Table S6: Modified CIPW normalizing calculation for mineral sets in spinel lherzolite

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Starting components | SiO2 | TiO2 | Al2O3 | Fe2O3 | FeO | MgO | CaO | Na2O | K2O |
| Weight percent | 46.52 | 0.99 | 7.12 | 1.10 | 9.92 | 26.20 | 6.65 | 0.67 | 0.49 |
| Molecular weight of oxides | 60.1 | 79.9 | 102 | 159.7 | 71.9 | 40.3 | 56.1 | 62 | 94.2 |
| Molar values | 0.77 | 0.01 | 0.07 | 0.01 | 0.14 | 0.65 | 0.12 | 0.01 | 0.01 |
|  |  |  |  |  |  |  |  |  |  |
| Mineral phases | Fo as Ol | / | Sp | / | (Clino-)ferrosilite | (Clino-)enstatite | Di | / | / |
| Molar concentration | 0.067 | / | 0.07 | / | 0.115 | 0.35 | 0.119 | / | / |
| Molecular weight of minerals | 127.2 | / | 142.3 | / | 132.0 | 100.4 | 102.47 | / | / |
| Weight (gram) | 8.52 | / | 9.96 | / | 15.18 | 35.14 | 12.19 | / | / |
| Weight percent (wt%) | 11% | / | 12% | / | 19% | 43% | 15% |  |  |
| melting mode based on values above | 11%Ol + 20%Opx + 57%Cpx + 12%Sp |

Fo = Fosterite; Ol = Olivine; Sp = Spinel; Opx = Orthopyroxene; Cpx = Clinopyroxene; En =(Clino-)enstatite; Fs = (Clino-)ferrosilite.

Note: Oxides with molar percent less than 0.01 (including) will not be considered in calculation.