

71547**High-Ti Mare Basalt
12.54 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 71547. During the preparation of this catalog, we examined thin section 71547,4 and found it to be a well crystallized, medium-grained (0.2-0.6mm) basalt. It is comprised of minor intergrowths of plagioclase-pyroxene "bow-tie" structures. The groundmass is comprised primarily of blocky plagioclase and pink pyroxene, as well as minor ilmenite (Fig. 2). Corroded olivine phenocrysts (up to 0.6mm) are present,

containing euhedral chromite inclusions (< 0.005mm) (Fig. 2). Occasionally these olivine phenocrysts possess pink pyroxene overgrowths. Ilmenite phenocrysts reach up to > 1mm in length; these contain "sawtooth" margins (Fig. 2). Blocky ilmenite is also present (Fig. 2). These ilmenites contain minor rutile and chromite exsolution features. Native Fe and troilite (< 0.1 mm) are disseminated throughout. No armalcolite was observed.

WHOLE-ROCK CHEMISTRY

Murali et al. (1977) reported the whole-rock composition of 71547,1 in a study of Apollo 17 rake samples (Table 1). 71547 is classified as a Type 132 Apollo 17 high-Ti basalt, based on the classification of Rhodes et al.

(1976) and Warner et al. (1979), plus the criteria of Neal et al. (1990). This sample contains 10.9 wt% TiO₂, with a MG# of 44.8. The REE profile (Fig. 3) is LREE-depleted with a maximum at Sm. Murali et al. (1977) reported a Ce abundance of 35 ppm, but suggested that this was spurious. As such, the Ce abundance has not been plotted in Figure 3. The HREE form a flat pattern at ~32 times chondritic abundances. A negative Eu anomaly is present ($(Eu/Eu^*)_N = 0.52$].

PROCESSING

Of the original 12.54g of 71547,0, a total of 12.028 remains- 71547,1 was used for INAA, and thin section ,4 was taken from this irradiated sample.

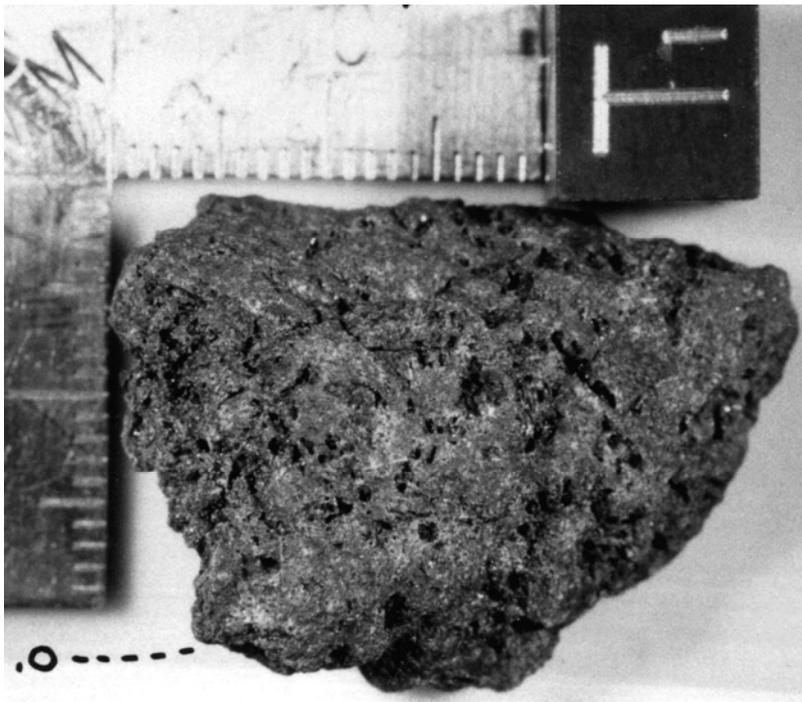


Figure 1: Hand specimen photograph of 71547,0. Small divisions on scale are in millimeters.

Table 1: Whole-rock chemistry of 71547.
Data from Murali et al. (1977).

	71547,1 N		71547,1 N
SiO ₂ (wt %)		Cu	
TiO ₂	10.9	Ni	
Al ₂ O ₃	9.4	Co	20.0
Cr ₂ O ₃	0.440	V	116
FeO	19.7	Sc	79
MnO	0.256	La	5.6
MgO	9.0	Ce	(35)
CaO	10.2	Nd	
Na ₂ O	0.36	Sm	7.8
K ₂ O	0.069	Eu	1.41
P ₂ O ₅		Gd	
S		Tb	1.9
Nb (ppm)		Dy	12
Zr		Er	
Hf	6.3	Yb	7.0
Ta	1.3	Lu	1.09
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.

