

**71528****High-Ti Mare Basalt****11.25 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 71528. During the preparation of this catalog, we examined thin section 71528,4 and found it to be a fine- to medium-grained (0.1-0.5mm) basalt. It is comprised of blocky,

pink pyroxene and plagioclase (occasionally intergrown to form "bow-tie" structures). Corroded olivine phenocrysts (up to 0.6mm) are conspicuous (Fig. 2) and rimmed by pink pyroxene. These olivines contain euhedral chromite inclusions <0.005mm. Ilmenite phenocrysts are present (up to 1mm) with "sawtooth" margins and blocky ilmenite forms an interstitial groundmass phase (Fig. 2). Opaque glass, native Fe, and troilite are associated with ilmenite, although the latter two also form discrete interstitial phases (< 0.05mm). No

armalcolite is present, but there is minor interstitial SiO<sub>2</sub>.

**WHOLE-ROCK CHEMISTRY**

Murali et al. (1977) reported the whole-rock composition of 71528,2 in a study of Apollo 17 rake samples (Table 1). 71528 is classified as a Type A Apollo 17 high-Ti basalt, based on the whole-rock classification of Rhodes et al. (1976) and Warner et al. (1979). This sample contains 10.9 wt% TiO<sub>2</sub> with a MG# of 43.5. The REE profile (Fig. 3) is LREE-depleted with a

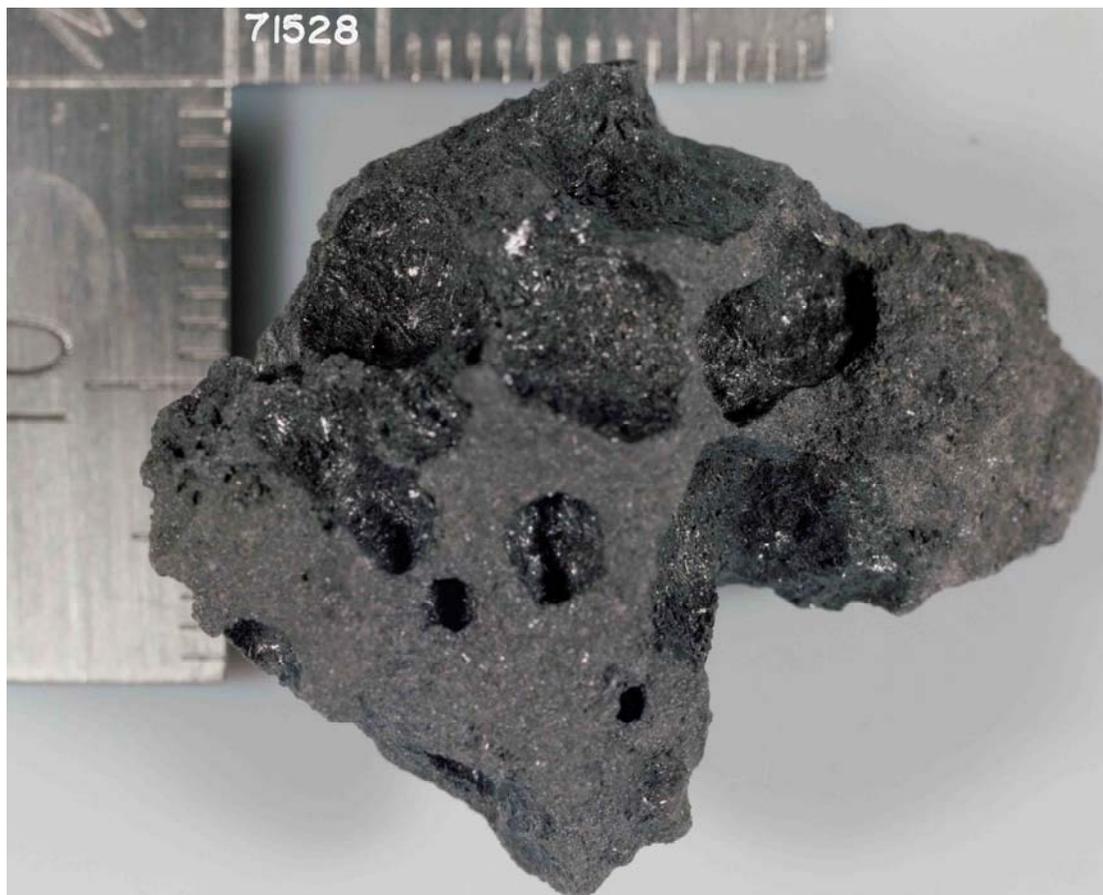


Figure 1: Hand specimen photograph of 71528. Small divisions on scale are in millimeters.

