

60625
Impact Melt Breccia
117 grams



Figure 1: Photo of 60625 showing zap pits all sides. NASA S72-44915. Sample is 5 cm across.



Figure 2: Photo of opposite side of 60625. NASA S72-44911. Cube is 1 cm.

Introduction

Lunar sample 60625 is a white rock, peppered with micrometeorite pits on all sides (figures 1 and 2). It was collected as a rake sample from the area near the Lunar Module where the drill core and drive tubes were taken (see section on 60600). The composition shows it is plagioclase-rich, but it also has high content of REE (i.e. it is an unusual breccia or impact melt rock).

Petrography

Warner et al. (1976) described a texture with irregular oikocrysts (pyroxene) up to 1 mm, enclosing euhedral plagioclase chadocrysts (figure 4). Some plagioclase is shocked. Ryder and Norman (1980) term this rock a poikilitic impact melt breccia. Hunter and Taylor (1981) found patches of rust.

The mineralogy is 65% plagioclase (An_{95}), 17% olivine (Fo_{77}) and 16% pyroxene ($Wo_7En_{75}Fs_{18}$) with minor ilmenite, armalcolite, Ni-Fe metal, and K-rich phase (Warner et al. 1976).

Age

Not determined

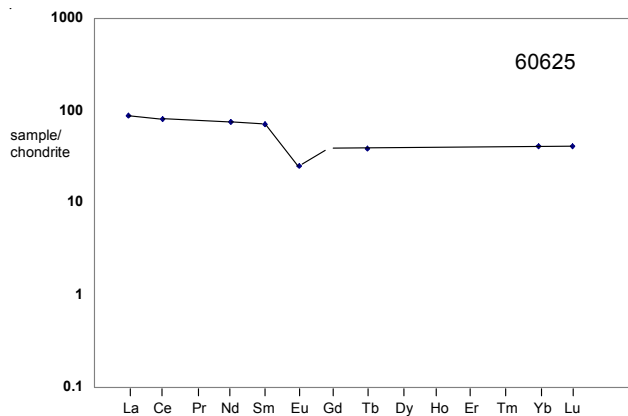


Figure 3: Normalized rare-earth-element diagram for 60625 (data from Fruchter et al. 1974).

Chemistry

60625 has been analyzed by Fruchter et al. (1974) (figure 3).

Processing

There are 4 thin sections of 60625.

Table 1. Chemical composition of 60625.

60625				
reference	Fruchter74	Warner76	Ryder82	
<i>weight</i>				
SiO ₂ %		45.3	(b) 45.6	(c)
TiO ₂		0.32	(b)	
Al ₂ O ₃	25.9	(a) 29.6	(b) 22.8	(c)
FeO	5.4	3.7	(b) 5.8	(c)
MnO		0.04	(b)	
MgO		3.3	(b) 9.6	(c)
CaO		17.1	(b) 14.2	(c)
Na ₂ O	0.49	(a) 0.47	(b) 0.54	(c)
K ₂ O		0.05	(b) 0.2	(c)
P ₂ O ₅		0.04	(b)	
S %				
<i>sum</i>				
Sc ppm	9.7	(a)	9.8	(c)
V				
Cr	840	(a)		
Co	27	(a)	41	(c)
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	190	(a)		
La	20.7	(a)	23.3	(c)
Ce	49	(a)		
Pr				
Nd	34	(a)		
Sm	10.5	(a)	10.6	(c)
Eu	1.4	(a)	1.46	(c)
Gd				
Tb	1.4	(a)		
Dy				
Ho				
Er				
Tm				
Yb	6.7	(a)		
Lu	1	(a)	1.1	(c)
Hf	6.3	(a)		
Ta	0.7	(a)		
W ppb				
Re ppb				
Os ppb				
Ir ppb				
Pt ppb				
Au ppb				
Th ppm	4.1	(a)		
U ppm				

technique: (a) INAA, (b) broad beam e-probe, (c) prelim.

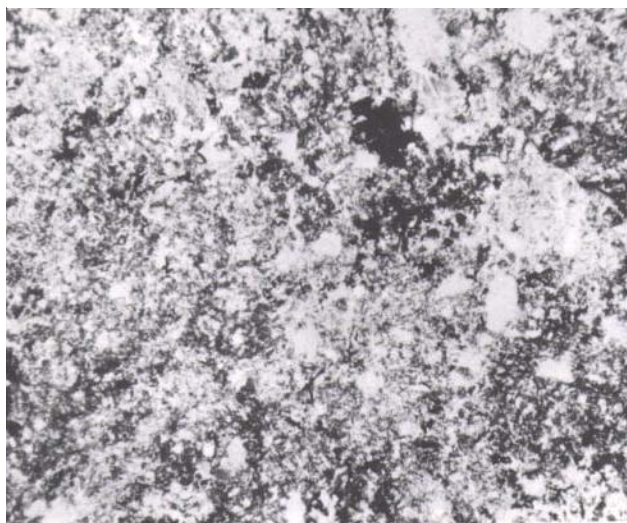


Figure 4: Photomicrograph of thin section showing poikilitic texture of 60625 (from Warner 1976)

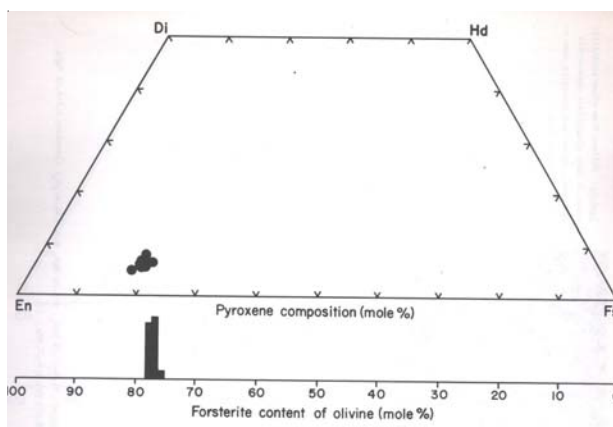


Figure 5: Mineral composition diagrams for 60625 (from Warner et al. 1976).

