

**15357**  
Impact melt  
11.8 grams



Figure 1: Photo of 15357. Cube is 1 cm.  
S71-49354.

### Introduction

Lunar sample 15357 is a rake sample from the rim of Spur Crater (see section on 15311). It has been dated at 3.85 b.y. and should be compared with 15356 and 15359. It may be a rare piece of the Imbrium melt sheet.

### Petrography

Simonds et al. (1975) termed 15357 a “poikilitic impact melt with mineral clasts”. Ryder and Spudis (1987) described the texture as “micropoikilitic with pigeonite oikocrysts about 100 microns across containing small stubby plagioclases (figure 2). Some coarser (50 microns) plagioclases are interoikocryst or penetrate oikocrysts. Ilmenites are elongated but not blades; most are anhedral and “swiss cheese” –textured. Interstitial silicic glass with apatite is common. Clasts are larger, more varied, and more abundant than in 15356”.

Steele et al. (1972) analyzed some of the minerals in 15357 (figure 3), but it is not clear if they were from clasts or in the matrix.

### Chemistry

Ryder and Spudis (1987) provide the only analysis. The REE pattern is dominated by KREEP (figure 4).

### Radiogenic age dating

Dalrymple and Ryder (1993) obtained an age of 3.85 b.y. by Ar/Ar dating of 15357 (figure 5).

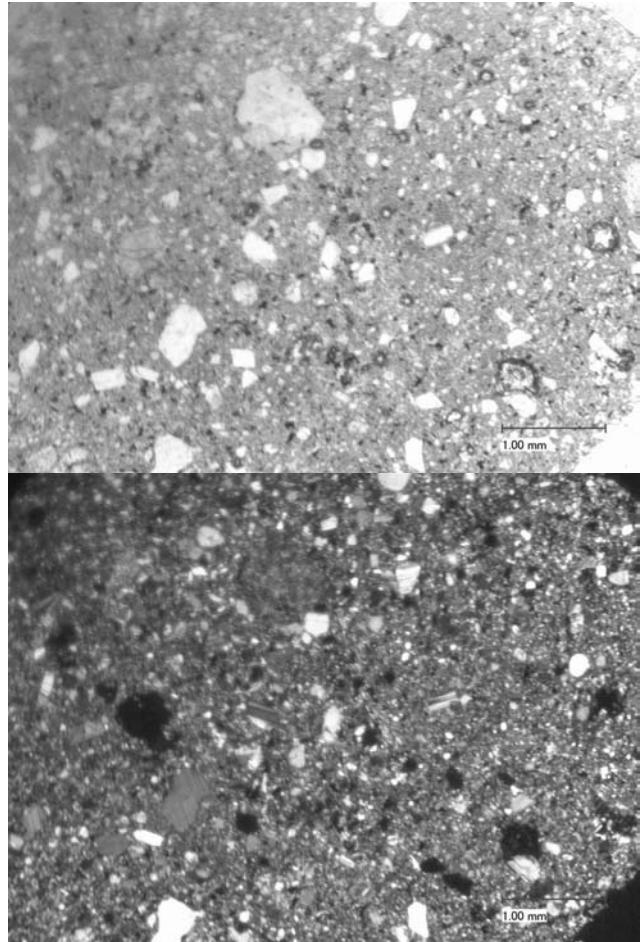


Figure 2: Transmitted and cross-polarized light photomicrographs of 15357,9 @ 50x by C Meyer.

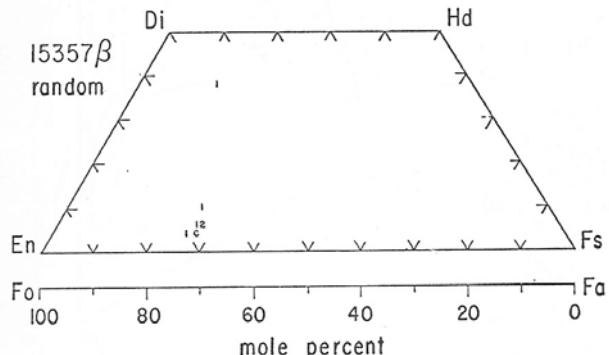


Figure 3: Composition of olivine and pyroxene in 15357 (Steele et al. 1972).

