

**61569**  
Impact Melt Breccia  
12 grams



Figure 1: Photo of 61569. Scale in cm/mm. S72-55322

**Introduction**

61569 is a coherent impact melt breccia that was collected as part of a rake sample taken at Plum Crater – see section on soil 67500. It appears to be different from most poikilitic melt rocks at Apollo 16 because the dominant oikocryst is olivine, rather than pyroxene.

**Petrography**

61569 has a poikilitic texture where blocky plagioclase is enclosed in large olivine crystals (figure 2). Simonds et al. (1973) give the mode as 68 % plagioclase, 8 % pyroxene, 22 % olivine (Fo<sub>70-78</sub>) and 2% ilmenite. There is no rust.

**Chemistry**

Wasson et al. (1977) determined the chemical composition of 61569. Note the high Ni, Ir and Au.

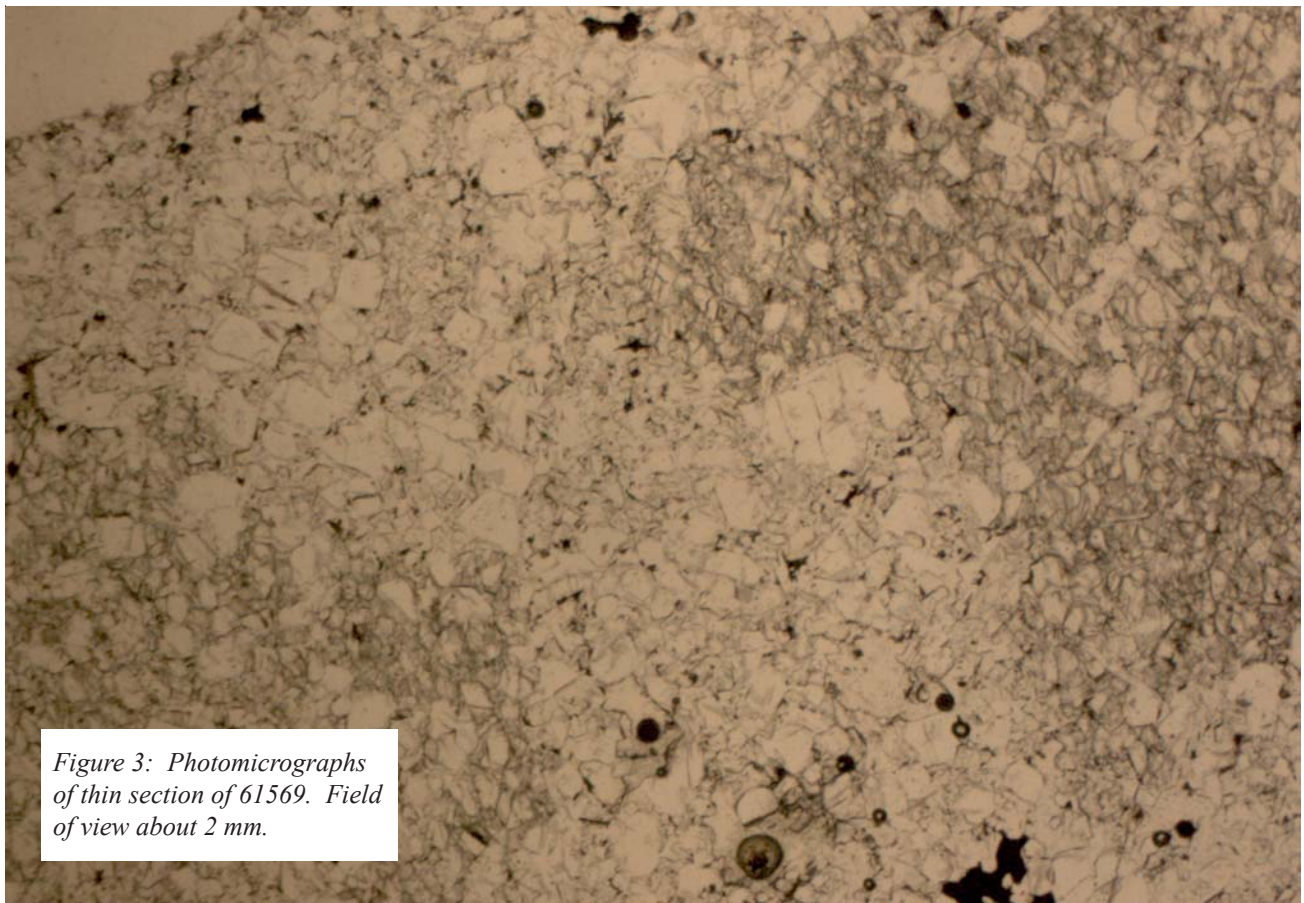
**Radiogenic age dating**

Norman et al. (2006) determined an Ar/Ar plateau age of  $3.79 \pm 0.01$  b.y. (figure 4).

