

## Porosity Analysis Image Analysis Report 331

### Sample Description

Sample of nodular cast iron.

### Purpose of Analysis

Demonstrate the ability of the Clemex image analyzer to discriminate and measure the area percent of porosity in the field of view.

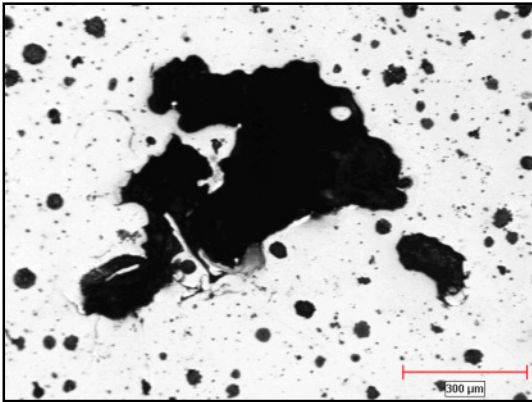


Figure 1: Original image at 100x.

### Procedure

All objects are binarized using the *Gray Threshold* instruction. Pores are isolated from the nodules using *Object Transfer by Limits*. The main distinctive criteria used for this purpose were intensity, sphericity and compactness. Porosity and nodules can be measured at the same time allowing a category transfer from the mapping view after the run.

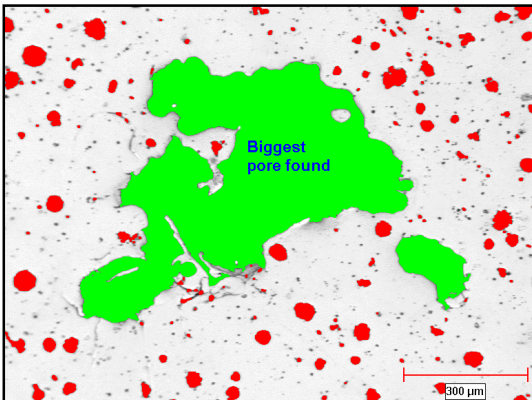


Figure 2: Final detection overlaid against the original image. Pores are in green and nodules are in red.

### Procedure (continued)

When the run is completed, you can ask the system to show you a specific object by clicking on it (*Mapping View*). The stage will move to the correct field and highlight the corresponding object

### Results Summary

Data Browser					
File Edit Options					
OBJM3					
	FldNo	ObjId	Cat	Area	Length
6	6	6	Dark Nod	2744.5	86.3
7	8	7	Dark Nod	269.1	29.4
8	8	8	Dark Nod	832.6	46.0
9	10	9	Dark Nod	1536.3	67.9
10	10	10	Dark Nod	1984.8	75.9
11	11	11	Dark Nod	2520.7	83.1
12	11	12	Dark Nod	2007.2	73.8
13	12	13	Dark Nod	2164.2	80.9
14	12	14	Dark Nod	3504.3	106.2
15	13	15	Dark Nod	594.3	50.1
16	13	16	Dark Nod	1213.9	60.1
17	14	17	Dark Nod	4224.7	89.3
18	17	18	Porosity	241222.1	845.3
19	17	19	Porosity	15340.3	204.3
20	18	20	Dark Nod	759.7	56.6
21	19	21	Dark Nod	779.3	60.5
22	21	22	Dark Nod	1875.5	71.6
23	22	23	Porosity	3818.2	107.6
24	22	24	Porosity	11353.8	214.1

Figure 3 : Raw data in the Data Browser window. Each value is linked to the corresponding object and position.

### Equipment

#### Image Analysis

**System:** Clemex Vision SE  
**Camera :** Sony 77 CE 768x574 B&W  
**Microscope:** Nikon Epiphot-200, 100x  
**Stage:** Motorized Marzhauser  
**Stage Controller:** Clemex ST-2000  
**Calibration:** 1.63 microns / pixel