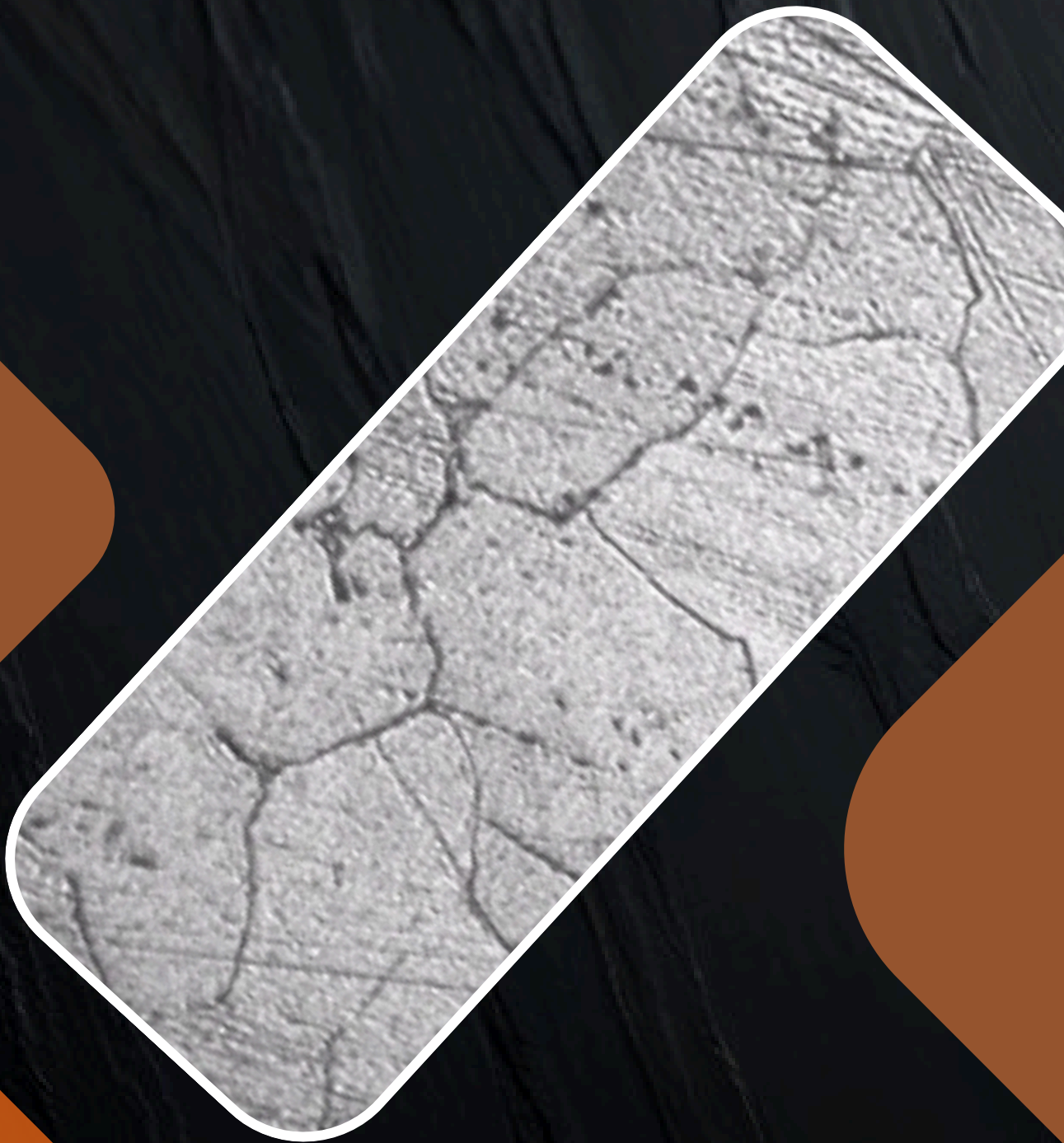
UCOMAX
UNITED COMPANY OF INDIA

ALUMINIUM PRIME

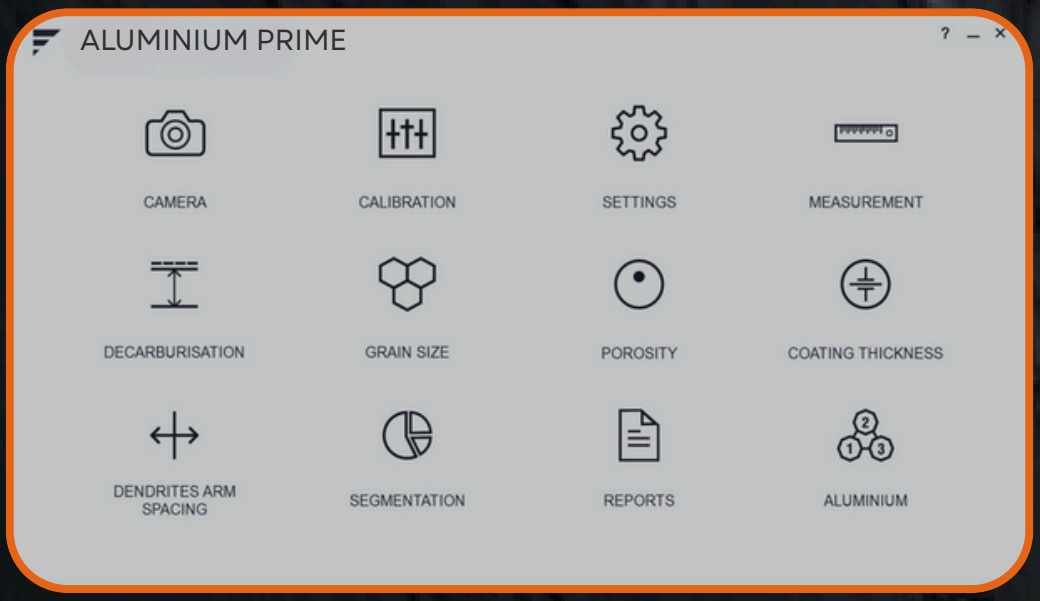
Aluminium Prime is a modular quantitative image analysis software Specific to Aluminium alloy industries



INTRODUCTION OF ALUMINIUM PRIME

“ALUMINIUM PRIME” is an image analysis software specific to Microstructure analysis of Aluminium alloys.

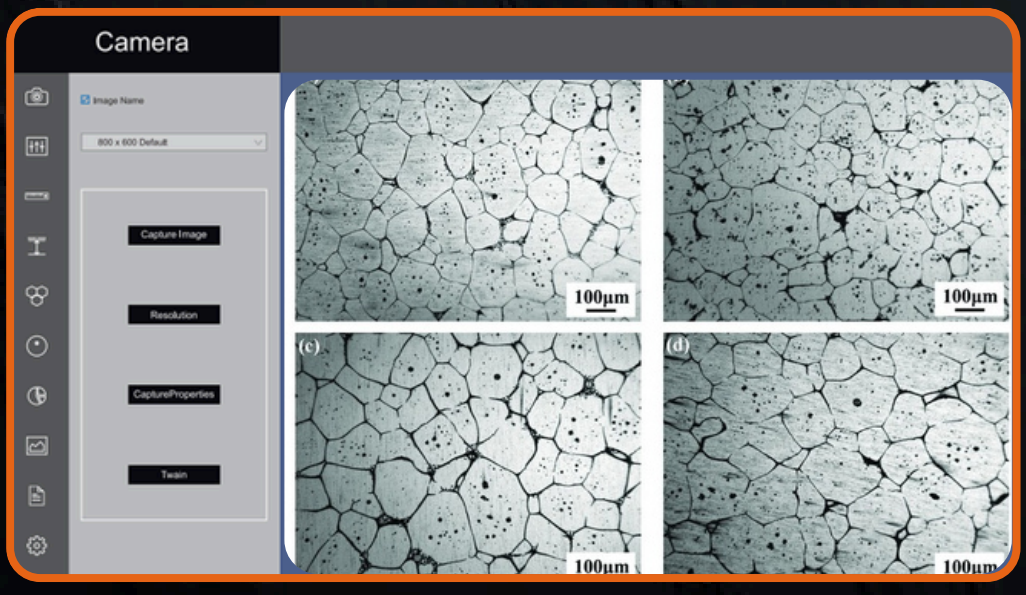
Aluminium alloy products have been widely used in machinery manufacturing, transportation, electrical, shipbuilding, aviation & construction and other fields. Their properties highly depend on the distribution, shape & size of Microstructures. “ALUMINIUM PRIME” is using improved & new algorithms to improve it’s efficiency & it’s specificity. According to the use of these methods, We can classify them into four categories: grain boundary extraction, quantitative calculation, Microstructural classification & segmentation



