

15662

Medium-grained Olivine-normative Basalt

4.9 grams



Figure 1: Photo of 15662. Cube is 1 cm for scale. S71-49733.

Introduction

15662 was collected as a rake sample from the Terrace of the Hadley Rille at Apollo 15 (see section on 15614). It is a vesicular olivine-normative basalt.

Petrography

The texture of 15662 is that of a microgabbro (figure 2), but actually it is a basalt, 'cause the largest mafic grains are optically zoned!

Chemistry

The composition of 15662 is exactly the same as that of 15555 and the rest of the Apollo 15 basalts (figures 3 and 4).

Other Studies

Hargraves and Doerty (1972) reported the magnetic properties and compared them with 15555.

Processing

There is only one thin section.

References for 15662.

Butler P. (1971) Lunar Sample Catalog, Apollo 15. Curators' Office, MSC 03209

Hargraves R.B. and Dorety N. (1972b) Remanent magnetism in four Apollo 15 igneous rock fragments. *In The Apollo 15 Lunar Samples* 415-417. Lunar Planetary Institute, Houston.

Lofgren G.E., Donaldson C.H. and Usselman T.M. (1975) Geology, petrology and crystallization of Apollo 15 quartz-normative basalts. *Proc. 6th Lunar Sci. Conf.* 79-99.

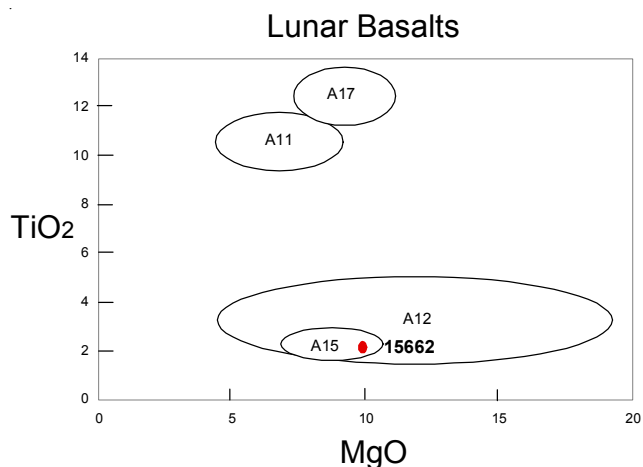


Figure 3: The composition of 15662 compared with other Apollo basalts.

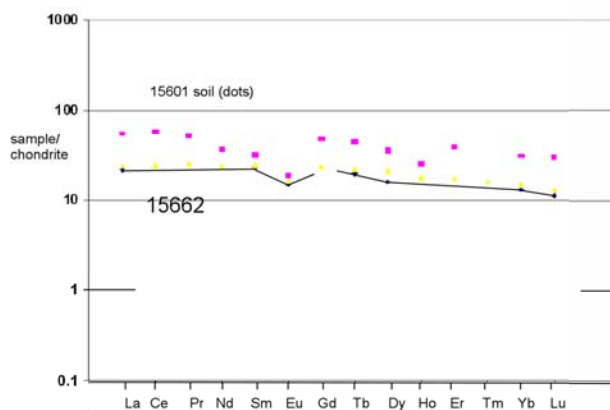


Figure 4: Normalized rare-earth-element diagram for 15662, compared with that of 15601 soil.

