

78506**High-Ti Mare Basalt**
55.97 g, 4 x 4.5 x 3 cm**INTRODUCTION**

Sample 78506 was collected as part of a soil sample at Station 8. It is a typical ilmenite-rich mare basalt from Apollo 17. It has a network of large vugs (Fig. 1).

PETROGRAPHY

Pyroxene and plagioclase have crystallized together in a nice coarse-grained subophitic texture (Fig. 2).

Brown et al. (1975) give the modal mineralogy of 78506 as 2.0% olivine, 22.6% opaques, 20.7% plagioclase, 52.4% pyroxene, and 2.3% silica. Irregular vugs take up about 10% of the volume of the rock.

MINERAL CHEMISTRY

Brown et al. (1975) have reported a "new" Zr-rich mineral in 78506 that is related to zirconolite.

WHOLE-ROCK CHEMISTRY

Rhodes et al. (1976a) reported the chemical composition of 78506, and Gibson et al. (1976) determined the sulfur content. These analyses are given in Table 1 and Fig. 3.

RADIOGENIC ISOTOPES

Nyquist et al. (1976) have reported Rb-Sr data for the whole rock (Table 2).



Figure 1: Photograph of 78506. Scale is 1 cm. S73-15467

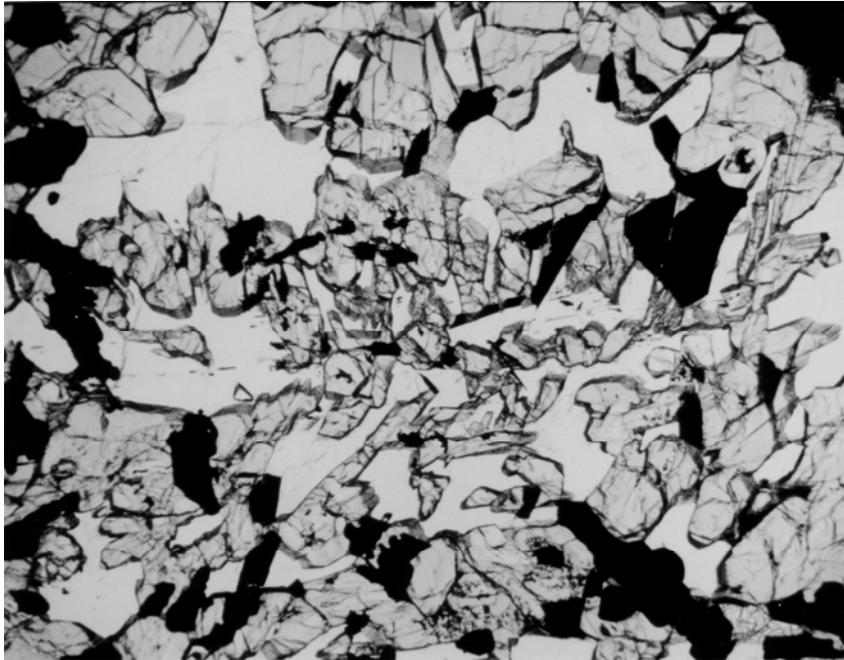


Figure 2: Photomicrograph of thin section 78506,27. Field of view is 3 x 4 mm.

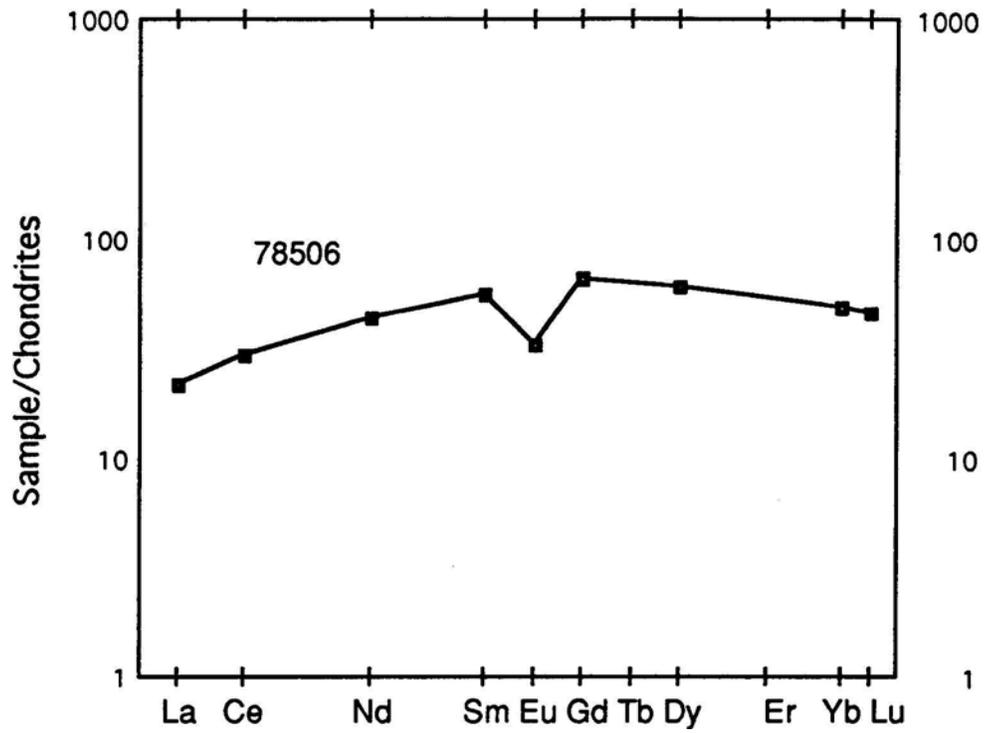


Figure 3: Normalized rare earth element diagram for 785+96. Data from Rhodes et al. (1976a).

Table 1: Whole-rock chemistry of 78506.
From Rhodes et al. (1976a).

Split Technique	,29 XRF, IDMS, INAA	Split Technique	,29 XRF, IDMS, INAA
SiO ₂ (wt%)	38.55	Ni	
TiO ₂	12.93	Co	17.6
Al ₂ O ₃	8.99	Sc	73
Cr ₂ O ₃	0.51	La	5.1
FeO	19.36	Ce	17.8
MnO	0.27	Nd	19.6
MgO	9.59	Sm	8.19
CaO	9.94	Eu	1.85
Na ₂ O	0.39	Gd	12.9
K ₂ O	0.05	Tb	
P ₂ O ₅	0.02	Dy	14.9
S	0.16	Er	–
Nb (ppm)		Yb	7.99
Hf	8.2	Lu	1.11
Sr	175	Ge (ppb)	
Rb	0.44	Ir	
Li	9.4	Au	
Ba	65.9		

Table 2: Rb-Sr composition of 78506.
Data from Nyquist et al. (1976).

Sample	78506,29
wt (mg)	50
Rb (ppm)	0.442
Sr (ppm)	175
⁸⁷ Rb/ ⁸⁶ Sr	0.0073 ± 3
⁸⁷ Sr/ ⁸⁶ Sr	0.69961 ± 6
T _B	4.85 ± 0.78
T _L	5.50 ± 0.78

B = Model age assuming I = 0.69910 (BABI + JSC bias)

L = Model age assuming I = 0.69903
(Apollo 16 anorthosites for T = 4.6 b.y.)