74245

Aphanitic Ilmenite Basalt

63.34 grams

Figure 1: Photo of 74245. S73-17966.Sample is 5 cm long

Introduction

74245 was found in the soil sample (74240) collected from the end of the trench dug at Shorty Crater (see section on 74220). It is an aphanitic basalt.

Petrography

Brown et al. (1975) reported the mineral mode for 74245 finding a high percentage of "opaque" glass. Small phenocrysts of olivine are Fo_{79}. Phenocrysts of armalcolite are present. The overall texture is that of a basaltic vitrophyre (figure 4)

Usselman et al. (1975) determined the cooling rate (15-25 deg./hr.).

Chemistry

Neal (2001), Rhodes et al. (1975) and Warner et al. (1975) all reported chemical analyses. The Rb content is relatively high (type C?).

Radiogenic age dating

Apollo 17 mare basalts are generally considered 3.72 ± 0.04 b.y. old (see Paces et al. 1991). Nyquist et al. (1975) determined Rb, Sr and $Sr^{87/86}$.

Processing

74245 was cut by band saw and there are 5 thin sections.

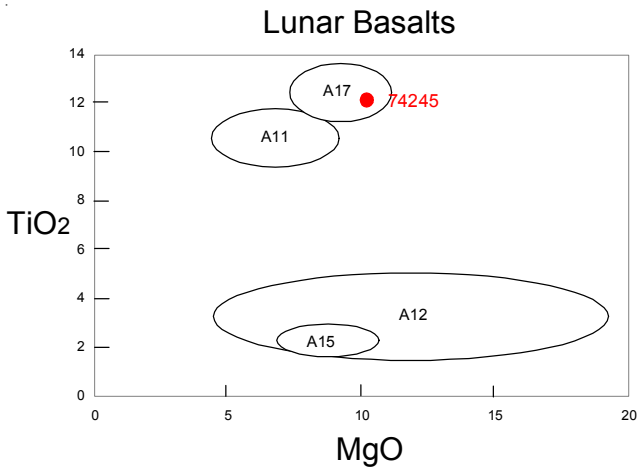


Figure 2: Composition of Apollo basalts.

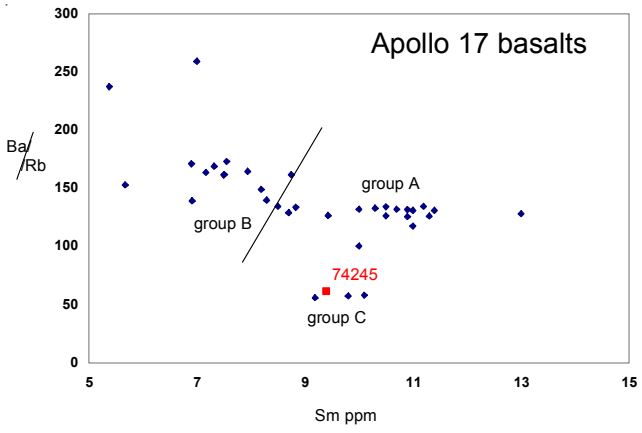


Figure 3: Trace element analysis of Apollo 17 basalts showing that 74245 is type C.