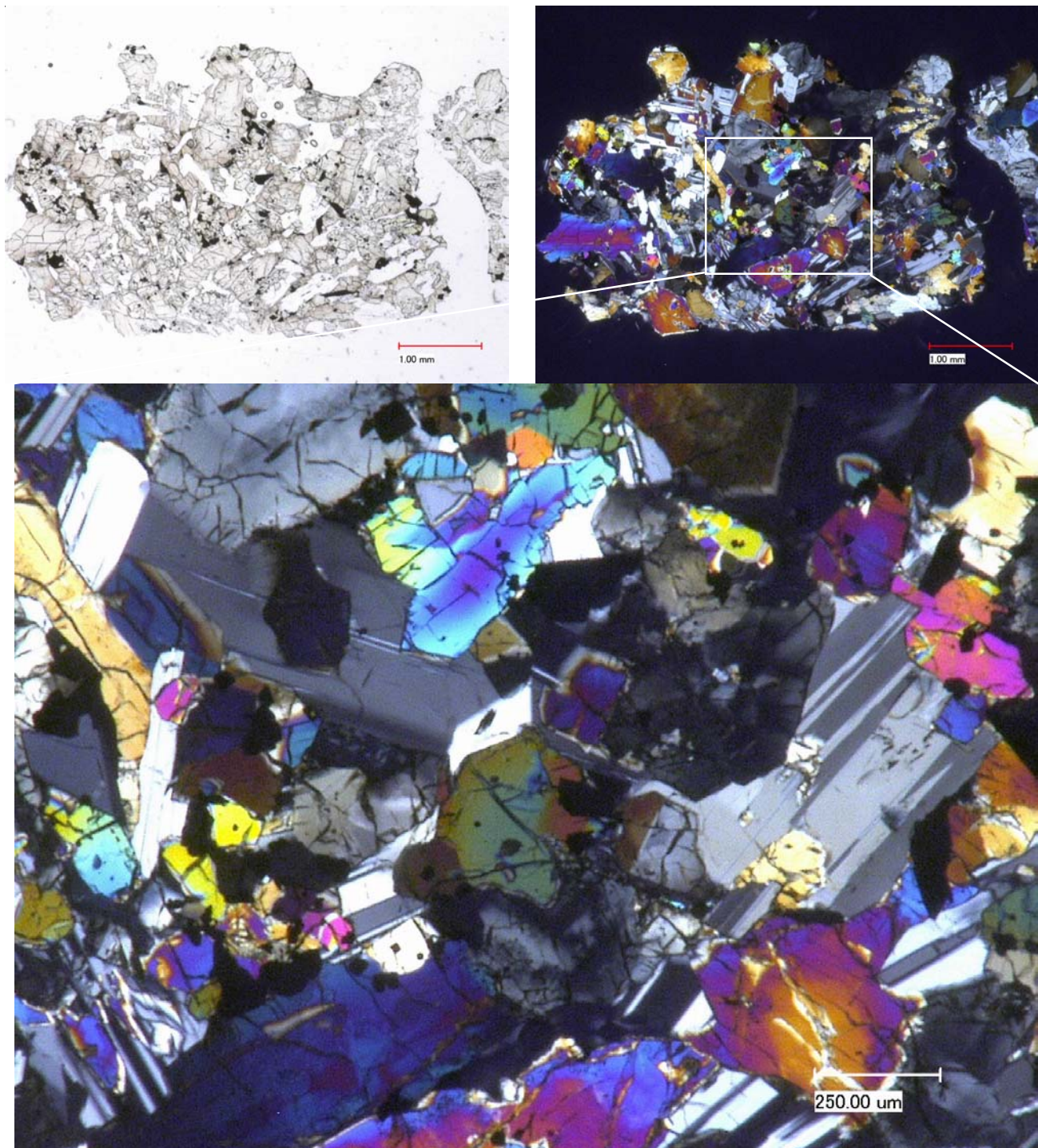


Figure 2a: Photomicrographs of thin section 15662,7 by C Meyer at 50x and 150x.

LSPET (1972a) The Apollo 15 lunar samples: A preliminary description. *Science* 175, 363-375.

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Ma M.-S., Schmitt R.A., Warner R.D., Taylor G.J. and Keil K. (1978) Genesis of Apollo 15 olivine normative mare basalts: Trace element correlations. *Proc. 9th Lunar Sci. Conf.* 523-533.

Ryder G. (1985) Catalog of Apollo 15 Rocks (three volumes). Curatorial Branch Pub. # 72, JSC#20787

Swann G.A., Hait M.H., Schaber G.C., Freeman V.L., Ulrich G.E., Wolfe E.W., Reed V.S. and Sutton R.L. (1971b) Preliminary description of Apollo 15 sample environments. U.S.G.S. Interagency report: 36. pp219 with maps

Swann G.A., Bailey N.G., Batson R.M., Freeman V.L., Hait M.H., Head J.W., Holt H.E., Howard K.A., Irwin J.B., Larson K.B., Muehlberger W.R., Reed V.S., Rennilson J.J., Schaber G.G., Scott D.R., Silver L.T., Sutton R.L., Ulrich G.E., Wilshire H.G. and Wolfe E.W. (1972) 5. Preliminary Geologic Investigation of the Apollo 15 landing site. In Apollo 15 Preliminary Science Rpt. NASA SP-289. pages 5-1-112.