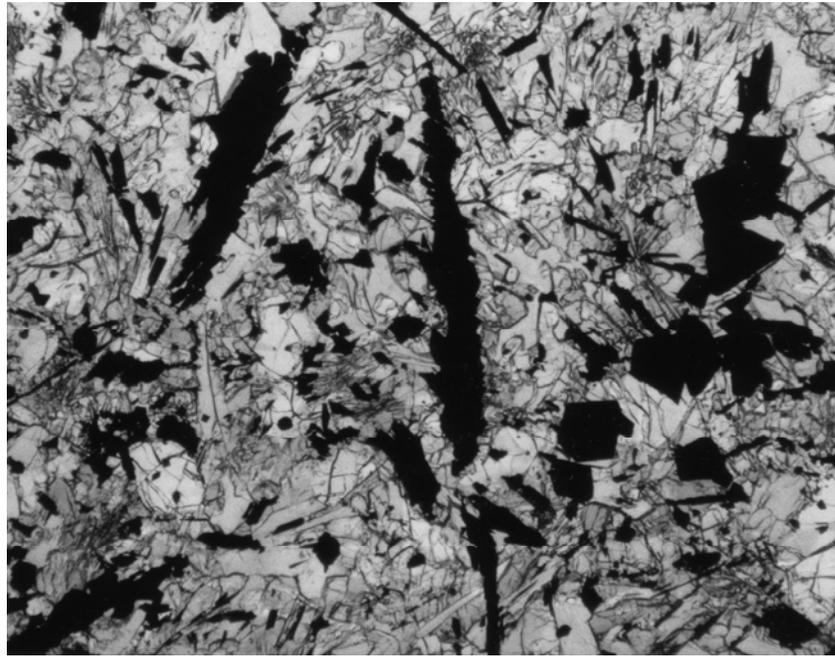


Figure 2: Photomicrograph of 71547,4. Ilmenite phenocrysts with sawtooth margins are set in a sub-Uariolitic to interlocking texture. Field of view = 2.5 mm.

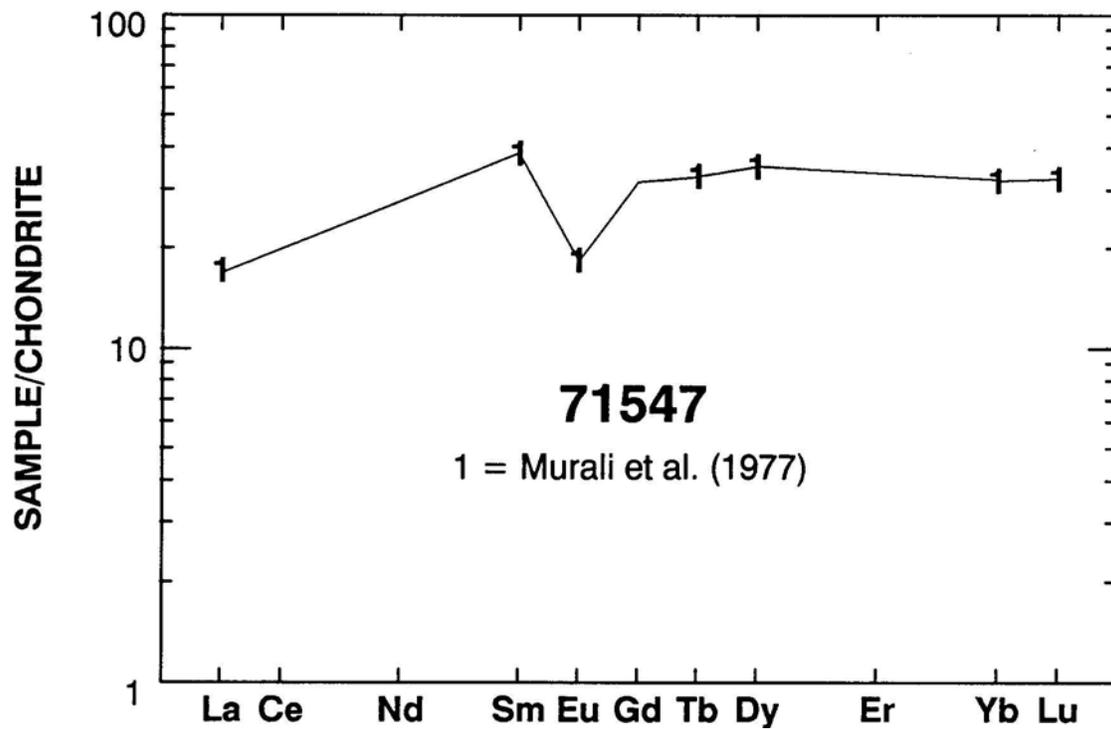


Figure 3: Chondrite-normalized rare-earth element plot of 71547. Data from Murali et al. (1977).