-11 Method A, ISO 4967 (method A):2013, EN 10247:2007 Method M, EN 10247:2007 Method P, DIN 50602:1985 Method M, JIS G 0555:2003 Method A, UNI 3244:1980 Method M, and GB/T 10561:2005 Method A. Individual inclusions are displayed and can be edited by the user.

Key features

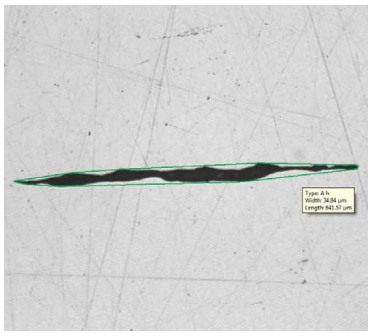
- Exclusively based on worst field method
- Users need little training
- Select from multiple standards, including the most complex (EN 10247)

Typical applications

- All high-purity steels
- Roll bearing, special steels, controlled dilatation steel, etc.

Associated functions

- Various image filters
- HDR



Inclusion worst field solution
(Steel with non-metallic inclusions)

Comparing of Actual and Reference Images

Easily compare live or still images with autoscaled reference images. This solution includes reference images in each available chargeable set (ASTM E 112-04, ISO 643:1983, ISO 643:2012, DIN 50602:1985, ISO 945-1:2008, SEP 1520:1998, SEP 1572:1971, EN 10247:2007, and ISO 4505:1978). The solution also supports multiple modes including live overlay display and side-by-side comparison. Additional reference images can be purchased separately.

Key features

- Not dependent on microscope magnification
- Works with live and still images
- Select from multiple standards

Typical applications

- Metallic and other materials
- Thermally processed metals

Associated functions

- Easy focusing and capturing tools

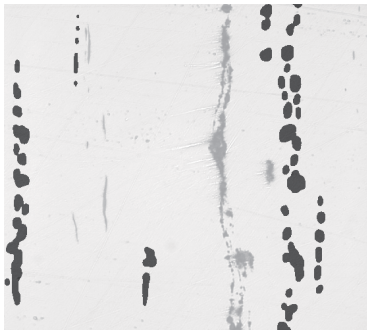


Chart comparison solution
(Steel with non-metallic inclusions)

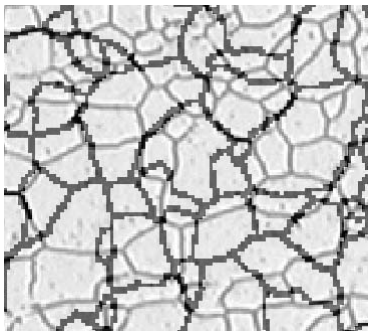


Chart comparison solution
(Microstructure with ferritic grains)

Other recommended solutions:
Count and Measure, Particle Distribution, Porosity, Extended Phase Analysis, Weld Measurement, 3D

Solutions for Machinery Processing (Automotive/Machined Parts Industries)

When cutting, drilling, polishing, and milling metal parts, many types of small defects may occur. In order to produce parts that are high quality, scratches, cracks, pore size, and contamination must be strictly monitored during the production process.

Welding Distortion

OLYMPUS Stream offers an optional solution for measuring the geometric distortion induced by heat during welding. It is easy to perform Asymmetry, Multiple Perpendicular Lines, and A-Throat measurements and the solution enables detailed and quantifiable measurements of the welding distortion. These measurements are important for assessing the quality of the weld.

