

71065**High-Ti Mare Basalt****28.83 g, 4.5 x 2.5 x 2.5 cm****INTRODUCTION**

71065 was described as a gray to brownish gray, fine-grained equigranular basalt (Fig. 1), which contains no zap pits and only one conspicuous vug (2mm diam.). This vug is lined with euhedral ilmenite and pyroxene crystals up to 1mm long (Apollo 17 Lunar Sample Information Catalog, 1973). Despite two dustings, all surfaces are coated with a fine dust and soil particles, except for one small chipped area next to the vug. This basalt has a rectangular to blocky shape with one penetrative fracture. It was collected from Station 1A.

PETROGRAPHY AND MINERAL CHEMISTRY

Warner et al. (1979) reported the petrography and mineral chemistry of 71065, but only within the general confines of the whole-rock classification. As such 71065 was not specifically mentioned. However, during the preparation of this catalog, we examined thin section 71065, 4, which is microporphyritic (Fig.2). Olivine (up to 0.5mm), armalcolite (mantled by ilmenite - Fig. 3), and ilmenite form phenocryst phases. Ilmenites (up to 1mm long) exhibit sawtooth margins,

and olivines are generally subhedral to euhedral (Fig. 2). Blocky ilmenites (~ 0.2mm) are also present. Pink pyroxene and plagioclase are present only as groundmass phases (<0.3mm). Cr-ulvospinel is present rarely as a phenocryst phase. Discrete ilmenites and those present as mantles on armalcolite contain exsolution lamellae (< 0.005mm) of chromite and rutile. Native Fe and troilite form interstitial phases. The Apollo 17 Lunar Sample Information Catalog (1973) reported that 71065 was comprised of 45-50% pyroxene, 35-40% plagioclase, 15% ilmenite, and 1% olivine.



Figure 1: Hand specimen photograph of 71065,0.

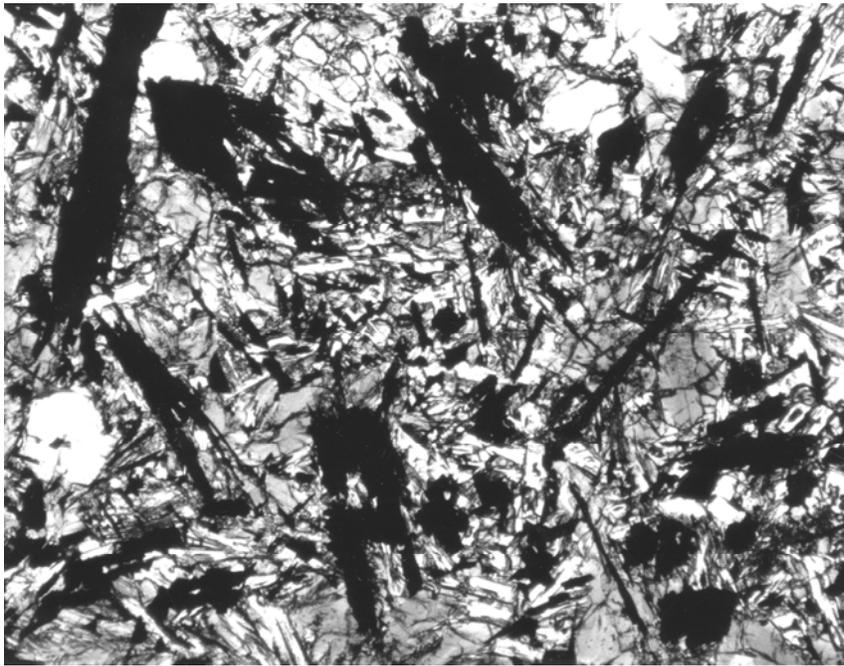


Figure 2: Photomicrograph of 71065,4 depicting ilmenite and olivine phenocrysts set in a subvariolitic to interlocking groundmass. Field of view is 2.5 mm.

WHOLE-ROCK CHEMISTRY

Ma et al. (1979) and Warner et al. (1979) reported the same whole-rock analysis for 71065

(Table 1). Warner et al. (1979) classified 71065 as a Type B Apollo 17 high-Ti basalt, and it is further classified as a Type B2

basalt using the criteria of Neal et al. (1990). It contains 12.5 wt% TiO₂ with a MG# of 41.9 (Table 1). The REE profile (Fig. 4) is LREE-depleted, with constant middle and heavy REE

