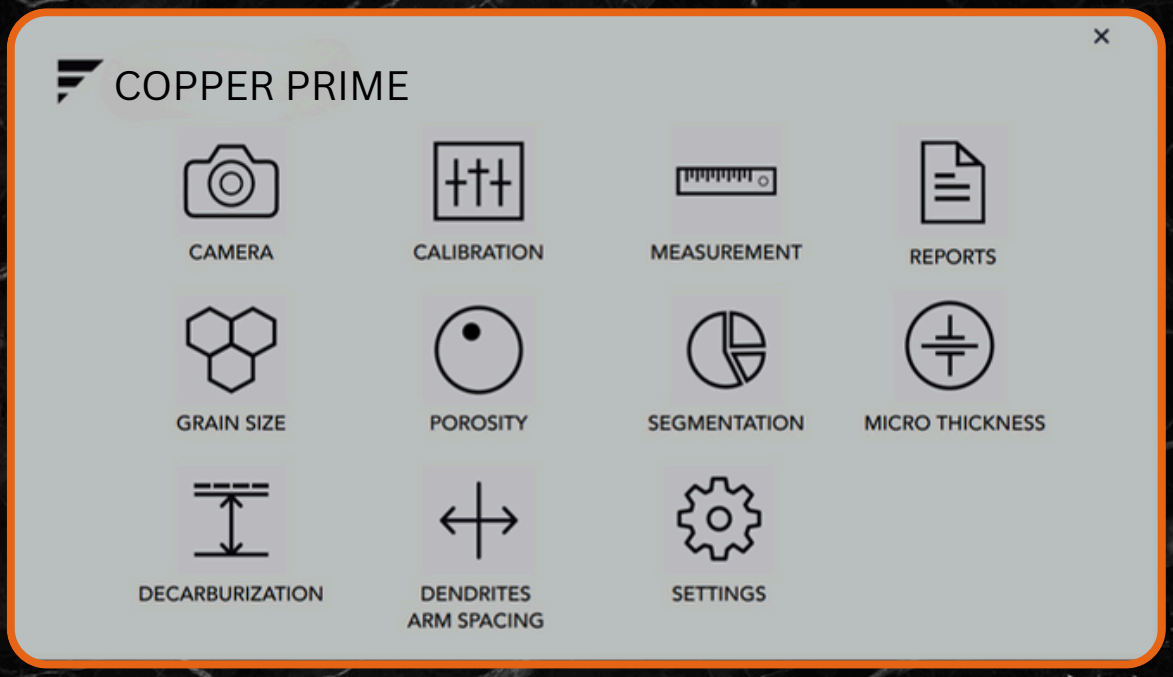
UCOMAX
UNITED COMPANY OF INDIA

COPPER PRIME

Copper Prime Microstructure Analysis Software

INTRODUCTION OF COPPER PRIME

Microstructural examination techniques of Copper Prime are employed in area such as routine quality control, failure analysis and research studies. The microstructural analysis in the Copper Prime are grain size, types of impurities, second phase, porosity, SDAS, defect present. The amount or size of these features can be measured, quantified and compared to the acceptance criterion.

