

15658
Olivine-normative Basalt
11.6 grams



Figure 1: Photo of 15658. Scale is 1 cm. S71-49534.

Introduction

15658 is a rake sample collected from the Terrace at Hadley Rille (station 9a, Apollo 15). It is typical of most of the other rake samples from this location (see section on 15614).

Petrography

Ryder (1985) provides the only description: “15658 is a medium-grained, olivine-bearing basalt (figure 2). Pigeonites range from 1 to 2 mm long and are twinned and zoned. Most plagioclases form stubby crystals up to about 1 mm, some of which are hollow. Some radial growth of plagioclase and pyroxene is present. Olivine forms scattered anhedral phenocrysts, and smaller grains are present, many as inclusions in pigeonite. Cristobalite, fayalite, and a range of opaque phases are present.” No mode is given.

Chemistry

Helmke et al. (1973) and Chappell et al. (1973) reported analyses of 15658. It is essentially the same as that of 15555.

Other Studies

Gose et al. (1972) and Pearce et al. (1978) determined the magnetic properties.

Processing

There are only 2 thin sections of 15658.

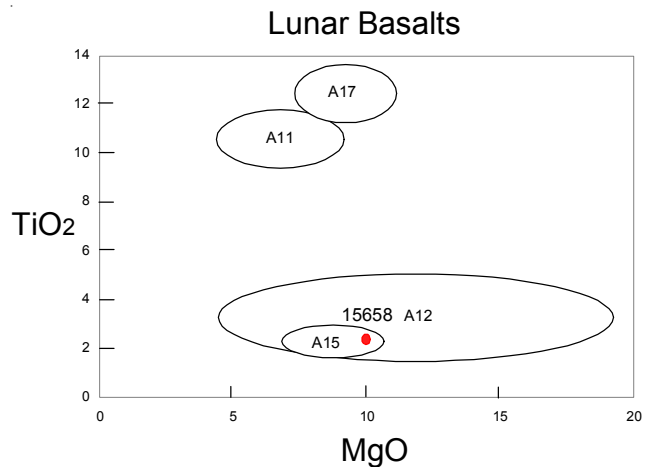


Figure 3: Composition compared with other Apollo basalts.

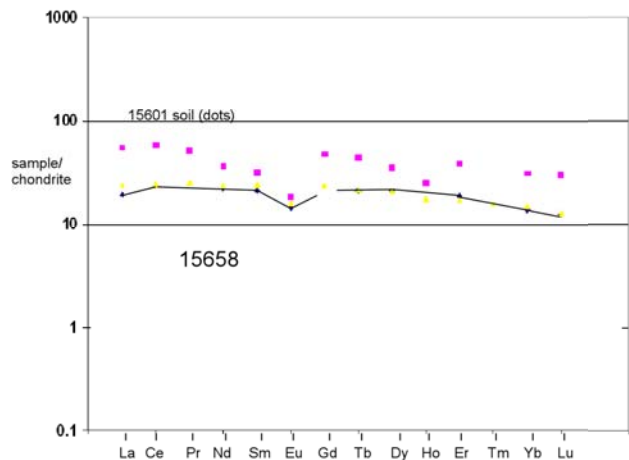


Figure 4: Normalized rare-earth-element diagram for 15658 compared with soil 15601.

