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 for 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.

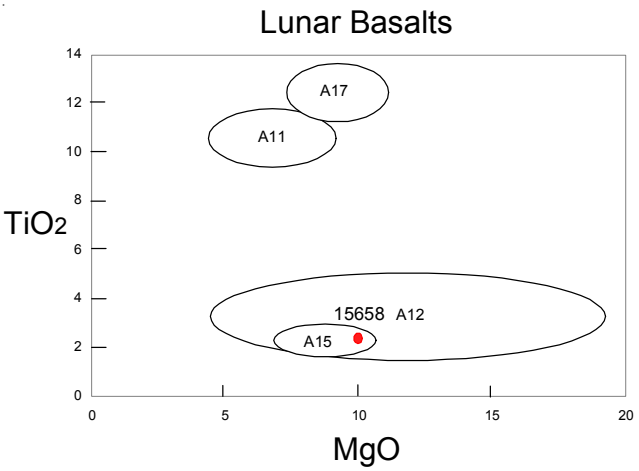

Figure 3: Composition compared with other Apollo basalts.

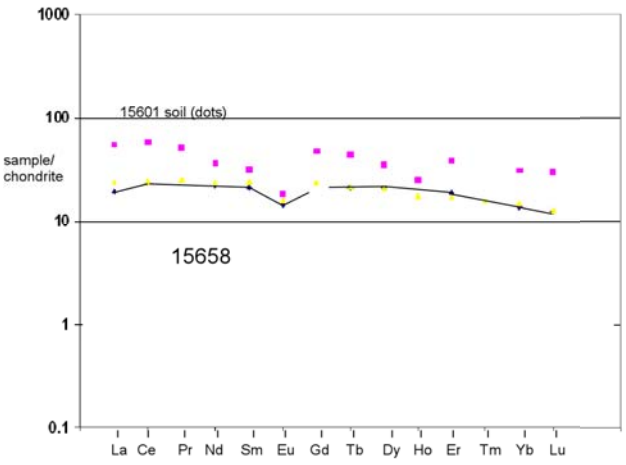

Figure 4: Normalized rare-earth-element diagram for 15658 compared with soil 15601.

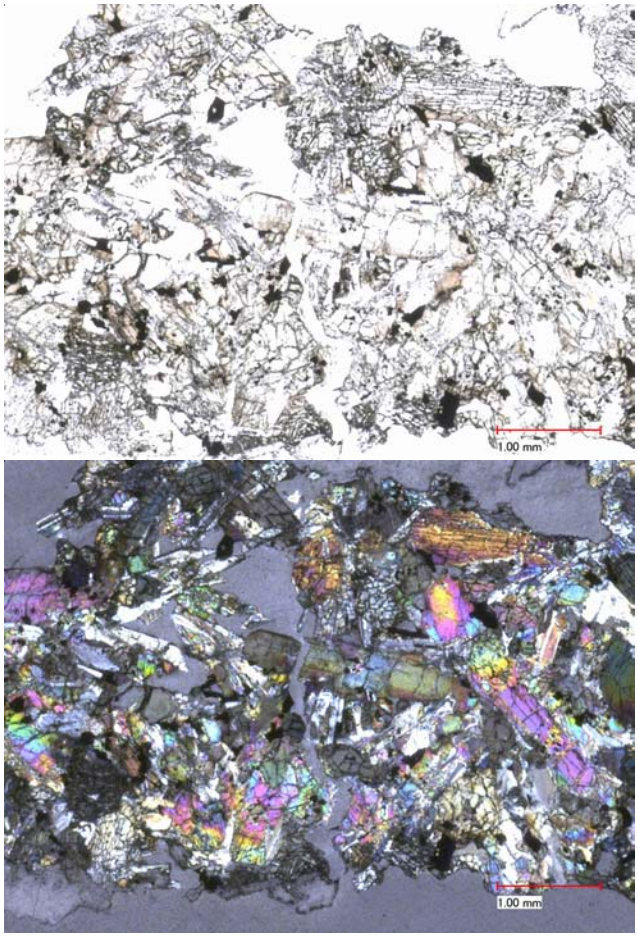

Figure 2a: Photomicrographs of thin section 15658,15 by C Meyer @ 50x.

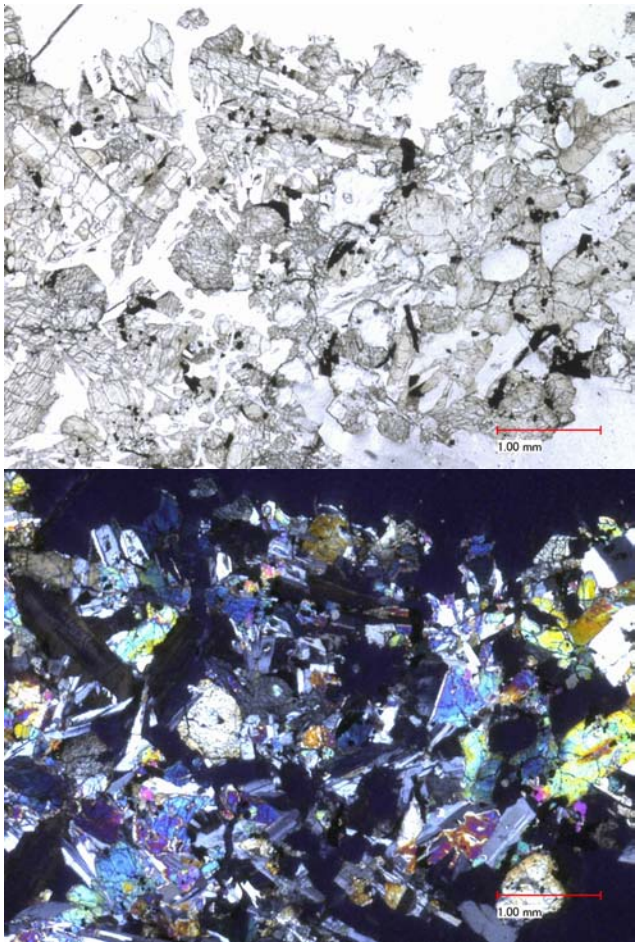

Figure 2b: Photomicrographs of thin section 15658,110 by C Meyer @ 50x.

References for 15658

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Table 1. Chemical composition of 15658.

reference	Helmke73		Chappel73	
weight				
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