**Supplement 5**

*Ledneva G.V., Bazylev B.A., Layer P., Kuzmin D.V., Kononkova N.N.* **“**Mesozoic island-arc massif of cumulative dunite-wehrlite-olivine clinopyroxenite- gabbro, Eastern Chukotka”

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**Table 5.** Calculated contents of incompatible elements in equilibrium trapped melts (ppm, water-free based) and values of mineral-liquid partition coefficients used.

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Sample | LU9-26 | LU9-28 | LU9-24 | LU9-39 | Values of mineral-liquid partition coefficients | | | | | | |
| φtm | 0.01 | 0.01 | 0.02 | 0.02 |
| Di | Calculated contents of elements in trapped melts | | | | Ol-liq | Cpx-liq | Opx-liq | Hbl-liq | Cpx-liq | Hbl-liq | Pl-liq |
| Rock | Cpx-te | Cpx-te | Cpx-te, gb | Cpx-te | gb | gb | gb |
| Parameter of interpolation |  |  |  | o  1050 C, Mg#Hbl85 |  |  | 1000oC, xAn80 |
| Experiment | compilation | R77 | 1101-12-06 |  | R79 | RN8 |  |
| Reference | [2] | [27] | [48] | [86] | [27] | [70] | [36] |
| Rb Ba Th U Nb Та La Ce Pb Pr Nd Sr Sm Zr | 13 11 228 94  83 185 503 626  0.53 0.31 0.51 0.33  0.57 0.36 0.17 0.20  1.0 1.0 1.2 0.73  - - 0.15 0.068  4.6 4.0 10 8.7  9.4 8.6 24 21  35 40 5.5 6.5  1.4 1.1 3.0 2.6  6.8 5.9 13 11  100 183 506 561  1.6 1.5 3.4 2.9  13 11 45 35 | | | | 0.000038  0.000009  0.000036  0.000061  0.000069  -  0.000031  0.000036  0.0007  0.000065  0.00014  0.000073  0.00048  0.0007 | 0.0014  0.0011  0.007  0.007  0.0035  0.011  0.047  0.083  0.011  *0.14*  0.19  0.101  0.35  0.11 | 0.00018  0.000043  0.0010  0.0017  0.0023  0.007  0.00081  0.0036  0.0044  *0.0070*  0.0103  0.0037  0.023  0.030 | 0.091  0.28  0.013  0.011  0.19  0.20  0.14  0.25  0.061  *0.40*  0.55  0.54  0.81  0.32 | 0.00008  0.00015  0.007  0.006  0.005  0.021  0.070  0.12  0.008  *0.195*  0.27  0.112  0.42  0.20 | 0.095  0.20  0.017  0.011  0.30  0.32  0.11  0.21  0.066  *0.38*  0.56  0.43  0.99  0.35 | 0.012  0.182  0.031  0.014  0.017  *0.035*  0.074  0.055  0.460  *0.056*  0.057  1.991  0.036  0.0016 |

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Hf | 0.33 | 0.38 | 1.1 | 1.0 | 0.001 | 0.25 | 0.050 | 0.55 | 0.42 | 0.67 | 0.008 |
| Eu | 0.53 | 0.56 | 0.64 | 0.48 | 0.00062 | *0.40* | *0.038* | 0.86 | *0.47* | 1.11 | 0.544 |
| Ti | 4594 | 5273 | 4066 | 2900 | 0.0064 | 0.28 | 0.18 | 1.65 | 0.46 | 2.58 | 0.051 |
| Gd | 1.8 | 1.5 | 2.8 | 2.6 | 0.0008 | *0.46* | *0.053* | 0.98 | *0.51* | 1.41 | *0.031* |
| Tb | 0.33 | 0.25 | 0.47 | 0.45 | 0.0023 | 0.51 | *0.067* | *0.97* | 0.56 | 1.51 | 0.023 |
| Dy | 1.8 | 1.5 | 3.2 | 2.7 | 0.004 | *0.54* | *0.082* | 0.97 | *0.56* | 1.63 | 0.010 |
| Ho | 0.35 | 0.26 | 0.70 | 0.48 | 0.0066 | 0.56 | *0.10* | *0.93* | 0.55 | 1.61 | *0.010* |
| Y | 9.0 | 7.2 | 16 | 11 | 0.0065 | 0.53 | 0.10 | 0.90 | 0.51 | 1.45 | 0.013 |
| Er | 1.1 | 0.85 | 2.0 | 1.5 | 0.0086 | *0.54* | *0.12* | 0.83 | *0.52* | 1.57 | *0.010* |
| Tm | 0.14 | 0.10 | 0.23 | 0.20 | 0.0127 | 0.54 | *0.14* | *0.76* | 0.48 | 1.48 | *0.009* |
| Yb | 1.1 | 0.68 | 1.5 | 1.5 | 0.018 | *0.52* | 0.16 | 0.68 | 0.47 | 1.30 | 0.008 |
| Lu | - | - | 0.31 | 0.20 | 0.02 | 0.49 | 0.17 | - | 0.43 | 1.20 | 0.005 |

Note. A content of an element in a trapped melt was calculated in accordance with [35] as

Ciliq = Cirock/(φOl\*DiOl-liq + φOpx\*DiOpx-liq +φCpx\*DiCpx-liq +φHbl\*DiHbl-liq+φPl\*DiPl-liq+ φtm),

Where C*i* is an element content in a rock (or a mineral), φ is a modal contents of a mineral/trapped melt in a rock, and Di is a mineral-liquid (liq)

partition coefficient of an element. Di values for hornblendes of clinopyroxenites were interpolated using experimental data assuming a temperature of

1050oС and Mg#85. Di values for plagioclase were calculated using equations [35] assuming a temperature of 1000оС and хAn80. DEu values for plagioclase were calculated assuming QFM+1.5 at 6 kb. " - " – not calculated. Interpolated values are shown in italic.

Ol – olivine, Opx – orthopyroxene, Cpx – clinopyroxene, Hbl – hornblende, Pl – plagioclase, tm – trapped melt, Cpx-te – clinopyroxenite, gb – gabbro.