

**63585**  
**Basaltic Impact Breccia**  
 32.6 grams



Figure 1: Photo of 63585 with 1 cm cube for scale. S72-43490

**Introduction**

63585 is an impact melt breccia with regions that have basaltic texture and other areas that are poikilitic. It was collected as a rake sample from station 13, on the flank of North Ray Crater, Apollo 16, and has numerous micrometeorite craters on the surface (figure 1).

**Petrography**

Warner et al. (1973) reported 63585 as a “basalt”, while von Engelhardt (1979) found it was a poikilitic impact breccia. So it has regions with both textures (figures 2 and 3). The analyses of mafic mineral in the basaltic region are reproduced in figure 4. Hunter and Taylor (1980) reported lots of rust in 63585.

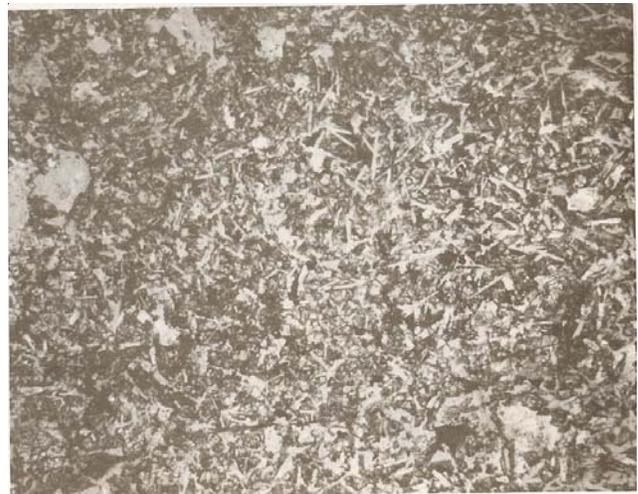


Figure 2: Photomicrograph of thin section 63585,4. 3 mm across.

Compositional variation of Apollo 16 impact-melt rocks is discussed by Korotev (1994).

**Chemistry**

Stoffler et al. (1985) reported an analysis. It is rather aluminous. The chip sent to Rhodes for analysis was apparently not analysed.

**Other Studies**

Pearce and Simonds (1974) studied the magnetic properties.

**Processing**

There are 5 thin section of 63585 and several chips.

**Table 1. Chemical composition of 63585**

reference weight	Stoffler86	
SiO <sub>2</sub> %	45	(a)
TiO <sub>2</sub>	0.84	(a)
Al <sub>2</sub> O <sub>3</sub>	27.5	(a)
FeO	3.1	(a)
MnO	0.02	(a)
MgO	6.5	(a)
CaO	16.2	(a)
Na <sub>2</sub> O	0.48	(a)
K <sub>2</sub> O	0.23	(a)
P <sub>2</sub> O <sub>5</sub>	0.14	(a)
S %		
sum		
	(a) broad beam e. probe	

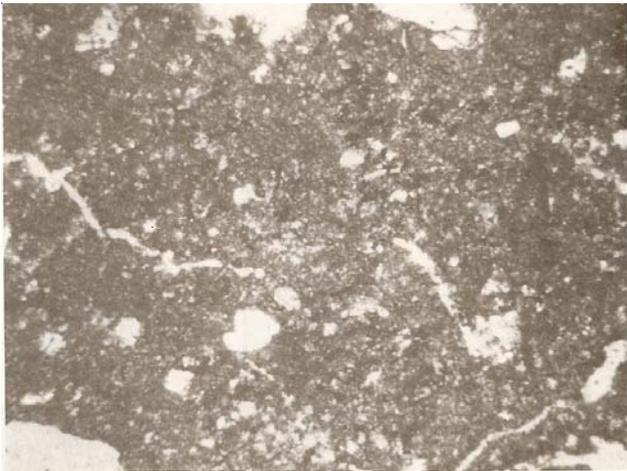


Figure 3: Photomicrograph of thin section 63585, 10.3 mm across.

### References for 63585

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

von Engelhardt W. (1979) Ilmenite in the crystallization sequence of lunar rocks. *Proc. 10<sup>th</sup> Lunar Sci. Conf.* 677-694.

Hunter R.H. and Taylor L.A. (1981) Rust and schreibersite in Apollo 16 highland rocks: Manifestations of volatile-element mobility. *Proc. 12<sup>th</sup> Lunar Planet. Sci. Conf.* 253-259.

Korotev R.L. (1994) Compositional variation in Apollo 16 impact melt breccias and inferences for the geology and bombardment history of the central highlands of the Moon. *Geochim. Cosmochim. Acta* **58**, 3931-3969.

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.

Phinney W. and Lofgren G. (1973) Description, classification and inventory of Apollo 16 rake samples from stations 1, 4 and 13. Curators Office.

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

Stöffler D., Ostertag R., Reimold W.U., Borchardt R., Malley J. and Rehfeldt A. (1981) Distribution and provenance of lunar highland rock types at North Ray Crater, Apollo 16. *Proc. 12<sup>th</sup> Lunar Planet. Sci. Conf.* 185-207.

