73218

Impact Melt Breccia
St. 3, 39.7 g

INTRODUCTION

73218 is a greenish-gray gray (5GY 6/1) angular breccia (Fig. 1). It is a fine-grained impact melt with small clasts. Its chemical composition might be similar to the common low-K Fra Mauro basalt impact melts common at the site, but chemical data is lacking and it was originally described as anorthositic. The sample is tough, crystalline, and homogeneous, with dimensions of 4 x 3 x 2.5 cm. The matrix is dominated by plagioclases, although small mafic crystals are also visible macroscopically. Several surfaces are fresh fractures; the other side is rounded with some zap pits with pale gray glass. A few small drusy cavities (less than 1 mm) are present. Splits were taken from 73218 by chipping, mainly of matrix. A composite potted butt from 4 particles was used to make 3 thin sections. No data has been published.

PETROGRAPHY

The thin sections of the four particles show a fine-grained impact melt groundmass (Fig. 2), with mineral and lithic clasts. The groundmass has plagioclase needles and ilmenite needles, demonstrating growth from a melt. The mineral clasts are predominantly plagioclase and olivine, some of the smaller of which have coronas. The larger clasts include recrystallized anorthositic breccias, feldspathic impactites, a coarse anorthosite with a metamorphic texture, and a single grain of multiply-exsolved and twinned pyroxene (presumably an inverted pigeonite).

PROCESSING

Most of 73218 is preserved in the parent, 0 (now 35.8 g). One large piece (, 10; 1.97 g) was allocated, but no data have been published. Twelve small chips, labeled A-L and predominantly matrix, were chipped from varied locations. Eight are preserved as ,8. The others (A, typical matrix; B, olivine rich?; H, anorthositic plus typical matrix; and I, with brown mineral clasts were used to make serial thin sections ,26-,28.

Figure 1: 73218, showing patina and zap pits on top left surface, broken surfaces below. Cube is 1 centimeter. S-73-24909.

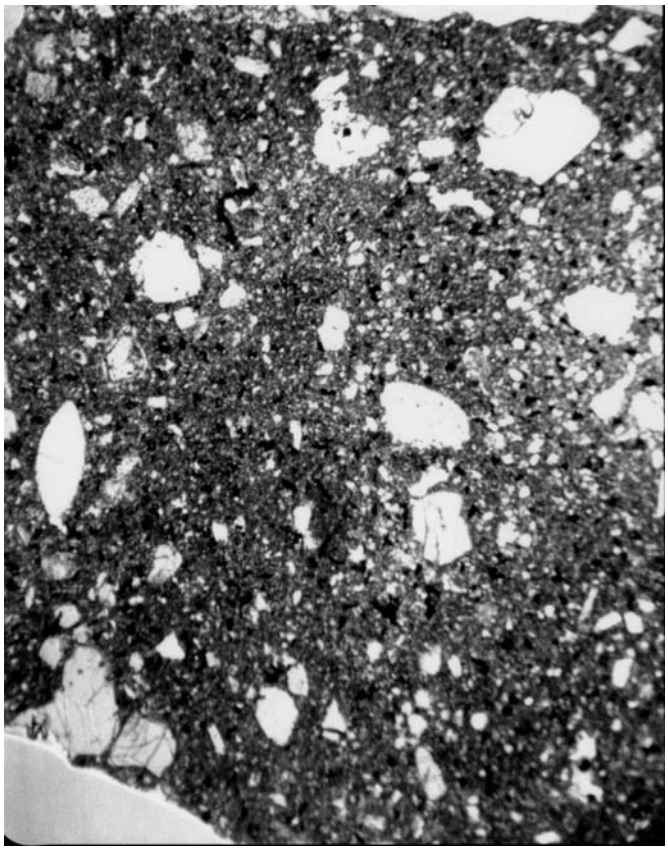

Figure 2: Photomicrograph of typical groundmass in 73218,26. Clasts are seriate, and dominantly plagioclases. Plane transmitted light, field of view about 2 mm wide.