71067

High-Ti Mare Basalt
4.245 g, 2 x 1.7 x 1 cm

INTRODUCTION

71067 was described as medium dark gray (brown tint), medium-grained, microdiabasic basalt (Apollo 17 Lunar Sample Information Catalog, 1973), containing no zap pits, but with abundant small irregular vugs (<0.5mm). These vugs are lined with euhedral needles and plates of groundmass minerals. This basalt is subrounded (Fig. 1) and intergranular. 71067 was collected from Station IA.

PETROGRAPHY AND MINERAL CHEMISTRY

Warner et al. (1979) have reported on 71067, but have only described it within the general context of their Type A Apollo 17 high-Ti basalts. This sample was not specifically mentioned. We examined thin section 71067, 5 during the preparation of this catalog, noting it to be a well crystallized, medium-grained (0.2-0.6mm) high-Ti basalt. Phenocryst phases are absent, although pink pyroxene and ilmenite can reach 0.6mm. Ilmenite contains exsolution lamellae (<0.005mm) of chromite and rutile. Pale pink pyroxenes form "bow-tie" structures with plagioclase (Fig. 2). Ilmenite exhibits "sawtooth" margins and few exsolution features. Discrete spinel phases and armalcolite are rare. Occasionally, the large pink pyroxenes contain a core of relict olivine, which may in turn contain small Cr-ulvospinel inclusions. Interstitial phases are silica, native Fe, and troilite. The Apollo 17 Lunar Sample Information Catalog (1973) reported that 71067 was comprised of 40% plagioclase, 50% pyroxene, and 10% ilmenite.

WHOLE-ROCK CHEMISTRY

Ma et al. (1979) and Warner et al. (1979) reported the same whole-rock analysis of 71067 (Table 1). Warner et al. (1979) described 71067 as a Type A Apollo 17 high-Ti basalt. It contains 12.7 wt% TiO_2 with a MG# of 45.1. The REE profile (Fig. 3) is LREE-depleted, with approximately constant middle and heavy REE abundances at 45 times chondritic values. A negative Eu anomaly is present ($[Eu/Eu^*]_N = 0.55$).

PROCESSING

Of the original 4.245g of 71067,0, a total of 3.83g remains. 71067,2 was used for INAA, and thin section 71067,5 was taken from this irradiated sample.

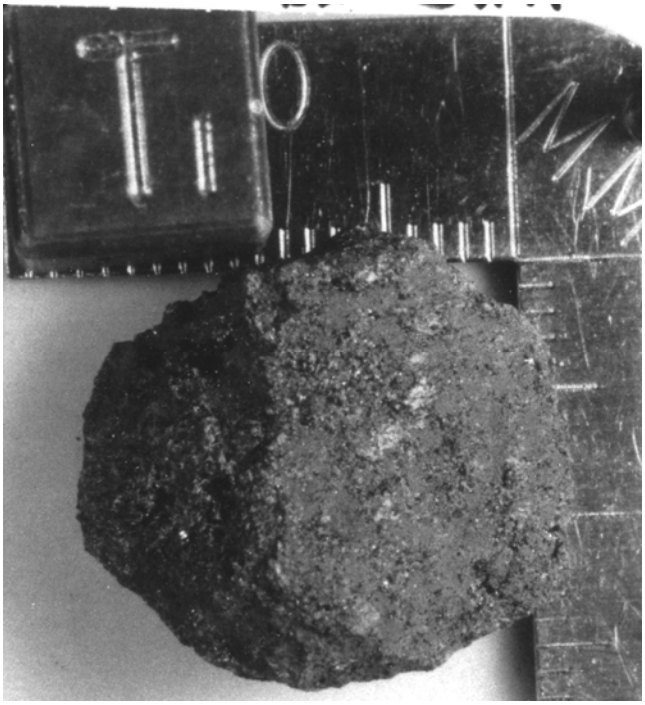

Figure 1; Hand specimen photograph of 71067,0.

