

77515**Poikilitic Impact Melt Breccia
337.6 g, 7.5 x 6.5 x 5.5 cm****INTRODUCTION**

Sample 77515 is a rake sample from soil 77510 at Station 7 (Fig. 1). It is a vesicular impact melt breccia similar in texture and composition to the boulder sample 77135.

PETROGRAPHY

The texture of 77515 is poikiloblastic with irregular pigeonite oikocrysts enclosing abundant euhedral plagioclase laths and tablets and minor rounded olivine grains

(Fig. 2). Ilmenite is also poikilitic. Mineral clasts are abundant (mostly plagioclase), but lithic clasts are rare. Warner et al. (1977) give the mineral mode of the matrix 77515 as 52.7% plagioclase, 44.5% pyroxene, and 2% ilmenite.

MINERAL CHEMISTRY

The composition of pyroxene, olivine, ilmenite, and plagioclase is given in Warner et al. (1978) (Fig. 3). Engelhardt (1979) has also studied the ilmenite in 77515.

WHOLE-ROCK CHEMISTRY

Laul and Schmitt (1975c) have reported the chemical composition of 77515 (Table I and Fig. 4). 77515 is very similar in composition to the boulders at Apollo 17. Warner et al. (1977) also analyzed the matrix by broad beam electron probe analyses.

SURFACE STUDIES

There are micrometeorite craters on most surfaces.



Figure 1: Photograph of 77515. Cube is 1 cm. S73-19416.

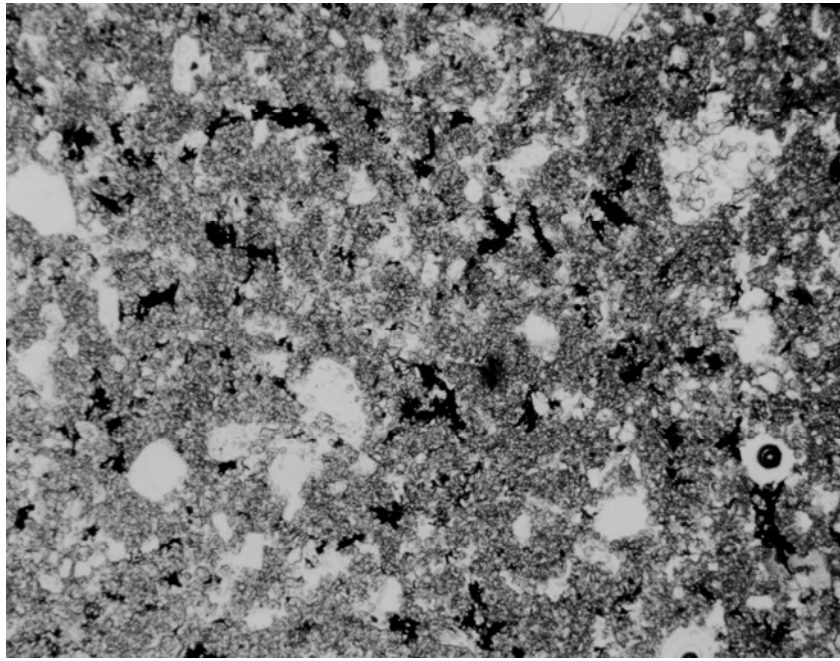


Figure 2: Photomicrograph of matrix for 77515,12. Field of view is 3 x 4 mm.

