

71536**High-Ti Mare Basalt
5.32 g****INTRODUCTION**

See "Rake Sample Descriptions" and "Table of Rake Samples", as well as Fig. 1.

**PETROGRAPHY AND
MINERAL CHEMISTRY**

Warner et al. (1978) reported the petrography and mineral chemistry of 71536. During the preparation of this catalog, we examined thin section 71536,4 and found it to be a coarse-grained (0.6-1.5mm), sub-ophitic to plagioclase-poikilitic basalt (Fig. 2). Blocky ilmenite of the

same size overlays the plagioclase and pyroxene (Fig. 2). No rutile or chromite exsolution was found in the ilmenite. Olivine and armalcolite were not observed. Native Fe and troilite (up to 0.3mm) are either associated with ilmenite or form interstitial phases. Conspicuous interstitial SiO_2 is also present.

WHOLE-ROCK CHEMISTRY

Murali et al. (1977) reported the whole-rock composition of 71536,1 in a study of Apollo 17 rake samples (Table 1). 71536 is

classified as a Type A Apollo 17 high-Ti basalt using the classification of Rhodes et al. (1976) and Warner et al. (1979). This sample contains 7.8 wt% TiO_2 , with a MG# of 44.7. Murali et al. (1977) distinguished 71536 by its low V, TiO_2 , MgO, and Cr_{23} contents and suggested that it formed part of a distinct compositional group. The REE profile (Fig. 3) is LREE-depleted with a maximum at Sm and the HREE constant at ~40 times chondritic values. A negative Eu anomaly is present [$(\text{Eu}/\text{Eu}^*) = 0.63$].



Figure 1: Hand specimen photograph of 71536,0. Small divisions on scale are in millimeters.

PROCESSING

Of the original 5.32g of 71536,0, approximately 4.46g remains. 71536,1 was used for INAA, and the thin section 71536,5 was taken from this irradiated sample.

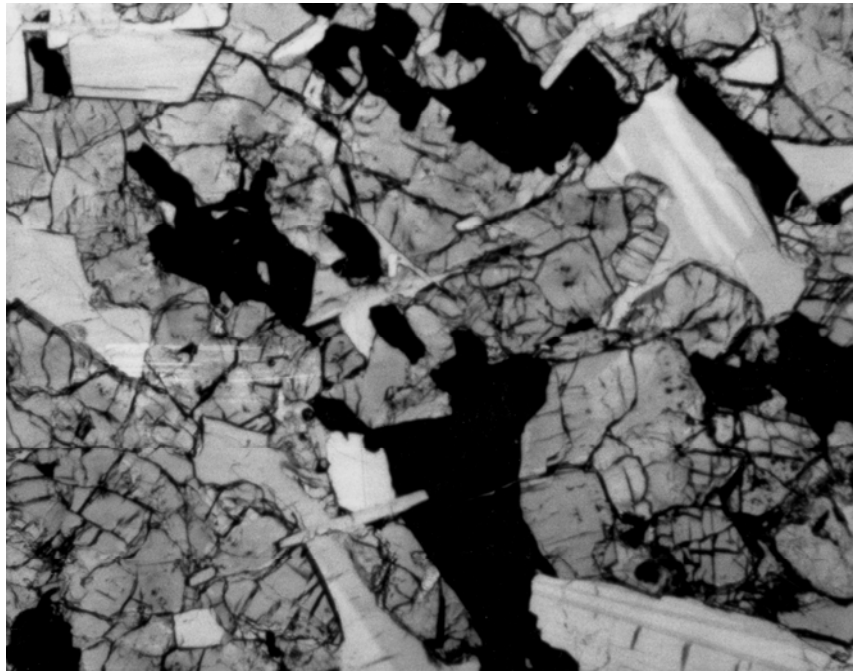


Figure 2: Photomicrograph of 71536,4 demonstrating a subophitic texture. Field of view= 2.5 mm.

