

75089**High-Ti Mare Basalt**
1.718 g, 1 x 1 x 1 cm**INTRODUCTION**

75089 was described as a gray angular basalt, with an equigranular fabric and containing one non-penetrative fracture (Apollo 17 Lunar Sample Information Catalog, 1973). The surface of the original sample 75089,0 was dirty and 5% was covered with 0.5 mm vugs. No zap pits were reported.

PETROGRAPHY AND MINERAL CHEMISTRY

The petrography and mineral chemistry of 75089 has not been specifically reported. However, during the preparation of this

catalog, we examined thin section 75089,4 and found it to be a medium-grained (0.2-0.4 mm) equigranular to subvolcanic basalt, which contained no olivine. The rock is composed mainly of pink pyroxene and plagioclase, and ilmenite phenocrysts (up to 0.6 mm). No armalcolite was observed. Troilite (up to 0.2 mm), FeNi metal (< 0.05 mm), silica (up to 0.1 mm), and glass (~0.05 mm) form interstitial phases.

WHOLE-ROCK CHEMISTRY

Warner et al. (1975) reported the whole-rock chemistry of 75089,1. It has a VIG# of 45.9 and a TiO₂ content of 13.2 wt%

(Table 1). 75089 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. 1) - 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 ~0.5.

PROCESSING

Of the original 1.718g of 75089,0, approximately 1.1g remains. Thin section 75089,4 was made from the "hot" INA sample ,1

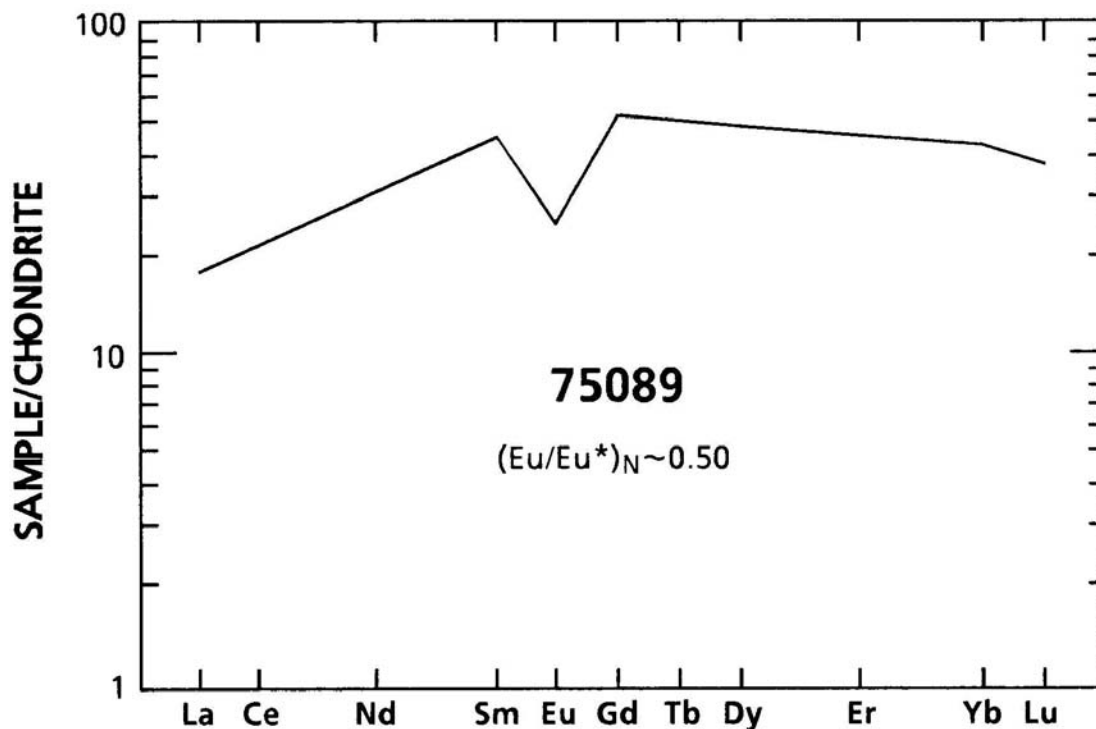


Figure 1: Chondrite -normalized rare-earth-element profile of 75089, after Warner et al. (1975).

Table 1: Whole-rock chemistry of 75089
Data from Warner et al. (1975).

Sample 75089,1 Method N		Sample 75089,1 Method N	
SiO ₂		Ni	
TiO ₂	13.1	Co	20.7
Al ₂ O ₃	8.7	V	117
Cr ₂ O ₃	0.531	Sc	87
FeO	20.6	Cr	
MnO	0.240	La	6.0
MgO	9.8	Ce	
CaO	10.0	Nd	
Na ₂ O	0.394	Sm	9.3
K ₂ O	0.065	Eu	1.95
P ₂ O ₅		Gd	
S		Tb	
Nb (ppm)		Dy	17
Zr		Er	
Hf		Yb	9.5
Ta		Lu	1.3
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.