The deep magmatic cumulate roots of the Acadian orogen

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SECTION DR1. PETROGRAPHIC DESCRIPTIONS

As the focus of this study, the ultramafic/mafic rocks comprising the roots of the Acadian magmatism are described below. The rocks are generally very fresh with only occasional serpentinization of olivine and chloritization of phlogopite. With the exception of three foliated gabbros, the rocks do not exhibit field or microstructural evidence of deformation. In the field, the samples occur as a “mélange” of centimeter to multi-meter scale blocks or blob-like inclusions distributed along thrust faults within the Brimfield Schist. The contacts between the mafic/ultramafic rocks and the host gneisses are ~10 cm thick and are dominated by biotite.

A. Olivine-Pyroxene Hornblendites

Subhedral grains of cumulus olivine (<5000 μm ; 15–35 %) surrounded by monocrystalline poikilitic hornblende (<3 cm; 40–50 %) form the main framework of these rocks (Fig. DR1A). Orthopyroxene (<1 cm; 25–35 %) is also abundant and occurs as subhedral cumulus crystals within hornblende and enclosing olivine grains or as a monocrystalline intercumulus phase along with hornblende (Fig. DR1B). Green spinel occurs as anhedral to subhedral grains enclosed within olivine and orthopyroxene (<1000 μm) or as an intergrowth with orthopyroxene and phlogopite. Euhedral to subhedral phlogopite (5–15 %) is a common intercumulus phase, and often occurs enclosing olivine or within orthopyroxene. Accessory phases include sulfides, ilmenite, magnetite, zircons, and apatite that are commonly included within phlogopite grains. The degree of alteration varies from absent to the development of local mesh-type textures in individual olivine grains. Plagioclase is absent.

B. Biotite-rich Olivine-Hornblende-Pyroxenites and Olivine-Pyroxene Hornblendites

This group is distinct from the olivine-pyroxene hornblendites in that they tend toward mesocumulate and adcumulate texture with a granoblastic, euhedral matrix and much higher modal abundance of phlogopite. An inter-cumulus aggregate of polycrystalline orthopyroxene (<1 cm, 35–45 %) and amphibole (<1 cm; 30–40 %) is distributed around variably altered anhedral olivine (~0.5 cm; 5–15%), elongated subhedral clinopyroxene (<0.5 cm; 5 %), and abundant euhedral tabular phlogopite (<5000 μm , 25–35%). Some amphibole is found as small (<3500 μm) euhedral grains intergrown with phlogopite. Orthopyroxene commonly displays a poikilitic texture enclosing phlogopite and olivine grains. Apatite and ilmenite are accessory phases, sulfides are less common in this group of samples compared to those of group A, and spinel is rare or absent. Plagioclase is absent.

C. Norites/Orthopyroxenites

Although these samples could be grouped with the gabbros, we distinguish them because they are characterized by particularly large and randomly oriented orthopyroxene grains (up to ~20 cm long) that dominate the framework of the rock (85–95 %). The orthopyroxene usually displays poikilitic textures encapsulating euhedral phlogopite. Another distinguishing feature of this group is the absence of any other rock-forming minerals other than orthopyroxene, plagioclase, and phlogopite. Minor phases include apatite and zircon. Some fine-grained clay mineral alteration is present along orthopyroxene grain boundaries or cleavages.

D. Gabbros

This group encompasses rocks in which plagioclase is the main framework-forming mineral, and includes coarse-grained hornblende-bearing gabbro-norites, medium-grained orthopyroxene-hornblende gabbros, and fine-grained olivine gabbros in a decreasing order of Mg#. In general, the gabbros exhibit some deformation and alignment of fine plagioclase

crystals. In the most primitive hornblende gabbro-norites, coarse subhedral to anhedral and randomly oriented orthopyroxene crystals (4–8 mm) are surrounded by an intercumulus polycrystalline assemblage dominated by plagioclase with minor hornblende displaying an adcumulate texture that characterizes the rock. The orthopyroxene is usually poikilitic and encloses euhedral phlogopite and plagioclase crystals. Minor olivine is present as anhedral grains (100–300 μm) with digitated rims in contact with surrounding hornblende. The pyroxene-hornblende gabbros have an overall equigranular texture (2–5 mm) and equant plagioclase crystals largely dominate the rock framework. Whereas plagioclase and phlogopite are pristine, olivine, pyroxenes, and hornblende exhibit alteration on their rims and cores. In the most plagioclase-rich olivine-gabbros, olivine commonly occurs as smaller grains (100 μm) within plagioclase aggregates. Hornblende and orthopyroxene are less abundant. Some small phlogopite crystals show signs of deformation such as undulating extinction.

E. Anorthosites

Three anorthosite samples characterize a distinct group as they occur as veins cross-cutting some of the most primitive olivine-pyroxene hornblendites. These veins are usually up to 4 cm thick and display a reaction rim formed of amphibole in contact with the host cumulate. These veins are dominated by euhedral plagioclase (150–750 μm ; > 98% vol.) with minor altered, small olivine grains (~300 μm) “floating” in the plagioclase aggregate together with trace sulfide phases.

F. Hornblendites

Hornblendites exhibit a granoblastic texture in which euhedral hornblende (up to 0.5 cm, >90 %) and phlogopite (<1000 μm , <10 %) are the dominant crystal phases (Fig. 2C). Plagioclase is found as an anhedral phase of significantly smaller size occupying interstices

(<100 μm , <5 %). Some minor orthopyroxene also appears as elongated anhedral grains with optical continuity forming larger crystals with resorbed edges. These rocks show no signs of alteration or deformation.

SECTION DR2. ANALYTICAL METHODS

Whole-rock analysis

Whole-rock major and trace elements were analyzed at the Peter Hooper GeoAnalytical Lab, Washington State University, USA. For this, fresh chips of the sample were hand-picked and a standard volume of chips (approximately 60 g) was ground in a swing mill with tungsten carbide surfaces for 2 minutes. Then, 3.5 g of the sample powder was weighed into a plastic mixing jar with 7.0 g of spec pure dilithium tetraborate ($\text{Li}_2\text{B}_4\text{O}_7$) and mixed for ten minutes. The mixtures were transferred into graphite crucibles and loaded into a muffle furnace. After fusion, graphite crucibles were removed from the oven and allowed to cool. Each fusion glass bead was reground in the swing mill for 35 seconds, the glass powder then replaced in the graphite crucibles and re-fused for 5 minutes. Following the second fusion, the cooled beads were labelled with an engraver, their lower flat surface is ground on 600 silicon carbide grit, finished briefly on a glass plate (600 grit with alcohol) to remove any metal from the grinding wheel, washed in an ultrasonic cleaner, rinsed in alcohol, and wiped dry. The glass beads are then ready to be loaded into the XRF spectrometer. The concentrations major elements were determined by comparing the X-ray intensity for each element in the whole-rocks with the intensity for two beads each of nine USGS standards (PCC-1, BCR-1, BIR-1, DNC-1, W-2, AGV-1, GSP-1, G-2, and STM -1), using the values recommended by [Govindaraju \(1994\)](#). Two beads of pure vein quartz were used as blanks for all elements except Si. The intensities for all elements are corrected automatically for line interference and absorption effects due to all the other elements

using the fundamental parameter method. For the determination of rare earth element concentrations, sample powders were fused in a muffle furnace and digested in acid solution with HNO₃, HF, and HClO₄ at 110° C. Solutions were analyzed on an Agilent model 4500 ICP-MS and were diluted by an additional factor 10 at the time of analysis using Agilent's Integrated Sample Introduction System (ISIS).

Zircon separation and extraction

Zircon was extracted and separated by Zirchron LLC, Tucson AZ. Each sample was individually unpacked, and pressure washed with water to remove any debris and/or foreign material. Sample rock fragments were placed in the sample chamber of an Electro Pulse Disaggregator (EPD, Marx generator), and then electrical pulses were applied at 1 Hz repetition and discharges of ~220 kV for 20 minutes. The sample materials that pass through a 500 µm stainless steel mesh sieve were collected in a disposable plastic bag. The coarser material remaining in the crush chamber was collected and dried. The collected material < 500 µm was sieved a second time through 350 µm and 25 µm nylon disposable mesh sieves. The fractions >350 µm were added to the 500 µm material and the material smaller than 25 µm was discarded. The material sized between 350 µm and 25 µm was then processed using traditional methods using the Wilfley water table, Frantz paramagnetic separator, and two step (3.00 g/cc and 3.32 g/cc) heavy liquid MEI separations.

U-Pb geochronology

The U-Pb ages and concentrations were measured using laser ablation ICP-MS at the Radiogenic Isotope and Geochronology Lab (RIGL) at Washington State University. An Analyte G2 193nm excimer laser was connected to the Element2 high resolution inductively coupled plasma mass spectrometer. The laser parameters include a 35 µm spot size, 10Hz repetition rate

~5.5 J/cm² power. For the U-Pb measurement, we mostly followed the method of Chang et al. (2006), except for the use of the 193nm laser instead of the 213nm laser. A 30-second blank measurement of He and Ar carrier gasses (laser off) before each analysis was used to measure background, followed by 250 scans across masses ²⁰²Hg, ²⁰⁴Pb+Hg, ²⁰⁶Pb, ²⁰⁷Pb, ²⁰⁸Pb, ²³²Th, ²³⁵U, and ²³⁸U during ~30 seconds laser ablation period. Data were processed offline using the Iolite software (Paton et al., 2011). The zircon standards used were Plešovice (337 Ma; Sláma et al., 2008) and FC1 (1099 Ma; Paces and Miller, 1993). The ²⁰⁶Pb/²³⁸U ratios of unknown analyses are corrected using Plešovice, and ²⁰⁷Pb/²⁰⁶Pb ratios were corrected using FC1. Zircon 91500 (1065 Ma; Wiedenbeck et al., 1995) and Temora 2 (417 Ma; Black et al., 2004) were used as quality control standards. Common Pb correction was performed using the ²⁰⁷Pb method (Williams 1998). Plots and uranium-lead ages were calculated using Isoplot (Ludwig, 2012).

Hf isotope analyses

Following the U-Pb age determinations, the Lu-Hf isotope composition of zircon crystals was also determined at the RIGL at Washington State University. Analyses were conducted using a ThermoFinnigan Neptune mass spectrometer coupled to an Analyte G2 193nm excimer laser, using a spot size of 35 μm, a laser fluence of ~5.5 J/cm², and repetition rate of 10 Hz. This study used the same instrument configuration, operating parameters, and data reduction methods discussed by Fisher et al. (2014a), with the exception that U-Pb ages were not simultaneously determined. In this “dedicated Hf” method, the output from the ablation cell was mixed with N₂ gas and delivered directly to the Neptune MC-ICPMS. To reduce inter-laboratory bias, the Plešovice zircon standard (¹⁷⁶Hf/¹⁷⁷Hf = 0.282482 ± 13, Sláma et al., 2008) was regularly analyzed between sample blocks and used to correct the measured ¹⁷⁶Hf/¹⁷⁷Hf of unknowns. Given the potentially large range of (Lu+Yb)/Hf in zircon samples, accurate correction for the

isobaric interference of ^{176}Yb and ^{176}Lu on ^{176}Hf is imperative and should be assessed using quality control zircons interspersed with samples (Fisher et al., 2014b). Over the course of this session, four analyses of the FC-1 zircon ($^{176}\text{Hf}/^{177}\text{Hf} = 0.282184 \pm 16$, Woodhead & Hergt, 2005) yielded a $^{176}\text{Hf}/^{177}\text{Hf}$ of 0.282191 ± 28 (2SD), three analyses of the Temora-2 zircon ($^{176}\text{Hf}/^{177}\text{Hf} = 0.282686 \pm 8$, Woodhead & Hergt, 2005) yielded a $^{176}\text{Hf}/^{177}\text{Hf}$ of 0.282676 ± 26 (2SD), and five analyses of the 91500 zircon (S-MC-ICPMS $^{176}\text{Hf}/^{177}\text{Hf} = 0.282306 \pm 8$, Blichert-Toft, 2008) yielded a $^{176}\text{Hf}/^{177}\text{Hf}$ of 0.282309 ± 33 (2SD). Analyses of these quality control zircons agree well with published S-MC-ICPMS isotope compositions of purified Hf from these zircons, attesting to the accuracy of the interference correction methods employed.

Internal 2-sigma precision was typically ~ 1.1 ϵHf . Analyses with less than 25 ratios, and/or internal 2-sigma uncertainty over 2 ϵHf units were discarded and not presented here. Present day ϵHf values were calculated using the CHUR parameters reported by Bouvier et al. (2008). Laser ϵHf values are reported with 2SE uncertainty in Table DR3.

Electron microprobe analysis

The major element concentrations of hornblende and pyroxene were determined using a JEOL JXA-8530F Field Emission Gun (FEG) probe microanalyzer (EPMA) at the Yale Electron Microprobe and SEM Laboratory, Department of Earth and Planetary Sciences, Yale University. Quantitative mineral analyses were obtained using wavelength-dispersive spectroscopy (WDS) using natural and synthetic standards and off-peak background corrections. Operating conditions were: accelerating voltage 15 kV; beam current 15 nA; focused beam. See Ague et al. (2013) for additional discussion.

