

71575**High-Ti Mare Basalt
2.113 g****INTRODUCTION**

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

**PETROGRAPHY AND
MINERAL CHEMISTRY**

Warner et al. (1978) reported the petrography and mineral chemistry of 71575. During the preparation of this catalog, we examined thin section 71575,6 and found it to be a fine- to medium-grained basalt (0.1-0.4mm). It is dominated by "bow-tie" intergrowths of plagioclase and pyroxene. Blocky pyroxene with a striking

pink brown color is also present. Corroded olivine phenocrysts (up to 0.7mm) with pyroxene overgrowths are occasionally seen. Only rare euhedral chromite inclusions (~0.005mm) are found in the olivines. Ilmenite phenocrysts (up to 1mm with "sawtooth" margins) overlay the plagioclase and pyroxene groundmass, but blocky ilmenite is also a groundmass phase. Rutile and chromite exsolution is found in both phenocryst and groundmass ilmenite. Native Fe and troilite (up to 0.1mm) are disseminated throughout, but interstitial SiO₂ (up to 0.1mm) is usually associated with ilmenite.

WHOLE-ROCK CHEMISTRY

Murali et al. (1977) reported the whole-rock composition of 71575,3 in a study of Apollo 17 rake samples (Table 1). 71575 is classified as a Type A Apollo 17 high-Ti basalt using the classification of Rhodes et al. (1976) and Wraner et al. (1979). This sample contains 12.4 wt% TiO₂, with a MG# of 39.9. The REE profile (Fig. 2) is relatively flat, except for La. The uncertainties associated with analyzing Ce by INA, coupled with the overall LREE-depleted nature of Apollo 17 high-Ti basalts, suggests that the 46 ppm Ce quoted by Murali et al.



Figure 1: Hand specimen photograph of 71575,0. Small divisions on scale are in millimeters.

(1977) is probably a maximum. In reality, this value is probably lower, and Ce has not been plotted in Fig. 2. The HREE exhibit a steady decrease from Dy to Lu (Fig. 2), but are still more abundant (relative to chondrites) than La. A negative

Eu anomaly is present [(Eu/Eu*)
N; = 0.55].

remains. 71575, 3 was used for INAA, and thin section,6 was taken from this irradiated sample.

PROCESSING

Of the original 2.113g of 71575,0, a total of 1.22g

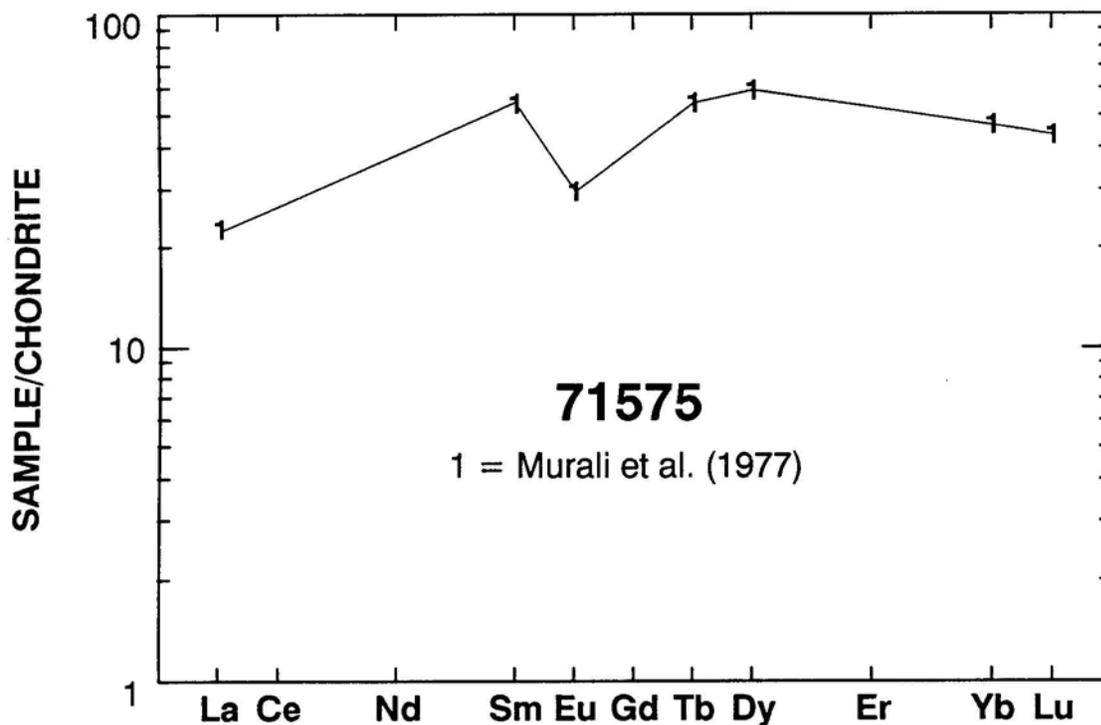


Figure 2: Chondrite-normalized rare-earth element profile of 71575. Data from Murali et al. (1977).

Table 1: Whole-rock chemistry of 71575.

Data from Murali et al. (1977).

	71575,3		71575,3
SiO ₂ (wt %)		Cu	
TiO ₂	12.4	Ni	
Al ₂ O ₃	9.0	Co	18.2
Cr ₂ O ₃	0.439	V	111
FeO	20.4	Sc	73
MnO	0.221	La	7.4
MgO	7.6	Ce	(46)
CaO	10.0	Nd	
Na ₂ O	0.40	Sm	10.8
K ₂ O	0.068	Eu	2.24
P ₂ O ₅		Gd	
S		Tb	3.1
Nb (ppm)		Dy	20
Zr		Er	
Hf	10.9	Yb	10.1
Ta	1.9	Lu	1.45
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.