Key features

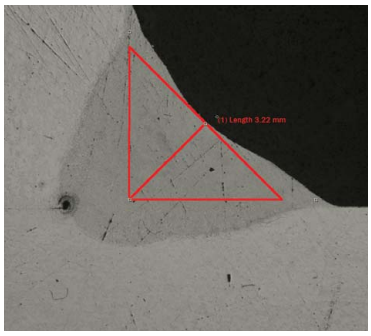
- Measures throat thickness, asymmetry, and thickness of welds
- Geometry is shown on the live image

Typical applications

- Fillet-welded joints (tee, lap, and corner joints)
- Arc-welded joints

Associated functions

- MIA and EFI



Weld measurement solution
(A-Throat measurement in a weld seam)

Phase and ROIs Measurement

OLYMPUS Stream is used to measure multiple phases on a microstructure by selecting color or gray level intensity (threshold). Sixteen different phases can be defined as well as multiple regions of interest (ROIs) (including the magic wand). Several color spaces can be used (RGB or HSV), and a minimal size criteria can also be defined. The results are then expressed as phase fraction area calculations. In order to create reproducible results, the ROIs can be defined using discrete sizes for comparative measurements.

Key features

- Selecting different phases using multiple thresholding techniques
- Multiple ROIs (including magic wand) can be selected
- Results are calculated per ROI and per phase

Typical applications

- Welding quality check
- Die casting
- Steel microstructure
- Composite materials

Associated functions

- MIA and EFI

Advanced phase analysis solution
(Phase analysis in dual phase polymer)

Particle Distribution

Measuring the physical characteristics of particles is a common task in a wide range of industries and is often a critical parameter in the manufacture of many products. The Materials Solution Particle Distribution classifies particle parameters based on their morphology such as size, diameter, area, color, and elongation, and builds a graphical representation of the distribution. Class bins can be defined with color codes to give better understand the results.

Key features

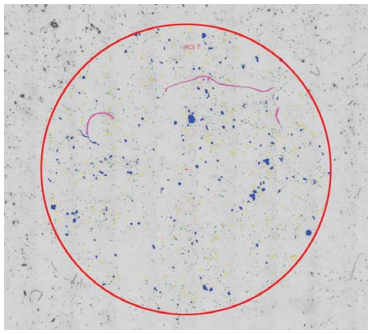
- Counts the numbers of particles in ore or multiple images (motorized solution)
- Classifies according to a selected dimension amongst a large choice
- Codes and validates results according to user's standards

Typical applications

- Reactivity of dissolution rate (e.g. catalyst, tablets)
- Stability in suspension (e.g. sediments, paints)
- Efficacy of delivery (e.g. asthma inhalers)
- Texture and feel (e.g. food ingredients)
- Appearance (e.g. powder coatings and inks)

Associated functions

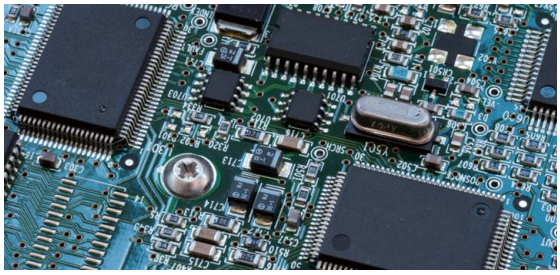
- MIA and EFI



Particle distribution
(Particles extracted on membrane filter)

Other recommended solutions:
Count and Measure, Cast Iron, Inclusion Worst Field, Grains Intercept, Grains Planimetric, 3D

Solutions for Electronics (Electronic Device/Semiconductor Industries)



As electronic devices such as computers, cameras, and smartphones continue to shrink, components such as lead frames and connectors are also getting smaller. For example, the average distance between electrical connector pins is now only 0.2 mm. In printed circuit boards, very thin plates are coated. Verifying the homogeneity of this coating is a key element of product quality.

Throwing Power Measurement

Use this solution to measure the distribution of copper plating thickness in through-holes or micro-vias through all the steps necessary to make critical measurements of printed circuit boards (PCBs). This includes dimple depth, or the difference in height between the plated copper within a via and around the perimeter of that via.