This is the first look of UI of Aluminium Prime

CAMERA

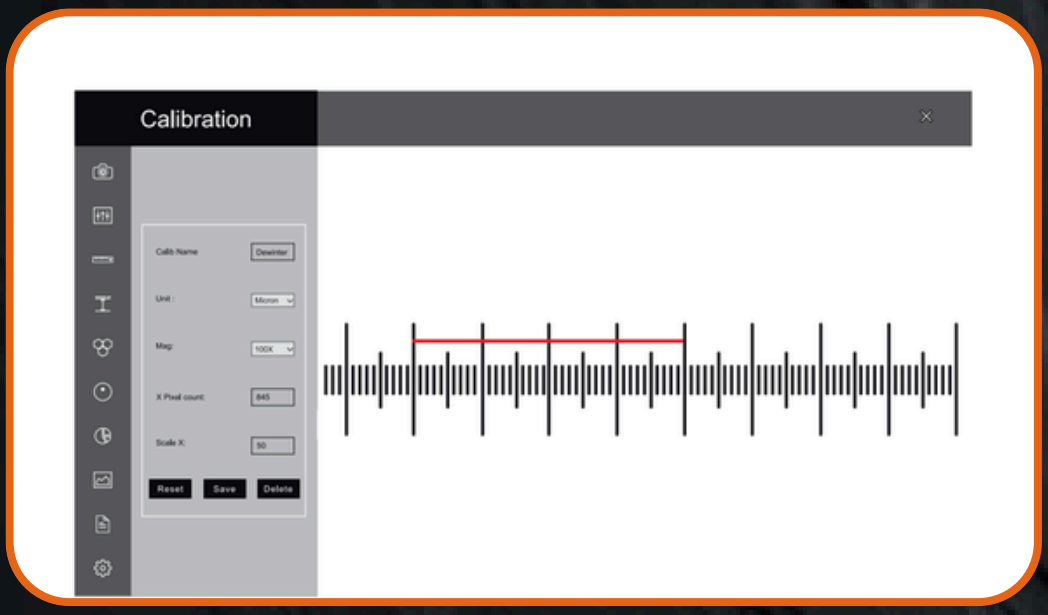
One can select different display/capture sizes along with other setting like white balance, brightness, contrast, Hue, Saturation can be changed on live displayed image. Once all setting are done, image can be captured in appropriate folder for appropriate analysis.



SOFTWARE INTERFACE

CALIBRATION

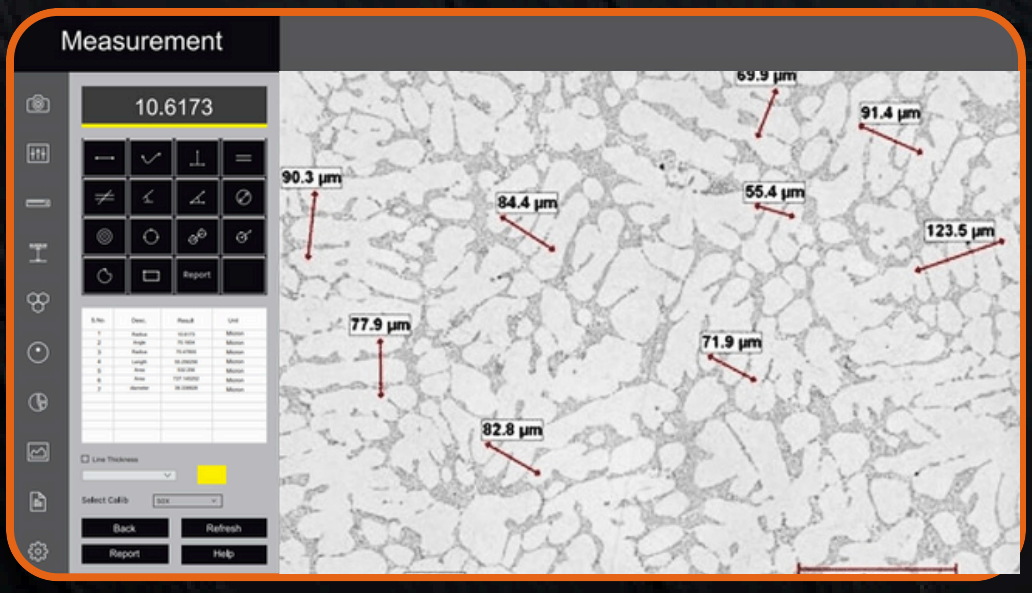
Calibration should be performed on all the objectives of the microscope, where Digital Camera is installed. Calibration should be performed only when all hardwares are finally fixed. In case of readjustments or replacement of any part, calibration should be done again.



