

75485**High-Ti Mare Basalt****4.298 g, 1 x 2 x 1 cm****INTRODUCTION**

75085 was described as a gray, angular basalt (Fig. 1a), containing a few non-penetrative fractures (Apollo 17 Lunar Sample Information Catalog, 1973). The original sample had 10% of the surface covered with dirt welded to the sample by glass. Twenty per cent of the surface was covered with vugs (~ 2mm), but no zap pits were observed,

PETROGRAPHY AND MINERAL CHEMISTRY

Warner et al. (1979) described the petrography of 75085,4 (thin section made from INA sample ,1), but only in the general terms of Type U basalts (see Whole-Rock Chemistry). During the preparation of this catalog, we examined thin section 75085,4

and found it to be of a coarse-grained (1-2 mm) basalt. It has an overall sub-ophitic texture containing ilmenite (0.5-0.8 mm), plagioclase (up to 2 mm) and pink pyroxene (up to 1.5 mm) (Fig. 2). No olivine or armalcolite were observed. Rutile and spinel exsolution lamellae were observed in ilmenite. FeNi metal and troilite form interstitial phases (< 0.1 mm) and may be associated with ilmenite.

The mineral chemistry of 75085 has not been specifically reported in the literature.

WHOLE-ROCK CHEMISTRY

Warner et al. (1979) described 75085 as a coarse-grained basalt, akin to the Type U of Rhodes et al. (1976). It has a MG# of 46.0 and contains 13.1

wt% TiO₂ (Table 1). The REE profile is LREE-depleted over the HREE, but has a maximum (relative to chondrites) at Sm (Fig. 3). A negative Eu anomaly is evident with an (Eu/Eu*)_N of 0.54.

PROCESSING

Approximately 2.5g of 75085,0 remains. 75085,1 (Fig. IN was irradiated for INAA, and thin section,4 was made from this hot sample.

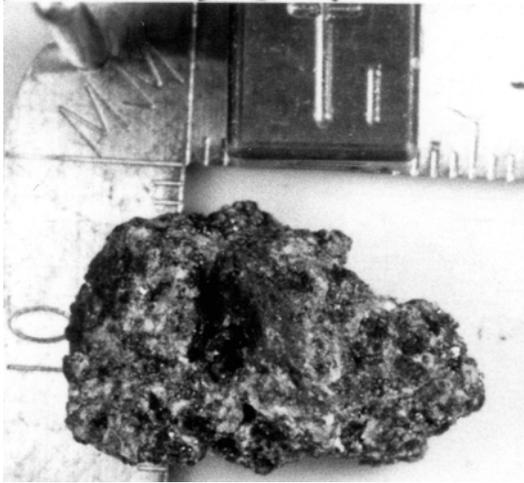


Figure 1a: Pre-chip.

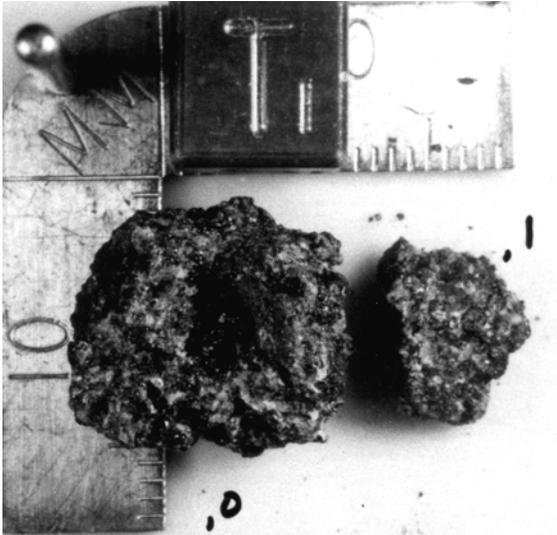


Figure 1b: Post-chip,

Figure 1: Hand specimen photograph of 75085.

