|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **Local A** **(n=91)** | **Local B** **(n=10)** | **Bonn SarP** **(n=10)** | **Bonn SarQ** **(n=49)** | **AIA Macro A 1.1** **(n=146)** | **CLAS Group 4** **(n=42)** |
| **Element** | *M± σ* | *M± σ* | *M± σ* | *M± σ* | *M± σ* | *M± σ* |
| **Na %**  | 0.980 | ± | 0.187 | 0.724 | ± | 0.143 | 1.01 | ± | 0.18 | 1.19 | ± | 0.15 | 1.05 | ± | 0.188 | 0.899 | ± | 0.131 |
| **Al %**  | 11.4 | ± | 0.6 | 12.4 | ± | 0.6 | n.d. | ± | n.d. | n.d. | ± | n.d. | n.d. | ± | n.d. | 11 | ± | 0.423 |
| **K %**  | 3.43 | ± | 0.24 | 3.39 | ± | 0.23 | 3.49 | ± | 0.06 | 3.34 | ± | 0.04 | 3.27 | ± | 0.942 | 3.21 | ± | 0.252 |
| **Ca %**  | 2.33 | ± | 0.49 | 1.09 | ± | 0.55 | 2.83 | ± | 0.11 | 2.81 | ± | 0.21 | 2.31 | ± | 0.947 | 2.21 | ± | 0.051 |
| **Sc**  | 23.8 | ± | 1.9 | 24.4 | ± | 1.1 | 25.7 | ± | 1.0 | 23.6 | ± | 0.7 | 23.2 | ± | 1.47 | 23 | ± | 1.35 |
| **Ti %**  | 0.488 | ± | 0.051 | 0.475 | ± | 0.067 | n.d. | ± | n.d. | n.d. | ± | n.d. | n.d. | ± | n.d. | 0.494 | ± | 0.063 |
| **V**  | 173 | ± | 12 | 176 | ± | 11 | n.d. | ± | n.d. | n.d. | ± | n.d. | n.d. | ± | n.d. | 165 | ± | 12.5 |
| **Cr**  | 161 | ± | 9 | 174 | ± | 13 | 151 | ± | 5 | 148 | ± | 8 | 165 | ± | 23.1 | 167 | ± | 17.6 |
| **Mn**  | 874 | ± | 83 | 826 | ± | 50 | n.d. | ± | n.d. | n.d. | ± | n.d. | n.d. | ± | n.d. | 903 | ± | 107 |
| **Fe %**  | 7.08 | ± | 0.57 | 7.26 | ± | 0.54 | 7.49 | ± | 0.05 | 7.26 | ± | 0.03 | 6.86 | ± | 0.54 | 6.85 | ± | 0.432 |
| **Co**  | 27.6 | ± | 1.5 | 26.2 | ± | 1.0 | 28.3 | ± | 0.7 | 26.1 | ± | 0.3 | 28.4 | ± | 7.21 | 28.8 | ± | 3.03 |
| **Ni**  | 75 | ± | 24 | 64 | ± | 13 | n.d. | ± | n.d. | n.d. | ± | n.d. | n.d. | ± | n.d. | n.d. | ± | n.d. |
| **Zn**  | 136 | ± | 17 | 119 | ± | 8 | 145 | ± | 9 | 130 | ± | 8 | 122 | ± | 14.9 | n.d. | ± | n.d. |
| **As**  | 39 | ± | 15 | 46 | ± | 17 | 38 | ± | 21 | 35 | ± | 13 | n.d. | ± | n.d. | n.d. | ± | n.d. |
| **Rb**  | 162 | ± | 10 | 165 | ± | 7 | 184 | ± | 5 | 172 | ± | 3 | 151 | ± | 14.9 | 157 | ± | 8.53 |
| **Sr**  | 200 | ± | 61 | 136 | ± | 43 | n.d. | ± | n.d. | n.d. | ± | n.d. | n.d. | ± | n.d. | 187 | ± | 51.3 |
| **Zr**  | 135 | ± | 26 | 133 | ± | 24 | n.d. | ± | n.d. | n.d. | ± | n.d. | n.d. | ± | n.d. | 149 | ± | 22.8 |
