**Supplemental Text B**

**Neutron Activation Analysis**

The general structure of the sample was assessed first by examining the raw elemental data. Nickel was removed from the dataset due to excessive values falling below the limits of detection. This is a common issue in most Mesoamerican ceramic datasets. The overall Baking Pot sample will be discussed elsewhere, as the chemical data clearly fell out along the lines of the major tempers and the ash-tempered materials were treated individually in statistical analyses (Figure B.1). A principal components analysis (PCA) was used to understand the most significant elements driving variation within the sample (Figure 6; Table B.1). Calcium and other alkaline earth metals (Sr, Ba) were identified as significant drivers of variation within the volcanic ash-tempered sample. Volcanic ash tempered specimens demonstrate enrichment in sodium and other alkali metals (K, Rb, Cs), manganese, uranium, aluminum, and metalloids (As, Sb) relative to the overall Baking Pot sample (Table B.2).

Chart, scatter chart

Description automatically generated

**Figure B.1.** Scatterplot of the first two principal components calculated for the entire Baking Pot sample (carbonate tempered pottery, volcanic ash tempered pottery, quartz tempered pottery, and clay samples). The first two PCs explain 73.8% of the variation in the dataset.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Variable | Average | PC1 | PC2 | PC3 | PC4 | PC5 | PC6 |
| Na | 10785.6 | 0.136 | -0.061 | **0.238** | -0.131 | -0.066 | 0.043 |
| Al | 84583.9 | 0.064 | -0.072 | -0.089 | -0.005 | 0.056 | 0.034 |
| K | 17021.2 | 0.045 | -0.118 | **0.235** | -0.022 | -0.052 | -0.045 |
| Ca | 29427.5 | **-0.499** | **0.757** | -0.146 | -0.037 | 0.181 | 0.035 |
| Sc | 8.1 | 0.092 | -0.077 | -0.108 | -0.035 | 0.168 | 0.177 |
| Ti | 2671.8 | -0.012 | -0.142 | -0.277 | 0.049 | 0.185 | -0.034 |
| V | 27.3 | 0.068 | -0.041 | -0.028 | -0.195 | **0.436** | **-0.829** |
| Cr | 38.4 | 0.070 | -0.078 | -0.226 | 0.025 | 0.113 | -0.068 |
| Mn | 510.9 | 0.122 | 0.032 | -0.023 | -0.128 | 0.263 | 0.144 |
| Fe | 23231.2 | 0.053 | -0.106 | -0.166 | 0.016 | 0.123 | 0.042 |
| Co | 5.6 | 0.071 | -0.052 | -0.163 | -0.069 | **0.365** | **0.273** |
| Zn | 67.0 | 0.133 | 0.030 | 0.042 | -0.033 | **0.424** | **0.205** |
| As | 11.7 | 0.133 | -0.025 | 0.009 | -0.002 | -0.091 | -0.075 |
| Rb | 110.0 | 0.170 | 0.020 | 0.195 | -0.183 | 0.078 | 0.037 |
| Sr | 63.9 | **-0.433** | **-0.301** | -0.156 | **-0.802** | **-0.144** | 0.094 |
| Zr | 135.3 | 0.066 | 0.075 | -0.191 | 0.015 | -0.041 | -0.056 |
| Sb | 1.3 | 0.144 | 0.006 | 0.132 | -0.136 | 0.048 | 0.057 |
| Cs | 5.6 | 0.197 | 0.134 | **0.295** | -0.247 | 0.274 | **0.228** |
| Ba | 615.9 | **-0.185** | **-0.225** | -0.105 | **0.152** | 0.279 | 0.087 |
| La | 30.3 | 0.143 | 0.069 | -0.204 | -0.045 | -0.107 | 0.009 |
| Ce | 62.7 | 0.165 | 0.104 | -0.119 | -0.050 | 0.009 | 0.086 |
| Nd | 28.3 | 0.152 | 0.115 | -0.202 | -0.046 | -0.067 | -0.010 |
| Sm | 6.4 | 0.158 | 0.073 | -0.217 | -0.052 | -0.113 | 0.031 |
| Eu | 1.0 | 0.028 | -0.077 | **-0.308** | 0.023 | -0.001 | -0.027 |
| Tb | 0.9 | 0.170 | 0.039 | -0.210 | -0.072 | **-0.147** | 0.038 |
| Dy | 5.6 | 0.130 | 0.048 | -0.207 | -0.012 | -0.101 | 0.008 |
| Yb | 3.5 | 0.111 | -0.008 | -0.193 | -0.020 | -0.090 | 0.009 |
| Lu | 0.5 | 0.109 | -0.027 | -0.193 | -0.032 | -0.085 | -0.010 |
| Hf | 6.0 | 0.071 | -0.003 | -0.150 | 0.009 | -0.007 | 0.008 |
| Ta | 1.0 | **0.204** | 0.110 | -0.119 | -0.097 | -0.011 | 0.035 |
| Th | 11.4 | **0.230** | 0.154 | -0.062 | -0.153 | 0.006 | 0.064 |
| U | 2.3 | **0.263** | 0.327 | 0.085 | -0.295 | **-0.165** | -0.180 |
| % Variation | | 51.34 | 19.17 | 8.11 | 5.73 | 3.98 | 2.39 |
| % Variation Cumulative | | 51.34 | 70.51 | 78.62 | 84.35 | 88.33 | 90.73 |
| Eigenvalues: | | 0.18 | 0.07 | 0.03 | 0.02 | 0.01 | 0.01 |

