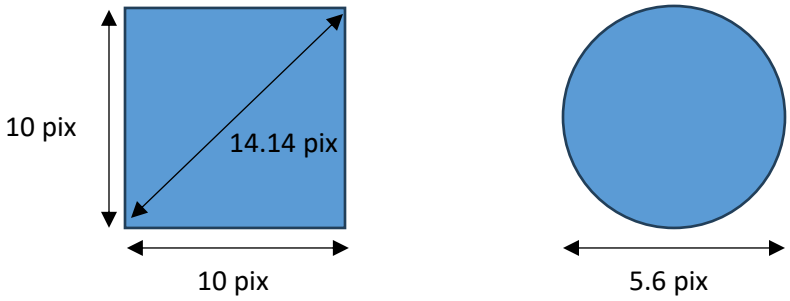
Practical Size Limits and Repeatability of CLAIRITY

Measured with Olympus BX43 Microscope and IPV Camera

Minimum Measurable Particle Size for Morphological Characterization

Although the sensitivity of the CLAIRITY Particle Analysis Suite is such that particles can be detected and counted down to or below 0.5 µm, morphological characterization of these particles can be challenging. It is generally considered that a particle image should contain greater than 100 pixels for accurate morphological characterization. With this limitation in mine, the following practical detection limits can be calculated:

Calculations are based on a square and circular image of 100 pixels as seen below



Squares

Objective	Calibration Factor (um/pix)	Minimum Area (pix)	Length (pix)	Length (um)	Minimum Measurable Size (um)
4x	2.028	100.0	10.0	20.3	**28.7**
10x	0.817	100.0	10.0	8.2	**11.6**
40x	0.202	100.0	10.0	2.0	**2.9**
100x	0.081	100.0	10.0	0.8	**1.1**

Circles

Objective	Calibration Factor (um/pix)	Minimum Area (pix)	Length (pix)	Length (um)	Minimum Mesaurable Size (um)
4x	2.028	100.0	5.6	11.4	**22.9**
10x	0.817	100.0	5.6	4.6	**9.2**
40x	0.202	100.0	5.6	1.1	**2.3**
100x	0.081	100.0	5.6	0.5	**0.9**

Measurement Repeatability of a Circle

	Length	Area	Width	CED	Aspect Ratio	Circularity	Convexity
	243.41	46102.97	240.54	242.28	0.988	100	100
	243.87	46447.89	241.89	243.19	0.992	100	100
	244.32	46521.93	240.54	243.38	0.985	100	100
	243.87	46525.54	241.89	243.39	0.992	100	100
	243.66	46352.18	240.54	242.94	0.987	100	100
	243.73	46471.36	240.54	243.25	0.987	100	100
	243.87	46561.66	241.89	243.48	0.992	100	100
	244.00	46610.41	241.89	243.61	0.991	100	100
	243.87	46529.15	241.89	243.40	0.992	100	100
	243.17	46195.07	240.54	242.52	0.989	100	100
	243.03	46057.83	239.20	242.16	0.984	100	100
	244.00	46455.11	241.89	243.21	0.991	100	100
	243.87	46565.27	241.89	243.49	0.992	100	100
	243.87	46489.42	240.54	243.29	0.986	100	100
	243.54	46321.48	240.54	242.86	0.988	100	100
Average	**243.74**	**46413.82**	**241.08**	**243.10**	**0.99**	**100.00**	**100.00**
Standard Dev	**0.33**	**172.45**	**0.85**	**0.45**	**0.00**	**0.00**	**0.00**
Repeatability	**0.14**	**0.37**	**0.35**	**0.19**	**0.29**	**0.00**	**0.00**

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