14267
Vitric–matrix Breccia
54.77 grams

Introduction
14267 is from the “comprehensive sample” taken near the ALSEP station at Apollo 14 (Sutton et al. 1971). It is a glass-coated soil breccia (figures 1 and 2).

14267 was studied by the “European Consortium” (Eglinton et al. 1974).

Petrography
Phinney et al. (1975) found that 14267 had a frothy glass coating on one surface, and micrometeorite pits on all sides. The interior is a vitric matrix breccia with numerous small light-colored clasts (figure 4). The grain size distribution is seriate.

14267 is a fine-grained, coherent, polymict breccia with a dark matrix of vitreous appearance (Eglinton et al. 1974). There are more lithic fragments than mineral or glass fragments (figure 4). There are minute vesicles and iron grains in the glassy matrix. Clasts include glass, basalts, metaclastic breccias and mineral grains. Shock feature are prevalent (Eglinton et al.).

The majority of the vitric clasts show flow-banding. Numerous glass analyses are found in Eglinton et al.

Pyroxene and olivine analyses are presented in figure 5. Orthopyroxene and some olivine is quite mafic.

Chemistry
Scoon (in Eglinton 1974) determined the chemical composition by classical techniques (table 1). The sample has the same composition as the Apollo 14 soil (figure 6).

Cosmogenic isotopes and exposure ages
Eglinton et al. (1974) calculate an exposure age of 60 m.y. based on $^{21}$Ne.
Other Studies

Eglinton et al. (1974) reported on cosmic-ray tracks (low), rare gas isotopes (abundant) and carbide content (low). They infer an age of 3.9 b.y. but caution that since this is obviously a soil breccias, it could be younger, with inherited $^{40}$Ar.

Table 1. Chemical composition of 14267.

<table>
<thead>
<tr>
<th>Reference</th>
<th>Eglinton74</th>
</tr>
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<tbody>
<tr>
<td>weight</td>
<td></td>
</tr>
<tr>
<td>SiO$_2$ %</td>
<td>48.35</td>
</tr>
<tr>
<td>TiO$_2$</td>
<td>2.11</td>
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<tr>
<td>Al$_2$O$_3$</td>
<td>16.57</td>
</tr>
<tr>
<td>FeO</td>
<td>10.3</td>
</tr>
<tr>
<td>MnO</td>
<td>0.13</td>
</tr>
<tr>
<td>MgO</td>
<td>7.92</td>
</tr>
<tr>
<td>CaO</td>
<td>10.29</td>
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<tr>
<td>Na$_2$O</td>
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</tr>
<tr>
<td>K$_2$O</td>
<td>0.78</td>
</tr>
<tr>
<td>P$_2$O$_5$</td>
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</tr>
<tr>
<td>S %</td>
<td>0.08</td>
</tr>
<tr>
<td>sum</td>
<td></td>
</tr>
</tbody>
</table>

Sc ppm
V

Processing

On the lunar surface, all rocks in a 14 meter circle were collected and put in weigh bag 1039, which was returned in ALSRC 1007. 14267 was one of these. It was studied by the “European Consortium” (Eglinton et al. 1974), where it was cut exactly in half in Bristol, England and half returned to Houston Texas. There are 5 thin sections. There is a copy of the sample handling report in the datapack (sans figures).
References for 14267


