

INTRODUCTION: 61135 is a friable, light gray breccia (Fig. 1) containing a diverse population of mineral and lithic fragments.

This sample was collected from the northeast rim of Plum Crater. Lunar orientation is known. A few zap pits are present on some surfaces.

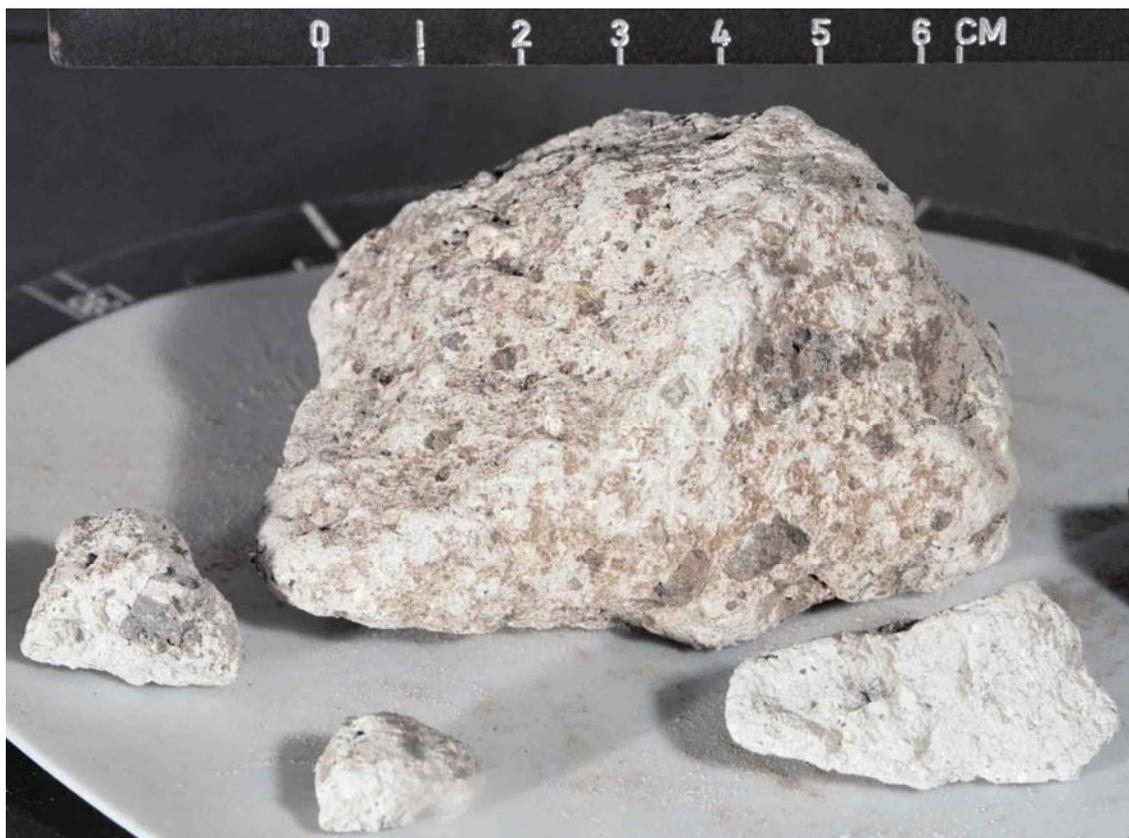


FIGURE 1. 61135,0. S-72-38316.

PETROLOGY: 61135 is a clastic, unrecrystallized breccia composed of various mineral and lithic fragments welded together by a small amount of glass (Fig. 2). Angular grains of both shocked and unshocked plagioclase dominate the mineral fragment population. Mafic minerals, Fe-metal, troilite and ilmenite clasts are much less common. Lithic fragments include granoblastic anorthosite and noritic anorthosite (up to ~3 mm), basaltic and poikilitic impact melts, and clast-rich, glassy matrix breccia. Brown and clear glass beads and fragments are abundant and indicate a significant regolith component in this rock.