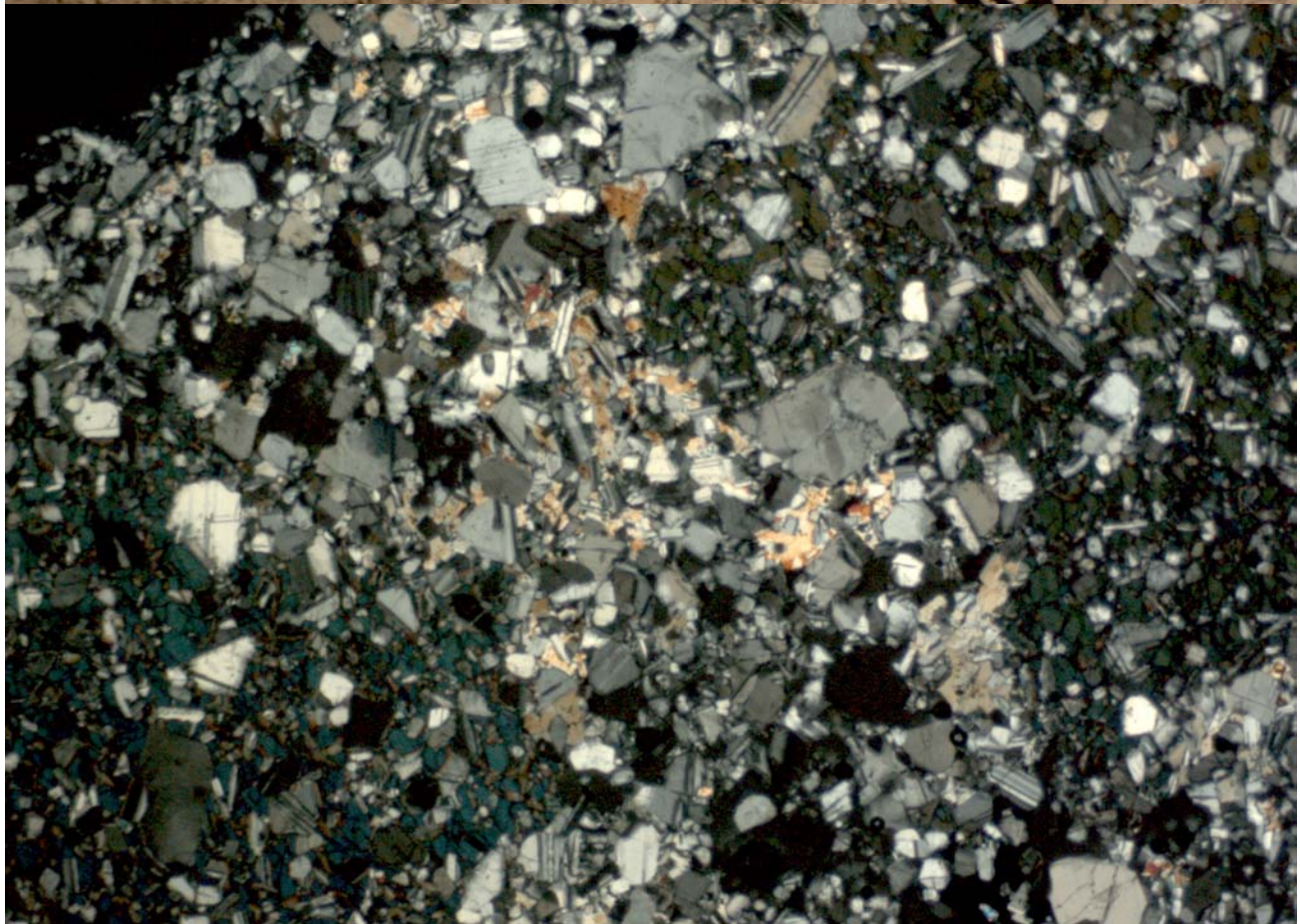


Figure 2: Photomicrograph of thin section 61569,4 showing poikilitic texture (Crossed nicols).





*Figure 3: Photomicrographs of thin section of 61569. Field of view about 2 mm.*



**Table 1. Chemical composition of 61569**

<i>reference</i>	Wasson77	
<i>weight</i>		
SiO <sub>2</sub> %		
TiO <sub>2</sub>	1	(a)
Al <sub>2</sub> O <sub>3</sub>	21.9	(a)
FeO	7.41	(a)
MnO	0.085	(a)
MgO	9.95	(a)
CaO	12.9	(a)
Na <sub>2</sub> O	0.47	(a)
K <sub>2</sub> O	0.19	(a)
P <sub>2</sub> O <sub>5</sub>		
S %		
<i>sum</i>		
Sc ppm	12.4	(a)
V	29	(a)
Cr	1110	(a)
Co	54	(a)
Ni	1000	(a)
Cu		
