

71037**High-Ti Mare Basalt****14.39 g, 2.5 x 2 x 2 cm****INTRODUCTION**

71037 was described as a homogeneous, medium-grained, porphyritic, medium dark gray, intergranular basalt (Apollo 17 Lunar Sample Information Catalog, 1973), containing irregular vugs up to 5mm long (Fig. 1). The large vugs are concentrated in one zone. All surfaces are dusty, having been exposed at the lunar surface. Generally, this basalt is similar to 71035 and 71036. 71037 was collected from Station 1A, near 71035 and 71036.

PETROGRAPHY AND MINERAL CHEMISTRY

The general petrography and mineral chemistry of 71037 has been described by Warner et al. (1979) within the confines of their whole-rock classification. 71037 was not mentioned specifically. During the preparation of this catalog, we examined thin section 71037,5 and found it to contain ilmenite and olivine phenocrysts (up to 2mm) set in a groundmass of pyroxene, plagioclase, ilmenite, and rare Cr-spinel (Fig. 2). Armalcolite is also rare. Ilmenites exhibit "sawtooth" margins, indicative of rapid cooling. Olivines contain very few pyroxene overgrowths. Plagioclase and pyroxene are intergrown into "bowtie" structures. Small (< 0.1 mm), euhedral chromite inclusions are present in the olivine phenocrysts. Apollo 17 Lunar Sample Information Catalog

(1973) states that 71037 is comprised of 35% plagioclase, 45% pyroxene, 20% ilmenite, and < 1% olivine.

WHOLE-ROCK CHEMISTRY

The whole-rock chemistry has been reported by Ma et al. (1979)

and Warner et al. (1979). These authors have published the same analysis (Table 1). 71037 was described as a Type B Apollo 17 high-Ti basalt by Warner et al. (1979). 71037 is further classified as a Type B2 basalt using the criteria of Neal et al. (1990). This basalt contains 11.2 wt% TiO₂ with a MG# of



Figure 1: Hand specimen photograph of 71037,0.

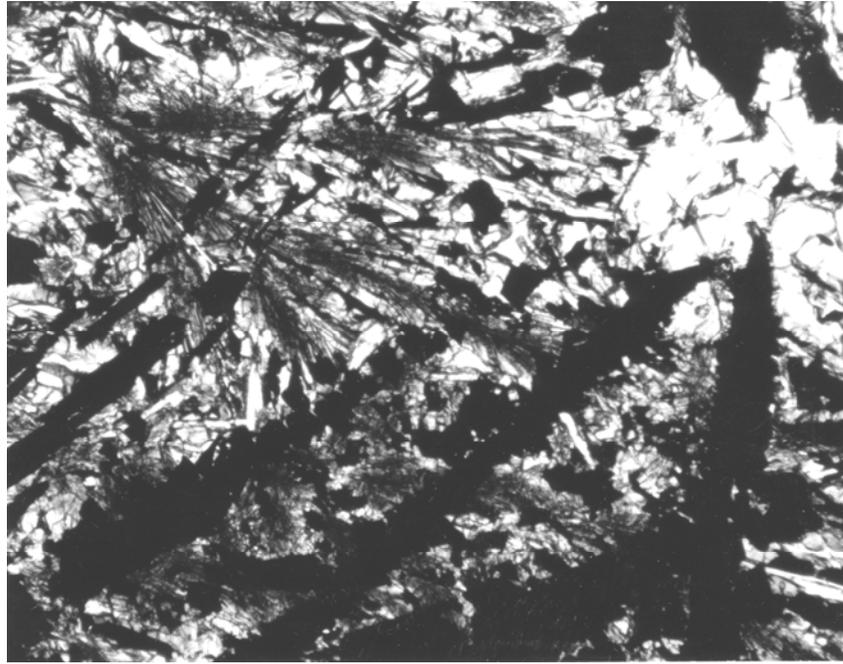


Figure 2: Photomicrograph of 71037,5 showing olivine phenocrysts and variolitic texture. Field of view is 2.5 mm.

