

**60677**  
Glass with Anorthosite  
5.23 grams



Figure 1: Photo of 60677. Scale in mm. S73-20473

**Introduction**

60677 was collected as a rake sample near the LM (see section on 60600). Figure 1 shows that it is made of frothy black glass surrounding a chalky-white clast of anorthosite.

**Petrography**

Ryder and Norman (1980), Dowty et al. (1974) and Warren et al. (1976) described the anorthosite as “with granoblastic texture. Small, anhedral olivine grains reside in triple junctions formed by polygonal plagioclases. Pyroxene is absent. Ilmenite is accessory”. However, the thin section shows it is a typical impact melt (figure 2).

**Chemistry**

Warren et al. (1976) tabulated broad beam electron analyses (table).

**Table 1. Chemical composition of 60677**

reference	Dowty74	
weight	Warren 76	
SiO2 %	44.3	(a)
TiO2	0.04	(a)
Al2O3	34.2	(a)
FeO	1.04	(a)
MnO	0.01	(a)
MgO	1.4	(a)
CaO	18.3	(a)
Na2O	0.56	(a)
K2O	0.03	(a)
P2O5	0.03	(a)
S %	0.01	(a)

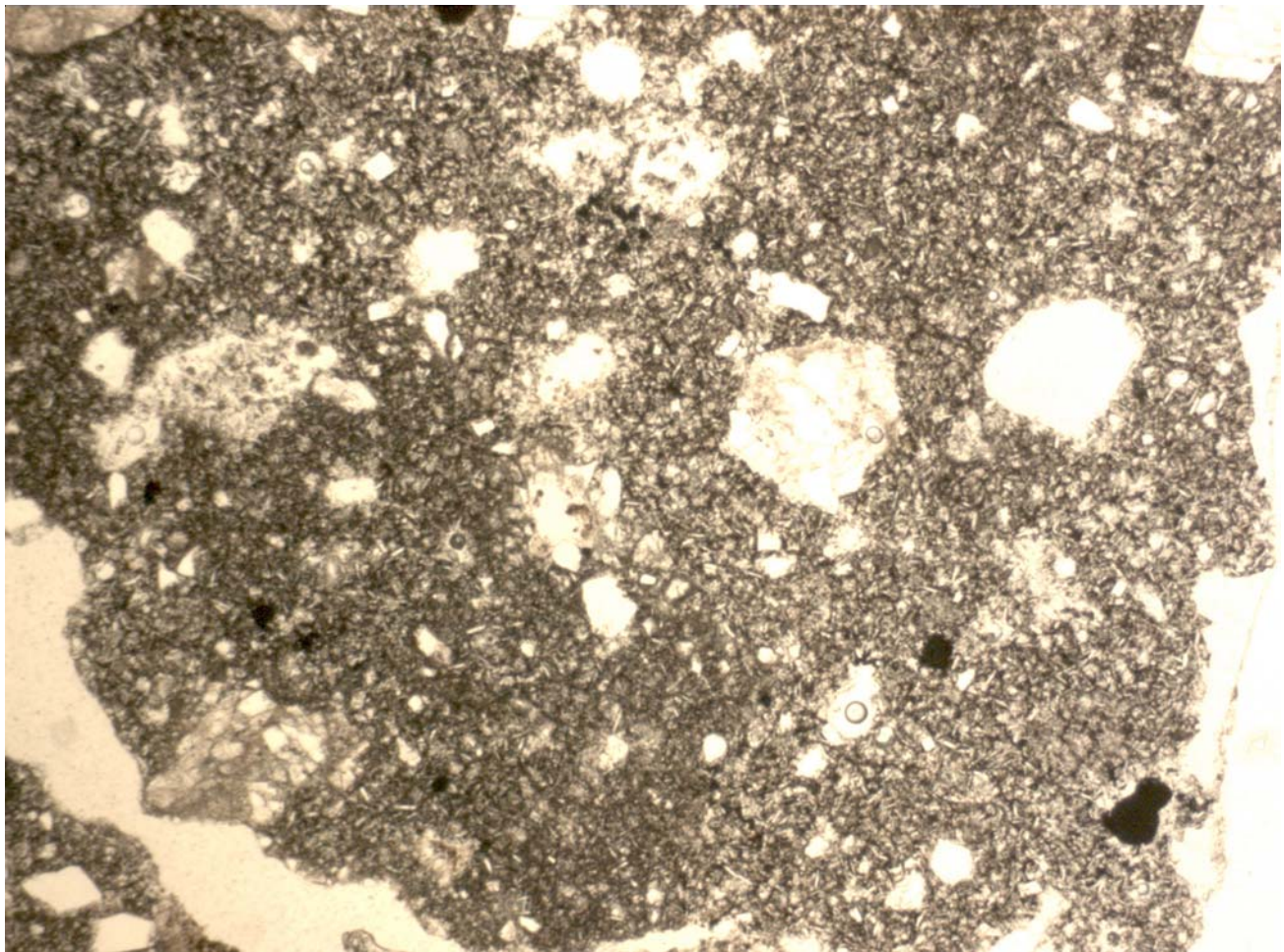


Figure 2: Thin section photomicrograph of 60677,2 with crossed nicols. Scale is 2 mm across.

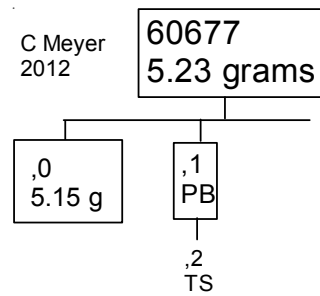
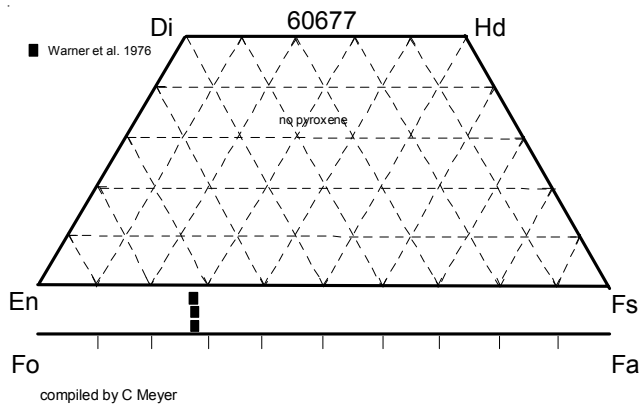