**Table B.1.** Elemental loadings for principal component axes 1-6 for the ash tempered Baking Pot sample based on the variance-covariance matrix. Values in bold explain the greatest amount of variation within each component. Over 90% of the cumulative variance in the dataset is explained by the first 6 PCs.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **All pottery (n=143)** | | **Calcite Group (n=67)** | | **Ash Group**  **(n=68)** | | **Quartz**  **(n=8)** | | **Clays**  **(n=12)** | |
|  | **Average** | **%RSD** | **Average** | **%RSD** | **Average** | **%RSD** | **Average** | **%RSD** | **Average** | **%RSD** |
| **%Fe** | 2.63 | 27.4 | 2.88 | 31.4 | 2.34 | 11.4 | 3.01 | 24.7 | 3.21 | 43.8 |
| **%Al** | 7.94 | 18.0 | 7.35 | 22.6 | 8.50 | 9.4 | 8.20 | 20.4 | 7.40 | 41.4 |
| **%Ca** | 9.74 | 34.4 | 15.50 | 41.7 | 3.61 | 64.6 | 4.46 | 101.1 | 6.21 | 167.3 |
| **%K** | 1.23 | 47.8 | 0.70 | 48.2 | 1.72 | 14.7 | 1.45 | 34.4 | 1.46 | 63.7 |
| **As** | 9.74 | 34.4 | 7.73 | 37.6 | 11.96 | 19.6 | 7.77 | 25.6 | 10.75 | 47.7 |
| **La** | 29.22 | 43.5 | 25.55 | 38.1 | 30.73 | 17.7 | 47.10 | 84.5 | 42.07 | 33.1 |
| **Lu** | 0.48 | 30.0 | 0.43 | 33.1 | 0.53 | 14.8 | 0.59 | 57.5 | 0.57 | 31.8 |
| **Nd** | 27.50 | 49.2 | 23.75 | 37.2 | 28.81 | 19.8 | 47.83 | 94.4 | 39.36 | 33.1 |
| **Sm** | 6.13 | 46.6 | 5.27 | 37.7 | 6.52 | 19.4 | 10.06 | 92.7 | 7.97 | 32.1 |
| **U** | 2.13 | 51.2 | 1.60 | 43.1 | 2.49 | 39.9 | 3.58 | 55.5 | 2.97 | 43.7 |
| **Yb** | 3.28 | 31.3 | 2.92 | 35.6 | 3.53 | 14.8 | 4.10 | 59.4 | 3.80 | 31.4 |
| **Ce** | 60.04 | 39.3 | 52.87 | 40.6 | 63.86 | 19.9 | 87.59 | 71.5 | 90.59 | 35.5 |
| **Co** | 6.41 | 55.0 | 6.85 | 61.6 | 5.69 | 16.3 | 8.89 | 88.7 | 11.68 | 42.2 |
| **Cr** | 52.06 | 37.9 | 64.98 | 30.8 | 38.83 | 14.2 | 56.35 | 40.1 | 66.55 | 35.4 |
| **Cs** | 4.82 | 41.1 | 3.63 | 40.7 | 5.85 | 28.0 | 6.16 | 44.8 | 6.90 | 44.3 |
| **Eu** | 1.00 | 47.1 | 0.96 | 38.6 | 0.97 | 14.2 | 1.60 | 100.6 | 1.35 | 31.2 |
| **Hf** | 5.70 | 27.5 | 5.22 | 36.4 | 5.98 | 9.8 | 7.39 | 34.3 | 7.99 | 36.4 |
| **Ni** | 19.03 | 95.1 | 19.22 | 95.2 | 18.71 | 86.7 | 20.23 | 153.5 | 19.56 | 98.1 |
| **Rb** | 84.88 | 47.0 | 53.87 | 47.6 | 112.26 | 20.3 | 111.76 | 55.2 | 111.84 | 52.6 |
| **Sb** | 1.13 | 27.5 | 0.98 | 27.1 | 1.31 | 17.9 | 0.86 | 47.4 | 1.57 | 47.3 |
| **Sc** | 10.20 | 31.4 | 12.08 | 28.8 | 8.15 | 13.4 | 11.95 | 17.2 | 12.87 | 42.2 |
| **Sr** | 58.97 | 61.9 | 52.48 | 75.5 | 70.80 | 39.8 | 12.84 | 159.4 | 48.48 | 86.6 |
| **Ta** | 1.08 | 35.2 | 1.09 | 33.1 | 0.99 | 24.2 | 1.79 | 40.1 | 1.62 | 40.5 |
| **Tb** | 0.90 | 37.6 | 0.80 | 37.4 | 0.95 | 20.6 | 1.29 | 69.5 | 1.14 | 32.2 |
| **Th** | 11.88 | 30.1 | 11.57 | 31.5 | 11.80 | 27.8 | 15.21 | 26.7 | 14.20 | 43.3 |
| **Zn** | 64.30 | 27.4 | 58.49 | 26.5 | 68.54 | 22.8 | 76.89 | 41.1 | 76.26 | 25.5 |
| **Zr** | 133.03 | 34.2 | 121.35 | 42.7 | 136.62 | 13.6 | 200.28 | 41.4 | 192.89 | 38.0 |
| **Ba** | 519.60 | 33.5 | 408.40 | 26.4 | 635.58 | 24.1 | 465.12 | 36.5 | 293.77 | 47.4 |
| **Dy** | 5.36 | 34.7 | 4.80 | 35.9 | 5.63 | 16.2 | 7.70 | 63.7 | 6.57 | 31.7 |
| **Mn** | 403.37 | 58.4 | 284.56 | 84.8 | 519.28 | 18.5 | 413.14 | 114.7 | 551.33 | 90.3 |
| **Na** | 5586.56 | 95.8 | 571.07 | 34.5 | 10981.76 | 18.3 | 1732.02 | 66.8 | 1570.95 | 61.6 |
| **Ti** | 3182.75 | 33.3 | 3509.43 | 29.9 | 2707.72 | 15.7 | 4484.69 | 52.4 | 4769.54 | 37.6 |
| **V** | 51.23 | 55.3 | 71.66 | 31.4 | 28.02 | 22.3 | 77.30 | 42.9 | 83.38 | 40.17 |