SECTION DR3. FRACTIONAL CRYSTALLIZATION-ASSIMILATION MODELLING

We provide a simple geochemical model to test the potential genetic relationships between the targeted suite of mafic/ultramafic cumulate rocks and the Acadian silicic to intermediate magmatism of New England via fractional crystallization-assimilation processes. We adopted the approach of Jagoutz (2010), Bucholz et al. (2014), and Walker et al. (2015). This approach is based on progressively subtracting measured cumulate compositions initially from a starting parental melt and subsequently from the derived magma compositions, where the cumulate composition is changed in each step.

In view of our zircon $\epsilon\text{Hf}_{(t)}$ data, we know that some crustal assimilation occurred during the magmatic evolution of the studied system. In this case, as seen in the Kohistan arc section (Jagoutz, 2010), the start of assimilation processes seems to coincide with the onset of plagioclase crystallization in the orthopyroxenites/norites. For this reason, we incorporate an assimilation stage in the model after the initial fractionation of the most primitive olivine-orthopyroxene hornblendites (Table DR7). We assumed a basaltic andesitic parental melt composition with an Mg# in equilibrium with measured hornblende compositions. The composition is defined as an average primitive basaltic andesite from continental arc settings obtained from the GEOROC database. This starting composition is consistent with amphibole compositions indicating that the parental melt was not a basaltic melt in equilibrium with a mantle assemblage. We used the composition of spatially associated granitic rocks of ~450 Ma for the composition of the assimilated material (see Table DR7). The mass-balance equation used to calculate the concentration for any given element at each step is:

$$D = (M - XC)/(1 - X)$$

where D is the elemental concentration in the derivative magma, M is the elemental concentration in the starting magma, C is the elemental concentration of the cumulate

196 fractionated at each step, and X is the fraction of cumulate removed. Results are summarized in
197 [Table DR7](#).

TABLE DR1. WHOLE-ROCK COMPOSITIONS.

Sample ID	36A	36B	96A	98A	99A	103A	104A	108A	109A	116A	117A	154A	158A	J158A	160AC	160AV	262A	78A	83AC
Rock type	A	A	B	B	B	B	B	B	B	A	A	A	A	A	A	E	A	D	D
Unnormalized Major Elements (Weight %):																			
SiO ₂	46.80	46.71	45.21	44.60	46.19	45.02	45.88	46.20	44.80	42.31	49.76	44.25	42.28	41.40	46.09	42.57	45.38	50.19	46.43
TiO ₂	0.79	0.75	1.07	1.01	1.03	1.06	1.04	1.07	1.01	0.36	0.57	0.42	0.35	0.35	0.41	0.08	0.40	0.99	0.82
Al ₂ O ₃	9.22	9.84	8.77	8.38	8.58	8.93	8.86	9.25	8.49	5.96	8.42	6.51	5.60	5.69	6.73	28.06	6.97	10.25	16.02
FeO*	10.43	9.81	10.63	10.88	10.40	10.72	10.73	10.32	10.56	16.88	12.10	14.27	16.55	16.45	15.25	5.39	14.42	8.30	10.48
MnO	0.18	0.28	0.19	0.20	0.17	0.20	0.20	0.19	0.19	0.16	0.16	0.12	0.16	0.15	0.17	0.06	0.16	0.17	0.24
MgO	23.72	19.94	22.55	24.42	21.28	22.22	22.37	21.39	23.25	28.08	20.38	26.42	28.21	28.00	25.21	4.41	25.72	11.83	13.97
CaO	5.40	5.33	6.10	5.70	6.65	5.95	5.81	6.15	5.64	2.86	5.34	2.67	2.97	2.89	1.41	14.65	3.33	14.00	6.62
Na ₂ O	1.29	0.60	0.64	0.66	0.36	0.68	0.67	0.64	0.67	0.57	0.45	0.42	0.58	0.58	0.37	1.23	0.74	1.30	1.17
K ₂ O	0.78	3.76	2.34	2.44	3.69	2.57	2.51	2.66	2.30	0.50	0.77	1.52	0.43	0.51	1.88	0.24	0.79	1.29	2.69
P ₂ O ₅	0.09	0.13	0.31	0.30	0.29	0.31	0.31	0.32	0.30	0.08	0.10	0.07	0.07	0.07	0.09	0.02	0.09	0.18	0.15
Sum	98.69	97.16	97.80	98.58	98.64	97.67	98.37	98.19	97.21	97.76	98.04	96.66	97.21	96.09	97.62	96.70	98.00	98.50	98.58
LOI %	0.95	2.15	1.64	0.69	0.93	1.57	1.10	1.25	1.99	1.43	1.05	2.46	1.95	1.51	1.58	2.16	1.44	1.00	0.68
Dy/Yb	2.15	2.15	2.19	2.25	2.27	2.14	2.20	2.20	2.21	1.96	2.27	2.43	1.99	-	2.01	2.04	2.10	2.45	1.95
Mg#	80.21	78.36	79.09	80.00	78.48	78.70	78.79	78.70	79.69	74.78	75.01	76.75	75.24	75.21	74.66	59.34	76.07	71.75	70.38
Normalized Major Elements (Weight %):																			
SiO ₂	47.42	48.07	46.23	45.24	46.83	46.10	46.64	47.05	46.08	43.28	50.75	45.77	43.49	43.07	47.21	44.03	46.31	50.95	47.10
TiO ₂	0.80	0.77	1.10	1.02	1.04	1.08	1.06	1.09	1.04	0.37	0.58	0.43	0.36	0.35	0.42	0.08	0.40	1.00	0.83
Al ₂ O ₃	9.35	10.13	8.96	8.50	8.69	9.15	9.00	9.42	8.73	6.09	8.59	6.74	5.76	5.91	6.89	29.02	7.11	10.40	16.25
FeO*	10.57	10.10	10.87	11.04	10.55	10.98	10.91	10.51	10.86	17.27	12.34	14.76	17.03	17.12	15.62	5.57	14.71	8.43	10.63
MnO	0.18	0.29	0.19	0.20	0.17	0.21	0.20	0.20	0.20	0.16	0.16	0.13	0.17	0.16	0.18	0.06	0.17	0.18	0.24
MgO	24.03	20.52	23.05	24.78	21.57	22.75	22.74	21.78	23.91	28.72	20.78	27.34	29.02	29.14	25.83	4.56	26.24	12.01	14.17
CaO	5.47	5.49	6.24	5.78	6.74	6.09	5.90	6.26	5.81	2.93	5.45	2.76	3.05	3.00	1.45	15.15	3.40	14.21	6.71
Na ₂ O	1.31	0.62	0.66	0.67	0.37	0.70	0.68	0.65	0.68	0.59	0.45	0.43	0.60	0.60	0.38	1.27	0.76	1.32	1.19
K ₂ O	0.79	3.87	2.39	2.47	3.74	2.63	2.55	2.70	2.37	0.51	0.79	1.57	0.44	0.53	1.92	0.25	0.80	1.31	2.73
P ₂ O ₅	0.09	0.13	0.31	0.30	0.29	0.32	0.32	0.33	0.31	0.08	0.10	0.07	0.08	0.07	0.09	0.02	0.09	0.18	0.15
Total	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

FeO* refers to total Fe

LOI: Loss on Ignition

The major element composition is normalized on a volatile-free basis with total Fe expressed as FeO

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TABLE DR1 (CONTINUED). WHOLE-ROCK COMPOSITIONS.

Sample ID Rock type	83AV E	83B D	105AC B	105AV E	85A F	85B F	85C F	J120A C	2-2 C	380 C	293A C	62A D	57A D	91A D	64A1 D	90A D	90B D	377A D	378A D
Unnormalized Major Elements (Weight %):																			
SiO ₂	50.17	45.27	45.97	50.68	49.24	45.67	45.01	52.20	52.60	52.98	53.44	50.54	51.74	50.47	47.27	47.48	49.70	48.17	47.04
TiO ₂	0.14	0.79	1.06	0.47	0.69	0.74	0.80	0.51	0.11	0.56	0.59	0.92	0.61	1.24	1.71	1.84	0.98	1.72	1.85
Al ₂ O ₃	3.03	16.28	8.77	4.88	15.96	16.29	15.57	8.40	7.07	8.05	10.09	8.16	12.28	14.59	19.08	19.22	18.37	19.10	18.07
FeO*	14.74	9.91	10.56	10.18	7.15	9.93	10.17	10.52	8.98	11.34	10.53	10.66	9.02	10.17	10.11	12.54	7.73	10.98	12.02
MnO	0.44	0.24	0.19	0.24	0.16	0.22	0.24	0.17	0.17	0.17	0.16	0.25	0.23	0.23	0.17	0.22	0.14	0.15	0.17
MgO	17.20	13.37	22.06	20.46	12.31	13.91	13.85	19.40	25.45	20.36	18.18	20.39	11.25	7.92	7.27	5.04	7.60	5.67	6.56
CaO	9.86	9.09	5.40	9.52	9.79	8.69	8.40	5.26	2.84	4.53	4.70	6.08	10.28	11.40	10.19	8.11	11.13	9.66	9.73
Na ₂ O	0.71	1.73	0.59	0.40	2.23	2.22	1.67	0.49	0.32	0.49	0.52	0.34	1.97	1.98	1.63	2.91	2.45	2.28	1.97
K ₂ O	0.05	2.15	2.61	0.71	0.63	0.61	2.57	0.94	0.86	0.91	1.05	1.75	1.30	0.61	1.73	1.53	0.75	1.60	1.63
P ₂ O ₅	2.85	0.14	0.31	0.09	0.10	0.11	0.15	0.06	0.11	0.05	0.13	0.24	0.09	0.23	0.03	0.05	0.04	0.06	0.04
Sum	99.19	98.97	97.51	97.64	98.27	98.40	98.42	97.95	98.50	99.44	99.39	99.33	98.79	98.83	99.19	98.95	98.88	99.38	99.07
LOI %	0.16	0.57	1.93	1.93	1.46	1.13	1.12	0.77	0.79	0.00	0.13	0.10	0.82	0.74	0.27	0.58	0.69	0.13	0.66
Dy/Yb	3.47	2.05	2.30	2.88	2.18	2.07	2.02	-	1.72	2.43	1.96	2.25	2.05	2.16	1.83	1.65	2.06	1.95	2.06
Mg#	67.54	70.62	78.84	78.19	75.41	71.41	70.83	76.67	83.48	76.19	75.47	77.31	68.98	58.11	56.17	41.76	63.68	47.92	49.31
Normalized Major Elements (Weight %):																			
SiO ₂	50.58	45.74	47.15	51.90	50.11	46.41	45.73	53.28	53.40	53.27	53.77	50.88	52.38	51.07	47.66	47.99	50.26	48.47	47.48
TiO ₂	0.14	0.80	1.08	0.48	0.71	0.75	0.81	0.51	0.12	0.56	0.60	0.93	0.62	1.25	1.72	1.86	1.00	1.73	1.87
Al ₂ O ₃	3.06	16.45	8.99	5.00	16.24	16.55	15.82	8.58	7.17	8.09	10.16	8.21	12.43	14.76	19.24	19.42	18.58	19.22	18.24
FeO*	14.86	10.01	10.83	10.42	7.28	10.09	10.33	10.74	9.11	11.40	10.59	10.74	9.13	10.29	10.19	12.68	7.81	11.04	12.13
MnO	0.44	0.24	0.20	0.25	0.16	0.23	0.25	0.16	0.17	0.18	0.16	0.26	0.23	0.23	0.18	0.22	0.14	0.15	0.17
MgO	17.34	13.50	22.62	20.96	12.53	14.14	14.07	19.81	25.83	20.47	18.29	20.53	11.39	8.01	7.33	5.10	7.69	5.70	6.62
CaO	9.94	9.18	5.54	9.75	9.96	8.84	8.54	5.36	2.88	4.56	4.73	6.12	10.41	11.54	10.27	8.20	11.25	9.72	9.82
Na ₂ O	0.71	1.75	0.60	0.41	2.27	2.26	1.69	0.50	0.32	0.50	0.53	0.34	1.99	2.00	1.64	2.95	2.48	2.29	1.99
K ₂ O	0.05	2.17	2.67	0.72	0.64	0.62	2.61	0.96	0.87	0.91	1.05	1.76	1.32	0.62	1.74	1.54	0.76	1.61	1.64
P ₂ O ₅	2.88	0.14	0.32	0.09	0.10	0.11	0.15	0.06	0.11	0.05	0.13	0.24	0.09	0.24	0.03	0.05	0.04	0.06	0.04
Total	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

FeO* refers to total Fe

LOI: Loss on Ignition

The major element composition is normalized on a volatile-free basis with total Fe expressed as FeO

