

**71068****High-Ti Mare Basalt  
4.208 g, 2 x 1 x 0.7 cm****INTRODUCTION**

71068 was described as a medium brownish gray, medium-grained (average 0.7mm), homogeneous basalt (Apollo 17 Lunar Sample Information Catalog, 1973), containing no zap pits. This basalt is angular and blocky. The surface is coated with fine dust and soils, with some adhering glass spherules. One end of the rock is a cavity wall, broken, and lined with euhedral ilmenite crystals and coated with dust. This sample was collected from Station 1A.

**PETROGRAPHY AND  
MINERAL CHEMISTRY**

Warner et al. (1979) have reported on 71068, but have described it only within the general confines of their coarse-grained basalt group. As such, 71068 was not specifically mentioned, although it does

exhibit a plagioclase poikilitic texture. We examined thin section 71068,5 during the preparation of this catalog, finding it to be a coarse-grained (0.5-1mm), plagioclase poikilitic basalt. Olivine (<0.1mm) is rare, only present as cores in large, pink pyroxenes. No armalcolite is present, and ilmenite (up to 1mm) is the dominant opaque. Abundant rutile and chromite exsolution lamellae (<0.005mm) are present in the ilmenite. Native Fe, troilite, and silica form interstitial phases. The Apollo 17 Lunar Sample Information Catalog (1973) reported that 71068 is comprised of 35-40% plagioclase, 45% pyroxene, 15-20% ilmenite, and < 1% olivine.

**WHOLE-ROCK CHEMISTRY**

Ma et al. (1979) and Warner et al. (1979) reported the same whole-rock analysis of 71068,2

(Table 1). Warner et al. (1979) described 71068 as a coarse-grained Apollo 17 high-Ti basalt (Type U of Rhodes et al., 1976). This basalt contains 13.6 wt% TiO<sub>2</sub> with a MG# of 45.9. The REE profile (Fig. 1) is LREE-depleted with relatively constant middle and heavy REE abundances (~30 times chondrites). A negative Eu anomaly is present ( $[Eu/Eu^*]_N = 0.66$ ).

**PROCESSING**

Of the original 4.2088 of 71068,0, 3.758 remains. 71068,2 was irradiated for INAA, and thin section 71068,5 was made from this irradiated sample.

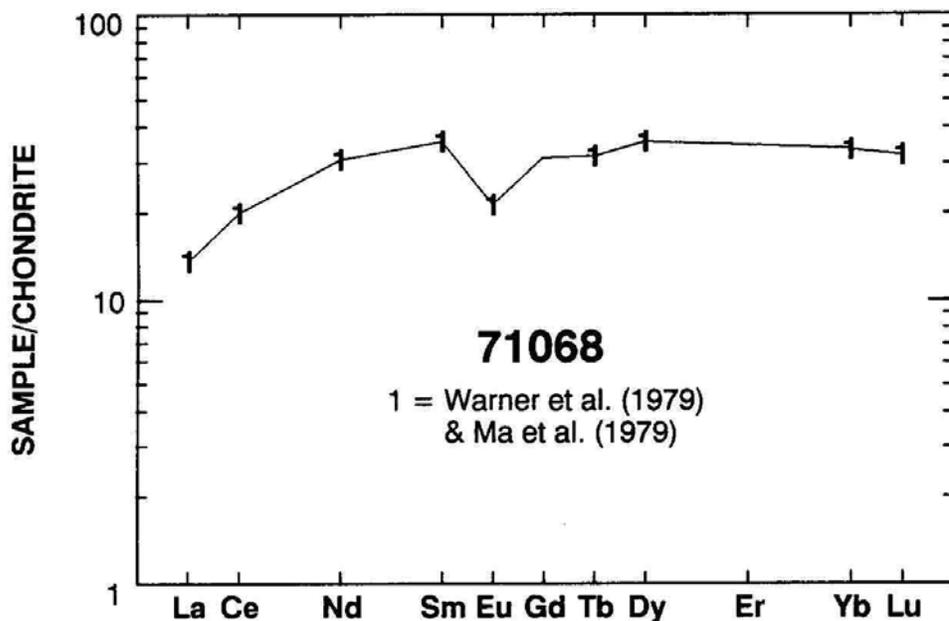


Figure 1: Chondrite-normalized rare-earth element profile of 71068.

**Table 1: Whole-rock chemistry of 71068.**  
 Data from Ma et al. (1979) and Warner et al. (1979) (same analysis).

	71068,2 I		71068,2 I
SiO <sub>2</sub> (wt %)		Cu	
TiO <sub>2</sub>	13.6	Ni	
Al <sub>2</sub> O <sub>3</sub>	8.3	Co	25
Cr <sub>2</sub> O <sub>3</sub>	0.530	V	135
FeO	18.9	Sc	79
MnO	0.244	La	4.4
MgO	9	Ce	17
CaO	9.8	Nd	19
Na <sub>2</sub> O	0.368	Sm	7.1
K <sub>2</sub> O	0.038	Eu	1.62
P <sub>2</sub> O <sub>5</sub>		Gd	
S		Tb	1.8
Nb (ppm)		Dy	12
Zr		Er	
Hf	7.3	Yb	7.2
Ta	1.7	Lu	1.06
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.