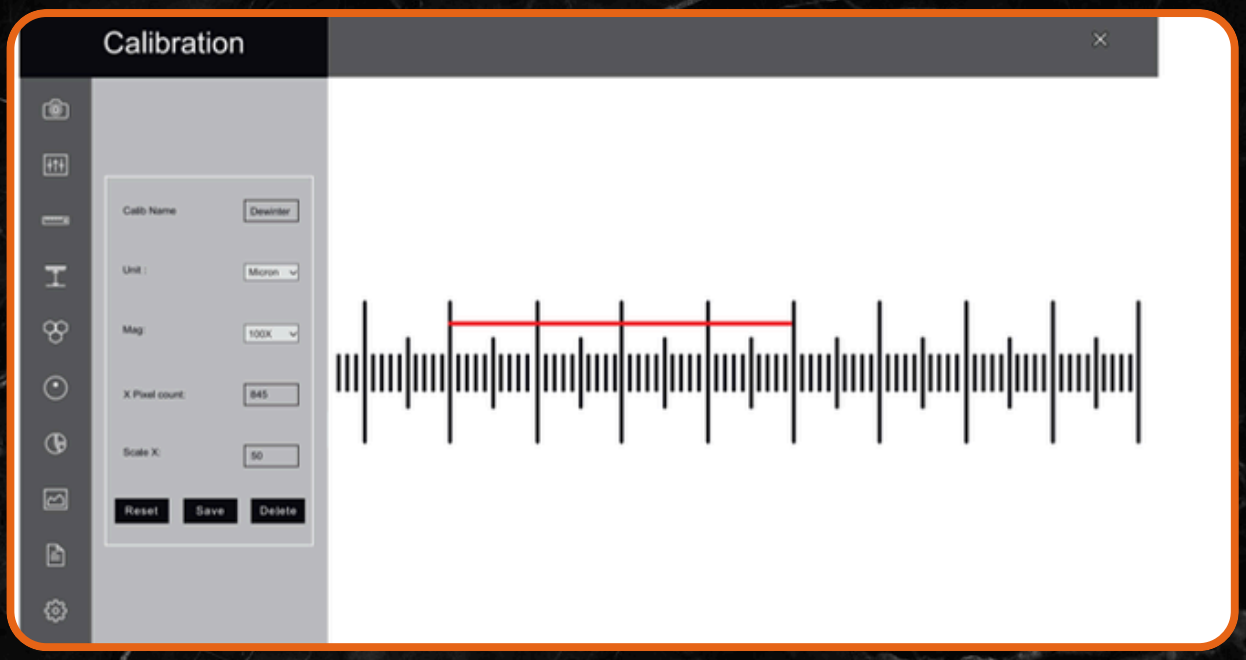


CAMERA

One can select different display/capture sizes along with other setting like white balance, brightness, contrast, Hue, Saturation can be changed on live displayed image. Once all setting are done, image can be captured in appropriate folder for appropriate analysis.

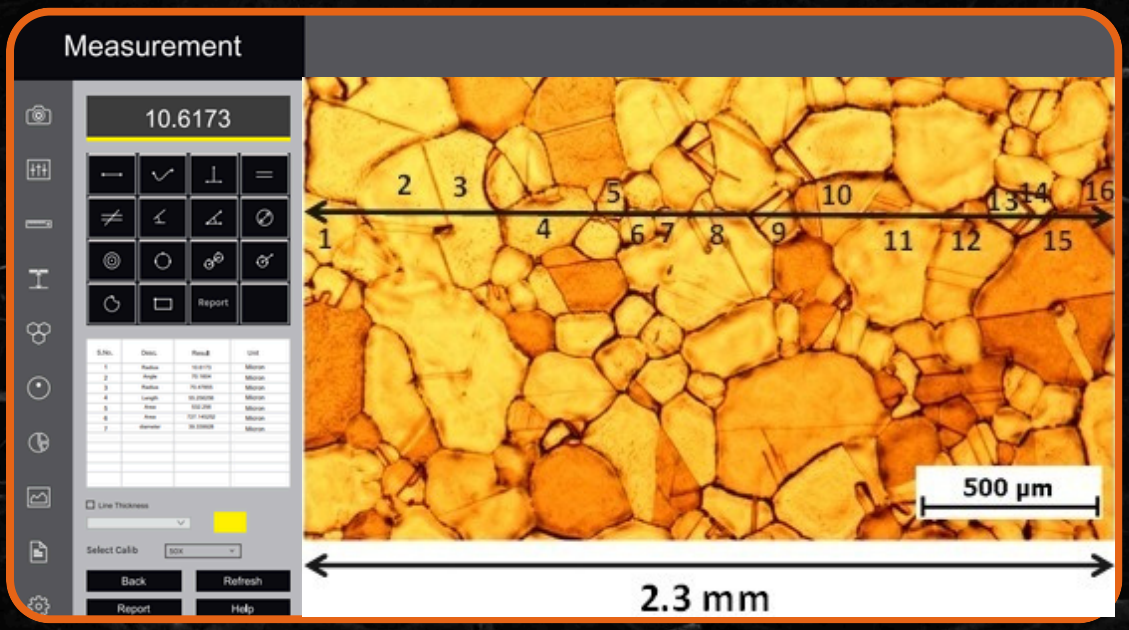
CALIBRATION

Calibration should be performed on all the objectives of the microscope, where Digital Camera is installed. Calibration should be performed only when all hardwares are finally fixed. In case of readjustments or replacement of any part, calibration should be done again.