TABLE DR2. ZIRCON U-Pb DATA (OI-Py-Hornblendite)

		Isotopic Ratios									AGES (Ma)								
U (ppm)	U/Th	²⁰⁷ Pb / ²³⁵ U	2σ Abs Error	²⁰⁶ Pb / ²³⁸ U	2σ	Corr. Coef	²³⁸ U / ²⁰⁶ Pb	2σ	²⁰⁷ Pb / ²⁰⁶ Pb	2σ	²⁰⁷ Pb / ²³⁵ U	2σ	²⁰⁶ Pb / ²³⁸ U	2σ	²⁰⁷ Pb / ²⁰⁶ Pb	2σ	Best Age	2σ	
462	2.0	0.4868	0.0340	0.0633	0.0042	0.7040	15.7729	1.0449	0.0558	0.0034	403.0	23.0	395.7	25.8	320.0	120.0	395.7	25.8	
1690	1.3	0.5151	0.0340	0.0665	0.0040	0.7087	15.0150	0.9018	0.0562	0.0031	422.1	23.0	415.1	24.5	340.0	110.0	415.1	24.5	
2670	1.0	0.5219	0.0330	0.0663	0.0038	0.7347	15.0376	0.8593	0.0571	0.0029	426.7	22.0	414.0	23.3	390.0	100.0	414.0	23.3	
346	1.8	0.4830	0.0280	0.0665	0.0028	0.5719	15.0830	0.6370	0.0527	0.0024	400.4	19.0	415.0	17.2	300.0	100.0	415.0	17.2	
893	1.0	0.5132	0.0300	0.0669	0.0032	0.7633	14.9477	0.7150	0.0557	0.0024	420.8	20.0	417.2	19.6	380.0	91.0	417.2	19.6	
1172	1.2	0.4916	0.0220	0.0653	0.0025	0.7516	15.3139	0.5863	0.0546	0.0018	406.2	14.0	407.9	15.4	349.0	71.0	407.9	15.4	
366	4.4	0.4320	0.0250	0.0567	0.0026	0.6276	17.6056	0.8059	0.0553	0.0027	364.8	18.0	355.4	16.0	360.0	100.0	355.4	16.0	
457	4.2	0.4152	0.0220	0.0574	0.0025	0.6724	17.4520	0.7614	0.0525	0.0023	352.9	16.0	359.7	15.5	247.0	90.0	359.7	15.5	
248	3.8	0.4647	0.0240	0.0624	0.0022	0.5739	16.0256	0.5650	0.0540	0.0024	387.7	16.0	390.4	13.6	323.0	92.0	390.4	13.6	
318	3.0	0.5214	0.0230	0.0692	0.0022	0.6527	14.4718	0.4608	0.0547	0.0019	426.4	15.0	431.1	13.5	359.0	74.0	431.1	13.5	
1800	1.1	0.4985	0.0190	0.0661	0.0020	0.6671	15.1286	0.4577	0.0547	0.0016	410.9	13.0	412.8	12.3	366.0	64.0	412.8	12.3	
2620	0.9	0.4911	0.0190	0.0648	0.0020	0.6935	15.4321	0.4763	0.0550	0.0017	405.9	13.0	404.7	12.3	375.0	66.0	404.7	12.3	
950	1.0	0.4890	0.0230	0.0640	0.0024	0.7132	15.6006	0.5841	0.0554	0.0020	404.5	15.0	400.2	14.7	380.0	76.0	400.2	14.7	
197	3.6	0.4253	0.0250	0.0563	0.0021	0.5053	17.7305	0.6602	0.0548	0.0028	360.0	17.0	353.2	13.0	320.0	100.0	353.2	13.0	
304	2.8	0.4720	0.0300	0.0617	0.0029	0.7155	16.1812	0.7593	0.0555	0.0027	392.8	20.0	386.0	17.8	380.0	100.0	386.0	17.8	
631	1.1	0.4964	0.0260	0.0655	0.0029	0.7266	15.2672	0.6760	0.0550	0.0021	409.5	17.0	408.9	17.8	362.0	83.0	408.9	17.8	
404	3.7	0.3854	0.0160	0.0537	0.0015	0.5326	18.6567	0.5221	0.0521	0.0020	331.2	12.0	337.0	9.3	241.0	79.0	337.0	9.3	
359	3.6	0.4025	0.0170	0.0534	0.0017	0.5241	18.6916	0.5939	0.0547	0.0021	343.7	12.0	335.3	10.5	340.0	84.0	335.3	10.5	
190	2.8	0.4743	0.0310	0.0641	0.0029	0.5665	15.6250	0.7080	0.0537	0.0031	394.4	21.0	400.4	17.9	260.0	120.0	400.4	17.9	
361	3.1	0.4420	0.0220	0.0599	0.0023	0.6828	16.6945	0.6410	0.0535	0.0021	371.9	15.0	375.3	14.2	293.0	84.0	375.3	14.2	
373	2.5	0.4604	0.0270	0.0598	0.0026	0.6819	16.6945	0.7246	0.0559	0.0027	384.8	19.0	374.2	16.0	360.0	100.0	374.2	16.0	
477	2.3	0.3871	0.0170	0.0528	0.0017	0.6309	18.9394	0.6098	0.0532	0.0019	332.4	12.0	331.6	10.5	300.0	76.0	331.6	10.5	
101	1.2	0.4873	0.0230	0.0631	0.0007	0.1699	15.8103	0.1700	0.0560	0.0026	403.3	15.0	394.7	4.4	379.0	97.0	394.7	4.4	
221	1.1	0.5043	0.0210	0.0648	0.0007	0.1291	15.4083	0.1686	0.0565	0.0025	414.8	14.0	404.5	4.5	385.0	93.0	404.5	4.5	
319	0.9	0.5006	0.0230	0.0651	0.0007	0.1374	15.3421	0.1554	0.0558	0.0025	412.4	15.0	406.6	4.2	355.0	93.0	406.6	4.2	
51	1.7	0.4102	0.0150	0.0546	0.0007	0.0103	18.2849	0.2340	0.0545	0.0022	349.2	11.0	342.7	4.4	321.0	85.0	342.7	4.4	
121	1.0	0.4815	0.0210	0.0621	0.0008	0.1116	16.0746	0.2093	0.0563	0.0026	399.4	14.0	388.1	5.1	371.0	94.0	388.1	5.1	
134	1.2	0.4651	0.0150	0.0615	0.0007	0.1542	16.2575	0.1877	0.0549	0.0018	388.0	10.0	384.5	4.4	354.0	70.0	384.5	4.4	
39	3.3	0.4790	0.0240	0.0625	0.0013	0.3501	15.9744	0.3317	0.0556	0.0026	397.6	16.0	390.9	8.1	366.0	95.0	390.9	8.1	
47	3.5	0.4641	0.0200	0.0618	0.0011	0.4170	16.1812	0.2880	0.0545	0.0022	387.3	14.0	386.5	6.8	333.0	84.0	386.5	6.8	
67	1.1	0.5114	0.0180	0.0657	0.0007	0.0315	15.1953	0.1570	0.0565	0.0021	419.7	12.0	410.1	4.3	405.0	77.0	410.1	4.3	
37	1.3	0.5218	0.0200	0.0683	0.0008	0.0934	14.6306	0.1691	0.0554	0.0022	426.6	13.0	426.2	5.0	372.0	83.0	426.2	5.0	
163	1.0	0.4854	0.0120	0.0640	0.0006	0.1387	15.6104	0.1365	0.0550	0.0014	402.0	8.2	400.1	3.5	378.0	55.0	400.1	3.5	
38	4.0	0.4017	0.0150	0.0539	0.0007	0.1045	18.5391	0.2268	0.0541	0.0020	343.1	11.0	338.3	4.2	314.0	79.0	338.3	4.2	
117	1.0	0.4843	0.0180	0.0635	0.0006	0.0039	15.7233	0.1582	0.0553	0.0021	401.3	12.0	397.1	4.1	357.0	80.0	397.1	4.1	
51	1.6	0.4417	0.0140	0.0584	0.0008	0.1225	17.1086	0.2225	0.0549	0.0019	371.6	10.0	365.7	4.8	353.0	72.0	365.7	4.8	

TABLE DR2. ZIRCON U-Pb DATA (OI-Py-Hornblendite)

Isotopic Ratios																			AGES (Ma)							
U (ppm)	U/Th	²⁰⁷ Pb / ²³⁵ U	2σ Abs Error	²⁰⁶ Pb / ²³⁸ U	2σ	Corr. Coef	²³⁸ U / ²⁰⁶ Pb	2σ	²⁰⁷ Pb / ²⁰⁶ Pb	2σ	²⁰⁷ Pb / ²³⁵ U	2σ	²⁰⁶ Pb / ²³⁸ U	2σ	²⁰⁷ Pb / ²⁰⁶ Pb	2σ	Best Age	2σ								
116	0.7	0.4832	0.0220	0.0627	0.0007	0.1137	15.9160	0.1849	0.0559	0.0025	400.5	15.0	392.1	4.6	393.0	96.0	392.1	4.6								
63	1.2	0.4876	0.0210	0.0633	0.0008	0.1197	15.7729	0.2015	0.0559	0.0024	403.5	14.0	395.6	5.1	372.0	89.0	395.6	5.1								
41	3.6	0.3962	0.0130	0.0535	0.0006	0.0563	18.6672	0.1917	0.0537	0.0019	339.1	9.4	336.2	3.5	309.0	73.0	336.2	3.5								
35	4.0	0.3884	0.0110	0.0527	0.0005	0.0001	18.9717	0.1872	0.0535	0.0016	333.4	8.1	331.0	3.3	308.0	65.0	331.0	3.3								
82	4.6	0.4467	0.0360	0.0570	0.0014	0.2629	17.4825	0.4279	0.0569	0.0045	375.2	25.0	357.1	8.8	390.0	170.0	357.1	8.8								
107	1.0	0.4942	0.0200	0.0642	0.0008	0.1623	15.5642	0.1817	0.0559	0.0023	408.0	14.0	400.8	4.7	380.0	85.0	400.8	4.7								
82	1.4	0.4885	0.0150	0.0640	0.0006	0.0007	15.6152	0.1536	0.0554	0.0018	404.1	10.0	399.8	4.0	373.0	70.0	399.8	4.0								
62	2.5	0.3887	0.0160	0.0525	0.0005	0.0009	19.0223	0.1954	0.0537	0.0023	333.6	11.0	330.0	3.5	302.0	88.0	330.0	3.5								
84	1.8	0.4218	0.0130	0.0573	0.0006	0.0702	17.4551	0.1798	0.0534	0.0017	357.6	9.1	359.3	3.7	305.0	67.0	359.3	3.7								
41	5.3	0.4700	0.0170	0.0622	0.0009	0.2541	16.0617	0.2373	0.0548	0.0019	391.4	11.0	389.2	5.7	359.0	74.0	389.2	5.7								
107	1.9	0.4726	0.0240	0.0625	0.0013	0.2386	16.0000	0.3328	0.0549	0.0027	393.2	16.0	390.6	8.1	360.0	110.0	390.6	8.1								
138	0.8	0.4882	0.0130	0.0651	0.0007	0.2154	15.3657	0.1582	0.0544	0.0014	403.9	8.7	406.7	4.2	359.0	56.0	406.7	4.2								
19	3.4	0.4355	0.0160	0.0587	0.0008	0.1083	17.0300	0.2378	0.0538	0.0020	367.3	11.0	367.9	5.1	322.0	81.0	367.9	5.1								
83	1.0	0.4961	0.0160	0.0656	0.0008	0.2693	15.2509	0.1907	0.0549	0.0017	409.3	11.0	409.4	5.1	377.0	69.0	409.4	5.1								
40	2.6	0.4381	0.0220	0.0575	0.0011	0.1092	17.3611	0.3315	0.0553	0.0028	369.1	15.0	360.3	6.9	370.0	110.0	360.3	6.9								
175	0.6	0.4955	0.0170	0.0647	0.0007	0.0648	15.4488	0.1671	0.0556	0.0021	408.9	11.0	403.9	4.4	376.0	79.0	403.9	4.4								
125	0.9	0.4689	0.0160	0.0623	0.0006	0.0840	16.0462	0.1648	0.0546	0.0019	390.6	11.0	389.6	4.0	345.0	73.0	389.6	4.0								
45	2.8	0.4120	0.0240	0.0548	0.0009	0.0917	18.2050	0.3115	0.0545	0.0034	350.5	17.0	344.2	6.0	330.0	130.0	344.2	6.0								
184	0.8	0.4883	0.0140	0.0647	0.0006	0.0629	15.4655	0.1483	0.0548	0.0016	404.0	9.2	403.9	3.9	363.0	63.0	403.9	3.9								
27	2.4	0.4122	0.0130	0.0566	0.0007	0.1239	17.6741	0.2187	0.0528	0.0018	350.6	9.5	355.2	4.4	279.0	71.0	355.2	4.4								
74	1.3	0.4175	0.0110	0.0568	0.0005	0.1359	17.6025	0.1580	0.0533	0.0015	354.5	8.0	356.4	3.2	305.0	59.0	356.4	3.2								
113	1.4	0.4558	0.0390	0.0575	0.0016	0.3015	17.3010	0.4789	0.0575	0.0047	381.6	27.0	360.5	10.0	440.0	180.0	360.5	10.0								
37	3.1	0.4270	0.0170	0.0566	0.0008	0.2291	17.6305	0.2487	0.0547	0.0020	361.3	12.0	355.2	5.0	357.0	80.0	355.2	5.0								
116	0.9	0.4773	0.0150	0.0627	0.0006	0.1740	15.9236	0.1521	0.0552	0.0017	396.5	10.0	392.3	3.8	372.0	66.0	392.3	3.8								
106	1.0	0.4988	0.0150	0.0653	0.0008	0.1397	15.2975	0.1755	0.0554	0.0018	411.1	10.0	407.9	4.7	380.0	69.0	407.9	4.7								
23	4.3	0.4356	0.0170	0.0593	0.0009	0.0573	16.8776	0.2478	0.0533	0.0023	367.4	12.0	371.4	5.5	300.0	90.0	371.4	5.5								
121	1.0	0.4781	0.0170	0.0627	0.0007	0.1389	15.9261	0.1775	0.0553	0.0019	397.0	11.0	392.2	4.4	372.0	75.0	392.2	4.4								
72	1.0	0.4742	0.0140	0.0624	0.0007	0.1419	16.0000	0.1818	0.0551	0.0017	394.3	10.0	390.5	4.4	370.0	68.0	390.5	4.4								
124	0.8	0.4808	0.0170	0.0632	0.0006	0.0991	15.8103	0.1500	0.0552	0.0020	398.9	11.0	395.1	3.8	362.0	75.0	395.1	3.8								
94	0.9	0.4899	0.0200	0.0630	0.0007	0.0212	15.8278	0.1653	0.0564	0.0023	405.1	13.0	394.0	4.2	397.0	86.0	394.0	4.2								
42	1.6	0.5090	0.0290	0.0678	0.0014	0.1390	14.7711	0.3055	0.0545	0.0031	418.0	19.0	422.7	8.7	340.0	120.0	422.7	8.7								
81	1.1	0.4708	0.0150	0.0621	0.0005	0.0228	16.0875	0.1398	0.0550	0.0018	392.0	10.0	388.5	3.4	369.0	68.0	388.5	3.4								
100	0.9	0.4822	0.0170	0.0630	0.0007	0.0260	15.8428	0.1707	0.0555	0.0020	399.8	11.0	394.1	4.3	371.0	78.0	394.1	4.3								
32	3.7	0.4134	0.0370	0.0540	0.0015	0.0332	18.4502	0.5106	0.0555	0.0054	351.5	26.0	339.3	9.5	350.0	200.0	339.3	9.5								
153	0.8	0.4822	0.0250	0.0632	0.0008	0.0808	15.8178	0.2002	0.0554	0.0030	399.8	17.0	394.8	5.1	360.0	110.0	394.8	5.1								
88	1.3	0.4957	0.0200	0.0639	0.0008	0.0325	15.6201	0.1976	0.0563	0.0024	409.0	14.0	399.2	5.1	397.0	88.0	399.2	5.1								