Software Interface

MEASUREMENT

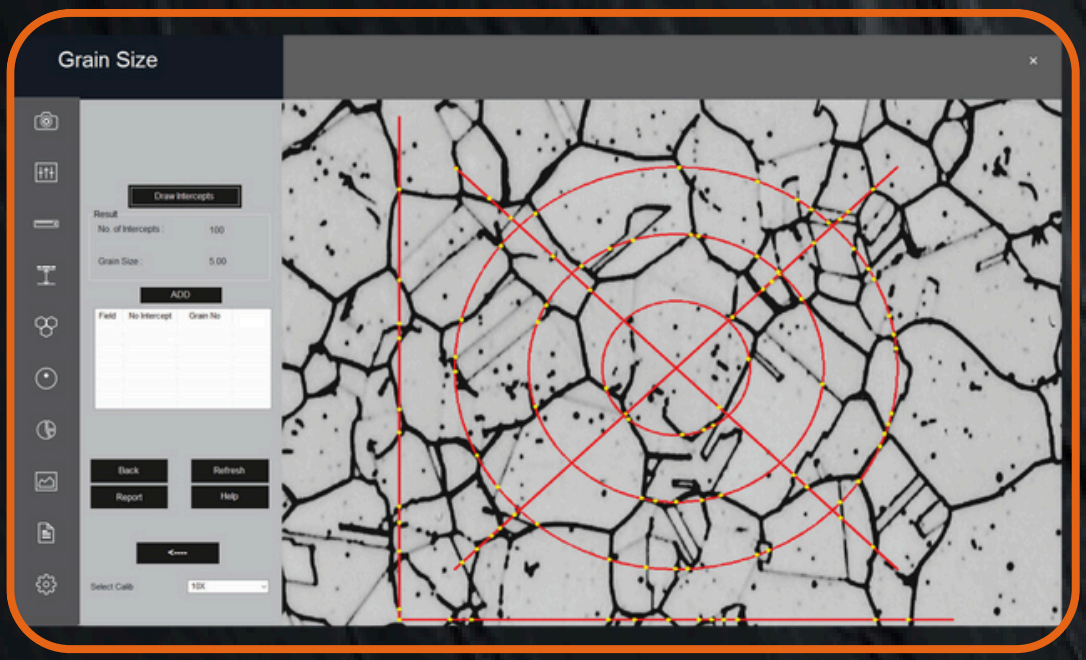
With the Measurement module one can obtain measurement on manually drawn lines on traces, shapes or by outlining an object which cannot be accumulated and logged on to the results worksheet from where they can be stored to a file, printed or transferred to spread sheet for further analysis or statistics.

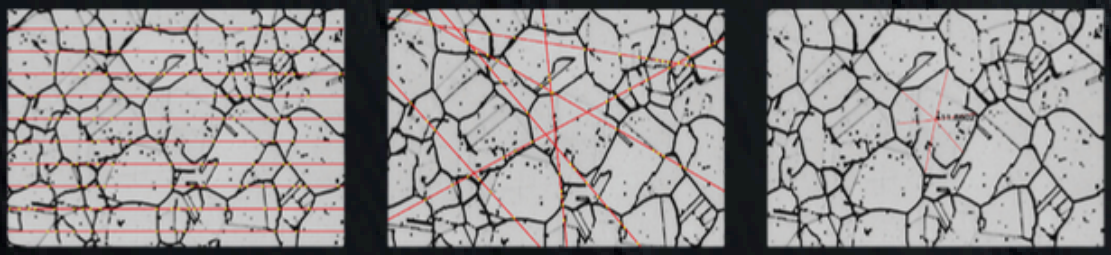


Software Interface

GRAIN SIZE

This module can quickly perform automatic, objective and repeatable grain size analysis to industrial standards to determine ferritic & austenitic grain size in steed, international method ASTM E-112, E-93, E1181 are used. Comprehensive selection of analysis technique are: • Lineal intercept method • Abrams three circle method. • Snyder & graft method. • Comparison method • Random intercept method • Manual grain size. This wizard measures the Grain number, the mean area, mean intercept length, at high speed according to selected method.