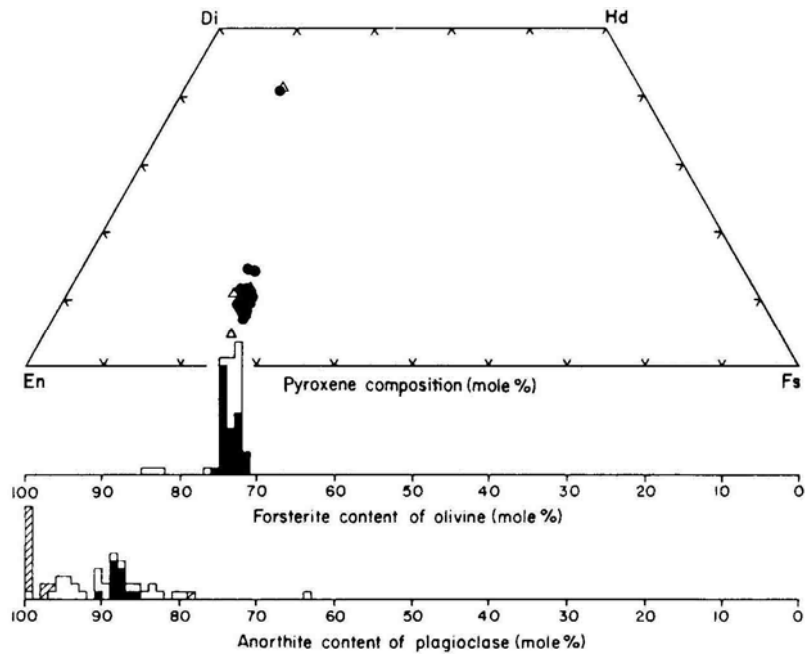


Figure 3: Pyroxene, olivine, and plagioclase composition for 77515. From Warner et al. (1978).

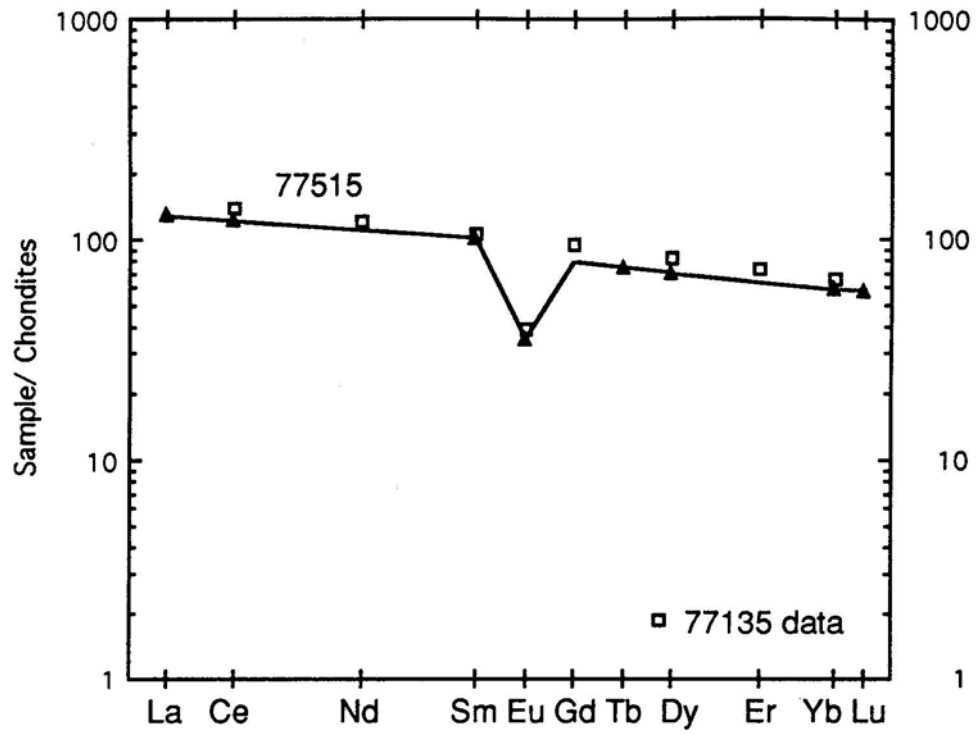


Figure 4: Normalized rare earth element diagram for 77515. Data from Laul and Schmitt (1975). Note the similarity in composition with the Station 7 Boulder sample 77135.

Table 1: Whole-rock chemistry of 77515.
a) Laul and Schmitt (1975); b) Warner et al. (1977)

Split Technique	,3 (a) INAA	(b) BB e-probe
SiO ₂ (wt%)	–	48.3
TiO ₂	1.4	1.51
Al ₂ O ₃	18.6	18.2
Cr ₂ O ₃	0.17	0.19
FeO	8.4	8.1
MnO	0.099	0.09
MgO	11	11.0
CaO	11.0	11.4
Na ₂ O	0.68	0.70
K ₂ O	0.24	0.28
P ₂ O ₅		0.27
Nb (ppm)		
Zr	420	
Hf	9.8	
Ta	1.4	
U	–	
Th	4.1	
Ba	350	
Ni	450	
Co	38.6	
Sc	14	
La	29.8	
Ce	73	
Nd		
Sm	14.7	
Eu	1.93	
Gd		
Tb	2.7	
Dy	17	
Er		
Yb	9.6	
Lu	1.4	
Ge (ppb)		
Ir		
Au		