TABLE DR2. ZIRCON U-Pb DATA (OI-Py-Hornblendite)

U (ppm)	U/Th	Isotopic Ratios										AGES (Ma)						
		$^{207}\text{Pb} / ^{235}\text{U}$	2 σ Abs Error	$^{206}\text{Pb} / ^{238}\text{U}$	2 σ	Corr. Coef	$^{238}\text{U} / ^{206}\text{Pb}$	2 σ	$^{207}\text{Pb} / ^{206}\text{Pb}$	2 σ	$^{207}\text{Pb} / ^{235}\text{U}$	2 σ	$^{206}\text{Pb} / ^{238}\text{U}$	2 σ	$^{207}\text{Pb} / ^{206}\text{Pb}$	2 σ	Best Age	2 σ
44	4.8	0.4038	0.0170	0.0558	0.0009	0.1121	17.9404	0.2929	0.0525	0.0024	344.6	12.0	350.1	5.7	275.0	97.0	350.1	5.7
33	1.7	0.5061	0.0210	0.0662	0.0009	0.0895	15.1035	0.2076	0.0555	0.0025	416.1	14.0	413.0	5.7	347.0	91.0	413.0	5.7
107	0.9	0.4919	0.0210	0.0640	0.0008	0.1090	15.6128	0.1901	0.0558	0.0024	406.4	14.0	399.7	4.9	380.0	91.0	399.7	4.9
194	1.1	0.5066	0.0270	0.0655	0.0010	0.0325	15.2393	0.2299	0.0561	0.0031	416.4	18.0	409.1	6.3	390.0	120.0	409.1	6.3
148	0.9	0.4981	0.0200	0.0650	0.0008	0.0828	15.3681	0.1842	0.0556	0.0024	410.7	14.0	406.0	4.9	363.0	88.0	406.0	4.9
66	2.1	0.3969	0.0120	0.0534	0.0006	0.0628	18.6986	0.1993	0.0539	0.0018	339.6	9.0	335.5	3.6	321.0	70.0	335.5	3.6
55	1.3	0.4761	0.0260	0.0622	0.0010	0.0131	16.0436	0.2445	0.0555	0.0032	395.6	18.0	389.3	6.0	380.0	120.0	389.3	6.0
29	3.6	0.4190	0.0260	0.0553	0.0010	0.2264	18.0538	0.3162	0.0550	0.0031	355.6	18.0	346.8	6.1	370.0	120.0	346.8	6.1
29	4.2	0.4468	0.0190	0.0617	0.0010	0.0076	16.2338	0.2635	0.0525	0.0025	375.2	13.0	386.2	6.3	259.0	98.0	386.2	6.3
31	3.5	0.3748	0.0210	0.0513	0.0009	0.0649	19.4856	0.3417	0.0530	0.0030	323.4	15.0	322.6	5.7	290.0	120.0	322.6	5.7
53	1.8	0.4765	0.0300	0.0628	0.0014	0.3189	15.9236	0.3550	0.0551	0.0033	395.9	21.0	392.3	8.7	360.0	130.0	392.3	8.7
51	4.0	0.4721	0.0340	0.0609	0.0013	0.2579	16.3666	0.3482	0.0562	0.0039	392.8	23.0	381.4	8.2	350.0	140.0	381.4	8.2
100	1.3	0.5023	0.0170	0.0654	0.0008	0.1498	15.2672	0.1841	0.0557	0.0019	413.5	11.0	408.6	4.9	388.0	72.0	408.6	4.9
97	1.8	0.5016	0.0140	0.0659	0.0009	0.3004	15.1630	0.1954	0.0552	0.0015	413.0	9.6	411.6	5.3	386.0	61.0	411.6	5.3
160	1.0	0.4938	0.0150	0.0642	0.0008	0.1493	15.5521	0.1983	0.0558	0.0017	407.7	10.0	401.2	5.1	399.0	67.0	401.2	5.1
89	1.7	0.5061	0.0170	0.0659	0.0009	0.2553	15.1538	0.1998	0.0557	0.0018	416.1	11.0	411.6	5.4	392.0	71.0	411.6	5.4
27	3.9	0.4125	0.0160	0.0543	0.0007	0.3134	18.3655	0.2361	0.0551	0.0020	350.9	11.0	341.0	4.4	366.0	77.0	341.0	4.4
127	1.3	0.4900	0.0150	0.0648	0.0008	0.3668	15.4393	0.1788	0.0549	0.0016	405.2	10.0	404.5	4.7	379.0	62.0	404.5	4.7
31	3.3	0.4970	0.0210	0.0638	0.0010	0.2896	15.6299	0.2394	0.0565	0.0023	409.9	15.0	398.9	6.1	444.0	92.0	398.9	6.1
176	1.1	0.5042	0.0150	0.0662	0.0008	0.3828	15.1103	0.1804	0.0553	0.0016	414.8	10.0	413.0	4.9	387.0	61.0	413.0	4.9
248	1.2	0.4936	0.0150	0.0642	0.0009	0.0295	15.5594	0.2106	0.0558	0.0019	407.6	10.0	401.0	5.4	395.0	75.0	401.0	5.4
63	1.5	0.4564	0.0160	0.0603	0.0008	0.3097	16.5618	0.2057	0.0549	0.0018	382.0	11.0	377.6	4.7	364.0	70.0	377.6	4.7
117	1.0	0.5015	0.0170	0.0645	0.0008	0.1542	15.4655	0.2009	0.0564	0.0019	413.0	11.0	403.1	5.2	421.0	75.0	403.1	5.2
113	1.1	0.4861	0.0140	0.0646	0.0008	0.2430	15.4823	0.1990	0.0546	0.0016	402.5	9.4	403.6	5.2	362.0	62.0	403.6	5.2
74	1.3	0.5040	0.0140	0.0665	0.0008	0.1858	15.0421	0.1697	0.0550	0.0016	414.6	9.5	414.9	4.7	375.0	62.0	414.9	4.7
420	0.8	0.5042	0.0210	0.0674	0.0012	0.3573	14.8588	0.2649	0.0543	0.0021	414.8	14.0	420.3	7.4	352.0	88.0	420.3	7.4
414	0.9	0.5050	0.0250	0.0665	0.0012	0.2950	15.0376	0.2714	0.0551	0.0025	415.3	16.0	415.0	7.5	370.0	100.0	415.0	7.5
122	1.2	0.5026	0.0190	0.0652	0.0009	0.1759	15.3069	0.2015	0.0559	0.0020	413.7	12.0	407.4	5.4	423.0	78.0	407.4	5.4
88	1.4	0.4904	0.0170	0.0646	0.0009	0.2356	15.4775	0.2156	0.0551	0.0019	405.5	11.0	403.4	5.6	380.0	74.0	403.4	5.6
105	1.1	0.5098	0.0190	0.0665	0.0009	0.1308	15.0195	0.1917	0.0556	0.0022	418.6	13.0	415.2	5.3	388.0	86.0	415.2	5.3
105	1.2	0.5098	0.0150	0.0664	0.0008	0.1096	15.0466	0.1721	0.0557	0.0017	418.5	10.0	414.5	4.7	401.0	66.0	414.5	4.7
63	1.6	0.4938	0.0160	0.0661	0.0009	0.1627	15.1423	0.1972	0.0542	0.0018	407.8	11.0	412.7	5.4	340.0	70.0	412.7	5.4
48	4.9	0.4133	0.0160	0.0544	0.0008	0.0566	18.3318	0.2621	0.0551	0.0022	351.5	11.0	341.6	4.9	360.0	84.0	341.6	4.9
54	2.7	0.4885	0.0160	0.0609	0.0008	0.1271	16.3345	0.2135	0.0582	0.0020	404.2	11.0	381.1	5.0	492.0	73.0	381.1	5.0
168	1.0	0.5129	0.0170	0.0669	0.0008	0.2813	14.9298	0.1850	0.0556	0.0018	420.7	11.0	417.7	5.2	384.0	69.0	417.7	5.2
72	1.6	0.5125	0.0210	0.0665	0.0010	0.2186	15.0173	0.2142	0.0559	0.0023	420.4	14.0	415.1	5.9	386.0	85.0	415.1	5.9

TABLE DR2. ZIRCON U-Pb DATA (OI-Py-Hornblendite)