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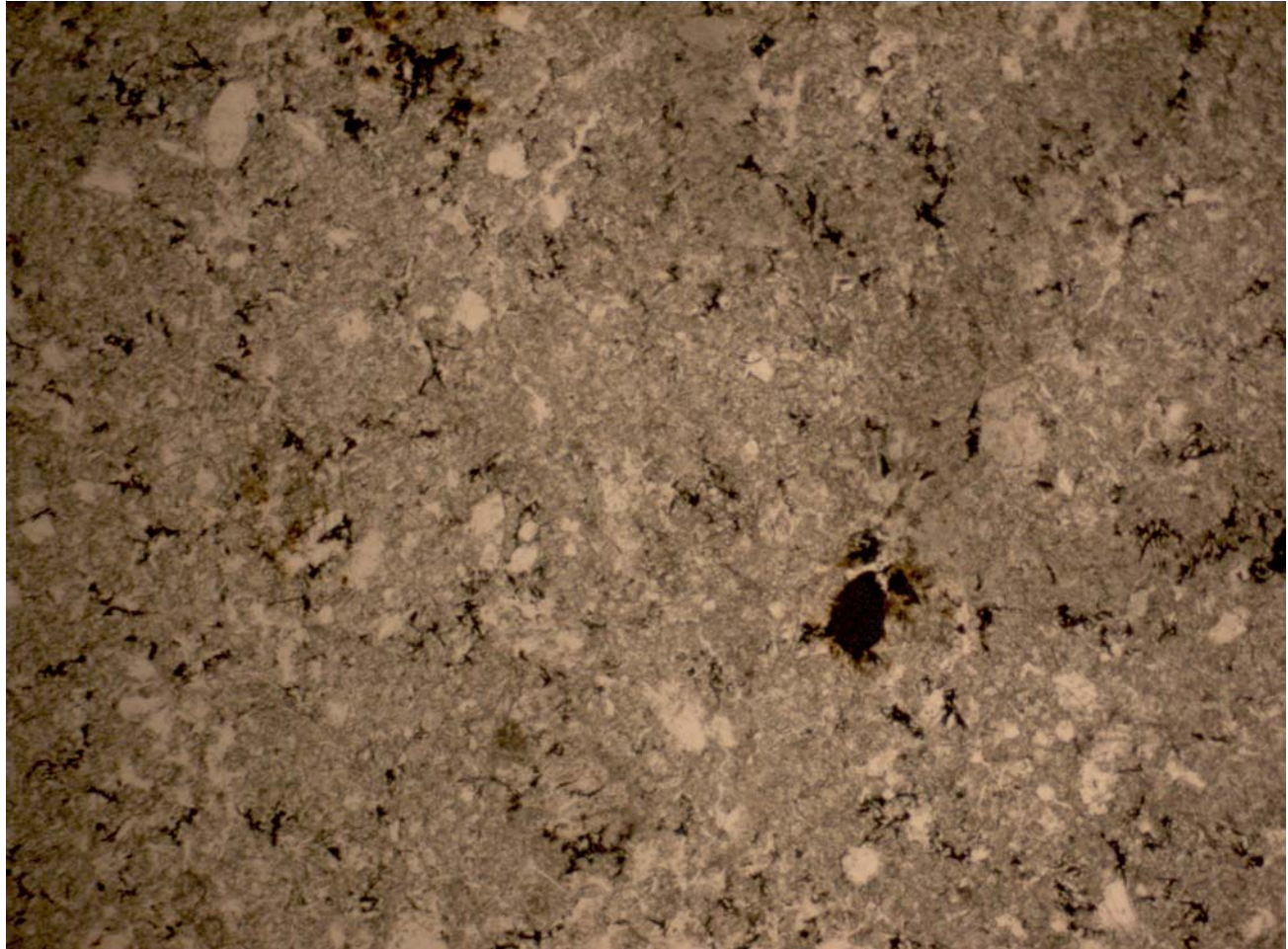
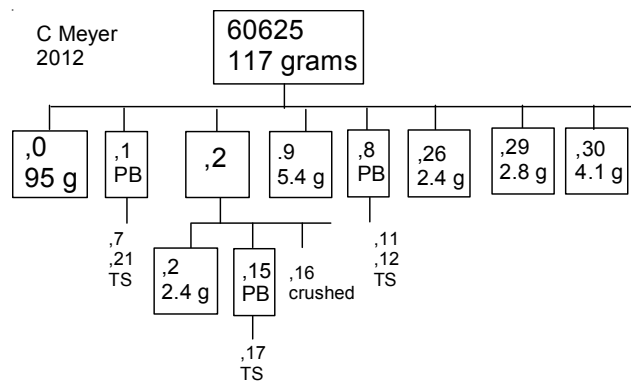


Figure 5: Photomicrograph by C Meyer of texture of 60625. 2 mm across.

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