

71558**High-Ti Mare Basalt****15.81 g****INTRODUCTION**

See "Rake Sample Descriptions" and "Table of Rake Samples", as well as Fig. 1.

PETROGRAPHY AND MINERAL CHEMISTRY

Warner et al. (1975b,c,1976a,b, 1978) reported the petrography and mineral chemistry of 71558. However, the mineral chemistry is reported only within the general context of petrographic type and not specifically mentioned. During the preparation of this catalog, we examined thin section 71558,6 and found it to

be a medium-grained (0.2-0.6mm) basalt. It is dominated by an interlocking net-work of pink pyroxene and plagioclase (bordering upon "plagioclase-poikilitic"), but occasional "bow-tie" inter-growths of plagioclase and pyroxene are present. Olivine is present as rounded cores (<0.1mm) to the larger pyroxenes. Occasionally these olivine cores contain euhedral chromite inclusions (~0.005mm). Ilmenite occurs as phenocrysts (up to 1.5mm) which form an intersertal texture with plagioclase and pyroxene, as well as a groundmass phase. The larger ilmenites exhibit "sawtooth"

margins. Rutile and chromite exsolution lamellae were observed in, and minor opaque glass is associated with, these ilmenites. Native Fe and troilite (<0.1mm) is found both associated with ilmenite and as an interstitial phase. Interstitial SiO₂ (< 0.2mm) is also present, but no armalcolite was observed.

WHOLE-ROCK CHEMISTRY

Warner et al. (1975) reported the whole-rock composition of 71558,1 in a study of Apollo 17 rake samples (Table 1). 71558 is classified as a Type 82 Apollo 17 high-Ti basalt using the whole-2



Figure 1: Hand specimen photograph of 71558,4. Small divisions on scale are in millimeters.

Table 1: Whole-rock chemistry of 71558

Data from Warner et al. (1975).

Sample 71558,1 Method N		Sample 71558,1 Method N	
SiO ₂ (wt %)		Cu	
TiO ₂	13.6	Ni	
Al ₂ O ₃	9.1	Co	21.4
Cr ₂ O ₃	0.430	V	120
FeO	20.2	Sc	83
MnO	0.257	La	5.4
MgO	8.4	Ce	18
CaO	10.8	Nd	
Na ₂ O	0.37	Sm	6.5
K ₂ O	0.044	Eu	1.41
P ₂ O ₅		Gd	
S		Tb	1.7
Nb (ppm)		Dy	11
Zr		Er	
Hf	6.6	Yb	6.4
Ta	1.8	Lu	1.0
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	

Analysis by: N = INAA.

rock classification of Rhodes et al. (1976) and Warner et al. (1979), plus the criteria of Neal et al. (1990). This sample contains 13.6 wt% TiO₂, with a MG# of 42.6. The REE profile (Fig. 2) is LREE-depleted with a maximum at Sm. The HREE are approximately constant at

30 times chondritic abundances. A negative Eu anomaly is present [(Eu/Eu*)_N = 0.59].

PROCESSING

Of the original 15.81 g of 71558,0, a total of ~14.478

remains. 71558,1 was subdivided into,9001 which was irradiated for INAA, and ,6 for a thin section.

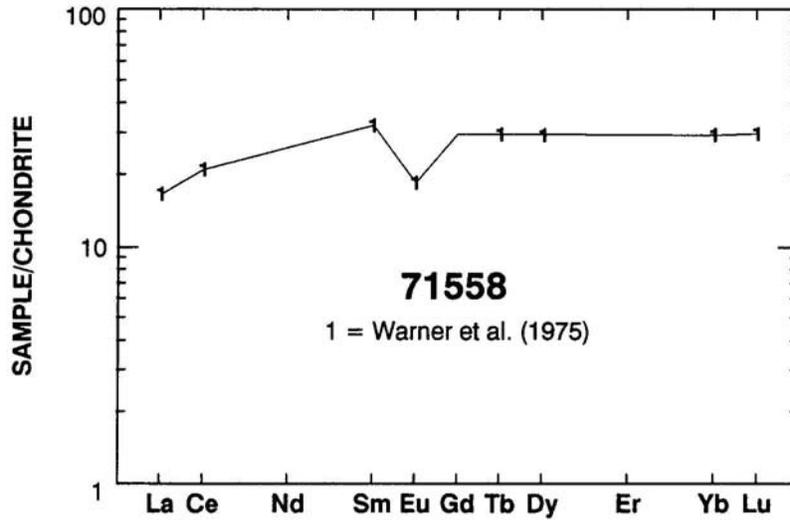


Figure 2: Chondrite-normalized rare-earth element plot of 71555. Data from Warner et al. (1975).