

Metallurgy Software

Application Program are set in the simplest way without compromising accuracy so that inexperienced operator can also make analysis with a minimum of training. Our current portfolio of metallurgy solutions are Nodules analysis, Coating Thickness Measurement, Depth of Width Measurement of Decarburization, Phase percentage with display by colored overlays, Grain Size No., Porosity Analysis, Graphite Flakes Measurement, Non-Metallic Inclusion Rating, Particle Size and Volume Percentage with lot make software complete. Generated reports can be saved or printed with images, Histogram, Data Overlays colors and various other related information.

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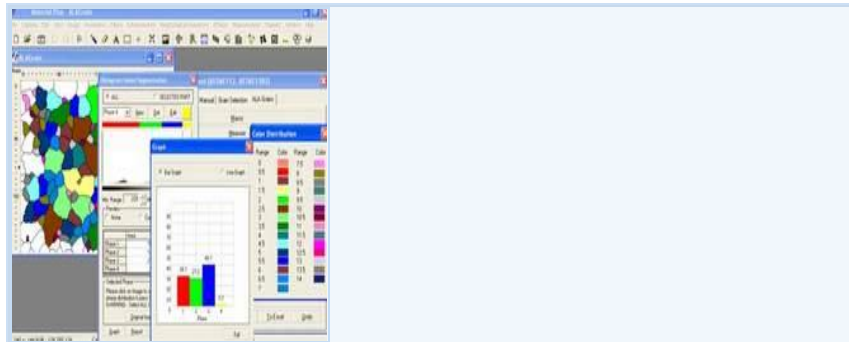


IMAGE EDITING

- Cut, Copy, and Paste.
- Selected copy by free hand AOL controlled by four arrow keys available on keyboard or mouse with zoom preview.
- Crop, duplicate, restore
- Resize
- Compression
- Conversion to other format BMP, JPG, TIF, PNG, GIF & PSD
- Flood fill or spray with selected color at selected portion.
- Grid creation; 5X5, 10X10 & 100X100 grids (or cells).
- Drawing tool curve, line, square, and circle with node control and provision to change color & thickness of the line.
- Write text in any color or font.
- Pointer to place on an object in either of four directions with provision to change its color & thickness.
- Eraser works only on line, arrow or on any drawing tool.(not on original image)
- Camera Lucida

Montage feature to merge stored image together. Useful to Merge different focuses of same image.**VIEW**

- Zoom in/out
- Zoomed preview
- Rotation at 90, 180,270 or custom
- Image flipping; horizontal or vertical axis
- Intensity histogram.
- Image Information
- Redo/Undo on all operations.

IMAGE PROCESSING

- Background subtraction and contrast enhancement of color or grayscale images
- Arithmetic image functions (Boolean Math; Add, AND, OR, XOR, DIFF, MIN, MAX, +, -, /, *, And Simple).

ROUTINE FILTERS

- Invert, Brightness, Contrast, Hue, Saturation, Blur, Noise Remove, Emboss, Engrave, Gamma R, Gamma G, Gamma B, Yellow, Magenta, Cyan, Mosaic, Smooth, Desaturation, Pseudo Color, Colorize, Oilify, Despeckle, Posterize.

SPECIAL FILTERS & KERNELS

- High Boost, High Spatial, Low Pass Spatial, Ranking (Max, Med, Min), Point detection, Line detection, Homogeneity

EDGE DETECTION

- Laplacing, Sobel, Krisch, Prewitt Gradient, Shift & Difference, Combine, Contrast Base, Quick, Range And Variance.

MORPHOMETRY

- Skeletonizing, Pruning, SKIZ, Histogram Equalization, Histogram Smoothing, Histogram Peak, Histogram Valley, Segmentation by Over/Under and Quantized, Contoring, Dilation / Erosion on Binary, Gray & colored Images, Opening/ Closing on Gray & Binary Images, Special Opening/Closing, Split/Combine of RGB, YUV, YIQ, XYZ, & HSL, Changing any Image to 1, 4, 8 & 24 bits, Medial Axis. Transformation, Halftone.
- Image Addition, Image Average, Image Subtraction, Image Multiplication.

MEASUREMENT

- Spatial calibration
- Line measurements for Distance, Length, Width, Perimeter, Angle, Three Point Radius.
- Area by enclosed line controlled by four arrow keys available on keyboard arrows with zoomed preview.

COUNT AND CLASSIFICATION

- Identification of objects in an image, count them, obtain several features measurements. Objects identification by user or automatically. User defined classification on basis of size or intensity.

THRESHOLD PARTICLE MEASUREMENT

- Manual, Auto bright and Auto dark methods to identify intensity range defined object to be measured. Various calculation & measurements available for selected Particle are; Dimensions, Area, Perimeter, Feret Length, Min/Max Radius, Thread Length, Thread Width, Fibre Length, Fibre Width.

MORPHOMETRY

- Roundness, Shape, Orientation, Elongation, Equal Circular Diameter, Equal Sphere Volume.

LOCATIONAL

- Centroid X, Centroid Y, Major X1, Major Y1, Minor X1, Minor Y1, Major X2, Major Y, Major X2, Minor Y2, Box X1, Box X2, Box Y, Box Y2 & Box Area.

PHASE

- Measure area fraction & volume fraction. Identify multiple phases within Microstructure. Also delineate phases from the histogram as per ASTM Standard E562 & E1245.

NODULES

- MEASURE Nodularity as per ASTM 247 standard. The Nodules & Flakes are separated on the basis of its shape and aspect ratio.
- The detail measurement of each microstructure is available for further analysis.
- The processed image displays non-Nodules in different color.
- The Nodules can be classify by its range on the basis of its size & shape.

POROSITY

- They are recognized on the basis of its intensity as per ASTM B-276 standard. The measurement of each pore is displayed. The processed image displays pores in Red color.

COATING THICKNESS

- This application rapidly measures the thickness or width of a coating at multiple positions along a sample as per ASTM B487 standard.
- Tabulated results available for min/max and mean of width measured at various points of sample cross section.

DECARBURISATION

- Measured depth or width of decarburisation occurs as per ASTM 1077 standard.

GRAIN SIZE

- The module analyse Grain image and measure the Grain no. & Grain size using ASTM E 112 method.
- The options for measurement available are 1. Manual Trace, 2. Popular Comparison Method, 3. Quick single Grain measurement, 4. ALA method, 5. Interception method.
- Various filters to make user defined templates. Grain boundary repair mathematical function.
- Non-Metallic Inclusion
Measure inclusions and report ASTM E-45, E-1245 numbers, cumulative length, width ratio.
- Graphite Flakes
Graphite Flakes length, width, distribution and percentage as per ASTM A-247-67

REPORT

- Three options: Direct printout with original image processed Image & Tabular results
- Export to MS Office or Excel for further modification.