Appendix A

Particle size analysis of the soot

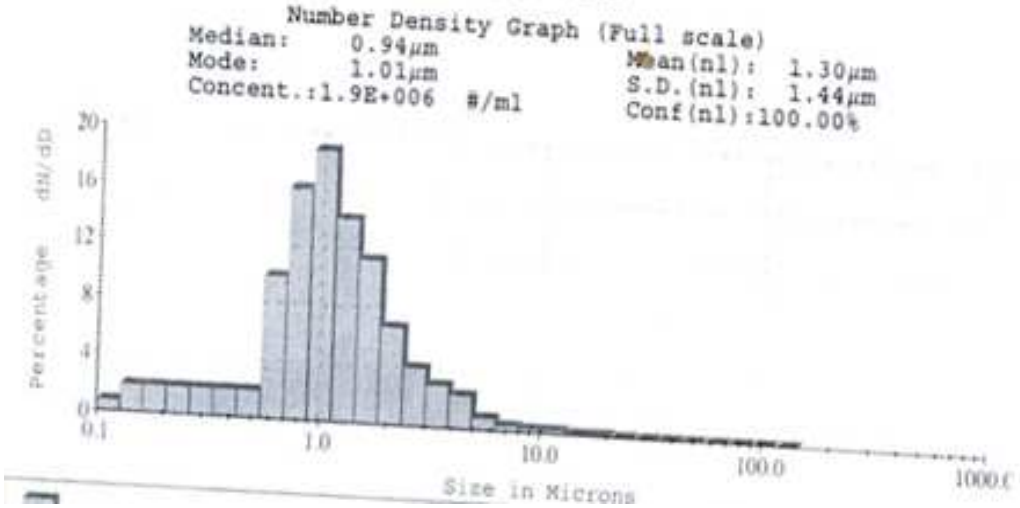
STATISTICS

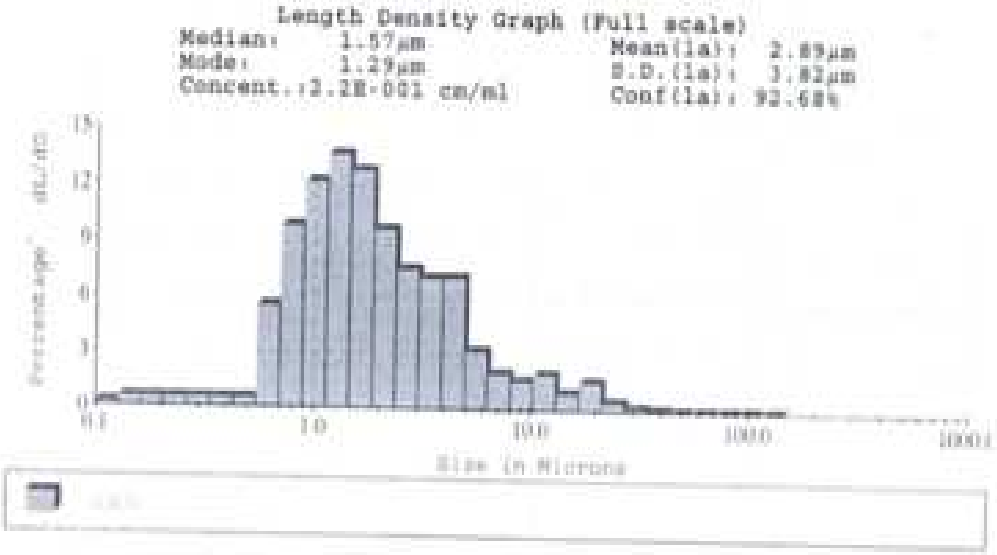
File Name : C:\WCIS\DATA\SOOT
Date & Time : Mon Jun 10 2013 10:23:53
User Name : sku
Sample Name : soot A

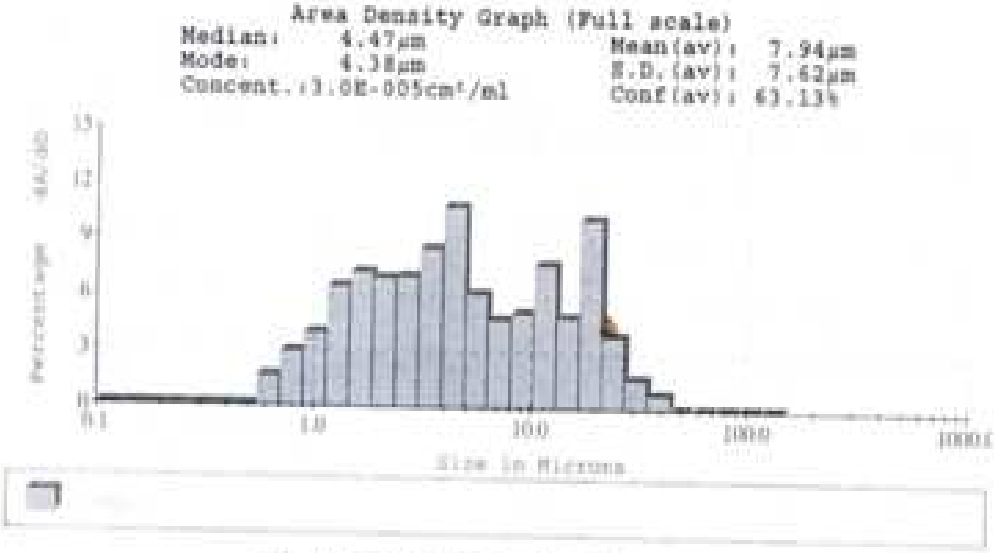
Configuration : 1 (0.7S1)	|Counts : 12678
Cell Type : Magnetic	|S.N.F. : 0.50
Sample Type : Regular	|S.D.U. : 1967
Acq. Range : 0 - 150	|Solids : 2.98e-003 %
Acq. Mode : S.Size(2)	|Concentration: 1.91e+006 #/ml
Acq. Time : 78	|Sp. Area : 7.55e+003 cm²/ml