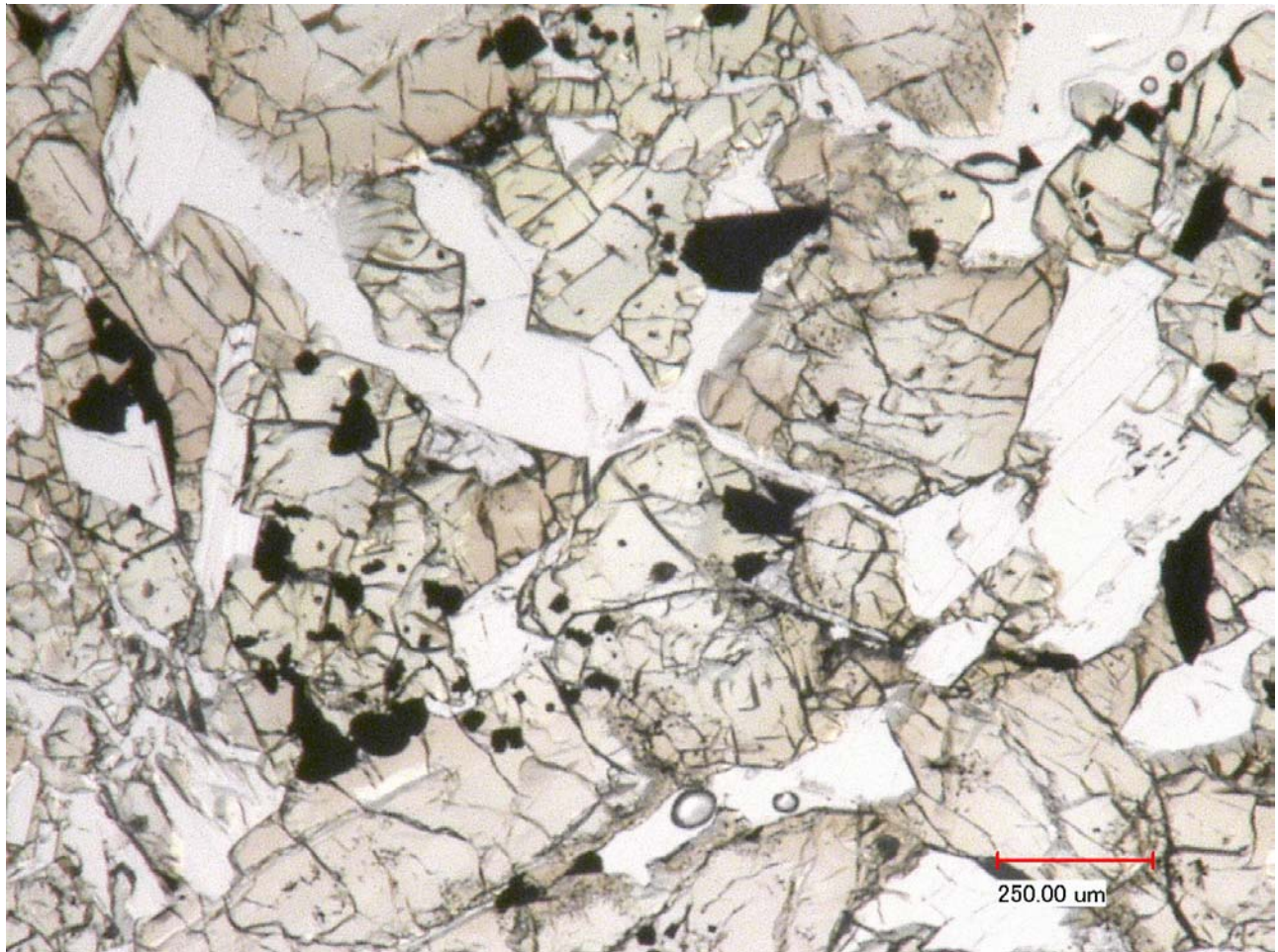


Figure 2b: Photomicrograph of thin section 15662,7 by C Meyer at 150x.

Table 1. Chemical composition of 15662.

<i>reference</i>	Ma78	
<i>weight</i>		
SiO ₂ %		
TiO ₂	2.3	(a)
Al ₂ O ₃	9.5	(a)
FeO	22.5	(a)
MnO	0.27	(a)
MgO	10	(a)
CaO	9.4	(a)
Na ₂ O	0.27	(a)
K ₂ O	0.04	(a)
P ₂ O ₅		
S %		
<i>sum</i>		
Sc ppm	41	(a)
V	237	(a)
Cr	4427	(a)
Co	52	(a)
Ni	75	(a)
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	65	(a)
La	5	(a)
Ce		
Pr		
Nd		
Sm	3.4	(a)
Eu	0.82	(a)
Gd		
Tb	0.07	
Dy	3.8	
Ho		
Er		
Tm		
Yb	2.1	(a)
Lu	0.27	(a)
Hf	2.5	(a)
Ta	0.6	(a)
W ppb		
Re ppb		
Os ppb		
Ir ppb		
Pt ppb		
Au ppb		
Th ppm		
U ppm		
<i>technique: (a) INAA</i>		