

Sample No.	4.2 1	4.2 1	4.2 2	4.2 2	4.2 2
Fe Group		1	1	1	1
Glass Type	Shard	Shard	Shard (ves)	Shard (ves)	Shard (ves)
Na2O	3.9381		3.9512	3.4881	4.0064
MgO	0.0474		0.0342	0.1164	0.0392
Al2O3	11.776		11.5954	11.2988	11.7482
SiO2	73.2937		72.5971	72.0637	72.1491
K2O	3.5872		3.4073	2.8374	3.4618
CaO	0.8101		0.8144	1.0887	0.7301
FeO	0.8841		0.6472	0.9056	0.7959
P2O5	0.0065		0.007	0.0038	0.0074
TiO2	0.0694		0.071	0.1018	0.0734
MnO	0.08		0.0625	0.0623	0.0752
Total	94.4927		93.1874	91.9666	93.0866

Sample No.	4.2 4	18.5 C 2	18.5 B 2	19.1 2	19.1 2
Fe Group		3	2	2	1
Glass Type	Other	Microlite-Perl	Pumice	Shard	Shard
Na2O	2.2012		3.5779	3.4531	3.5227
MgO	0.3604		0.1921	0.2486	0.0407
Al2O3	10.8165		10.9686	11.3884	12.2578
SiO2	69.86		70.4477	72.0553	73.2476
K2O	1.6305		1.2546	1.9471	4.5755
CaO	2.4371		1.1349	1.5702	0.9848
FeO	2.4409		1.5192	1.4419	0.6989
P2O5	0.0546		0.0199	0.0253	0.0038
TiO2	0.4165		0.1826	0.1732	0.0649
MnO	0.0911		0.088	0.0498	0.0598
Total	90.3088		89.3854	92.3529	95.4564

Sample No.	21.1 1	21.1 2	21.1 2	21.1 2	21.1 3
Fe Group		2	2	2	2
Glass Type	Pumice	Shard	Shard	Shard	Shard (ves)
Na2O	3.0716		3.7977	3.4651	3.3431
MgO	0.2243		0.1841	0.1663	0.2166
Al2O3	10.6546		11.9761	11.3968	10.7547
SiO2	70.7079		72.1539	72.2195	72.4346
K2O	3.0399		2.1764	2.5107	2.6668
CaO	1.2484		1.6459	1.4983	1.3366
FeO	1.1244		1.7399	1.7482	1.0632
P2O5	0.0246		0.0238	0.0186	0.0149
TiO2	0.1877		0.1644	0.1429	0.1947
MnO	0.0891		0.1109	0.1315	0.0942
Total	90.3726		93.973	93.2978	92.1194

Sample No.	21.1 3	21.1 3	21.1 3	21.1 3	21.1 3
Fe Group		3	3	3	3
Glass Type	Shard (ves)	Shard (ves)	Shard (ves)	Shard (ves)	Shard (ves)
Na2O	3.4087		1.7694	3.5088	3.4419
MgO	0.5614		1.3812	0.6149	0.8537

Al2O3	11.5777	12.2894	11.0461	11.6574	10.0659
SiO2	71.1106	60.8273	70.2516	66.4871	71.3697
K2O	1.8356	1.1535	1.6333	1.2143	1.866
CaO	2.1498	4.4931	2.4624	3.6825	2.1719
FeO	2.4188	6.0706	2.6903	3.8443	2.2355
P2O5	0.0586	0.1015	0.0936	0.0804	0.0607
TiO2	0.538	0.8225	0.5646	0.6515	0.4652
MnO	0.0692	0.1223	0.076	0.0728	0.0466
Total	93.7284	89.0309	92.9415	91.9858	90.987

Sample No.	21.2 H 1	21.2 I 1	21.2 J 3	21.2 J 4	21.2 K 1
Fe Group	2	2	2	2	2
Glass Type	Perlite	Perlite	Perlite	Microlite	Pumice
Na2O	3.6706	4.1258	4.0003	3.8797	2.4606
MgO	0.222	0.3112	0.0982	0.104	0.1777
Al2O3	11.9154	11.7974	11.9696	11.4354	10.9999
SiO2	73.066	72.9117	75.5287	73.0189	70.0437
K2O	2.5191	1.8167	1.9112	2.649	3.999
CaO	1.6831	1.7214	1.7398	1.2469	1.5158
FeO	1.4911	1.3625	1.3778	1.226	1.2457
P2O5	0.0203	0.019	0.0211	0.0227	0.0153
TiO2	0.1849	0.173	0.1816	0.2008	0.1747
MnO	0.1052	0.0843	0.0495	0.0383	0.0948
Total	94.8777	94.3228	96.8779	93.8217	90.7273

