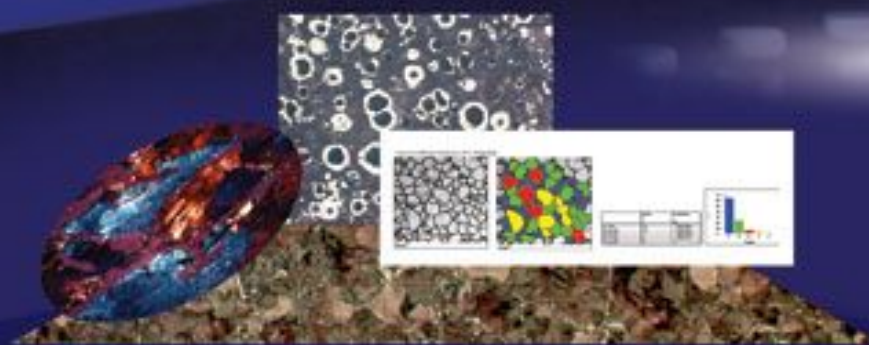


# Metavis Image Analysis System



Medimage - Digital Solution for optical Microscopy

# Metavis Image Analysis System for Metallurgy and Material Science

The Metavis workstation is a complete Image Analysis system developed specially to increase the speed accuracy and efficiency of measurements for Material science and Metallography.

The Metavis uses a high resolution USB professional machine vision camera of reputed make. The camera captures live images and the same is processed and analyzed by our Biovis Material plus Image Analysis Software.

The Biovis Material plus has several powerful routines for enhancing, filtering and segmentation of the images. The software incorporates general purpose tools which can be used in a variety of ways to extract size, shape and stereological information from the sample.

In addition to the standard general purpose measurement tools. The system can be configured with application specific modules for the most common metallographic tasks. The software provides results and reports that conform to relevant Indian and International standards. Custom reports can also be generated complete with result tables and images by transferring data to Microsoft "Word" or "Excel".

## Salient features of Image Analysis Software

### 1. Integration:

- Biovis Material Plus software is integrated with Artray corporation camera from Japan. Due to which we can perform the following features.
- Live image preview and capture from within the software
- One click image captures and save operation with auto filename generation to enable easy and rapid image capture of several fields from a sample.
- Addition inbuilt Twain support for image capture thru Twain compatible image capture devices.

### 2. Image processing.

- User can use these tools to manually perform process operations to render the image suitable for analysis.
- Comprehensive image processing tools for color, gray and binary operations.
- Functions include image transformation, image operations, pixel operations, image arithmetic, image processing (Binary, gray scale, color), background subtractions, shading corrections image filtering, image enhancements, image segmentation etc.
- Binary masks/ bit plane support with 16 bit planes.
- Capability for manipulating individual binary masks with filters, Boolean, logical operations & feature extractors to derive and extract features/ objects from image.

### 3. Macros

- This is a facility for minimal user intervention (macro driven) to ensure repeatability and accuracy.
- Load and save user definable macros.
- Comprehensive set of macros to cover most applications.

### 4. Batch Run

- Batch run feature to analyze several image fields at one stroke, automatically generate a comprehensive report.

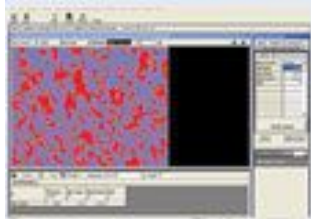
### 5. Reporting

- Generate customizable reports that can be saved in Microsoft word format for easy retrieval and archiving. User defined or customizable report templates with images and result tables.
- Inbuilt transfer of results and raw data to spreadsheets such as Microsoft Excel.

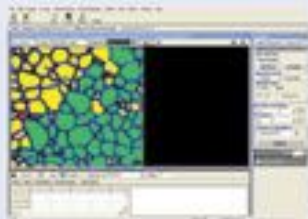
### 6. Imprint Scale

- This is advance facility which enables the user to imprint scale marker on the image or in the report. By use of this facility the user can get desired magnification on the computer screen or in the final printed report.

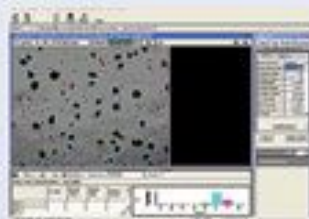
## Currently Material Analysis software is configured for following application specific modules.