**Table B.2.** Descriptive statistics for all pottery, calcite and ash tempered groups, quartz tempered pottery, and clays in the Baking Pot sample.

**Mahalanobis Distance Group Membership Probabilities**

Membership probabilities(%) for samples in group: **ASH 1**

ANID Ash 1 Ash 2 Ash 3 Ash 4 Ash 5 Ash 6 Best Group

JOR002 11.546 0.021 0.037 0.005 0.002 0.393 ASH 1

JOR003 36.071 0.008 7.354 0.184 0.023 0.793 ASH 1

JOR004 38.771 0.049 0.003 0.000 0.001 0.606 ASH 1

JOR005 82.501 0.045 0.067 0.003 0.005 0.441 ASH 1

JOR006 80.873 0.038 0.084 0.007 0.008 0.316 ASH 1

JOR007 31.810 0.011 0.206 0.007 0.005 2.198 ASH 1

JOR008 68.607 0.068 0.007 0.002 0.003 0.245 ASH 1

Membership probabilities(%) for samples in group: **ASH 2**

ANID Ash 1 Ash 2 Ash 3 Ash 4 Ash 5 Ash 6 Best Group

JOR018 0.115 72.727 0.000 0.000 0.000 0.206 ASH 2

JOR020 0.135 45.838 0.000 0.000 0.000 0.203 ASH 2

JOR021 0.087 35.083 0.000 0.000 0.000 0.296 ASH 2

JOR027 0.063 58.369 0.000 0.000 0.000 0.152 ASH 2

JOR036 0.061 56.117 0.000 0.000 0.000 0.160 ASH 2

JOR037 0.070 63.229 0.000 0.000 0.000 0.279 ASH 2

JOR040 0.047 24.059 0.000 0.000 0.000 0.318 ASH 2

JOR042 0.071 32.188 0.000 0.000 0.000 0.184 ASH 2

Membership probabilities(%) for samples in group: **ASH 3**

ANID Ash 1 Ash 2 Ash 3 Ash 4 Ash 5 Ash 6 Best Group

JOR001 2.308 0.013 5.800 0.192 0.052 2.526 ASH 3

JOR010 8.093 0.005 31.253 2.218 0.531 4.666 ASH 3

JOR011 13.274 0.006 90.375 1.660 0.383 1.649 ASH 3

JOR014 2.743 0.007 4.766 0.213 0.039 7.054 ASH 6

JOR016 5.548 0.010 56.248 0.545 0.250 1.493 ASH 3

JOR025 6.251 0.011 76.805 0.192 0.103 2.394 ASH 3

JOR026 12.133 0.007 58.854 0.278 0.138 3.146 ASH 3

JOR029 34.273 0.009 21.705 0.135 0.071 1.558 ASH 1

JOR030 7.915 0.006 48.182 5.802 0.805 1.709 ASH 3

JOR031 10.105 0.010 77.696 0.439 0.226 1.238 ASH 3

JOR032 7.429 0.004 25.086 11.651 1.167 2.523 ASH 3

JOR033 13.956 0.011 75.018 0.238 0.147 1.245 ASH 3

JOR035 34.009 0.011 28.305 0.145 0.078 1.043 ASH 1

JOR039 14.341 0.009 70.135 0.808 0.257 1.043 ASH 3

JOR063 14.363 0.007 78.487 0.443 0.193 2.484 ASH 3

JOR068 15.308 0.006 38.952 4.833 0.339 1.185 ASH 3

Membership probabilities(%) for samples in group: **ASH 4**

ANID Ash 1 Ash 2 Ash 3 Ash 4 Ash 5 Ash 6 Best Group

JOR009 7.887 0.002 0.658 36.845 0.323 2.411 ASH 4

JOR012 3.466 0.002 0.735 12.729 3.117 5.288 ASH 4

JOR013 2.371 0.002 0.686 59.910 6.273 5.702 ASH 4

JOR017 3.206 0.002 0.185 75.277 8.158 4.411 ASH 4

JOR019 2.058 0.001 0.011 23.306 30.265 1.967 ASH 5

JOR022 4.119 0.001 0.105 84.286 8.473 6.620 ASH 4

JOR023 1.211 0.001 0.019 39.207 11.001 2.200 ASH 4

JOR034 8.809 0.002 1.220 57.592 0.427 2.568 ASH 4

JOR038 0.701 0.003 0.134 2.934 0.531 18.296 ASH 6

JOR046 5.462 0.002 1.632 90.619 3.456 6.184 ASH 4

