



# NMBACQ

NE Atlantic Marine Biological Analytical Quality Control Scheme

## Particle Size Report - PS64

Particle Size Component 2017/18

October 2017

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## BENCHMARK DATA– OVERVIEW

**Table 1.** Summary data for the benchmark replicates distributed as PS64.

	Method	% Gravel	% Sand	% Mud	Sediment Description (Post analysis)
BM REPLICATE 1	NMBAQC	0.02	22.25	77.73	Slightly gravelly sandy mud
BM REPLICATE 2	NMBAQC	0.01	22.25	77.74	Slightly gravelly sandy mud
BM REPLICATE 3	NMBAQC	0.02	21.62	78.36	Slightly gravelly sandy mud
BM REPLICATE 4	NMBAQC	0.00	22.79	77.21	Slightly gravelly sandy mud
BM REPLICATE 5	NMBAQC	0.01	22.71	77.28	Slightly gravelly sandy mud
REP AVERAGE	NMBAQC	0.01	22.32	77.66	Slightly gravelly sandy mud

## BENCHMARK DATA – SIEVE

**Table 2.** Summary of sieve data for the benchmark replicates distributed as PS64.

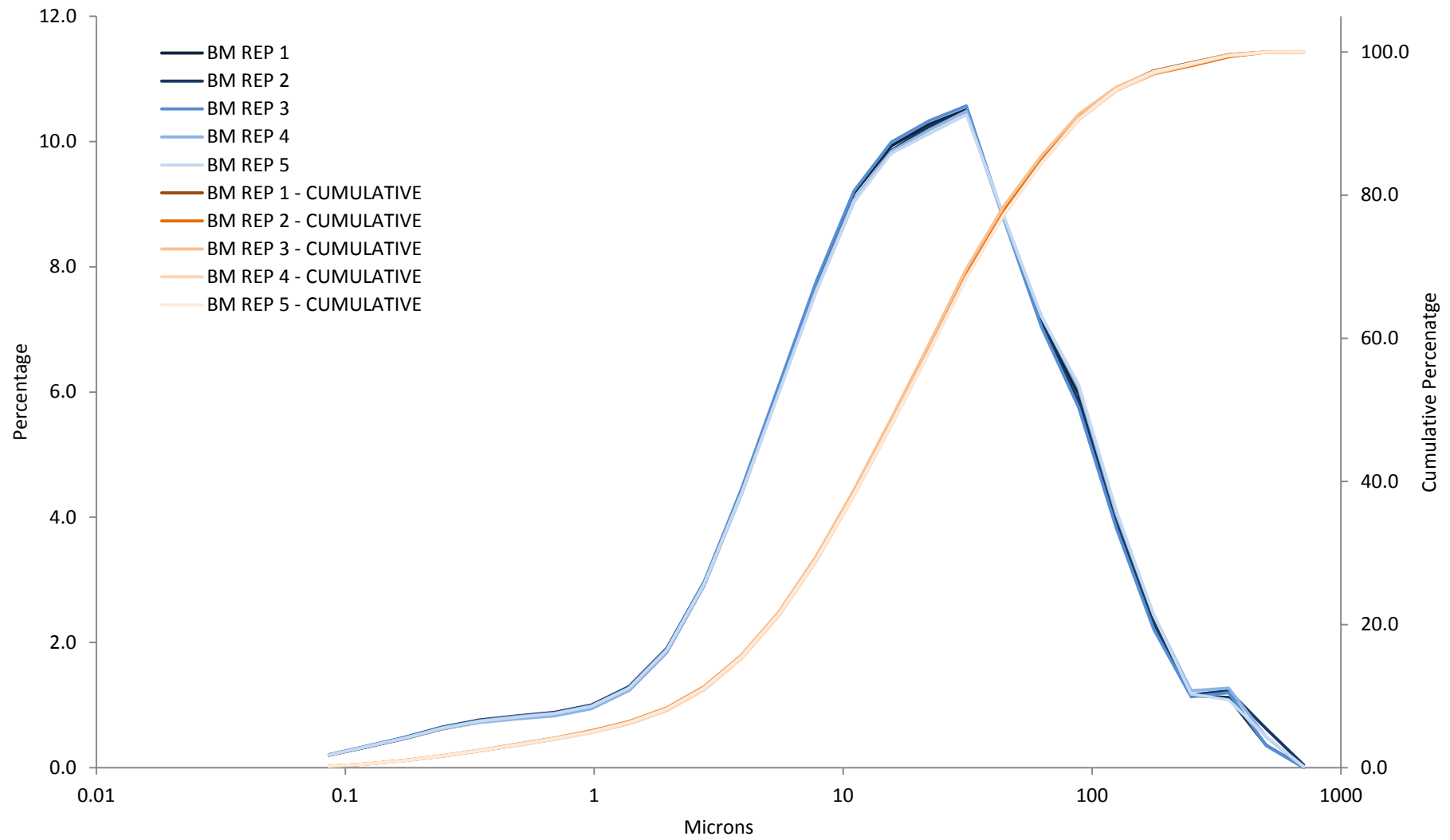
	BM REP 1	BM REP 2	BM REP 3	BM REP 4	BM REP 5
Sieves used	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Phi interval; mm	Weight in grams				
-6.50 to -6.00; 63 mm	0.0000	0.0000	0.0000	0.0000	0.0000
-6.00 to -5.50; 45 mm	0.0000	0.0000	0.0000	0.0000	0.0000
-5.50 to -5.00; 31.5 mm	0.0000	0.0000	0.0000	0.0000	0.0000
-5.00 to -4.50; 22.4 mm	0.0000	0.0000	0.0000	0.0000	0.0000
-4.50 to -4.00; 16 mm	0.0000	0.0000	0.0000	0.0000	0.0000
-4.00 to -3.50; 11.2 mm	0.0000	0.0000	0.0000	0.0000	0.0000
-3.50 to -3.00; 8 mm	0.0000	0.0000	0.0000	0.0000	0.0000
-3.00 to -2.50; 5.6 mm	0.0000	0.0000	0.0000	0.0000	0.0000
-2.50 to -2.00; 4 mm	0.0000	0.0000	0.0000	0.0000	0.0000
-2.00 to -1.50; 2.8 mm	0.0000	0.0000	0.0000	0.0000	0.0000
-1.50 to -1.00; 2 mm	0.0155	0.0054	0.0149	0.0032	0.0103
-1.00 to -0.50; 1.4 mm	0.0310	0.0108	0.0297	0.0064	0.0206
-0.50 to 0.00; 1 mm	0.0465	0.0163	0.0445	0.0096	0.0308
Weight (g) < 0.00; >1 mm	0.09	0.03	0.09	0.02	0.06
Weight (g) > 0.00; <1 mm	69.19	73.23	70.56	69.77	70.84
Total Weight (g)	69.28	73.26	70.65	69.79	70.90

## BENCHMARK DATA – LASER

**Table 3.** Summary of final laser data for the benchmark replicates distributed as PS64.

	BM REP 1	BM REP 2	BM REP 3	BM REP 4	BM REP 5
<i>0.00 to 0.50; (707 μm)</i>	0.00	0.04	0.00	0.01	0.02
<i>0.50 to 1.00; (500 μm)</i>	0.36	0.63	0.36	0.49	0.50
<i>1.00 to 1.50; (353.6 μm)</i>	1.12	1.23	1.20	1.27	1.08
<i>1.50 to 2.00; (250 μm)</i>	1.15	1.16	1.13	1.23	1.18
<i>2.00 to 2.50; (176.8 μm)</i>	2.39	2.32	2.21	2.44	2.44
<i>2.50 to 3.00; (125 μm)</i>	4.03	3.89	3.84	4.06	4.11
<i>3.00 to 3.50; (88.39 μm)</i>	5.97	5.85	5.76	6.06	6.12
<i>3.50 to 4.00; (62.5 μm)</i>	7.14	7.09	7.04	7.21	7.21
<i>4.00 to 4.50; (44.19 μm)</i>	8.76	8.77	8.76	8.75	8.82
<i>4.50 to 5.00; (31.25 μm)</i>	10.51	10.48	10.57	10.48	10.43
<i>5.00 to 5.50; (22.097 μm)</i>	10.27	10.23	10.33	10.18	10.12
<i>5.50 to 6.00; (15.625 μm)</i>	9.93	9.86	9.99	9.85	9.81
<i>6.00 to 6.50; (11.049 μm)</i>	9.17	9.04	9.21	9.07	9.04
<i>6.50 to 7.00; (7.813 μm)</i>	7.74	7.63	7.77	7.64	7.61
<i>7.00 to 7.50; (5.524 μm)</i>	6.08	6.03	6.12	6.01	6.00
<i>7.50 to 8.00; (3.906 μm)</i>	4.41	4.42	4.46	4.37	4.39
<i>8.00 to 8.50; (2.762 μm)</i>	2.91	2.96	2.97	2.90	2.93
<i>8.50 to 9.00; (1.953 μm)</i>	1.84	1.90	1.89	1.84	1.88
<i>9.00 to 9.50; (1.381 μm)</i>	1.24	1.30	1.28	1.23	1.27
<i>9.50 to 10.00; (0.977 μm)</i>	0.96	1.00	0.99	0.94	0.98
<i>10.00 to 10.50; (0.691 μm)</i>	0.85	0.88	0.87	0.83	0.86
<i>10.50 to 11.00; (0.488 μm)</i>	0.79	0.83	0.82	0.78	0.81
<i>11.00 to 11.50; (0.345 μm)</i>	0.73	0.76	0.75	0.72	0.74
<i>11.50 to 12.00; (0.244 μm)</i>	0.62	0.65	0.64	0.62	0.63
<i>12.00 to 12.50; (0.173 μm)</i>	0.47	0.48	0.48	0.47	0.47
<i>12.50 to 13.00; (0.122 μm)</i>	0.33	0.34	0.35	0.34	0.34
<i>13.00 to 13.50; (0.086 μm)</i>	0.20	0.21	0.21	0.20	0.20
<i>Total</i>	100.00	100.00	100.00	100.00	100.00

**Figure 1.** Particle size distribution curves resulting from final laser analysis of 5 replicate samples of sediment distributed as PS64 (Benchmark Data).



## BENCHMARK DATA

**Table 4.** Sample statistics for laser replicates and Coefficient of Variance.

	Replicate Sample 1									Mean	St.Dev	COV
	Rep 1			Rep 2			Rep 3					
	Run a	Run b	Run c	Run a	Run b	Run c	Run a	Run b	Run c			
d10	3.36	3.35	3.34	3.64	3.56	3.55	3.57	3.56	3.52	3.49	0.11	3.23
d50	22.63	22.59	22.53	23.95	23.67	23.65	24.08	23.90	23.80	23.42	0.64	2.75
d90	112.80	113.32	113.49	122.23	119.27	119.90	121.98	120.67	120.53	118.24	3.89	3.29
Mean	21.64	21.61	21.58	23.07	22.71	22.73	23.07	22.89	22.78	22.45	0.65	2.88

	Replicate Sample 2									Mean	St.Dev	COV
	Rep 1			Rep 2			Rep 3					
	Run a	Run b	Run c	Run a	Run b	Run c	Run a	Run b	Run c			
d10	3.41	3.40	3.38	3.41	3.39	3.37	3.27	3.26	3.24	3.35	0.07	2.14
d50	23.66	23.49	23.45	23.49	23.41	23.21	23.42	23.35	23.23	23.41	0.14	0.60
d90	120.87	119.24	119.57	119.93	119.77	117.95	119.96	120.15	120.40	119.76	0.83	0.69
mean	22.60	22.41	22.39	22.46	22.38	22.16	22.24	22.18	22.06	22.32	0.17	0.76

	Replicate Sample 3									Mean	St.Dev	COV
	Rep 1			Rep 2			Rep 3					
	Run a	Run b	Run c	Run a	Run b	Run c	Run a	Run b	Run c			
d10	3.60	3.57	3.60	3.27	3.30	3.24	3.30	3.30	3.25	3.38	0.16	4.65
d50	23.68	23.53	23.53	22.53	22.61	22.32	23.21	22.99	22.69	23.01	0.50	2.18
d90	118.47	116.75	117.82	112.62	114.67	111.03	119.78	116.84	114.53	115.84	2.85	2.46
mean	22.72	22.52	22.58	21.43	21.59	21.20	22.18	21.92	21.59	21.97	0.55	2.52

	Replicate Sample 4									Mean	St.Dev	COV
	Rep 1			Rep 2			Rep 3					
	Run a	Run b	Run c	Run a	Run b	Run c	Run a	Run b	Run c			
d10	3.49	3.49	3.47	3.38	3.36	3.36	3.80	3.72	3.66	3.52	0.16	4.60
d50	23.66	23.72	23.65	23.24	23.13	23.09	24.98	24.62	24.32	23.82	0.68	2.84
d90	119.59	121.56	121.28	117.06	116.95	116.98	130.56	125.42	124.59	121.56	4.63	3.81
mean	22.65	22.75	22.68	22.15	22.05	22.02	24.15	23.70	23.40	22.84	0.76	3.33

	Replicate Sample 5									Mean	St.Dev	COV
	Rep 1			Rep 2			Rep 3					
	Run a	Run b	Run c	Run a	Run b	Run c	Run a	Run b	Run c			
d10	3.30	3.28	3.27	3.45	3.43	3.35	3.60	3.58	3.56	3.42	0.13	3.88
d50	23.32	23.13	23.05	23.51	23.37	23.44	24.61	24.50	24.27	23.69	0.60	2.54
d90	119.98	117.61	117.42	118.57	117.44	119.23	125.31	124.96	122.22	120.30	3.13	2.60
mean	22.27	22.04	21.96	22.47	22.31	22.36	23.60	23.50	23.22	22.64	0.63	2.77

