

# 15125

## Vitrophyric Pigeonite Basalt

6.5 grams



Figure 1: Photo of 15125.  
Scale is in cm. S&1-48779.

### Mineralogical Mode

Olivine	4 %	3.1
Pyroxene	44	45.3
Plagioclase	-	
Opaques	0.4	0.2
Silica	-	
Matrix	51.6	51.4

Dowty et al. 1973; Grove and Walker 1977

### Introduction

Lunar basalt 15125 was collected with the rake sample at station 2, Apollo 15, near the Hadley Rille and St. George Crater. It is a pyroxene-phyric basalt, with numerous skeletal pyroxenes and some olivine embedded in a dark, cryptocrystalline matrix (quench texture). The composition and texture of 15125 are similar to that of larger sample 15597.

### Processing

There are only two thin sections.

### Petrography

Dowty et al. (1973, 1974) and Ryder (1985) described 15125 as a pyroxene-phyric basalt with about 50% small skeletal olivine and pyroxene crystals set in a wholly crystalline groundmass (figure 2). The groundmass consists of spherulitic alternating plagioclase and pyroxene needles in a feathery arrangement. The pyroxene phenocrysts are highly zoned (figure 3). Small opaque minerals were analyzed by Nehru et al. (1974).

Lofgren et al. (1975) and Grove and Walker (1977) were able to determine the approximate cooling rate of the basalt using carefully controlled laboratory experiments on synthetic mixtures with same composition.

### Chemistry

Helmke et al. (1973) determined the chemical composition of 15125 (figure 4). It is a typical pyroxene basalt for Apollo 15 (figure 5).

### Radiogenic age dating

None

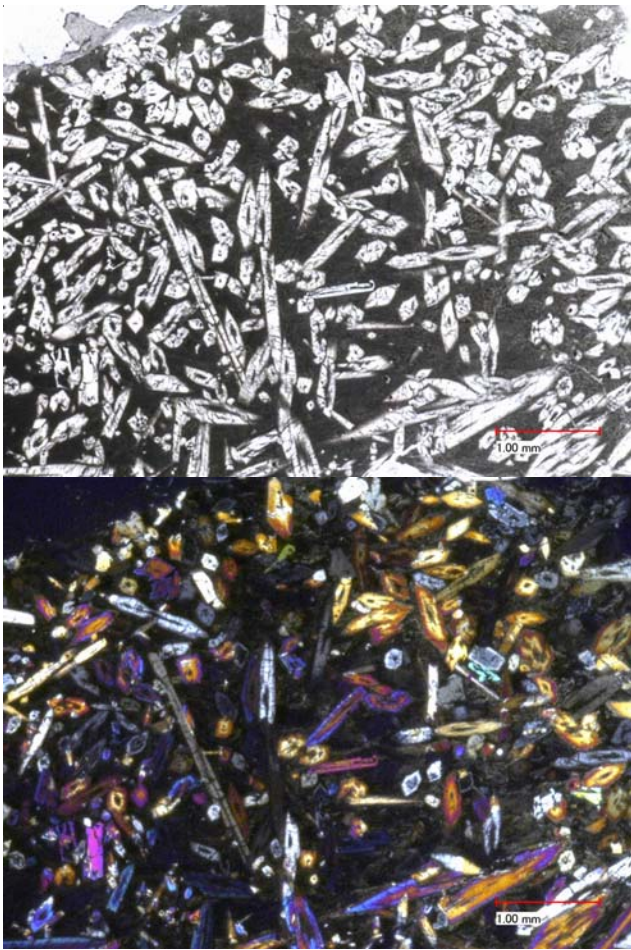


Figure 2: Photomicrographs of thin section 15125, 6 by C Meyer @50x.

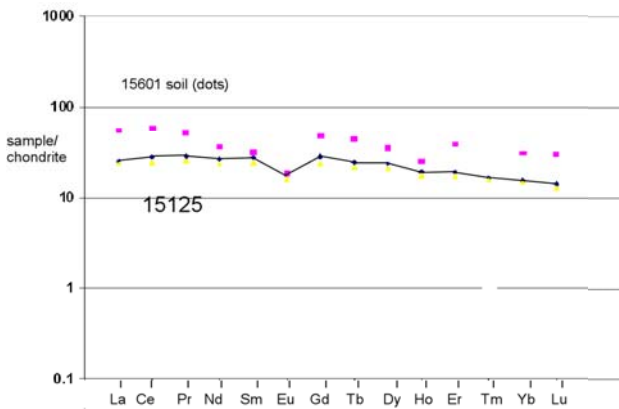


Figure 5: Normalized rare-earth-element diagram for 15115.

