**File 3.** *Microprobe analyses of feldspar from the Datong lamprophyres*

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Spot# | EM1-1  | EM3-1  | EM3-2 | EM3-3  | EM5-1 | EM5-2 | EM6-1  | EM7-1  | EM7-2  | EM9-1 |
| SiO2 | 64.0  | 64.5  | 63.8  | 63.0  | 59.6  | 64.3  | 63.6  | 63.9  | 63.3  | 63.7  |
| TiO2 | 0.09 | 0.06 | 0.04 | 0.05 | 0.19 | bdl | bdl | 0.04 | bdl | 0.06 |
| Al2O3 | 18.1  | 18.0  | 18.2  | 18.0  | 17.1  | 17.8  | 17.8  | 18.0  | 18.9  | 18.4  |
| Cr2O3  | bdl | bdl | bdl | 0.03 | bdl | bdl | bdl | bdl | bdl | 0.03 |
| FeOtot | 1.28 | 1.03 | 0.70 | 1.34 | 2.85 | 1.27 | 1.31 | 1.09 | 0.45 | 1.21 |
| MnO | bdl | 0.04 | 0.03 | bdl | bdl | bdl | bdl | bdl | bdl | bdl |
| MgO | bdl | bdl | bdl | bdl | bdl | bdl | bdl | bdl | bdl | bdl |
| CaO | 0.05 | 0.03 | bdl | bdl | bdl | bdl | bdl | 0.05 | 0.05 | 0.16 |
| Na2O | 0.87 | 0.09 | 0.09 | 0.44 | 0.98 | 0.31 | 0.37 | 0.20 | 0.28 | 0.33 |
| K2O | 15.3  | 16.9  | 16.7  | 16.1  | 14.4  | 16.8  | 16.4  | 16.6  | 16.6  | 15.3  |
| NiO | bdl | bdl | 0.04 | bdl | 0.07 | 0.04 | 0.06 | 0.06 | 0.10 | 0.06 |
| Total | 99.64 | 100.62 | 99.59 | 99.02 | 95.17 | 100.47 | 99.61 | 99.92 | 99.65 | 99.18 |
|  |  |  |  |  |  |  |  |  |  |  |
| *Based on 8 oxygens* |  |  |  |  |  |  |  |
| Si | 2.969 | 2.979 | 2.977 | 2.96 | 2.918 | 2.98 | 2.972 | 2.974 | 2.954 | 2.966 |
| Ti4+ | 0.003 | 0.002 | 0.001 | 0.002 | 0.007 | 0 | 0 | 0.001 | 0 | 0.002 |
| Al | 0.99 | 0.982 | 0.999 | 0.995 | 0.986 | 0.97 | 0.981 | 0.987 | 1.037 | 1.008 |
| Fe3+ | 0.05 | 0.04 | 0.027 | 0.053 | 0.117 | 0.049 | 0.051 | 0.042 | 0.018 | 0.047 |
| Ca | 0.002 | 0.001 | 0 | 0 | 0 | 0 | 0 | 0.002 | 0.002 | 0.008 |
| Na | 0.078 | 0.008 | 0.008 | 0.04 | 0.093 | 0.028 | 0.034 | 0.018 | 0.025 | 0.03 |
| K | 0.907 | 0.995 | 0.995 | 0.967 | 0.897 | 0.995 | 0.98 | 0.983 | 0.989 | 0.908 |
| ∑ | 4.999 | 5.007 | 5.007 | 5.017 | 5.018 | 5.022 | 5.018 | 5.007 | 5.025 | 4.969 |
|  |  |  |  |  |  |  |  |  |  |  |
| An | 0.2  | 0.1  | 0 | 0 | 0 | 0 | 0 | 0.2  | 0.2  | 0.8  |
| Ab | 7.9  | 0.8  | 0.8  | 4.0  | 9.4  | 2.7  | 3.4  | 1.8  | 2.5  | 3.2  |
| Or | 91.9  | 99.1  | 99.2  | 96.0  | 90.6  | 97.3  | 96.6  | 98.0  | 97.3  | 96.0  |