

75115**High-Ti Mare Basalt****2.60 g, 2 x 1.3 x 1 cm****INTRODUCTION**

75115 was described as a light olive gray, subrounded, fine-grained basalt, with an equigranular fabric and several penetrative fractures (Apollo 17 Lunar Sample Information Catalog, 1973). Surfaces T and N are hackly exteriors, while all others are hackly fracture surfaces (Fig. 1). Less than 5% of the surface area is covered with 0.2-0.5 mm rounded crystal-lined (plagioclase, ilmenite, pyroxene) vugs. A few zap pits were noted on N, T, and S - none on other surfaces.

PETROGRAPHY AND MINERAL CHEMISTRY

The petrography and mineral chemistry of this basalt has not been specifically reported. During the preparation of this

catalog, we examined thin section 75115,4 and found it to be a medium grained (0.3-0.5 mm) equigranular to subvariolic basalt. Olivine phenocrysts (up to 0.7 mm) are present (Fig. 2) and olivine also forms the cores to pink pyroxene clots (up to 0.6 mm). Ilmenite phenocrysts (up to 1.5 mm) are also present, but ilmenite usually has an average size of 0.4 mm. Plagioclase, pyroxene, and ilmenite are the major phases in this sample. No armalcolite or interstitial silica was observed. Troilite and FeNi metal (both up to 0.1 mm) form anhedral interstitial phases with mesostasis glass.

WHOLE-ROCK CHEMISTRY

The whole-rock chemistry of 75115,1 was reported by Warner et al. (1975) (Table 1). It has a

MG# of 44.2 and TiO₂ contents of 12.6 wt%. 75115 is classified as a Type C Apollo 17 high-Ti basalt using the scheme of Rhodes et al. (1976). The REE profile is LREE-depleted, with a maximum (relative to chondrites) in the middle REE (Fig. 3) - as Gd and Tb were not determined it is difficult to say where the maximum is, and precisely what the magnitude of the negative Eu anomaly is. We estimate the (Eu/Eu*)_N to be ~0.6.

PROCESSING

Of the original 2.608 of 75115,0, approximately 2.2g remains. Thin section 75115,4 was made from the "hot" INA sample, 1.

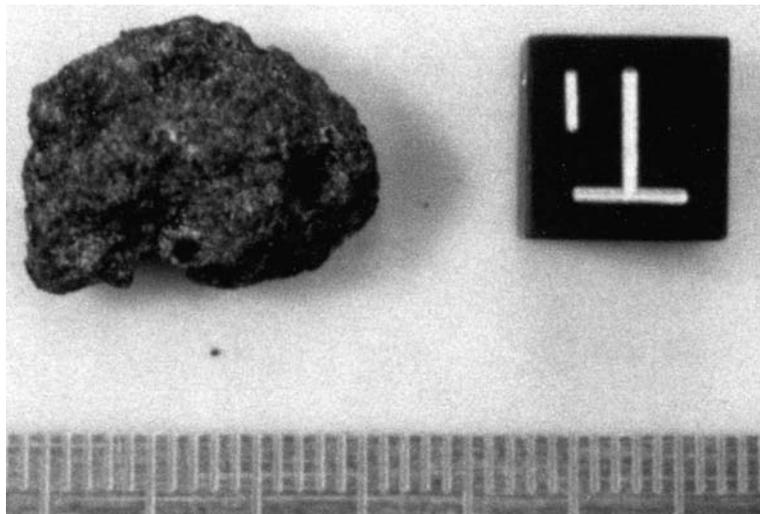


Figure 1: Hand specimen photograph of 75115,0.

