

70149**High-Ti Mare Basalt****0.95 g, 0.6 x 0.6 x 0.4 cm****INTRODUCTION**

70149 was described as a brownish gray, inequigranular, high-Ti mare basalt (Fig. 1), containing vugs of 0.1 mm (Apollo 17 Lunar Sample Information Catalog, 1973). This sample was collected from the "Geophone Rock", 50 m south of the ALSEP central station.

PETROGRAPHY AND MINERAL CHEMISTRY

Thin section 70149,1 was described by Wilshire (Apollo 17 Lunar Sample Information Catalog, 1973), and thin sections 70149,2 and 70149,3 were studied in the preparation of this catalog. Wilshire described 70149 as a coarse-grained poikilitic basalt with large

plagioclase plates enclosing pyroxene and opaque minerals. Prismatic clinopyroxenes have normal zoning; other forms show complex zoning. Olivine occurs in clusters of tiny anhedral grains in clinopyroxene.

70149, 3 exhibits minor brecciation, but still maintains a poikilitic texture. Ilmenites (up to 0.5 mm) are interstitial, either blocky or lath-like, set in plagioclase (up to 1.5 mm) and pyroxene (up to 1 mm). These ilmenites contain chromite and rutile exsolution lamellae (< 0.005 mm). Olivine forms ~0.1 mm cores to pyroxene. Minor mesostasis glass is present. Cristobalite, native Fe, and troilite form interstitial phases. Point counting of 70149,1 by Wilshire and Brett (Apollo 17 Lunar Sample Information Catalog, 1973) demonstrated

that 70149 is comprised of 49% pyroxene; 27% plagioclase; 23% opaque minerals (almost all ilmenite, no armalcolite or discrete spinel); 1% cristobalite; and trace amounts of olivine and mesostasis.

No mineral chemistry has been determined for this sample.

WHOLE-ROCK CHEMISTRY

No whole-rock chemistry has been determined for this sample.

EXPERIMENTAL

In a study of fO_2 controlled cooling rates and textures of lunar basalts, Usselman et al. (1975) reported the cooling rate of 70149 to have been < 1 °C per hour. This estimate was based upon comparison of natural textures with those experimentally produced.

PROCESSING

Approximately 0.92 g of 70149,0 remains. Three thin sections (1, 2, and 3) are available.

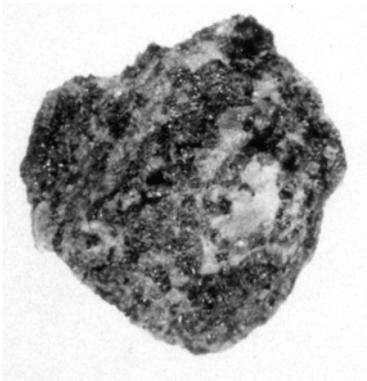


Figure 1: Hand specimen photograph of 70149,0.