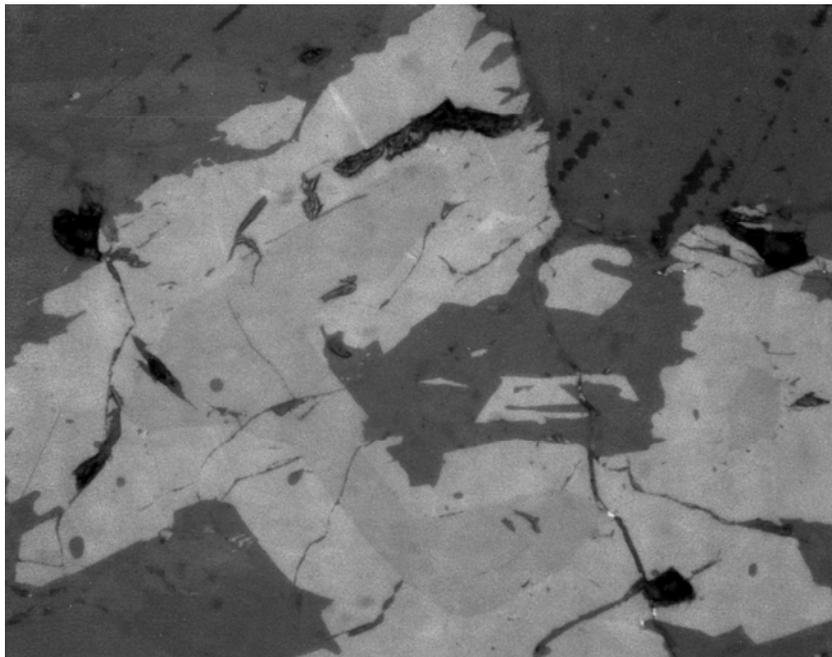


Figure 3: Photomicrograph in reflected light of 71065,4 depicting armalcolite rimmed with ilmenite. Field of view is 0.625 mm.

abundances at approximately 30 times chondritic values. A negative Eu anomaly is present ($[\text{Eu}/\text{Eu}^*]_N = 0.56$).

PROCESSING

Of the original 28.838 of 71065,0, a total of 28.358 remains. 71065,2 was used for INAA, and thin section 71065,4 was taken from this irradiated sample.

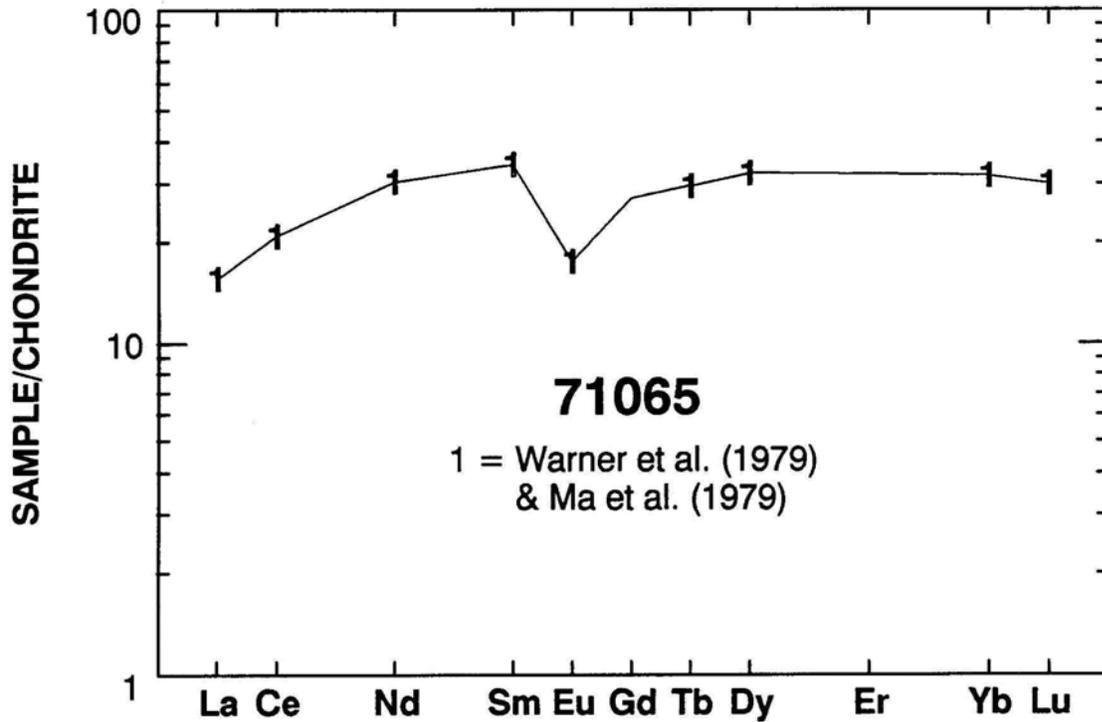


Figure 4: Chon.drite-normalized rare-earth element profile of 71065.

Table 1: Whole-rock chemistry of 71065.
Data from Ma et al. (1979) and Warner et al. (1979) (same analysis).

	71065,2 I		71065,2 I
SiO ₂ (wt %)		Cu	
TiO ₂	12.5	Ni	
Al ₂ O ₃	8.9	Co	22
Cr ₂ O ₃	0.377	V	102
FeO	19.8	Sc	89
MnO	0.256	La	5.1
MgO	8	Ce	18
CaO	10.0	Nd	19
Na ₂ O	0.389	Sm	6.9
K ₂ O	0.041	Eu	1.34
P ₂ O ₅		Gd	
S		Tb	1.7
Nb (ppm)		Dy	11
Zr		Er	
Hf	6.8	Yb	6.9
Ta	1.7	Lu	1.01
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.