

**15118**  
**Pigeonite Basalt**  
27.6 grams



*Figure 1: Two sides of 15118. NASA S71-48760 and 48763.*

**Introduction**

Lunar sample 15118 was collected by rake as part of a comprehensive sample taken at station 2, Apollo 15 (near St. George Crater and the Hadley Rille). Chemically it is a quartz-normative basalt with pyroxene phenocrysts set in a fine groundmass. It has not been dated.

**Petrography**

Dowty et al. (1973) and Ryder (1985) described 15118 as a pyroxene-phyric mare basalt. It has large chemically-zoned, skeletal pyroxene phenocrysts set in a finer-grained pyroxene-plagioclase crystalline groundmass (figure 2). Opaques include ilmenite, ulvospinel and metallic iron (~2% Ni). Lofgren et al. (1975) have compared the texture with that of controlled crystallization experiments to obtain the cooling rate (1-5 deg./hr.).

The surface of 15118 has numerous micrometeorite craters and the sample has been used for solar flare track studies (Bhandari et al. 1973).

**Chemistry**

The chemical composition of 15118 was reported by Rhodes and Hubbard (1973) and Ma et al. (1976).

**Radiogenic age dating**

Not dated.

**Processing**

There are three thin section of 15118.

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**Mineralogical Mode of 15118**

	<b>Sample Catalog Butler 1971</b>	<b>Dowty et al. 1973</b>
Olivine		--
Pyroxene	50-60	61
Plagioclase	40	29
Ilmenite	1	4
Silica		3

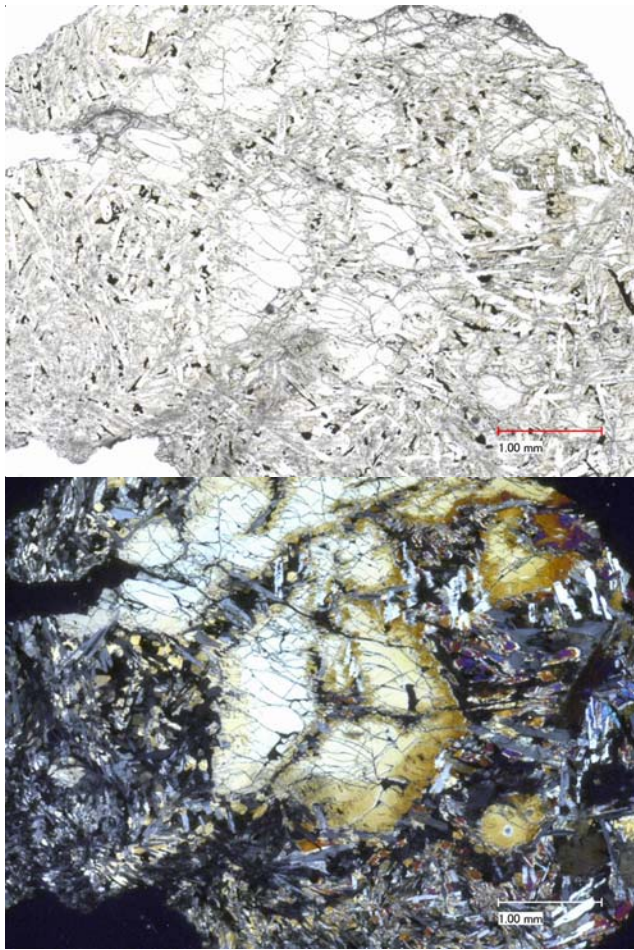


Figure 2a: Thin section photomicrographs of 15118,9 by C Meyer @ 50x (bottom is with x-nicols).