Sample No.	21.2 C 4	21.2 F 2	21.2 H 2	21.2 J 1	21.2 J 2
Fe Group	3	3	3	3	3
Glass Type	Perlite	Pumice	Perlite	Yellow	Yellow
Na2O	3.6727	3.9058	3.6749	4.0437	3.3054
MgO	0.5307	0.5149	0.3834	2.2326	3.3965
Al2O3	10.6703	12.6902	11.1549	19.5442	13.4809
SiO2	72.1441	70.1667	71.9783	54.1496	54.0223
K2O	1.8014	0.7134	1.8277	0.8277	1.3271
CaO	2.5529	3.3547	2.1123	8.6596	7.6384
FeO	3.1724	2.8472	2.8567	7.3081	13.1206
P2O5	0.0852	0.051	0.065	0.1802	0.2111
TiO2	0.5024	0.2919	0.4966	1.0675	1.5987
MnO	0.088	0.1124	0.1048	0.2129	0.3022
Total	95.2201	94.6482	100.4225	98.2259	98.4031

Sample No.	23A.1 1	23A.1 2	23A.1 2	23A.1 2	23A.1 2
Fe Group	2	2	2	2	2
Glass Type	Shard	Shard (ves)	Shard (ves)	Shard (ves)	Shard (ves)
Na2O	3.63	4.042	3.1591	2.6615	3.1629
MgO	0.1876	0.237	0.1832	0.1869	0.1789
Al2O3	11.7679	11.9071	12.8007	10.6853	11.5837
SiO2	72.3318	74.2895	70.5768	71.1495	71.8276
K2O	2.1513	1.9628	2.5793	2.8625	2.9081
CaO	1.6121	1.578	1.5217	1.4909	1.5643
FeO	1.2414	1.2048	1.6684	1.2877	1.5089
P2O5	0.0293	0.02	0.026	0.0245	0.0161
TiO2	0.1601	0.147	0.2166	0.1412	0.1469

MnO	0.0967	0.0836	0.0599	0.0988	0.1152
Total	99.123	100.9752	99.4718	97.8046	100.3932

Sample No.	23A.1 2	23A.1 3	23A.1 3	23A.1 3	23A.1 3
Fe Group	2	2	2	2	2
Glass Type	Shard (ves)	Pumice	Pumice	Pumice	Pumice
Na2O	3.5042	3.5352	2.9569	3.4659	2.9169
MgO	0.1084	0.2806	0.2033	0.269	0.2332
Al2O3	11.1648	10.882	10.9951	11.525	12.1399
SiO2	72.4791	73.2323	71.2268	72.5765	72.3176
K2O	2.6991	2.4243	2.8657	2.1791	3.327
CaO	1.495	1.6992	1.6205	2.0428	1.7453
FeO	1.5001	1.3363	1.46	1.086	1.554
P2O5	0.0198	0.0295	0.0241	0.027	0.0275
TiO2	0.149	0.2084	0.146	0.168	0.1878
MnO	0.0174	0.0608	0.0944	0.1119	0.0723
Total	100.0303	100.2362	98.9447	99.8521	94.5214

Sample No.	23A.1 4	23A.1 6	23A.1 5	23A.1 5	23A.1 5
Fe Group	2	2	3	3	3
Glass Type	Perlite	Other	Other	Other	Other
Na2O	3.4757	4.2259	2.4325	3.7283	2.6966
MgO	0.1202	0.1225	1.0325	0.3228	4.0862
Al2O3	11.1597	12.1129	14.9208	11.5221	13.5899
SiO2	73.5773	72.9076	61.2055	72.1606	57.2609
K2O	3.0617	1.8053	1.1085	1.4432	0.2769
CaO	1.3694	1.5469	6.1537	2.6945	8.8331
FeO	1.1279	1.4268	6.789	3.3316	10.896
P2O5	0.0234	0.0218	0.0997	0.1257	0.1
TiO2	0.192	0.1599	0.9422	0.6142	1.2547
MnO	0.0683	0.0929	0.1547	0.136	0.2054
Total	94.1756	94.4224	94.8391	96.0788	99.1996

