CLEMEX

Gamma Prime Particle Analysis

Image Analysis Report **416**

Sample Description

An image of gamma prime strengthened nickel based super alloy was submitted for analysis.

Purpose of Analysis

Demonstrate the ability of the Clemex Vision image analyzer to discriminate, separate and measure the gamma prime particles.

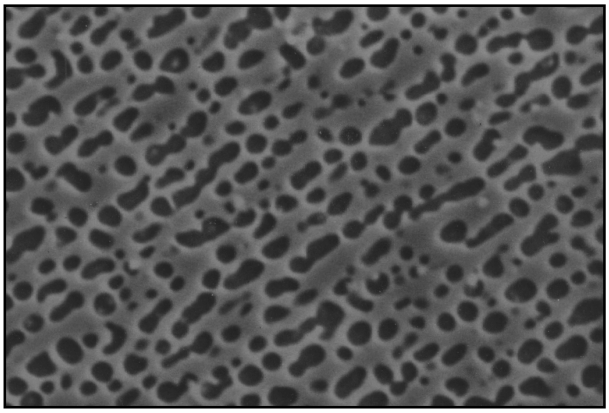

Figure 1: *Original image showing gamma prime particles*

Procedure

The image was loaded and calibrated using the available scale line. A strong delineate function was applied to remove intermediate gray levels. The binarization is performed using Gray Thresholding. Artifacts are removed and particles are separated.

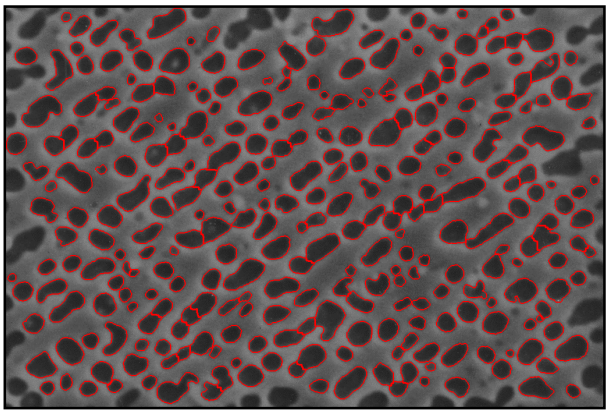

Figure 2**:** *Outline view of particles binarized in red prior to measurements.*

Results Summary

Length and diameter measurements are performed. Results are cumulated for automated statistics and graph output. Final results can be printed directly from Clemex Vision. Raw data are linked to their respective object and can be exported in Excel format.

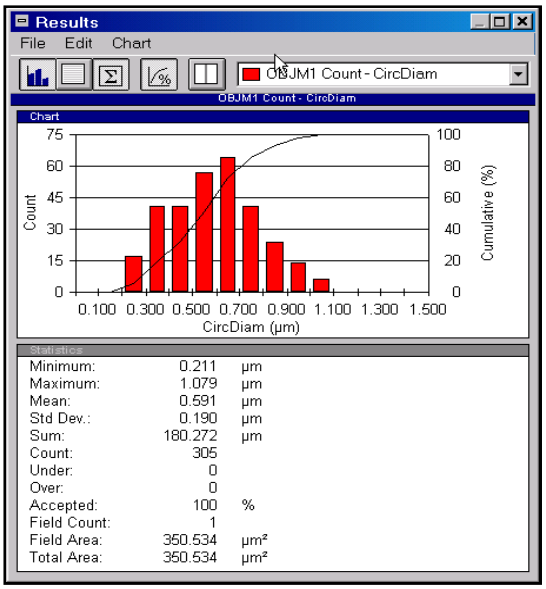

Figure 3: *Cumulative graph and statistics showing particle diameter.*

The main difficulty of this application is to binarize the particles. A strong delineate function helped overcome the problem. Another way to process this image would be to use an edge detector. The gamma prime particles can be analyzed using Clemex image analysis system.

Equipment

Image Analysis System:	Clemex Vision PE
Magnification:	5000 x
Calibration:	0.02 microns/pixel