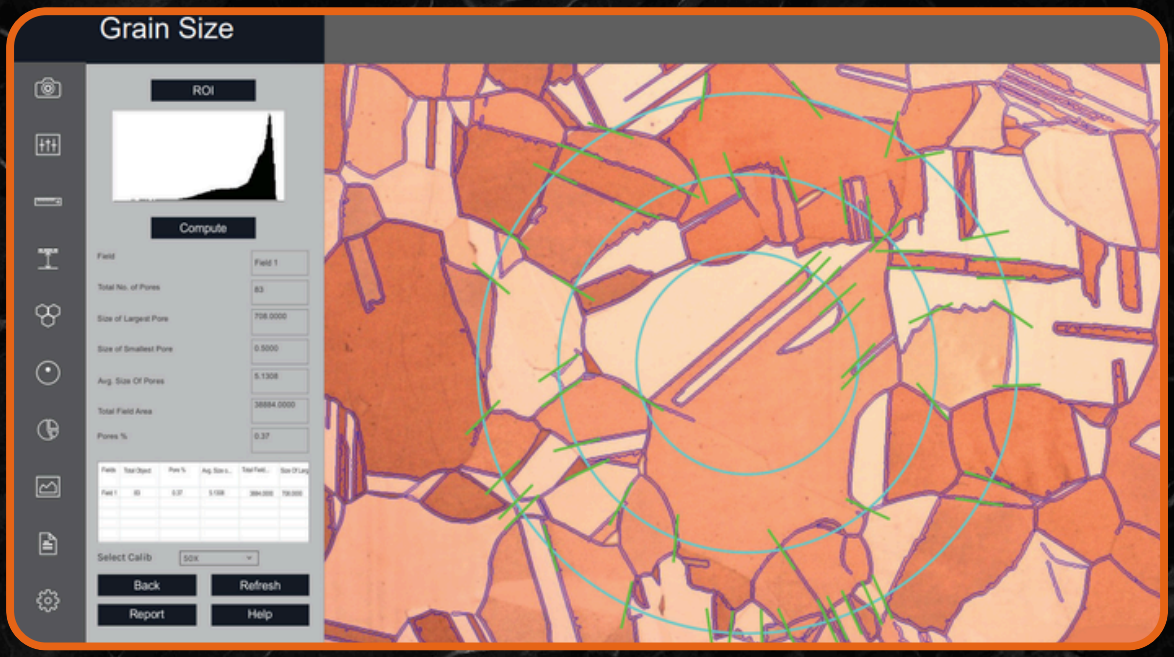
MEASUREMENT

With the Measurement module one can obtain measurement on manually drawn lines on traces, shapes or by outlining an object which cannot be accumulated and logged on to the results worksheet from where they can be stored to a file, printed or transferred to spread sheet for further analysis or statistics.