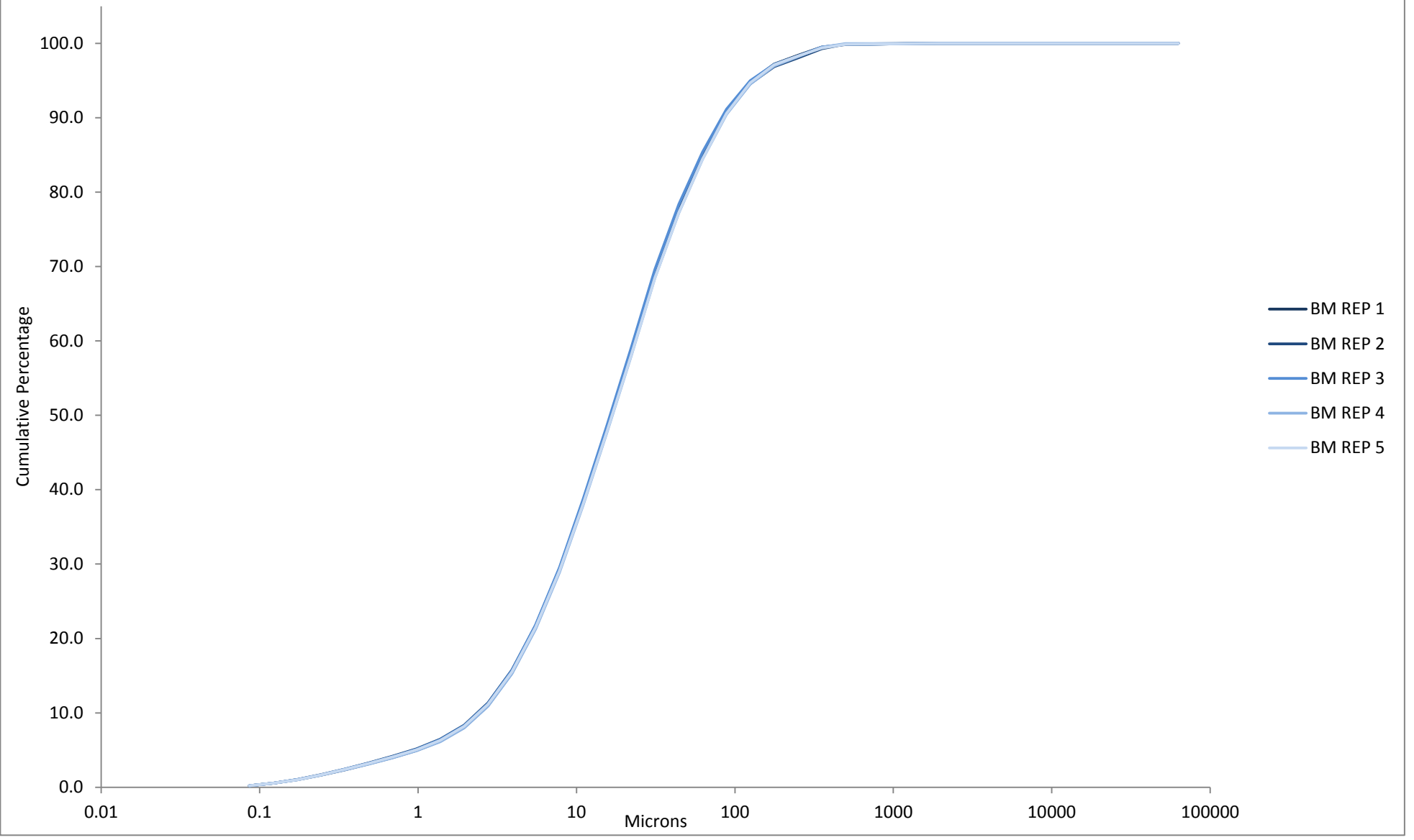
$$COV = \left( \frac{StDev}{Mean} \right) * 100$$

Good reproducibility when: COV is <3% for D50  
 COV is <5% for D10 and D90  
 All limits double when the D50 is <10microns.

All Benchmark laser replicates distributed as PS64 show a COV <3% for the D50 and <5% for the D10 and D90.

**The laser replicates show good reproducibility.**

**Figure 2.** Particle size distribution curves resulting from analysis of 5 replicate samples of sediment distributed as PS64 (Benchmark Data).



## PARTICIPANT DATA

**Table 5.** Summary of equipment and methods used by participants and sample summary data for sediment distributed as PS64.

Lab	Equipment Used		Method Used	Chemical Dispersant Used	Peroxide pre-treatment Used	Summary Data			Sediment Description (Post Analysis)
	Sieves	Laser				% Gravel	% Sand	% Mud	
Benchmark Average	YES	YES	NMBAQC	NO	NO	0.01	22.32	77.66	Slightly gravelly sandy mud
PSA_2401	YES	YES	NMBAQC	NO	NO	0.09	24.70	75.21	Sandy Mud
PSA_2402	NO	YES	NMBAQC	NO	NO	0.0	19.1	80.9	Sandy Mud
PSA_2403	YES	YES	NMBAQC	NO	NO	0.0	20.1	79.9	Very Fine Sandy Coarse Silt
PSA_2404	NO	YES	NMBAQC	NO	NO	0.0	23.3	76.7	Sandy Mud
PSA_2405	NO	YES	NMBAQC	NO	NO	0	39	61	Sandy Mud
PSA_2406	YES	YES	NMBAQC	NO	NO	0.05	19.40	80.54	Slightly Sandy Mud
PSA_2407	YES	YES	NMBAQC	NO	NO	0.0	21.3	78.7	Slightly gravelly sand mud
PSA_2408	YES	NO	OTHER	NO	NO	0.0	9.5	90.5	Mud
PSA_2409	NO	YES	NMBAQC	NO	NO	0.0	17.9	82.1	Sandy Mud
PSA_2410	NO	YES	NMBAQC	NO	NO	0.0	36.2	63.8	Very Fine Sandy Very Coarse Silt
PSA_2411	YES	YES	NMBAQC	NO	NO	0.01	21.46	78.53	Slightly gravelly sandy mud
PSA_2412	YES	YES	NMBAQC	NO	NO	0.03	24.06	75.92	slightly gravelly sandy Mud
PSA_2413	NO	YES	NMBAQC	NO	NO	0.0	10.3	89.8	Sandy Mud
PSA_2414	NO	YES	NMBAQC	NO	NO	0.0	14.4	85.6	Sandy Mud
PSA_2415	NO	YES	NMBAQC	NO	NO	0.00	32.41	67.59	Sandy Mud
PSA_2416	NO	YES	NMBAQC	NO	NO	0.00	25.05	74.95	Coarse Silt

NB: Decimal places as supplied by participant.



## PARTICIPANT DATA

**Table 6.** Raw sieve data (weight in grams) provided by participants for sediment distributed as PS64.

Phi interval (explicit) + sieve mesh	Participant																
	Benchmark Average	PSA_2401	PSA_2402	PSA_2403	PSA_2404	PSA_2405	PSA_2406	PSA_2407	PSA_2408	PSA_2409	PSA_2410	PSA_2411	PSA_2412	PSA_2413	PSA_2414	PSA_2415	PSA_2416
-6.50 to -6.00; 63 mm	0.00	0.00	-	0.00	-	-	0.00	0.00	-	-	-	0.00	0.00	-	-	-	-
-6.00 to -5.50; 45 mm	0.00	0.00	-	0.00	-	-	0.00	0.00	-	-	-	0.00	0.00	-	-	-	-
-5.50 to -5.00; 31.5 mm	0.00	0.00	-	0.00	-	-	0.00	0.00	-	-	-	0.00	0.00	-	-	-	-
-5.00 to -4.50; 22.4 mm	0.00	0.00	-	0.00	-	-	0.00	0.00	-	-	-	0.00	0.00	-	-	-	-
-4.50 to -4.00; 16 mm	0.00	0.00	-	0.00	-	-	0.00	0.00	-	-	-	0.00	0.00	-	-	-	-
-4.00 to -3.50; 11.2 mm	0.00	0.00	-	0.00	-	-	0.00	0.00	-	-	-	0.00	0.00	-	-	-	-
-3.50 to -3.00; 8 mm	0.00	0.00	-	0.00	-	-	0.00	0.00	-	-	-	0.00	0.00	-	-	-	-
-3.00 to -2.50; 5.6 mm	0.00	0.00	-	0.00	-	-	0.00	0.00	-	-	-	0.00	0.00	-	-	-	-
-2.50 to -2.00; 4 mm	0.00	0.00	-	0.00	-	-	0.00	0.00	-	-	-	0.00	0.00	-	-	-	-
-2.00 to -1.50; 2.8 mm	0.00	0.01	-	0.00	-	-	0.00	0.00	-	-	-	0.00	0.00	-	-	-	-
-1.50 to -1.00; 2 mm	0.01	0.04	-	0.00	-	-	0.03	0.01	-	-	-	0.01	0.02	-	-	-	-
-1.00 to -0.50; 1.4 mm	0.02	0.01	-	0.01	-	-	0.02	0.02	-	-	-	0.01	0.03	-	-	-	-
-0.50 to 0.00; 1 mm	0.03	0.01	-	0.03	-	-	0.02	0.04	-	-	-	0.02	0.04	-	-	-	-
<i>Total</i>	0.06	0.07	-	0.04	-	-	0.07	0.07	-	-	-	0.04	0.08	-	-	-	-

### Summary Data

< 0.00; >1 mm	0.06	0.07	-	0.14	-	-	0.07	0.07	-	-	-	0.04	0.08	-	-	-	-
> 0.00;	Base pan	0.00	0.01	-	0.11	-	-	0.02	0.00	-	-	-	0.00	0.02	-	-	-
<1 mm	Oven dried	70.72	57.92	-	68.08	-	-	57.63	70.54	-	-	-	73.44	63.36	-	-	-
Total Sample Weight		70.78	58.00	-	68.33	-	-	57.72	70.61	-	-	-	73.48	63.46	-	-	-