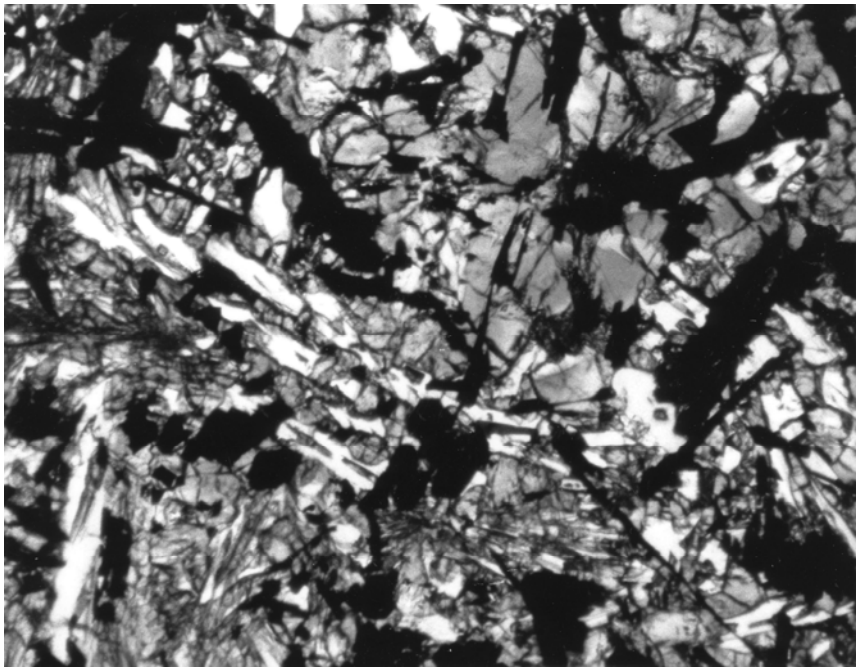

Figure 2: Photomicrograph of 71067,5. Field of view is 2.5 mm.

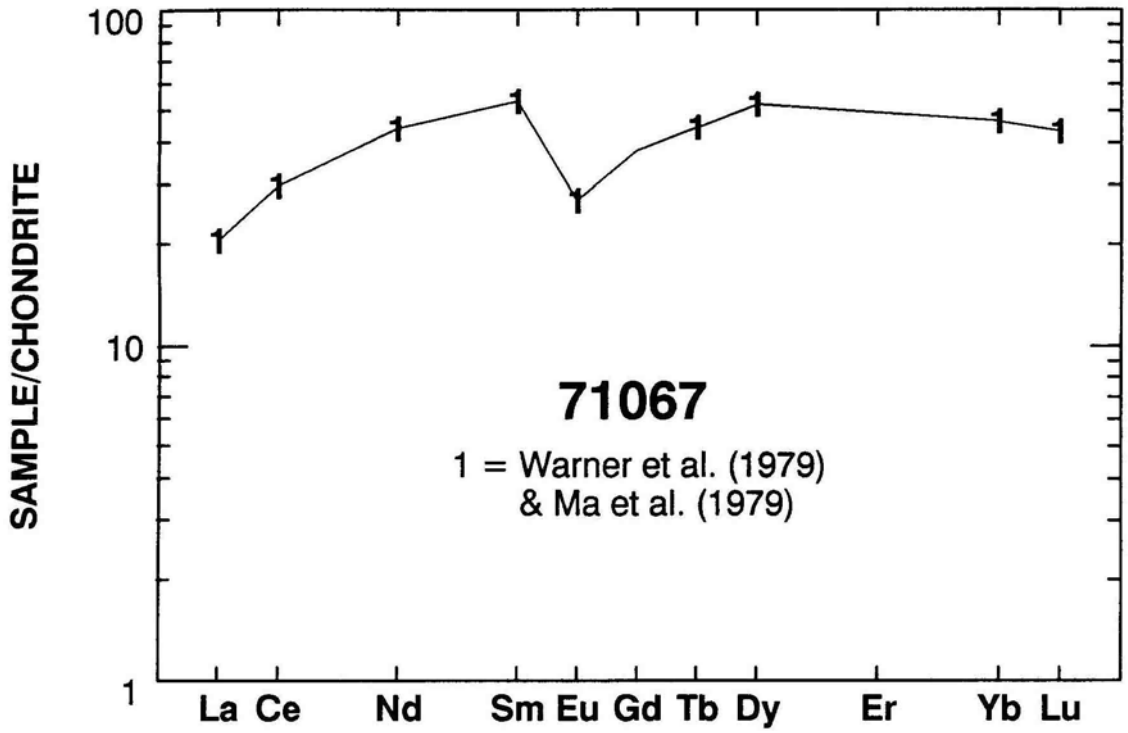

Figure 3: Chondrite -normalized rare-earth element profile of 71067.

Table 1: Whole-rock chemistry of 71067.
Data from Ma et al. (1979) and Warner et al. (1979) (same analysis).

	71067,2 I		71067,2 I
SiO_2 (wt %)		Cu	
TiO_2	12.7	Ni	
Al_2O_3	8.9	Co	20
Cr_2O_3	0.408	V	101
FeO	19.5	Sc	82
MnO	0.254	La	6.8
MgO	9	Ce	26
CaO	10.7	Nd	28
Na_2O	0.421	Sm	10.9
K_2O	0.069	Eu	2.09
P_2O_5		Gd	
S		Tb	2.6
Nb (ppm)		Dy	18
Zr		Er	
Hf	9.2	Yb	10.3
Ta	2.2	Lu	1.48
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.