Isotopic Ratios																			AGES (Ma)					
U (ppm)	U/Th	²⁰⁷ Pb / ²³⁵ U	2σ Abs Error	²⁰⁶ Pb / ²³⁸ U	2σ	Corr. Coef	²³⁸ U / ²⁰⁶ Pb	2σ	²⁰⁷ Pb / ²⁰⁶ Pb	2σ	²⁰⁷ Pb / ²³⁵ U	2σ	²⁰⁶ Pb / ²³⁸ U	2σ	²⁰⁷ Pb / ²⁰⁶ Pb	2σ	Best Age	2σ						
33	4.6	0.4165	0.0160	0.0547	0.0008	0.0877	18.2216	0.2656	0.0552	0.0022	353.8	12.0	343.6	5.0	372.0	84.0	343.6	5.0						
402	1.2	0.5185	0.0190	0.0677	0.0008	0.1344	14.7711	0.1724	0.0556	0.0021	424.4	13.0	422.1	5.0	373.0	78.0	422.1	5.0						
34	4.6	0.4034	0.0140	0.0541	0.0007	0.1277	18.4638	0.2523	0.0541	0.0019	344.3	9.9	339.7	4.6	330.0	75.0	339.7	4.6						
83	2.3	0.4205	0.0140	0.0542	0.0007	0.1599	18.3790	0.2263	0.0563	0.0019	356.6	10.0	340.2	4.2	413.0	74.0	340.2	4.2						
127	1.3	0.5040	0.0200	0.0659	0.0009	0.3631	15.1653	0.2024	0.0555	0.0020	414.7	13.0	411.4	5.5	378.0	79.0	411.4	5.5						
171	0.9	0.5050	0.0210	0.0659	0.0009	0.1924	15.1607	0.2092	0.0556	0.0022	415.4	14.0	411.5	5.7	391.0	84.0	411.5	5.7						
73	2.9	0.4433	0.0140	0.0582	0.0007	0.2283	17.1585	0.1973	0.0553	0.0018	372.8	10.0	364.5	4.2	384.0	70.0	364.5	4.2						
136	0.9	0.5278	0.0200	0.0666	0.0008	0.0892	14.9678	0.1770	0.0575	0.0022	430.6	13.0	415.7	5.0	439.0	82.0	415.7	5.0						
137	0.9	0.5073	0.0190	0.0659	0.0008	0.1378	15.1676	0.1725	0.0559	0.0021	416.9	12.0	411.1	4.7	386.0	78.0	411.1	4.7						
88	1.4	0.5200	0.0240	0.0655	0.0009	0.1012	15.2138	0.2037	0.0576	0.0027	425.4	16.0	409.0	5.6	440.0	100.0	409.0	5.6						
229	0.8	0.5116	0.0170	0.0672	0.0008	0.0711	14.8699	0.1703	0.0552	0.0018	419.8	11.0	419.6	4.8	374.0	72.0	419.6	4.8						
110	6.7	0.4271	0.0260	0.0555	0.0012	0.2599	17.9533	0.3868	0.0558	0.0033	361.3	18.0	348.4	7.5	390.0	130.0	348.4	7.5						
218	0.9	0.5086	0.0290	0.0660	0.0013	0.0369	15.1286	0.2975	0.0559	0.0033	417.8	19.0	412.2	8.1	390.0	130.0	412.2	8.1						
106	1.0	0.5117	0.0200	0.0664	0.0008	0.0625	15.0399	0.1696	0.0559	0.0022	419.8	13.0	414.5	4.7	380.0	84.0	414.5	4.7						
68	2.0	0.5105	0.0200	0.0658	0.0009	0.1625	15.1722	0.2003	0.0563	0.0023	419.1	14.0	410.8	5.5	399.0	85.0	410.8	5.5						
77	1.4	0.4412	0.0150	0.0578	0.0006	0.1823	17.2682	0.1730	0.0554	0.0018	371.3	10.0	362.2	3.7	375.0	71.0	362.2	3.7						
170	0.9	0.5004	0.0150	0.0659	0.0007	0.1844	15.1722	0.1611	0.0551	0.0017	412.2	10.0	411.4	4.4	370.0	66.0	411.4	4.4						
113	1.2	0.4741	0.0160	0.0618	0.0007	0.1634	16.1655	0.1855	0.0557	0.0019	394.2	11.0	386.3	4.5	383.0	74.0	386.3	4.5						
59	1.9	0.4454	0.0170	0.0583	0.0007	0.2404	17.1086	0.2137	0.0554	0.0021	374.3	12.0	365.5	4.6	365.0	79.0	365.5	4.6						
59	3.3	0.4151	0.0310	0.0545	0.0016	0.2181	18.3150	0.5367	0.0553	0.0042	352.7	22.0	341.8	10.0	370.0	160.0	341.8	10.0						
45	1.7	0.4924	0.0210	0.0644	0.0009	0.1678	15.5183	0.2167	0.0555	0.0023	406.8	14.0	402.2	5.6	404.0	94.0	402.2	5.6						
111	1.3	0.4890	0.0220	0.0645	0.0010	0.1063	15.4967	0.2281	0.0550	0.0025	404.5	15.0	403.0	6.0	358.0	98.0	403.0	6.0						
57	1.7	0.5009	0.0180	0.0651	0.0007	0.2896	15.3351	0.1670	0.0558	0.0019	412.5	12.0	406.8	4.5	390.0	71.0	406.8	4.5						
22	4.0	0.4553	0.0210	0.0577	0.0009	0.0156	17.2652	0.2772	0.0573	0.0027	381.2	15.0	361.4	5.8	460.0	110.0	361.4	5.8						

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TABLE DR2. ZIRCON U-Pb DATA (Orthopyroxenite)

Isotopic Ratios											AGES							
U (ppm)	U/Th	²⁰⁷ Pb / ²³⁵ U	2σ Abs Error	²⁰⁶ Pb / ²³⁸ U	2σ	Corr. Coef	²³⁸ U / ²⁰⁶ Pb	2σ	²⁰⁷ Pb / ²⁰⁶ Pb	2σ	²⁰⁷ Pb / ²³⁵ U Ma	2σ Ma	²⁰⁶ Pb / ²³⁸ U Ma	2σ Ma	²⁰⁷ Pb / ²⁰⁶ Pb Ma	2σ Ma	Best Age Ma	2σ Ma
69	4.2	0.4220	0.0120	0.0566	0.0006	0.1730	17.6554	0.1777	0.0541	0.0015	357.7	8.2	354.9	3.6	340.0	60.0	354.9	3.6
79	1.4	0.4949	0.0130	0.0655	0.0007	0.0711	15.2625	0.1677	0.0548	0.0016	408.5	8.8	409.2	4.5	365.0	64.0	409.2	4.5
93	1.1	0.4924	0.0120	0.0650	0.0007	0.1979	15.3894	0.1610	0.0550	0.0014	406.8	8.4	405.8	4.2	375.0	55.0	405.8	4.2
66	1.5	0.4960	0.0160	0.0653	0.0010	0.2875	15.3046	0.2225	0.0551	0.0018	409.3	11.0	407.9	5.9	384.0	71.0	407.9	5.9
70	1.8	0.4811	0.0110	0.0635	0.0007	0.1553	15.7480	0.1736	0.0550	0.0013	399.1	7.5	396.7	4.3	382.0	53.0	396.7	4.3
58	1.5	0.4778	0.0110	0.0639	0.0007	0.1014	15.6691	0.1620	0.0543	0.0014	396.8	7.8	399.0	4.1	353.0	55.0	399.0	4.1
33	1.6	0.4964	0.0200	0.0656	0.0013	0.0382	15.2439	0.3021	0.0549	0.0024	409.5	13.0	409.6	8.1	375.0	95.0	409.6	8.1
106	6.2	0.4581	0.0250	0.0554	0.0008	0.2460	17.8987	0.2435	0.0600	0.0038	383.2	16.0	347.6	4.9	510.0	110.0	347.6	4.9
59	6.4	0.4736	0.0200	0.0552	0.0008	0.1090	17.8955	0.2626	0.0622	0.0027	393.9	14.0	346.7	5.1	635.0	91.0	346.7	5.1
79	3.9	0.4670	0.0120	0.0557	0.0006	0.2382	17.7746	0.1801	0.0608	0.0015	389.3	7.8	349.6	3.5	607.0	52.0	349.6	3.5
112	1.5	0.5432	0.0180	0.0718	0.0010	0.1998	13.9470	0.1945	0.0549	0.0018	440.8	12.0	446.9	6.2	380.0	73.0	446.9	6.2
106	4.4	0.4105	0.0085	0.0560	0.0006	0.2786	17.8699	0.1820	0.0532	0.0011	349.4	6.1	351.2	3.6	319.0	45.0	351.2	3.6
23	2.3	0.4977	0.0190	0.0646	0.0013	0.2073	15.4560	0.3106	0.0559	0.0022	410.4	13.0	403.6	8.0	407.0	87.0	403.6	8.0
92	9.1	0.4361	0.0140	0.0583	0.0009	0.2147	17.1497	0.2529	0.0543	0.0018	367.7	10.0	365.1	5.4	351.0	71.0	365.1	5.4
52	3.8	0.4571	0.0210	0.0611	0.0009	0.3087	16.3693	0.2358	0.0543	0.0024	382.5	14.0	382.2	5.5	335.0	94.0	382.2	5.5
158	1.5	0.4828	0.0200	0.0633	0.0012	0.3112	15.7729	0.2985	0.0553	0.0022	400.2	13.0	395.9	7.4	379.0	84.0	395.9	7.4
53	4.0	0.4934	0.0170	0.0651	0.0008	0.1931	15.3586	0.1840	0.0550	0.0018	407.5	11.0	406.6	4.9	384.0	73.0	406.6	4.9
58	2.3	0.4765	0.0150	0.0636	0.0009	0.2188	15.7381	0.2229	0.0544	0.0018	395.9	10.0	397.2	5.6	344.0	69.0	397.2	5.6
47	14.8	0.4688	0.0240	0.0621	0.0013	0.3702	16.1031	0.3371	0.0548	0.0028	390.6	17.0	388.2	8.1	350.0	100.0	388.2	8.1
65	38.9	0.4489	0.0160	0.0595	0.0011	0.1104	16.7785	0.3097	0.0547	0.0021	376.8	11.0	372.9	6.8	366.0	86.0	372.9	6.8
84	5.4	0.4199	0.0120	0.0572	0.0006	0.1274	17.5039	0.1900	0.0533	0.0016	356.2	8.6	358.3	3.9	309.0	63.0	358.3	3.9
94	4.4	0.4209	0.0120	0.0563	0.0005	0.1114	17.7336	0.1572	0.0542	0.0016	356.9	8.8	353.4	3.2	337.0	65.0	353.4	3.2
59	7.7	0.4869	0.0200	0.0647	0.0009	0.0849	15.4583	0.2198	0.0546	0.0023	403.0	14.0	404.2	5.8	358.0	93.0	404.2	5.8
70	34.0	0.4151	0.0150	0.0585	0.0011	0.0786	17.1527	0.3236	0.0515	0.0019	352.7	10.0	366.4	6.9	255.0	83.0	366.4	6.9
45	1.6	0.4889	0.0240	0.0642	0.0011	0.2416	15.5763	0.2669	0.0553	0.0025	404.4	16.0	400.8	6.9	390.0	100.0	400.8	6.9
76	1.2	0.4770	0.0180	0.0629	0.0007	0.0854	15.8806	0.1866	0.0550	0.0020	396.3	12.0	393.4	4.6	393.0	80.0	393.4	4.6
58	26.2	0.4271	0.0260	0.0579	0.0013	0.2711	17.2712	0.3878	0.0535	0.0032	361.3	18.0	363.0	8.1	290.0	120.0	363.0	8.1
97	1.6	0.5150	0.0310	0.0667	0.0015	0.2326	14.9701	0.3362	0.0560	0.0034	422.0	21.0	416.4	9.3	380.0	120.0	416.4	9.3
49	8.3	0.4847	0.0300	0.0644	0.0015	0.1400	15.5280	0.3617	0.0546	0.0037	401.5	22.0	402.4	9.4	310.0	140.0	402.4	9.4
290	1.2	0.4946	0.0240	0.0643	0.0012	0.3257	15.5280	0.2893	0.0558	0.0026	408.3	16.0	401.8	7.5	410.0	100.0	401.8	7.5
114	2.1	0.4857	0.0120	0.0650	0.0008	0.2390	15.3917	0.1895	0.0542	0.0014	402.2	8.4	406.1	5.0	353.0	57.0	406.1	5.0
86	2.5	0.4858	0.0120	0.0644	0.0007	0.1315	15.5207	0.1710	0.0547	0.0014	402.3	8.4	402.5	4.4	376.0	59.0	402.5	4.4
46	17.2	0.4186	0.0140	0.0571	0.0008	0.3839	17.5254	0.2488	0.0532	0.0016	355.3	10.0	357.9	5.0	309.0	68.0	357.9	5.0
63	22.4	0.4197	0.0150	0.0569	0.0009	0.1655	17.5716	0.2871	0.0535	0.0022	356.1	12.0	356.9	5.8	321.0	87.0	356.9	5.8
87	28.3	0.4292	0.0170	0.0572	0.0012	0.2312	17.4520	0.3655	0.0544	0.0027	362.8	12.0	358.9	7.5	350.0	100.0	358.9	7.5
49	3.2	0.4428	0.0120	0.0595	0.0010	0.3743	16.8067	0.2825	0.0540	0.0014	372.5	8.6	372.6	6.2	351.0	60.0	372.6	6.2

TABLE DR2. ZIRCON U-Pb DATA (Orthopyroxenite)