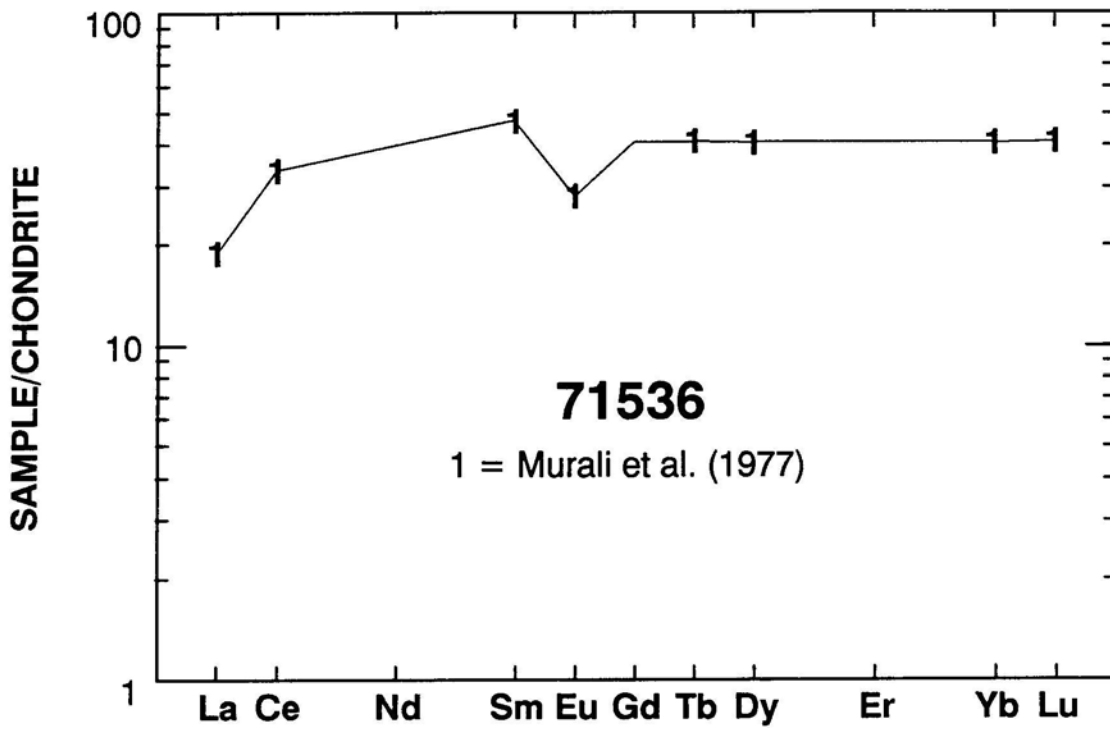


Figure 3: Chondrite -normalized rare-earth element plot of 71536. Data from Murali et al. (1977).

Table 1: Whole-rock chemistry of 71536.
Data from Murali et al. (1977).

Sample 71536,1 Method N		Sample 71536,1 Method N	
SiO ₂ (wt %)		Cu	
TiO ₂	7.8	Ni	
Al ₂ O ₃	11.7	Co	12.7
Cr ₂ O ₃	0.338	V	39
FeO	16.1	Sc	73
MnO	0.223	La	6.2
MgO	7.3	Ce	29
CaO	13.6	Nd	
Na ₂ O	0.50	Sm	9.6
K ₂ O	0.071	Eu	2.17
P ₂ O ₅		Gd	
S		Tb	2.4
Nb (ppm)		Dy	14
Zr		Er	
Hf	7.2	Yb	9.0
Ta	1.4	Lu	1.4
U		Ga	
Th		F	
W		Cl	
Y		C	
Sr		N	
Rb		H	
Li		He	
Ba		Ge (ppb)	
Cs		Ir	
Be		Au	1.4 ± 0.4
Zn		Ru	
Pb		Os	

Analysis by: N = INAA.