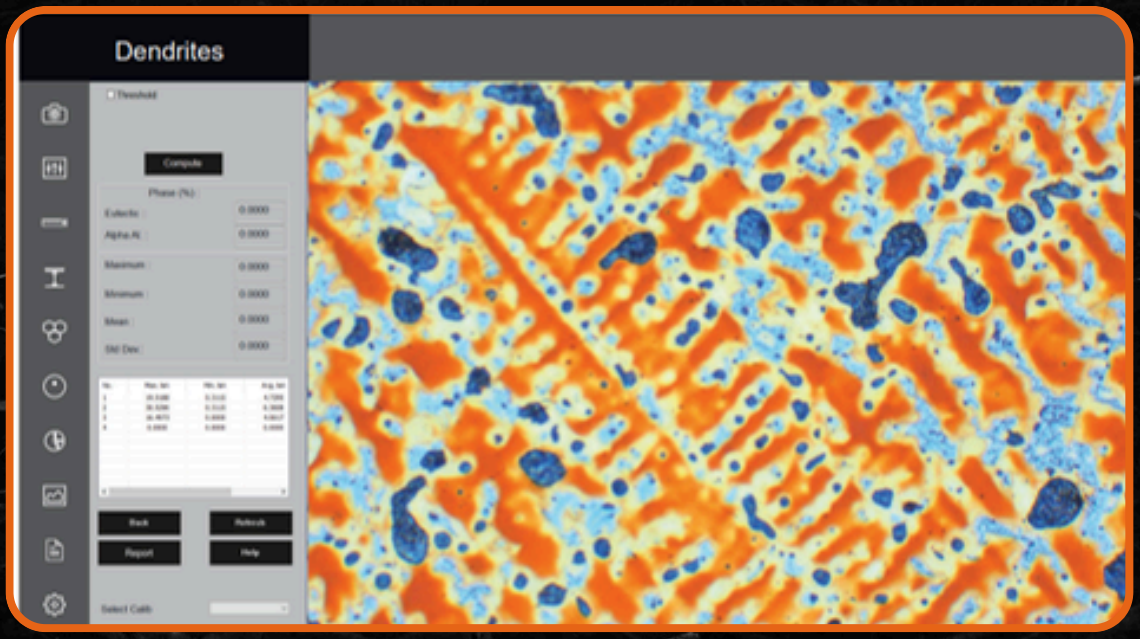
GRAIN SIZE

Copper Prime grain size measurement follows ASTM E112 Standard Fully automated & Interactive methods are available Microstructure consists of twinned, equiaxed grains. The annealed microstructure is made up of equiaxed, twinned grain of alpha copper, similar to the structure of unalloyed copper. The grains appear in different shades due to their different orientations.



DENDRITES ARM SPACING

The primary and secondary dendrite arm spacing might have a major effect on important mechanical properties. The effect of major alloying element on the size of secondary dendrite arm spacing in prime is a comprehensive understanding of melt quality is of paramount importance for the control and prediction of actual casting characteristics.