Sample Image

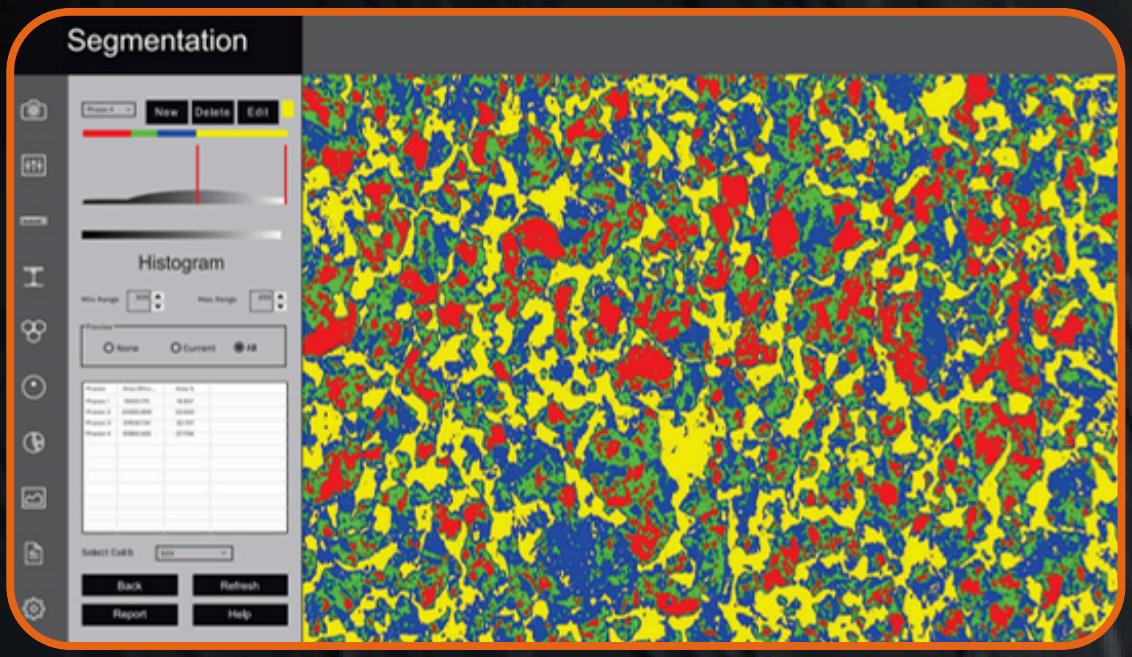
SEGMENTATION

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 Despeckle, 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.

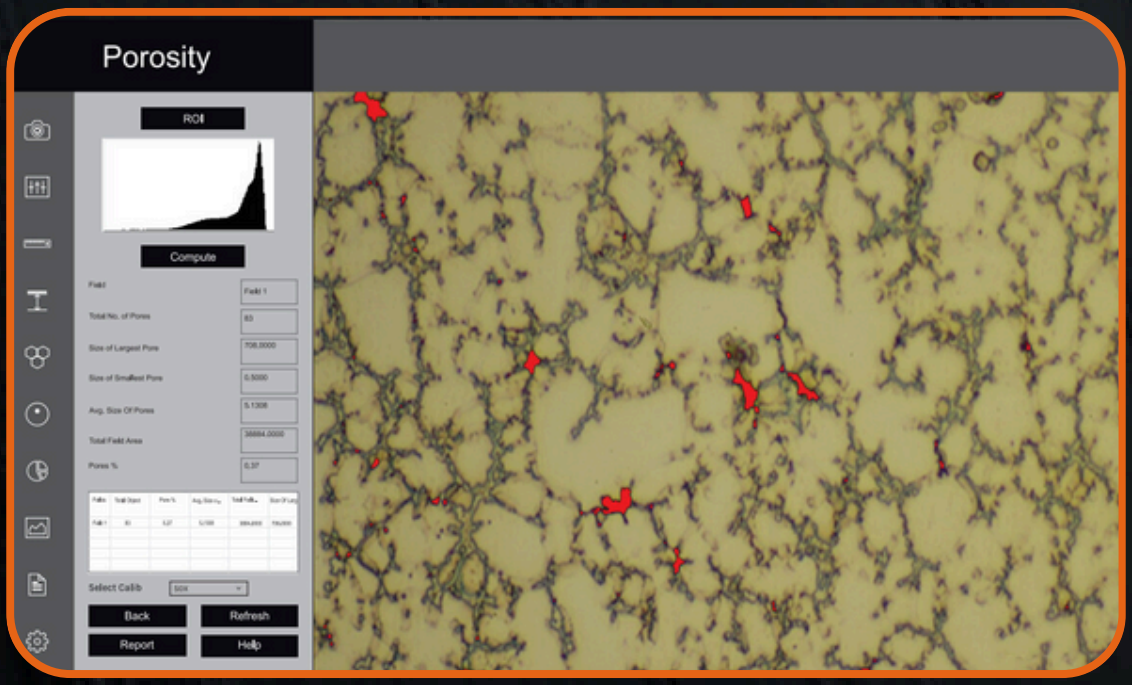
INTENSITY: The Gray Intensity range of the current phase gets display continuously in the dialogue box