39.1. The REE profile (Fig. 3) is LREE-depleted, with approximately constant VREE and HREE values at 30-35 times chondritic values. A negative Eu anomaly is present ($[Eu/Eu^*]_N = 0.56$).

PROCESSING

Of the original 14.398 of 71037,0, only 13.788 remains. 71037,1 was irradiated for

INAA, and 71037,5 is a thin section taken from this irradiated sample.

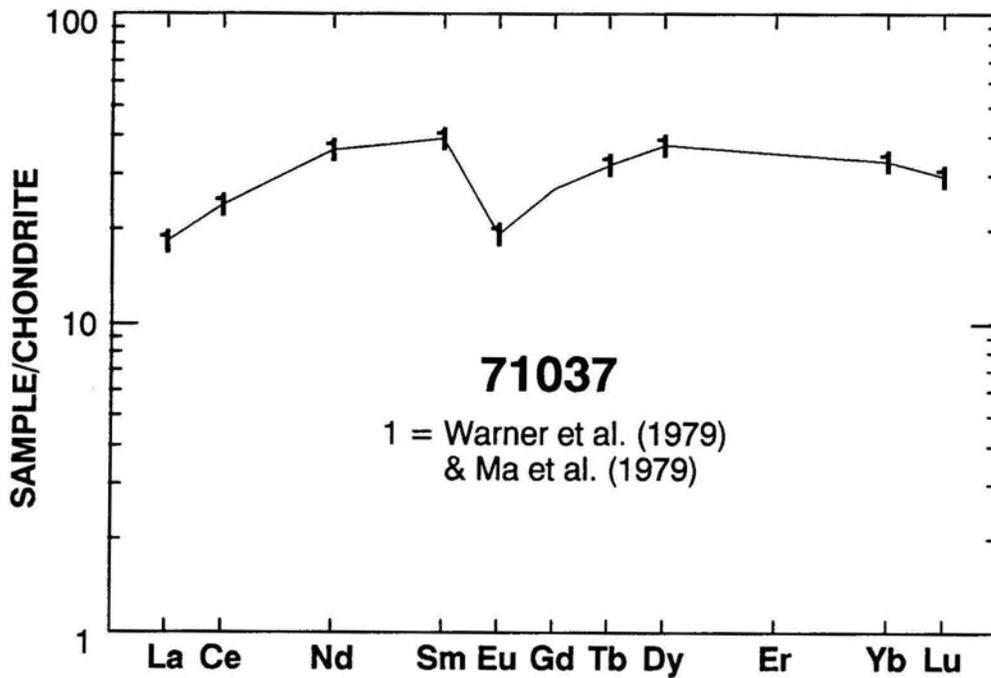


Figure 3: Chondrite -normalized rare-earth element profile of 71037.

Table 1: Whole-rock chemistry of 71037.
 Data from Ma et al. (1979) and Warner et al. (1979) (same analysis)

	71037,1 I		71037,1 I
SiO ₂ (wt %)		Cu	
TiO ₂	11.2	Ni	
Al ₂ O ₃	8.9	Co	20
Cr ₂ O ₃	0.310	V	73
FeO	19.4	Sc	85
MnO	0.246	La	6.1
MgO	7	Ce	21
CaO	11.2	Nd	23
Na ₂ O	0.425	Sm	8.1
K ₂ O	0.046	Eu	1.51
P ₂ O ₅		Gd	
S		Tb	1.9
Nb (ppm)		Dy	13
Zr		Er	
Hf	7.0	Yb	7.4
Ta	1.7	Lu	1.02
U		Ga	
Th		F	
W		Cl	
Y		C	
Sr		N	
Rb		H	
Li		He	
Ba		Ge (ppb)	
Cs		Ir	
Be		Au	
Zn		Ru	
Pb		Os	

I = analysis by INAA.