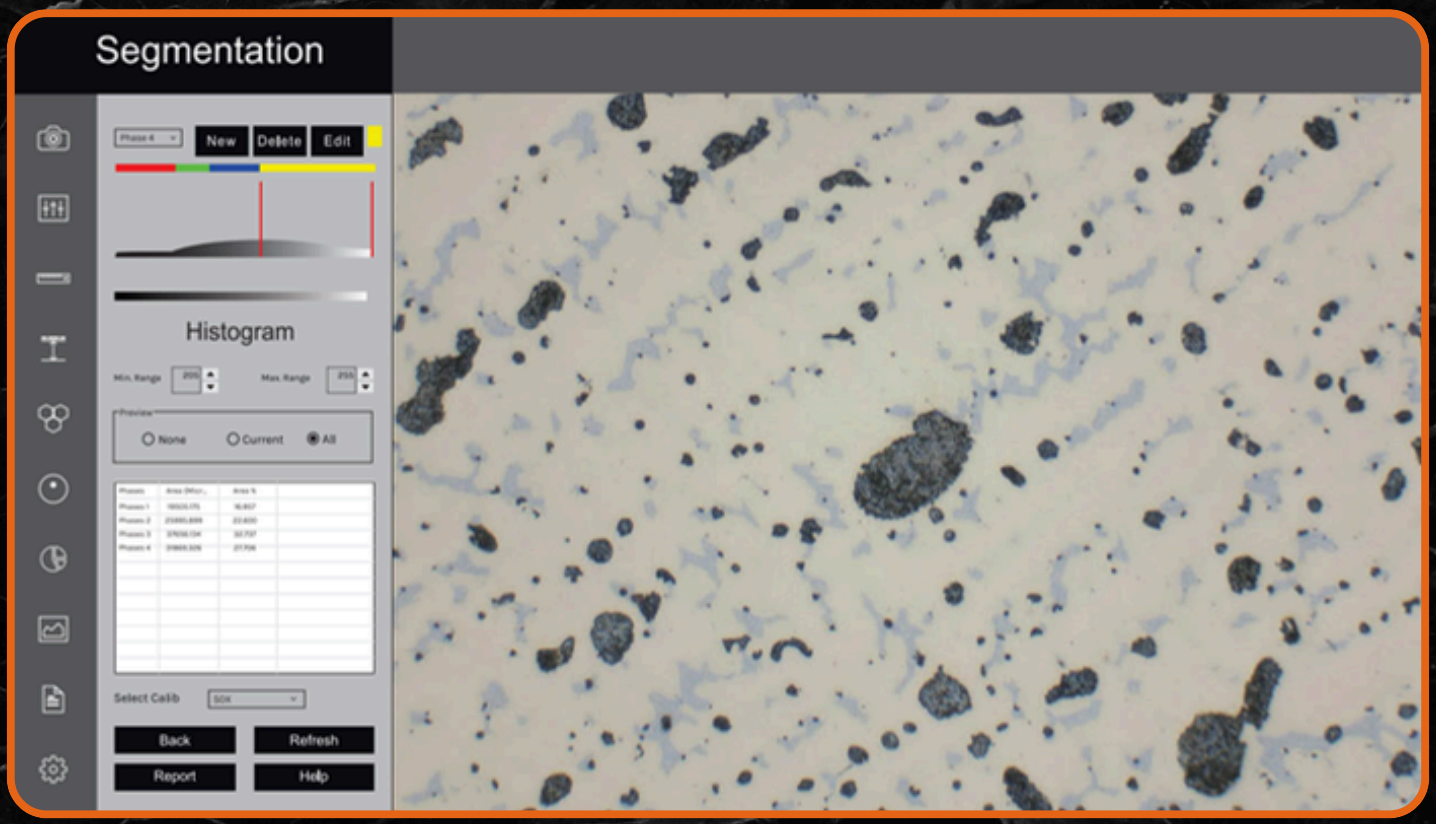
SEGMENTATION

Segmentation is a method of image partitioning on the intensity / grayscale range of its parts. Since a phase is detected and its area is estimated on the basis of its intensity / grayscale, an option for delineating phases from the histogram is also provided. Multiple phases are identify by colored overlays and can be simultaneously displayed in the same field of view. The results and images displayed get stored in to distinguish the phases prominently. Various filters like DE speckle, Smoothing etc. can be used before doing the phase.
A histogram for gray scale images is created once you open the Segmentation Module. The X-axis represents intensity scale between 0-255. The Y-axis represents number of pixels in the image. analysis. the industrial standard automatically.

HISTOGRAM: Phase allows the user to designate up to ten different threshold settings to identify material phases and name each of these phases. The color between two lines signifies a particular phase.

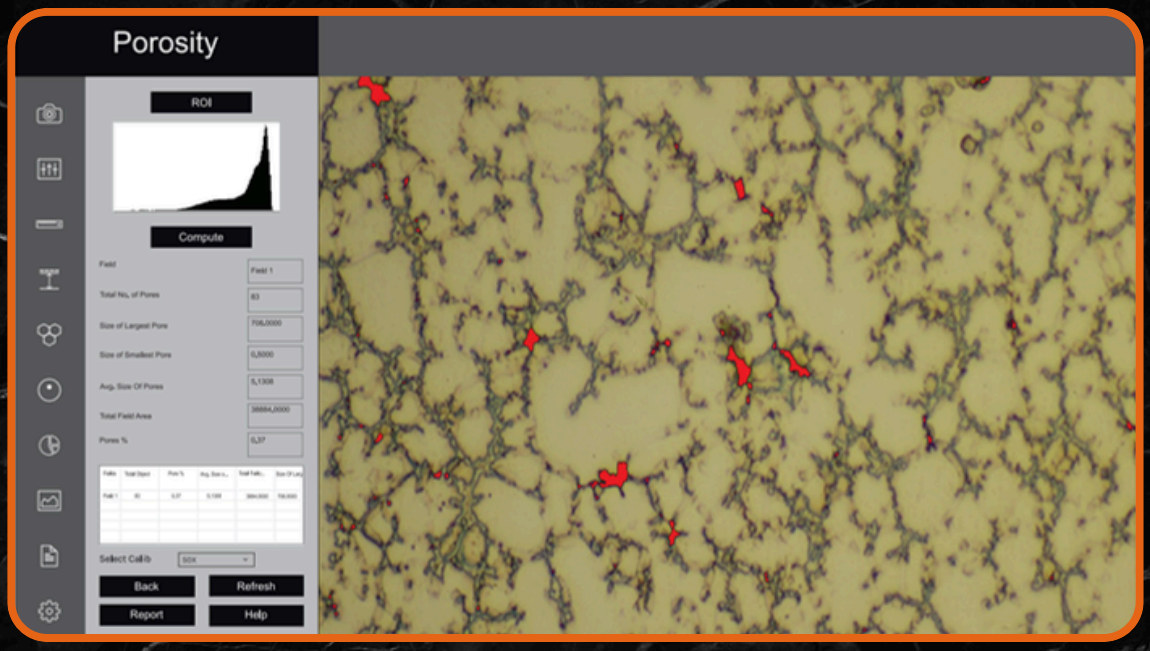
INTENSITY: The Gray Intensity range of the current phase gets display continuously in the dialogue box.