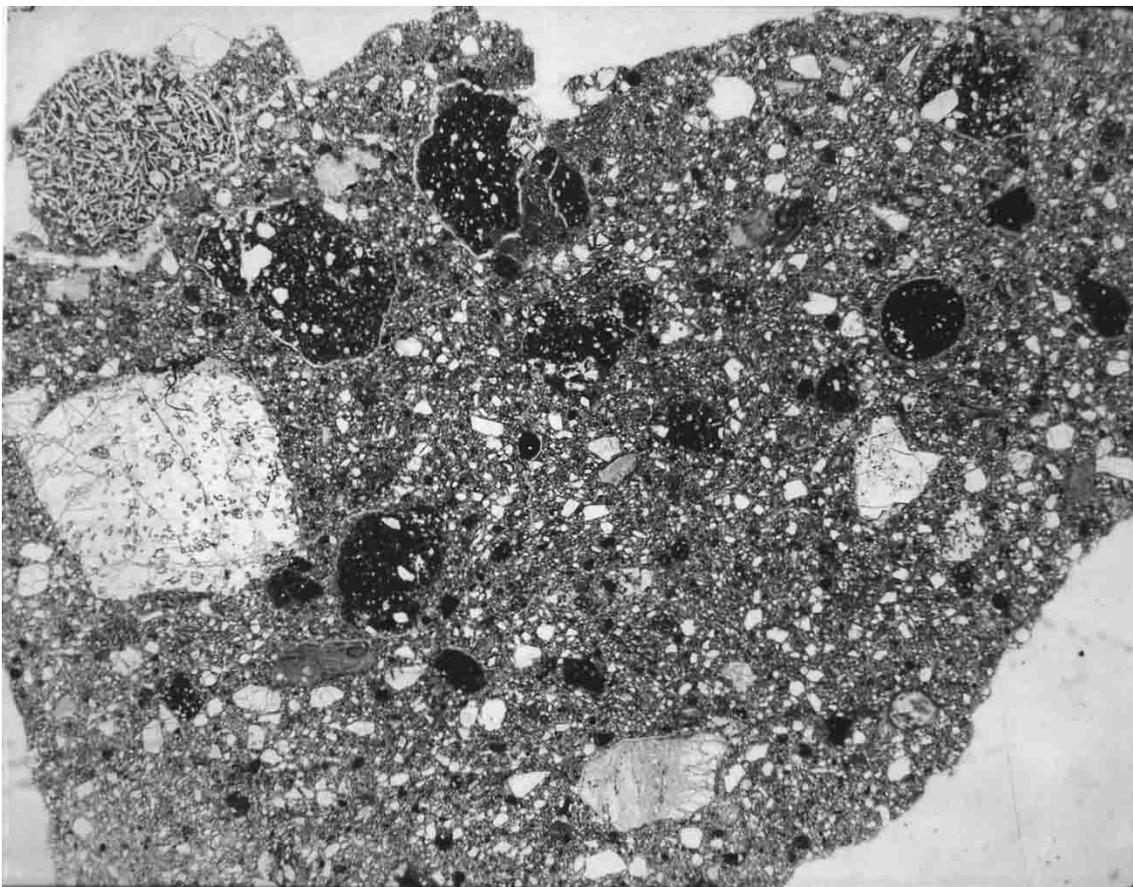


FIGURE 2. 61135,7, general view, ppl. Width about 15 mm.

CHEMISTRY: Eldridge et al. (1973) report whole rock K-U-Th and cosmogenic radionuclide abundances. Ca and K data for three splits are provided by Schaeffer and Schaeffer (1977) in a K-Ar geochronological study. Total N and C in a bulk sample are given by Moore and Lewis (1976).

The whole rock gamma ray data show 61135 to be poor in natural radionuclides (690 ppm K, 0.38 ppm U, 1.39 ppm Th). A randomly-picked sample and a split of fine powder analyzed by Schaeffer and Schaeffer (1977) show K abundances very similar to the whole rock value of Eldridge et al. (1973) and Ca levels indicative of nearly pure plagioclase (Table 1). The third split analyzed by Schaeffer and Schaeffer (1977) was a single coherent fragment considerably enriched in K and depleted in Ca relative to the other samples (Table 1). No further information on the nature of these samples is available.

RADIOGENIC ISOTOPES/GEOCHRONOLOGY: Schaeffer and Schaeffer (1977) give K-Ar data for three splits. Two of the samples, a randomly-picked split and a split of fine powder, contain considerable amounts of trapped gas and did not give ^{40}Ar - ^{39}Ar plateaus. The third sample, a single coherent fragment, yielded a plateau age of 3.90 ± 0.10 b.y.

TABLE 1. Summary chemistry of 61135 lithologies.

	<u>Bulk rock</u>	<u>K-rich fragment</u>
CaO	18.9	11.8
K ₂ O	0.088	0.58
C	54	
N	55	

Oxides in wt%; others in ppm.

RARE GAS/EXPOSURE AGES: ²⁶Al-²²Na whole rock data are provided by Eldridge et al. (1973). From these data Yokoyama et al. (1974) could not decide whether 61135 is saturated in ²⁶Al or not.

Ar data are given by Schaeffer and Schaeffer (1977) for three splits: a randomly picked sample, a split of fine powder, and a single coherent fragment. The first two samples contained considerable trapped gas, probably residing in the fine matrix of the rock. ³⁸Ar exposure ages of these two splits are given as 61 m.y. and 44 m.y. (Schaeffer and Schaeffer, 1977, Table 6). The third split gave an average ³⁸Ar exposure age of 28 m.y., but due to the extreme variability of the exposure age measured over the ⁴⁰Ar-³⁹Ar plateau temperature range (1800 m.y. at 400°C to 4 m.y. at 1150°C), the average age reported probably has little significance. A trapped ³⁸Ar component is also suggested by Schaeffer and Schaeffer (1977).

PROCESSING AND SUBDIVISIONS: 61135 was removed from its Documented Bag in 1972 as one large piece (,1) plus three smaller pieces (,2 - ,4) and some fine residue (,5). Schaeffer received 1 g of chips from ,5 in 1973. In 1975 ,2 and ,3 were subdivided for further allocations. The large piece ,1 (221.96 g) remains in stock at JSC.