72539

Impact Melt Breccia

11.2 grams

Figure 1: Photo of 72539. Scale is marked in mm. S73-19632

Introduction

72539 is an impact melt breccia with a dark crystalline matrix with subophitic texture and few clasts (figure 1). It was collected as a rake sample near boulder #2 at station 2 on the slope of the South Massif (figure 2).

This rock has not been dated.

Petrography

Warner et al. (1977) described the texture of the matrix of 72539 as "subophitic". It has about 4% vesicles and a few zap pits. Thin sections show that the sample was a breccias, before it was melted and recrystallized (figure 3). Calcic plagioclase is the dominant mineral.

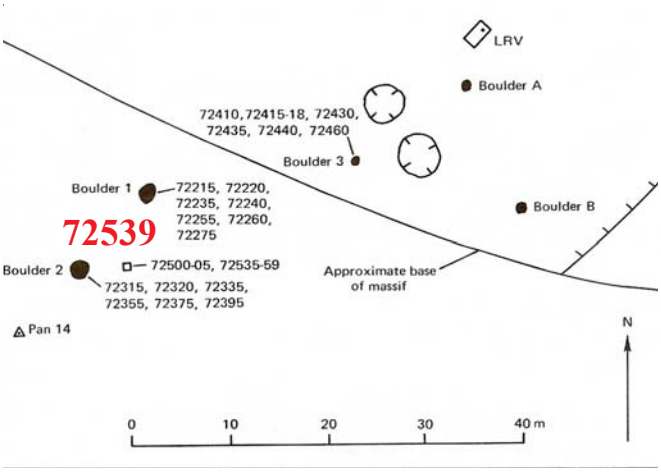


Figure 2: Map of station 2, Apollo 17.

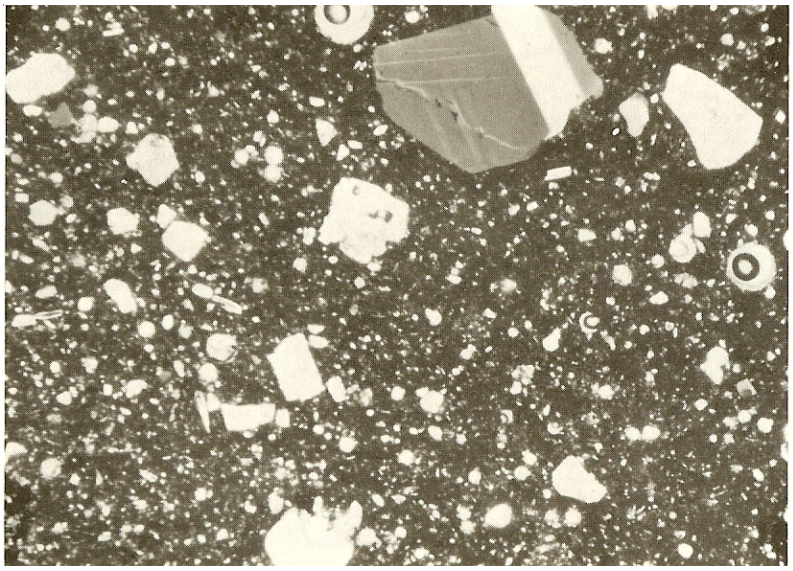


Figure 3: Thin section photomicrograph of 72539.

Warner et al. (1977) reported the mode and found several small grains of pink spinel in the matrix. They determined the composition of olivine and pyroxene (figure 4).

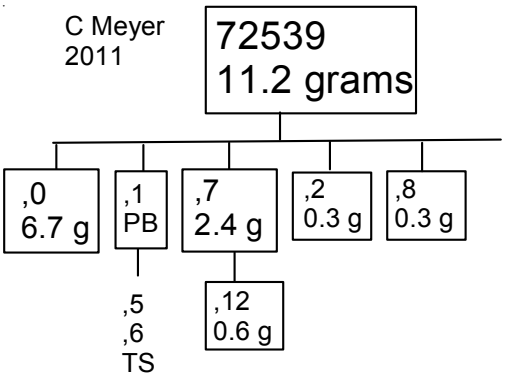
Ryder (1993) picture a small clast of "graphic granite".

