**File 4**. *Microprobe analyses of carbonate from the Datong lamprophyres*

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Spot# | EM1-1 | EM1-2 | EM3-1 | EM3-2 | EM3-3 | EM7-1 |
| SiO2 | 0.05 | bdl | 0.04 | 0.03 | bdl | bdl |
| Al2O3 | bdl | bdl | bdl | bdl | bdl | bdl |
| Cr2O3 | bdl | 0.03 | bdl | bdl | bdl | bdl |
| FeOtot | 0.82 | 1.15 | 0.13 | 0.15 | 0.17 | 0.29 |
| MnO | 0.07 | 0.08 | 4.35 | 5.03 | 4.90 | 2.80 |
| MgO | 0.11 | 0.19 | 0.05 | 0.14 | 0.06 | 0.14 |
| CaO | 55.7 | 56.4 | 52.9 | 51.3 | 52.0 | 54.1 |
| Na2O | bdl | bdl | bdl | bdl | bdl | bdl |
| K2O | bdl | bdl | bdl | bdl | bdl | bdl |
| NiO | bdl | bdl | bdl | bdl | bdl | bdl |
| Total | 56.75 | 57.85 | 57.47 | 56.65 | 57.13 | 57.33 |
|  |  |  |  |  |  |  |
| *Based on 6 oxygens* | | | |  |  |  |
| Fe2+ | 0.023 | 0.031 | 0.004 | 0.004 | 0.005 | 0.008 |
| Mn | 0.002 | 0.002 | 0.122 | 0.143 | 0.138 | 0.078 |
| Mg | 0.005 | 0.009 | 0.002 | 0.007 | 0.003 | 0.007 |
| Ca | 1.968 | 1.955 | 1.871 | 1.844 | 1.853 | 1.906 |
| ∑ | 1.998 | 1.997 | 1.999 | 1.998 | 1.999 | 1.999 |