U (ppm)	U/Th	Isotopic Ratios										AGES						
		$^{207}\text{Pb} / ^{235}\text{U}$	2 σ Abs Error	$^{206}\text{Pb} / ^{238}\text{U}$	2 σ	Corr. Coef	$^{238}\text{U} / ^{206}\text{Pb}$	2 σ	$^{207}\text{Pb} / ^{206}\text{Pb}$	2 σ	$^{207}\text{Pb} / ^{235}\text{U}$ Ma	2 σ Ma	$^{206}\text{Pb} / ^{238}\text{U}$ Ma	2 σ Ma	$^{207}\text{Pb} / ^{206}\text{Pb}$ Ma	2 σ Ma	Best Age Ma	2 σ Ma
72	1.8	0.4398	0.0130	0.0586	0.0014	0.1259	17.0649	0.4077	0.0545	0.0022	370.3	8.9	366.8	8.7	402.0	76.0	366.8	8.7
28	5.3	0.4284	0.0190	0.0569	0.0012	0.1121	17.5439	0.3693	0.0546	0.0025	362.3	13.0	356.9	7.5	360.0	100.0	356.9	7.5
63	1.5	0.4399	0.0130	0.0591	0.0009	0.1657	16.9176	0.2547	0.0540	0.0018	370.4	9.5	370.2	5.5	341.0	71.0	370.2	5.5
41	1.7	0.4906	0.0190	0.0654	0.0011	0.2809	15.2905	0.2572	0.0544	0.0021	405.6	13.0	408.6	6.8	353.0	85.0	408.6	6.8
77	1.3	0.4921	0.0220	0.0644	0.0012	0.3591	15.5039	0.2884	0.0554	0.0023	406.6	15.0	402.6	7.4	367.0	89.0	402.6	7.4
135	1.6	0.5046	0.0180	0.0674	0.0008	0.2663	14.8478	0.1852	0.0543	0.0018	415.1	12.0	420.6	5.2	347.0	74.0	420.6	5.2
98	1.8	0.5015	0.0180	0.0666	0.0010	0.3017	15.0150	0.2255	0.0546	0.0020	413.0	12.0	415.9	6.2	356.0	78.0	415.9	6.2
30	2.0	0.4992	0.0200	0.0663	0.0010	0.3188	15.0830	0.2275	0.0546	0.0021	411.4	14.0	414.1	6.2	351.0	82.0	414.1	6.2
50	13.4	0.4185	0.0160	0.0560	0.0009	0.1789	17.8317	0.2957	0.0542	0.0021	355.2	12.0	351.4	5.8	359.0	86.0	351.4	5.8
215	6.4	0.4240	0.0130	0.0579	0.0008	0.1082	17.2771	0.2328	0.0531	0.0017	359.1	9.1	363.0	4.9	305.0	70.0	363.0	4.9
78	3.6	0.4080	0.0110	0.0555	0.0007	0.0005	18.0083	0.2108	0.0533	0.0016	347.6	8.0	348.5	4.1	313.0	65.0	348.5	4.1
60	19.6	0.4315	0.0180	0.0578	0.0011	0.2964	17.3010	0.3293	0.0542	0.0022	364.5	13.0	362.0	6.8	341.0	88.0	362.0	6.8
59	4.4	0.4485	0.0160	0.0594	0.0010	0.1480	16.8209	0.2688	0.0548	0.0021	376.5	11.0	371.9	5.9	367.0	83.0	371.9	5.9
53	13.6	0.4081	0.0110	0.0559	0.0006	0.0272	17.9083	0.1924	0.0530	0.0015	347.7	7.6	350.5	3.8	299.0	63.0	350.5	3.8
71	12.7	0.4218	0.0180	0.0569	0.0008	0.1025	17.5747	0.2317	0.0538	0.0024	357.6	13.0	356.7	4.7	315.0	95.0	356.7	4.7
35	17.4	0.4449	0.0190	0.0580	0.0012	0.2650	17.2117	0.3555	0.0557	0.0024	373.9	14.0	363.2	7.5	394.0	94.0	363.2	7.5
80	1.4	0.4902	0.0120	0.0661	0.0006	0.2738	15.1492	0.1446	0.0538	0.0013	405.3	8.5	412.7	3.9	333.0	54.0	412.7	3.9
116	15.9	0.4286	0.0220	0.0578	0.0012	0.0482	17.3010	0.3592	0.0538	0.0030	362.4	15.0	362.2	7.5	330.0	120.0	362.2	7.5
126	1.3	0.4919	0.0089	0.0657	0.0007	0.2039	15.2277	0.1530	0.0543	0.0010	406.4	6.0	410.4	4.1	366.0	44.0	410.4	4.1
55	15.7	0.4225	0.0100	0.0576	0.0005	0.1601	17.3671	0.1629	0.0532	0.0013	358.0	7.2	361.1	3.4	307.0	54.0	361.1	3.4
43	17.2	0.4133	0.0110	0.0558	0.0007	0.1216	17.9019	0.2179	0.0537	0.0015	351.5	7.8	350.3	4.2	324.0	60.0	350.3	4.2
67	7.4	0.4266	0.0120	0.0570	0.0008	0.0315	17.5285	0.2304	0.0543	0.0017	361.0	8.5	357.4	4.7	352.0	67.0	357.4	4.7
58	16.0	0.4248	0.0260	0.0574	0.0012	0.3890	17.4216	0.3642	0.0537	0.0029	359.7	18.0	359.8	7.5	310.0	120.0	359.8	7.5
69	3.9	0.4172	0.0094	0.0570	0.0005	0.0934	17.5531	0.1664	0.0531	0.0012	354.3	6.7	357.4	3.4	311.0	52.0	357.4	3.4
74	4.1	0.4139	0.0100	0.0563	0.0006	0.1459	17.7557	0.1797	0.0533	0.0013	351.9	7.3	353.3	3.6	308.0	56.0	353.3	3.6
85	4.3	0.4143	0.0100	0.0564	0.0005	0.2570	17.7368	0.1667	0.0533	0.0013	352.2	7.2	353.7	3.3	314.0	52.0	353.7	3.3
34	13.6	0.5123	0.0150	0.0638	0.0008	0.0912	15.6104	0.1949	0.0583	0.0019	420.2	10.0	398.5	5.0	491.0	68.0	398.5	5.0
50	37.6	0.4544	0.0140	0.0591	0.0008	0.0784	16.8833	0.2195	0.0558	0.0018	380.6	9.9	370.1	4.8	401.0	72.0	370.1	4.8
73	4.6	0.5012	0.0120	0.0667	0.0008	0.3050	14.9993	0.1867	0.0545	0.0013	412.7	8.4	416.4	5.1	360.0	52.0	416.4	5.1
29	5.5	0.5175	0.0170	0.0646	0.0010	0.0442	15.4083	0.2374	0.0581	0.0022	423.7	11.0	403.7	6.2	493.0	79.0	403.7	6.2
68	1.6	0.4859	0.0130	0.0632	0.0008	0.2104	15.8028	0.2098	0.0558	0.0016	402.3	9.0	394.9	5.2	414.0	62.0	394.9	5.2
44	39.7	0.4764	0.0190	0.0615	0.0009	0.3856	16.2180	0.2420	0.0562	0.0020	395.9	13.0	384.8	5.7	440.0	78.0	384.8	5.7
28	4.3	0.5123	0.0150	0.0645	0.0008	0.1975	15.4393	0.1978	0.0576	0.0017	420.2	9.9	403.1	5.1	494.0	67.0	403.1	5.1
36	3.0	0.4771	0.0120	0.0628	0.0008	0.1662	15.9033	0.2023	0.0551	0.0015	396.4	8.4	392.8	5.0	390.0	59.0	392.8	5.0
37	10.1	0.4504	0.0150	0.0588	0.0008	0.2692	16.9779	0.2277	0.0556	0.0018	377.8	10.0	368.2	4.9	396.0	68.0	368.2	4.9
64	1.7	0.5341	0.0150	0.0682	0.0007	0.2009	14.6284	0.1541	0.0568	0.0016	434.8	9.6	425.5	4.5	447.0	62.0	425.5	4.5

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TABLE DR2. ZIRCON U-Pb DATA (Orthopyroxenite)

Isotopic Ratios																			AGES (Ma)							
U (ppm)	U/Th	²⁰⁷ Pb / ²³⁵ U	2σ Abs Error	²⁰⁶ Pb / ²³⁸ U	2σ	Corr. Coef	²³⁸ U / ²⁰⁶ Pb	2σ	²⁰⁷ Pb / ²⁰⁶ Pb	2σ	²⁰⁷ Pb / ²³⁵ U	2σ	²⁰⁶ Pb / ²³⁸ U	2σ	²⁰⁷ Pb / ²⁰⁶ Pb	2σ	Best Age	2σ								
96	1.8	0.5111	0.0095	0.0667	0.0007	0.3005	14.9835	0.1527	0.0556	0.0010	419.4	6.4	416.2	4.2	420.0	41.0	416.2	4.2								
102	2.4	0.4726	0.0130	0.0630	0.0007	0.0210	15.8680	0.1813	0.0544	0.0016	393.2	8.9	394.0	4.5	351.0	65.0	394.0	4.5								
38	5.3	0.4827	0.0130	0.0636	0.0011	0.1007	15.7233	0.2719	0.0551	0.0017	400.1	8.8	397.3	6.8	391.0	68.0	397.3	6.8								
52	1.5	0.4822	0.0150	0.0630	0.0007	0.0724	15.8428	0.1732	0.0555	0.0018	399.8	10.0	394.1	4.3	390.0	70.0	394.1	4.3								
81	2.3	0.5262	0.0140	0.0695	0.0009	0.0998	14.3906	0.1905	0.0549	0.0016	429.5	9.5	433.4	5.7	380.0	64.0	433.4	5.7								
86	2.3	0.5286	0.0210	0.0686	0.0009	0.0193	14.5645	0.1930	0.0559	0.0024	431.1	14.0	427.8	5.7	398.0	90.0	427.8	5.7								
69	1.6	0.4900	0.0110	0.0645	0.0008	0.2044	15.4919	0.1944	0.0551	0.0013	405.1	7.3	403.1	5.0	394.0	52.0	403.1	5.0								
24	2.0	0.5176	0.0120	0.0660	0.0009	0.0947	15.1126	0.2033	0.0569	0.0016	423.8	8.5	412.1	5.5	447.0	58.0	412.1	5.5								
47	6.6	0.5038	0.0190	0.0654	0.0010	0.3846	15.2718	0.2239	0.0559	0.0019	414.5	12.0	408.4	6.0	403.0	73.0	408.4	6.0								
63	1.8	0.5277	0.0150	0.0699	0.0012	0.3839	14.3267	0.2463	0.0548	0.0015	430.5	9.7	435.4	7.4	376.0	59.0	435.4	7.4								
44	33.5	0.4553	0.0120	0.0605	0.0008	0.1522	16.5180	0.2046	0.0546	0.0015	381.2	8.5	378.7	4.7	364.0	61.0	378.7	4.7								
74	4.3	0.4298	0.0170	0.0572	0.0008	0.1808	17.4581	0.2438	0.0545	0.0022	363.3	12.0	358.7	5.0	328.0	83.0	358.7	5.0								
89	4.6	0.4302	0.0130	0.0577	0.0007	0.2130	17.3250	0.1981	0.0541	0.0016	363.5	9.0	361.6	4.1	332.0	64.0	361.6	4.1								
99	25.3	0.4495	0.0150	0.0596	0.0008	0.2630	16.7588	0.2106	0.0547	0.0018	377.1	11.0	373.3	4.7	361.0	71.0	373.3	4.7								
58	20.7	0.4129	0.0140	0.0548	0.0007	0.0920	18.2249	0.2192	0.0547	0.0018	351.2	9.7	343.8	4.1	366.0	73.0	343.8	4.1								
125	1.6	0.4978	0.0150	0.0659	0.0008	0.1997	15.1745	0.1842	0.0548	0.0016	410.5	10.0	411.5	5.0	361.0	65.0	411.5	5.0								
34	3.9	0.5235	0.0220	0.0697	0.0011	0.4432	14.3678	0.2271	0.0545	0.0020	427.7	14.0	434.3	6.8	352.0	77.0	434.3	6.8								
29	13.3	0.4462	0.0140	0.0587	0.0008	0.1940	17.0213	0.2376	0.0552	0.0017	374.8	9.7	367.4	5.1	382.0	66.0	367.4	5.1								
42	44.6	0.4478	0.0150	0.0592	0.0008	0.1686	16.8748	0.2335	0.0549	0.0019	376.0	10.0	370.7	5.1	362.0	73.0	370.7	5.1								
42	45.3	0.4596	0.0130	0.0614	0.0007	0.0007	16.2813	0.1750	0.0543	0.0017	384.2	9.2	384.3	4.1	345.0	67.0	384.3	4.1								
74	1.4	0.4977	0.0180	0.0655	0.0009	0.3222	15.2532	0.2164	0.0551	0.0019	410.4	12.0	409.3	5.8	381.0	76.0	409.3	5.8								
126	1.2	0.5125	0.0180	0.0670	0.0009	0.2054	14.9165	0.2003	0.0555	0.0019	420.4	12.0	418.1	5.6	386.0	76.0	418.1	5.6								
42	13.8	0.4446	0.0150	0.0603	0.0009	0.3031	16.5975	0.2452	0.0535	0.0017	373.7	11.0	377.5	5.5	327.0	71.0	377.5	5.5								
34	14.7	0.4461	0.0150	0.0597	0.0008	0.2859	16.7420	0.2242	0.0542	0.0018	374.8	10.0	373.9	5.0	344.0	72.0	373.9	5.0								
103	3.8	0.4308	0.0130	0.0573	0.0007	0.1825	17.4459	0.2161	0.0546	0.0017	364.0	9.5	358.9	4.4	348.0	68.0	358.9	4.4								
81	1.1	0.4879	0.0170	0.0641	0.0009	0.2473	15.5836	0.2161	0.0552	0.0019	403.7	11.0	400.7	5.5	374.0	73.0	400.7	5.5								

