

71535**High-Ti Marc Basalt****17.71 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 71535. During the preparation of this catalog, we examined thin section 71535,4 and found it to be a medium-grained (0.3-0.7mm) basalt. It is comprised of interlocking pinkishbrown pyroxene and plagioclase bordering upon subophitic. Pyroxene is more abundant, and some pyroxenes exhibit undulose extinction. No olivine or armalcolite is present. Ilmenite can reach up to 1.2mm

but is also an interstitial groundmass phase. Ilmenite phenocrysts possess "sawtooth" margins. Occasional exsolution lamellae of rutile and chromite can be seen in the ilmenite. Minor opaque glass, native Fe (< 0.1 mm), and troilite (< 0.1mm) are associated with ilmenite, although the latter two also occur as interstitial phases. Interstitial SiO₂ is conspicuous.

WHOLE-ROCK CHEMISTRY

Murali et al. (1977) reported the whole-rock composition of 71535,1 in a study of Apollo 17 rake samples (Table 1). Sample 71535 is classified as a Type B2 Apollo 17 high-Ti basalt, based on the whole-rock classification of Rhodes et al. (1976) and Warner et al. (1979), plus the

criteria of Neal et al. (1990). This sample contains 11.7 wt% TiO₂, with a MG# of 40.4. The REE profile (Fig. 2) is LREE-depleted, specifically it has (La/Sm)_N < 1. The elevated Ce abundance is suspect considering the generally smooth LREE depletion typical of Apollo 17 basalts. The HREE are generally constant at ~30 times chondritic abundances (Fig. 2). A negative Eu anomaly is present [(Eu/Eu*)_N = 0.56].

PROCESSING

Of the original 17.71 g of 71535,0, a total of 17.13g remains. 71535,1 was used for INAA, and the thin section ,4 was taken from this irradiated sample.

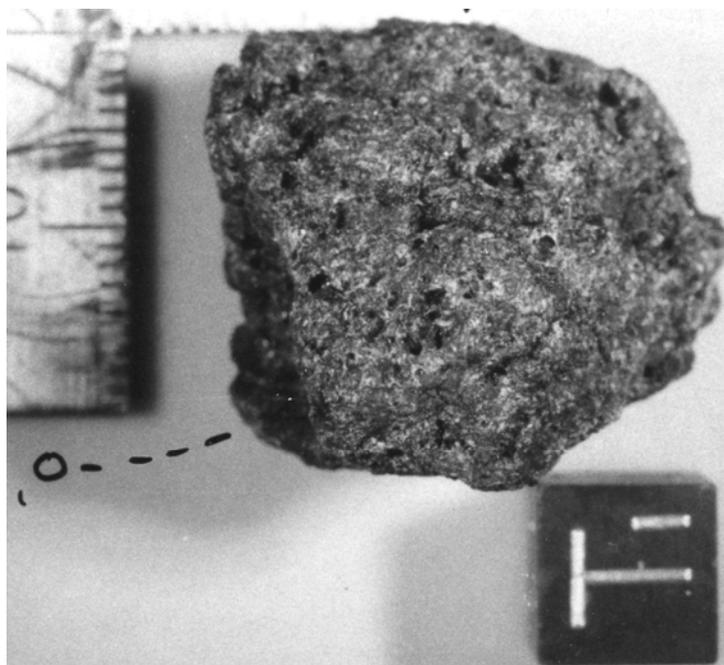


Figure 1: Hand specimen photograph of 71535,0. Small divisions on scale are in millimeters.

Table 1: Whole-rock chemistry of 71535.

Data from Murali et al. (1977).

Sample 71535,1 Method N		Sample 71535,1 Method N	
SiO ₂ (wt %)		Cu	
TiO ₂	11.7	Ni	
Al ₂ O ₃	8.6	Co	19.5
Cr ₂ O ₃	0.350	V	90
FeO	19.7	Sc	80
MnO	0.417	La	5.2
MgO	7.5	Ce	28
CaO	10.5	Nd	
Na ₂ O	0.42	Sm	6.8
K ₂ O	0.054	Eu	1.37
P ₂ O ₅		Gd	
S		Tb	1.7
Nb (ppm)		Dy	11
Zr		Er	
Hf	5.8	Yb	6.7
Ta	1.0	Lu	0.92
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.

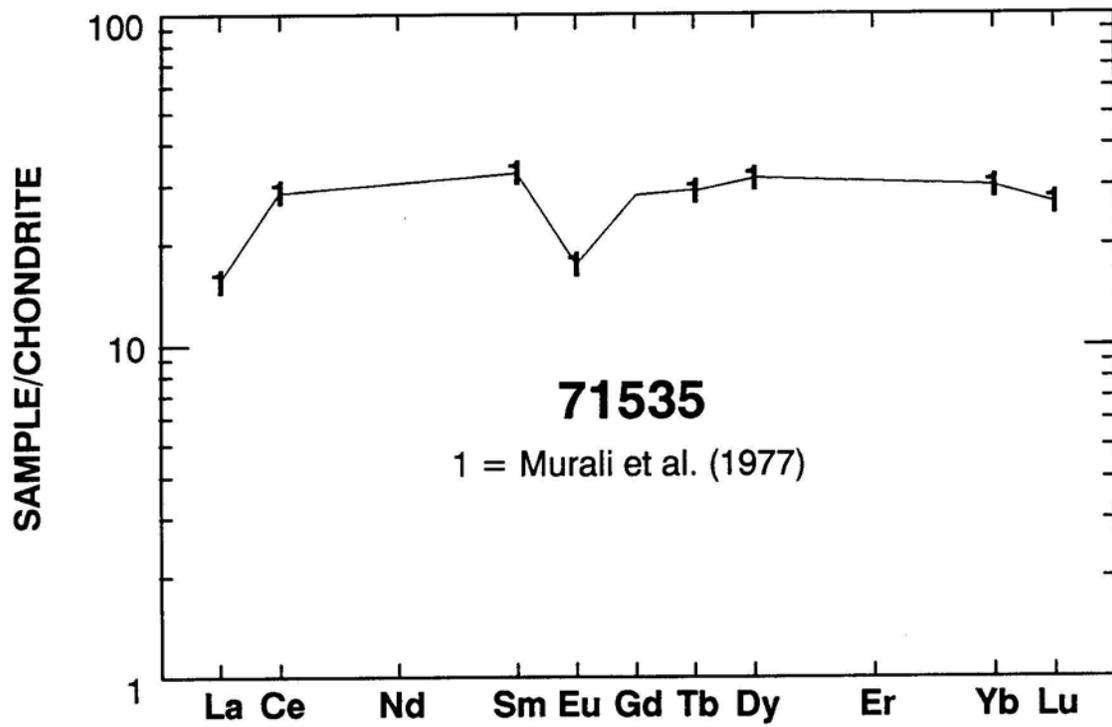


Figure 2: Chondrite-normalized rare-earth element plot of 71535. Data from Murali et al. (1977).