Phase Area%, volume fraction) as per ASTM E562



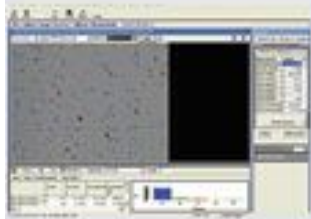
Grain size estimation Analyze as per ASTM E 112, E 1382, IS 4748



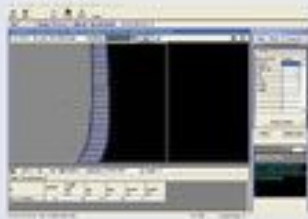
Nodularity measurements as per ASTM A 247



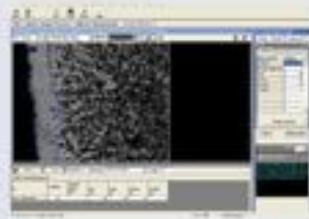
Graphite flake measurements as per ASTM A 247



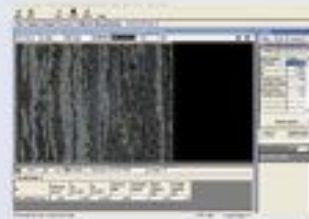
Porosity as per ASTM B 276



Coating thickness as per ASTM B 481, ISO 1463



Decarburization depth as per ASTM E 1077, ISO 3887



Carbide Banding as per ASTM E1268



Dendritic Arm Spacing



Inclusion Rating as per ASTM E 1122, ASTM E 45



Inclusion Rating as per DIN Standards



Inclusion Rating as per JIS & GOST Standards

## Microscopes



Medimage is a distributor for Meiji Metallurgical Microscopes and offer the best systems, you can find in the market to greatly improve your production and quality control.

Other reputed brand Microscopes both in Upright and Inverted types such as Olympus etc., can also be offered as per customer's budget and requirement.

We also offer our economy range of our own brand of Metavis MV Series Microscopes both in Inverted and Upright types.

## Auto Stage & Auto Focus Facility



The Meiji Microscope can be retrofitted with the optional Motorized Auto stage and Auto focus System. Thus converting the Metavis system into a total automatic image analysis system for rapid and unattended scanning and automatic capture of the image from multiple areas of the sample.

The facility is mainly utilized for automatic inclusion analysis system as per ASTM E 45/ E 1122.

As per the ASTM standards E 45 and E 1122 the analysis should be performed and results obtained on an area of 160 sqmm.

However the microscope field of view at 100x magnification is about 0.5 sqmm i.e. each 0.5 sqmm of test area to be examined, classified and rated before moving to the next contiguous field until a total area of 160 sqmm is covered.

This means that 320 fields have to be analyzed and the results collated to give true inclusion rating for a specimen. Since hundreds of contiguous fields have to be rated without any overlap or gap, an automatic computer controlled X-Y movement stage with auto focus facility is essential.

We offer our Image Analysis Software in two different versions i.e Biovis Material plus & MetImage Lx. The salient differences between the two are as follows:-

	Biovis Material Plus	MetImage Lx
1. Integrated Image Capture for machine vision cameras of reputed make	✓	X
2. Most Analysis Automatic, no need to set Threshold Range	✓	X Note a
3. Binary / Gray scale processing with 16 bit planes. Useful for manipulating images to extract features based on gray value or size and shape	✓	X
4. Batch Run within the module	✓	X
5. Macros, built macro editor.	✓	Note c
6. Morphometry, can create a set of measurement for particle analysis	✓	X Note d
7. Count & Classify with over 50 measurements for particle analysis	✓	Limited measurements Note b
8. Totally customized classification and reporting parameter for count and classify	✓	X
9. Grain Size, Phase / Volume %, Nodularity etc. all have built in macro's for easier execution.	✓	X Note a
10. Multiple / custom / standard provision for Grain/ Phase/ Nodularity etc.	✓	X
11. Inclusion module has DIN, JIS and Gost standards in addition to ASTM standard	✓	X only ASTM
12. Stereology	✓	X

The Metallurgy Modules incorporated in the software are

I. Phase / Volume %	✓	✓
II. Grain Size	✓	✓ note g
III. Nodularity	✓	✓
IV. Graphite Flake Size	✓	✓
V. Porosity	✓	✓
VI. Coating Thickness	✓	✓ note f
VII. Decarburization Depth	✓	✓ note f
VIII. Banding	✓	✓
IX. Dendrite Arm Spacing	✓	X
X. Inclusion Rating	✓	Note e

Notes:

- a. Only one standard macro can be used in module.
- b. Has a set of 10 measurements for size and shape.
- c. No user definable macrons (no Macro editor)
- d. Measure toolbar for standard morphometry tools.

- e. Only a basic inclusion method with only one macro for most type of inclusion
- f. A common thickness module
- g. Only intercept and plan metric method for grain size.



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