JOR047 8.315 0.002 0.820 70.982 1.474 6.335 ASH 4

Membership probabilities(%) for samples in group: **ASH 5**

ANID Ash 1 Ash 2 Ash 3 Ash 4 Ash 5 Ash 6 Best Group

JOR015 1.114 0.001 0.002 5.003 44.389 2.098 ASH 5

JOR024 1.224 0.001 0.002 2.389 31.836 2.515 ASH 5

JOR048 1.549 0.001 0.002 9.520 56.674 1.584 ASH 5

JOR049 1.398 0.000 0.000 0.684 55.570 0.590 ASH 5

JOR050 0.886 0.000 0.000 0.890 81.479 0.533 ASH 5

JOR051 1.449 0.001 0.000 1.198 66.405 0.739 ASH 5

JOR053 0.697 0.000 0.000 0.777 13.132 0.407 ASH 5

JOR054 0.475 0.000 0.000 0.014 16.220 0.271 ASH 5

JOR057 0.962 0.000 0.000 0.485 23.221 0.317 ASH 5

JOR058 0.709 0.000 0.000 0.149 68.982 0.626 ASH 5

JOR062 0.890 0.000 0.000 0.131 83.392 0.377 ASH 5

JOR064 0.522 0.000 0.000 0.066 40.692 0.408 ASH 5

JOR066 0.873 0.000 0.000 0.055 28.866 0.283 ASH 5

Membership probabilities(%) for samples in group: **ASH 6**

ANID Ash 1 Ash 2 Ash 3 Ash 4 Ash 5 Ash 6 Best Group

JOR028 0.073 0.005 0.000 0.182 0.000 90.502 ASH 6

JOR056 0.045 0.014 0.000 0.027 0.000 34.125 ASH 6

JOR059 0.055 0.015 0.000 0.037 0.000 24.853 ASH 6

JOR060 0.035 0.009 0.000 0.029 0.000 29.952 ASH 6

JOR065 0.086 0.005 0.000 0.285 0.000 76.445 ASH 6

Membership probabilities(%) for samples in group: Ash unassigned

ANID Ash 1 Ash 2 Ash 3 Ash 4 Ash 5 Ash 6 Best Group

JOR041 0.064 1.212 0.000 0.000 0.000 1.334 ASH 6

JOR043 0.109 3.259 0.000 0.001 0.000 0.458 ASH 2

JOR044 0.714 0.052 0.022 0.036 0.006 0.690 ASH 1

JOR045 1.227 0.030 0.317 0.078 0.019 0.918 ASH 1

JOR052 0.550 0.001 0.001 6.415 1.755 0.604 ASH 4

JOR055 1.077 0.000 0.000 0.055 9.734 0.624 ASH 5

JOR061 0.013 0.832 0.000 0.000 0.000 0.469 ASH 2

JOR067 1.032 0.007 4.539 0.691 0.029 10.788 ASH 6

**Table B.3.** Results of Mahalanobis group membership probabilities for each ash tempered specimen into ash subgroups. Results are based on the first three PCs which explain 78.% of the variance in this sample. Best group is based on highest membership probability over .001% and are calculated after removing each sample from the group.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Dataset | Time period | Sites | Count | Complexes/Wares/Types | Reference Groups | Publications |
| Ebert | Preclassic | Cahal Pech | 124 | Cunil, Kanluk (Mars Oranges Wares), Xakal (Sierra Reds, etc.) | A, B, C, D, E , F, G | Ebert et al. 2019 |
|  | Tzutziiy K'in | 38 |
|  | Zopilote Group | 27 |
| Douglas | Terminal Classic | Cahal Pech | 37 | Pine Ridge Carbonate (Mount Maloney Black) | G1-A,G1-B,G1-C, G2, G3-A, G3-B, G3-C | Douglas et al. 2021 |
|  | Tzutziiy K'in | 10 |
|  | Zopilote Group | 18 |
|  | Xunantunich | 24 |

**Table B.4.** Summary of comparative datasets for the current study.

.