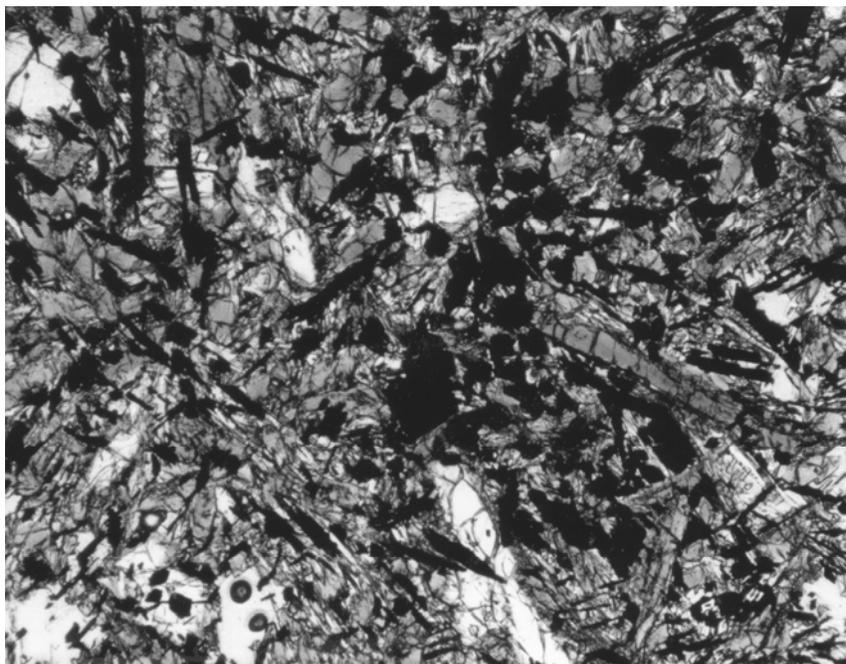


Figure 2: Photomicrograph of 71528,4. Olivine and ilmenite microphenocrysts are set in a sub-variolitic to blocky groundmass. Field of view = 2.5 mm.

maximum in the -MREE. The HREE are more abundant (relative to chondrites) than the LREE. A negative Eu anomaly is present [(Eu/Eu\*)N = 0.501.

**PROCESSING**

Of the original 11.25g of 71528,0, a total of 9.468 remains. 71528,1 weighs 1.468, and,2 was used for INAA. The thin section 71528,4 was taken from the irradiated sample.

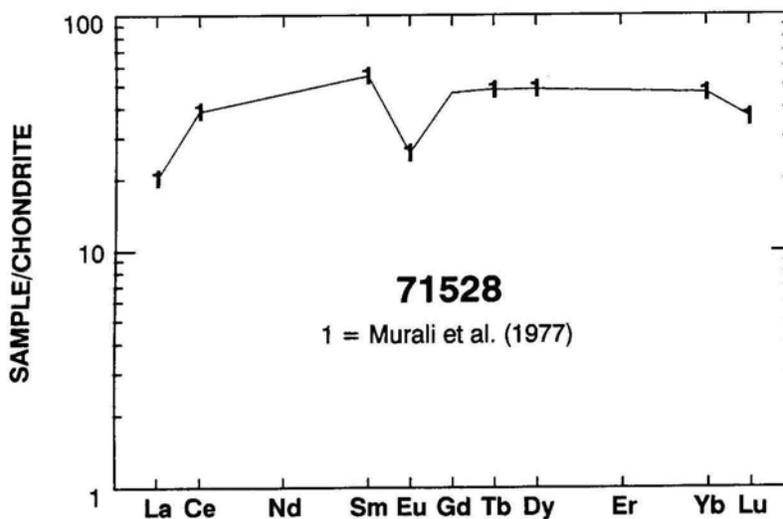


Figure 3: Chondrite -normalized rare-earth element plot of 71528. Date from Murali et al. (1977).

**Table 1: Whole-rock chemistry of 71528.**  
Data from Murali et al. (1977).

Sample 71528,2 Method N		Sample 71528,2 Method N	
SiO <sub>2</sub> (wt %)		Cu	
TiO <sub>2</sub>	10.9	Ni	
Al <sub>2</sub> O <sub>3</sub>	9.2	Co	16.3
Cr <sub>2</sub> O <sub>3</sub>	0.330	V	71
FeO	19.2	Sc	76
MnO	0.248	La	6.7
MgO	8.3	Ce	34
CaO	11.0	Nd	
Na <sub>2</sub> O	0.43	Sm	11.3
K <sub>2</sub> O	0.062	Eu	2.01
P <sub>2</sub> O <sub>5</sub>		Gd	
S		Tb	2.8
Nb (ppm)		Dy	18
Zr		Er	
Hf	9.0	Yb	10.3
Ta	1.7	Lu	1.25
U		Ga	
Th		F	
W		Cl	
Y		C	
Sr		N	
Rb		H	
Li		He	
Ba		Ge (ppb)	
Cs		Ir	
Be		Au	1.6±0.5
Zn		Ru	
Pb		Os	

Analysis by: N = INAA.