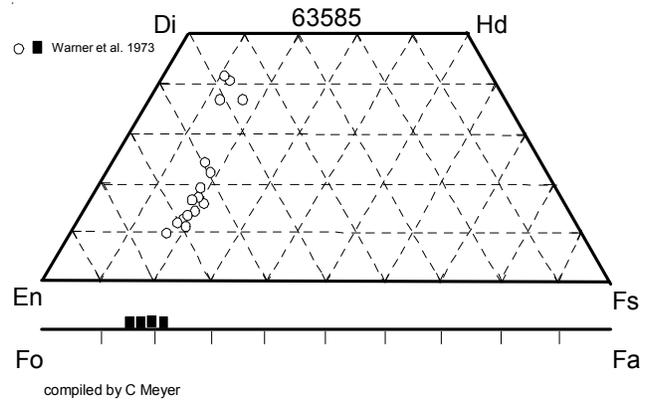
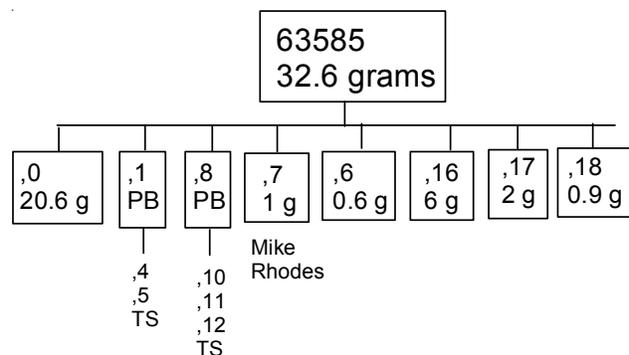


Figure 4: Composition of olivine and pyroxene in 63585 (adapted from Warner et al. 1973).

Stöffler D., Bischoff A., Borchardt R., Burgehele A., Deutsch A., Jessberger E.K., Ostertag R., Palme H., Spettel B., Reimold W.U., Wacker K. and Wanke H. (1985) Composition and evolution of the lunar crust in the Descartes highlands. *Proc. 15<sup>th</sup> Lunar Planet. Sci. Conf.* in *J. Geophys. Res.* **90**, C449-C506.

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 J.L., Simonds C.H. and Phinney W.C. (1973b) Apollo 16 rocks: Classification and petrogenetic model. *Proc. 4<sup>th</sup> Lunar Sci. Conf.* 481-504.



