

**71085****High-Ti Mare Basalt**  
**3.402 g, 1.5 x 1.5 x 1 cm****INTRODUCTION**

71085 (Fig. 1) was described as a medium dark gray, medium- to coarse-grained, intergranular basalt (Apollo 17 Lunar Sample Information Catalog, 1973), containing one penetrative fracture or vuggy feature where coarser crystals are found. These coarser crystals reach up to 2.5 mm. The minerals in the "vuggy vein" are: 20% euhedral plagioclase, 70% cinnamon pyroxene in large clusters and euhedral crystals, and 10% euhedral ilmenite. The surface is coated with dust after two dustings; soil grains and spherules are conspicuous on the

Surface. This basalt was collected from Station 1A.

**PETROGRAPHY AND MINERAL CHEMISTRY**

Warner et al. (1979) reported the general petrographic and mineralogic features of this basalt, but only within the general confines of their coarse-grained category of Apollo 17 high-Ti basalts (Class U of Rhodes et al., 1976). As such, this sample was never specifically mentioned. One thin section, 71085,6, was taken, but was not available for our examination during the preparation of this catalog.

**WHOLE-ROCK CHEMISTRY**

Warner et al. (1979) and Ma et al. (1979) reported the same analysis for 71085 (Table 1). Warner et al. (1979) classified this basalt as a coarse-grained type, of which the analysis taken was probably not representative. They reported 71085,3 as containing 14.2 wt% TiO<sub>2</sub> with a MG# of 49.6. The REE profile (Fig. 2) is LREE-depleted, with approximately constant middle and heavy REE abundances (~25 times chondritic values). A negative Eu anomaly is present ( $[Eu/Eu^*]_N = 0.65$ ).

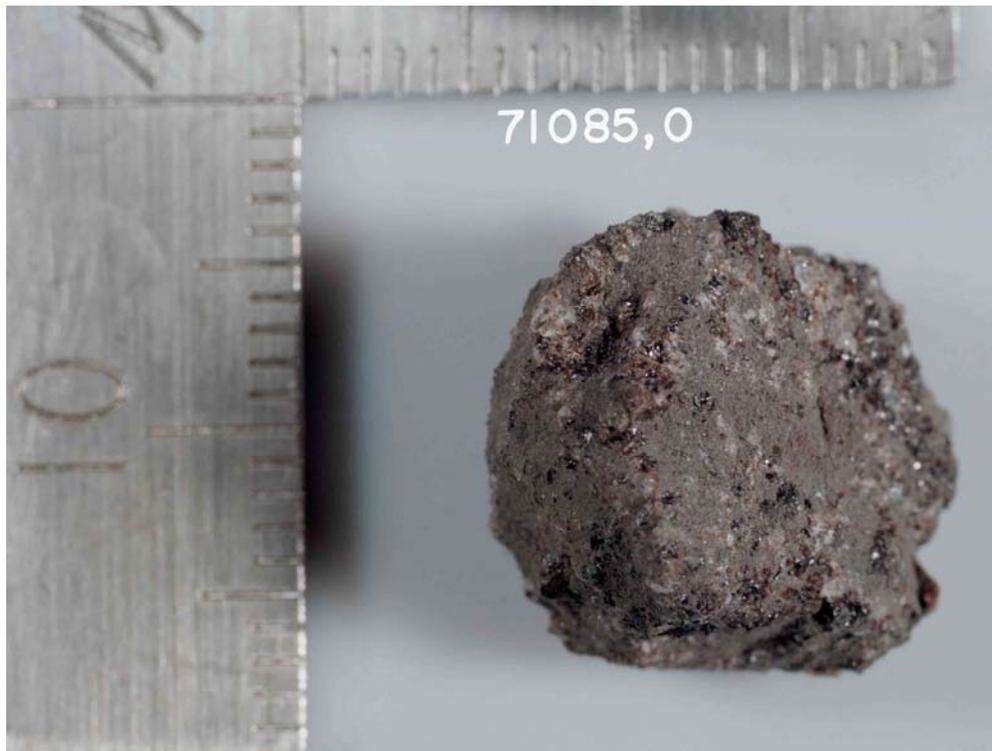


Figure 1: Hand specimen photograph of 71085,0.

**Table 1: Whole-rock chemistry of 71085.**  
 Data from Ma et al. (1979) and Warner et al. (1979) (same analysis).

|                                | 71085,3<br>I |          | 71085,3<br>I |
|--------------------------------|--------------|----------|--------------|
| SiO <sub>2</sub> (wt %)        |              | Cu       |              |
| TiO <sub>2</sub>               | 14.2         | Ni       |              |
| Al <sub>2</sub> O <sub>3</sub> | 7.7          | Co       | 20           |
| Cr <sub>2</sub> O <sub>3</sub> | 0.576        | V        | 163          |
| FeO                            | 18.1         | Sc       | 96           |
| MnO                            | 0.246        | La       | 2.8          |
| MgO                            | 10           | Ce       | 11           |
| CaO                            | 10.8         | Nd       | 13           |
| Na <sub>2</sub> O              | 0.333        | Sm       | 5.1          |
| K <sub>2</sub> O               | 0.032        | Eu       | 1.21         |
| P <sub>2</sub> O <sub>5</sub>  |              | Gd       |              |
| S                              |              | Tb       | 1.3          |
| Nb (ppm)                       |              | Dy       | 9            |
| Zr                             |              | Er       |              |
| Hf                             | 5.5          | Yb       | 5.6          |
| Ta                             | 1.3          | Lu       | 0.83         |
| U                              |              | Ga       |              |
| Th                             |              | F        |              |
| W                              |              | Cl       |              |
| Y                              |              | C        |              |
| Sr                             |              | N        |              |
| Rb                             |              | H        |              |
| Li                             |              | He       |              |
| Ba                             |              | Ge (ppb) |              |
| Cs                             |              | Ir       |              |
| Be                             |              | Au       |              |
| Zn                             |              | Ru       |              |
| Pb                             |              | Os       |              |

I = analysis by INAA.

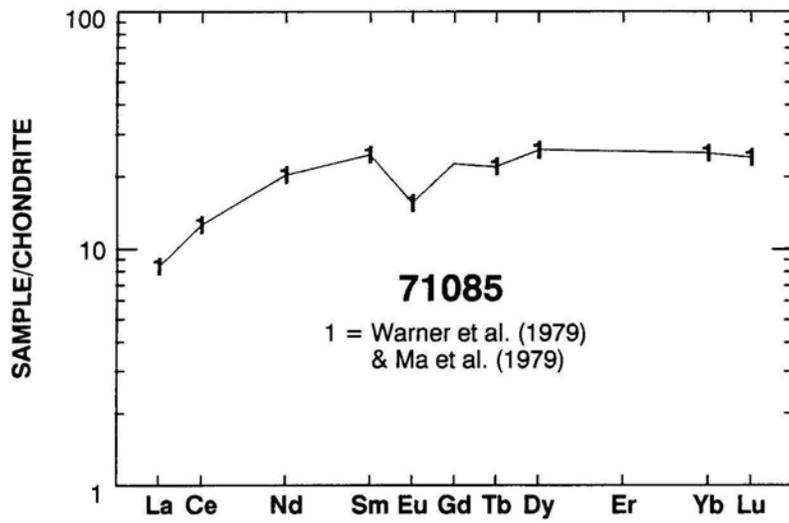


Figure 2: Chondrite-normalized rare-earth element profile of 71085.

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### PROCESSING

Of the original 3.402g of 71085,0, a total of 2.768 remains. 71085,3 was irradiated for INAA, and thin section 71085,6 was taken from this irradiated sample.