

Table 5
Calculated compositions of liquid fractionates and crystalline residua derived from the high-alumina quartz tholeiite at 9–10 kb under wet conditions*.

Pressure		9 kb	10 kb	10 kb	
Temperature		1040°C	960°C	920°C	
Nature and estimated % of crystals extracted	Initial liquid	18% cpx 5% amph 2% opx 1% ilm	18% cpx 25% amph 2% opx 1% ilm	18% cpx 32% amph 3% plag 2% opx 1% ilm	
<i>Liquid fractionate</i>					
	SiO ₂	52.9	55.9	59.7	64.5
	TiO ₂	1.5	0.8	0.4	0.1
	Al ₂ O ₃	16.9	19.4	20.2	19.9
	Fe ₂ O ₃	0.3	0.4	0.5	0.7
	FeO	7.9	7.2	5.8	3.7
	MnO	0.2	0.3	0.3	0.4
	MgO	7.0	4.4	2.1	2.0
	CaO	10.0	7.8	6.7	3.9
	Na ₂ O	2.7	3.3	3.4	3.6
	K ₂ O	0.6	0.8	0.9	1.0
		100.0	100.3	100.0	99.8
Mol. Prop.					
	$\frac{100 \text{ MgO}}{\text{MgO} + \text{FeO}_{\text{tot}}}$	60.4	50.9	37.5	45.3
<i>CIPW norm</i>					
	Qz		5.5	14.4	25.3
	Or		4.8	5.4	5.9
	Ab		27.9	28.8	30.5
	An		35.7	33.2	19.3
	Cor		—	1.4	5.8
	Diop		2.4	—	—
	Hyp		21.9	15.3	12.1
	Mt		0.6	0.7	1.0
	Ilm		1.5	0.8	0.2
<i>Crystal residuum</i>					
	SiO ₂		44.8	43.0	42.7
	TiO ₂		2.5	2.7	2.7
	Al ₂ O ₃		9.7	12.3	14.2
	FeO		9.1	10.1	11.2
	MgO		14.6	12.9	11.0
	CaO		16.6	13.8	14.8
	Na ₂ O		1.0	1.8	1.9
	K ₂ O		0.04	0.2	0.2
			98.34	96.8	98.7
Mol. Prop.					
	$\frac{100 \text{ MgO}}{\text{MgO} + \text{FeO}}$		74.2	69.5	63.7

* The orthopyroxene analysis obtained at 1040°C, 9 kb has been used in calculations for other experimental runs since it could not be analyzed in these runs. Since only 2% of orthopyroxene is extracted, any variations in its composition will not seriously affect the compositions of the liquid fractionates or crystalline residua. Also 1% of ilmenite is extracted as part of the crystalline residua. This is because an accessory iron-titanium rich opaque mineral phase occurred in the experimental runs in graphite capsules where no iron loss took place. This phase could not be analyzed quantitatively and as a first approximation for these calculations was taken as ilmenite.