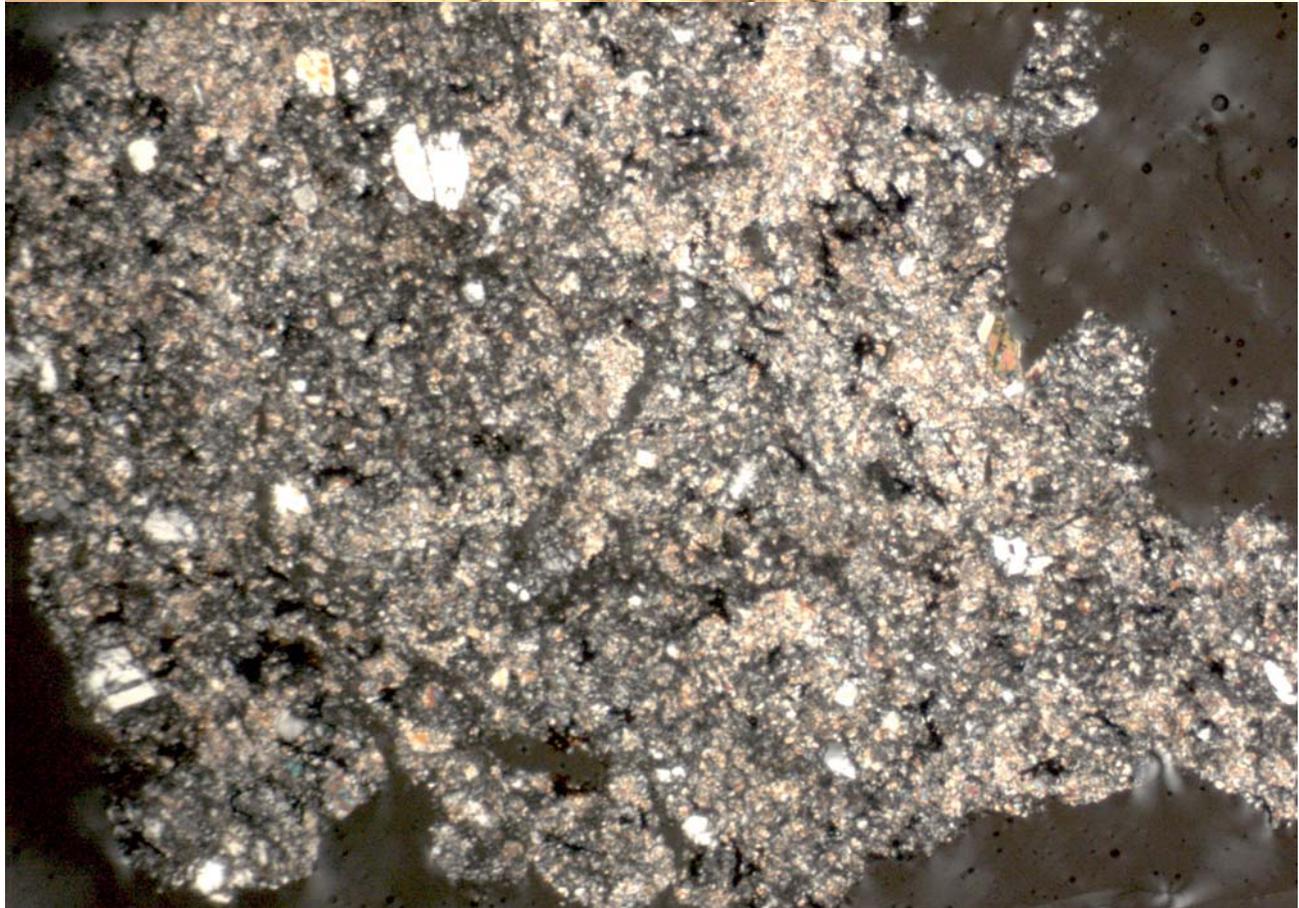
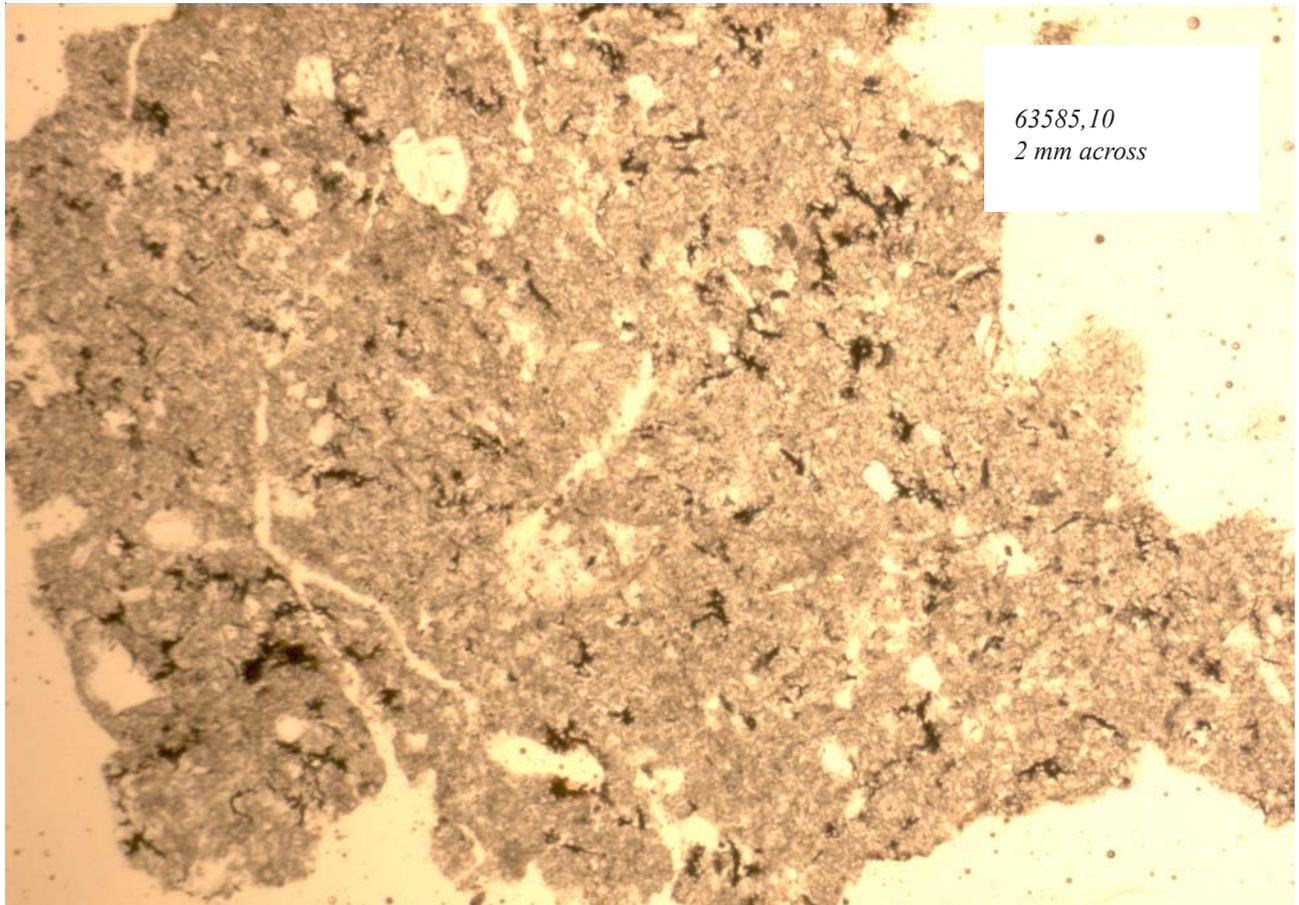




Figure 5: Processing photo of 63585. Scale is in cm/mm. S91-38937