67749
Granulitic Breccia with clast of KREEP basalt
11.5 grams

Figure 1: Photo of 67749. Scale marked in mm. S72-49570

Introduction
67749 is a rake sample collected from the rim of North Ray Crater – see section on 67701. This small fragment is a polymict breccia with important clasts.

Petrography
Stoffler et al. (1985) called 67749 a “granulitic breccia”. The matrix is feldspathic, plagioclase is An_{93-98}, and lithic clasts include cataclastic anorthosite and basaltic impact melt.

However, in this small breccia sample, Steele and Smith (1973) described a clast of KREEP basalt and gave the mode and mineral compositions (figures 3 and 4). Ryder and Norman (1980) state that “the uniform, clast-free texture and Fe-rich mafic minerals and sodic plagioclases suggest that this clast is a fragment of volcanic KREEP, not an impact melt”.

Mineralogical Mode 67749
Stoffler et al. 1985
Plagioclase 88.5 %
Pyroxene 11.2
Opaques 0.3

Mineralogical Mode KREEP basalt
Steele and Smith 1973
Plagioclase 35 - 40 %
Pyroxene 35 - 40
Opaques 5
Mesostasis 20

Chemistry
The REE diagram (figure 5) for this rock does not indicate much KREEP in the portion analyzed.

Radiogenic age dating
Not
Table 1. Chemical composition of 67749

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<tr>
<th>reference</th>
<th>Stoffler85</th>
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<tbody>
<tr>
<td>weight</td>
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<tr>
<td>SiO2 %</td>
<td>43.25 (a)</td>
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<tr>
<td>TiO2</td>
<td>0.26 (a)</td>
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<td>Al2O3</td>
<td>29.76 (a)</td>
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<td>FeO</td>
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<td>MnO</td>
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<td>0.02 (a)</td>
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<td>P2O5</td>
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<td>S %</td>
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<tr>
<td>sum</td>
<td>(a) DBA</td>
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Processing

There are three thin sections.
Figure 5: Normalized rare-earth-element diagram for 67749 compared with other “granulite breccias” from North ray Crater (Stoffler et al. 1985).

References for 67749


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

Smith J.V. and Steele I.M. (1972c) Apollo 16 rake samples 67515 to 68537: Sample classification, description and inventory. Curator Catalog, JSC


Figure 6: Photomicrographs of 67749 by C Meyer. 2 mm across