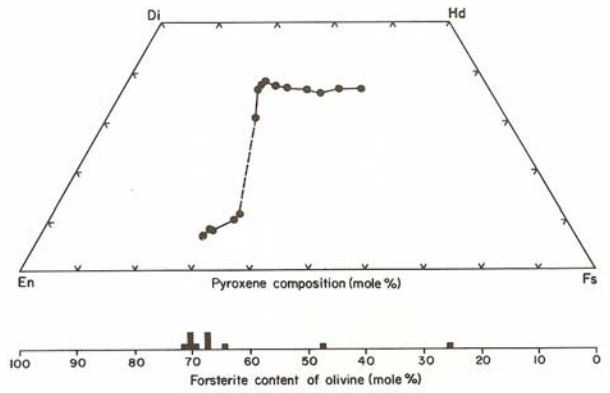


Figure 3: Composition of pyroxene in 15125 by Dowty et al. (1973).

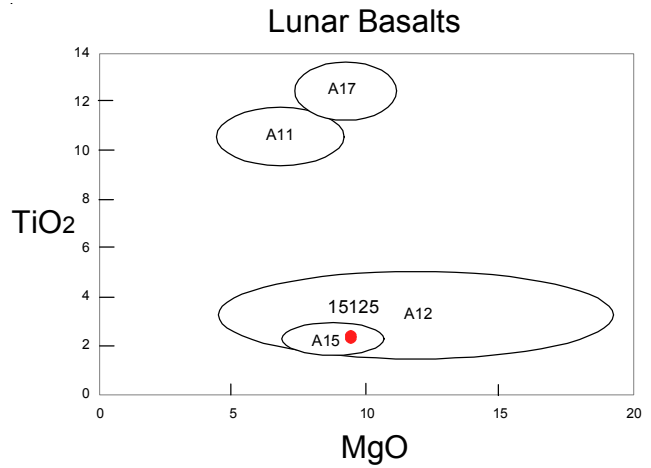


Figure 4: Chemical composition of 15125 compared with other Apollo basalts.

### References for 15125

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**Table 1. Chemical composition of 15125**

reference weight	Helmke73	Dowty73
SiO <sub>2</sub> %	48.4 (c)	47.5 (b)
TiO <sub>2</sub>	1.8 (c)	2.27 (b)
Al <sub>2</sub> O <sub>3</sub>	9.11 (c)	8.3 (b)
FeO	20.3 (c)	22.3 (b)
MnO	0.27 (a)	0.27 (b)
MgO	9.19 (c)	9.4 (b)
CaO	8.04 (c)	9.3 (b)
Na <sub>2</sub> O	0.35 (c)	0.33 (b)
K <sub>2</sub> O	0.053 (c)	0.05 (b)
P <sub>2</sub> O <sub>5</sub>		0.08 (b)
S %		
sum		
Sc ppm	41.5 (a)	
V		
Cr	4140 (a)	
Co	63 (a)	
Ni		
Cu		
Zn		
Ga	3.3 (a)	
Ge ppb		
As		
Se		
Rb	0.8 (a)	
Sr		
Y		
Zr		
Nb		
Mo		
Ru		
Rh		
Pd ppb		
Ag ppb		
Cd ppb		
In ppb		
Sn ppb		
Sb ppb		
Te ppb		
Cs ppm	0.02 (a)	
Ba		
La	5.75 (a)	
Ce	17.1 (a)	
Pr		
Nd	11.7 (a)	
Sm	3.92 (a)	
Eu	1.12 (a)	
Gd	5.1 (a)	
Tb	0.87 (a)	
Dy	6 (a)	
Ho	1.02 (a)	
Er	3.2 (a)	
Tm		
Yb	2.59 (a)	
Lu	0.39 (a)	
Hf	2.1 (a)	
Ta		
W ppb		
Re ppb		
Os ppb		
Ir ppb		
Pt ppb		
Au ppb		
Th ppm		
U ppm		

technique: (a) INAA, (b) broad beam e-probe, (c) AA

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