Chemistry

The composition of 72539 is like that of most impact melt rocks from Apollo 17 (table 1). Meteoritic siderophiles are high.

Processing

There are three thin sections.



Mineral Mode (Warner et al. 1977)

	Vol. %
Matrix	87.7
Mineral clasts	7.6
Lithic clasts	4.7
Mineral clasts	
Plagioclase	5.5
Olivine/Pyroxene	1.9
Opaque	0.1
Metal/troilite	0.1
Other	tr.
Lithic Clasts	
ANT	1.2
Devit. Anorthosite	0.9
Breccia	2.2
Other	0.4
Percent of matrix	
Plagioclase	51.6
Olivine/pyroxene	45
Opaque	2.5
Metal/troilite	0.4
Other	0.6

Table 1. Chemical composition of 72539.

reference	Norman2002		Warner 77	
weight				
SiO2 %	45.7	(b)	47.1	(c)
TiO2	1.59	(b)	1.77	(c)
Al2O3	18.7	(b)	17.4	(c)
FeO	8.57	(b)	8.4	(c)
MnO	0.12	(b)	0.12	(c)
MgO	12.2	(b)	11.1	(c)
CaO	11.2	(b)	11.3	(c)
Na2O	0.63		0.59	(c)
K2O	0.21		0.16	(c)
P2O5			0.28	(c)
S %				
sum				
Sc ppm	18.1	(a)		
V	45	(a)		
Cr	1336	(a)	1026	(c)
Co	30.5	(a)		
Ni	274	(a)		
Cu	13.6	(a)		
Zn	14.9	(a)		
Ga	5	(a)		
Ge ppb				
As				
Se				
Rb	5.5	(a)		
Sr	181	(a)		
Y	118	(a)		
Zr	499	(a)		
Nb	33.4	(a)		
Mo				
Ru	12.1	(a)		
Rh				
Pd ppb	12.2	(a)		
Ag ppb				
Cd ppb				
In ppb				
Sn ppb				
Sb ppb				
Te ppb				
Cs ppm	0.27	(a)		
Ba	327	(a)		
La	29.7	(a)		
Ce	76.8	(a)		
Pr	10.48	(a)		
Nd	48.5	(a)		
Sm	13.8	(a)		
Eu	1.83	(a)		
Gd	15.3	(a)		
Tb	2.7	(a)		
Dy	17	(a)		
Ho	3.67	(a)		
Er	10.44	(a)		
Tm				
Yb	9.33	(a)		
Lu	1.35	(a)		
Hf	10.15	(a)		
Ta	1.45	(a)		
W ppb	0.78	(a)		
Re ppb	0.67	(a)		
Os ppb				
Ir ppb	6.89	(a)		
Pt ppb	14.3	(a)		
Au ppb				
Th ppm	5.39	(a)		
U ppm	1.37	(a)		

technique: (a) ICP-MS, (b) fused-bead, e-probe, (c) broad bean e. probe

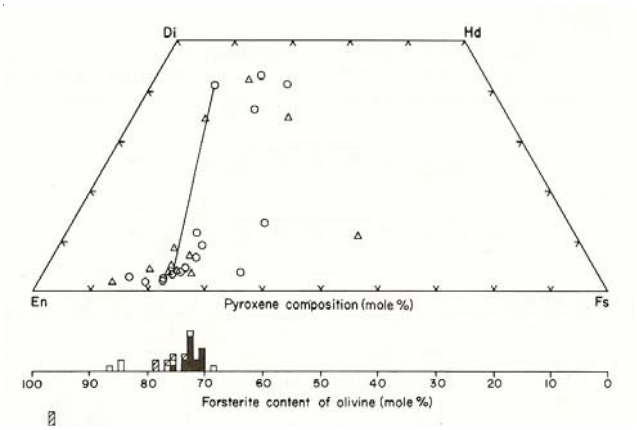


Figure 4: Pyroxene and olivine composition of 72539 (Warner et al. 1978).

References for 72539

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