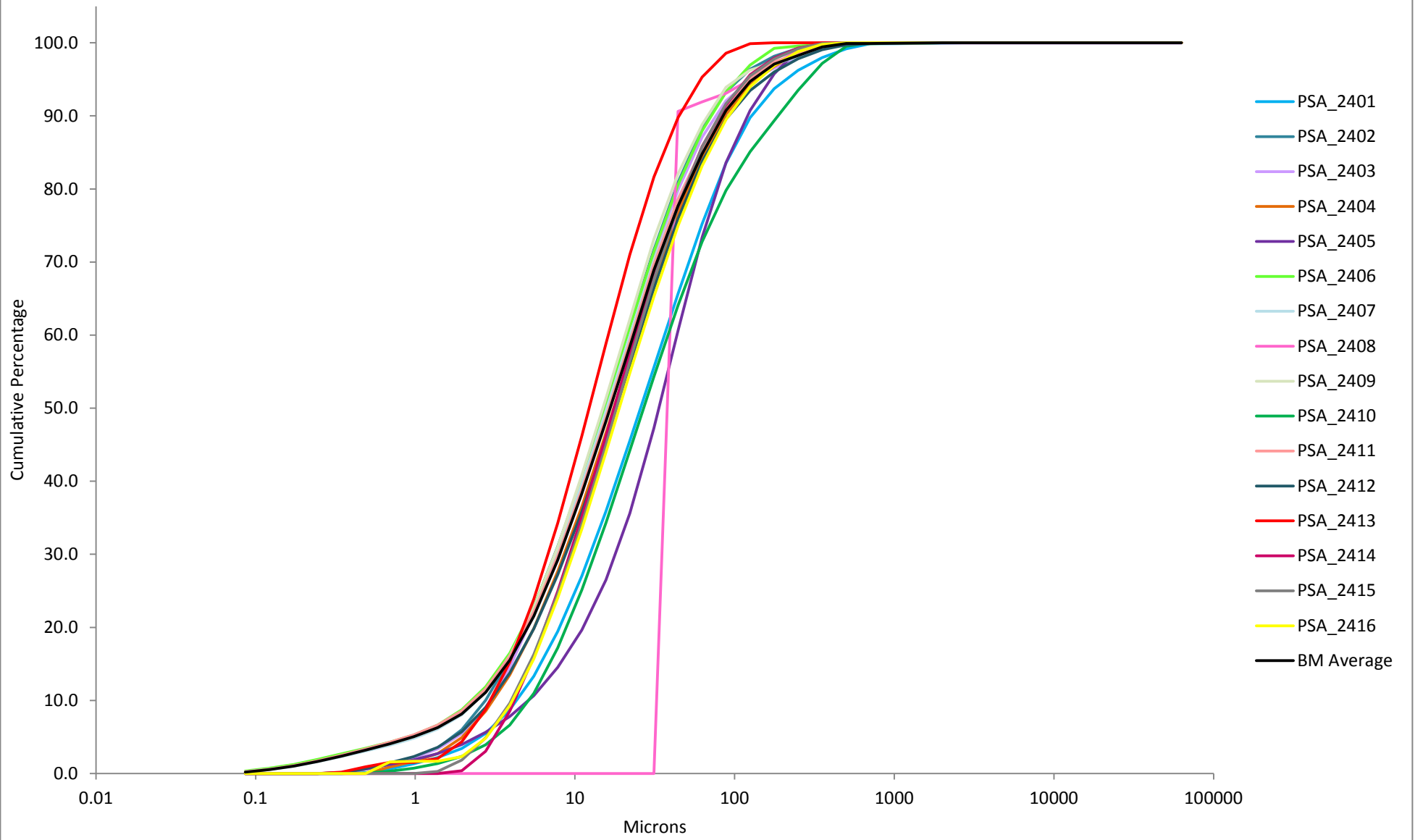
- no sieve analysis undertaken

## PARTICIPANT DATA

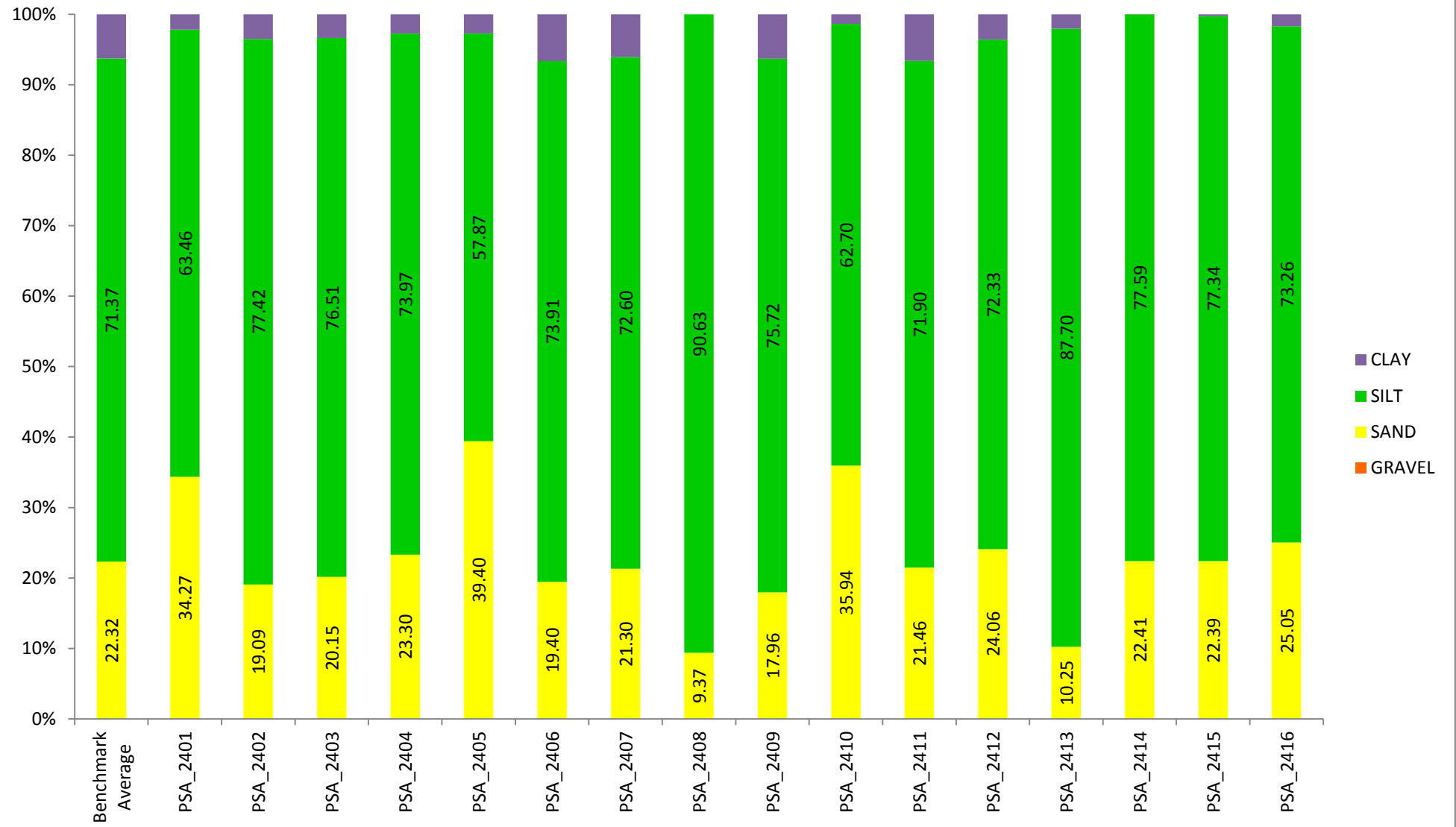
**Table 7.** Summary of final laser data for the participants for sediment distributed as PS64.

Phi interval (explicit) + sieve mesh	BM Average	PSA_2401	PSA_2402	PSA_2403	PSA_2404	PSA_2405	PSA_2406	PSA_2407	PSA_2408	PSA_2409	PSA_2410	PSA_2411	PSA_2412	PSA_2413	PSA_2414	PSA_2415	PSA_2416
0.00 to 0.50; (707 µm)	0.02	0.69	0.00	0.00	0.01	0.00	0.00	0.01	0.00	0.01	0.47	0.01	0.15	0.00	0.01	0.00	0.00
0.50 to 1.00; (500 µm)	0.47	1.23	0.14	0.55	0.41	0.02	0.15	0.47	0.00	0.51	2.33	0.43	0.67	0.00	0.14	0.10	0.23
1.00 to 1.50; (353.6 µm)	1.18	1.75	0.60	1.37	1.08	0.96	0.16	1.30	1.02	1.20	3.71	1.06	1.25	0.00	0.56	0.70	0.99
1.50 to 2.00; (250 µm)	1.17	2.50	1.10	1.48	1.71	3.24	0.31	1.08	1.92	0.98	4.13	1.04	1.78	0.00	1.38	1.42	1.88
2.00 to 2.50; (176.8 µm)	2.36	3.97	1.79	1.65	2.55	5.02	2.31	2.20	2.10	1.05	4.28	2.29	2.55	0.12	2.26	2.32	2.93
2.50 to 3.00; (125 µm)	3.98	6.22	3.08	2.84	4.00	7.15	3.69	3.66	1.88	2.36	5.28	3.86	3.91	1.31	4.16	3.80	4.49
3.00 to 3.50; (88.39 µm)	5.95	8.34	5.07	4.99	5.83	10.20	5.33	5.69	1.16	5.09	7.03	5.72	5.81	3.25	5.66	5.90	6.34
3.50 to 4.00; (62.5 µm)	7.14	9.58	7.32	7.23	7.71	12.80	7.41	6.83	1.29	6.78	8.71	7.02	7.85	5.56	8.22	8.14	8.20
4.00 to 4.50; (44.19 µm)	8.77	10.07	9.22	8.86	9.31	13.32	9.15	8.50	90.63	8.92	9.75	8.82	9.55	8.10	8.98	10.02	9.67
4.50 to 5.00; (31.25 µm)	10.49	10.06	10.37	9.82	10.24	11.67	10.33	10.34	0.00	10.97	10.11	10.62	10.47	10.63	11.20	11.22	10.50
5.00 to 5.50; (22.097 µm)	10.23	9.67	10.66	10.29	10.55	9.13	10.48	10.24	0.00	10.80	9.89	10.33	10.44	12.20	11.25	11.42	10.83
5.50 to 6.00; (15.625 µm)	9.89	8.86	10.23	10.31	10.09	6.84	10.15	9.98	0.00	10.51	9.17	9.92	9.70	12.61	11.06	10.74	10.51
6.00 to 6.50; (11.049 µm)	9.11	7.60	9.39	9.87	8.85	5.13	9.59	9.36	0.00	9.82	7.93	9.10	8.60	11.94	10.16	9.63	9.43
6.50 to 7.00; (7.813 µm)	7.68	6.12	8.32	8.88	7.80	3.85	8.11	8.05	0.00	8.33	6.22	7.67	7.39	10.38	8.95	8.28	8.30
7.00 to 7.50; (5.524 µm)	6.05	4.61	7.08	7.35	6.37	2.87	6.34	6.42	0.00	6.55	4.34	6.07	6.10	8.65	7.48	6.68	6.40
7.50 to 8.00; (3.906 µm)	4.41	3.24	5.62	5.47	4.97	2.16	4.62	4.71	0.00	4.75	2.69	4.47	4.73	6.44	5.47	4.73	4.50
8.00 to 8.50; (2.762 µm)	2.94	2.08	4.02	3.60	3.60	1.67	3.15	3.12	0.00	3.11	1.61	3.01	3.34	4.45	2.66	3.05	2.50
8.50 to 9.00; (1.953 µm)	1.87	1.24	2.51	2.10	2.19	1.24	2.08	1.95	0.00	1.94	0.98	1.94	2.12	2.29	0.39	1.57	0.62
9.00 to 9.50; (1.381 µm)	1.26	0.83	1.38	1.16	1.07	0.86	1.38	1.27	0.00	1.28	0.63	1.33	1.27	0.52	0.00	0.27	0.01
9.50 to 10.00; (0.977 µm)	0.98	0.72	0.83	0.80	0.77	0.65	0.98	0.94	0.00	0.97	0.42	1.03	0.87	0.02	0.00	0.00	0.09
10.00 to 10.50; (0.691 µm)	0.86	0.53	0.69	0.76	0.89	0.63	0.81	0.81	0.00	0.85	0.24	0.91	0.76	0.60	0.00	0.00	1.59
10.50 to 11.00; (0.488 µm)	0.81	0.10	0.50	0.59	0.00	0.48	0.78	0.76	0.00	0.80	0.07	0.85	0.57	0.72	0.00	0.00	0.00
11.00 to 11.50; (0.345 µm)	0.74	0.00	0.09	0.03	0.00	0.12	0.76	0.71	0.00	0.74	0.00	0.78	0.12	0.19	0.00	0.00	0.00
11.50 to 12.00; (0.244 µm)	0.63	0.00	0.00	0.00	0.00	0.00	0.68	0.61	0.00	0.63	0.00	0.67	0.00	0.00	0.00	0.00	0.00
12.00 to 12.50; (0.173 µm)	0.47	0.00	0.00	0.00	0.00	0.00	0.53	0.46	0.00	0.46	0.00	0.50	0.00	0.00	0.00	0.00	0.00
12.50 to 13.00; (0.122 µm)	0.34	0.00	0.00	0.00	0.00	0.00	0.38	0.33	0.00	0.32	0.00	0.35	0.00	0.00	0.00	0.00	0.00
13.00 to 13.50; (0.086 µm)	0.20	0.00	0.00	0.00	0.00	0.00	0.34	0.20	0.00	0.27	0.00	0.21	0.00	0.00	0.00	0.00	0.00
Total	100.000	100.000	100.000	100.000	100.000	99.991	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.002

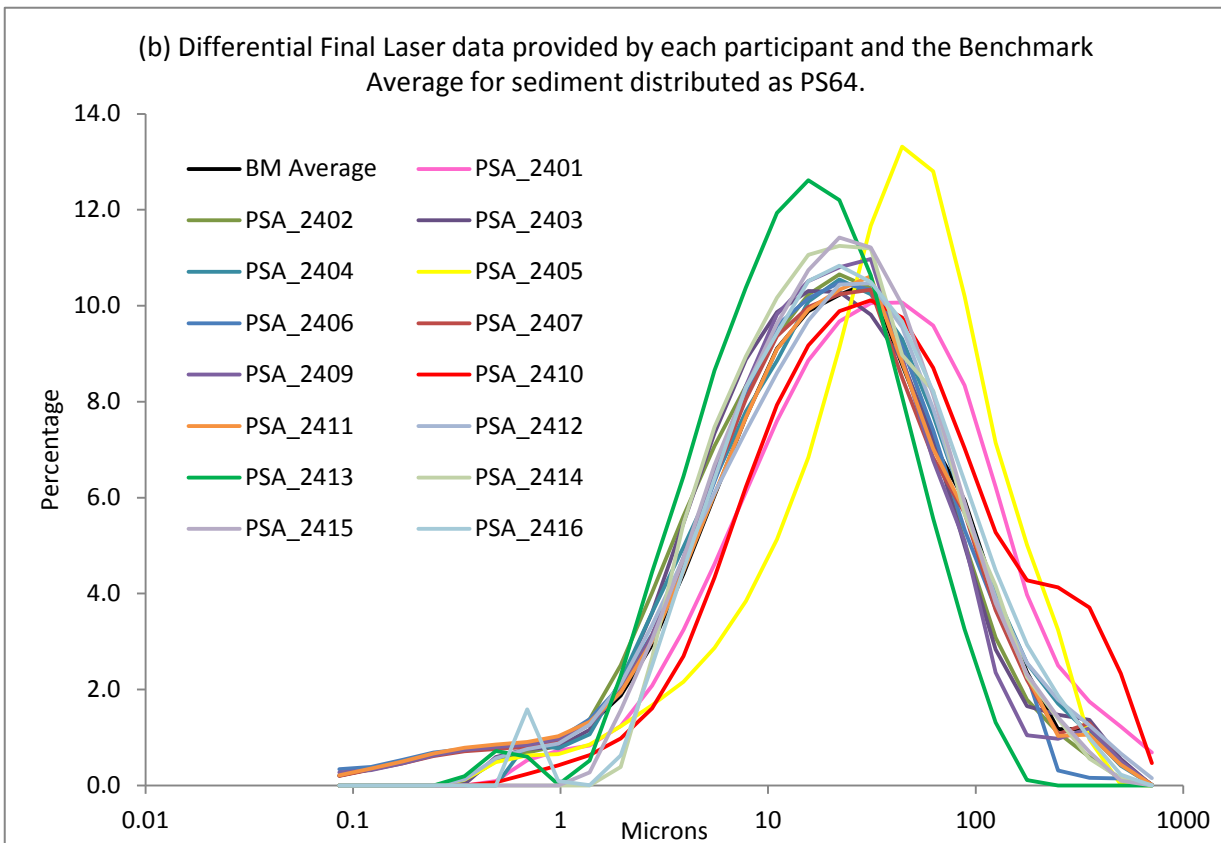
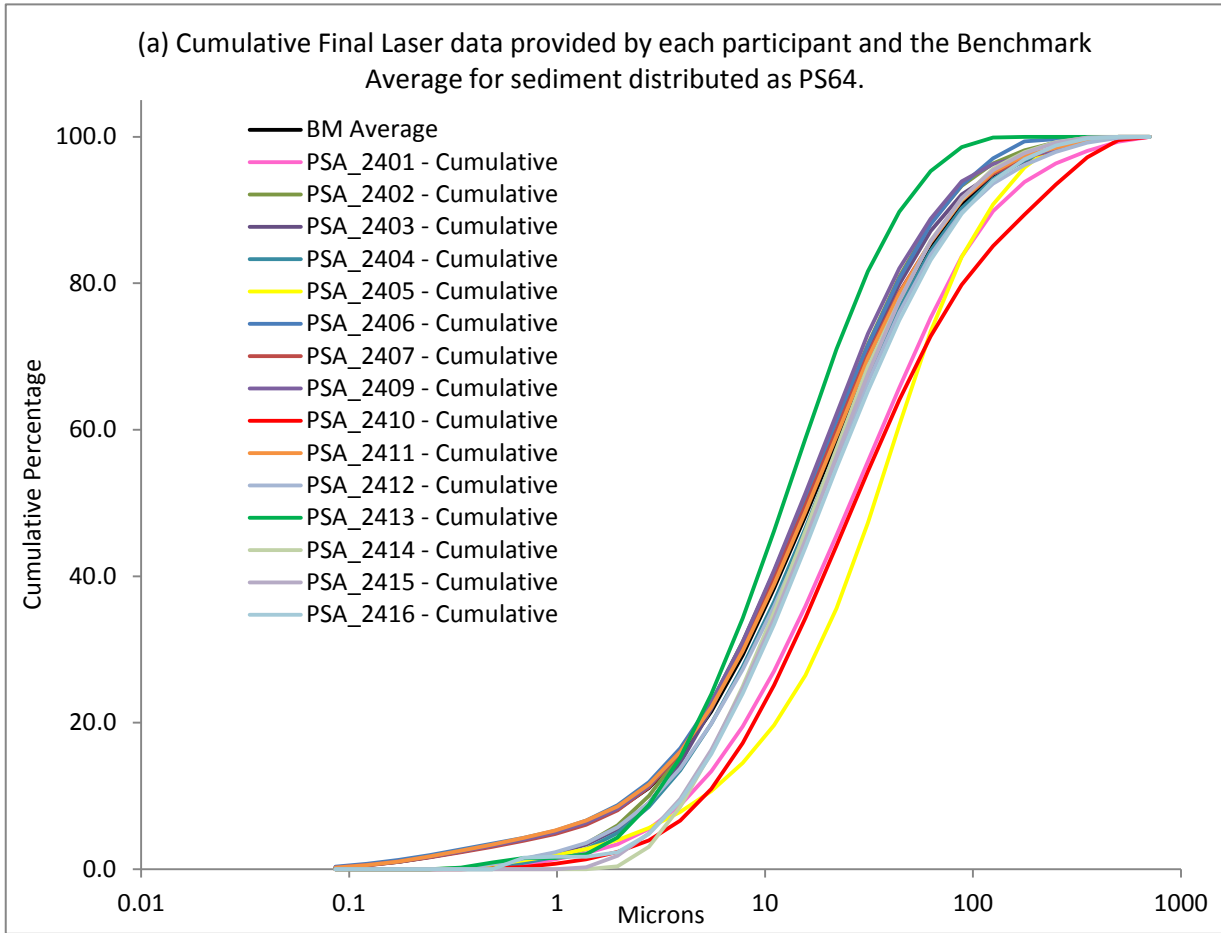
**Figure 3.** Particle size distribution curves from all participating laboratories and the Benchmark Average for sediment distributed as PS64.