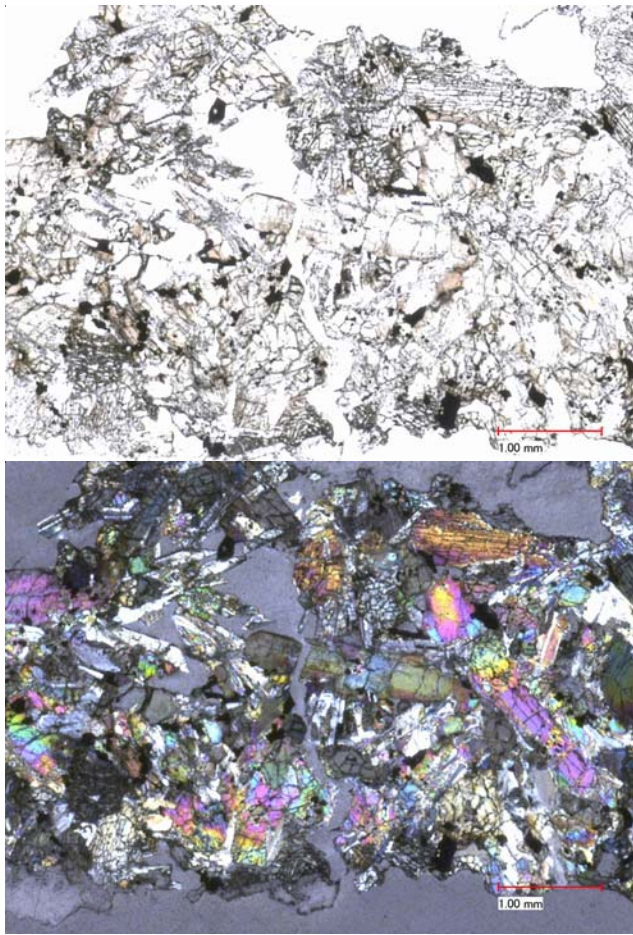


Figure 2a: Photomicrographs of thin section 15658,15 by C Meyer @ 50x.

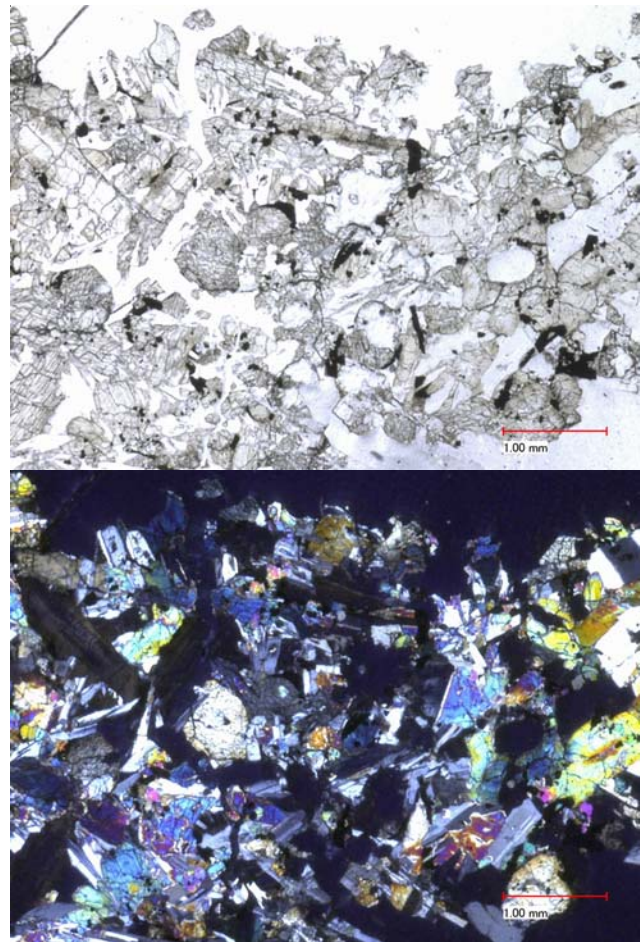


Figure 2b: Photomicrographs of thin section 15658,110 by C Meyer @ 50x.

References for 15658

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Table 1. Chemical composition of 15658.

reference weight	Helmke73	Chappel73
SiO2 %	46.5 (a)	45.09 (c)
TiO2	2.69 (a)	2.5 (c)
Al2O3	9.11 (a)	9.02 (c)
FeO	22.5 (a)	22.59 (c)
MnO	0.28 (a)	0.31 (c)
MgO	10 (a)	9.73 (c)
CaO	10 (a)	10.11 (c)
Na2O	0.257 (a)	0.28 (c)
K2O	0.049 (a)	0.04 (c)
P2O5		0.07 (c)
S %		0.05 (c)
sum		
Sc ppm	47 (b)	
V		
Cr		
Co	50 (b)	
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	4.5 (b)	
Ce	14 (b)	
Pr		
Nd	9.9 (b)	
Sm	3.09 (b)	
Eu	0.81 (b)	
Gd		
Tb	0.77 (b)	
Dy	5.1 (b)	
Ho		
Er	3 (b)	
Tm		
Yb	2.24 (b)	
Lu	0.3 (b)	
Hf	2 (b)	
Ta		
W ppb		
Re ppb		
Os ppb		
Ir ppb		
Pt ppb		
Au ppb		
Th ppm		
U ppm		

technique: (a) AA, (b) INAA, (c) XRF