

**71045****High-Ti Mare Basalt****11.92 g, 2.5 x 2 x 1.5 cm****INTRODUCTION**

71045 was described as a medium dark gray (with brownish tint), poikilitic, intergranular basalt (Fig. 1), containing 5% vugs (2-7mm diameter) (Apollo 17 Lunar Sample Information Catalog, 1973). Minerals projecting into these vugs are scarce. 71045 has a blocky to subangular shape with a poikilitic fabric. No zap pits are present. This basalt was collected from Station IA.

**PETROGRAPHY AND MINERAL CHEMISTRY**

Warner et al. (1979) reported the mineralogy and petrography of 71045 within the general confines of their whole-rock classification (see below). However, 71045 was not specifically mentioned. This sample is a plagioclase poikilitic basalt (Fig. 2), with plagioclase

reaching 3mm and pyroxene 2mm. Ilmenite (up to 1mm) is blocky and interstitial (Fig. 2). Rare ilmenite-free armalcolite and Cr ulvospinel inclusions (< 0.1mm) are present in pyroxene. Silica, native Fe, and troilite are interstitial phases. Olivine is only found as small (< 0.05mm) cores in pyroxene. The Apollo 17 Lunar Sample Information Catalog (1973) states that 71045 is comprised of 30-35% plagioclase, ~40% pyroxene, 15-20% opaque minerals, 5-10%

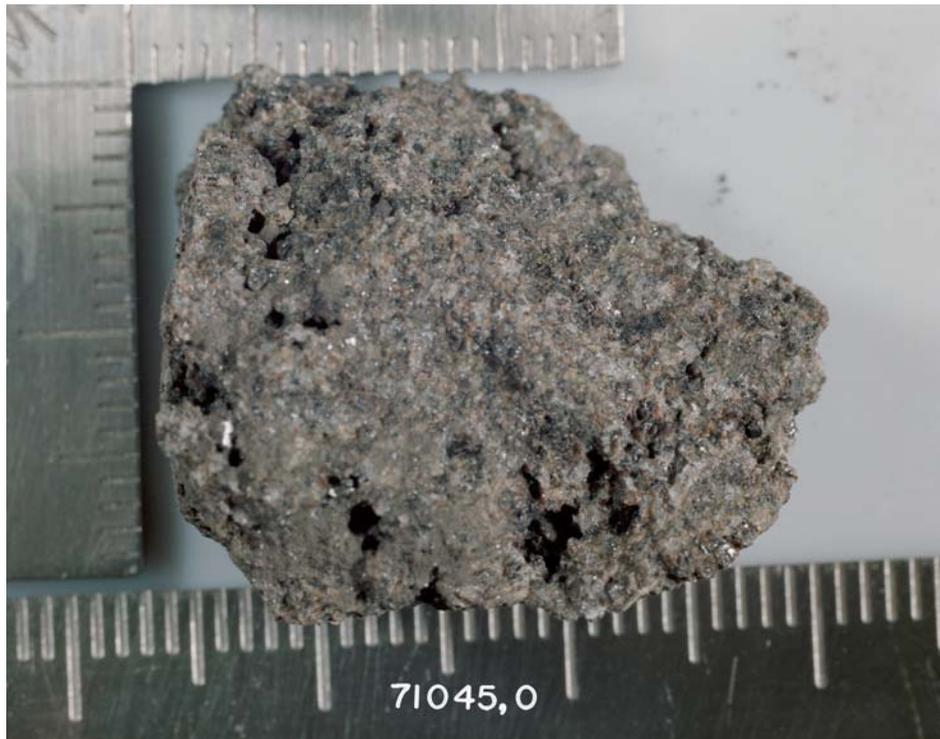


Figure 1: Hand specimen photograph of 71045,0.



Figure 2: Photomicrographs of 71045,3. Field of view is 2.5 mm.

ilmenite-pyroxene "clots", 1% silica, and < 1% olivine.

**WHOLE-ROCK CHEMISTRY**

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

71045 (Table 1). 71045 contains 12.7 wt% TiO<sub>2</sub> with a MG# of 48.9 (Warner et al, 1979). The REE profile (Fig. 3) is LREE-depleted with flat HREE at approximately 25-30 times chondritic levels. A negative Eu anomaly is present ( $[Eu/Eu^*]_N = 0.67$ ).

**PROCESSING**

Of the original 11.928 of 71045,0,11.43g remains. 71045,1 was irradiated for INAA, and 71045,3 is a thin section taken from this irradiated sample.

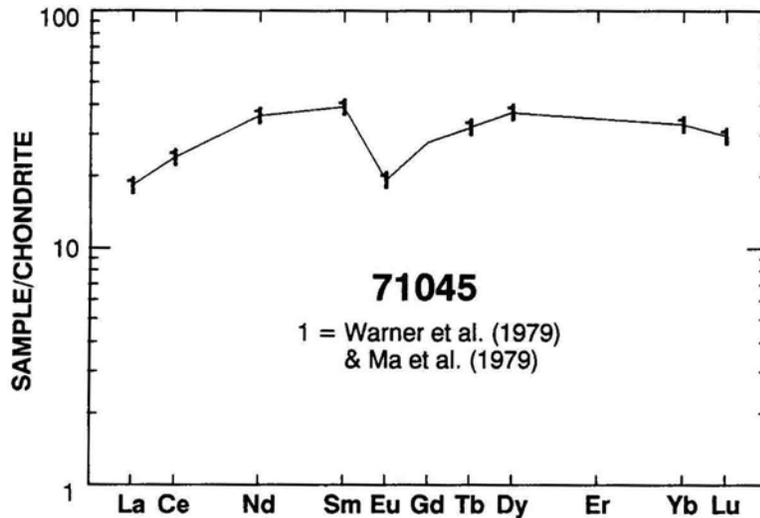


Figure 3: Chondrite-normalized rare-earth element profile of 71045.

**Table 1: Whole-rock chemistry of 71045.**  
 Data from Ma et al. (1979) and Warner et al. (1979) (same analysis).

	71045,1 I		71045,1 I
SiO <sub>2</sub> (wt %)		Cu	
TiO <sub>2</sub>	11.2	Ni	
Al <sub>2</sub> O <sub>3</sub>	8.9	Co	20
Cr <sub>2</sub> O <sub>3</sub>	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 <sub>2</sub> O	0.425	Sm	8.1
K <sub>2</sub> O	0.046	Eu	1.51
P <sub>2</sub> O <sub>5</sub>		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		Eu	
Pb		Os	