Figure 3: Olivine composition of anorthosite clasts in 60677.

## References for 60677

Butler P. (1972a) Lunar Sample Information Catalog Apollo 16. Lunar Receiving Laboratory. MSC 03210 Curator's Catalog. pp. 370.

Dowty E., Prinz M. and Keil K. (1974b) Ferroan anorthosite: a widespread and distinctive lunar rock type. *Earth Planet. Sci. Lett.* **24**, 15-25.

Keil K., Dowty E., Prinz M. and Bunch T.E. (1972) Description, classification and inventory of 151 Apollo 16 rake samples from the LM area and station 5. Curator's Catalog, JSC.

LSPET (1973b) The Apollo 16 lunar samples: Petrographic and chemical description. *Science* **179**, 23-34.

LSPET (1972c) Preliminary examination of lunar samples. In Apollo 16 Preliminary Science Report. NASA SP-315, 7-1—7-58.

Ryder G. and Norman M.D. (1980) Catalog of Apollo 16 rocks (3 vol.). Curator's Office pub. #52, JSC #16904

Sutton R.L. (1981) Documentation of Apollo 16 samples. In Geology of the Apollo 16 area, central lunar highlands. (Ulrich et al. ) U.S.G.S. Prof. Paper 1048.

Warner R.D., Dowty E., Prinz M., Conrad G.H., Nehru C.E. and Keil K. (1976c) Catalog of Apollo 16 rake samples from the LM area and station 5. Spec. Publ. #13, UNM Institute of Meteoritics, Albuquerque. 87 pp.