PACE TECHNOLOGIES

MATERIALS PLUS
Segmentation Measurement

Example: Segmentation

Segmentation is a method of image partitioning based on the intensity / gray scale range of its components. Since a phase is detected and its area is estimated on the basis of its intensity/ gray scale, an option for delineating phases from the histogram is provided. Multiple phases are identified by colored overlays and can be simultaneously displayed in the same field of view. The results and images displayed get stored in the industrial standard automatically.

To distinguish the phases filters like despeckle, smoothing etc can be used before doing the phase analysis.
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.

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 scale/ intensity range of the current phase gets displayed continuously in the dialogue box.

SELECTED PHASE: This property enables the user to obtain 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.

PROCEDURE:

1. Load the image for segmentation analysis.
2. Select the appropriate saved calibration scales from the drop down list at the bottom of the Window
3. Click on the Segmentation icon  either from the Toolbar or from the Menu-bar
4. The intensity distribution (histogram) for the current image will appear.
5. The histogram will have one movable line. The line can be adjusted. To move this line, place the cursor over the line and click the left mouse button. The cursor will change into a directional arrow. Drag the line to the new position by moving the mouse with the left mouse button pressed. Release the left mouse button at the new position.
6. Click NEW for the second phase. A second line will appear. The color of the second phase can be changed with a mouse click on the color box; otherwise, a default color will appear.
7. The second line can be adjusted in the same as before in step 5. Repeat the procedure for the additional phases.
8. Press DELETE to delete the last phase.
9. To restart the entire operation, click RESET.
10. The nomenclature for each phase can be changed by clicking on EDIT.
11. Results are displayed in percentage area and total area of each phase.
12. Click on any phase to change the name.
13. To plot the data click on GRAPH
14. To show the result of a single phase automatically, click on the specific phase of interest and click on SELECTED PHASE. The results will appear and can be printed.
15. To save the report to the report too, click on REPORT
16. A sample information window will appear. Fill the required information. Click on “Save Data For Report Tool”
17. Click on “TO EXCEL” to see the result in Excel.

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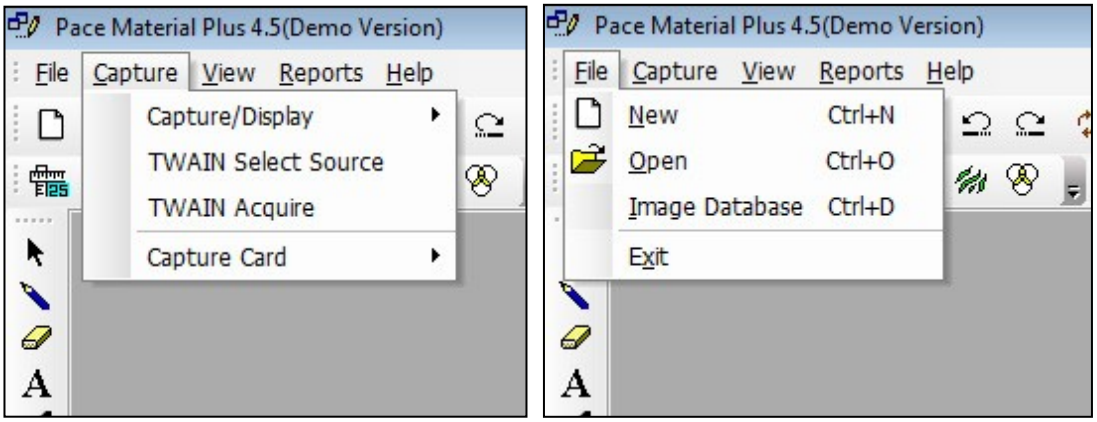
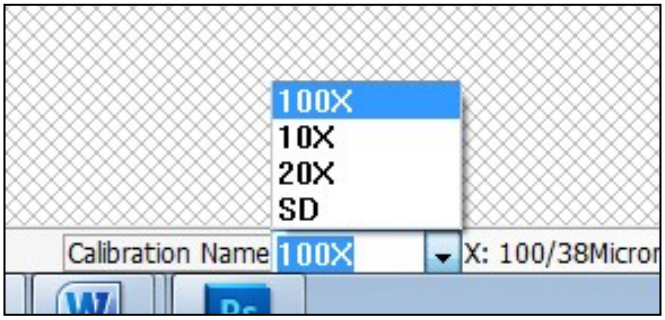
MATERIALS PLUS
Segmentation Measurement

