

79516
Vitrophyric Ilmenite Basalt
23.9 grams



Figure 1: Two side views of 79516. Cube is 1 cm. S73-19752 and 754.

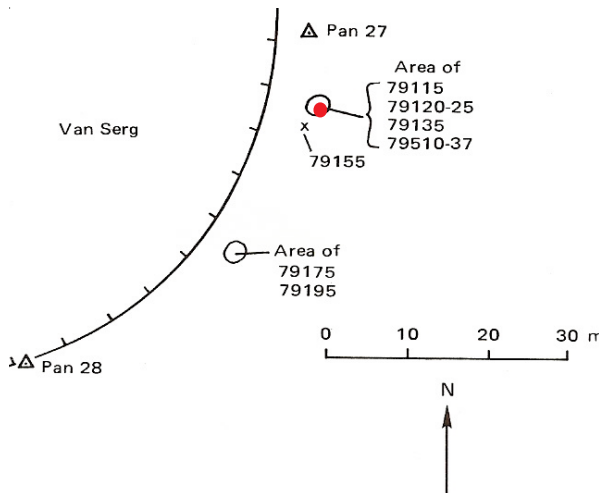


Figure 2: Map of area around Van Serg Crater.

Introduction

79516 is a small basalt sample collected by raking near Van Serg Crater out in the middle of Taurus-Littrow Valley.

Petrography

Neal and Taylor (1993) are the only ones to study the petrography of 79516. They describe the texture as subophitic to ophitic. However, it has a quench texture with olivine and ilmenite-armaclolite phenocrysts set

in a very fine-grained matrix of pink pyroxene, plagioclase, ilmenite and opaque glass (figure 3).

Chemistry

Warner et al. (1979) determined the chemical composition. It is akin to type B Apollo 17 basalt.

Processing

There are two thin sections.

References for 79516

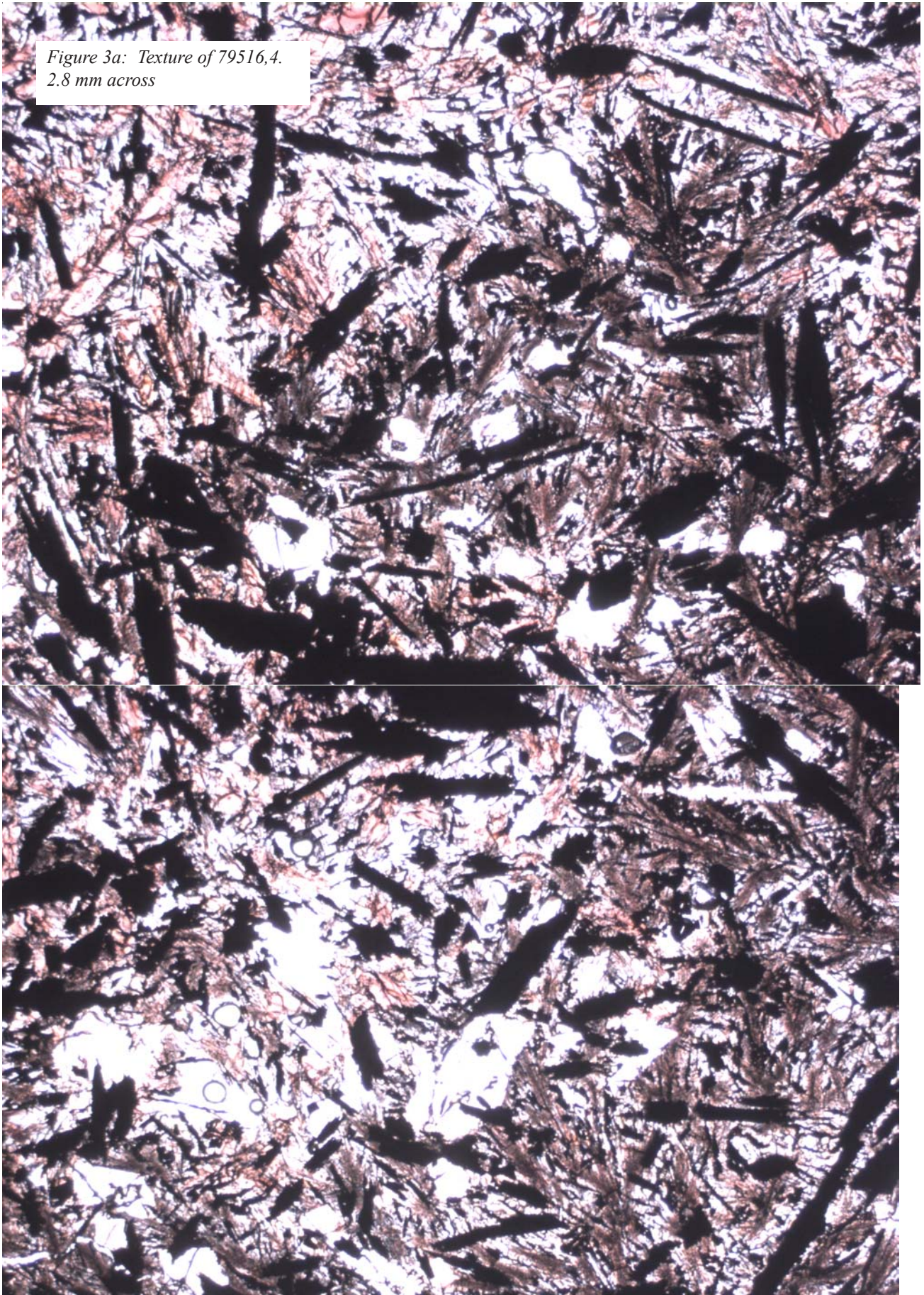
Butler P. (1973) **Lunar Sample Information Catalog Apollo 17**. Lunar Receiving Laboratory. MSC 03211 Curator's Catalog. pp. 447.

