

72375**Micropoikilitic Impact Melt Breccia
St. 2, 16.16 g****INTRODUCTION**

72375 is a fine-grained, clast-bearing impact melt with a poikilitic texture. It was collected to sample the matrix of Boulder 2, Station 2 (see section on Boulder 2, Station 2). It is identical in all analyzed respects with all other samples from Boulder 2. Although no definitive geochronological data exist, a general assumption is that 72375 crystallized at the same time as other melts of similar petrography and chemistry at the Apollo 17 site, i.e. 3.86 Ga ago. The sample, about 4 cm long and the smallest collected from Boulder 2, is angular and green-gray. It has a patina and zap pits on the exposed surface (mainly T), and vugs on the broken surface. Originally the sample was retained as a refrigerated reserve and not studied under binocular microscope, but was later chipped for some allocations.

72375 is so similar to other samples from Boulder 2 that it will not be described here in detail, but specific studies are referenced. It was studied mainly under a consortium led by the Caltech group (Dymek et al., 1976a), but not in as much detail as 72395. The description of 72395 can be assumed as a description of 72375. Only a few chips were taken from the sample for allocation, and it was never sawn.

PETROGRAPHY

All five samples from Boulder 2 are very similar in petrography. Dymek et al. (1976a) gave descriptions of the petrography subsequent to a briefer description by Albee et al. (1974b) and Dymek et al. (1976b). They did not give individual descriptions of the petrography, and that practice is for the most part

followed here; thus for a description and mineral diagrams of 72375 matrix see sample 72395.

Dymek et al. (1976a,c) described the sample, following a briefer description by Albee et al. (1974b), noting that the matrix was similar to the other Boulder 2 samples (Fig. 2). Simonds et al. (1974) merely tabulated the sample as clast-rich ophitic.

CHEMISTRY

Chemical analyses of the bulk matrix are given in Table 1, with the rare earth elements plotted in Figure 3. The chip analyzed was an exterior chip, but is in any case similar in chemistry to the other Boulder 2 matrix samples. The siderophiles are assigned to Group 3, correlated with Serenitatis.



Figure 1: S face of sample 72373. The exposed surface (at the top) has a darker-colored patina; the lower area is broken surface. Scale in centimeters. S-73-15356.

RADIOGENIC ISOTOPES AND CHRONOLOGY

Tera et al. (1974a) reported Rb and Sr isotopic data for a matrix split without specific discussion. $^{87}\text{Rb}/^{86}\text{Sr}$ (0.1173) and $^{87}\text{Sr}/^{86}\text{Sr}$ (0.70632 \pm 6) are similar to those of the matrix of the other Boulder 2 samples and correspond with T_{BABI} of 4.28Ga.

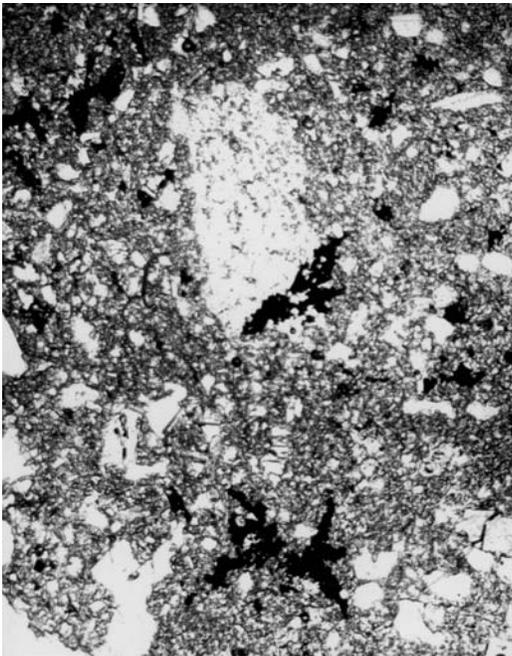


Figure 2: Photomicrograph of 72375,5 showing poikilitic impact melt matrix Plane transmitted light. Field of view about 1 mm wide

PROCESSING

Three small chips were taken from a single location for allocations, but the sample was never sawn or extensively subdivided.

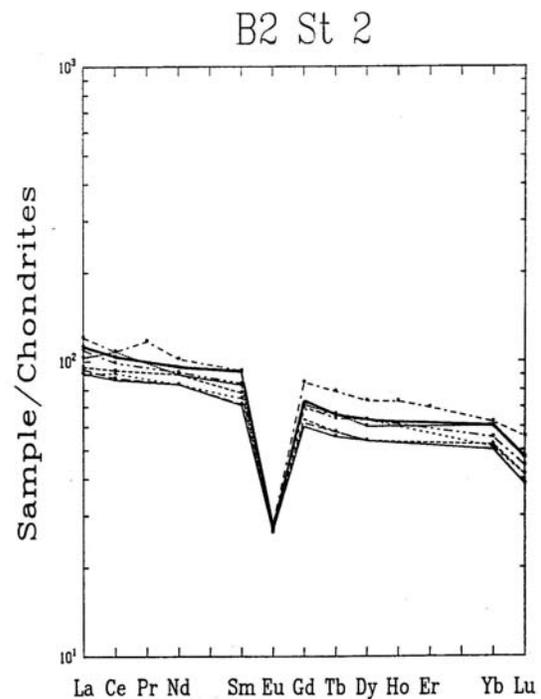


Figure 3: Rare earth element abundances of matrix samples in 72375 (bold line) with other Boulder 2 data for comparison.

Table 1: Chemical analyses of (bulk rock/matrix of 72375.

Split	,2	,2	,2
wt %			
SiO ₂			
TiO ₂	1.5		
Al ₂ O ₃	18.2		
Cr ₂ O ₃	0.178		
FeO	8.8		
MnO	0.112		
MgO	12		
CaO	10.8		
Na ₂ O	0.67		
K ₂ O	0.27		0.2696
P ₂ O ₅			
ppm			
Sc	15		
V	50		
Co	34	34	
Ni	320	320	
Rb		6.2	6.64
Sr		149	163.5
Y			
Zr	450		
Nb			
Hf	11		
Ba	300	(a)370	
Th	5.7		
U	2.0	1.85	
Cs		0.250	
Ta	1.4		
Pb			
La	37		
Ce	91		
Pr			
Nd	57		
Sm	16.6		
Eu	1.82		
Gd			
Tb	3.1		
Dy	20		
Ho			
Er			
Tm			
Yb	12		
Lu	1.6		
Lj			
Be			
B			
C			
N			
S			
F			
Cl			
Br			
Cu			
Zn		2.3	
ppb			
Au	4	5.3	
Ir	10	8.5	
I			
At			
Ga			
Ge			
As			
Se		90	
Mo			
Tc			
Ru			
Rh			
Pd			
Ag		0.82	
Cd		7.2	
In		0.2	
Sn			
Sb		2.2	
Te			
W			
Re		0.84	
Os			
Pt			
Hg			
Tl		0.59	
Bi			

References and methods:

- (1) Laul and Schmitt (1974a,b,c), Laul et al. (1974); INAA/RNAA
- (2) Tera et al. (1974a): ID/MS

Notes:

(a) listed as Bd in original reference.