Key features

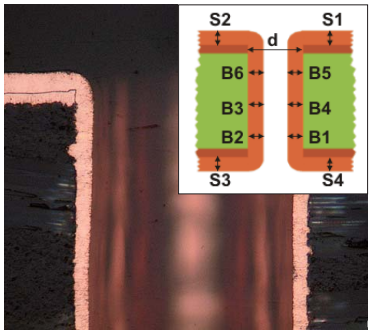
- Manually measure selected point on live images in a cross-sectioned sample
- Extensive user guidance through all points, according to the sample geometry
- Automatic result correction for samples not fully cut through the center of the hole

Typical applications

- HDI printed circuit boards

Associated functions

- Easy focusing and capturing tools



Throwing power solution
(Cross section of a through hole of PCB)

Automatic Critical Dimension Measurement

Use this solution to create edge-detection-based measurements in a live image with pattern recognition. Use the software to create scanners to measure distances (point-to-line, circle-to-circle), circle diameter, circle roundness, and bounding box (width, length, and area). The integrated validation tool provides a pass/fail flag for every measurement.

Key features

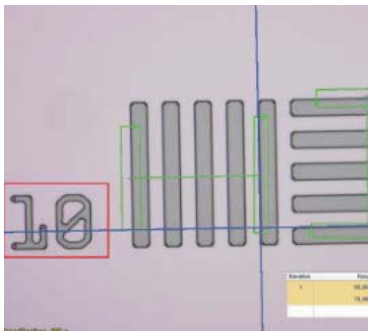
- Expert users can define a measurement routine
- Execute the measurement recipe using a controller without changing the measurement parameters or the tolerance
- Immediate “Fail” or “Passed” flag

Typical applications

- Semiconductor products

Associated functions

- Easy focusing tools



Automatic measurement solution
(Wafer structure)

3-Dimensional Measurement and Line Profiles

This solution creates height maps from stacks of images acquired automatically or manually with different Z positions. The resulting image can be visualized in three dimensions using the surface view. Measurements like 3D profiles and height differences between two or several points can then be performed easily. The results can then be exported into workbooks and Microsoft Excel spreadsheets.

Key features

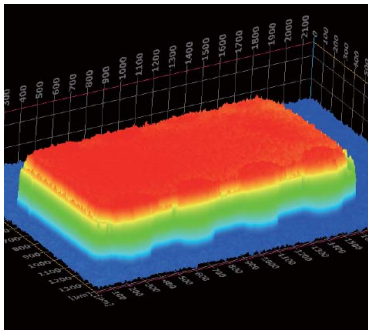
- 3D image obtained with focus-variation method without any size limit
- Extract a 3D profile by selecting a line and measure orthogonal distances on the profile with feedback on the image
- Export 3D profiles for compatibility with roughness calculation by 3rd party software

Typical applications

- 3D profile for evaluation of surface flatness
- Failure analysis

Associated functions

- Easy focusing tools



3D solution
(IC chip on PCB)

Other recommended solutions:
Count and Measure, Particle Distribution, Porosity, Extended Phase Analysis

Solutions for Surface Coatings and Thin Film Deposits (Coating Industries)

Surface coatings are any mixture of film-forming materials that contain pigments, solvents, and other additives, which, when applied to a surface and cured or dried, yields a thin film that is functional and often decorative. Surface coatings include paints, drying oils and varnishes, synthetic clear coatings, and other products whose primary function is to protect the surface of an object from the environment. These products can also enhance the aesthetic appeal of an object by accentuating its surface features or concealing blemishes.

Thin Coating Thickness Evaluation (Calotest Method)

This solution enables measurement of the coating thickness from top view images using the Calotest method. With the Calotest method, a grinding sphere wears a tiny crater through the coating. The software uses the sphere and sample geometry to calculate the thickness of the coating.

