

**71585****High-Ti Mare Basalt****13.86 g****INTRODUCTION**

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

**PETROGRAPHY AND MINERAL CHEMISTRY**

Warner et al. (1975bc, 1976ab, 1978) reported the petrography and mineral chemistry of 71585. Warner et al. (1975c) described 71585 as a microporphyritic ilmenite basalt, but only described it in general terms within the context of this petrographic group. During the preparation of this catalog, we

examined thin section 71585,6 and found it to be a fine- to medium-grained (0.1-0.4mm), sub-ophitic basalt. It is comprised of "bow-tie" intergrowths of plagioclase and pyroxene as well as areas of blocky, pink/ brown pyroxene. Rare plagioclase laths extend up to 0.6mm. Ilmenite (up to 1mm) and olivine (up to 0.8mm) phenocrysts are present, olivine containing euhedral chromite inclusions (~0.005mm). Olivines are corroded and usually have a pyroxene reaction rim. Minor interstitial, opaque glass is associated with ilmenite and ilmenite contains very fine (~0.002mm) chromite and rutile

exsolution lamellae. Native Fe (0.05-0.1mm) is usually associated with ilmenite, but troilite (up to 0.2mm) is disseminated throughout. Minor interstitial SiO<sub>2</sub> is conspicuous (~0.1mm). No armalcolite was identified.

**WHOLE-ROCK CHEMISTRY**

Warner et al. (1975) reported the whole-rock composition of 71585,4 in a study of Apollo 17 rake samples (Table 1). 71585 is classified as a Type B2 Apollo 17 high-Ti basalt, based on the classification of Rhodes et al. (1976) and Warner et al. (1979),



Figure 1: Hand specimen photograph of 71585,0. Small divisions on scale are in millimeters.

**Table 1: Whole-rock chemistry of 71585.**  
Data from Warner et al. (1975).

Sample 71585,4 Method N		Sample 71585,4 Method N	
SiO <sub>2</sub> (wt %)		Cu	
TiO <sub>2</sub>	11.1	Ni	
Al <sub>2</sub> O <sub>3</sub>	9.4	Co	22.0
Cr <sub>2</sub> O <sub>3</sub>	0.478	V	120
FeO	20.2	Sc	81
MnO	0.243	La	5.9
MgO	7.2	Ce	24
CaO	10.6	Nd	
Na <sub>2</sub> O	0.33	Sm	7.1
K <sub>2</sub> O	0.045	Eu	1.55
P <sub>2</sub> O <sub>5</sub>		Gd	
S		Tb	1.9
Nb (ppm)		Dy	11
Zr		Er	
Hf	7.2	Yb	7.0
Ta	1.7	Lu	1.1
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.

plus the criteria of Neal et al. (1990). This sample contains 11.1 wt%  $\text{TiO}_2$ , with a MG# of 44.8. The REE profile (Fig. 2) is LREE-depleted with a maximum at Sm. The HREE are approximately constant at 32 times chondritic abundances. A negative Eu anomaly is present  $[(\text{Eu}/\text{Eu}^*)_N = 0.60]$ .

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### PROCESSING

Of the original 13.86g of 71585,0, a total of 12.298 remains. 71585,4 was subdivided into ,9001 which was irradiated for INAA, and ,6 for a thin section.

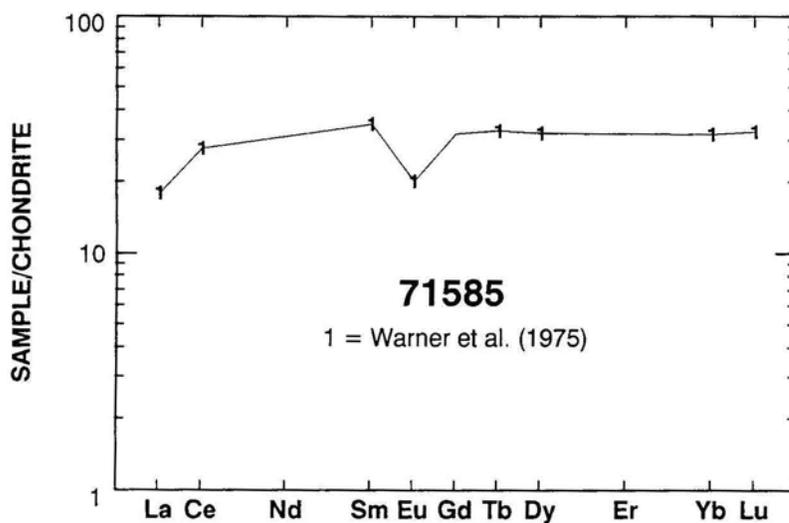


Figure 2: Chondrite -normalized rare-earth element profile of 71585. Data from Warner et al. (1975).