**Table 1. Chemical composition of 15357.**

reference	Ryder87
<i>weight</i>	
SiO <sub>2</sub> %	49 (b)
TiO <sub>2</sub>	1.19 (b)
Al <sub>2</sub> O <sub>3</sub>	15.2 (b)
FeO	9.9 (b) 11.1 (a)
MnO	
MgO	14.3 (b)
CaO	9.7 (b)
Na <sub>2</sub> O	
K <sub>2</sub> O	0.552 (b)
P <sub>2</sub> O <sub>5</sub>	
S %	
sum	

Sc ppm	20.4 (a)
V	
Cr	1128 (b) 1960 (a)
Co	38.4 (a)
Ni	231 (a)
Cu	
Zn	
Ga	
Ge ppb	
As	
Se	
Rb	11 (a)
Sr	
Y	
Zr	345 (a)
Nb	
Mo	
Ru	
Rh	
Pd ppb	
Ag ppb	
Cd ppb	
In ppb	
Sn ppb	
Sb ppb	
Te ppb	
Cs ppm	0.36 (a)
Ba	390 (a)
La	44.2 (a)
Ce	117 (a)
Pr	
Nd	76 (a)
Sm	21.8 (a)
Eu	1.83 (a)
Gd	
Tb	4.4 (a)
Dy	
Ho	
Er	
Tm	
Yb	14.6 (a)
Lu	2.09 (a)
Hf	15.5 (a)
Ta	1.8 (a)
W ppb	
Re ppb	
Os ppb	
Ir ppb	
Pt ppb	
Au ppb	
Th ppm	4.8 (a)
U ppm	1.9 (a)

technique: (a) INAA, (b) fused-bead e-probe

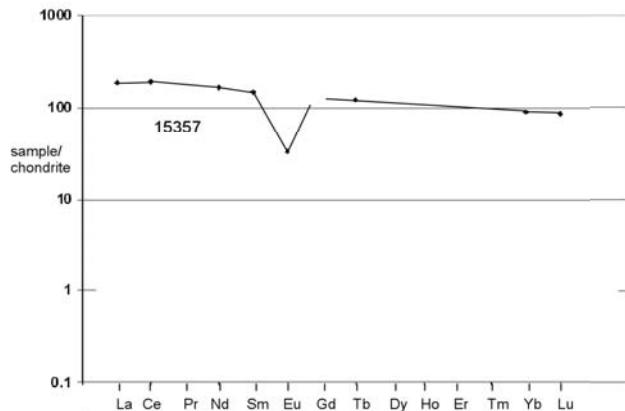


Figure 4 : Normalized REE diagram for 15357.

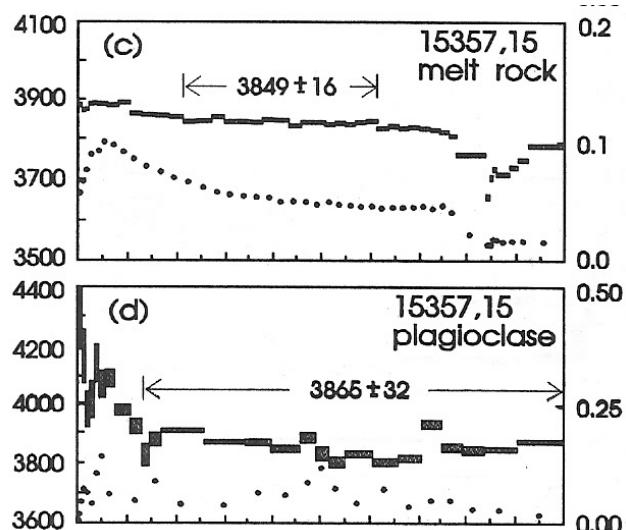
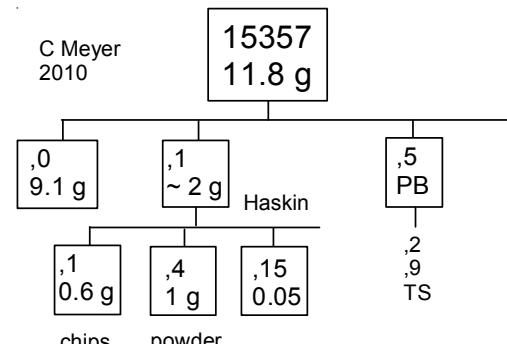


Figure 5: Age vrs % Ar released for 15357  
(Dalrymple and Ryder 1993).



## References for 15357

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