Membership probabilities (%) for samples in group: **Jordan Vol Ash Group**

**ANID Jordan Ebert Best Group**

JOR001 99.390 0.450 Jordan Vol Ash Group

JOR002 23.721 0.027 Jordan Vol Ash Group

JOR003 78.859 0.257 Jordan Vol Ash Group

JOR004 0.222 0.000 Jordan Vol Ash Group

JOR005 14.324 0.003 Jordan Vol Ash Group

JOR006 76.277 0.088 Jordan Vol Ash Group

JOR007 0.005 0.000 Jordan Vol Ash Group

JOR008 76.065 0.023 Jordan Vol Ash Group

JOR009 63.841 16.684 Jordan Vol Ash Group

JOR010 28.920 0.060 Jordan Vol Ash Group

JOR011 95.139 2.634 Jordan Vol Ash Group

JOR012 33.825 0.064 Jordan Vol Ash Group

JOR013 75.368 55.052 Jordan Vol Ash Group

JOR014 4.270 0.010 Jordan Vol Ash Group

JOR015 98.018 8.758 Jordan Vol Ash Group

JOR016 80.891 1.336 Jordan Vol Ash Group

JOR017 97.876 1.047 Jordan Vol Ash Group

JOR018 54.248 0.059 Jordan Vol Ash Group

JOR019 98.211 2.314 Jordan Vol Ash Group

JOR020 14.337 0.018 Jordan Vol Ash Group

JOR021 70.591 0.017 Jordan Vol Ash Group

JOR022 96.502 3.455 Jordan Vol Ash Group

JOR023 98.496 1.253 Jordan Vol Ash Group

JOR024 91.144 43.253 Jordan Vol Ash Group

JOR025 84.811 0.060 Jordan Vol Ash Group

JOR026 80.160 0.057 Jordan Vol Ash Group

JOR027 3.144 0.726 Jordan Vol Ash Group

JOR028 7.163 2.236 Jordan Vol Ash Group

JOR029 65.399 0.014 Jordan Vol Ash Group

JOR030 39.449 2.143 Jordan Vol Ash Group

JOR031 99.907 0.858 Jordan Vol Ash Group

JOR032 72.086 1.644 Jordan Vol Ash Group

JOR033 84.170 0.142 Jordan Vol Ash Group

JOR034 70.133 4.650 Jordan Vol Ash Group

JOR035 92.877 0.107 Jordan Vol Ash Group

JOR036 62.977 0.199 Jordan Vol Ash Group

JOR037 7.460 0.005 Jordan Vol Ash Group

JOR038 0.055 0.603 Ebert Group B

JOR039 82.158 2.201 Jordan Vol Ash Group

JOR040 27.410 0.028 Jordan Vol Ash Group

JOR041 10.422 0.005 Jordan Vol Ash Group

JOR042 6.079 6.204 Ebert Group B

JOR043 18.719 0.449 Jordan Vol Ash Group

JOR044 35.306 2.152 Jordan Vol Ash Group

JOR045 37.419 1.688 Jordan Vol Ash Group

JOR046 97.257 11.360 Jordan Vol Ash Group

JOR047 95.235 5.051 Jordan Vol Ash Group

JOR048 88.439 4.723 Jordan Vol Ash Group

JOR049 41.019 2.485 Jordan Vol Ash Group

JOR050 27.520 0.577 Jordan Vol Ash Group

JOR051 58.469 1.409 Jordan Vol Ash Group

JOR052 72.491 0.352 Jordan Vol Ash Group

