Erratum

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Cations in olivine, Part 1: Calcium partitioning and calcium-magnesium distribution between olivines and coexisting melts, with petrologic applications

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We have become aware of several errors in our recent paper, “Cations in olivine, Part 1: Calcium partitioning and calcium magnesium distribution between olivines and coexisting melts, with petrologic applications”, Contrib Mineral Petrol 99:176–185. Equation (4) on page 180 should read,

$$-\ln(K_D) = \left(\frac{(0.9 \pm 0.1) 10^4}{T(K)} \right) (0.8 \pm 0.2).$$

The symbols for Fig. 3 (page 180) should be solid squares, open diamonds and solid circles for 8 wt%, 13 wt% and 16 wt% CaO, respectively. For Fig. 4 (page 181), solid squares represent data from Dunn (1985). In addition, the references to Fig. 10a, b on page 183 actually refer to Fig. 8a, b. Finally, Tables 1–6 were inadvertently omitted from the document. The titles of these Tables, with pertinent portions of the captions, are as follows.

Table 1. Compositions of starting materials used for this study.

Table 2. Summary of MMB-series runs.

Table 3. A comparison between the actual experiment temperatures (T_{act}) of low-pressure (one-atmosphere) studies and the values esti-

mated using Fig. 6, the calcium/magnesium exchange geothermometer ($dT = T_{est} - T_{act}$). For the 28 experiments listed below, the average dT was 3.3°C ($\pm 23.8^\circ\text{C}$) and, for the Roeder (1974) data, dT equals 6.3°C ($\pm 27.8^\circ\text{C}$).

Table 4. Comparison of actual experiment temperature (T_{act}) with temperatures estimated from the calcium/magnesium distribution ($dT = dT_{est} - dT_{act}$) for several types of high-pressure experiments.

Table 5. Comparison of Ca/Mg geothermometer with other geothermometers, using the results of Leeman and Scheidegger (1977). The eight samples are basalts from: the 1959 Kilauea Iki eruption (KI-prefixes), a prehistoric summit eruption of Mauna Loa (ML-82), a late Pleistocene Snake River Plain shield volcano (70-15) and a Holocene(?) cinder cone vent in the Lunar Crater volcanic field (BRS).

Table 6. Estimates of olivine crystallization temperature ($^\circ\text{C}$) obtained from four geothermometers using the data of Francis (1985). Mg and Mn temperatures are based on Leeman and Scheidegger (1977), the “ Fe^{+2} ” temperature is from Francis (1985), and the estimated temperature uses the CaO/MgO geothermometer. For each of the 12 samples, T_{est} was lower than the other three temperature estimates.

Interested readers can obtain copies of these Tables either from the one of the authors (along with reprints) or from the 1986 Ph.D. thesis of the first author (Jurewicz 1986).

References cited in the above erratum are given in the paper.

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