

77536**High-Ti Mare Basalt****355.3 g, 11 x 7.0 x 3.5 cm****INTRODUCTION**

Sample 77536 is a rake sample from soil 77530 at Station 7. It is a coarse-grained, high-Ti mare basalt that is similar to other Apollo 17 basalts (Fig. 1) It has a very high TiO₂ content (14.5%).

PETROGRAPHY

Warner et al. (1978) classify 77536 as a coarse-grained, plagioclase - poikilitic ilmenite basalt (Fig. 2). They give the mode as 50% plagioclase, 27% pyroxene, 19% ilmenite, with ~1% olivine. They report ~1.6% silica and trace armalcolite, zirconolite, and baddeleyite.

Sample 77536 has about 1% vugs with projecting pyroxenes and ilmenite crystals. One side has a partial glass coating. All sides have micrometeorite craters. One plagioclase crystal is 3 mm long (Fig. 2).

MINERAL CHEMISTRY

The compositions of the minerals in 77536 are given in Fig. 3 (from Warner et al., 1978). Note that some of the olivine is Fe rich.

WHOLE-ROCK CHEMISTRY

Warner et al. (1975) have reported the chemical composition of 77536 (Table 1 and Fig. 4). The rare earth pattern is identical to other Apollo 17 samples, including 77535.

Classification of Apollo 17 basalts has been discussed by Rhodes et al. (1976), Lindstrom and Haskin (1978), and Pratt et al. (1978) (see appendix). Lindstrom and Haskin designate 77536 as a Type U basalt, while Pratt et al. call it a Type B3.

The sample has very high TiO₂ (14.5%) and Cr₂O₃ (0.56%).



Figure 1: Photograph of 77536. Scale is 1 cm. S73-19154.

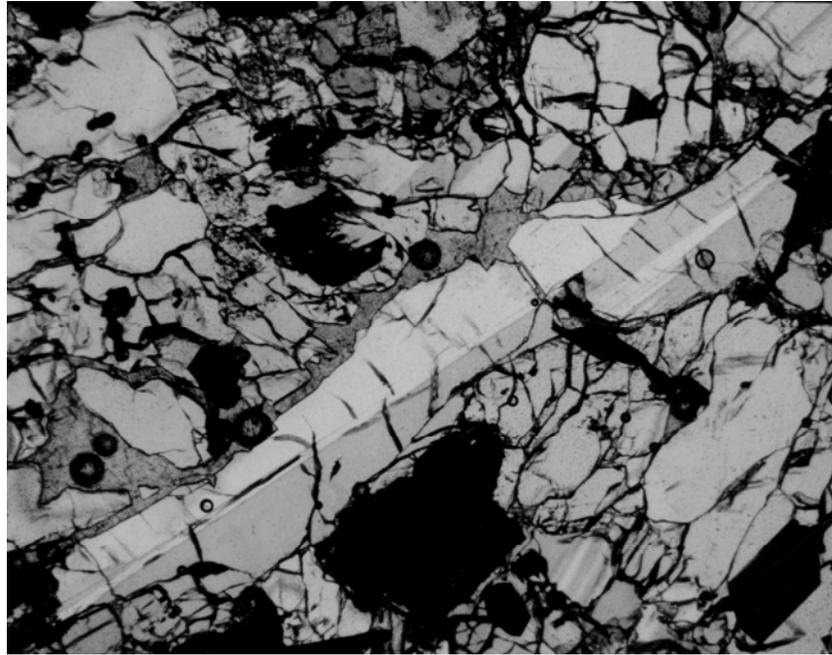


Figure 2: Photomicrograph of thin section 77536,8. Field of view is 3 x 4 mm.

