AL_2O_3 CLUSTERS AND ARGON-CAVITIES RATING

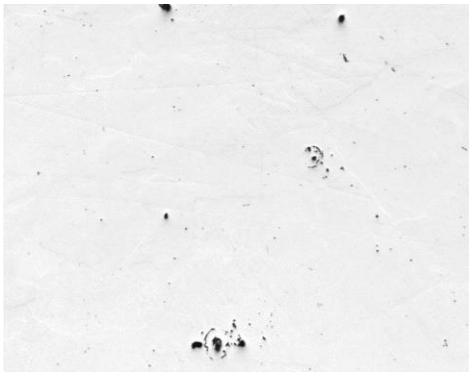

Figure 1: *Original image (25X).*

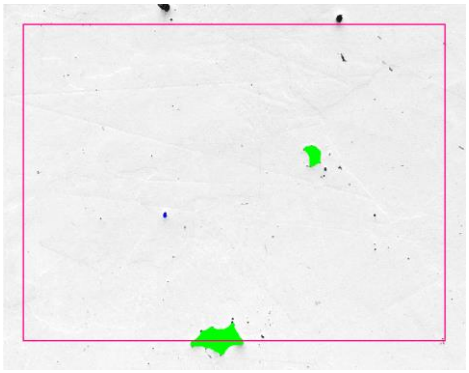

Figure 2: *Al_2O_3 clusters are binarized into green bitplane. Clusters with area smaller than 10000 μm^2 are transferred into the blue bitplane.*

Sample Description

One slab sample.

Purpose of Analysis

Demonstrate the ability of the Clemex Vision image analysis system to detect and measure clusters of Al_2O_3 particles and argon-cavities.

Procedure

A Guard Frame was used to prevent objects bisected by the edges of the field of view to be counted twice. The contrast of original image was improved by a Delineate filter. Al_2O_3 clusters were binarized into green bitplane. A series of binary operations reconnected Al_2O_3 clusters and isolated argon-cavities. The objects smaller than 10000 μm^2 were eliminated from the measurements and transferred into the blue bitplane. Object measurements were done on each feature.

Equipment

Image Analysis System:	Clemex Vision PE
Microscope:	Nikon Optiphot-2 with reflected light
Camera:	Sony XC 77CE 1:1, B/W
Stage:	Motorized marzhauser EK8B-S1 (100X75 mm) with auto focus drive
Magnification:	25X

Results

	Area of Clusters > 10000 μm^2 (mm^2)	***Area of Ar-Cavities > 10000 μm^2 (mm^2)***	***Area of Ar-Cavities < 10000 μm^2 (mm^2)***
Minimum	0.010	0.012	0.003
Maximum	0.046	0.019	0.009
Average	0.021	0.016	0.007
Standard Deviation	0.012	0.005	0.002
Count	14	2	5

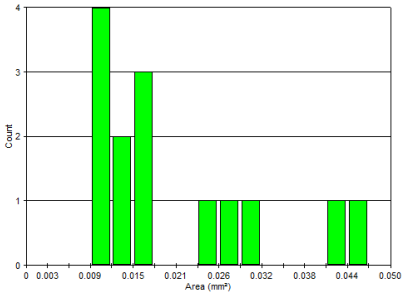

Figure 3: *Distribution of the area measurement of Al_2O_3 clusters that are bigger than 10000 μm^2*