EXAMPLE of Segmentation

1. File > Open (select image) or Capture > TWAIN Acquire (for live image)



2. Select Calibration scale at bottom of the Window



3 Click on the Segmentation icon  either from the Toolbar or from the Menu-bar

4. The intensity distribution (histogram) for the current image will appear.

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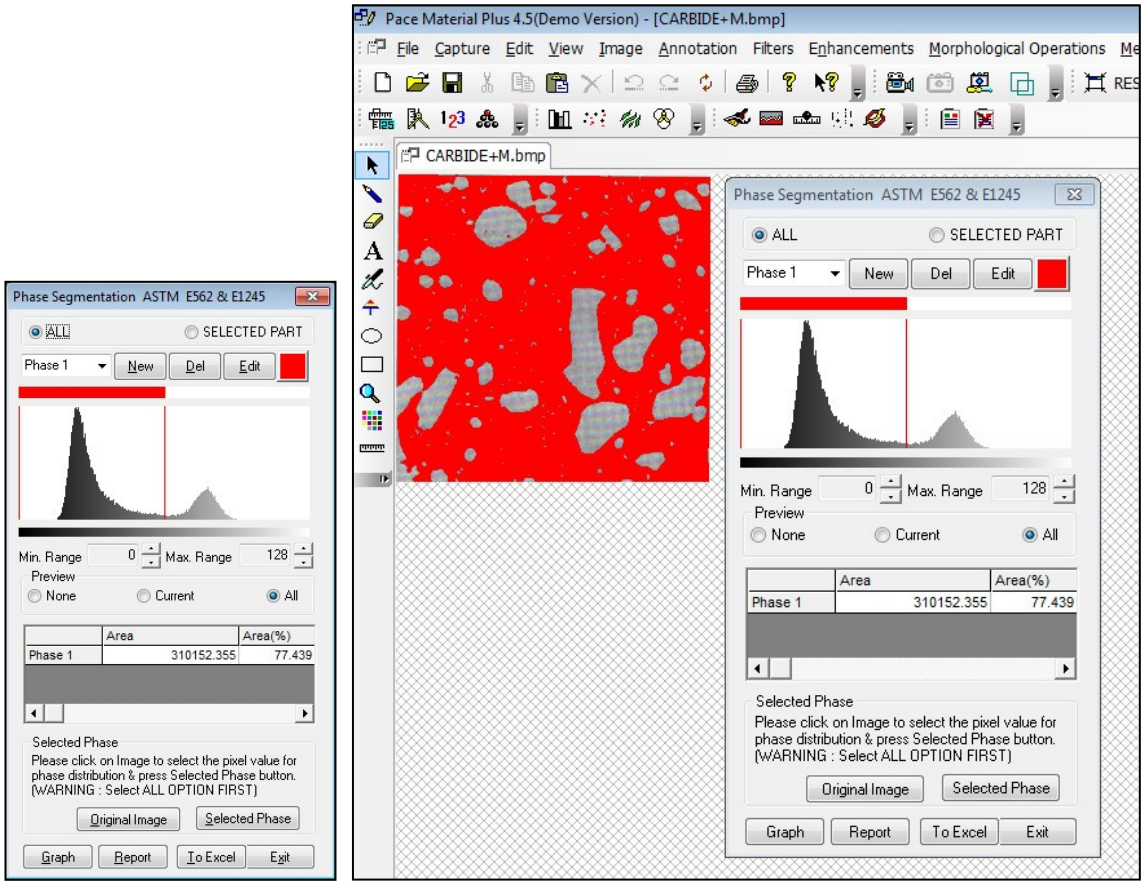
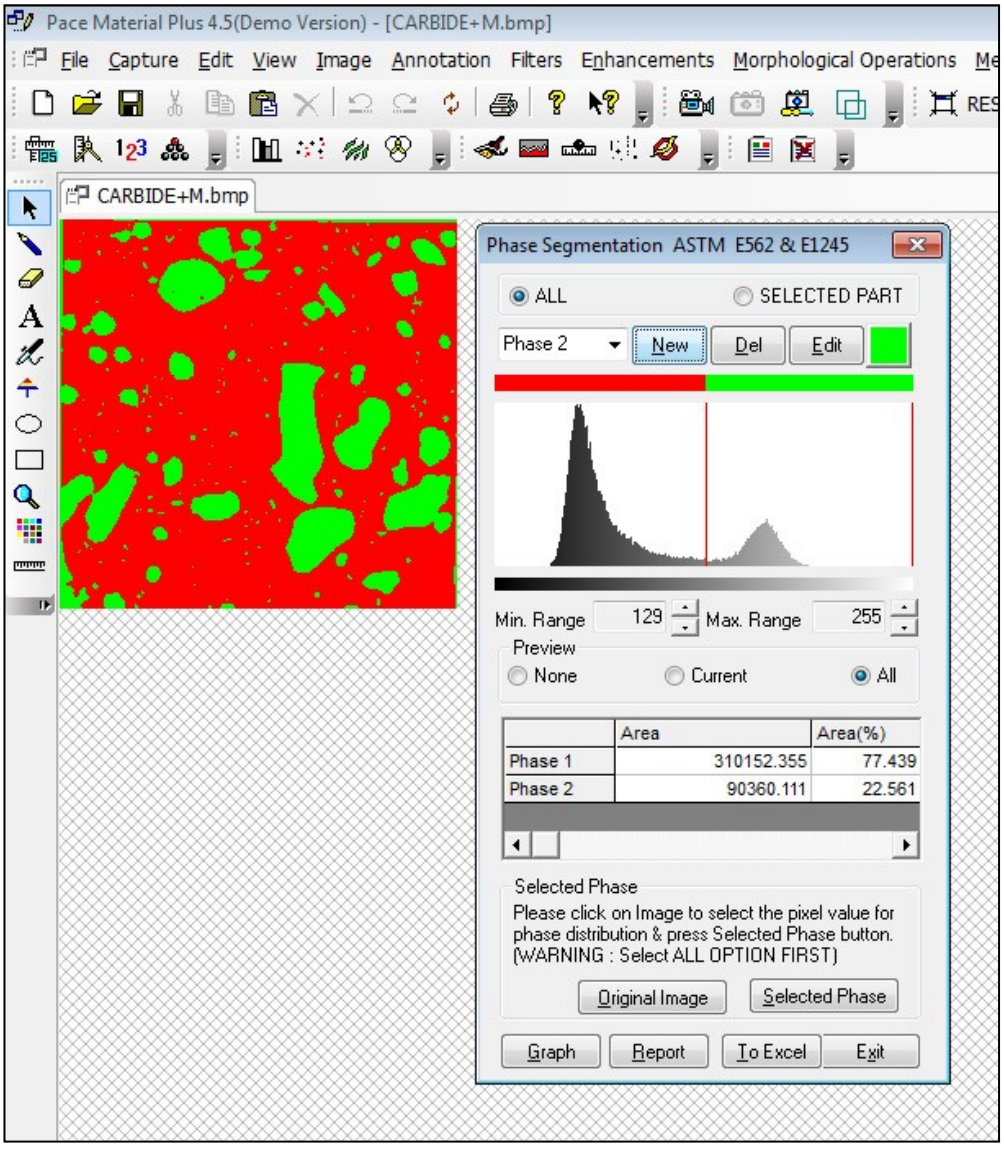
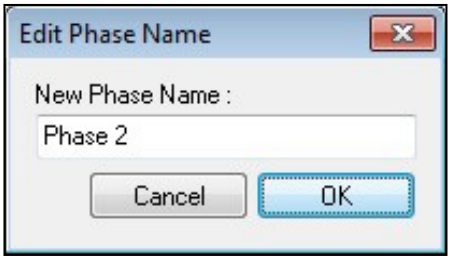