Ma M-S., Schmitt R.A., Warner R.D., Taylor G.J. and Keil K. (1979b) Composition, petrography, and genesis of Apollo 17 high-Ti mare basalts (abs). *Lunar Planet. Sci. X*, 765-767. Lunar Planetary Institute, Houston.

Neal C.R. and Taylor L.A. (1993) Catalog of Apollo 17 rocks. Vol. 3 Central Valley

Warner R.D., Taylor G.J., Conrad G.H., Northrop H.R., Barker S., Keil K., Ma M.-S. and Schmitt R. (1979a) Apollo

Figure 3a: Texture of 79516,4.
2.8 mm across



*Figure 3a: Crossed-Nicols of
79516,4. 2.8 mm across*

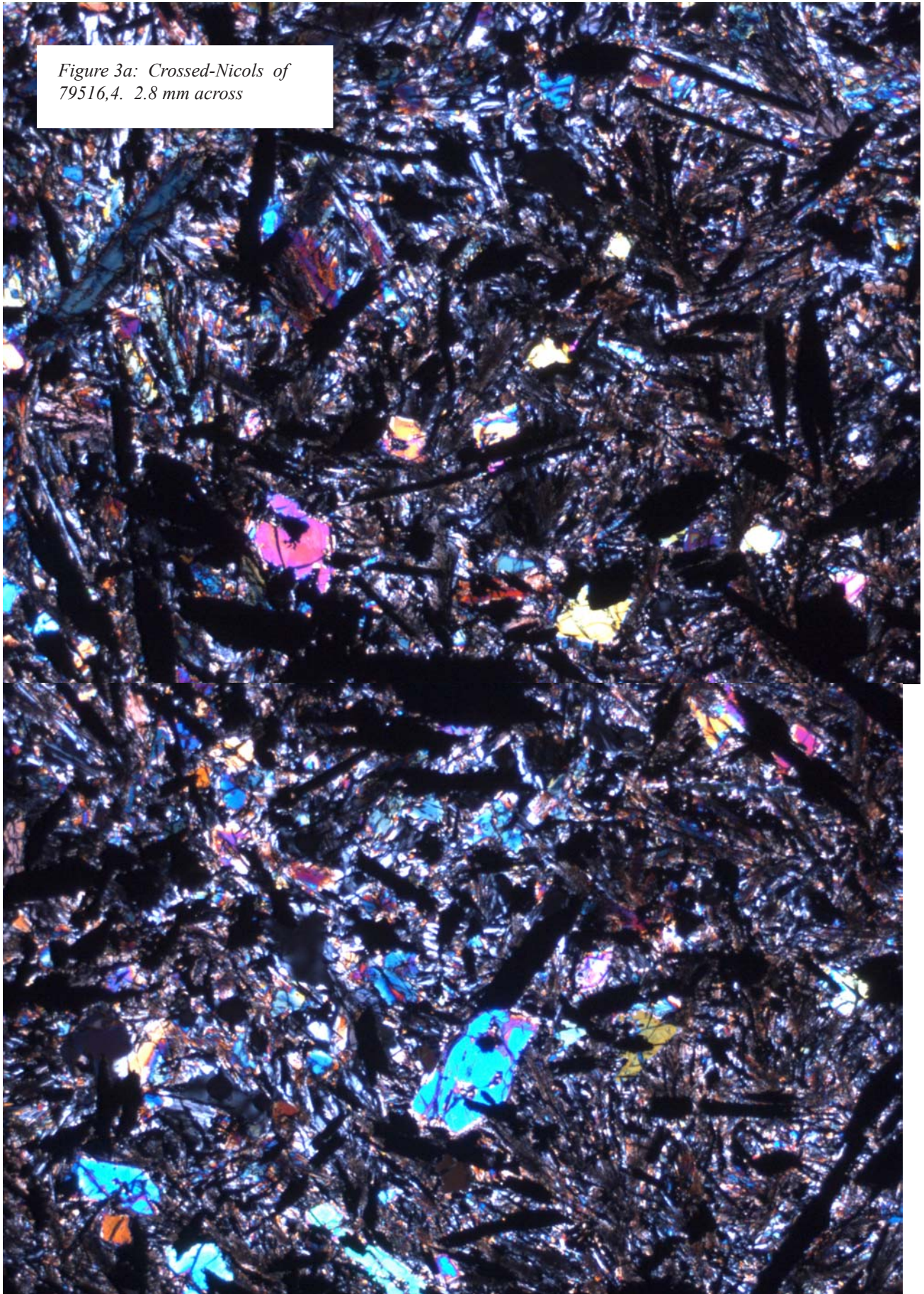


Table 1. Chemical composition of 79516.

