

Grain Size in Pure Aluminum Image Analysis Report 262

Sample Description

Sample of pure aluminum (0.5 Cu) already prepared and etched with MRC reagent.

Purpose of Analysis

Demonstrate the ability of the Clemex Vision image analyzer to discriminate the grain boundaries in the field of view. The system has to perform measurements based on intercept methods and express results accordingly to ASTM E112 standard.

Procedure

Small isolated features were considered as artifacts and removed using some binary operators such as *Thin*, *Pruning* and *Trap*.

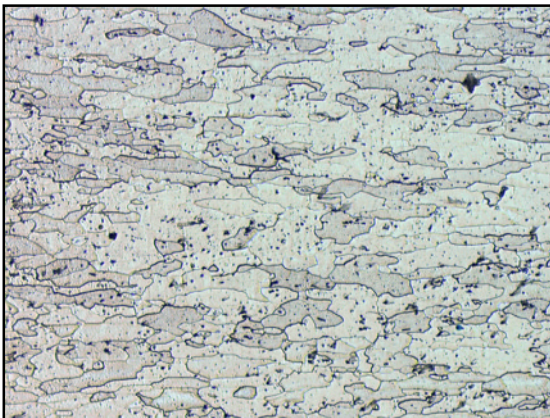


Figure 1: Original image before gray Thresholding. Calibration factor: 1.2719 micron/pixel.

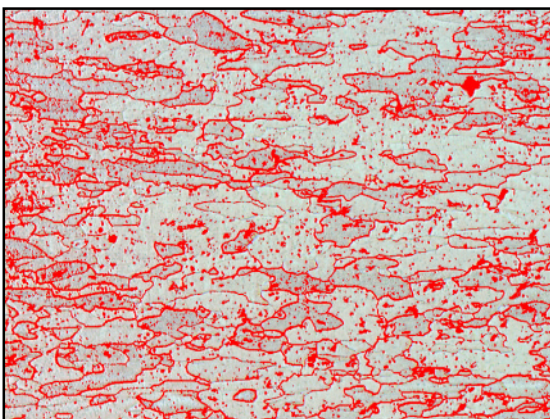


Figure 2: Binarization into red bitplane of the original grain boundaries using Gray Thresholding.

Procedure (continued)

The grain network has to be *Inverted* prior to measurements that are performed on grains instead of outlines. A complete run can be performed over a defined field pattern. The Clemex Vision report can be printed directly.

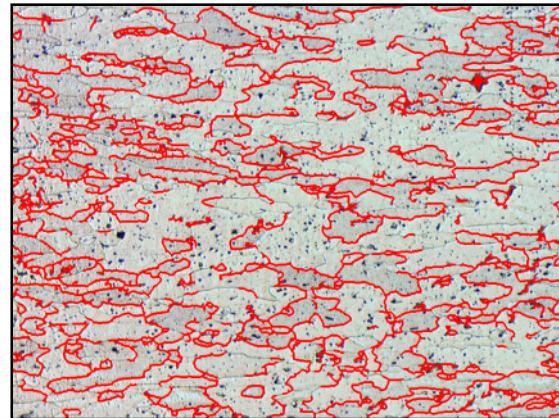


Figure 3: Resulting grain network overlaid against the original image.

Results Summary

Mean Hor. Chord	Mean Vert. Chord	ASTM E 112
44.9	25.6	6.14

Equipment

Image Analysis System: Clemex Vision PE
Camera: Sony DXC 950P Color
Microscope: Nikon Optiphot 100
Objective: Nikon 10x (Mag.: 100x)