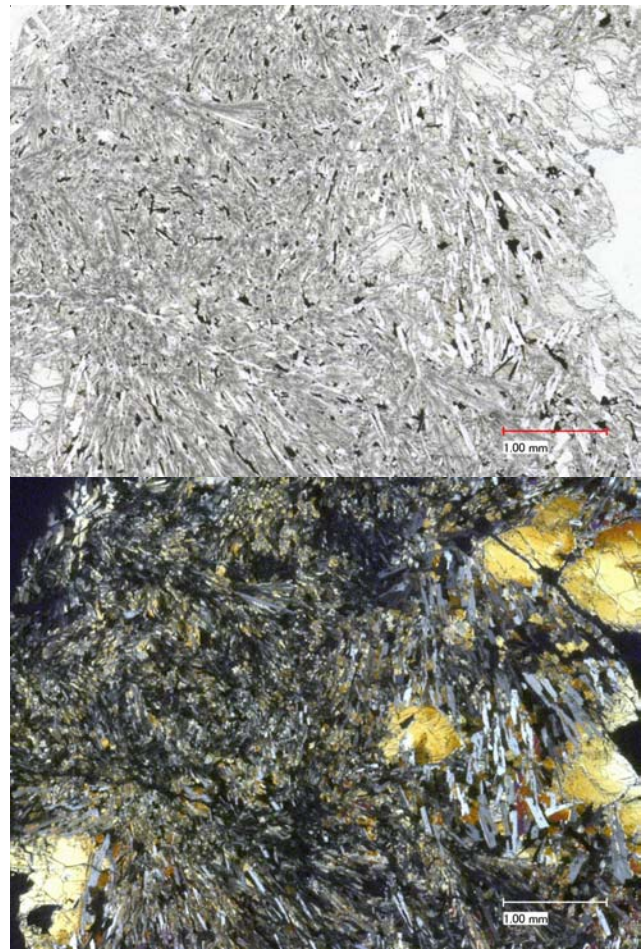


Figure 2b: Thin section photomicrographs of 15118,18 by C Meyer @ 50x (bottom is with x-nicols).

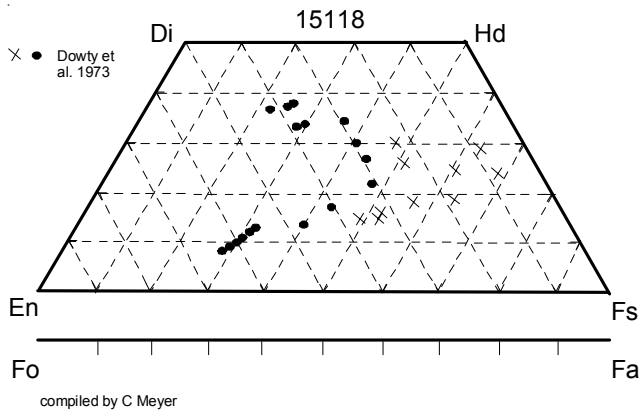


Figure 3: Pyroxene composition for 15118.

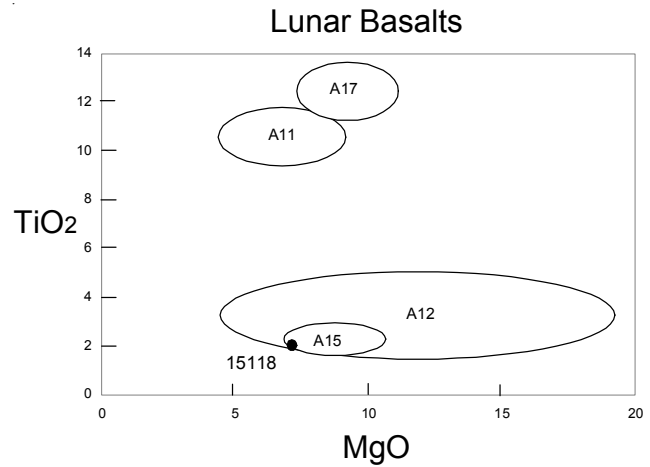


Figure 4: Chemical composition of 15118 compared with other lunar basalts.

