60515 – 16.7 grams
60516 – 7.9 grams
60517 – 1.2 grams
60518 – 1.2 grams
60519 - 0.5 grams
Cataclastic Anorthosite

Figure 1: Photo of 60515. Scale in cm. S72-46333

Introduction

60515 thru 60519 are small rake samples from the LM site at Apollo 16. They all look alike, but could be different samples, because the surfaces are mostly coated with micrometeorite craters (figures 1 and 2). All are cataclastic anorthosite – of the ferroan variety.

Petrography

Warren et al. (1983) gave a brief description and an analysis of 60515. Dowty et al. (1974) and Warner et al. (1976) gave a similar description of 60516. They contain about 98 % plagioclase (An_{97}) and 1-2 % pyroxene (figure 3). Bersch et al. (1991) determined the exact composition of pyroxene. 60519 has dark inclusions, yet to be studied.

Chemistry

Warren et al. (1983) reported an analysis of 60615, and Dowty et al. (1974) determined major elements for 60516 (table).

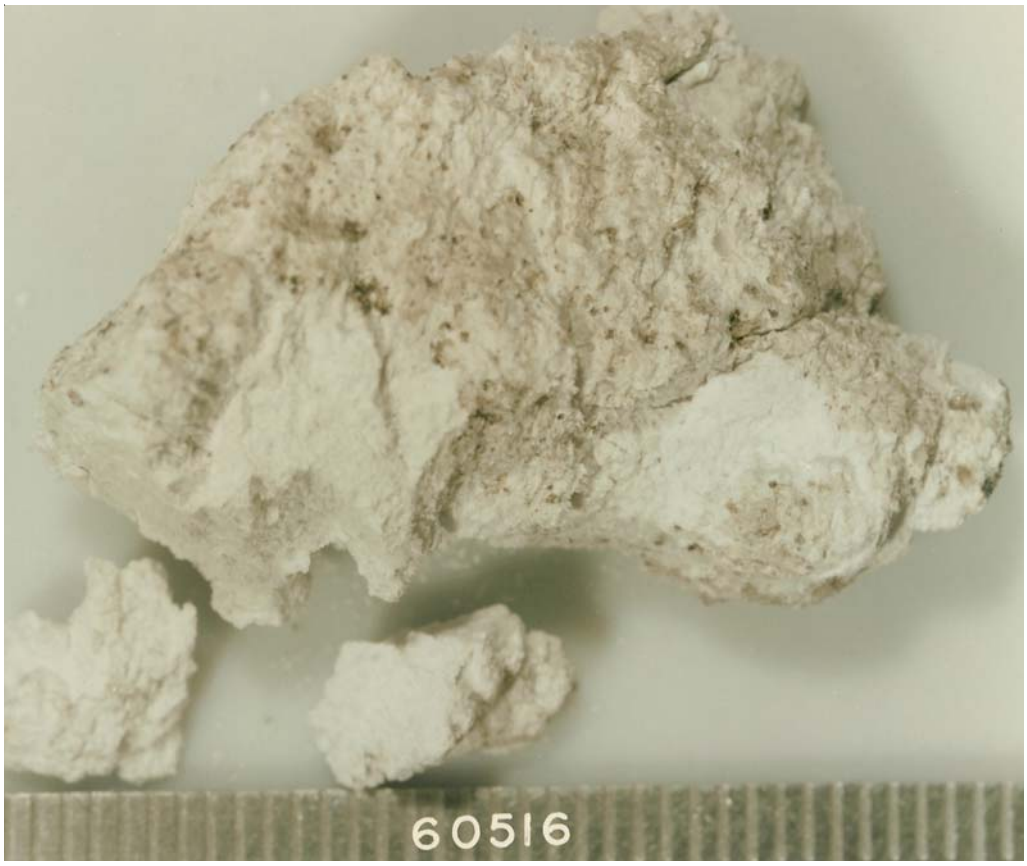

Figure 2: Photo of 60516.. Scale in mm. S73-20461

Table1. Chemical composition of 60516

reference	Dowty74	
weight		
SiO2 %	44.8	(a)
TiO2		
Al2O3	35.2	(a)
FeO	0.28	(a)
MnO		
MgO	0.05	(a)
CaO	19.2	(a)
Na2O	0.44	(a)
K2O	0.01	(a)
P2O5	0.02	(a)
S %		
sum		

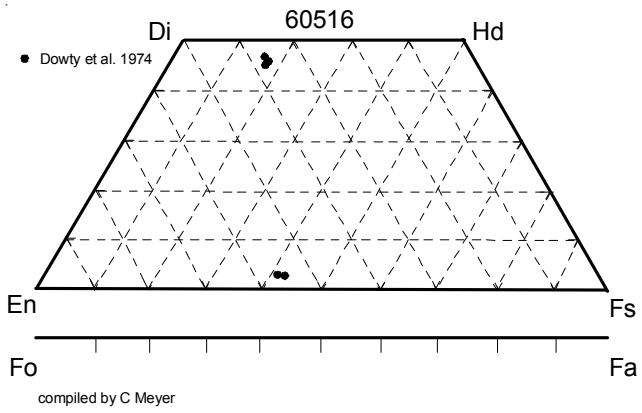

Figure 3: Pyroxene composition for 60516 (Dowty et al. 1974).