TABLE DR3. ZIRCON Lu-Hf ANALYSES (OI-Py-Hornblendite)

Grain ID	Measured $^{176}\text{Hf}/^{177}\text{Hf}$	Corrected $^{176}\text{Hf}/^{177}\text{Hf}$	2SE	$^{176}\text{Lu}/^{177}\text{Hf}$	2SE	$^{176}\text{Yb}/^{177}\text{Hf}$	2SE	$^{178}\text{Hf}/^{177}\text{Hf}$	2SE	$^{180}\text{Hf}/^{177}\text{Hf}$	2SE	Age (U-Pb)	$^{176}\text{Hf}/^{177}\text{Hf}$	$\epsilon\text{Hf}(0)$	2SE	$\epsilon\text{Hf}(t)$
BGCA_1	0.282599	0.282574	0.000026	0.000168	0.000011	0.004610	0.000300	1.467241	0.000062	1.886820	0.000170	355.20	0.282573	-7.46	0.920	0.405
BGCA_2	0.282650	0.282625	0.000029	0.000493	0.000007	0.015140	0.000300	1.467261	0.000077	1.886760	0.000180	408.60	0.282621	-5.66	1.026	3.310
BGCA_3	0.282620	0.282595	0.000027	0.000446	0.000021	0.013800	0.000860	1.467183	0.000062	1.886740	0.000150	403.90	0.282592	-6.719	0.955	2.157
BGCA_4	0.282675	0.282649	0.000029	0.000405	0.000047	0.011900	0.001300	1.467172	0.000059	1.886790	0.000160	411.60	0.282646	-4.809	1.026	4.250
BGCA_5	0.282645	0.282619	0.000027	0.000396	0.000002	0.012040	0.000250	1.467264	0.000062	1.886840	0.000140	389.60	0.282616	-5.870	0.955	2.704
BGCA_6	0.282621	0.282596	0.000029	0.000171	0.000049	0.004800	0.001400	1.467171	0.000058	1.886700	0.000110	398.90	0.282595	-6.684	1.026	2.155
BGCA_7	0.282663	0.282637	0.000026	0.000430	0.000016	0.012560	0.000440	1.467135	0.000052	1.886620	0.000130	404.50	0.282634	-5.234	0.920	3.662
BGCA_8	0.282644	0.282618	0.000032	0.000360	0.000003	0.010520	0.000210	1.467269	0.000052	1.886740	0.000130	359.30	0.282616	-5.906	1.132	2.008
BGCA_9	0.282645	0.282620	0.000029	0.000460	0.000011	0.014300	0.000320	1.467197	0.000057	1.886710	0.000130	401.00	0.282617	-5.835	1.026	2.975
BGCA_10	0.282654	0.282629	0.000030	0.000328	0.000005	0.009680	0.000350	1.467215	0.000056	1.886740	0.000130	414.90	0.282626	-5.517	1.061	3.636
BGCA_11	0.282644	0.282618	0.000024	0.000405	0.000005	0.012010	0.000200	1.467174	0.000062	1.886760	0.000160	403.10	0.282615	-5.906	0.849	2.965
BGCA_12	0.282656	0.282631	0.000023	0.000309	0.000017	0.008900	0.000470	1.467233	0.000052	1.886690	0.000130	414.50	0.282629	-5.446	0.814	3.703
BGCA_13	0.282642	0.282617	0.000030	0.000331	0.000007	0.009660	0.000280	1.467186	0.000059	1.886720	0.000120	415.20	0.282614	-5.941	1.061	3.217
BGCA_14	0.282627	0.282602	0.000025	0.000191	0.000006	0.005780	0.000270	1.467220	0.000054	1.886716	0.000085	410.10	0.282601	-6.471	0.885	2.612
BGCA_15	0.282627	0.282602	0.000026	0.000112	0.000032	0.003230	0.000910	1.467243	0.000055	1.886740	0.000150	392.30	0.282601	-6.471	0.920	2.236
BGCA_16	0.282625	0.282600	0.000041	0.000409	0.000012	0.013120	0.000360	1.467232	0.000063	1.886720	0.000130	400.00	0.282597	-6.542	1.451	2.258
BGCA_17	0.282656	0.282631	0.000028	0.000373	0.000037	0.011300	0.001300	1.467169	0.000058	1.886680	0.000170	419.60	0.282628	-5.446	0.991	3.799
BGCA_18	0.282656	0.282632	0.000031	0.000201	0.000034	0.006100	0.001000	1.467190	0.000073	1.886700	0.000120	406.60	0.282630	-5.410	1.097	3.593
BGCA_19	0.282638	0.282613	0.000025	0.000311	0.000019	0.009500	0.000740	1.467226	0.000055	1.886670	0.000150	409.10	0.282611	-6.082	0.885	2.946
BGCA_20	0.282631	0.282606	0.000034	0.000302	0.000039	0.008600	0.001100	1.467183	0.000048	1.886810	0.000120	414.50	0.282604	-6.330	1.203	2.820
BGCA_21	0.282647	0.282623	0.000024	0.000366	0.000013	0.010920	0.000350	1.467210	0.000061	1.886710	0.000120	384.50	0.282620	-5.729	0.849	2.741
BGCA_22	0.282639	0.282614	0.000030	0.000362	0.000004	0.011010	0.000310	1.467182	0.000050	1.886660	0.000130	406.00	0.282611	-6.047	1.061	2.899
BGCA_23	0.282602	0.282577	0.000032	0.000529	0.000002	0.016160	0.000220	1.467205	0.000071	1.886740	0.000150	362.20	0.282573	-7.355	1.132	0.580
BGCA_24	0.282642	0.282617	0.000026	0.000308	0.000031	0.009160	0.000860	1.467237	0.000047	1.886780	0.000130	354.50	0.282615	-5.941	0.920	1.878
BGCA_25	0.282633	0.282608	0.000028	0.000370	0.000033	0.010950	0.000850	1.467175	0.000050	1.886710	0.000110	386.30	0.282605	-6.259	0.991	2.248
BGCA_26	0.282614	0.282589	0.000025	0.000336	0.000009	0.010070	0.000470	1.467225	0.000061	1.886850	0.000130	399.20	0.282586	-6.931	0.885	1.871
BGCA_27	0.282648	0.282623	0.000026	0.000369	0.000006	0.010690	0.000140	1.467206	0.000054	1.886810	0.000130	341.80	0.282621	-5.729	0.920	1.796
BGCA_28	0.282636	0.282611	0.000024	0.000345	0.000008	0.010060	0.000410	1.467193	0.000076	1.886760	0.000160	403.00	0.282608	-6.153	0.849	2.731
BGCA_29	0.282600	0.282575	0.000024	0.000353	0.000008	0.010690	0.000090	1.467220	0.000064	1.886690	0.000140	394.00	0.282572	-7.426	0.849	1.255

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TABLE DR3. ZIRCON Lu-Hf ANALYSES (Orthopyroxenite)

ID	Measured $^{176}\text{Hf}/^{177}\text{Hf}$	Corrected $^{176}\text{Hf}/^{177}\text{Hf}$	2SE	$^{176}\text{Lu}/^{177}\text{Hf}$	2SE	$^{176}\text{Yb}/^{177}\text{Hf}$	2SE	$^{178}\text{Hf}/^{177}\text{Hf}$	2SE	$^{180}\text{Hf}/^{177}\text{Hf}$	2SE	Age (U-Pb)	$^{176}\text{Hf}/^{177}\text{Hf}$	$\epsilon\text{Hf}(0)$	2SE	$\epsilon\text{Hf}(t)$
X380_1	0.282535	0.282508	0.000027	0.000840	0.000180	0.024100	0.007100	1.467195	0.000061	1.886650	0.000120	377.50	0.282502	-9.795	0.956	-1.603
X380_2	0.282588	0.282561	0.000019	0.002510	0.000240	0.084200	0.009400	1.467154	0.000056	1.886620	0.000120	418.10	0.282541	-7.921	0.672	0.695
X380_3	0.282521	0.282494	0.000025	0.000380	0.000150	0.010900	0.004200	1.467174	0.000052	1.886670	0.000110	409.30	0.282491	-10.291	0.885	-1.280
X380_4	0.282554	0.282527	0.000020	0.001940	0.000210	0.062700	0.007000	1.467189	0.000043	1.886680	0.000110	397.20	0.282513	-9.124	0.708	-0.791
X380_5	0.282518	0.282491	0.000019	0.000660	0.000250	0.020300	0.007700	1.467210	0.000038	1.886663	0.000093	372.90	0.282486	-10.397	0.673	-2.260
X380_6	0.282524	0.282497	0.000017	0.000650	0.000220	0.020400	0.006500	1.467197	0.000045	1.886714	0.000097	358.90	0.282493	-10.184	0.602	-2.352
X380_7	0.282530	0.282503	0.000019	0.000680	0.000150	0.020200	0.004300	1.467211	0.000043	1.886720	0.000110	400.70	0.282498	-9.972	0.672	-1.232
X380_8	0.282497	0.282470	0.000019	0.000149	0.000015	0.004310	0.000380	1.467192	0.000042	1.886720	0.000110	404.20	0.282469	-11.139	0.673	-2.181
X380_9	0.282601	0.282574	0.000025	0.001850	0.000170	0.059700	0.005800	1.467198	0.000054	1.886710	0.000110	367.40	0.282561	-7.461	0.885	0.267
X380_10	0.282605	0.282578	0.000026	0.004200	0.000150	0.137000	0.004000	1.467163	0.000043	1.886640	0.000130	434.30	0.282544	-7.320	0.920	1.145
X380_11	0.282529	0.282502	0.000020	0.000667	0.000042	0.020300	0.001100	1.467170	0.000047	1.886640	0.000096	411.50	0.282497	-10.008	0.708	-1.027
X380_12	0.282507	0.282480	0.000014	0.000268	0.000006	0.010350	0.000380	1.467203	0.000035	1.886623	0.000068	363.00	0.282478	-10.786	0.496	-2.772
X380_13	0.282514	0.282488	0.000016	0.000733	0.000023	0.029400	0.001600	1.467190	0.000034	1.886696	0.000097	348.50	0.282483	-10.503	0.566	-2.918
X380_14	0.282521	0.282494	0.000019	0.000830	0.000280	0.025600	0.008700	1.467195	0.000043	1.886683	0.000090	343.80	0.282489	-10.291	0.673	-2.831
X380_15	0.282527	0.282501	0.000021	0.002200	0.000180	0.064000	0.006800	1.467165	0.000053	1.886670	0.000150	420.60	0.282484	-10.043	0.743	-1.290
X380_16	0.282499	0.282473	0.000013	0.000332	0.000001	0.013090	0.000140	1.467214	0.000033	1.886666	0.000080	373.30	0.282471	-11.033	0.460	-2.808
X380_17	0.282488	0.282461	0.000017	0.000416	0.000001	0.016630	0.000240	1.467182	0.000035	1.886661	0.000087	361.60	0.282458	-11.457	0.602	-3.511
X380_18	0.282513	0.282487	0.000020	0.000358	0.000080	0.011200	0.002500	1.467201	0.000039	1.886662	0.000094	358.70	0.282485	-10.538	0.708	-2.641
X380_19	0.282585	0.282558	0.000024	0.002070	0.000360	0.065200	0.009800	1.467222	0.000063	1.886700	0.000130	406.10	0.282542	-8.027	0.849	0.459
X380_20	0.282637	0.282610	0.000021	0.003020	0.000170	0.097600	0.005000	1.467229	0.000053	1.886650	0.000120	378.70	0.282589	-6.188	0.743	1.486
X380_21	0.282508	0.282481	0.000019	0.000890	0.000110	0.026000	0.003100	1.467180	0.000033	1.886616	0.000089	366.80	0.282475	-10.750	0.673	-2.804
X380_22	0.282516	0.282489	0.000020	0.000920	0.000270	0.027200	0.008000	1.467219	0.000048	1.886757	0.000098	357.90	0.282483	-10.467	0.708	-2.722
X380_23	0.282474	0.282447	0.000017	0.000279	0.000080	0.009200	0.002600	1.467194	0.000051	1.886710	0.000110	371.90	0.282445	-11.953	0.602	-3.746
X380_24	0.282523	0.282497	0.000015	0.000190	0.000007	0.007030	0.000330	1.467244	0.000034	1.886728	0.000096	450.50	0.282495	-10.184	0.531	-0.206
X380_25	0.282626	0.282600	0.000023	0.003480	0.000130	0.113600	0.004700	1.467197	0.000055	1.886680	0.000120	403.10	0.282574	-6.542	0.814	1.505
X380_26	0.282524	0.282498	0.000043	0.000990	0.000520	0.033000	0.016000	1.467215	0.000073	1.886710	0.000230	427.80	0.282490	-10.149	1.522	-0.903
X380_27	0.282512	0.282485	0.000014	0.000412	0.000005	0.016255	0.000067	1.467211	0.000043	1.886754	0.000089	353.30	0.282482	-10.609	0.496	-2.844
X380_28	0.282512	0.282486	0.000021	0.000750	0.000110	0.022100	0.003000	1.467209	0.000038	1.886776	0.000082	392.80	0.282480	-10.573	0.743	-2.025
X380_29	0.282520	0.282494	0.000033	0.000570	0.000110	0.017600	0.002900	1.467178	0.000080	1.886680	0.000130	368.20	0.282490	-10.291	1.168	-2.235
X380_30	0.282557	0.282531	0.000021	0.000870	0.000250	0.028000	0.008600	1.467186	0.000040	1.886750	0.000110	359.80	0.282525	-8.982	0.743	-1.182
X380_31	0.282583	0.282557	0.000023	0.001960	0.000280	0.063800	0.009100	1.467226	0.000038	1.886700	0.000120	425.50	0.282541	-8.063	0.814	0.862
X380_32	0.282524	0.282498	0.000012	0.000173	0.000001	0.006060	0.000170	1.467206	0.000043	1.886712	0.000073	357.40	0.282497	-10.149	0.425	-2.237

