

MEAN LINEAR DENDRITE SPACING IN ALUMINUM ALLOY

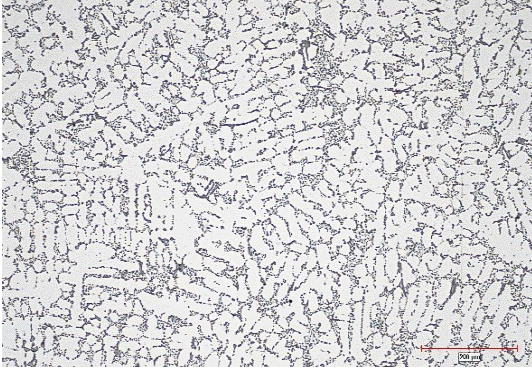


Figure 1: Original image at 100x.

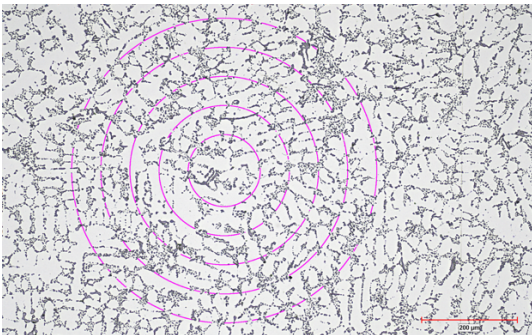


Figure 2: The length of overlaid pattern that touches the dendrites is measured.

Sample Description

A cast aluminum alloy is submitted.

Purpose of Analysis

Demonstrate the ability of the Clemex Vision image analysis system can measure the mean linear dendrite spacing via an innovative methodology.

Procedure

In the current analysis, the length of the five overlaid concentric circles is measured and the measured length being used for the dendrite cell spacing calculation. Mean linear dendrite spacing calculation is performed using a visual basic macro in Excel.

Equipment

Image Analysis System:	Clemex Vision PE
Microscope:	Nikon LV100
Camera:	Sentech STC-MCS231U3V
Magnification:	100X
Stage:	Motorized Marzhauser

Results

Sample ID	Example
Micro Number:	
Magnification:	100x
Number of Fields:	64
Average DCS (µm)	38
Standard Deviation	2.0
95% Confidence Interval	0.5
Area Percent Eutectic	36.9
Standard Deviation	1.1
95% Confidence Interval	0.3
Average Dendrite Arm Aspect Ratio	1.6
Mean Linear Dendrite Spacing (µm)	19
Standard Deviation	0.9
95% Confidence Interval	0.2

Figure 3: Mean Linear Dendrite Spacing results table

Analyzing multiple fields could give representative results. The table lists three essential properties that can be obtained using this package.