

Comprehensive Sample (14250-14299)

The comprehensive sample from Apollo 14 has been described, classified and discussed by Phinney et al. (1975). The information collected and discussed by them is included herein for purposes of completeness only, and little attempt has been made to describe these samples again except that new thin section descriptions are included whenever possible.

The purpose of the comprehensive sample was to acquire a statistically significant set of small rock samples to petrographically characterize the distribution of rock types in the lunar regolith. The sample location was selected 100 to 125 m west of the LM. A two to three meter diameter circle was marked and all of the walnut sized rocks on the surface within the circle were collected with tongs. Then, a soil sample was collected from within the circle. Two weigh bags were to be used to contain the samples: weigh bag 1039 was to contain rock fragments and weigh bag 1007 was to contain the soil sample. Unfortunately, as discussed in the Apollo 14 Preliminary Science Report (1971), there was some confusion about the origin of the contents of weigh bag 1027. It contained 20 small rock fragments (14169-14188) and a large undocumented rock, 14303. On the basis of their association with two documented rocks (14304 and 14305) returned in the same weigh bag and collected near the comprehensive sample site, the 20 fragments and 14303 were tentatively considered to be parts of the comprehensive sample. Later, 14303 was found to have been part of 14304, collected at the end of the first EVA. The astronauts were unable to get all of the weigh bags containing the comprehensive sample in the SRC so they put the "small samples of small rocks" from the comprehensive sample in the weigh bag (1027) with the football-size rocks collected later (14303/14304 and 14305). It seems probable, therefore, that some portion of the samples 14169-14188 could be parts of the larger samples 14303/14304 and 14305 that were in the same bag but not part of the contingency sample. It was believed by Phinney et al. (1975) that all of the small samples 14169-14188 were fragments of 14303 because they are all identical in their lithologies and are lithologically identical to 14303 and because they show freshly fractured surfaces with no patination or zap pits and one end of 14303 is a fracture surface (later shown to fit 14304).

The following table summarizes the contents of the three weigh bags:

Weigh Bag Number	Rock Samples	Soil Samples
1007	14250-14255 (Rocks separated from soil)	14256-14259 14298-14299
1039	14264-14288	14260-14263 (Soil collected with rocks)
1027	14169-14188 14303/14304 and 14305	14165-14168 (Residue)

14250

PHYSICAL CHARACTERISTICS

Mass

4.06 g

Dimensions

2.1 x 1.5 x 1.5 cm

Sample 14250 is a medium gray, blocky, subangular, moderately friable, seriate fragmental rock.

SURFACE FEATURES

There are pits lined with dark brown glass on all surfaces. The surface is irregular, with few, non-penetrative fractures.

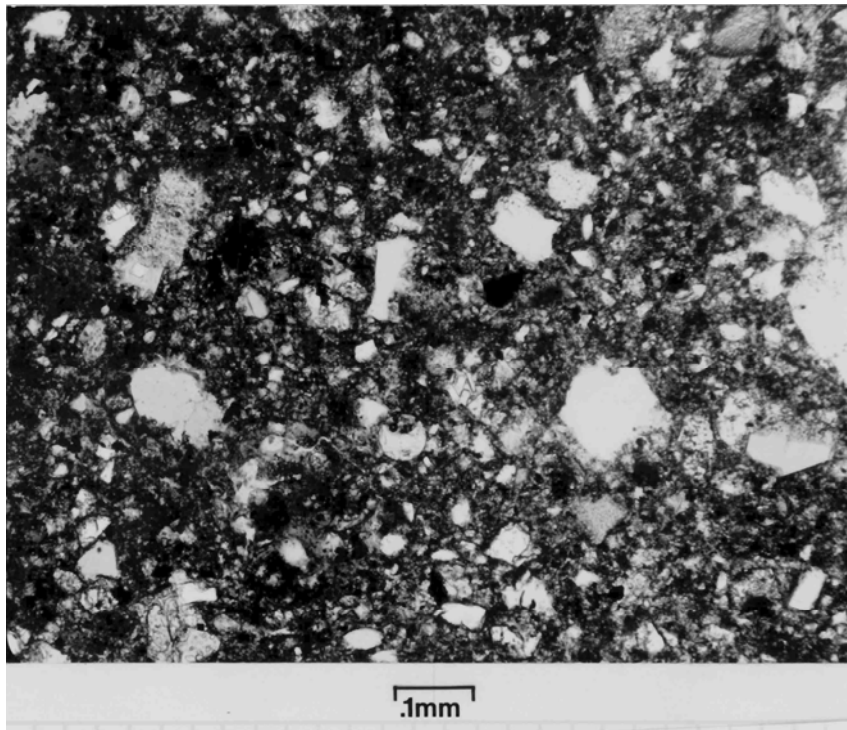
PETROGRAPHIC DESCRIPTION

Sample 14250 is described as a microbreccia or soil breccia (Phinney et al., 1975) which is homogeneous but seriate in texture. Gray and white lithic fragments make up less than 5% of the sample. They are rounded to subrounded in shape and up to 1.0 mm in size. They are composed largely of milky white feldspar with irregular gray areas. There are two kinds of mineral fragments that can be identified. Type I is white and 0.5-1.0 mm in size. It is subangular to subrounded in shape and makes up 10-15% of the sample. Most grains appear to be crushed plagioclase. Type II is light green in color and is rarer, making up less than 5% of the sample. It ranges up to 1.0 mm in size and is angular to subrounded in shape. These are probably olivine grains.

Thin section 14250,3 shows the rock to be a glass-rich breccia with 50% of the matrix being yellow brown glass, much of which has swirls and bubbles. There are numerous shards and spheres of glass scattered throughout. One partial clast of a fine-grained microbreccia with a few pyroxene and glass shards is the only large fragment in the sample. There is a broken fragment of devitrified glass with remanent plagioclase crystals and numerous new plagioclase plus partly devitrified glass are present in the matrix. Approximately 15% of the sample is larger than 0.5 mm in grain size.



Width of image is approximately 2.5 cm, S-71-26317



14250,3