TABLE DR3. ZIRCON Lu-Hf ANALYSES (Orthopyroxenite)

ID	Measured $^{176}\text{Hf}/^{177}\text{Hf}$	Corrected $^{176}\text{Hf}/^{177}\text{Hf}$	2SE	$^{176}\text{Lu}/^{177}\text{Hf}$	2SE	$^{176}\text{Yb}/^{177}\text{Hf}$	2SE	$^{178}\text{Hf}/^{177}\text{Hf}$	2SE	$^{180}\text{Hf}/^{177}\text{Hf}$	2SE	Age (U-Pb)	$^{176}\text{Hf}/^{177}\text{Hf}$	$\epsilon\text{Hf}(0)$	2SE	$\epsilon\text{Hf}(t)$
X380_33	0.282595	0.282569	0.000027	0.002230	0.000340	0.071000	0.011000	1.467231	0.000056	1.886730	0.000120	416.20	0.282552	-7.638	0.955	1.016
X380_34	0.282607	0.282581	0.000026	0.004100	0.000310	0.133000	0.011000	1.467192	0.000060	1.886750	0.000130	394.00	0.282551	-7.214	0.920	0.488
X380_35	0.282502	0.282476	0.000017	0.000455	0.000017	0.017610	0.000600	1.467203	0.000041	1.886720	0.000110	351.20	0.282473	-10.927	0.602	-3.219
X380_36	0.282498	0.282473	0.000018	0.000260	0.000100	0.008100	0.003500	1.467243	0.000041	1.886880	0.000130	446.90	0.282471	-11.033	0.637	-1.156
X380_37	0.282574	0.282548	0.000022	0.001910	0.000120	0.060000	0.003400	1.467146	0.000049	1.886700	0.000110	409.60	0.282533	-8.381	0.779	0.222
X380_38	0.282615	0.282590	0.000026	0.002643	0.000091	0.084900	0.003700	1.467264	0.000063	1.886790	0.000100	399.00	0.282570	-6.896	0.920	1.291
X380_39	0.282570	0.282544	0.000024	0.002360	0.000270	0.076800	0.009600	1.467153	0.000045	1.886690	0.000100	394.90	0.282527	-8.522	0.849	-0.348
X380_40	0.282595	0.282569	0.000025	0.002660	0.000280	0.083600	0.007900	1.467199	0.000042	1.886700	0.000110	416.40	0.282548	-7.638	0.885	0.902
X380_41	0.282509	0.282483	0.000024	0.000230	0.000042	0.006900	0.001100	1.467215	0.000060	1.886690	0.000120	370.10	0.282481	-10.679	0.850	-2.499
X380_42	0.282500	0.282475	0.000026	0.000370	0.000140	0.011500	0.004500	1.467238	0.000058	1.886840	0.000150	409.20	0.282472	-10.962	0.920	-1.952
X380_43	0.282554	0.282528	0.000021	0.002060	0.000280	0.064000	0.008000	1.467212	0.000058	1.886710	0.000120	398.50	0.282513	-9.088	0.743	-0.760

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TABLE DR4. PYROXENE ANALYSES (EPMA)

Wt.% Oxides						
	Opx1	Opx2	Opx3	Opx4	Opx5	Cpx1
SiO ₂	54.80	54.73	54.73	54.96	54.54	53.60
TiO ₂	0.09	0.09	0.07	0.08	0.05	0.21
Al ₂ O ₃	0.96	1.02	1.05	1.24	1.30	1.16
FeO	16.48	16.46	16.37	15.58	15.67	6.64
MnO	0.40	0.39	0.45	0.39	0.42	0.12
MgO	26.70	26.89	26.88	27.52	27.36	16.37
CaO	0.75	0.43	0.69	0.57	0.41	20.77
Na ₂ O	0.02	-	0.03	0.00	0.01	0.12
Cr ₂ O ₃	0.01	0.04	0.02	0.07	0.07	0.06
Total	100.21	100.05	100.29	100.41	99.83	99.1
atoms per formula unit (6 oxygens basis)						
Si	1.98	1.98	1.97	1.97	1.97	1.99
Ti	0.00	0.00	0.00	0.00	0.00	0.01
Al	0.04	0.04	0.04	0.05	0.06	0.05
Fe	0.50	0.50	0.49	0.46	0.47	0.21
Mn	0.01	0.01	0.01	0.01	0.01	0.00
Mg	1.44	1.45	1.44	1.47	1.47	0.91
Ca	0.03	0.02	0.03	0.02	0.02	0.83
Na	0.00	0.00	0.00	0.00	0.00	0.01
Cr	0.00	0.00	0.00	0.00	0.00	0.00

Note: Opx: Orthopyroxene; Cpx: Clinopyroxene

TABLE DR5. TWO PYROXENE THERMOBAROMETRY

Wells (1977)	Wood & Banno (1979)	Brey and Kohler (1990)	Putirka (2008)		
			Eq. 36	Eq. 32	Eq. 38
T(C)	T(C)	T(C)	T(C)	T(C)	P(kbar)
1039.6	1023.6	981.0	975.1	1101.0	10.1
1039.2	1022.8	987.9	987.4	1142.2	14.1
1042.0	1018.9	971.2	972.3	1098.2	9.8
1041.3	1016.1	967.6	972.7	1089.3	9.0
1038.2	1014.8	978.0	986.1	1139.0	13.8

Note: The scarcity of clinopyroxene in the studied rocks limits the number of equilibrium clinopyroxene-orthopyroxene pairs. Temperature and pressure equilibrium conditions shown here are on the basis of a clinopyroxene grain in equilibrium with several nearby orthopyroxenes (TABLE DR3).

TABLE DR6. HORNBLENDE ANALYSES (EPMA)

Wt.% Oxides										
ID	1	2	3	4	5	6	7	8	9	10
SiO ₂	43.87	44.07	44.25	44.14	44.37	43.96	43.86	43.76	44.29	44.52
TiO ₂	1.33	1.32	1.30	1.35	1.39	1.33	1.32	1.28	1.27	1.22
Al ₂ O ₃	14.25	14.22	14.25	14.21	13.98	14.30	14.29	14.16	14.49	14.11
FeO	6.84	6.76	6.83	6.86	6.67	7.07	7.02	7.00	6.63	6.80
MnO	0.14	0.18	0.08	0.13	0.14	0.16	0.15	0.16	0.14	0.15
MgO	16.72	16.64	16.71	16.80	16.69	16.57	16.63	16.54	16.53	16.72
CaO	11.54	11.53	11.59	11.36	11.40	11.47	11.68	11.56	11.71	11.52
Na ₂ O	2.65	2.65	2.66	2.66	2.56	2.66	2.74	2.60	2.71	2.56
K ₂ O	0.36	0.32	0.36	0.36	0.39	0.33	0.31	0.32	0.32	0.29
(OH)	2.27	2.26	1.90	2.06	2.38	2.04	1.92	2.56	1.85	2.07
Total	99.98	99.96	99.93	99.93	99.96	99.89	99.92	99.94	99.96	99.95
Mg#	81.3	81.4	81.3	81.4	81.7	80.7	80.9	80.8	81.6	81.4
atoms per formula unit (23 oxygens basis)										
Si	6.27	6.30	6.30	6.29	6.34	6.28	6.26	6.28	6.30	6.34
Ti	0.14	0.14	0.14	0.14	0.15	0.14	0.14	0.14	0.14	0.13
Al	2.40	2.39	2.39	2.39	2.35	2.41	2.40	2.39	2.43	2.37
Fe ²⁺	0.82	0.81	0.81	0.82	0.80	0.84	0.84	0.84	0.79	0.81
Mn	0.02	0.02	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Mg	3.56	3.54	3.55	3.57	3.55	3.53	3.54	3.54	3.50	3.55
Ca	1.77	1.76	1.77	1.74	1.74	1.76	1.79	1.78	1.78	1.76
Na	0.73	0.74	0.73	0.73	0.71	0.74	0.76	0.72	0.75	0.71
K	0.07	0.06	0.07	0.06	0.07	0.06	0.06	0.06	0.06	0.05
H	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Eq. Liquid Mg# ¹	57/62	57/63	57/62	57/62	57/63	56/61	56/62	56/62	57/63	57/62
Al(IV) ²	0.67	0.69	0.69	0.68	0.69	0.69	0.67	0.68	0.72	0.70
P (GPa) ³	1.19	1.22	1.22	1.20	1.22	1.21	1.17	1.19	1.28	1.24
T (C) ⁴	999.9	1001.7	985.6	1002.3	989.6	1001.8	1002	993.9	991.3	984.2
P (GPa) ⁴	1.13	1.14	1.12	1.15	1.08	1.14	1.15	1.09	1.18	1.05

¹ Calculated Mg# of a liquid in equilibrium with measured hornblende compositions based on experimentally determined Fe/Mg partitioning between amphibole and basaltic melt ($Kd_{amp/liq}^{Fe/Mg} = 0.31$ to 0.38 ; [Pichavant and Macdonald, 2007](#)).

² Stoichiometrically determined Al in octahedral position (a.p.f.u.), and OH in hydroxyl position.

³ Pressure estimates based on the Al in hornblende experimentally based empirical approach.

⁴ Pressure and temperature estimates based on [Ridolfi and Renzulli \(2012\)](#).

TABLE DR7. FRACTIONAL CRYSTALLIZATION MODEL

	Parental melt ^a	Assimilant ^b	Fractionated cumulates					Calculated liquid compositions					
			Ol-Py-Hornblende	Ol-Hbl-Orthopyroxenite	Hornblende	"Primitive" Gabbro	"Evolved" Gabbro	Fractionation/Assimilation in percent crystallized/assimilated					
			n = 9 ^c	n = 8 ^c	n = 3 ^c	n = 6 ^c	n = 5 ^c	10% frac	5% frac	10% ^d assim	5% frac	5% frac	20% frac
SiO ₂	53.75	68.89	46.54	45.48	47.42	49.55	48.53	54.13	54.61	56.04	57.00	57.43	60.17
TiO ₂	0.88	0.05	0.52	1.04	0.76	0.86	1.69	0.90	0.89	0.81	0.81	0.81	0.54
Al ₂ O ₃	16.32	14.44	7.58	8.75	16.20	13.72	18.18	16.78	17.23	16.95	17.03	17.22	16.93
FeO	7.67	4.76	14.05	10.60	9.23	9.46	11.27	7.33	7.15	6.91	6.66	6.49	5.02
MnO	0.14	0.10	0.18	0.19	0.21	0.22	0.19	0.13	0.13	0.13	0.12	0.11	0.09
MgO	7.33	1.52	25.31	22.44	13.58	13.22	6.55	6.38	5.49	4.94	3.98	3.44	2.48
CaO	8.87	4.44	3.75	5.93	9.11	9.65	9.91	9.14	9.32	8.39	8.31	8.23	7.71
Na ₂ O	3.10	3.03	0.64	0.61	2.07	1.51	2.17	3.23	3.37	3.04	3.14	3.24	3.57
K ₂ O	1.10	2.22	1.34	2.64	1.29	1.68	1.43	1.09	1.00	1.12	1.10	1.07	0.96
P ₂ O ₅	0.21	0.10	0.09	0.31	0.12	0.14	0.08	0.22	0.21	0.20	0.21	0.21	0.25
Mg#	0.63	0.36	0.76	0.79	0.72	0.71	0.51	0.61	0.58	0.56	0.52	0.49	0.47

^a Composition derived from averaged primitive basaltic andesites obtained from the GEOROC database.

^b measured whole rock composition of ~450 Ma granitoid spatially associated to the studied rocks (unpublished data).

^c number of analyses averaged for obtaining the fractionated cumulate composition

^d assimilation phase

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