| **Sb**  | 5.1 | ± | 1.2 | 8.77 | ± | 1.34 | 7.5 | ± | 2.0 | 8.0 | ± | 1.2 | 5.82 | ± | 1.01 | 5.47 | ± | 1.24 |
| **Cs**  | 23.2 | ± | 4.6 | 44.6 | ± | 6.1 | 31.6 | ± | 7.9 | 39.6 | ± | 2.7 | 24.7 | ± | 7.34 | 22.4 | ± | 6.24 |
| **Ba**  | 724 | ± | 77 | 726 | ± | 78 | 855 | ± | 120 | 862 | ± | 95 | 800 | ± | 111 | 753 | ± | 120 |
| **La**  | 46.3 | ± | 2.2 | 53.6 | ± | 5.0 | 45.4 | ± | 1.0 | 51,0 | ± | 1.1 | 47.6 | ± | 1.96 | 46.7 | ± | 1.98 |
| **Ce**  | 94.9 | ± | 4.5 | 109 | ± | 11 | 98.6 | ± | 2.4 | 114 | ± | 36 | 95.2 | ± | 3.69 | 97.4 | ± | 3.93 |
| **Nd**  | 41.4 | ± | 4.6 | 46.7 | ± | 4.0 | 40.6 | ± | 2.7 | 47.6 | ± | 2.0 | 41.8 | ± | 5.35 | 43 | ± | 2.31 |
| **Sm**  | 8.81 | ± | 0.5 | 10.1 | ± | 1.1 | 7.81 | ± | 0.73 | 8.49 | ± | 0.03 | 8.86 | ± | 0.349 | 8.93 | ± | 0.341 |
| **Eu**  | 1.82 | ± | 0.08 | 2.12 | ± | 0.24 | 1.77 | ± | 0.03 | 1.95 | ± | 0.03 | 1.84 | ± | 0.132 | 1.84 | ± | 0.058 |
| **Tb**  | 1.26 | ± | 0.34 | 1.20 | ± | 0.18 | 1.52 | ± | 0.01 | 1.03 | ± | 0.06 | 1.26 | ± | 0.403 | 1.21 | ± | 0.059 |
| **Dy**  | 6.37 | ± | 0.55 | 6.91 | ± | 0.69 | n.d. | ± | n.d. | n.d. | ± | n.d. | n.d. | ± | n.d. | 6.5 | ± | 0.353 |
| **Yb**  | 3.60 | ± | 0.26 | 3.69 | ± | 0.37 | 3.73 | ± | 0.11 | 3.85 | ± | 0.16 | 3.55 | ± | 0.224 | 3.79 | ± | 0.323 |
| **Lu**  | 0.50 | ± | 0.03 | 0.47 | ± | 0.04 | 0.59 | ± | 0.02 | 0.59 | ± | 0.03 | 0.52 | ± | 0.036 | 0.54 | ± | 0.052 |
| **Hf**  | 4.91 | ± | 0.80 | 4.65 | ± | 0.68 | 4.60 | ± | 0.64 | 5.86 | ± | 0.76 | 5.18 | ± | 0.704 | 5.37 | ± | 0.667 |
| **Ta**  | 1.05 | ± | 0.07 | 0.92 | ± | 0.09 | 0.90 | ± | 0.06 | 0.99 | ± | 0.05 | 1.21 | ± | 0.532 | 1.1 | ± | 0.054 |
| **Th**  | 14.5 | ± | 0.8 | 17.1 | ± | 2.1 | 15.2 | ± | 0.6 | 15.3 | ± | 0.4 | 14.8 | ± | 0.935 | 14.8 | ± | 1.32 |
| **U**  | 3.18 | ± | 0.58 | 3.19 | ± | 0.52 | 2.64 | ± | 0.23 | 3.00 | ± | 0.33 | 2.9 | ± | 0.638 | 3.16 | ± | 0.476 |

Table 4a. Average elemental values for Sardis reference groups Local A and Local B, Bonn SarP and SarQ (Gürtekin-Demir et al. 2022, table 1), AIA Macrogroup A 1.1 (Kealhofer et al. 2013, table 4a) and CLAS Group 4 (Luke et al. 2015, table 2); n.d. = not detected.