Key features

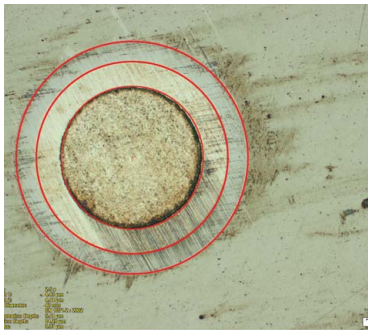
- Guides the user through a selection of shapes and print morphologies
- Measurements are easy to perform
- Complies with international standards

Typical applications

- CVD, PVD, plasma spray coatings
- Anodic oxidation layers
- Surfaces treated by ion sputtering or ion plating
- Chemical and galvanic deposits
- Polymers, paints, and lacquers

Associated functions

- Various image filters



Coating thickness solution
(Printed thin coating on metal substrate obtained with Calotest method)

Layer Thickness Measurement

Measures layer thicknesses either perpendicular to neutral fibers, via the shortest distance, or with a new parallel method. Users can now measure layers with even or uneven boundaries. Layer thickness measurement software calculates mean, maximum, and minimum values as well as statistical data for each individual layer. Layer boundaries can be specified using automatic detection, magic wand, or manual mode. Individual measurements can be added or deleted later.

Key features

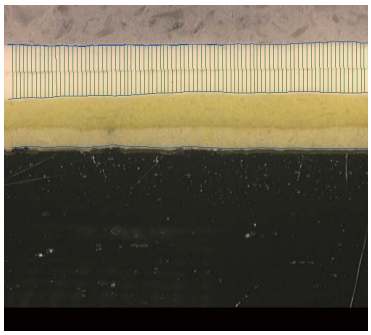
- Select different phases using automatic, magic wand, and manual measurement modes.
- Automatic layer measurement is performed using the neutral fiber as reference layer
- Flexible selection of multiple points or inter-distance

Typical applications

- CVD, PVD, plasma spray coatings
- Anodic oxidation layers
- Chemical and galvanic deposits
- Polymers, paints, and lacquers

Associated functions

- EFI and MIA



Layer thickness solution
(Cross section of paint and primer lacquer on steel)

Pore Fraction and Density Measurement

The Porosity solution in OLYMPUS Stream includes a tool for measuring the area fraction and number of pores on cross-sectional surfaces and coatings. The software uses the threshold method to differentiate between the pores and the substrate on color or gray level images. Pore density and the size of the largest pore is calculated for every selected Region of Interest and on the whole image.

Key features

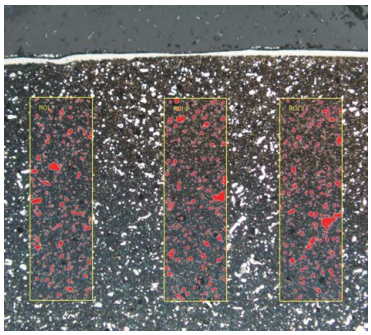
- Several thresholding techniques available
- A size limit per pore can be fixed
- Measurement per ROI is available

Typical applications

- Voids in chemical materials
- Level of porosity in foam

Associated functions

- MIA and EFI



Porosity solution
(Cross section of carbide coating in thermal deposition processing)

Other recommended solutions:
“Count and Measure”, “Particle Distribution”, “Extended Phase Analysis”

Materials Solutions for Every Purpose

More information is available on the application notes pages of the Olympus website (www.olympus-ims.com/application).