JOR053 69.855 0.463 Jordan Vol Ash Group

JOR054 72.082 4.059 Jordan Vol Ash Group

JOR055 13.357 10.938 Jordan Vol Ash Group

JOR056 56.037 0.270 Jordan Vol Ash Group

JOR057 1.234 0.174 Jordan Vol Ash Group

JOR058 98.111 9.728 Jordan Vol Ash Group

JOR059 56.583 0.563 Jordan Vol Ash Group

JOR060 36.730 0.815 Jordan Vol Ash Group

JOR061 1.326 0.012 Jordan Vol Ash Group

JOR062 85.757 1.773 Jordan Vol Ash Group

JOR063 92.534 0.197 Jordan Vol Ash Group

JOR064 85.497 2.229 Jordan Vol Ash Group

JOR065 3.012 7.840 Ebert Group B

JOR066 47.603 0.653 Jordan Vol Ash Group

JOR067 0.541 0.263 Jordan Vol Ash Group

JOR068 60.071 5.860 Jordan Vol Ash Group

Membership probabilities(%) for samples in group: **Ebert Group B**

**ANID Jordan Ebert Best Group**

CHP001 0.000 80.230 Ebert Group B

CHP006 0.001 5.632 Ebert Group B

CHP011 0.000 19.300 Ebert Group B

CHP013 0.000 1.086 Ebert Group B

CHP014 0.026 96.431 Ebert Group B

CHP015 0.000 0.230 Ebert Group B

CHP016 0.000 63.468 Ebert Group B

CHP019 0.002 10.670 Ebert Group B

CHP027 0.000 98.562 Ebert Group B

CHP029 0.000 81.098 Ebert Group B

CHP030 1.910 95.945 Ebert Group B

CHP031 0.069 98.790 Ebert Group B

CHP032 0.000 24.907 Ebert Group B

CHP036 0.000 96.559 Ebert Group B

CHP038 0.000 61.459 Ebert Group B

CHP039 0.000 90.755 Ebert Group B

CHP042 0.000 3.570 Ebert Group B

CHP045 0.000 71.181 Ebert Group B

CHP047 0.000 43.093 Ebert Group B

CHP051 0.216 98.110 Ebert Group B

CHP055 0.023 97.428 Ebert Group B

CHP059 7.626 88.321 Ebert Group B

CHP060 0.018 99.706 Ebert Group B

CHP061 0.000 40.416 Ebert Group B

CHP068 0.057 43.382 Ebert Group B

CHP069 0.000 28.205 Ebert Group B

CHP070 0.000 11.970 Ebert Group B

CHP073 0.000 1.169 Ebert Group B

CHP076 1.323 98.570 Ebert Group B

CHP077 0.006 46.704 Ebert Group B

CHP095 0.000 20.826 Ebert Group B

ZPL023 0.000 1.471 Ebert Group B

ZPL024 0.000 1.853 Ebert Group B

ZPL025 0.000 22.961 Ebert Group B

**Table B.5.** Results of Mahalanobis group membership probabilities for ash-tempered specimens from the current study and Ebert et al.’s (2019) Group B. Results are based on the first 12 PCs which explain 96% of the variance in this sample. Best group is based on highest membership probability over .001% and are calculated after removing each sample from the group