**Figure 4.** Bar chart showing the percentage gravel, sand, silt and clay recorded by each participating laboratory and the benchmark average for PS64.



**Figure 5.** Final laser data provided by each participant and the Benchmark Average for sediment distributed as PS64, shown as (a) cumulative and (b) differential.



## **APPENDICES**

**APPENDIX 1.** Gradistat output of size categories based on final merged data provided by each participant and the Benchmark Average for sediment distributed as PS64 (used to create Figure 4).

	BM Average	PSA_2401	PSA_2402	PSA_2403	PSA_2404	PSA_2405	PSA_2406	PSA_2407	PSA_2408	PSA_2409	PSA_2410	PSA_2411	PSA_2412	PSA_2413	PSA_2414	PSA_2415	PSA_2416
VERY COARSE GRAVEL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
COARSE GRAVEL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MEDIUM GRAVEL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FINE GRAVEL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
VERY FINE GRAVEL	0.01	0.09	0.00	0.00	0.00	0.00	0.05	0.01	0.00	0.00	0.00	0.01	0.03	0.00	0.00	0.00	0.00
VERY COARSE SAND	0.07	0.03	0.00	0.04	0.00	0.00	0.07	0.08	0.00	0.00	0.00	0.05	0.10	0.00	0.00	0.00	0.00
COARSE SAND	0.48	1.91	0.14	0.55	0.42	0.02	0.15	0.48	0.00	0.51	2.80	0.44	0.82	0.00	0.15	0.10	0.23
MEDIUM SAND	2.35	4.24	1.69	2.84	2.79	4.20	0.47	2.37	2.94	2.17	7.83	2.10	3.03	0.00	1.95	2.12	2.86
FINE SAND	6.34	10.18	4.87	4.49	6.55	12.17	5.99	5.85	3.98	3.40	9.56	6.14	6.46	1.43	6.43	6.13	7.42
VERY FINE SAND	13.08	17.90	12.39	12.22	13.54	23.01	12.72	12.51	2.45	11.87	15.74	12.73	13.65	8.82	13.88	14.04	14.54
VERY COARSE SILT	19.25	20.10	19.59	18.67	19.55	24.99	19.45	18.82	90.63	19.89	19.87	19.43	19.99	18.74	20.17	21.24	20.17
COARSE SILT	20.10	18.51	20.89	20.58	20.64	15.97	20.61	20.20	0.00	21.32	19.06	20.24	20.11	24.81	22.31	22.17	21.35
MEDIUM SILT	16.77	13.70	17.71	18.74	16.65	8.98	17.68	17.40	0.00	18.15	14.16	16.76	15.97	22.32	19.11	17.91	17.73
FINE SILT	10.45	7.84	12.70	12.81	11.34	5.03	10.94	11.12	0.00	11.30	7.03	10.53	10.81	15.09	12.94	11.41	10.89
VERY FINE SILT	4.80	3.31	6.53	5.70	5.79	2.91	5.23	5.07	0.00	5.06	2.59	4.95	5.45	6.74	3.05	4.61	3.13
CLAY	6.29	2.18	3.49	3.35	2.73	2.73	6.64	6.09	0.00	6.32	1.36	6.63	3.59	2.05	0.00	0.27	1.69
GRAVEL	0.01	0.09	0.00	0.00	0.00	0.00	0.05	0.01	0.00	0.00	0.00	0.01	0.03	0.00	0.00	0.00	0.00
SAND	22.32	34.27	19.09	20.15	23.30	39.40	19.40	21.30	9.37	17.96	35.94	21.46	24.06	10.25	22.41	22.39	25.05
SILT	71.37	63.46	77.42	76.51	73.97	57.87	73.91	72.60	90.63	75.72	62.70	71.90	72.33	87.70	77.59	77.34	73.26
CLAY	6.29	2.18	3.49	3.35	2.73	2.73	6.64	6.09	0.00	6.32	1.36	6.63	3.59	2.05	0.00	0.27	1.69

**APPENDIX 2.** Final Merged Data sheets (with comments) as supplied by participating laboratories (arranged by LabCode) and the Benchmark Replicates for sediment distributed as PS64.

Exercise Code:	PS64
LabCode:	PSA_2401
Sample Code:	PS642401

Phi interval (explicit) + sieve mesh (theoretical sieves shown in brackets)	Percentage (mark as "0" for no material or not analysed)	Grams
-6.50 to -6.00; 63 mm	0.0000	0.0000
-6.00 to -5.50; 45 mm	0.0000	0.0000
-5.50 to -5.00; 31.5 mm	0.0000	0.0000
-5.00 to -4.50; 22.4 mm	0.0000	0.0000
-4.50 to -4.00; 16 mm	0.0000	0.0000
-4.00 to -3.50; 11.2 mm	0.0000	0.0000
-3.50 to -3.00; 8 mm	0.0000	0.0000
-3.00 to -2.50; 5.6 mm	0.0000	0.0000
-2.50 to -2.00; 4 mm	0.0000	0.0000
-2.00 to -1.50; 2.8 mm	0.0172	0.0100
-1.50 to -1.00; 2 mm	0.0690	0.0400
-1.00 to -0.50; 1.4 mm	0.0172	0.0100
-0.50 to 0.00; 1 mm	0.0172	0.0100
0.00 to 0.50; (707 µm)	0.6879	0.3990
0.50 to 1.00; (500 µm)	1.2257	0.7109
1.00 to 1.50; (353.6 µm)	1.7433	1.0111
1.50 to 2.00; (250 µm)	2.4978	1.4487
2.00 to 2.50; (176.8 µm)	3.9693	2.3022
2.50 to 3.00; (125 µm)	6.2138	3.6040
3.00 to 3.50; (88.39 µm)	8.3267	4.8295
3.50 to 4.00; (62.5 µm)	9.5726	5.5521
4.00 to 4.50; (44.19 µm)	10.0534	5.8310
4.50 to 5.00; (31.25 µm)	10.0443	5.8257
5.00 to 5.50; (22.097 µm)	9.6628	5.6044
5.50 to 6.00; (15.625 µm)	8.8466	5.1310
6.00 to 6.50; (11.049 µm)	7.5922	4.4035
6.50 to 7.00; (7.813 µm)	6.1086	3.5430
7.00 to 7.50; (5.524 µm)	4.6078	2.6725
7.50 to 8.00; (3.906 µm)	3.2352	1.8764
8.00 to 8.50; (2.762 µm)	2.0760	1.2041
8.50 to 9.00; (1.953 µm)	1.2364	0.7171
9.00 to 9.50; (1.381 µm)	0.8316	0.4823
9.50 to 10.00; (0.977 µm)	0.7231	0.4194
10.00 to 10.50; (0.691 µm)	0.5283	0.3064
10.50 to 11.00; (0.488 µm)	0.0959	0.0556
11.00 to 11.50; (0.345 µm)	0.0000	0.0000
11.50 to 12.00; (0.244 µm)	0.0000	0.0000
12.00 to 12.50; (0.173 µm)	0.0000	0.0000
12.50 to 13.00; (0.122 µm)	0.0000	0.0000
13.00 to 13.50; (0.086 µm)	0.0000	0.0000
<b>TOTAL</b>	<b>99.9998</b>	<b>57.9999</b>

Notes:



**APPENDIX 2.** Final Merged Data sheets (with comments) as supplied by participating laboratories (arranged by LabCode) and the Benchmark Replicates for sediment distributed as PS64.

Exercise Code:	PS64
LabCode:	PSA_2402
Sample Code:	PS642402

Phi interval (explicit) + sieve mesh (theoretical sieves shown in brackets)	Percentage (mark as "0" for no material or not analysed)	Grams
-6.50 to -6.00; 63 mm	0.0000	
-6.00 to -5.50; 45 mm	0.0000	
-5.50 to -5.00; 31.5 mm	0.0000	
-5.00 to -4.50; 22.4 mm	0.0000	
-4.50 to -4.00; 16 mm	0.0000	
-4.00 to -3.50; 11.2 mm	0.0000	
-3.50 to -3.00; 8 mm	0.0000	
-3.00 to -2.50; 5.6 mm	0.0000	
-2.50 to -2.00; 4 mm	0.0000	
-2.00 to -1.50; 2.8 mm	0.0000	
-1.50 to -1.00; 2 mm	0.0000	
-1.00 to -0.50; 1.4 mm	0.0000	
-0.50 to 0.00; 1 mm	0.0000	
0.00 to 0.50; (707 µm)	0.0000	
0.50 to 1.00; (500 µm)	0.1426	
1.00 to 1.50; (353.6 µm)	0.5959	
1.50 to 2.00; (250 µm)	1.0974	
2.00 to 2.50; (176.8 µm)	1.7891	
2.50 to 3.00; (125 µm)	3.0795	
3.00 to 3.50; (88.39 µm)	5.0694	
3.50 to 4.00; (62.5 µm)	7.3172	
4.00 to 4.50; (44.19 µm)	9.2200	
4.50 to 5.00; (31.25 µm)	10.3669	
5.00 to 5.50; (22.097 µm)	10.6552	
5.50 to 6.00; (15.625 µm)	10.2331	
6.00 to 6.50; (11.049 µm)	9.3863	
6.50 to 7.00; (7.813 µm)	8.3237	
7.00 to 7.50; (5.524 µm)	7.0811	
7.50 to 8.00; (3.906 µm)	5.6197	
8.00 to 8.50; (2.762 µm)	4.0232	
8.50 to 9.00; (1.953 µm)	2.5103	
9.00 to 9.50; (1.381 µm)	1.3782	
9.50 to 10.00; (0.977 µm)	0.8296	
10.00 to 10.50; (0.691 µm)	0.6881	
10.50 to 11.00; (0.488 µm)	0.5037	
11.00 to 11.50; (0.345 µm)	0.0898	
11.50 to 12.00; (0.244 µm)	0.0000	
12.00 to 12.50; (0.173 µm)	0.0000	
12.50 to 13.00; (0.122 µm)	0.0000	
13.00 to 13.50; (0.086 µm)	0.0000	
<b>TOTAL</b>	<b>100.0000</b>	<b>0.0000</b>

Notes:

**APPENDIX 2.** Final Merged Data sheets (with comments) as supplied by participating laboratories (arranged by LabCode) and the Benchmark Replicates for sediment distributed as PS64.

Exercise Code:	PS64
LabCode:	PSA_2403
Sample Code:	PS642403

Phi interval (explicit) + sieve mesh (theoretical sieves shown in brackets)	Percentage (mark as "0" for no material or not analysed)	Grams
-6.50 to -6.00; 63 mm	0.0000	
-6.00 to -5.50; 45 mm	0.0000	
-5.50 to -5.00; 31.5 mm	0.0000	
-5.00 to -4.50; 22.4 mm	0.0000	
-4.50 to -4.00; 16 mm	0.0000	
-4.00 to -3.50; 11.2 mm	0.0000	
-3.50 to -3.00; 8 mm	0.0000	
-3.00 to -2.50; 5.6 mm	0.0000	
-2.50 to -2.00; 4 mm	0.0000	
-2.00 to -1.50; 2.8 mm	0.0000	
-1.50 to -1.00; 2 mm	0.0000	
-1.00 to -0.50; 1.4 mm	0.0147	
-0.50 to 0.00; 1 mm	0.0293	
0.00 to 0.50; (707 µm)	0.0000	
0.50 to 1.00; (500 µm)	0.5524	
1.00 to 1.50; (353.6 µm)	1.3660	
1.50 to 2.00; (250 µm)	1.4753	
2.00 to 2.50; (176.8 µm)	1.6536	
2.50 to 3.00; (125 µm)	2.8370	
3.00 to 3.50; (88.39 µm)	4.9924	
3.50 to 4.00; (62.5 µm)	7.2249	
4.00 to 4.50; (44.19 µm)	8.8551	
4.50 to 5.00; (31.25 µm)	9.8118	
5.00 to 5.50; (22.097 µm)	10.2806	
5.50 to 6.00; (15.625 µm)	10.3028	
6.00 to 6.50; (11.049 µm)	9.8654	
6.50 to 7.00; (7.813 µm)	8.8758	
7.00 to 7.50; (5.524 µm)	7.3440	
7.50 to 8.00; (3.906 µm)	5.4669	
8.00 to 8.50; (2.762 µm)	3.6029	
8.50 to 9.00; (1.953 µm)	2.1015	
9.00 to 9.50; (1.381 µm)	1.1617	
9.50 to 10.00; (0.977 µm)	0.8044	
10.00 to 10.50; (0.691 µm)	0.7623	
10.50 to 11.00; (0.488 µm)	0.5912	
11.00 to 11.50; (0.345 µm)	0.0283	
11.50 to 12.00; (0.244 µm)	0.0000	
12.00 to 12.50; (0.173 µm)	0.0000	
12.50 to 13.00; (0.122 µm)	0.0000	
13.00 to 13.50; (0.086 µm)	0.0000	
<b>TOTAL</b>	<b>100.0000</b>	<b>0.0000</b>

Notes:

**APPENDIX 2.** Final Merged Data sheets (with comments) as supplied by participating laboratories (arranged by LabCode) and the Benchmark Replicates for sediment distributed as PS64.