	Solutions	Descriptions	Application example	Recommended Industry: Metal/Casting	Automotive	Glass/Ceramic	Coating	Consumer goods	Electronic devices	Semiconductors	Fluids & oils	Machined parts	Carbon/Composites	Chemical/Plastic/Rubber	Industrial scientific research
	Grain Intercept	Steel manufacturers use this solution for measuring and controlling grain size after cross-sectioning, polishing, or etching steel samples. This function is based on overlaying of "test lines" and counting the number of intercepts of these with grain boundaries.	Page 11	■	■			■				■			■
	Grain Planimetric	Steel manufacturers use this solution for measuring and controlling grain size after cross-sectioning, polishing, or etching steel samples. This function reconstructs grain boundaries for each individual grain.	Page 11	■	■			■				■			■
	Inclusion Worst Field	Steel manufacturers use this solution for measuring and controlling the shape and size of non-metallic inclusions (oxide, alumina, sulphide, or silicate) in steel.	Page 12	■	■			■				■			■
	Cast Iron	Casting manufacturers who need to measure and control the graphite nodularity and check the mechanical characteristics of their cast products use this solution.	Page 12	■	■			■				■			■
	Chart Comparison	A live or still image can be overlaid onto standard charts for comparison. Function preview is available.	Page 12	■	■			■				■			■
	Layer Thickness	One or multiple layers of a cross-sectioned sample can be measured using the Layer Thickness solution. The shapes are defined and the layers automatically measured.	Page 15		■		■								■
	Coating Thickness	This solution enables the measurement of coating thickness from top view images images using the Calotest method.	Page 15		■		■								■
	Automatic Measurements	This solution is used for creating measurements based on edge-detection on a live image with pattern recognition.	Page 14						■	■					
	Throwing Power	This solution measures the distribution of copper plating thickness in through-holes or micro-vias.	Page 14						■	■					
	Porosity	This solution enables pores to be measured either for area fraction or the number of surface pores using ROIs (circular, triangular, rectangular, and polygonal) and thresholds.	Page 15	■	■	■	■	■	■	■	■	■	■	■	■
	Particle Distribution	This solution is used to create particle size distribution histograms and tables from multiple images or image series.	Page 13	■	■	■	■	■	■	■	■	■	■	■	■
	Advanced Phase Analysis	This solution offers a new integrated solution to perform phase analysis on a selection of various Regions of Interest (ROIs) including triangles, circles, rectangles, and polygons.	Page 13	■	■	■	■	■	■	■	■	■	■	■	■

OLYMPUS Stream V2.2 Specifications

Main License Specifications

■ : Standard □ : Optional	Start	Basic	Essentials	Motion	Desktop
Image Acquisition					
Basic image acquisition including HDR and auto-calibration of magnification and Live HDR*1, Position navigation*1	■	■	■	■	
Software autofocus*2 and movie acquisition (avi format)		■	■	■	
Time lapse, Instant EFI, and Instant/Manual MIA*3		□	■	■	
Motorized EFI/MIA and Z-stack acquisition		□	□	■	
Remote live view (NetCam)		□	□	□	
Image & Customization Tools					
Basic tool windows (Image history, properties, navigator, gallery view tool window)*4	■	■	■	■	■
Annotations, layer management, scale bar, cross hair, info stamp display, and image filters	■	■	■	■	■
Digital reticle/grid, line profile display, My Function, layout management, and Macro Manager		■	■	■	■
Measurements / Image Analysis					
Basic interactive measurement (distance, angles, rectangles, circles, ellipses, polygons, circle-to-circle distance, angle ruler, and line ruler) and data export to MS-Excel	■	■	■	■	■
Phase analysis, magic wand, freehand polyline, interpolated polygon, morphology filter, and image arithmetics		□	■	■	■
3D measurements, 3D profile measurements, and 3D surface view		□	□	■	■
Reporting*5					
Report creation (MS-Word, and MS-Excel format)		■	■	■	■
Presentation creation		□	□	□	□
Data Management					
Stream Document Storage*6		■	■	■	■
Workgroup Database with structured data format		□	□	□	□
Device Support					
Olympus microscopes*7 and Olympus cameras*8	■	■	■	■	
Non-Olympus cameras and image source converter*9		■	■	■	
Non-Olympus stage controller*9		□	□	■	

PC Requirements	
CPU	Intel Core 2Duo or higher (Intel Core i5, i7 recommended)
RAM / Hard disk / DVD drive	3 GB or more (8 GB recommended)/2.4 GB or more free space/DVD+R DL compatible
OS*10	Windows 10 Pro (32-bit/64-bit) , Windows 8.1 (32-bit/64-bit) Pro, Windows 7 (32-bit/64-bit) Ultimate with SP1, Windows 7 (32-bit/64-bit) Professional with SP1
.NET Framework	Ver. 4.5.2 or 4.6.1
Graphic card*11	1280 × 1024 monitor resolution with 32-bit video card
Web browser	Windows Internet Explorer 8, 9, 10 or 11