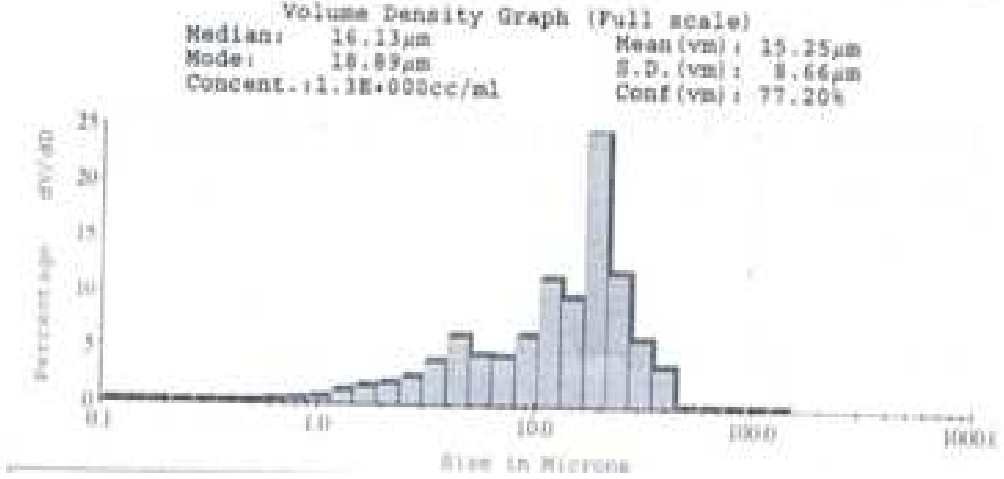
	Mean (μm)	Standard Deviation(μm)
Number, Length :	1.30	1.44
Number, Area :	1.93	1.57
Number, Volume :	3.10	2.30
Length, Area :	2.89	3.82
Length, Volume :	4.79	4.27
Area, Volume :	7.94	7.62
Volume, Moment :	15.25	8.66

	D10(μm)	D50(μm)	D90(μm)	D97(μm)	CONF.(%)
Number :	0.38	0.94	2.42	4.24	100.00
Area :	1.17	4.47	20.07	26.31	63.13
Volume :	3.67	16.13	26.47	31.53	77.20




Length Density Graph (Full scale)
Median: 1.57µm
Mode: 1.29µm
Concent.: 2.2E-001 cm/ml
Mean(la): 2.89µm
S.D.(la): 3.82µm
Conf(la): 92.68%
Percentage (dL/dD)
0.1
1.0
10.0
100.0
1000.0
10000.0
Size in Microns


Area Density Graph (Full scale)
Median: 4.47µm
Mode: 4.38µm
Concent.: 3.0E-005cm²/ml
Mean(av): 7.94µm
S.D.(av): 7.62µm
Conf(av): 63.13%
Percentage (dA/dD)
0.1
1.0
10.0
100.0
1000.0
10000.0
Size in Microns


Volume Density Graph (Full scale)
Median: 16.13µm
Mode: 18.89µm
Concent.: 1.3E+000cc/ml
Mean(vm): 15.25µm
S.D.(vm): 8.66µm
Conf(vm): 77.20%
Percentage (dV/dD)
0.1
1.0
10.0
100.0
1000.0
10000.0
Size in Microns

Appendix B

XRD analysis results taken from JCPDS

JCPDS No	Compound	2θ	(h,K,l)
84-0848	$LaCoO_3$	23.20	0, 1,2
		32.94	1,1,0
		33.10	2,1,1
		40.18	2,0,0
		47.50	2,2,0
		58.40	1,2,1
		69.68	2,0,8
33-0711	$LaNiO_3$	23.14	0,1,2
		39.66	2,2,0
		43.78	1,3,2
		46.64	0,4,0
		54.50	4,2,1
		67.96	4,4,0
37-1493	$LaFeO_3$	23.20	0,1,2
		32.50	1,1,0
		32.90	1,1,0
		47.18	1,3,2
		54.70	0,4,0
		58.40	4,2,1
		69.90	4,4,0
		78.90	3,1,2
83-2034	$La(OH)_3$	15.10	1,0,0
		29.20	1,1,0
		29.50	1,0,1
		40.10	2,0,1
		49.50	2,1,1
83-1344	La_2O_3	27.60	1,0,0
		29.60	0,0,2
		30.30	0,1,1
		47.20	1,1,0
89-1397	ZnO	31.20	0,0,2
		35.30	1,0,0
		37.10	1,0,1
		58.30	1,1,0