CLEMEX

Red Rust Analysis

Image Analysis Report **392**

Sample Description

Five stainless steel plates were submitted for analysis. Each plate measured 4x6 inches and was covered by different amounts of red rust.

Purpose of Analysis

Demonstrate the ability of the Clemex Vision image analyzer to evaluate the area percentage of the red rust on each plate.

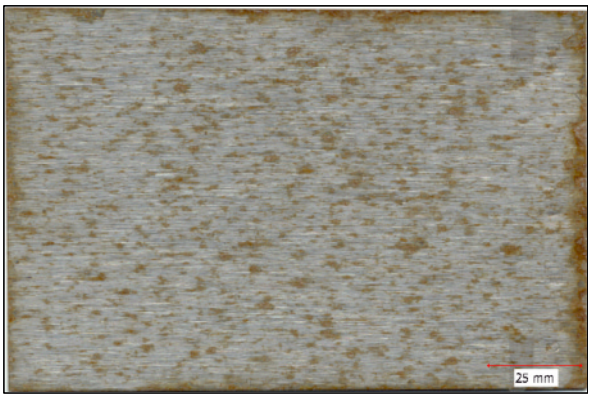

Figure 1: *Original scanned image of sample 5.*

Procedure

The images were acquired via twain grab directly available from Clemex Vision. A resolution of 254 dpi was used to obtain a calibration factor of 0.1 mm / pixel. The plate was detected using Gray Thresholding and the red rust was binarized into the green bitplane by Color Thresholding.

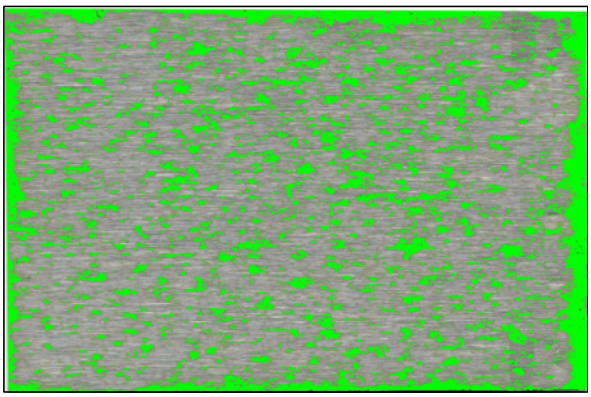

Figure 2**:** *Red rust binarized into the green biplane as measured.*

Results Summary

The green bitplane was compared to the plate area instead of the field of view area since the plates were not perfectly rectangular leaving small white gaps. Final results can be printed directly from Clemex Vision and raw data can be exported in Excel format.

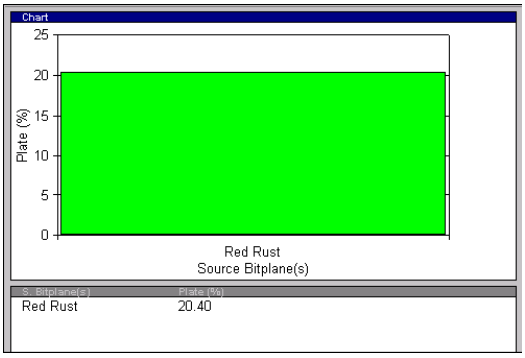

Figure 3: *Area percentage of red rust found on sample 5.*

It was possible to discriminate and measure the red rust as requested. The image processing to obtain the results was very simple. Some plates showed a high level of reflection producing darker images when scanned. In all cases, the rust can be detected with very slight adjustment to the Color Threshold instruction.

Equipment

Image Analysis System:	Clemex Vision SE
Scanner :	HP ScanJet 5300C
Resolution:	254 dpi
Calibration Factor:	0.1 mm / pixel