74248

High-Ti Basalt
5.682 g, 2 x 2 x 2 cm

INTRODUCTION

74248 has been described as a gray, aphanitic basalt (Apollo 17 Lunar Sample Information Catalog, 1973). It has an angular shape (Fig. 1) but contains no fractures. The surface is covered with adhering soil, despite dusting. No zap pits are present, but approximately 5% of the surface is filled with groups of vugs (~1mm) filled with ilmenite crystals. One side of this fragment is defined by a large (~2cm) cavity wall. This sample was collected from Station 4.

PETROGRAPHY AND MINERAL CHEMISTRY

Warner et al. (1979) only described 74248 in general terms under their Type A basalts, combining mineral analyses of all Type A basalts into histograms. During the preparation of this catalog, we examined thin section 74248,5 and found it to be a fine-grained, almost vitrophyric basalt (Fig. 2a,b). It is comprised of small prismatic pyroxenes (0.2-0.3mm long) and ilmenites (~0.1mm) set in an opaque quench glass with olivine and ilmenite phenocrysts (up to 0.5mm) (Fig 2a,b). The larger ilmenites contain armalcolite cores (Fig. 2b), and pink pyroxene reaction rims are seen on some olivines. Euhedral chromite inclusions (~ 0.005mm) are present in the olivines. Very little native Fe and troilite are present in this sample.

WHOLE-ROCK CHEMISTRY

Ma et al. (1979) and Warner et al. (1979) reported the same whole-rock analysis for 74248 (Table 1). Warner et al. (1979) described 74248 as a Type A Apollo 17 high-Ti basalt. These authors reported a TiO_2 content of 74248 as 12.3 wt% with a MG# of 43.0. The REE profile is LREE depleted with a maximum in the MREE (Fig. 3). The profile from Tb to Lu exhibits a slight decrease (relative to chondrites). A negative Eu anomaly is present [(Eu/Eu*)N = 0.58].

PROCESSING

Of the original 5.682g of 74248,0, a total of 4.29g remains. 74248,1 was used for INAA, and thin section,5 was taken from this irradiated sample.

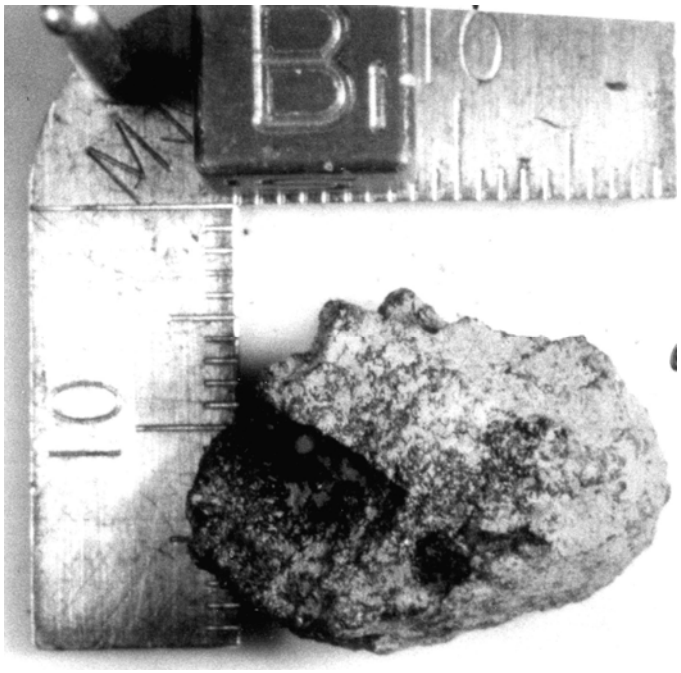
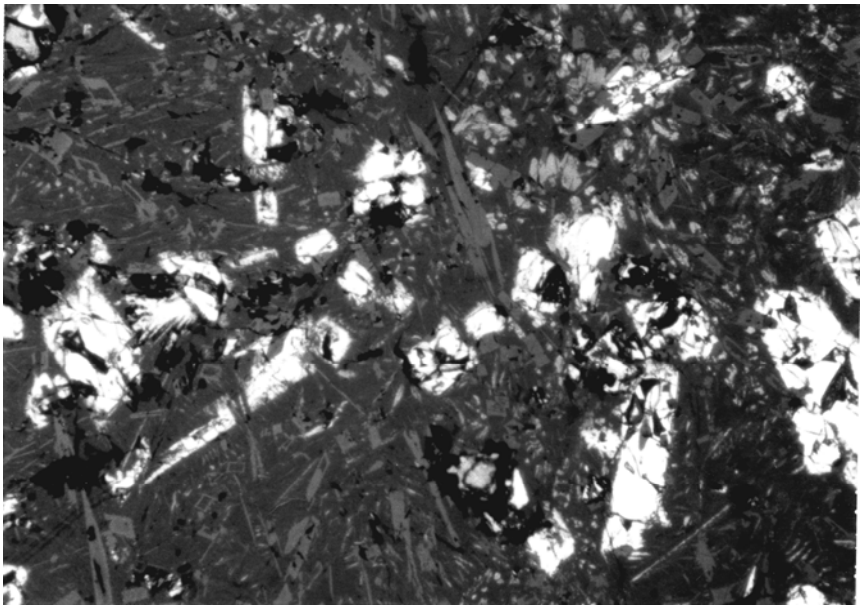