SELECTED PHASE: This property enable the user to know the percentage area of a specific range of intensity just by clicking the mouse. All previous operations have to be deleted and Preview should be on None.



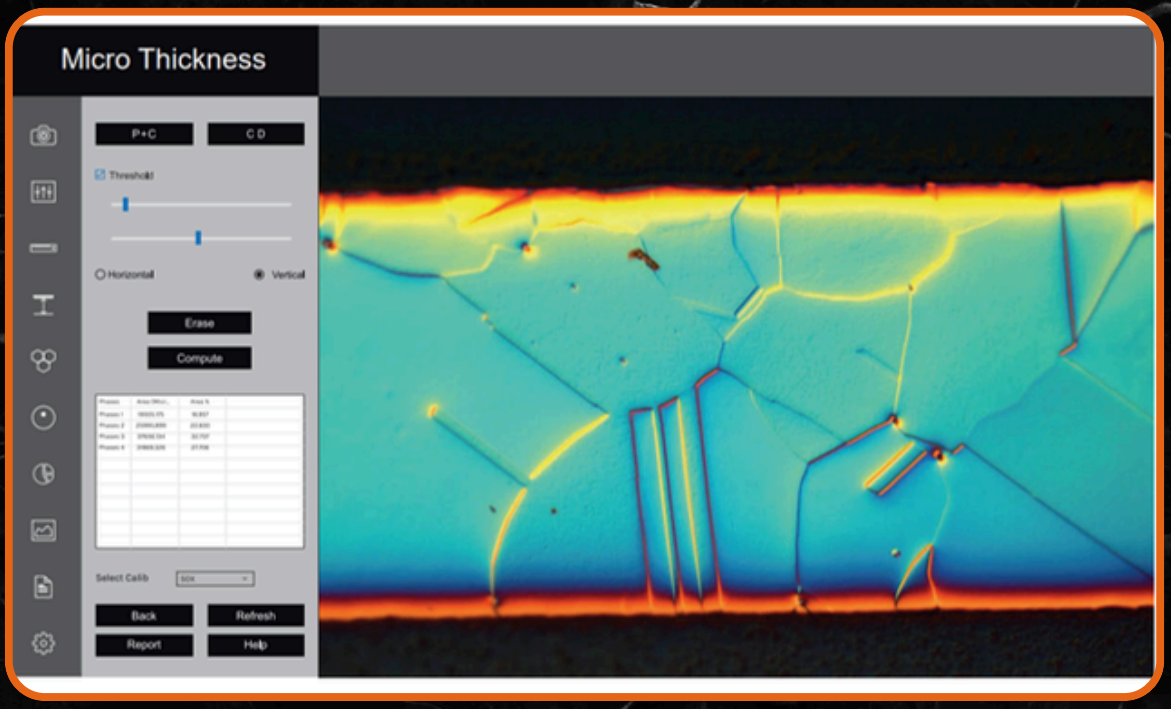
POROSITY

The porosity in powder metallurgy in an important parameter because it is effecting the mechanical properties. In image analysis, porosity measurements in applying filters and threshold is analyzed to detect pores.