*1 Requires DP74 camera, and the LiveHDR function requires 64-bit OS.
*2 Requires Olympus microscope with motorized Z-axis or external motorized Z-axis with OLYMPUS Stream Motion or Automation Solution
*3 Instant MIA may not work property with some cameras
*4 Write and read all major file formats and open Olympus proprietary formats (DSX and LEXT file formats)
*5 Requires Microsoft Office 2016, 2013 (SP1) or 2010 (SP2)
*6 Utilizing Microsoft SQL Server Express
*7 Supports MX61A, MX61L, MX61, BX3M-CB, BX3M-CBFM, BX-UCB, BX-REMCB, IX-UCB, SZX-MDCU, SZX2-MDCU, U-CBS, STM7
*8 Supports DP20, DP21, DP22, DP25, DP26, DP27, DP70, DP71, DP72, DP73, DP74, LC20, LC30, SC30, SC50, SC100, XC10, UC30, UC50, UC90, XC30, XC50, XM10, XM10IR
*9 Please contact Olympus for supported device information
*10 DP74 supports Windows 10/8.1(64-bit), and Windows 7 (32-bit/64-bit). DP73 supports Windows 8.1/7 (64-bit). DP25/DP71/DP72 supports Windows 7 (32-bit/64-bit). DP20/DP70 supports Windows 7 (32-bit).
*11 Required configurations for LiveHDR in DP74. •Graphic board applicable to CUDA made by NVIDIA (compute capability 2.1 or more) •Graphic board driver applicable to CUDA 7.0 or more

Special Solution Specifications

	Compatiblity			Functions
Solutions	Basic/ Essentials	Motion	Desktop	Measurement Type
3D	□	Included	Partially included*	3D Surface View, 3D Measurement, 3D Profile Measurement, Motorized Z-stack/EFI, Instant EFI with height map (requires coded or motorized Z-axis)
Automation	□	Included		Automation Solution (Motorized/Manual/Instant MIA, Motorized/Instant EFI without height map (requires coded or motorized XYZ-axis) and with time lapse
Weld Measurement	□	□	□	Weld Measurement Solution (measurements for geometric distortion introduced by the heating during welding)
Count & Measure	□	□	□	Multiple threshold methods are available (automatic, manual HSV, manual and adaptative) The system can automatically measure multiple parameters on all segmented objects (Area, Aspect Ratio, Bisector, Bounding Box, Gravity Center, ID, Mass Center, Intensities Values, Convexity, Diameters, Elongation, Feret, Extent, Next Neighbor Distance, Orientation, Perimeter, Radius, Shape, Sphericity, etc.) Spreadsheet and charts with individual and distribution measurements.