Figure 1 - Hand specimen photograph of 74248.

2a: Field of view is 2.5 mm.



2b: Field of view is 0.62.5 mm.

Figure 2: Photomicrographs of 74248.

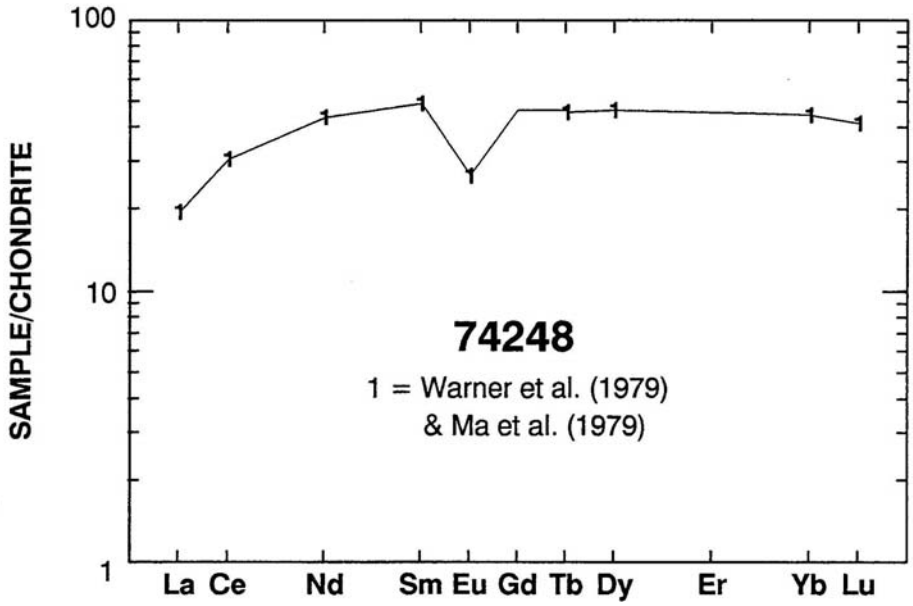


Figure 3: Chondrite-normalized REE plot of 74248.

Table 1: Whole-rock chemistry of 74248.
Data from Ma et al. (1979) and Warner et al. (1979) (same analysis).

	Sample 74248,1 Method N		Sample 74248,1 Method N
SiO_2		Cu	
TiO_2	12.3	Ni	
Al_2O_3	8.9	Co	19
Cr_2O_3	0.417	V	104
FeO	18.9	Sc	83
MnO	0.261	La	6.3
MgO	8	Ce	26
CaO	10.7	Nd	27
Na_2O	0.420	Sm	9.8
K_2O	0.067	Eu	2.01
P_2O_5		Gd	
S		Tb	2.6
Nb (ppm)		Dy	18
Zr		Er	
Hf	9.4	Yb	9.6
Ta	2.1	Lu	1.38
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.