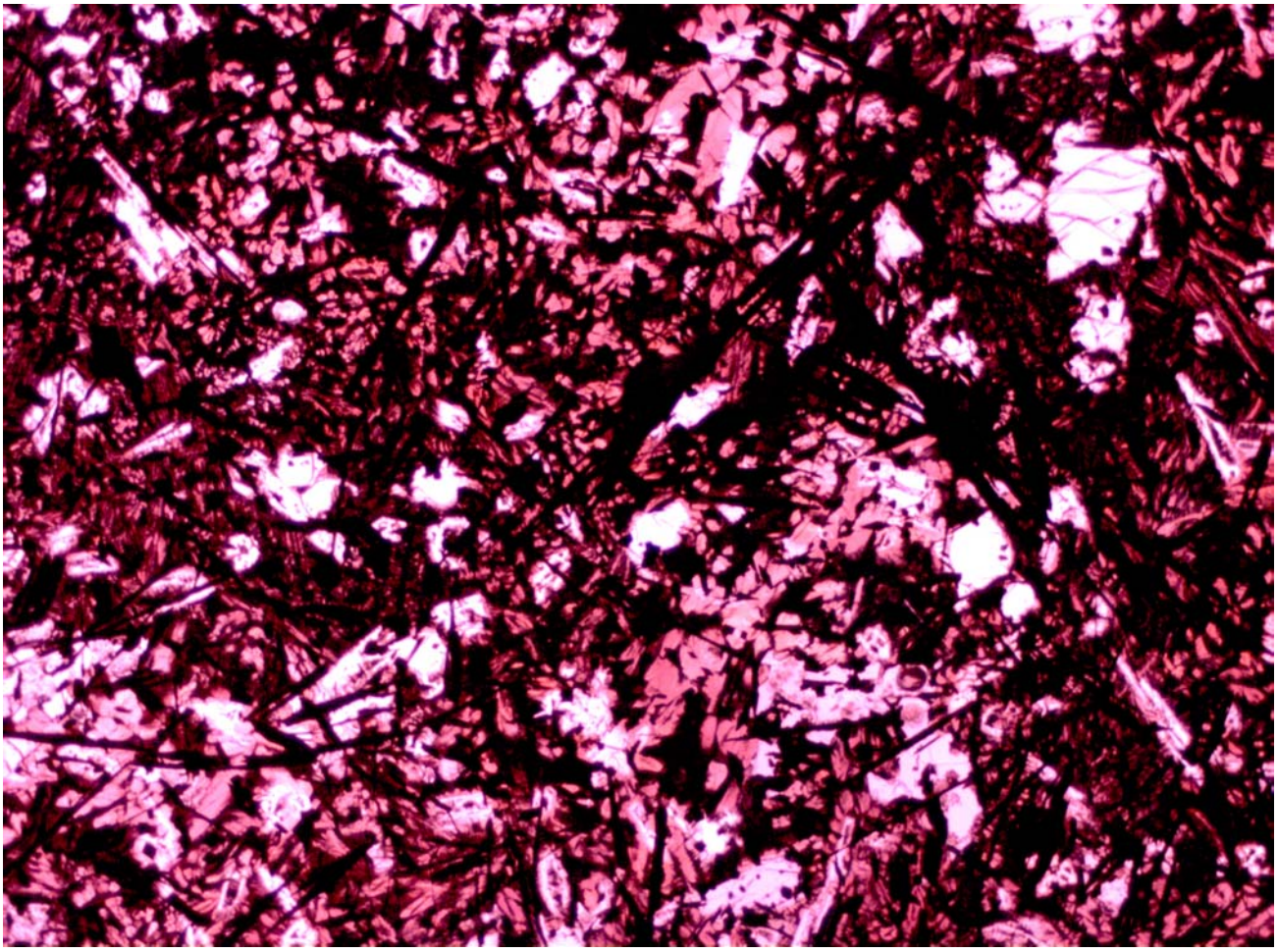
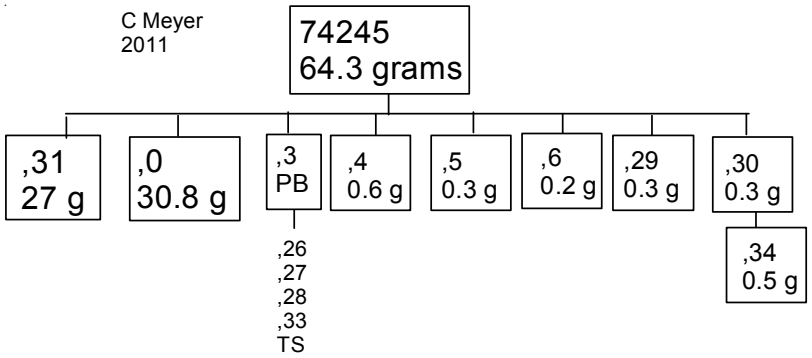


Figure 4: False color image of thin section of 74245.. 2.8 mm acoss.