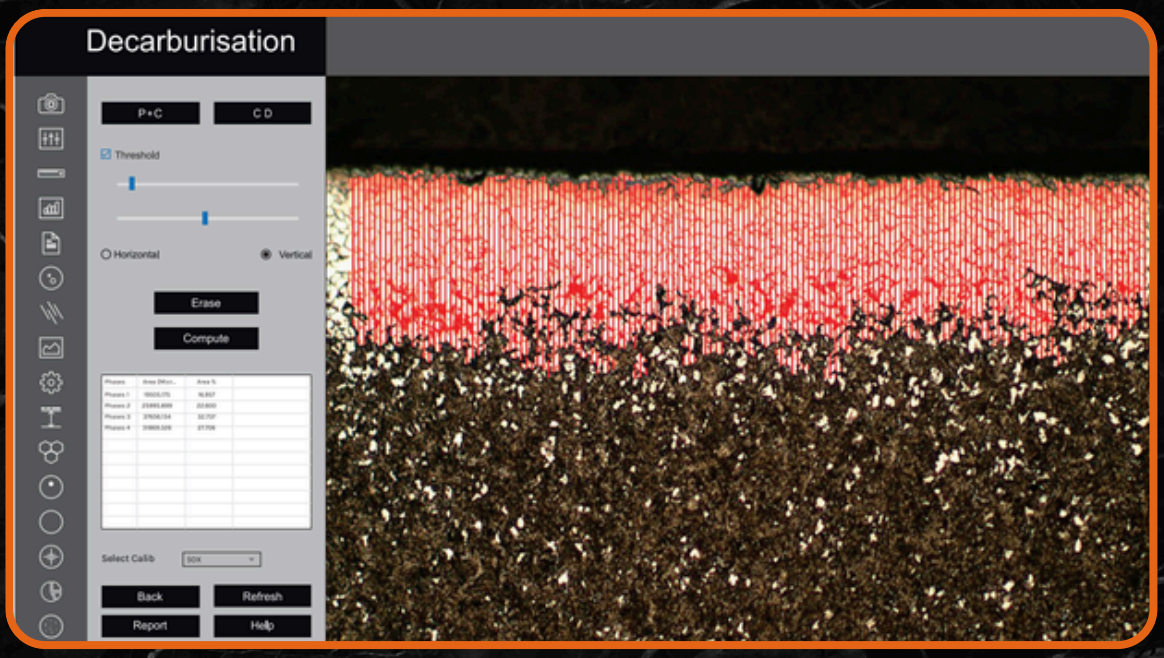
MICRO THICKNESS

Plating or coating thickness is determined by cross-sectional microscopy method. The specimen is cross- sectioned, mounted, polished and microscopically evaluated for measuring the plating or coating thickness, sometimes, etching of the core base metal may be necessary to accurately measure the coating or plating thickness. The test method covers measurements of the local thickness of mental and oxide coatings by the microscopical examination of cross sections using an optical microscope. Under good condition, when using an optical microscope, the method is capable of giving an absolute measuring accuracy of 0.8 mm. this with determine the suitability of the method for measuring the thickness of thin coating.



DECARBURIZATION

The module is used to determine the depth of Decarburisation form the changes in structural quality In partial decarburisation is where the carbon content is reduced but there is on total Decarburisation is measured in work piece to the limit of the limit of the ferritin layer with almost total carbon removal if compliance ASTM E-1077-91 Standard



SETTINGS

The Module SETTING is designed to set various parameters for first time when software is installed. The setting options are available to choose ISO/ASTM standard calibration, setting in report format, setting of various parameter on printed image in report. Once all settings are done, you need one button click for all Analysis.

All settings are stored till you change them in future. Do not change them in routine, it is not necessary.

If you click on settings icon, new UI will open. The platform help you to decide the shortcuts of your working. If you choose any of radio button correctly, your working will have no scope for mistake and software will be one button working

1. Report Type

Options are available to get report either in ASTM or ISO formats. Choose any of them, this will be automatically be in default setting till you modify in future.

2. Set Default Use

Our software give a choice to work either on live display images or you can capture first all images and work on them later. • It means you want to work on live images.

• This is for working on stored / captured images.

3. Select Calibration

Choose calibration which are available in stored data. Usually we do all work on 100X objective in Cast Iron.

4. Set 100 Micron Line

If you need Scale bar on image choose the fourth options available: • To Show boundary click it if you want to see contour around the graphite.

• Click on Show Number if you want to display counting on graphites.

6. Set Gallery Path

Gallery path is set by default. But if you need to change this path, you can do necessary changes.

7. Aspect Ratio

This is usually fixed. But change only if required.

