

### Appendix 3 Grain size analyses raw data

A number of the discrete tephra samples were analysed in a destructive process using a Coulter LS230 laser granulometer to determine the particle size distribution as outlined in section 6.11. The material to be analysed was separated from the larger sample material using a sample splitter to achieve a representative sample. Samples were first gently disaggregated in a calgon solution with a rubber bung and pestle. Particles greater in size than 2000  $\mu\text{m}$  (-1 phi) would damage the machine and so the sample was passed through a 2000  $\mu\text{m}$  sieve before entering the machine but no particles above this size were found. The PIDS option was included.

Figures represent volume % greater then the first class size and less than the next class size. For example, for sample Rhodes 01-S45/1 7.1% of the volume of the entire sample is greater than 0  $\mu\text{m}$  and less than 2  $\mu\text{m}$ . The cumulative volume % is also shown. For sample Rhodes 01-S45/1, 100% of the sample is greater than 0  $\mu\text{m}$ , 92.9% of the sample is greater than 2  $\mu\text{m}$  and so forth.

**Table A3.1 Raw values for grainsize analysis on tephra samples.**

Class size ( $\mu\text{m}$ )	Rhodes 01-S45/1 Volume %	Rhodes 01-S45/1 Cum. > Volume %	Rhodes 02-S45/1 Volume %	Rhodes 02-S45/1 Cum. > Volume %	Rhodes 03-S45/1 Volume %	Rhodes 03-S45/1 Cum. > Volume %
0	7.1	100	5.6	100	6.5	100
2	5.05	92.9	3.87	94.4	4.46	93.5
3.9	7.64	87.9	6.28	90.5	7.09	89
7.8	11.6	80.2	10.5	84.3	11.5	81.9
15.6	16.5	68.6	16.5	73.8	17.7	70.4
31	8.71	52.1	9.27	57.2	9.71	52.7
44	7.81	43.3	8.25	48	8.67	43
62.5	6.3	35.5	6.42	39.7	6.8	34.4
88	5.82	29.2	6.71	33.3	6.95	27.6
125	7.65	23.4	8.84	26.6	8.58	20.6
177	5.02	15.8	8.34	17.7	7.17	12
250	2.76	10.8	5.21	9.39	4.06	4.87
350	1.84	7.99	1.74	4.17	0.81	0.81
500	0.48	6.16	2.5	2.43	0.00086	0.00086
590	0.24	5.68	0.59	2.18	0	0
710	0.044	5.44	0.73	1.59	0	0
840	0.42	5.39	0.54	0.86	0	0
1000	2.29	4.98	0.24	0.32	0	0
1190	2.36	2.69	0.071	0.078	0	0
1410	0.33	0.33	0.0066	0.0066	0	0

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1680	0	0	0	0	0	0
2000	0	0	0	0	0	0
<b>µm</b>	<b>Rhodes 04-S47/1 Volume %</b>	<b>Rhodes 04-S47/1 Cum. &gt; Volume %</b>	<b>Rhodes 05-S47/1 Volume %</b>	<b>Rhodes 05-S47/1 Cum. &gt; Volume %</b>	<b>Iasos 01-S48/1 Volume %</b>	<b>Iasos 01-S48/1 Cum. &gt; Volume %</b>
0	5.38	100	5.3	100	4.83	100
2	3.9	94.6	3.84	94.7	3.7	95.2
3.9	6.6	90.7	6.61	90.9	6.49	91.5
7.8	11.4	84.1	11.7	84.2	11.2	85
15.6	17.4	72.7	17.9	72.6	18	73.8
31	8.98	55.3	9.2	54.7	10.6	55.8
44	7.33	46.3	7.5	45.5	10.3	45.2
62.5	5.47	39	5.55	38	8.91	34.9
88	6.53	33.5	6.65	32.4	8.19	26
125	9.88	27	10.1	25.8	7.46	17.8
177	9.64	17.1	9.63	15.6	5.78	10.4
250	5.26	7.44	5.07	6	3.76	4.57
350	1.02	2.18	0.93	0.93	0.82	0.82
500	0.037	1.16	0.011	0.011	0.0012	0.0012
590	0.19	1.12	0	0	0	0
710	0.31	0.93	0	0	0	0
840	0.32	0.62	0	0	0	0
1000	0.22	0.3	0	0	0	0
1190	0.079	0.085	0	0	0	0
1410	0.0063	0.0063	0	0	0	0
1680	0	0	0	0	0	0
2000	0	0	0	0	0	0
<b>µm</b>	<b>Kos 01-S46/1 Volume %</b>	<b>Kos 01-S46/1 Cum. &gt; Volume %</b>	<b>Kos 02-S47/1 Volume %</b>	<b>Kos 02-S46/1 Cum. &gt; Volume %</b>	<b>Kos 03-S44/1 Volume %</b>	<b>Kos 03-S44/1 Cum. &gt; Volume %</b>
0	3.26	100	3.19	100	4.98	100
2	2.68	96.74	2.59	96.8	3.68	95
3.9	4.36	94.06	4.24	94.2	6.06	91.3
7.8	7	89.7	6.85	90	9.95	85.3
15.6	10.7	82.7	10.7	83.1	15.3	75.3
31	6.8	72	6.96	72.4	8.83	60
44	7.6	65.2	7.8	65.5	8.67	51.2
62.5	7.4	57.6	7.66	57.7	8.13	42.5
88	7.6	50.2	7.54	50	8.95	34.4
125	7.9	42.6	7.47	42.5	9.45	25.4
177	8.1	34.7	7.01	35	6.94	15.9
250	8.6	26.6	7.11	28	4.11	9.01
350	7.8	18	6.16	20.9	1.33	4.9
500	2.8	10.2	2.45	14.7	0.23	3.58
590	2.9	7.4	2.92	12.3	0.72	3.35
710	2.2	4.5	2.67	9.35	1	2.63
840	1.5	2.3	2.41	6.69	0.9	1.64
1000	0.7	0.8	1.84	4.27	0.54	0.74
1190	0.1	0.1	1.26	2.43	0.19	0.2

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1410	0	0	0.78	1.18	0.015	0.015
1680	0	0	0.4	0.4	0	0
2000	0	0	0	0	0	0
<b>µm</b>	<b>Kos 04-S44/1 Volume %</b>	<b>Kos 04-S44/1 Cum. &gt; Volume %</b>				
0	4.6	100				
2	3.35	95.4				
3.9	5.63	92.1				
7.8	9.57	86.4				
15.6	15.2	76.9				
31	8.95	61.6				
44	8.91	52.7				
62.5	8.45	43.8				
88	9.37	35.3				
125	9.94	26				
177	7.24	16				
250	4.09	8.78				
350	1.17	4.68				
500	0.15	3.51				
590	0.57	3.36				
710	0.82	2.79				
840	0.84	1.98				
1000	0.73	1.14				
1190	0.37	0.41				
1410	0.039	0.039				
1680	0	0				
2000	0	0				