Exercise Code:	PS64
LabCode:	PSA_2404
Sample Code:	PS642404

Phi interval (explicit) + sieve mesh (theoretical sieves shown in brackets)	Percentage (mark as "0" for no material or not analysed)	Grams
-6.50 to -6.00; 63 mm	0.0000	
-6.00 to -5.50; 45 mm	0.0000	
-5.50 to -5.00; 31.5 mm	0.0000	
-5.00 to -4.50; 22.4 mm	0.0000	
-4.50 to -4.00; 16 mm	0.0000	
-4.00 to -3.50; 11.2 mm	0.0000	
-3.50 to -3.00; 8 mm	0.0000	
-3.00 to -2.50; 5.6 mm	0.0000	
-2.50 to -2.00; 4 mm	0.0000	
-2.00 to -1.50; 2.8 mm	0.0000	
-1.50 to -1.00; 2 mm	0.0000	
-1.00 to -0.50; 1.4 mm	0.0000	
-0.50 to 0.00; 1 mm	0.0000	
0.00 to 0.50; (707 µm)	0.0100	
0.50 to 1.00; (500 µm)	0.4100	
1.00 to 1.50; (353.6 µm)	1.0800	
1.50 to 2.00; (250 µm)	1.7100	
2.00 to 2.50; (176.8 µm)	2.5500	
2.50 to 3.00; (125 µm)	4.0000	
3.00 to 3.50; (88.39 µm)	5.8300	
3.50 to 4.00; (62.5 µm)	7.7100	
4.00 to 4.50; (44.19 µm)	9.3100	
4.50 to 5.00; (31.25 µm)	10.2400	
5.00 to 5.50; (22.097 µm)	10.5500	
5.50 to 6.00; (15.625 µm)	10.0900	
6.00 to 6.50; (11.049 µm)	8.8500	
6.50 to 7.00; (7.813 µm)	7.8000	
7.00 to 7.50; (5.524 µm)	6.3700	
7.50 to 8.00; (3.906 µm)	4.9700	
8.00 to 8.50; (2.762 µm)	3.6000	
8.50 to 9.00; (1.953 µm)	2.1900	
9.00 to 9.50; (1.381 µm)	1.0700	
9.50 to 10.00; (0.977 µm)	0.7700	
10.00 to 10.50; (0.691 µm)	0.8900	
10.50 to 11.00; (0.488 µm)		
11.00 to 11.50; (0.345 µm)		
11.50 to 12.00; (0.244 µm)		
12.00 to 12.50; (0.173 µm)		
12.50 to 13.00; (0.122 µm)		
13.00 to 13.50; (0.086 µm)		
<b>TOTAL</b>	<b>100.0000</b>	<b>0.0000</b>

Notes:

**APPENDIX 2.** Final Merged Data sheets (with comments) as supplied by participating laboratories (arranged by LabCode) and the Benchmark Replicates for sediment distributed as PS64.

Exercise Code:	PS64
LabCode:	PSA_2405
Sample Code:	PS642405

Phi interval (explicit) + sieve mesh (theoretical sieves shown in brackets)	Percentage (mark as "0" for no material or not analysed)	Grams
-6.50 to -6.00; 63 mm		
-6.00 to -5.50; 45 mm		
-5.50 to -5.00; 31.5 mm		
-5.00 to -4.50; 22.4 mm		
-4.50 to -4.00; 16 mm		
-4.00 to -3.50; 11.2 mm		
-3.50 to -3.00; 8 mm		
-3.00 to -2.50; 5.6 mm		
-2.50 to -2.00; 4 mm		
-2.00 to -1.50; 2.8 mm		
-1.50 to -1.00; 2 mm		
-1.00 to -0.50; 1.4 mm		
-0.50 to 0.00; 1 mm		
0.00 to 0.50; (707 µm)	0.0000	
0.50 to 1.00; (500 µm)	0.0200	
1.00 to 1.50; (353.6 µm)	0.9600	
1.50 to 2.00; (250 µm)	3.2411	
2.00 to 2.50; (176.8 µm)	5.0200	
2.50 to 3.00; (125 µm)	7.1478	
3.00 to 3.50; (88.39 µm)	10.2000	
3.50 to 4.00; (62.5 µm)	12.8033	
4.00 to 4.50; (44.19 µm)	13.3189	
4.50 to 5.00; (31.25 µm)	11.6700	
5.00 to 5.50; (22.097 µm)	9.1300	
5.50 to 6.00; (15.625 µm)	6.8356	
6.00 to 6.50; (11.049 µm)	5.1289	
6.50 to 7.00; (7.813 µm)	3.8456	
7.00 to 7.50; (5.524 µm)	2.8689	
7.50 to 8.00; (3.906 µm)	2.1578	
8.00 to 8.50; (2.762 µm)	1.6733	
8.50 to 9.00; (1.953 µm)	1.2356	
9.00 to 9.50; (1.381 µm)	0.8556	
9.50 to 10.00; (0.977 µm)	0.6522	
10.00 to 10.50; (0.691 µm)	0.6267	
10.50 to 11.00; (0.488 µm)	0.4833	
11.00 to 11.50; (0.345 µm)	0.1167	
11.50 to 12.00; (0.244 µm)	0.0000	
12.00 to 12.50; (0.173 µm)		
12.50 to 13.00; (0.122 µm)		
13.00 to 13.50; (0.086 µm)		
<b>TOTAL</b>	<b>99.9911</b>	<b>0.0000</b>

Notes:

**APPENDIX 2.** Final Merged Data sheets (with comments) as supplied by participating laboratories (arranged by LabCode) and the Benchmark Replicates for sediment distributed as PS64.

Exercise Code:	PS65
LabCode:	PSA_2406
Sample Code:	PS642406

Phi interval (explicit) + sieve mesh (theoretical sieves shown in brackets)	Percentage (mark as "0" for no material or not analysed)	Grams
-6.50 to -6.00; 63 mm	0.00	
-6.00 to -5.50; 45 mm	0.00	0.00
-5.50 to -5.00; 31.5 mm	0.00	0.00
-5.00 to -4.50; 22.4 mm	0.00	0.00
-4.50 to -4.00; 16 mm	0.00	0.00
-4.00 to -3.50; 11.2 mm	0.00	0.00
-3.50 to -3.00; 8 mm	0.00	0.00
-3.00 to -2.50; 5.6 mm	0.00	0.00
-2.50 to -2.00; 4 mm	0.00	0.00
-2.00 to -1.50; 2.8 mm	0.00	0.00
-1.50 to -1.00; 2 mm	0.05	0.03
-1.00 to -0.50; 1.4 mm	0.03	0.02
-0.50 to 0.00; 1 mm	0.03	0.02
0.00 to 0.50; (707 µm)	0.00	0.00
0.50 to 1.00; (500 µm)	0.15	0.09
1.00 to 1.50; (353.6 µm)	0.16	0.09
1.50 to 2.00; (250 µm)	0.31	0.18
2.00 to 2.50; (176.8 µm)	2.30	1.33
2.50 to 3.00; (125 µm)	3.68	2.12
3.00 to 3.50; (88.39 µm)	5.33	3.07
3.50 to 4.00; (62.5 µm)	7.40	4.27
4.00 to 4.50; (44.19 µm)	9.13	5.27
4.50 to 5.00; (31.25 µm)	10.32	5.96
5.00 to 5.50; (22.097 µm)	10.47	6.04
5.50 to 6.00; (15.625 µm)	10.14	5.85
6.00 to 6.50; (11.049 µm)	9.57	5.53
6.50 to 7.00; (7.813 µm)	8.10	4.68
7.00 to 7.50; (5.524 µm)	6.33	3.65
7.50 to 8.00; (3.906 µm)	4.62	2.67
8.00 to 8.50; (2.762 µm)	3.15	1.82
8.50 to 9.00; (1.953 µm)	2.08	1.20
9.00 to 9.50; (1.381 µm)	1.38	0.80
9.50 to 10.00; (0.977 µm)	0.97	0.56
10.00 to 10.50; (0.691 µm)	0.81	0.47
10.50 to 11.00; (0.488 µm)	0.78	0.45
11.00 to 11.50; (0.345 µm)	0.76	0.44
11.50 to 12.00; (0.244 µm)	0.68	0.39
12.00 to 12.50; (0.173 µm)	0.53	0.31
12.50 to 13.00; (0.122 µm)	0.38	0.22
13.00 to 13.50; (0.086 µm)	0.34	0.19
<b>TOTAL</b>	<b>100.0000</b>	<b>57.7200</b>

Notes:

**APPENDIX 2.** Final Merged Data sheets (with comments) as supplied by participating laboratories (arranged by LabCode) and the Benchmark Replicates for sediment distributed as PS64.

Exercise Code:	PS64
LabCode:	PSA_2407
Sample Code:	PS642407

Phi interval (explicit) + sieve mesh (theoretical sieves shown in brackets)	Percentage (mark as "0" for no material or not analysed)	Grams
-6.50 to -6.00; 63 mm	0.0000	0.0000
-6.00 to -5.50; 45 mm	0.0000	0.0000
-5.50 to -5.00; 31.5 mm	0.0000	0.0000
-5.00 to -4.50; 22.4 mm	0.0000	0.0000
-4.50 to -4.00; 16 mm	0.0000	0.0000
-4.00 to -3.50; 11.2 mm	0.0000	0.0000
-3.50 to -3.00; 8 mm	0.0000	0.0000
-3.00 to -2.50; 5.6 mm	0.0000	0.0000
-2.50 to -2.00; 4 mm	0.0000	0.0000
-2.00 to -1.50; 2.8 mm	0.0000	0.0000
-1.50 to -1.00; 2 mm	0.0142	0.0100
-1.00 to -0.50; 1.4 mm	0.0283	0.0200
-0.50 to 0.00; 1 mm	0.0566	0.0400
0.00 to 0.50; (707 µm)	0.0114	0.0081
0.50 to 1.00; (500 µm)	0.4705	0.3322
1.00 to 1.50; (353.6 µm)	1.2970	0.9158
1.50 to 2.00; (250 µm)	1.0749	0.7590
2.00 to 2.50; (176.8 µm)	2.1997	1.5532
2.50 to 3.00; (125 µm)	3.6537	2.5799
3.00 to 3.50; (88.39 µm)	5.6796	4.0104
3.50 to 4.00; (62.5 µm)	6.8255	4.8195
4.00 to 4.50; (44.19 µm)	8.4902	5.9949
4.50 to 5.00; (31.25 µm)	10.3260	7.2912
5.00 to 5.50; (22.097 µm)	10.2317	7.2246
5.50 to 6.00; (15.625 µm)	9.9652	7.0364
6.00 to 6.50; (11.049 µm)	9.3544	6.6052
6.50 to 7.00; (7.813 µm)	8.0430	5.6792
7.00 to 7.50; (5.524 µm)	6.4185	4.5321
7.50 to 8.00; (3.906 µm)	4.7071	3.3237
8.00 to 8.50; (2.762 µm)	3.1171	2.2010
8.50 to 9.00; (1.953 µm)	1.9502	1.3770
9.00 to 9.50; (1.381 µm)	1.2710	0.8975
9.50 to 10.00; (0.977 µm)	0.9375	0.6620
10.00 to 10.50; (0.691 µm)	0.8053	0.5686
10.50 to 11.00; (0.488 µm)	0.7591	0.5360
11.00 to 11.50; (0.345 µm)	0.7098	0.5012
11.50 to 12.00; (0.244 µm)	0.6128	0.4327
12.00 to 12.50; (0.173 µm)	0.4624	0.3265
12.50 to 13.00; (0.122 µm)	0.3293	0.2325
13.00 to 13.50; (0.086 µm)	0.1979	0.1398
<b>TOTAL</b>	<b>100.0000</b>	<b>70.6100</b>

Notes:

**APPENDIX 2.** Final Merged Data sheets (with comments) as supplied by participating laboratories (arranged by LabCode) and the Benchmark Replicates for sediment distributed as PS64.

Exercise Code:	PS64
LabCode:	PSA_2408
Sample Code:	PS642408

Phi interval (explicit) + sieve mesh (theoretical sieves shown in brackets)	Percentage (mark as "0" for no material or not analysed)	Grams
-6.50 to -6.00; 63 mm		
-6.00 to -5.50; 45 mm		
-5.50 to -5.00; 31.5 mm		
-5.00 to -4.50; 22.4 mm		
-4.50 to -4.00; 16 mm		
-4.00 to -3.50; 11.2 mm		
-3.50 to -3.00; 8 mm		
-3.00 to -2.50; 5.6 mm		
-2.50 to -2.00; 4 mm		
-2.00 to -1.50; 2.8 mm		
-1.50 to -1.00; 2 mm		
-1.00 to -0.50; 1.4 mm		
-0.50 to 0.00; 1 mm		
0.00 to 0.50; (707 µm)		
0.50 to 1.00; (500 µm)		
1.00 to 1.50; (353.6 µm)	1.02	0.7570
1.50 to 2.00; (250 µm)	1.92	1.4290
2.00 to 2.50; (176.8 µm)	2.10	1.5580
2.50 to 3.00; (125 µm)	1.88	1.3950
3.00 to 3.50; (88.39 µm)	1.16	0.8650
3.50 to 4.00; (62.5 µm)	1.29	0.9550
4.00 to 4.50; (44.19 µm)	90.63	67.2910
4.50 to 5.00; (31.25 µm)		
5.00 to 5.50; (22.097 µm)		
5.50 to 6.00; (15.625 µm)		
6.00 to 6.50; (11.049 µm)		
6.50 to 7.00; (7.813 µm)		
7.00 to 7.50; (5.524 µm)		
7.50 to 8.00; (3.906 µm)		
8.00 to 8.50; (2.762 µm)		
8.50 to 9.00; (1.953 µm)		
9.00 to 9.50; (1.381 µm)		
9.50 to 10.00; (0.977 µm)		
10.00 to 10.50; (0.691 µm)		
10.50 to 11.00; (0.488 µm)		
11.00 to 11.50; (0.345 µm)		
11.50 to 12.00; (0.244 µm)		
12.00 to 12.50; (0.173 µm)		
12.50 to 13.00; (0.122 µm)		
13.00 to 13.50; (0.086 µm)		
<b>TOTAL</b>	<b>100.0000</b>	<b>74.2500</b>

Notes: Red text calculated by APEM.

