

TABLE 1

Comparison of chemical compositions of basalt composition (NM5) used by Ito and Kennedy (1970, 1971) with the quartz tholeiite B and high alumina basalt compositions studied in the Canberra laboratory. Attention is directed to the exceptionally low normative diopside content of NM5 and the high normative olivine content - in these respects this composition is very unlike the average oceanic tholeiite of Engel et al. (1965). The calculated composition of the 'eclogite component' (garnet + pyroxene + quartz) of NM5 at 20.5kb, 1100°C is also listed for comparison

	NM5	NM5-9.3% plagioclase (An ₁₇) Ito and Kennedy (1971)	Quartz Tholeiite B Green and Ringwood (1967a)	High Alumina Basalt T.H.Green (1967)	Average Oceanic Tholeiite Engel et al. (1965)
SiO ₂	49.93	48.47	52.16	50.3	49.94
TiO ₂	1.34	1.48	1.86	1.7	1.51
Al ₂ O ₃	16.75	16.17	14.60	17.0	16.69
Fe ₂ O ₃	-	-	2.46	1.5	2.01
FeO	11.40	12.60	8.39	7.6	6.90
MnO	0.18	.20	0.14	0.16	-
MgO	7.59	8.36	7.36	7.8	7.28
CaO	9.33	9.91	9.44	11.4	11.86
Na ₂ O	2.92	2.20	2.68	2.8	2.76
K ₂ O	0.37	0.41	0.73	0.18	0.16
P ₂ O ₅	0.19	0.21	0.18	-	0.16
CIPW norms:					
Qz	-	-	2.5	-	-
Or	2.2	2.2	4.8	1.1	1.1
Ab	24.6	18.4	22.1	23.7	23.6
An	31.4	33.3	25.5	33.3	32.5
Di	11.5	12.3	17.1	18.9	20.8
Hy	13.2	15.4	20.6	11.9	11.6
Ol	14.1	15.1	-	6.2	4.0
Ilm	2.6	2.9	3.6	3.2	2.9
Ap	0.4	0.4	0.4	-	0.3
Mt	-	-	3.6	2.2	2.9

TABLE 2.

Comparison of compositions of basalts studied by Green and Ringwood (1966, 1967) with that of NM5 (Ito and Kennedy, 1967, 1971), with eclogite component of NM5 at 20.5kb, 1100°C and with average oceanic tholeiite.

	Andesite T.H.Green, 1970	NM5 Ito & Kennedy 1971	Average Oceanic Tholeiite (Calculated)
Composition of eclogitic pyroxene	Jd ₇₇ Di ₂₃	Jd _{52.5} Di _{47.5}	Jd ₂₃ Ac ₁₀ Di ₆₅
Grossular content of eclogite garnet*1	Gr ₄₀ *	Gr ₂₃ *1	Gr ₂₈ *
Molecular ratio:			
$\frac{\text{An} + \text{Ab}}{\text{Di} + \text{Ol} + \text{Hy}/2 + \text{Ilm} + \text{Mt}}$	1.95	1.00	1.03
(wt.%) Normative olivine or quartz	9	14	4.0
$\frac{100\text{Mg}}{\text{Mg} + \text{Fe}^{++}}$	49	53	65
Basalt type	(Andesite)	Olivine tholeiite	Olivine tholeiite
Eclogite type	Qz + Ky	Qz	Qz + Ky
Pressure (kb) for plagioclase disappearance at 1100°C	26±1	26	-
Pressure (kb) for garnet appearance at 1100°C	13.5±1	10.5	-

* Calculated

1 Measured