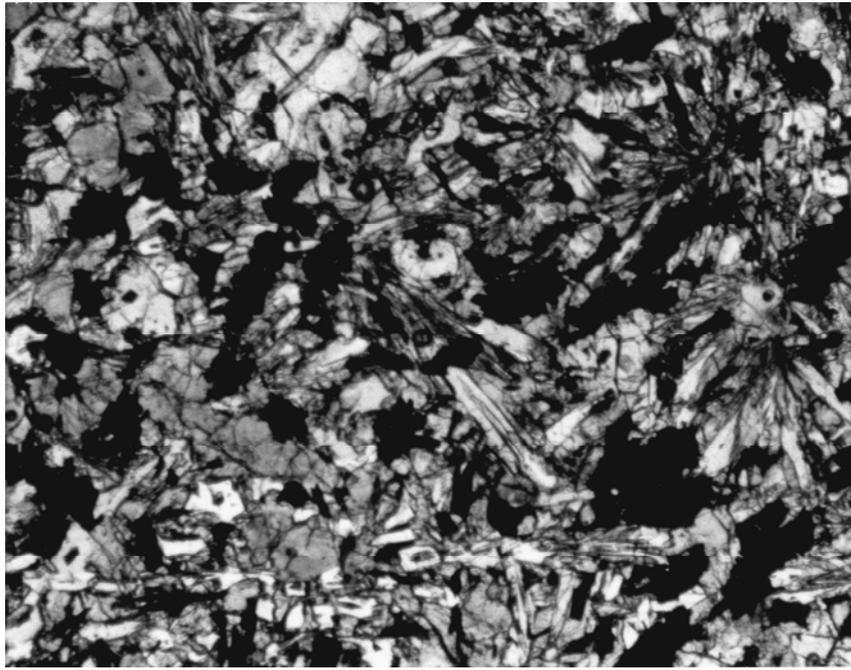


Figure 2: Photomicrograph of 75115. Field of view = 2.5mm.

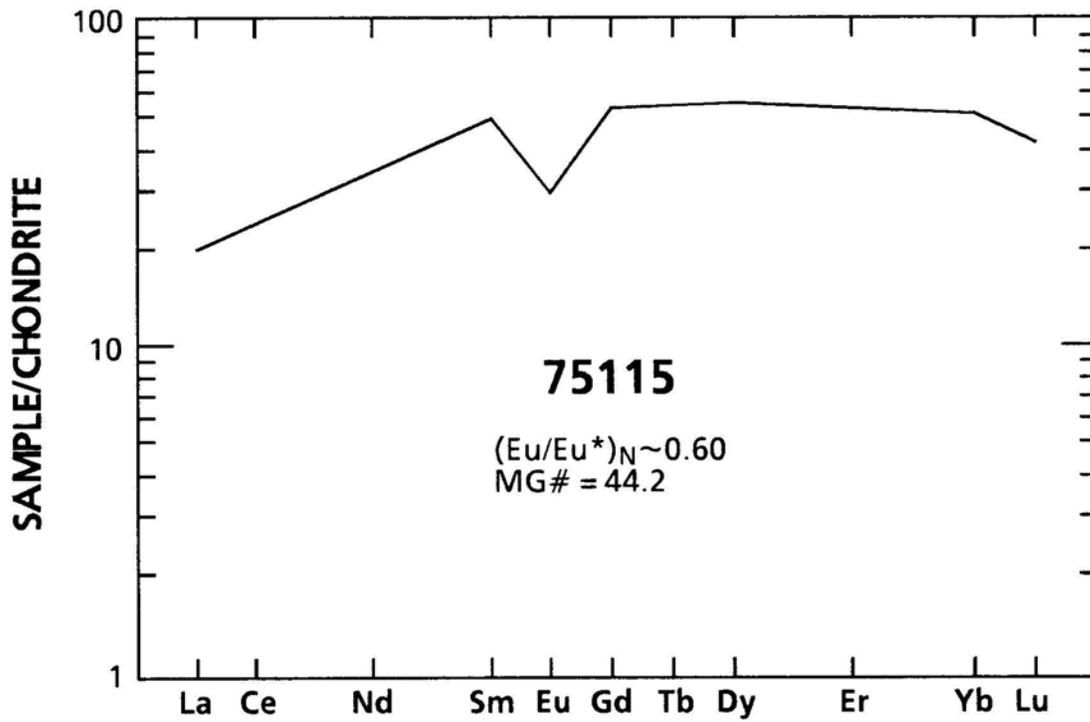


Figure 3: Chondrite -normalized rare-earth-element profiles of 75115, after Warner et al. (1975).

Table 1: Whole-rock chemistry of 75115.
Data from Warner et al. (1975).

	Sample 75115,1 Method N		Sample 75115,1 Method N
SiO ₂		Ni	
TiO ₂	12.6	Co	20.2
Al ₂ O ₃	8.9	V	107
Cr ₂ O ₃	0.444	Sc	85
FeO	20.9	Cr	
MnO	0.250	La	6.6
MgO	9.3	Ce	
CaO	10.5	Nd	
Na ₂ O	0.386	Sm	10.2
K ₂ O	0.069	Eu	2.28
P ₂ O ₅		Gd	
S		Tb	
Nb (ppm)		Dy	19
Zr		Er	
Hf		Yb	11.4
Ta		Lu	1.4
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	
Cu			

Analysis by: N = INAA.