**APPENDIX 2.** Final Merged Data sheets (with comments) as supplied by participating laboratories (arranged by LabCode) and the Benchmark Replicates for sediment distributed as PS64.

Exercise Code:	PS64
LabCode:	PSA_2409
Sample Code:	PS642409

Phi interval (explicit) + sieve mesh (theoretical sieves shown in brackets)	Percentage (mark as "0" for no material or not analysed)	Grams
-6.50 to -6.00; 63 mm	0.0000	
-6.00 to -5.50; 45 mm	0.0000	
-5.50 to -5.00; 31.5 mm	0.0000	
-5.00 to -4.50; 22.4 mm	0.0000	
-4.50 to -4.00; 16 mm	0.0000	
-4.00 to -3.50; 11.2 mm	0.0000	
-3.50 to -3.00; 8 mm	0.0000	
-3.00 to -2.50; 5.6 mm	0.0000	
-2.50 to -2.00; 4 mm	0.0000	
-2.00 to -1.50; 2.8 mm	0.0000	
-1.50 to -1.00; 2 mm	0.0000	
-1.00 to -0.50; 1.4 mm	0.0000	
-0.50 to 0.00; 1 mm	0.0000	
0.00 to 0.50; (707 µm)	0.0050	
0.50 to 1.00; (500 µm)	0.5093	
1.00 to 1.50; (353.6 µm)	1.1964	
1.50 to 2.00; (250 µm)	0.9754	
2.00 to 2.50; (176.8 µm)	1.0451	
2.50 to 3.00; (125 µm)	2.3575	
3.00 to 3.50; (88.39 µm)	5.0924	
3.50 to 4.00; (62.5 µm)	6.7810	
4.00 to 4.50; (44.19 µm)	8.9199	
4.50 to 5.00; (31.25 µm)	10.9734	
5.00 to 5.50; (22.097 µm)	10.8043	
5.50 to 6.00; (15.625 µm)	10.5130	
6.00 to 6.50; (11.049 µm)	9.8227	
6.50 to 7.00; (7.813 µm)	8.3265	
7.00 to 7.50; (5.524 µm)	6.5535	
7.50 to 8.00; (3.906 µm)	4.7510	
8.00 to 8.50; (2.762 µm)	3.1150	
8.50 to 9.00; (1.953 µm)	1.9425	
9.00 to 9.50; (1.381 µm)	1.2819	
9.50 to 10.00; (0.977 µm)	0.9686	
10.00 to 10.50; (0.691 µm)	0.8456	
10.50 to 11.00; (0.488 µm)	0.7979	
11.00 to 11.50; (0.345 µm)	0.7392	
11.50 to 12.00; (0.244 µm)	0.6277	
12.00 to 12.50; (0.173 µm)	0.4624	
12.50 to 13.00; (0.122 µm)	0.3212	
13.00 to 13.50; (0.086 µm)	0.2715	
<b>TOTAL</b>	<b>100.0001</b>	<b>0.0000</b>

Notes:



**APPENDIX 2.** Final Merged Data sheets (with comments) as supplied by participating laboratories (arranged by LabCode) and the Benchmark Replicates for sediment distributed as PS64.

Exercise Code:	PS65
LabCode:	PSA_2410
Sample Code:	PS642410

Phi interval (explicit) + sieve mesh (theoretical sieves shown in brackets)	Percentage (mark as "0" for no material or not analysed)	Grams
-6.50 to -6.00; 63 mm	0.0000	0.0000
-6.00 to -5.50; 45 mm	0.0000	0.0000
-5.50 to -5.00; 31.5 mm	0.0000	0.0000
-5.00 to -4.50; 22.4 mm	0.0000	0.0000
-4.50 to -4.00; 16 mm	0.0000	0.0000
-4.00 to -3.50; 11.2 mm	0.0000	0.0000
-3.50 to -3.00; 8 mm	0.0000	0.0000
-3.00 to -2.50; 5.6 mm	0.0000	0.0000
-2.50 to -2.00; 4 mm	0.0000	0.0000
-2.00 to -1.50; 2.8 mm	0.0000	0.0000
-1.50 to -1.00; 2 mm	0.0000	0.0000
-1.00 to -0.50; 1.4 mm	0.0000	0.0000
-0.50 to 0.00; 1 mm	0.0000	0.0000
0.00 to 0.50; (707 µm)	0.4686	0.4686
0.50 to 1.00; (500 µm)	2.3348	2.3348
1.00 to 1.50; (353.6 µm)	3.7076	3.7076
1.50 to 2.00; (250 µm)	4.1272	4.1272
2.00 to 2.50; (176.8 µm)	4.2793	4.2793
2.50 to 3.00; (125 µm)	5.2799	5.2799
3.00 to 3.50; (88.39 µm)	7.0335	7.0335
3.50 to 4.00; (62.5 µm)	8.7068	8.7068
4.00 to 4.50; (44.19 µm)	9.7549	9.7549
4.50 to 5.00; (31.25 µm)	10.1149	10.1149
5.00 to 5.50; (22.097 µm)	9.8884	9.8884
5.50 to 6.00; (15.625 µm)	9.1706	9.1706
6.00 to 6.50; (11.049 µm)	7.9338	7.9338
6.50 to 7.00; (7.813 µm)	6.2240	6.2240
7.00 to 7.50; (5.524 µm)	4.3363	4.3363
7.50 to 8.00; (3.906 µm)	2.6919	2.6919
8.00 to 8.50; (2.762 µm)	1.6052	1.6052
8.50 to 9.00; (1.953 µm)	0.9808	0.9808
9.00 to 9.50; (1.381 µm)	0.6333	0.6333
9.50 to 10.00; (0.977 µm)	0.4216	0.4216
10.00 to 10.50; (0.691 µm)	0.2407	0.2407
10.50 to 11.00; (0.488 µm)	0.0660	0.0660
11.00 to 11.50; (0.345 µm)	0.0000	0.0000
11.50 to 12.00; (0.244 µm)	0.0000	0.0000
12.00 to 12.50; (0.173 µm)	0.0000	0.0000
12.50 to 13.00; (0.122 µm)	0.0000	0.0000
13.00 to 13.50; (0.086 µm)	0.0000	0.0000
<b>TOTAL</b>	<b>100.0000</b>	<b>100.0000</b>

Notes:

**APPENDIX 2.** Final Merged Data sheets (with comments) as supplied by participating laboratories (arranged by LabCode) and the Benchmark Replicates for sediment distributed as PS64.

Exercise Code:	PS64
LabCode:	PSA_2411
Sample Code:	PS642411

Phi interval (explicit) + sieve mesh (theoretical sieves shown in brackets)	Percentage (mark as "0" for no material or not analysed)	Grams
-6.50 to -6.00; 63 mm	0.0000	0.0000
-6.00 to -5.50; 45 mm	0.0000	0.0000
-5.50 to -5.00; 31.5 mm	0.0000	0.0000
-5.00 to -4.50; 22.4 mm	0.0000	0.0000
-4.50 to -4.00; 16 mm	0.0000	0.0000
-4.00 to -3.50; 11.2 mm	0.0000	0.0000
-3.50 to -3.00; 8 mm	0.0000	0.0000
-3.00 to -2.50; 5.6 mm	0.0000	0.0000
-2.50 to -2.00; 4 mm	0.0000	0.0000
-2.00 to -1.50; 2.8 mm	0.0000	0.0000
-1.50 to -1.00; 2 mm	0.0097	0.0071
-1.00 to -0.50; 1.4 mm	0.0192	0.0141
-0.50 to 0.00; 1 mm	0.0289	0.0212
0.00 to 0.50; (707 µm)	0.0114	0.0084
0.50 to 1.00; (500 µm)	0.4335	0.3185
1.00 to 1.50; (353.6 µm)	1.0605	0.7793
1.50 to 2.00; (250 µm)	1.0352	0.7607
2.00 to 2.50; (176.8 µm)	2.2858	1.6797
2.50 to 3.00; (125 µm)	3.8539	2.8320
3.00 to 3.50; (88.39 µm)	5.7196	4.2029
3.50 to 4.00; (62.5 µm)	7.0138	5.1539
4.00 to 4.50; (44.19 µm)	8.8167	6.4787
4.50 to 5.00; (31.25 µm)	10.6099	7.7964
5.00 to 5.50; (22.097 µm)	10.3284	7.5896
5.50 to 6.00; (15.625 µm)	9.9119	7.2836
6.00 to 6.50; (11.049 µm)	9.0901	6.6796
6.50 to 7.00; (7.813 µm)	7.6645	5.6321
7.00 to 7.50; (5.524 µm)	6.0661	4.4576
7.50 to 8.00; (3.906 µm)	4.4658	3.2816
8.00 to 8.50; (2.762 µm)	3.0068	2.2095
8.50 to 9.00; (1.953 µm)	1.9415	1.4266
9.00 to 9.50; (1.381 µm)	1.3264	0.9747
9.50 to 10.00; (0.977 µm)	1.0280	0.7554
10.00 to 10.50; (0.691 µm)	0.9049	0.6649
10.50 to 11.00; (0.488 µm)	0.8502	0.6248
11.00 to 11.50; (0.345 µm)	0.7839	0.5761
11.50 to 12.00; (0.244 µm)	0.6682	0.4910
12.00 to 12.50; (0.173 µm)	0.4991	0.3668
12.50 to 13.00; (0.122 µm)	0.3543	0.2603
13.00 to 13.50; (0.086 µm)	0.2121	0.1559
<b>TOTAL</b>	<b>100.0000</b>	<b>73.4828</b>

Notes:

**APPENDIX 2.** Final Merged Data sheets (with comments) as supplied by participating laboratories (arranged by LabCode) and the Benchmark Replicates for sediment distributed as PS64.

Exercise Code:	PS64
LabCode:	PSA_2412
Sample Code:	PS642412

Phi interval (explicit) + sieve mesh (theoretical sieves shown in brackets)	Percentage (mark as "0" for no material or not analysed)	Grams
-6.50 to -6.00; 63 mm	0.0000	0.0000
-6.00 to -5.50; 45 mm	0.0000	0.0000
-5.50 to -5.00; 31.5 mm	0.0000	0.0000
-5.00 to -4.50; 22.4 mm	0.0000	0.0000
-4.50 to -4.00; 16 mm	0.0000	0.0000
-4.00 to -3.50; 11.2 mm	0.0000	0.0000
-3.50 to -3.00; 8 mm	0.0000	0.0000
-3.00 to -2.50; 5.6 mm	0.0000	0.0000
-2.50 to -2.00; 4 mm	0.0000	0.0000
-2.00 to -1.50; 2.8 mm	0.0000	0.0000
-1.50 to -1.00; 2 mm	0.0252	0.0160
-1.00 to -0.50; 1.4 mm	0.0410	0.0260
-0.50 to 0.00; 1 mm	0.0552	0.0350
0.00 to 0.50; (707 µm)	0.1524	0.0967
0.50 to 1.00; (500 µm)	0.6676	0.4236
1.00 to 1.50; (353.6 µm)	1.2520	0.7945
1.50 to 2.00; (250 µm)	1.7825	1.1311
2.00 to 2.50; (176.8 µm)	2.5503	1.6183
2.50 to 3.00; (125 µm)	3.9050	2.4780
3.00 to 3.50; (88.39 µm)	5.8056	3.6840
3.50 to 4.00; (62.5 µm)	7.8442	4.9776
4.00 to 4.50; (44.19 µm)	9.5396	6.0535
4.50 to 5.00; (31.25 µm)	10.4544	6.6339
5.00 to 5.50; (22.097 µm)	10.4277	6.6170
5.50 to 6.00; (15.625 µm)	9.6838	6.1449
6.00 to 6.50; (11.049 µm)	8.5905	5.4512
6.50 to 7.00; (7.813 µm)	7.3783	4.6820
7.00 to 7.50; (5.524 µm)	6.0891	3.8639
7.50 to 8.00; (3.906 µm)	4.7214	2.9960
8.00 to 8.50; (2.762 µm)	3.3352	2.1164
8.50 to 9.00; (1.953 µm)	2.1141	1.3415
9.00 to 9.50; (1.381 µm)	1.2641	0.8021
9.50 to 10.00; (0.977 µm)	0.8733	0.5542
10.00 to 10.50; (0.691 µm)	0.7583	0.4812
10.50 to 11.00; (0.488 µm)	0.5652	0.3586
11.00 to 11.50; (0.345 µm)	0.1241	0.0788
11.50 to 12.00; (0.244 µm)	0.0000	0.0000
12.00 to 12.50; (0.173 µm)	0.0000	0.0000
12.50 to 13.00; (0.122 µm)	0.0000	0.0000
13.00 to 13.50; (0.086 µm)	0.0000	0.0000
<b>TOTAL</b>	<b>100.0000</b>	<b>63.4560</b>

Notes:

**APPENDIX 2.** Final Merged Data sheets (with comments) as supplied by participating laboratories (arranged by LabCode) and the Benchmark Replicates for sediment distributed as PS64.

Exercise Code:	PS64
LabCode:	PSA_2413
Sample Code:	PS642413

Phi interval (explicit) + sieve mesh (theoretical sieves shown in brackets)	Percentage (mark as "0" for no material or not analysed)	Grams
-6.50 to -6.00; 63 mm	0.0000	
-6.00 to -5.50; 45 mm	0.0000	
-5.50 to -5.00; 31.5 mm	0.0000	
-5.00 to -4.50; 22.4 mm	0.0000	
-4.50 to -4.00; 16 mm	0.0000	
-4.00 to -3.50; 11.2 mm	0.0000	
-3.50 to -3.00; 8 mm	0.0000	
-3.00 to -2.50; 5.6 mm	0.0000	
-2.50 to -2.00; 4 mm	0.0000	
-2.00 to -1.50; 2.8 mm	0.0000	
-1.50 to -1.00; 2 mm	0.0000	
-1.00 to -0.50; 1.4 mm	0.0000	
-0.50 to 0.00; 1 mm	0.0000	
0.00 to 0.50; (707 µm)	0.0000	
0.50 to 1.00; (500 µm)	0.0000	
1.00 to 1.50; (353.6 µm)	0.0000	
1.50 to 2.00; (250 µm)	0.0000	
2.00 to 2.50; (176.8 µm)	0.1156	
2.50 to 3.00; (125 µm)	1.3144	
3.00 to 3.50; (88.39 µm)	3.2522	
3.50 to 4.00; (62.5 µm)	5.5633	
4.00 to 4.50; (44.19 µm)	8.1021	
4.50 to 5.00; (31.25 µm)	10.6343	
5.00 to 5.50; (22.097 µm)	12.1999	
5.50 to 6.00; (15.625 µm)	12.6132	
6.00 to 6.50; (11.049 µm)	11.9388	
6.50 to 7.00; (7.813 µm)	10.3843	
7.00 to 7.50; (5.524 µm)	8.6532	
7.50 to 8.00; (3.906 µm)	6.4422	
8.00 to 8.50; (2.762 µm)	4.4466	
8.50 to 9.00; (1.953 µm)	2.2878	
9.00 to 9.50; (1.381 µm)	0.5200	
9.50 to 10.00; (0.977 µm)	0.0200	
10.00 to 10.50; (0.691 µm)	0.5978	
10.50 to 11.00; (0.488 µm)	0.7211	
11.00 to 11.50; (0.345 µm)	0.1933	
11.50 to 12.00; (0.244 µm)	0.0000	
12.00 to 12.50; (0.173 µm)	0.0000	
12.50 to 13.00; (0.122 µm)	0.0000	
13.00 to 13.50; (0.086 µm)	0.0000	
<b>TOTAL</b>	<b>100.0000</b>	<b>0.0000</b>

Notes:

**APPENDIX 2.** Final Merged Data sheets (with comments) as supplied by participating laboratories (arranged by LabCode) and the Benchmark Replicates for sediment distributed as PS64.