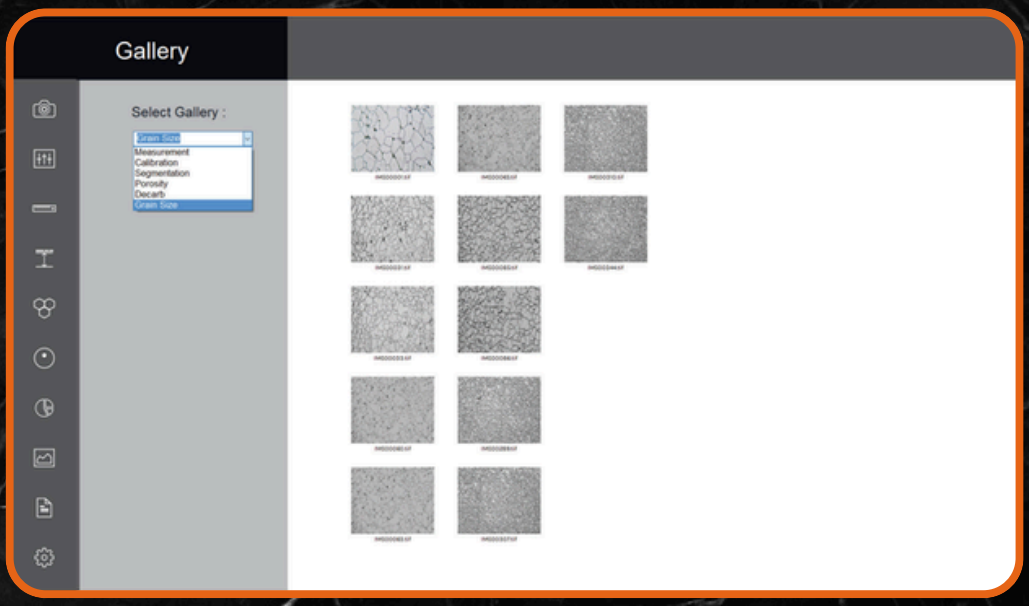
8. Two templates are available

• Report with chemical composition and physical analysis properties composition.

• Report without chemical & physical properties.

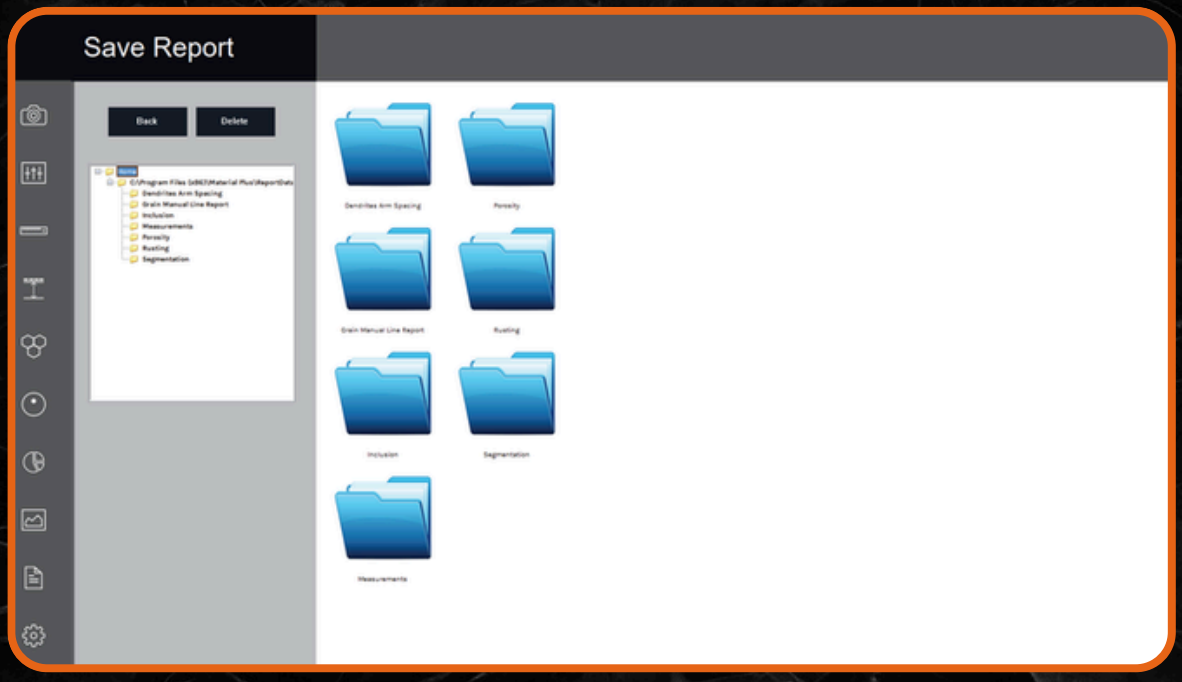
GALLERY

Gallery Four Folders are available to view any Captured images.
The folders are:
1. Measurement
2. Segmentation
3. Grain Size
4. Porosity
5. Decarburization



SAVE REPORT

All reports are saved in the folder and can be retrieve anytime in future.



989/16/2, FIRST FLOOR NEAR GAYATRI ICE INDUSTRIES,
MAKARPURA,VADODARA, GUJARAT - 390010

sales@ucomax.com www.ucomax.com +91 63588 33112