Processing

There is only one thin section of 60515, 2 for 60516 and 2 from 60518. 60517 and 60519 have not been sectioned.

Table 2. Chemical composition of 60515.

reference	Warren83	
weight		
SiO2 %	43.2	(a)
TiO2		
Al2O3	35.3	(a)
FeO	0.77	(a)
MnO	0.015	(a)
MgO	0.33	(a)
CaO	19.2	(a)
Na2O	0.42	(a)
K2O	0.01	(a)
P2O5		
S %		
sum		
Sc ppm	2	(a)
V		
Cr	121	(a)
Co	1.7	(a)
Ni	8	(a)
Cu		
Zn	0.44	(a)
Ga	4.2	(a)
Ge ppb	4200	(a)
As		
Se		
Rb	2.7	(a)
Sr	209	(a)
Y		
Zr		
Nb		
Mo		
Ru		
Rh		
Pd ppb		
Ag ppb		
Cd ppb	29	(a)
In ppb		
Sn ppb		
Sb ppb		
Te ppb		
Cs ppm		
Ba	13	(a)
La	0.28	(a)
Ce	0.74	(a)
Pr		
Nd		
Sm	0.124	(a)
Eu	0.92	(a)
Gd		
Tb	0.021	(a)
Dy		
Ho		
Er		
Tm		
Yb	0.098	(a)
Lu	0.017	(a)
Hf	0.1	(a)
Ta	0.037	(a)
W ppb		
Re ppb	6.4	(a)
Os ppb		
Ir ppb	26	(a)
Pt ppb		
Au ppb	55	(a)
Th ppm	0.023	(a)
U ppm	0.06	(a)
technique:	*(a) INAA*	

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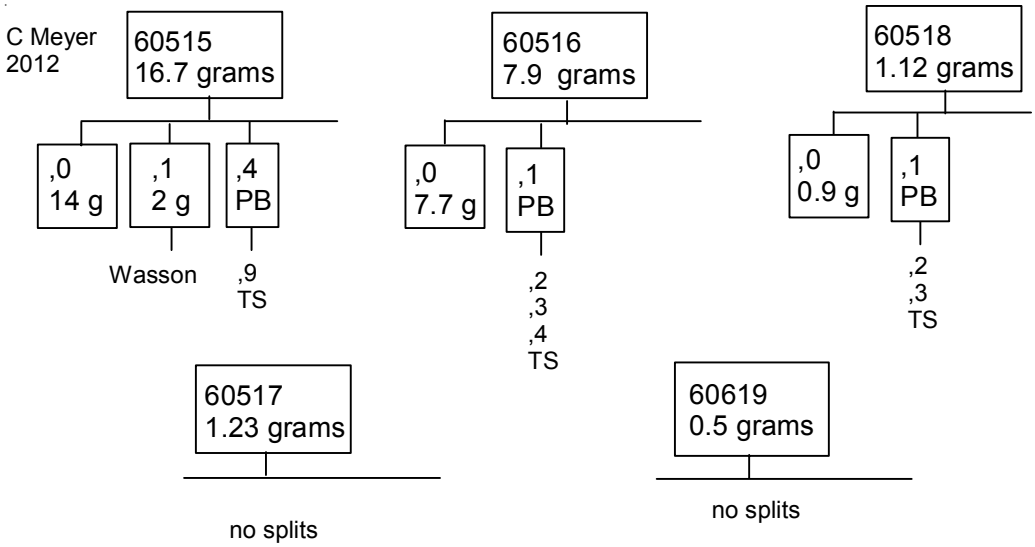
C Meyer
2012
60515
16.7 grams
,0
14 g
,1
2 g
,4
PB
Wasson
,9
TS
60516
7.9 grams
,0
7.7 g
,1
PB
,2
,3
,4
TS
60518
1.12 grams
,0
0.9 g
,1
PB
,2
,3
TS
60517
1.23 grams
no splits
60619
0.5 grams
no splits