References for 74245

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Table 1. Chemical composition of 74245.

reference	Neal2001		Rhodes76 Nyquist76		Warner75	
weight						
SiO2 %			38.59	(b)		
TiO2			11.92	(b)	11.9	(c)
Al2O3			8.72	(b)	8.7	(c)
FeO			18.06	(b)	18.4	(c)
MnO			0.27	(b)	0.227	(c)
MgO			9.65	(b)	11.2	(c)
CaO			10.59	(b)	10.2	(c)
Na2O			0.36	(b)	0.355	(c)
K2O			0.06	(b)	0.085	(c)
P2O5			0.04	(b)		
S %			0.14	(b)		
sum						
Sc ppm	74	(a)	77	(c)	77	(c)
V	139	(a)			123	(c)
Cr	3399	(a)	3700	(b)	3578	(c)
Co	28	(a)	23.6	(c)	23	(c)
Ni	8.9	(a)				
Cu	51.6	(a)				
Zn	111	(a)				
Ga	3.46	(a)				
Ge ppb						
As						
Se						
Rb	1.08	(a)	1.17	(d)		
Sr	159	(a)	159	(d)		
Y	84	(a)				
Zr	218	(a)				
Nb	21	(a)				
Mo	0.4	(a)				
Ru						
Rh						
Pd ppb						
Ag ppb						
Cd ppb						
In ppb						
Sn ppb						
Sb ppb						
Te ppb						
Cs ppm	0.04	(a)				
Ba	65	(a)	67	(d)		
La	5.83	(a)	6.24	(d)	6.1	(c)
Ce	23.3	(a)	22.2	(d)		
Pr	3.77	(a)				
Nd	22.7	(a)	24.9	(d)		
Sm	9.44	(a)	9.8	(d)	9.4	(c)
Eu	1.73	(a)	1.77	(d)	1.76	(c)
Gd	13.3	(a)				
Tb	2.56	(a)				
Dy	16	(a)	17.5	(d)	15	(c)
Ho	3.3	(a)				
Er	9.32	(a)	9.68	(d)		
Tm	1.28	(a)				
Yb	8.47	(a)	9.13	(d)	8.6	(c)
Lu	1.12	(a)	1.25	(c)		
Hf	7.65	(a)	8.7	(c)		
Ta	1.47	(a)				
W ppb	40	(a)				
Re ppb						
Os ppb						
Ir ppb						
Pt ppb						
Au ppb						
Th ppm	0.38	(a)				
U ppm	0.12	(a)				

technique: (a) ICP-MS, (b) XRF, (c) INAA, (d) IDMS

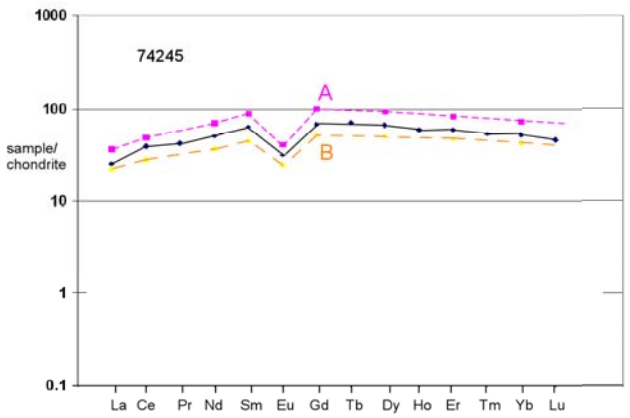

Figure 5: Normalized rare-earth-element diagram for 74245 compared with A and B types of Apollo 17 basalt.

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