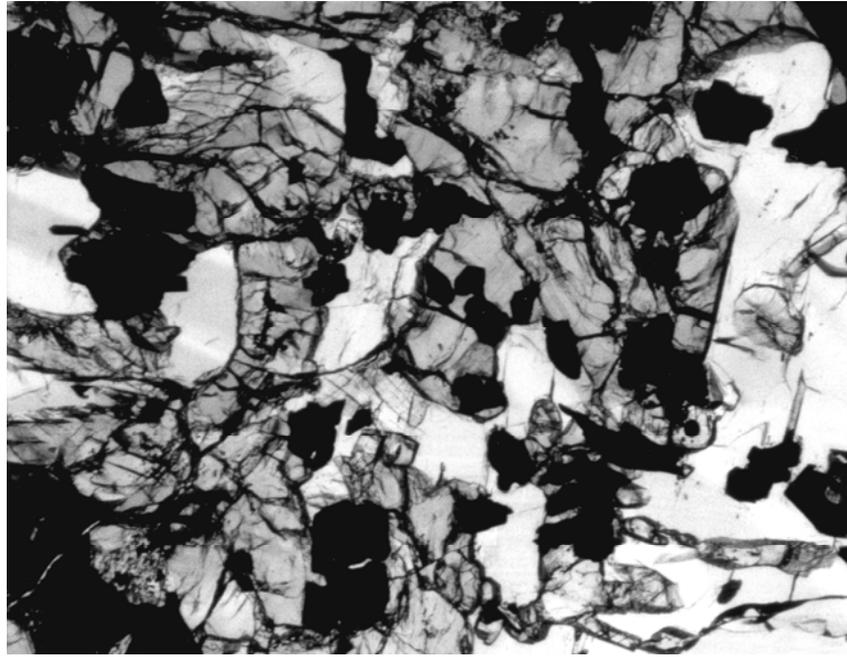


Figure 2: Photomicrograph of 75085. Field of view = 2.5 mm.

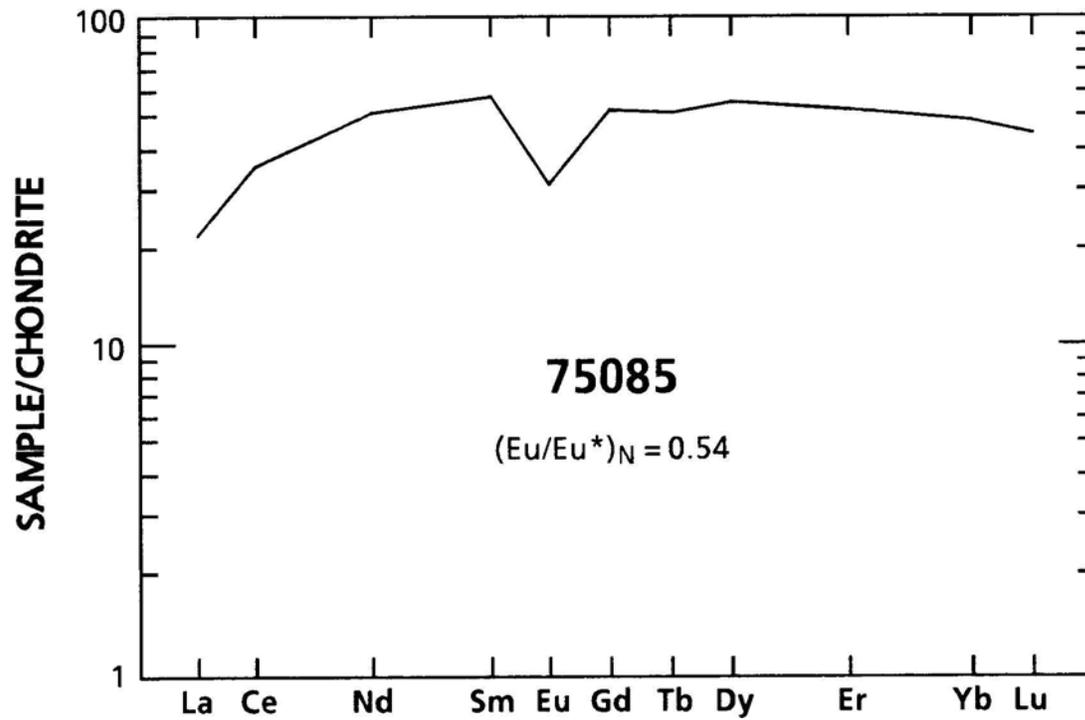


Figure 3: Chondrite-normalized rare-earth-element profile of 75085.

Table 1: Whole-rock chemistiry of 75085.
 Data from Ma et al. (1979) and Warner et al (1979) (same analysis).

	Sample 75085,1 Method N Reference 1,2		Sample 75085,1 Method N Reference 1,2
SiO ₂		Cu	
TiO ₂	13.1	Ni	
Al ₂ O ₃	8.7	Co	19
Cr ₂ O ₃	0.471	V	133
FeO	18.8	Sc	81
MnO	0.249	La	7.5
MgO	9	Ce	31
CaO	9.9	Nd	32
Na ₂ O	0.416	Sm	11.6
K ₂ O	0.064	Eu	2.32
P ₂ O ₅		Gd	
S		Tb	3.0
Nb (ppm)		Dy	19
Zr		Er	
Hf	9.7	Yb	10.6
Ta	2.2	Lu	1.54
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.

1 = Warner et al. (1979); 2 = Ma et al. (1979).