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



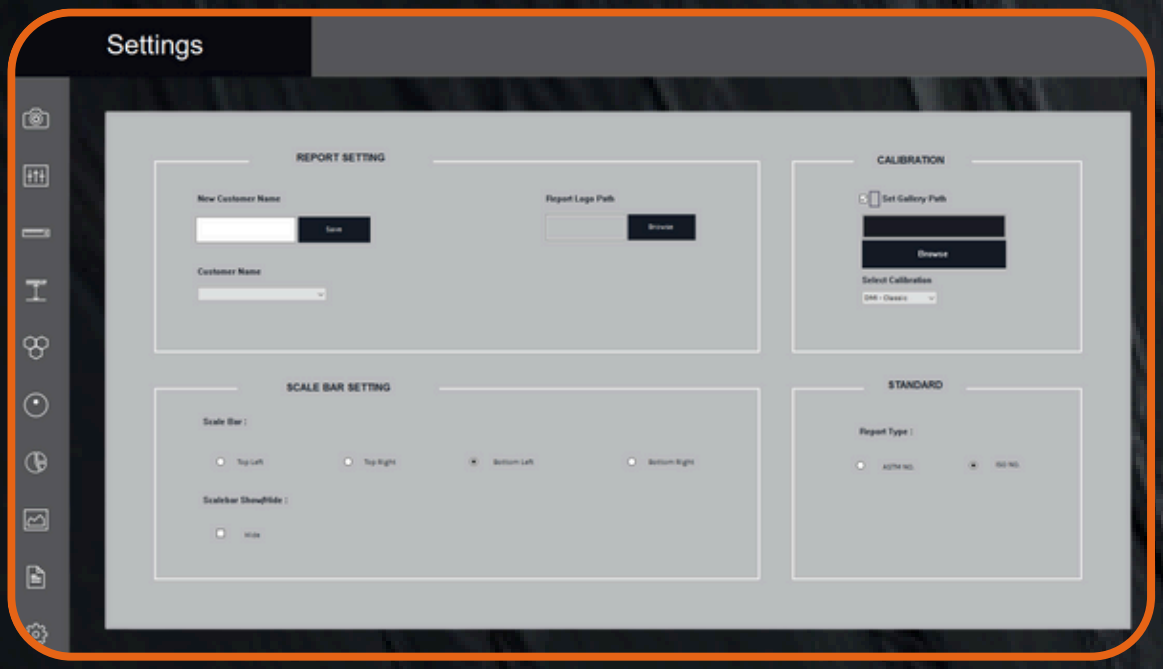
POROSITY

Pores, due to their contrast with the rest of the image, are relatively easy to detect automatically the module allows a user to recognize and measure the porosity in the material according to ASTM B276 Standard Thresholding readily accomplished using gray scale techniques. The dark phase of porosity is detected in red bitplanes. The total number of pores are counted along with their percentage of minimum & maximum size are also identified and reported. The whole process is fully automatic



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.



GALLERY

Four Folders are available to view any Captured images. The folders are:

1. Measurement
2. Segmentation
3. Grain Size
4. Porosity
5. Decarburization
6. Dendrites Arm Spacing
7. Aluminium
8. Coating Thickness

SAVE REPORT

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

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