Zn		
Ga	4.1	(a)
Ge ppb		
As		
Se		
Rb		
Sr		
Y		
Zr	250	(a)
Nb		
Mo		
Ru		
Rh		
Pd ppb		
Ag ppb		
Cd ppb		
In ppb	5.5	(a)
Sn ppb		
Sb ppb		
Te ppb		
Cs ppm		
Ba	180	(a)
La	18.1	(a)
Ce	45	(a)
Pr		
Nd	25	(a)
Sm	8	(a)
Eu	1.33	(a)
Gd		
Tb	1.65	(a)
Dy	8.8	(a)
Ho		
Er		
Tm		
Yb	5.8	(a)
Lu	0.82	(a)
Hf	5.9	(a)
Ta	0.67	(a)
W ppb		
Re ppb		
Os ppb		
Ir ppb	20	(a)
Pt ppb		
Au ppb	18	(a)
Th ppm	2.8	(a)
U ppm	0.76	(a)
<i>technique:</i>	(a) INAA	



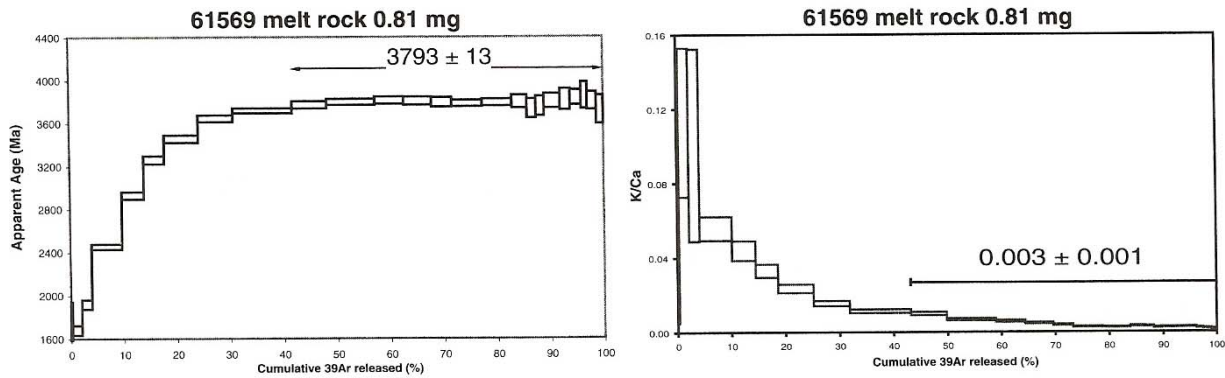


Figure 4: Ar/Ar plateau diagram of a wee bit of 61569 by Norman et al. (2006).

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