78506
High-Ti Mare Basalt
55.97 g, 4 x 4.5 x 3 cm

INTRODUCTION
Sample 78506 was collected as part of a soil sample at Station 8. It is a typical ilmenite-rich mare basalt from Apollo 17. It has a network of large vugs (Fig. 1).

PETROGRAPHY
Pyroxene and plagioclase have crystallized together in a nice coarse-grained subophitic texture (Fig. 2).

MINERAL CHEMISTRY
Brown et al. (1975) have reported a "new" Zr-rich mineral in 78506 that is related to zirconolite.

WHOLE-ROCK CHEMISTRY
Rhodes et al. (1976a) reported the chemical composition of 78506, and Gibson et al. (1976) determined the sulfur content. These analyses are given in Table 1 and Fig. 3.

RADIOGENIC ISOTOPES
Nyquist et al. (1976) have reported Rb-Sr data for the whole rock (Table 2).

Figure 1: Photograph of 78506. Scale is 1 cm. S73-15467
Figure 2: Photomicrograph of thin section 78506,27. Field of view is 3 x 4 mm.

Figure 3: Normalized rare earth element diagram for 785+96. Data from Rhodes et al. (1976a).
Table 1: Whole-rock chemistry of 78506.
From Rhodes et al. (1976a).

<table>
<thead>
<tr>
<th>Split Technique</th>
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<th>Split Technique</th>
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</thead>
<tbody>
<tr>
<td>SiO₂ (wt%)</td>
<td>38.55</td>
<td>Ni</td>
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<tr>
<td>TiO₂</td>
<td>12.93</td>
<td>Co</td>
<td>17.6</td>
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<tr>
<td>Al₂O₃</td>
<td>8.99</td>
<td>Sc</td>
<td>73</td>
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<tr>
<td>Cr₂O₃</td>
<td>0.51</td>
<td>La</td>
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<tr>
<td>FeO</td>
<td>19.36</td>
<td>Ce</td>
<td>17.8</td>
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<tr>
<td>MnO</td>
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<td>Nd</td>
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<tr>
<td>MgO</td>
<td>9.59</td>
<td>Sm</td>
<td>8.19</td>
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<tr>
<td>CaO</td>
<td>9.94</td>
<td>Eu</td>
<td>1.85</td>
</tr>
<tr>
<td>Na₂O</td>
<td>0.39</td>
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<td>12.9</td>
</tr>
<tr>
<td>K₂O</td>
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<td>Tb</td>
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</tr>
<tr>
<td>P₂O₅</td>
<td>0.02</td>
<td>Dy</td>
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<tr>
<td>S</td>
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<td>Er</td>
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<tr>
<td>Nb (ppm)</td>
<td></td>
<td>Yb</td>
<td>7.99</td>
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<tr>
<td>Hf</td>
<td>8.2</td>
<td>Lu</td>
<td>1.11</td>
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<tr>
<td>Sr</td>
<td>175</td>
<td>Ge (ppb)</td>
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</tr>
<tr>
<td>Rb</td>
<td>0.44</td>
<td>Ir</td>
<td></td>
</tr>
<tr>
<td>Li</td>
<td>9.4</td>
<td>Au</td>
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</tr>
<tr>
<td>Ba</td>
<td>65.9</td>
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Table 2: Rb-Sr composition of 78506.
Data from Nyquist et al. (1976).

<table>
<thead>
<tr>
<th>Sample</th>
<th>78506,29</th>
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<tr>
<td>wt (mg)</td>
<td>50</td>
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<tr>
<td>Rb (ppm)</td>
<td>0.442</td>
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<tr>
<td>Sr (ppm)</td>
<td>175</td>
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<tr>
<td>87Rb/86Sr</td>
<td>0.0073 ± 3</td>
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<tr>
<td>87Sr/86Sr</td>
<td>0.69961 ± 6</td>
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<td>T_B</td>
<td>4.85 ± 0.78</td>
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<tr>
<td>T_L</td>
<td>5.50 ± 0.78</td>
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</table>

B = Model age assuming I = 0.69910 (BABI + JSC bias)
L = Model age assuming I = 0.69903
(Apollo 16 anorthosites for T = 4.6 b.y.)