*Not possible to use the functions relating to image acquisitions

Materials Solutions Specifications

	Compatiblity			Output			Functions		
Solutions	Basic	Essentials/Motion	Desktop	Automatic report creation	Workbook with individual measurement	Store all results in the image properties	Measurement type	Supported standards	Multiple stage location*1 Sample alignment*1
Grain Intercept	■	■	■	■	■	■	Selection of pattern (circles, cross, cross & circles, vertical lines, horizontal lines, horizontal & vertical lines) Definition of the number of test lines for determination of grain elongation Displays the G-value in the Material Solution Tool Window	ISO 643: 2012, JIS G 0551: 2013, JIS G 0552: 1998, ASTM E112: 2012, DIN 50601: 1985, GOST 5639: 1982, GB/T 6394: 2002	■
Grain Planimetric	■	■	■	■	■*2	■	Automatic extraction of grain boundaries User interaction using Stream sliders for improved usability Displays the G-value histogram in the Material Solution Tool Window for direct interaction	ISO 643: 2012, JIS G 0551: 2013, JIS G 0552: 1998, ASTM E112: 2012, DIN 50601: 1985, GOST 5639: 1982, GB/T 6394: 2002	■
Inclusion Worst Field	■	■	■	■	■	■	Automatic detection of non-metallic inclusion using colors, shape and size Automatic classification of oxides, sulfides, silicates, and aluminates Live display of the detected inclusion with its rating	ISO 4967 (method A):2013, JIS G 0555 (method A): 2003, ASTM E45 (method A): 2011, EN 10247 (methods P and M): 2007, DIN 50602 (method M): 1985, GB/T 10561 (method A): 2005, UNI 3244 (method M): 1980	■
Cast Iron	■	■	■	■	■	■	On polished samples: automatically measures the characteristics of the graphite content (size, shape, and distribution) On etched samples: measures the ferrite to pearlite ratio Integrated workflow which take into account the sample status (etched or polished)	ISO 945-1: 2008, ISO 16112: 2006, JIS G 5502: 2001, JIS G 5505: 2013, ASTM A247: 2010, ASTM E2567: 2011/2013, NF A04-197: 2004, GB/T 9441: 2009, KS D 4302: 2006	
Chart Comparison	■	■	■		■	■	Multiple displays available, including live overlay User interaction using Stream sliders for improved usability Calculates statistics on the selected values	ISO 643: 1983, ISO 643: 2012, ISO 945: 2008, ASTM E 112: 2004, EN 10247: 2007, DIN 50602: 1985, ISO 4505: 1978, SEP 1572: 1971, SEP 1520: 1998,	
Layer Thickness	■	■	■	■	■		Layer boundaries can be specified using automatic detection, magic wand, or manual mode (using 2 or 3 points) Individual measurements can be added or deleted later on Measurement of any type of layers (with even or uneven boundaries) is supported Layer thickness measurement calculates mean, maximum, and minimum values as well as statistical data for each individual layer		
Coating Thickness	■	■	■	■	■	■	Prints are measured from top view Calculation of the coating thickness according to the sample geometry	EN 1071: 2002, VDI 3824: 2001	
Automatic Measurements	■	■			■		Automatically measure distances (point-to-point, point-to-line, circle-to-circle, point-to-circle, line-to-circle) Automatically measure circle diameter (roundness, bounding box) Automatically measure angles between two lines Definition of tolerances values for measurement and visual validation Expert and user mode for measurement repeatability		■
Throwing Power	■	■		■	■	■	Manual measurements on selected point of interest on the sample Predefined points that will be triggered by the operator Selection of the vias type and documentation of the analysis Report and automatic calculation according to the manual measurements		
Porosity	■	■	■	■	■	■	Pore detection per ROIs (triangle, circle, rectangle, polygon, or magic wand) with overlapping capability Measurement of the pore density, count and specific area Measurement of the biggest pore Measurement of a specified size range		■
Particle Distribution	■	■	■	■	■	■	Particles are defined using simplified threshold settings Automatic classification according to a selected parameter (size, color, or shape) Measurement of ROIs and multiple thresholds Definition of validation and coding according to user-defined standards		■
Advanced Phase Analysis	■	Included	Included	■	■		Phase fraction per ROIs (triangle, circle, rectangle, or polygon) Magic wand, freehand polyline, interpolated polygon, morphology filter, and image arithmetics also usable Measurement of the total phase percentage per phase and per ROI Selectable minimum area detection		■

*1 Possible with OLYMPUS Stream Motion and other Stream packages with Automation solution

*2 Stream chart with the distribution can be output

OLYMPUS Stream is also available as post-processing software (Stream Desktop) for the entire range of DSX series Digital Microscopes and the LEXT 3D Measuring Laser Microscope.

LEXT

3D Measuring Laser Microscope

OLS4100

DSX

Digital Microscope

DSX510

DSX510i

DSX110

Try OLYMPUS Stream for 30 days free of charge.
Please visit the Olympus website for more information.
www.olympus-ims.com/stream

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- **OLYMPUS CORPORATION is ISO9001 certified.**
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- Images on the PC monitors are simulated.
- Specifications and appearances are subject to change without any notice or obligation on the part of the manufacturer.

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