

Table 18. Calculated compositions of liquid fractionates and crystalline residua derived from the basaltic andesite and andesite compositions at 27 kb

Composition	Basaltic andesite			Andesite	
		1,390° C	1,360° C	1,340° C	
Temperature					
Nature and estimated % of crystals	Initial liquid	4% ga 2% cpx	9% ga 11% cpx	Initial liquid	5% ga
<i>Liquid fractionate</i>					
SiO ₂	56.4	57.2 ^a	59.2	62.2	63.4
TiO ₂	1.4	1.4	1.4	1.1	1.1
Al ₂ O ₃	16.6	16.4	16.3	17.3	17.0
Fe ₂ O ₃	3.0	3.2	3.7	0.3	0.3
FeO	5.7	5.2	4.2	5.9	5.3
MnO	0.1	0.1	0.1	0.1	0.1
MgO	4.3	3.8	2.9	2.4	2.0
CaO	8.5	8.4	7.6	5.2	5.1
Na ₂ O	3.0	3.1	3.4	3.3	3.5
K ₂ O	1.0	1.1	1.3	2.3	2.4
	100.0	99.9	100.1	100.1	100.2
Mol. prop.					
$\frac{100 \text{ MgO}}{\text{MgO} + \text{FeO}_{\text{Total}}}$	47.7	45.6	40.8	41.0	39.0
<i>CIPW norm</i>					
Qz	10.7	12.5	15.3	15.5	16.7
Or	5.9	6.0	7.7	13.6	14.2
Ab	25.4	26.2	28.8	27.9	29.7
An	28.9	27.8	25.4	25.7	23.6
Diop	10.8	11.1	9.8	0.2	1.5
Hyp	11.3	8.9	5.0	14.8	12.1
Ol	—	—	—	—	—
Mt	4.3	4.6	5.4	0.4	0.4
Ilm	2.7	2.7	2.7	2.1	2.1
<i>Crystal residuum</i>					
SiO ₂		43.4	45.0		39.1
TiO ₂		0.9	1.2		1.1
Al ₂ O ₃		19.1	17.6		22.4
FeO		13.4	11.7		17.7
MnO		0.2	0.2		0.4
MgO		11.9	10.1		10.7
CaO		10.4	12.0		7.4
Na ₂ O		0.7	1.2		—
K ₂ O		—	—		—
		100.0	99.0		98.8
Mol. prop.					
$\frac{100 \text{ MgO}}{\text{MgO} + \text{FeO}}$		61.3	60.6		51.9

^a Denotes compositions determined from analyses calculated in the manner described on p. 116.

Table 19. *Calculated compositions of liquid fractionates and crystalline residua derived from the high-alumina olivine tholeiite and high-alumina quartz tholeiite compositions at 36 kb*

Compositions	High-alumina olivine tholeiite		High-alumina quartz tholeiite		
	1,520° C		1,510° C	1,490° C	
Nature and estimated % of crystals	Initial liquid	20% cpx 10% ga	Initial liquid	10% cpx 5% ga	15% cpx 10% ga
<i>Liquid fractionate</i>					
SiO ₂	50.3	51.9 ^a	52.9	53.9 ^a	55.1 ^a
TiO ₂	1.7	2.0	1.5	1.6	1.6
Al ₂ O ₃	17.0	16.8	16.9	17.0	16.7
Fe ₂ O ₃	1.5	2.1	0.3	0.4	0.4
FeO	7.6	7.1	7.9	7.9	7.4
MnO	0.16	0.17	0.2	0.2	0.2
MgO	7.8	6.3	7.0	6.1	5.6
CaO	11.4	10.8	10.0	9.5	9.2
Na ₂ O	2.8	3.1	2.7	2.9	3.0
K ₂ O	0.18	0.26	0.6	0.7	0.8
	100.4	100.5	100.0	100.2	100.0
<i>Mol. Prop.</i>					
$\frac{100 \text{ MgO}}{\text{MgO} + \text{FeO}_{\text{Total}}}$	60.7	55.5	60.4	56.8	56.3
<i>CIPW norm</i>					
Qz		1.4	1.3	2.9	4.9
Or	1.1	1.6	3.5	4.2	4.8
Ab	23.7	26.2	22.8	24.6	25.4
An	33.3	31.2	32.2	31.3	29.7
Diop	18.9	18.2	14.2	12.9	13.0
Hyp	11.9	15.2	22.6	20.8	18.6
Ol	6.2	—	—	—	—
Mt	2.2	3.0	0.4	0.6	0.6
Ilm	3.2	3.8	2.8	3.0	3.0
<i>Crystal residuum</i>					
SiO ₂		46.6		47.5	46.4
TiO ₂		1.0		1.0	1.1
Al ₂ O ₃		17.4		16.4	17.6
FeO		8.7		7.9	9.4
MnO		0.1		0.1	0.2
MgO		11.4		12.3	11.2
CaO		12.9		13.0	12.4
Na ₂ O		2.0		1.8	1.7
K ₂ O		—		—	—
		100.1		100.0	100.0
<i>Mol. prop.</i>					
$\frac{100 \text{ MgO}}{\text{MgO} + \text{FeO}}$		70.0		73.5	68.0

^a Denotes compositions determined from analyses calculated in the manner described on p. 116.