

GRAIN SIZE ANALYSIS IN STAINLESS STEEL

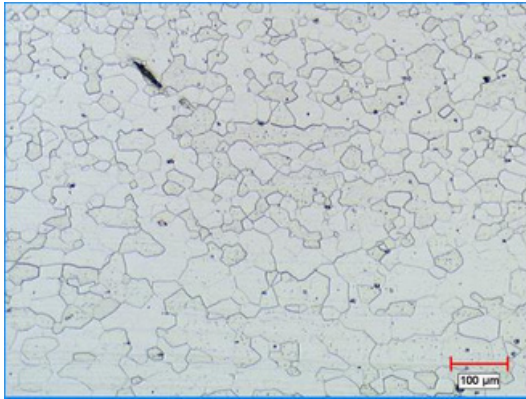


Figure 1: Original image at 100X.

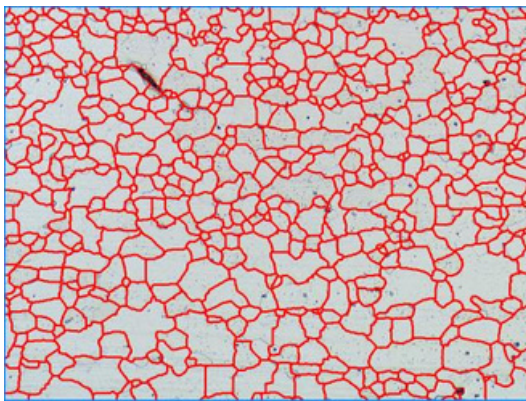


Figure 2: Outline view of grains binarized in red prior to measurement.

Sample Description

Five stainless steel samples were submitted for analysis.

Purpose of Analysis

Demonstrate the ability of the Clemex Vision image analyzer to discriminate, separate and measure grains.

Procedure

A Top Hat instruction was applied to isolate grain boundaries. The grain network was binarized using Gray Threshold. The binary plane was cleaned from artifacts and inverted. Objects were separated based on their convexity to reconstruct grains.

Equipment

Image Analysis System:	Clemex Vision PE
Microscope:	Nikon Optiphot-2
Camera:	Sony DXC-950P
Magnification:	100X
Stage:	Marzhauser 40x40 mm

Results

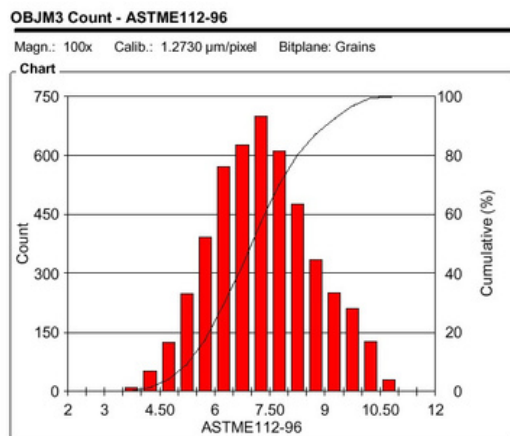


Figure 3: ASTM E112 grain size distribution.

ASTM E 112 grain size measurements are performed. Results are cumulated for automated statistics and graph generation. Final results can be printed directly from Clemex Vision. Raw data are linked to their respective objects and can be exported in Excel format.

No difficulties were encountered in analyzing grains without twins. Twinned grains were analyzed using a semi-automatic process based on the Heyn method.