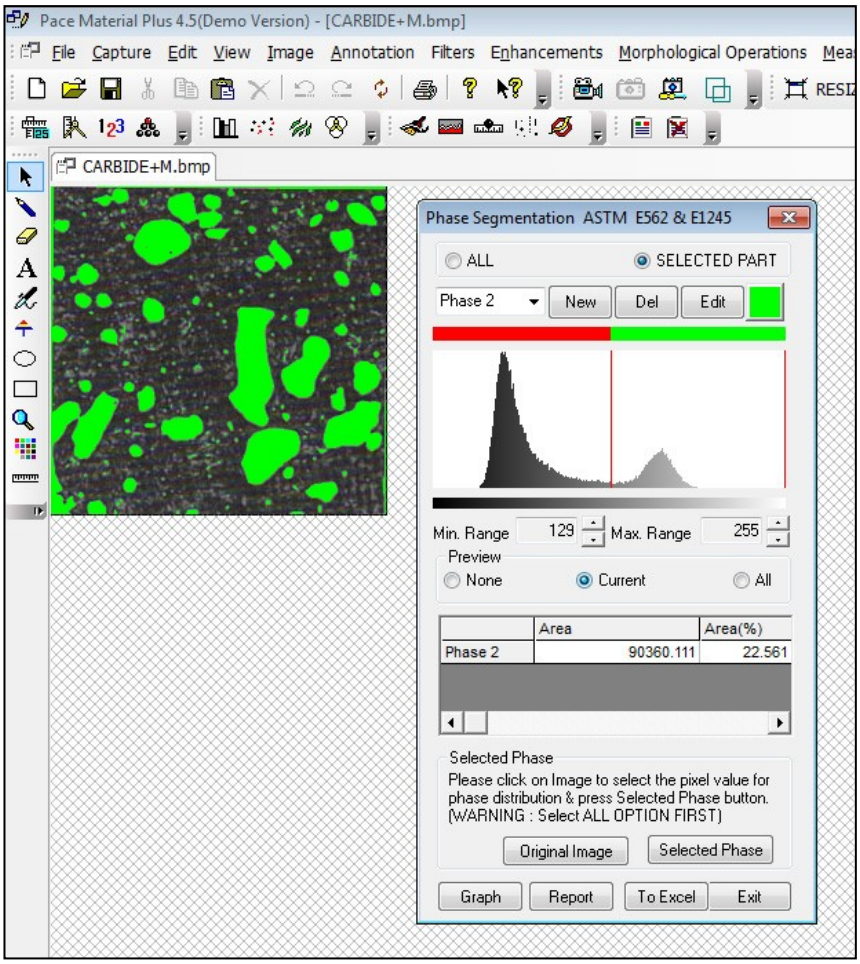
5. The histogram will have one movable line. The line can be adjusted. To move this line, place the cursor over the line and click the left mouse button. The cursor will change into a directional arrow. Drag the line to the new position by moving the mouse with the left mouse button pressed. Release the left mouse button at the new position.
6. Click NEW for the second phase. A second line will appear. The color of the second phase can be changed with a mouse click on the color box; otherwise, a default color will appear.



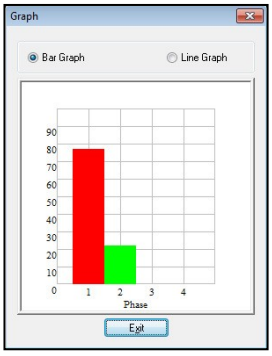
7. The second line can be adjusted in the same as before in step 5. Repeat the procedure for the additional phases.
8. Press DELETE to delete the last phase.
9. To restart the entire operation, click RESET.
10. The nomenclature for each phase can be changed by clicking on EDIT.



11. Results are displayed in percentage area and total area of each phase.
12. Click on any phase to change the name.
13. To show the result of a single phase automatically, click on the specific phase of interest (CURRENT) and click on SELECTED PHASE. The results will appear and can be printed.



14. To plot the data click on GRAPH



15. To save the report to the report too, click on REPORT
16. A sample information window will appear. Fill the required information. Click on "Save Data For Report Tool"

17. Click on "TO EXCEL