**Appendix 3** Trace element geochemistry in olivine reported in ppm.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Sample** | **Li** | **2SE** | **Na** | **2SE** | **Al** | **2SE** | **P** | **2SE** | **Ca** | **2SE** | **Sc** | **2SE** | **Ti** | **2SE** | **V** | **2SE** | **Cr** | **2SE** |
| 10CXAL249 (UTM 545100.0E, 7370000.0N)dunite xenolith in ca. 2.72 Ga granitoid gneiss |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| L249\_1 | 3.35 | 0.63 | - | - | 12.6 | 2.6 | 8.4 | 5.1 | 480 | 340 | 17.33 | 0.27 | 11.3 | 1.3 | 1.60 | 0.31 | 530 | 100 |
|  L249\_2 | 4.95 | 0.51 | 48 | 18 | 5.6 | 1.5 | 24.7 | 5.9 | 540 | 350 | 16.59 | 0.32 | 9.1 | 1.1 | 0.28 | 0.09 | 36 | 16 |
|  L249\_3 | 3.19 | 0.66 | 710 | 110 | 65.5 | 7.0 | 24.2 | 6.3 | 460 | 430 | 15.97 | 0.34 | 10.9 | 1.6 | 1.17 | 0.30 | 318 | 94 |
|  L249\_4 | 2.82 | 0.72 | - | - | 2.0 | 1.1 | 11.5 | 6.6 | 310 | 370 | 15.31 | 0.30 | 7.5 | 1.5 | 0.17 | 0.08 | 24 | 5 |
|  L249\_5 | 3.47 | 0.84 | - | - | 1.8 | 0.9 | 14.8 | 6.2 | 320 | 440 | 14.82 | 0.33 | 6.9 | 1.5 | 0.22 | 0.08 | 23 | 8 |
|  L249\_6 | 3.85 | 0.63 | - | - | 1.1 | 1.1 | 19.8 | 5.3 | 660 | 390 | 13.86 | 0.28 | 7.5 | 1.1 | 0.11 | 0.08 | 20 | 11 |
|  L249\_7 | 4.02 | 0.63 | - | - | 1.8 | 1.0 | 15.9 | 5.8 | 210 | 380 | 13.60 | 0.28 | 5.9 | 1.5 | 0.06 | 0.07 | 6.6 | 0.3 |
|  L249\_8 | 3.89 | 0.75 | - | - | 1.6 | 1.2 | 26.5 | 6.5 | 370 | 410 | 13.73 | 0.28 | 5.4 | 1.4 | 0.11 | 0.06 | 5.7 | 0.3 |
|  L249\_9 | 4.70 | 0.62 | - | - | 1.7 | 1.2 | 22.1 | 5.3 | 430 | 350 | 13.00 | 0.31 | 7.7 | 1.3 | 0.18 | 0.09 | 53 | 14 |
| L249\_10 | 4.43 | 0.75 | - | - | 7.4 | 2.7 | 23.4 | 6.5 | 260 | 380 | 12.80 | 0.30 | 6.0 | 1.3 | 0.94 | 0.38 | 260 | 130 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **Sample** | **Mn** | **2SE** | **Co** | **2SE** | **Ni** | **2SE** | **Zn** | **2SE** | **Y** | **2SE** | **Zr** | **2SE** | **Nb** | **2SE** |
| L249\_1 | 1515 | 10 | 164 | 2 | 3768 | 28 | 174.1 | 5.0 | 0.071 | 0.010 | - | - | 0.017 | 0.014 |  |  |  |  |
|  L249\_2 | 1540 | 11 | 164 | 2 | 3738 | 32 | 151.6 | 2.9 | 0.058 | 0.008 | 0.05 | 0.02 | 0.015 | 0.013 |  |  |  |  |
|  L249\_3 | 1592 | 15 | 163 | 2 | 3823 | 44 | 158.5 | 5.5 | 0.077 | 0.010 | 0.97 | 0.15 | 0.005 | 0.015 |  |  |  |  |
|  L249\_4 | 1656 | 17 | 162 | 2 | 3804 | 43 | 162.2 | 4.1 | 0.035 | 0.007 | - | - | 0.002 | 0.014 |  |  |  |  |
|  L249\_5 | 1532 | 16 | 162 | 2 | 3806 | 48 | 161.4 | 4.1 | 0.047 | 0.007 | - | - | - | - |  |  |  |  |
|  L249\_6 | 1621 | 8 | 165 | 2 | 3859 | 26 | 165.3 | 2.9 | 0.069 | 0.011 | - | - | 0.045 | 0.014 |  |  |  |  |
|  L249\_7 | 1723 | 15 | 163 | 2 | 3895 | 27 | 160.7 | 3.5 | 0.074 | 0.011 | - | - | 0.022 | 0.014 |  |  |  |  |
|  L249\_8 | 1613 | 9 | 165 | 1 | 3916 | 29 | 165.9 | 3.6 | 0.062 | 0.011 | - | - | 0.024 | 0.016 |  |  |  |  |
|  L249\_9 | 1634 | 10 | 165 | 1 | 3865 | 27 | 163.6 | 3.5 | 0.059 | 0.009 | - | - | 0.028 | 0.013 |  |  |  |  |
| L249\_10 | 1654 | 20 | 162 | 2 | 3774 | 56 | 173.5 | 7.1 | 0.055 | 0.009 | - | - | 0.023 | 0.015 |  |  |  |  |