Exercise Code:	PS64
LabCode:	PSA_2414
Sample Code:	PS642414

Phi interval (explicit) + sieve mesh (theoretical sieves shown in brackets)	Percentage (mark as "0" for no material or not analysed)	Grams
-6.50 to -6.00; 63 mm	0.0000	
-6.00 to -5.50; 45 mm	0.0000	
-5.50 to -5.00; 31.5 mm	0.0000	
-5.00 to -4.50; 22.4 mm	0.0000	
-4.50 to -4.00; 16 mm	0.0000	
-4.00 to -3.50; 11.2 mm	0.0000	
-3.50 to -3.00; 8 mm	0.0000	
-3.00 to -2.50; 5.6 mm	0.0000	
-2.50 to -2.00; 4 mm	0.0000	
-2.00 to -1.50; 2.8 mm	0.0000	
-1.50 to -1.00; 2 mm	0.0000	
-1.00 to -0.50; 1.4 mm	0.0000	
-0.50 to 0.00; 1 mm	0.0000	
0.00 to 0.50; (707 µm)	0.0076	
0.50 to 1.00; (500 µm)	0.1432	
1.00 to 1.50; (353.6 µm)	0.5616	
1.50 to 2.00; (250 µm)	1.3846	
2.00 to 2.50; (176.8 µm)	2.2635	
2.50 to 3.00; (125 µm)	4.1647	
3.00 to 3.50; (88.39 µm)	5.6600	
3.50 to 4.00; (62.5 µm)	8.2246	
4.00 to 4.50; (44.19 µm)	8.9761	
4.50 to 5.00; (31.25 µm)	11.1974	
5.00 to 5.50; (22.097 µm)	11.2469	
5.50 to 6.00; (15.625 µm)	11.0629	
6.00 to 6.50; (11.049 µm)	10.1650	
6.50 to 7.00; (7.813 µm)	8.9469	
7.00 to 7.50; (5.524 µm)	7.4753	
7.50 to 8.00; (3.906 µm)	5.4661	
8.00 to 8.50; (2.762 µm)	2.6647	
8.50 to 9.00; (1.953 µm)	0.3887	
9.00 to 9.50; (1.381 µm)	0.0004	
9.50 to 10.00; (0.977 µm)	0.0000	
10.00 to 10.50; (0.691 µm)	0.0000	
10.50 to 11.00; (0.488 µm)	0.0000	
11.00 to 11.50; (0.345 µm)	0.0000	
11.50 to 12.00; (0.244 µm)	0.0000	
12.00 to 12.50; (0.173 µm)	0.0000	
12.50 to 13.00; (0.122 µm)	0.0000	
13.00 to 13.50; (0.086 µm)	0.0000	
<b>TOTAL</b>	<b>100.0000</b>	<b>0.0000</b>

Notes: There appeared to be small pieces of organic (leaf) material which broke up during processing.

**APPENDIX 2.** Final Merged Data sheets (with comments) as supplied by participating laboratories (arranged by LabCode) and the Benchmark Replicates for sediment distributed as PS64.

Exercise Code:	PS64
LabCode:	PSA_2415
Sample Code:	PS642415

Phi interval (explicit) + sieve mesh (theoretical sieves shown in brackets)	Percentage (mark as "0" for no material or not analysed)	Grams
-6.50 to -6.00; 63 mm	0.0000	
-6.00 to -5.50; 45 mm	0.0000	
-5.50 to -5.00; 31.5 mm	0.0000	
-5.00 to -4.50; 22.4 mm	0.0000	
-4.50 to -4.00; 16 mm	0.0000	
-4.00 to -3.50; 11.2 mm	0.0000	
-3.50 to -3.00; 8 mm	0.0000	
-3.00 to -2.50; 5.6 mm	0.0000	
-2.50 to -2.00; 4 mm	0.0000	
-2.00 to -1.50; 2.8 mm	0.0000	
-1.50 to -1.00; 2 mm	0.0000	
-1.00 to -0.50; 1.4 mm	0.0000	
-0.50 to 0.00; 1 mm	0.0000	
0.00 to 0.50; (707 µm)	0.0000	
0.50 to 1.00; (500 µm)	0.1023	
1.00 to 1.50; (353.6 µm)	0.6992	
1.50 to 2.00; (250 µm)	1.4186	
2.00 to 2.50; (176.8 µm)	2.3212	
2.50 to 3.00; (125 µm)	3.8040	
3.00 to 3.50; (88.39 µm)	5.9029	
3.50 to 4.00; (62.5 µm)	8.1401	
4.00 to 4.50; (44.19 µm)	10.0188	
4.50 to 5.00; (31.25 µm)	11.2167	
5.00 to 5.50; (22.097 µm)	11.4244	
5.50 to 6.00; (15.625 µm)	10.7418	
6.00 to 6.50; (11.049 µm)	9.6267	
6.50 to 7.00; (7.813 µm)	8.2836	
7.00 to 7.50; (5.524 µm)	6.6767	
7.50 to 8.00; (3.906 µm)	4.7349	
8.00 to 8.50; (2.762 µm)	3.0471	
8.50 to 9.00; (1.953 µm)	1.5664	
9.00 to 9.50; (1.381 µm)	0.2743	
9.50 to 10.00; (0.977 µm)	0.0000	
10.00 to 10.50; (0.691 µm)	0.0000	
10.50 to 11.00; (0.488 µm)	0.0000	
11.00 to 11.50; (0.345 µm)	0.0000	
11.50 to 12.00; (0.244 µm)	0.0000	
12.00 to 12.50; (0.173 µm)	0.0000	
12.50 to 13.00; (0.122 µm)	0.0000	
13.00 to 13.50; (0.086 µm)	0.0000	
<b>TOTAL</b>	<b>99.9997</b>	<b>0.0000</b>

Notes: sample wet sieved at 2 mm, reporting to only 1 mm as no material greater than 2 mm detected only measured the <1 mm fraction by laser. Only measuring <1mm.

**APPENDIX 2.** Final Merged Data sheets (with comments) as supplied by participating laboratories (arranged by LabCode) and the Benchmark Replicates for sediment distributed as PS64.

Exercise Code:	PS64
LabCode:	PSA_2416
Sample Code:	PS642416

Phi interval (explicit) + sieve mesh (theoretical sieves shown in brackets)	Percentage (mark as "0" for no material or not analysed)	Grams
-6.50 to -6.00; 63 mm		
-6.00 to -5.50; 45 mm		
-5.50 to -5.00; 31.5 mm		
-5.00 to -4.50; 22.4 mm		
-4.50 to -4.00; 16 mm		
-4.00 to -3.50; 11.2 mm		
-3.50 to -3.00; 8 mm		
-3.00 to -2.50; 5.6 mm		
-2.50 to -2.00; 4 mm		
-2.00 to -1.50; 2.8 mm		
-1.50 to -1.00; 2 mm		
-1.00 to -0.50; 1.4 mm		
-0.50 to 0.00; 1 mm		
0.00 to 0.50; (707 µm)	0.0000	
0.50 to 1.00; (500 µm)	0.2278	
1.00 to 1.50; (353.6 µm)	0.9867	
1.50 to 2.00; (250 µm)	1.8756	
2.00 to 2.50; (176.8 µm)	2.9333	
2.50 to 3.00; (125 µm)	4.4856	
3.00 to 3.50; (88.39 µm)	6.3400	
3.50 to 4.00; (62.5 µm)	8.2033	
4.00 to 4.50; (44.19 µm)	9.6722	
4.50 to 5.00; (31.25 µm)	10.4956	
5.00 to 5.50; (22.097 µm)	10.8344	
5.50 to 6.00; (15.625 µm)	10.5144	
6.00 to 6.50; (11.049 µm)	9.4256	
6.50 to 7.00; (7.813 µm)	8.2989	
7.00 to 7.50; (5.524 µm)	6.4011	
7.50 to 8.00; (3.906 µm)	4.4956	
8.00 to 8.50; (2.762 µm)	2.5000	
8.50 to 9.00; (1.953 µm)	0.6244	
9.00 to 9.50; (1.381 µm)	0.0067	
9.50 to 10.00; (0.977 µm)	0.0911	
10.00 to 10.50; (0.691 µm)	1.5900	
10.50 to 11.00; (0.488 µm)		
11.00 to 11.50; (0.345 µm)		
11.50 to 12.00; (0.244 µm)		
12.00 to 12.50; (0.173 µm)		
12.50 to 13.00; (0.122 µm)		
13.00 to 13.50; (0.086 µm)		
<b>TOTAL</b>	<b>100.0023</b>	<b>0.0000</b>

Notes:

**APPENDIX 2.** Final Merged Data sheets (with comments) as supplied by participating laboratories (arranged by LabCode) and the Benchmark Replicates for sediment distributed as PS64.

Exercise Code:	PS64
LabCode:	PSA_2426
Sample Code:	Benchmark Replicate 1

Phi interval (explicit) + sieve mesh (theoretical sieves shown in brackets)	Percentage (mark as "0" for no material or not analysed)	Grams
-6.50 to -6.00; 63 mm	0.0000	0.0000
-6.00 to -5.50; 45 mm	0.0000	0.0000
-5.50 to -5.00; 31.5 mm	0.0000	0.0000
-5.00 to -4.50; 22.4 mm	0.0000	0.0000
-4.50 to -4.00; 16 mm	0.0000	0.0000
-4.00 to -3.50; 11.2 mm	0.0000	0.0000
-3.50 to -3.00; 8 mm	0.0000	0.0000
-3.00 to -2.50; 5.6 mm	0.0000	0.0000
-2.50 to -2.00; 4 mm	0.0000	0.0000
-2.00 to -1.50; 2.8 mm	0.0000	0.0000
-1.50 to -1.00; 2 mm	0.0224	0.0155
-1.00 to -0.50; 1.4 mm	0.0447	0.0310
-0.50 to 0.00; 1 mm	0.0671	0.0465
0.00 to 0.50; (707 µm)	0.0032	0.0022
0.50 to 1.00; (500 µm)	0.3586	0.2484
1.00 to 1.50; (353.6 µm)	1.1207	0.7765
1.50 to 2.00; (250 µm)	1.1529	0.7988
2.00 to 2.50; (176.8 µm)	2.3865	1.6535
2.50 to 3.00; (125 µm)	4.0215	2.7862
3.00 to 3.50; (88.39 µm)	5.9623	4.1309
3.50 to 4.00; (62.5 µm)	7.1299	4.9399
4.00 to 4.50; (44.19 µm)	8.7512	6.0631
4.50 to 5.00; (31.25 µm)	10.4958	7.2719
5.00 to 5.50; (22.097 µm)	10.2576	7.1068
5.50 to 6.00; (15.625 µm)	9.9177	6.8713
6.00 to 6.50; (11.049 µm)	9.1612	6.3472
6.50 to 7.00; (7.813 µm)	7.7310	5.3563
7.00 to 7.50; (5.524 µm)	6.0757	4.2094
7.50 to 8.00; (3.906 µm)	4.4083	3.0542
8.00 to 8.50; (2.762 µm)	2.9103	2.0163
8.50 to 9.00; (1.953 µm)	1.8404	1.2751
9.00 to 9.50; (1.381 µm)	1.2388	0.8583
9.50 to 10.00; (0.977 µm)	0.9571	0.6631
10.00 to 10.50; (0.691 µm)	0.8443	0.5850
10.50 to 11.00; (0.488 µm)	0.7934	0.5497
11.00 to 11.50; (0.345 µm)	0.7298	0.5057
11.50 to 12.00; (0.244 µm)	0.6213	0.4305
12.00 to 12.50; (0.173 µm)	0.4653	0.3224
12.50 to 13.00; (0.122 µm)	0.3314	0.2296
13.00 to 13.50; (0.086 µm)	0.1994	0.1381
<b>TOTAL</b>	<b>100.0000</b>	<b>69.2833</b>

Notes:



**APPENDIX 2.** Final Merged Data sheets (with comments) as supplied by participating laboratories (arranged by LabCode) and the Benchmark Replicates for sediment distributed as PS64.