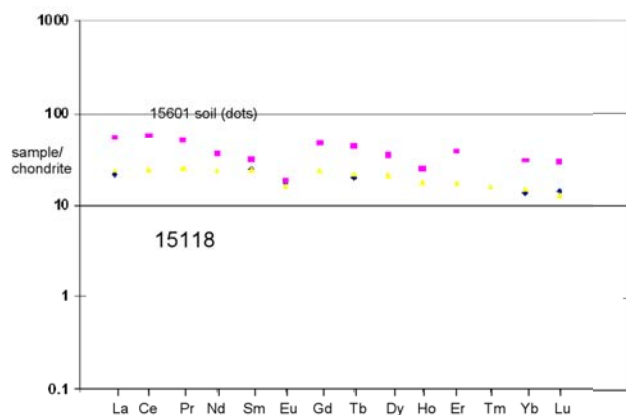
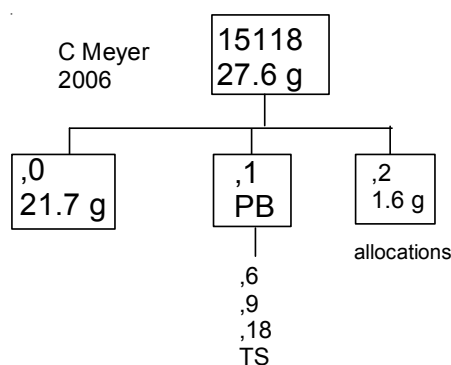


Figure 5: Normalized rare-earth element composition for 15118 (data from Fruchter et al. 1973)..



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**Table 1. Chemical composition of 15118.**

reference weight	Dowty73	Rhodes73	Wiesmann75	Ma 76	
SiO <sub>2</sub> %	48.7	(a) 47.6	(b)		
TiO <sub>2</sub>	2.1	(a) 2.05	(b) 2.05	(c) 2	(d)
Al <sub>2</sub> O <sub>3</sub>	9.7	(a) 10.72	(b)	10.6	(d)
FeO	21.1	(a) 20.39	(b)	24	(d)
MnO	0.27	(a) 0.28	(b)	0.25	(d)
MgO	7	(a) 6.49	(b)	7.7	(d)
CaO	9.9	(a) 11.65	(b)	10.1	(d)
Na <sub>2</sub> O	0.39	(a) 0.32	(b) 0.31	(c) 0.35	(d)
K <sub>2</sub> O	0.08	(a) 0.06	(b) 0.077	(c) 0.065	(d)
P <sub>2</sub> O <sub>5</sub>	0.09	(a) 0.1	(b)		
S %					
sum					
Sc ppm				42	(d)
V				204	(d)
Cr	1780	(a)	2266	(c) 3970	(d)
Co				44	(d)
Ni				<66	(d)
Cu					
Zn					
Ga					
Ge ppb					
As					
Se					
Rb			1.32	(c)	
Sr			131	(c)	
Y					
Zr					
Nb					
Mo					
Ru					
Rh					
Pd ppb					
Ag ppb					
Cd ppb					
In ppb					
Sn ppb					
Sb ppb					
Te ppb					
Cs ppm					
Ba			83.8	(c) 80	(d)
La			8.39	(c) 5	(d)
Ce			23.4	(c)	
Pr					
Nd			17.3	(c)	
Sm			5.4	(c) 3.6	(d)
Eu			1.2	(c) 0.97	(d)
Gd			7.25	(c)	
Tb				0.71	(d)
Dy			7.33	(c) 4.9	(d)
Ho					
Er			3.99	(c)	
Tm					
Yb			3.4	(c) 2.2	(d)
Lu			0.49	(c) 0.34	(d)
Hf				3.1	(d)
Ta					
W ppb				450	(d)
Re ppb					
Os ppb					
Ir ppb					
Pt ppb					
Au ppb					
Th ppm			0.79	(c)	
U ppm			0.21	(c)	

technique: (a) elec. Probe, (b) XRF, (c) IDMS, (d) INAA