4.2 2	4.2 3	4.2 3
1	1	1
Shard (ves)	Shard (ves)	Shard (ves)
3.9669	3.633	3.3211
0.0327	0.0806	0.0063
12.1148	12.5615	11.7714
73.805	73.0652	72.4996
3.7708	3.5683	3.3857
0.6836	0.8409	0.9457
0.7668	0.748	0.7789
0.0127	0.006	0.0051
0.071	0.0662	0.0929
0.0661	0.0627	0.0222
95.2904	94.6323	92.8288

19.1 2	21.1 1	21.1 1
1	2	2
Shard	Pumice	Pumice
3.8401	3.3535	2.7253
0.029	0.2485	0.2886
11.3938	11.2351	11.4163
72.6793	72.9325	72.1002
4.0005	2.4432	2.5272
0.8525	1.915	1.7753
0.6765	1.3416	1.2677
-0.0014	0.0159	0.0229
0.0686	0.183	0.1768
0.053	0.1025	0.052
93.5919	93.7708	92.3523

21.1 3	21.1 5	21.1 2
2	2	3
Shard (ves)	Other	Shard
2.8048	3.9026	1.8972
0.2927	0.2387	1.0247
11.5757	11.2147	11.0326
72.1383	72.0062	64.2816
2.6529	1.8902	1.3528
1.6818	1.6723	3.7116
1.5607	1.3179	5.1956
0.0339	0.0333	0.1248
0.1682	0.1972	0.7725
0.0964	0.0721	0.1377
93.0053	92.5451	89.531

21.2 A 2	21.2 A 3	21.2 C 3
2	2	2
Perlite	Pumice	Pumice
4.4379	2.7349	3.2493
0.2854	0.2566	0.1494

11.1616	11.1589	11.66
73.9847	73.3887	72.8716
1.5498	2.6094	2.6537
1.6745	1.6975	1.5081
1.3372	1.4659	1.4497
0.0173	0.0246	0.0208
0.1879	0.1719	0.1441
0.0814	0.0849	0.0951
94.7177	93.5933	93.8017

21.2 A 1	21.2 B 1	21.2 C 1
3	3	3
Perlite	Perlite	Pumice
3.6196	4.0064	3.4028
0.6142	0.4425	0.7009
11.9098	10.9143	12.0635
69.5957	70.3457	67.7919
1.652	2.001	1.4833
2.6097	2.3211	3.3766
3.5293	2.6259	3.9756
0.1179	0.0768	0.1086
0.5865	0.5114	0.5579
0.0846	0.0649	0.1069
94.3193	93.3101	93.568

21.2 K 2	23A.1 1	23A.1 1
3	2	2
Yellow	Shard	Shard
2.7527	2.9505	3.092
3.3513	0.2455	0.1622
15.5981	11.0158	11.4047
57.0929	71.2035	71.8634
0.7571	2.6449	3.0088
8.0147	1.6181	1.5625
8.9363	1.1147	1.3306
0.0733	0.0258	0.0106
0.7502	0.1785	0.1425
0.1917	0.1101	0.0882
97.5182	98.0152	100.2454

23A.1 2	23A.1 2	23A.1 2
2	2	2
Shard (ves)	Shard (ves)	Shard (ves)
2.9158	4.064	4.2328
0.2051	0.2378	0.2616
11.5247	11.657	11.4683
70.8788	74.1675	74.2768
2.8172	2.0044	1.4656
1.6788	1.5006	1.8481
1.6159	1.4561	1.2804
0.0161	0.023	0.0227
0.172	0.2863	0.1992

0.0623	0.0188	0.0686
99.2	100.925	99.9031

23A.1 3	23A.1 3	23A.1 3
2	2	2
Pumice	Pumice	Pumice
3.1602	2.6248	3.1436
0.2378	0.2532	0.1598
11.5932	10.692	11.3464
73.7923	72.1077	71.3946
2.7307	2.9382	2.8505
1.746	1.6692	1.4838
1.4048	1.0244	1.4628
0.0224	0.0292	0.0227
0.1759	0.1573	0.144
0.0878	0.0481	0.1235
94.9511	91.5441	92.1316

23A.1 6

3

Other

3.4543
0.833
12.0008
68.1898
1.4659
3.4455
4.5578
0.1134
0.7027
0.0855
94.8486