71508

High-Ti Mare Basalt
3.423 g, 2 x 1.5 x 1.5 cm

INTRODUCTION

71508 was described as a light reddish-gray, intergranular, medium- to coarse-grained, microdiabasic basalt (Apollo 17 Lunar Sample Information Catalog, 1973). Zap pits are present on most surfaces, but the rock is too friable to preserve many pits. 50% small irregular vugs riddle the N surface and appear to occur in the interior layers parallel to this surface. There is a partial soil coat on most surfaces (Fig. 1). No fresh exposures are present, except for broken areas around vugs.

71508 has a rhombic shape with rounded edges (Fig. 1) with fracturing which sheds a lot of grains. It was collected from Station 1A.

PETROGRAPHY AND MINERAL CHEMISTRY

Warner et al. (1978) have reported the petrography and mineral chemistry of 71508. During the preparation of this catalog we examined thin section 71508,5 and found it to be a fine- to medium-grained (0.2-0.5mm) sub-ophitic basalt.

Plagioclase and pyroxene are intergrown as "bow-tie" structures, but there is also blocky, pink pyroxene present. Some of these blocky pyroxenes contain rounded olivine cores (~0.lmm) which in turn contain euhedral inclusions of chromite (<0.005mm). Ilmenite (up to l mm) overlays the plagioclase and pyroxene. Opaque interstitial glass, native Fe, and troilite (the last two up to 0.2 mm) are associated with ilmenite, although native Fe and troilite are also present as interstitial phases. Interstitial SiO_2 (up to 0.3mm) is also present.

Figure 1: Hand specimen photograph of 71508,0. Small divisions on scale are in millimeters.

WHOLE-ROCK CHEMISTRY

Murali et al. (1977) have reported the whole-rock composition of 71508,1 (Table 1). Based on the whole rock classification scheme of Rhodes et al. (1976) and Warner et al. (1976), 71508 is a Type A Apollo 17 high-Ti basalt. It contains 12.1 wt% TiO_2 with a MG# of 42.5. The REE profile is LREE-depleted with a maximum abundances (relative to chondrites) in the MREE (Fig. 2). A negative Eu anomaly is present [(Eu/Eu*)N = 0.541.

PROCESSING

Of the original 3.423g of 71508,0, a'total of 1.898 remains. 71508,1 was used for INAA and the thin section,5 taken from this irradiated sample.

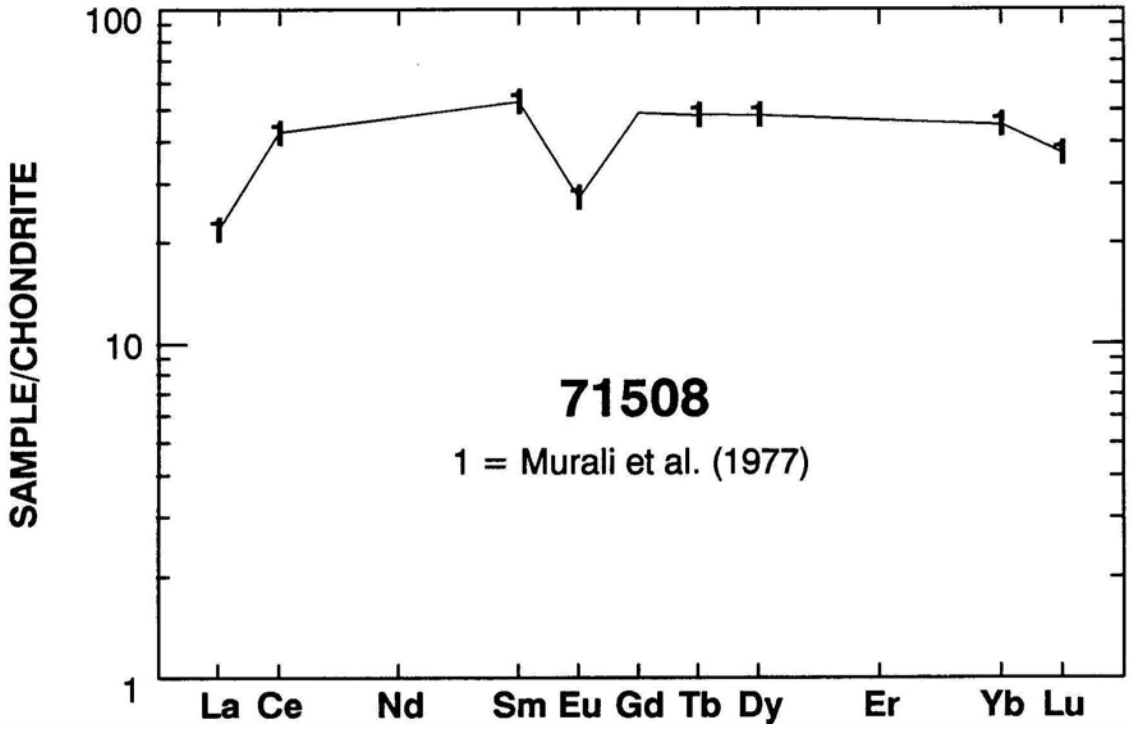

Figure 2: Chondrite -normalized rare-earth element profile of 71508. Data from Murali et al. (1977).

Table 1: Whole-rock chemistry of 71508.
Data from Murali et al. (1977).

	71508,1 N		71508,1 N
SiO_2 (wt %)		Cu	
TiO_2	12.1	Ni	
Al_2O_3	8.8	Co	17.0
Cr_2O_3	0.398	V	101
FeO	19.8	Sc	74
MnO	0.235	La	7.2
MgO	8.2	Ce	37
CaO	10.3	Nd	
Na_2O	0.40	Sm	10.8
K_2O	0.077	Eu	2.12
P_2O_5		Gd	
S		Tb	2.8
Nb (ppm)		Dy	19
Zr		Er	
Hf	9.3	Yb	10.0
Ta	1.8	Lu	1.26
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	

Analysis by: N = INAA.