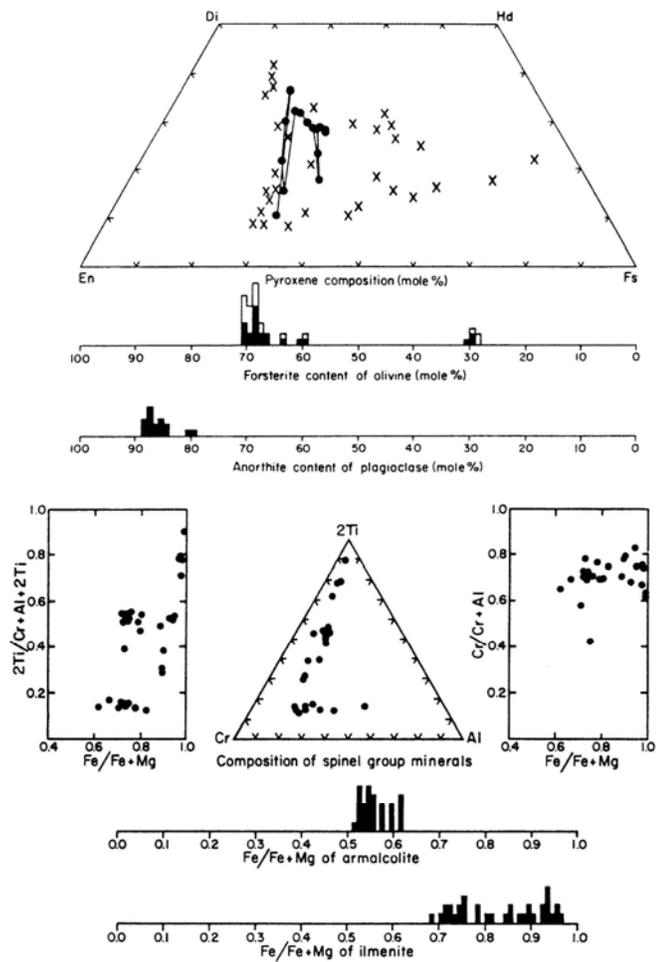


Figure 3: Mineral compositions of 77536. From Warner et al. (1978).

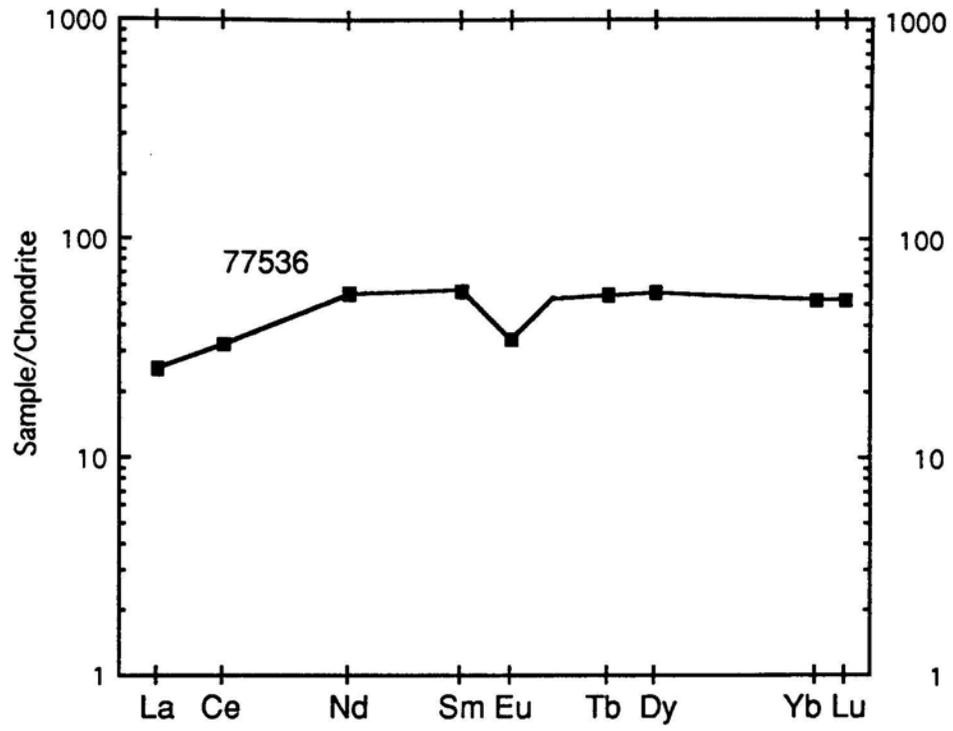


Figure 4: Normalized rare earth element diagram for 77536. Data from Warner et al. (1975).

Table 1: Whole-rock chemistry of 77536.
From Warner et al. (1975).

Split Technique	,2 INAA
SiO ₂ (wt%)	–
TiO ₂	14.5
Al ₂ O ₃	8.0
Cr ₂ O ₃	0.56
FeO	18.8
MnO	0.23
MgO	9.2
CaO	10.2
Na ₂ O	0.33
K ₂ O	0.07
Nb (ppm)	
Hf	8.8
Ta	2
Co	17.8
Sc	78
La	6.1
Ce	20
Nd	25
Sm	8.5
Eu	1.94
Gd	
Tb	2.0
Dy	14
Er	
Yb	8.5
Lu	1.3
Ge (ppb)	
Ir	
Au	