reference	Warner79	
<i>weight</i>		
SiO ₂ %		
TiO ₂	12.3	(a)
Al ₂ O ₃	8.4	(a)
FeO	19.9	(a)
MnO	0.25	(a)
MgO	8	(a)
CaO	10	(a)
Na ₂ O	0.384	(a)
K ₂ O	0.045	(a)
P ₂ O ₅		
S %		
<i>sum</i>		
Sc ppm	87	(a)
V	109	(a)
Cr	2730	(a)
Co	22	(a)
Ni		
Cu		
Zn		
Ga		
Ge ppb		
As		
Se		
Rb		
Sr		
Y		
Zr		
Nb		
Mo		
Ru		
Rh		
Pd ppb		
Ag ppb		
Cd ppb		
In ppb		
Sn ppb		
Sb ppb		
Te ppb		
Cs ppm		
Ba		
La	5.2	(a)
Ce	20	(a)
Pr		
Nd	21	(a)
Sm	6.9	(a)
Eu	1.33	(a)
Gd		
Tb	1.7	(a)
Dy	12	(a)
Ho		
Er		
Tm		
Yb	6.6	(a)
Lu	0.94	(a)
Hf	6.3	(a)
Ta	1.6	(a)
W ppb		
Re ppb		
Os ppb		
Ir ppb		
Pt ppb		
Au ppb		
Th ppm		
U ppm		
<i>technique</i> : (a) INAA		

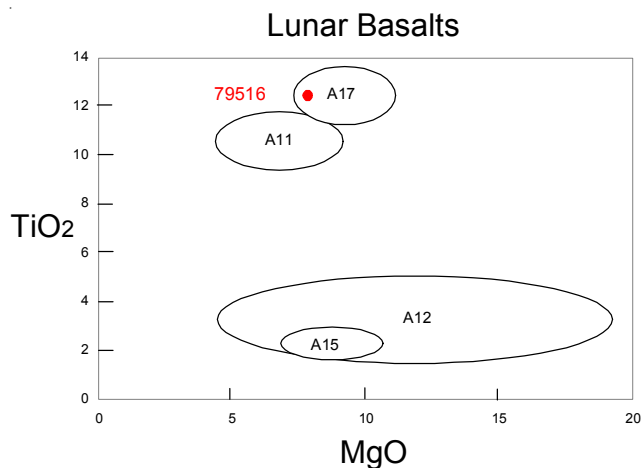


Figure 4: Composition of lunar basalts.

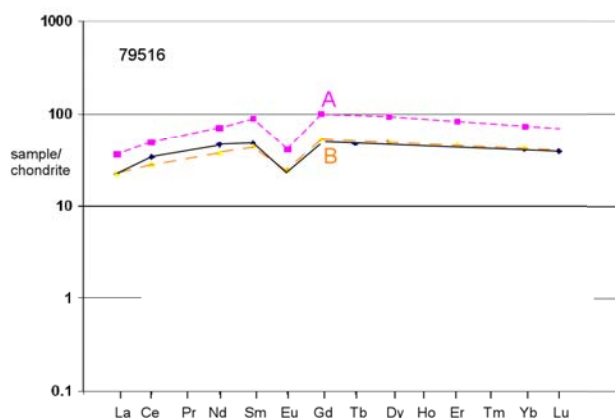
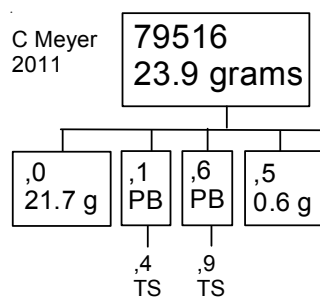


Figure 5: Normalized rare-earth-element diagram for 79516 compared with A and B types of Apollo 17 basalt.



17 high-Ti mare basalts: New bulk compositional data, magma types, and petrogenesis. *Proc. 10th Lunar Planet. Sci. Conf.* 225-247.

Wolfe E.W., Bailey N.G., Lucchitta B.K., Muehlberger W.R., Scott D.H., Sutton R.L and Wilshire H.G. (1981) The geologic investigation of the Taurus-Littrow Valley: Apollo 17 Landing Site. US Geol. Survey Prof. Paper, 1080, pp. 280.