Exercise Code:	PS64
LabCode:	PSA_2427
Sample Code:	Benchmark Replicate 2

Phi interval (explicit) + sieve mesh (theoretical sieves shown in brackets)	Percentage (mark as "0" for no material or not analysed)	Grams
-6.50 to -6.00; 63 mm	0.0000	0.0000
-6.00 to -5.50; 45 mm	0.0000	0.0000
-5.50 to -5.00; 31.5 mm	0.0000	0.0000
-5.00 to -4.50; 22.4 mm	0.0000	0.0000
-4.50 to -4.00; 16 mm	0.0000	0.0000
-4.00 to -3.50; 11.2 mm	0.0000	0.0000
-3.50 to -3.00; 8 mm	0.0000	0.0000
-3.00 to -2.50; 5.6 mm	0.0000	0.0000
-2.50 to -2.00; 4 mm	0.0000	0.0000
-2.00 to -1.50; 2.8 mm	0.0000	0.0000
-1.50 to -1.00; 2 mm	0.0076	0.0054
-1.00 to -0.50; 1.4 mm	0.0152	0.0108
-0.50 to 0.00; 1 mm	0.0229	0.0163
0.00 to 0.50; (707 µm)	0.0442	0.0315
0.50 to 1.00; (500 µm)	0.6261	0.4462
1.00 to 1.50; (353.6 µm)	1.2310	0.8773
1.50 to 2.00; (250 µm)	1.1632	0.8289
2.00 to 2.50; (176.8 µm)	2.3181	1.6520
2.50 to 3.00; (125 µm)	3.8896	2.7719
3.00 to 3.50; (88.39 µm)	5.8498	4.1688
3.50 to 4.00; (62.5 µm)	7.0912	5.0535
4.00 to 4.50; (44.19 µm)	8.7679	6.2484
4.50 to 5.00; (31.25 µm)	10.4738	7.4640
5.00 to 5.50; (22.097 µm)	10.2298	7.2901
5.50 to 6.00; (15.625 µm)	9.8508	7.0201
6.00 to 6.50; (11.049 µm)	9.0394	6.4418
6.50 to 7.00; (7.813 µm)	7.6219	5.4317
7.00 to 7.50; (5.524 µm)	6.0225	4.2919
7.50 to 8.00; (3.906 µm)	4.4175	3.1481
8.00 to 8.50; (2.762 µm)	2.9605	2.1098
8.50 to 9.00; (1.953 µm)	1.9027	1.3559
9.00 to 9.50; (1.381 µm)	1.2957	0.9234
9.50 to 10.00; (0.977 µm)	1.0035	0.7151
10.00 to 10.50; (0.691 µm)	0.8828	0.6291
10.50 to 11.00; (0.488 µm)	0.8279	0.5900
11.00 to 11.50; (0.345 µm)	0.7613	0.5426
11.50 to 12.00; (0.244 µm)	0.6480	0.4618
12.00 to 12.50; (0.173 µm)	0.4844	0.3452
12.50 to 13.00; (0.122 µm)	0.3443	0.2454
13.00 to 13.50; (0.086 µm)	0.2066	0.1473
<b>TOTAL</b>	<b>100.0000</b>	<b>71.2639</b>

Notes:

**APPENDIX 2.** Final Merged Data sheets (with comments) as supplied by participating laboratories (arranged by LabCode) and the Benchmark Replicates for sediment distributed as PS64.

Exercise Code:	PS64
LabCode:	PSA_2428
Sample Code:	Benchmark Replicate 3

Phi interval (explicit) + sieve mesh (theoretical sieves shown in brackets)	Percentage (mark as "0" for no material or not analysed)	Grams
-6.50 to -6.00; 63 mm	0.0000	0.0000
-6.00 to -5.50; 45 mm	0.0000	0.0000
-5.50 to -5.00; 31.5 mm	0.0000	0.0000
-5.00 to -4.50; 22.4 mm	0.0000	0.0000
-4.50 to -4.00; 16 mm	0.0000	0.0000
-4.00 to -3.50; 11.2 mm	0.0000	0.0000
-3.50 to -3.00; 8 mm	0.0000	0.0000
-3.00 to -2.50; 5.6 mm	0.0000	0.0000
-2.50 to -2.00; 4 mm	0.0000	0.0000
-2.00 to -1.50; 2.8 mm	0.0000	0.0000
-1.50 to -1.00; 2 mm	0.0211	0.0149
-1.00 to -0.50; 1.4 mm	0.0420	0.0297
-0.50 to 0.00; 1 mm	0.0630	0.0445
0.00 to 0.50; (707 µm)	0.0035	0.0025
0.50 to 1.00; (500 µm)	0.3556	0.2512
1.00 to 1.50; (353.6 µm)	1.1986	0.8468
1.50 to 2.00; (250 µm)	1.1316	0.7995
2.00 to 2.50; (176.8 µm)	2.2106	1.5619
2.50 to 3.00; (125 µm)	3.8319	2.7073
3.00 to 3.50; (88.39 µm)	5.7483	4.0614
3.50 to 4.00; (62.5 µm)	7.0335	4.9694
4.00 to 4.50; (44.19 µm)	8.7458	6.1792
4.50 to 5.00; (31.25 µm)	10.5577	7.4594
5.00 to 5.50; (22.097 µm)	10.3175	7.2896
5.50 to 6.00; (15.625 µm)	9.9774	7.0493
6.00 to 6.50; (11.049 µm)	9.1985	6.4990
6.50 to 7.00; (7.813 µm)	7.7610	5.4834
7.00 to 7.50; (5.524 µm)	6.1108	4.3175
7.50 to 8.00; (3.906 µm)	4.4528	3.1461
8.00 to 8.50; (2.762 µm)	2.9626	2.0931
8.50 to 9.00; (1.953 µm)	1.8906	1.3357
9.00 to 9.50; (1.381 µm)	1.2803	0.9046
9.50 to 10.00; (0.977 µm)	0.9907	0.7000
10.00 to 10.50; (0.691 µm)	0.8725	0.6165
10.50 to 11.00; (0.488 µm)	0.8174	0.5775
11.00 to 11.50; (0.345 µm)	0.7504	0.5302
11.50 to 12.00; (0.244 µm)	0.6396	0.4519
12.00 to 12.50; (0.173 µm)	0.4812	0.3400
12.50 to 13.00; (0.122 µm)	0.3449	0.2437
13.00 to 13.50; (0.086 µm)	0.2087	0.1475
<b>TOTAL</b>	<b>100.0000</b>	<b>70.6531</b>

Notes:

**APPENDIX 2.** Final Merged Data sheets (with comments) as supplied by participating laboratories (arranged by LabCode) and the Benchmark Replicates for sediment distributed as PS64.

Exercise Code:	PS64
LabCode:	PSA_2429
Sample Code:	Benchmark Replicate 4

Phi interval (explicit) + sieve mesh (theoretical sieves shown in brackets)	Percentage (mark as "0" for no material or not analysed)	Grams
-6.50 to -6.00; 63 mm	0.0000	0.0000
-6.00 to -5.50; 45 mm	0.0000	0.0000
-5.50 to -5.00; 31.5 mm	0.0000	0.0000
-5.00 to -4.50; 22.4 mm	0.0000	0.0000
-4.50 to -4.00; 16 mm	0.0000	0.0000
-4.00 to -3.50; 11.2 mm	0.0000	0.0000
-3.50 to -3.00; 8 mm	0.0000	0.0000
-3.00 to -2.50; 5.6 mm	0.0000	0.0000
-2.50 to -2.00; 4 mm	0.0000	0.0000
-2.00 to -1.50; 2.8 mm	0.0000	0.0000
-1.50 to -1.00; 2 mm	0.0046	0.0032
-1.00 to -0.50; 1.4 mm	0.0092	0.0064
-0.50 to 0.00; 1 mm	0.0138	0.0096
0.00 to 0.50; (707 µm)	0.0054	0.0037
0.50 to 1.00; (500 µm)	0.4942	0.3449
1.00 to 1.50; (353.6 µm)	1.2700	0.8863
1.50 to 2.00; (250 µm)	1.2297	0.8582
2.00 to 2.50; (176.8 µm)	2.4375	1.7012
2.50 to 3.00; (125 µm)	4.0572	2.8316
3.00 to 3.50; (88.39 µm)	6.0585	4.2284
3.50 to 4.00; (62.5 µm)	7.2104	5.0323
4.00 to 4.50; (44.19 µm)	8.7520	6.1082
4.50 to 5.00; (31.25 µm)	10.4807	7.3148
5.00 to 5.50; (22.097 µm)	10.1790	7.1042
5.50 to 6.00; (15.625 µm)	9.8434	6.8699
6.00 to 6.50; (11.049 µm)	9.0681	6.3289
6.50 to 7.00; (7.813 µm)	7.6352	5.3288
7.00 to 7.50; (5.524 µm)	6.0039	4.1903
7.50 to 8.00; (3.906 µm)	4.3728	3.0519
8.00 to 8.50; (2.762 µm)	2.9032	2.0262
8.50 to 9.00; (1.953 µm)	1.8421	1.2856
9.00 to 9.50; (1.381 µm)	1.2342	0.8613
9.50 to 10.00; (0.977 µm)	0.9425	0.6578
10.00 to 10.50; (0.691 µm)	0.8259	0.5764
10.50 to 11.00; (0.488 µm)	0.7780	0.5430
11.00 to 11.50; (0.345 µm)	0.7210	0.5032
11.50 to 12.00; (0.244 µm)	0.6192	0.4321
12.00 to 12.50; (0.173 µm)	0.4685	0.3270
12.50 to 13.00; (0.122 µm)	0.3362	0.2346
13.00 to 13.50; (0.086 µm)	0.2039	0.1423
<b>TOTAL</b>	<b>100.0000</b>	<b>69.7925</b>

Notes:

**APPENDIX 2.** Final Merged Data sheets (with comments) as supplied by participating laboratories (arranged by LabCode) and the Benchmark Replicates for sediment distributed as PS64.

Exercise Code:	PS64
LabCode:	PSA_2430
Sample Code:	Benchmark Replicate 5

Phi interval (explicit) + sieve mesh (theoretical sieves shown in brackets)	Percentage (mark as "0" for no material or not analysed)	Grams
-6.50 to -6.00; 63 mm	0.0000	0.0000
-6.00 to -5.50; 45 mm	0.0000	0.0000
-5.50 to -5.00; 31.5 mm	0.0000	0.0000
-5.00 to -4.50; 22.4 mm	0.0000	0.0000
-4.50 to -4.00; 16 mm	0.0000	0.0000
-4.00 to -3.50; 11.2 mm	0.0000	0.0000
-3.50 to -3.00; 8 mm	0.0000	0.0000
-3.00 to -2.50; 5.6 mm	0.0000	0.0000
-2.50 to -2.00; 4 mm	0.0000	0.0000
-2.00 to -1.50; 2.8 mm	0.0000	0.0000
-1.50 to -1.00; 2 mm	0.0145	0.0103
-1.00 to -0.50; 1.4 mm	0.0291	0.0206
-0.50 to 0.00; 1 mm	0.0434	0.0308
0.00 to 0.50; (707 µm)	0.0227	0.0161
0.50 to 1.00; (500 µm)	0.4960	0.3517
1.00 to 1.50; (353.6 µm)	1.0833	0.7681
1.50 to 2.00; (250 µm)	1.1757	0.8336
2.00 to 2.50; (176.8 µm)	2.4383	1.7288
2.50 to 3.00; (125 µm)	4.1078	2.9125
3.00 to 3.50; (88.39 µm)	6.1127	4.3340
3.50 to 4.00; (62.5 µm)	7.2013	5.1058
4.00 to 4.50; (44.19 µm)	8.8074	6.2446
4.50 to 5.00; (31.25 µm)	10.4163	7.3854
5.00 to 5.50; (22.097 µm)	10.1124	7.1699
5.50 to 6.00; (15.625 µm)	9.8051	6.9520
6.00 to 6.50; (11.049 µm)	9.0309	6.4031
6.50 to 7.00; (7.813 µm)	7.6060	5.3928
7.00 to 7.50; (5.524 µm)	5.9944	4.2502
7.50 to 8.00; (3.906 µm)	4.3851	3.1091
8.00 to 8.50; (2.762 µm)	2.9306	2.0779
8.50 to 9.00; (1.953 µm)	1.8750	1.3294
9.00 to 9.50; (1.381 µm)	1.2700	0.9005
9.50 to 10.00; (0.977 µm)	0.9815	0.6959
10.00 to 10.50; (0.691 µm)	0.8632	0.6120
10.50 to 11.00; (0.488 µm)	0.8078	0.5727
11.00 to 11.50; (0.345 µm)	0.7411	0.5255
11.50 to 12.00; (0.244 µm)	0.6311	0.4475
12.00 to 12.50; (0.173 µm)	0.4736	0.3358
12.50 to 13.00; (0.122 µm)	0.3390	0.2404
13.00 to 13.50; (0.086 µm)	0.2046	0.1451
<b>TOTAL</b>	<b>100.0000</b>	<b>70.9021</b>

Notes:

**APPENDIX 3.** Laser Metadata and sample notes provided by the Benchmark Lab.

	REP 1	REP 2	REP 3	REP 4	REP 5
<b>If laser used, provide manufacturer/model:</b>	Beckman Coulter LS 13 320				
<b>Dispersion unit:</b>	Aqueous Liquid Module (ALM)				
<b>Analysis model:</b>	Mie theory				
<b>Dispersant used:</b>	Water RI - 1.33				
<b>Particle Refractive Index:</b>	1.55				
<b>Particle Absorption Index:</b>	0.1				
<b>Fines extension</b>	PIDS system				
<b>Obscuration (average):</b>	10				
<b>Pump speed (% or rpm)</b>	80%				
<b>Stirrer speed (% or rpm)</b>	n/a				
<b>Ultrasonic duration (seconds)</b>	20 secs before, then during runs				
<b>Ultrasonic level (eg %, unit as described by instrument manual)</b>	Level 2 (lowest level)				
<b>Fit assessment (weighted residual (%)):</b>	0.16	0.15	0.14	0.13	0.14
<b>Background duration (seconds)</b>	60				
<b>Measurement duration (seconds)</b>	60				
<b>Measurement time delay (seconds)</b>	20				
<b>Number of runs</b>	3 x 3				
<b>In-house reference standards completed:</b>	Yes				
<b>If Yes, frequency of use of in-house reference standards:</b>	Weekly				
<b>Certified reference standards completed:</b>	Yes				
<b>If Yes, frequency of use of certified reference standards:</b>	3 Monthly				

**Benchmark Notes**

Sample was left to settle for 48 hours, and approximately 16 ml of clear water syringed from the surface before thorough mixing and homogenisation. The laser subsample was then taken. A test portion was taken from the laser subsample, dispersed on a watch glass using a few drops of water and a rubber-tipped glass stirring rod, washed into a beaker and to ensure complete dispersion placed in an ultrasonic bath for 20 seconds. The whole test portion was then washed into the LS13320 to achieve between 8 and 12 % obscuration. The sample was immediately run 3 times with ultra-sonication in the chamber turned on.

The remaining bulk sample was then wet separated through a 1 mm sieve, and the >1 mm and <1 mm fractions dried and weighed. The >1 mm fraction was sieved at half phi intervals. Since the weight of material >1 mm was very small, it was measured on a high resolution balance to one ten-thousandth of a gram.