

15598 FINE-GRAINED OLIVINE-NORMATIVE ST. 9A 135.7 g
MARE BASALT

INTRODUCTION: 15598 is an olivine-normative mare basalt with small olivine phenocrysts and a texture and grain-size very similar to 15535 (which was chipped from a boulder 20 m away). Its chemistry is that of an average Apollo 15 olivine-normative mare basalt. The sample is light brownish gray, blocky, subrounded, and tough (Fig. 1). It has a few small vugs, and many zap pits on most surfaces. It was collected in the vicinity of the boulder from which 15595 and 15596 were taken, but it has not been identified in surface photographs.

PETROLOGY: 15598 consists mainly of small olivine phenocrysts, granular clustered pyroxenes, and plagioclases (Fig. 2). It has residual patches of glass, fayalite, sulfides, and cristobalite. Opaques range from chromite to ulvospinel and ilmenite. The sample is very similar to 15535 but is perhaps slightly finer in grain size and has less cristobalite.

Brown et al. (1972) noted that 15598 was an olivine-normative mare basalt (i.e., PET, Type III) but gave no specific data. Weiblen and Roedder (1973) studied melt inclusions in olivine as well as other features. Two analyzed melt inclusions (archived data) contained 57.2% SiO₂ and 60.2% SiO₂, in hosts of Fo_{50.2} and Fo_{62.2} respectively. The olivine phenocrysts are reported as zoned over the same range. One olivine encloses Mg-Al chromite and Fe metal with 34% Ni (analyses archived). There are also late-stage high-silica melts in ilmenite and as melts interstitial and adjacent to ilmenite, pyroxferroite (?), and sodic plagioclase (An_{85.4}). Roedder and Weiblen (1977) made many more analyses of melt-inclusions in olivine and ilmenite, and archived the data. Bell et al. (1975) reported the presence of Type A symplectites (disseminated rosettes) in olivines.

CHEMISTRY: Rhodes and Blanchard (1983) reported a major and trace element analysis of a 2 gram split of 15598. The sample is an average olivine-normative mare basalt.

PROCESSING AND SUBDIVISIONS: 15598 was chipped to produce ,5 (apparently without photo documentation) which was made into a potted butt and partly used to make thin sections ,10 to ,12. Other small chips and fines (,6; ,7) were produced at the same time. In 1982, further chipping from the "T" end produced the splits for chemical analysis. ,0 is now 126.5 g.



Figure 1. Macroscopic pre-split view of 15598. S-71-46697

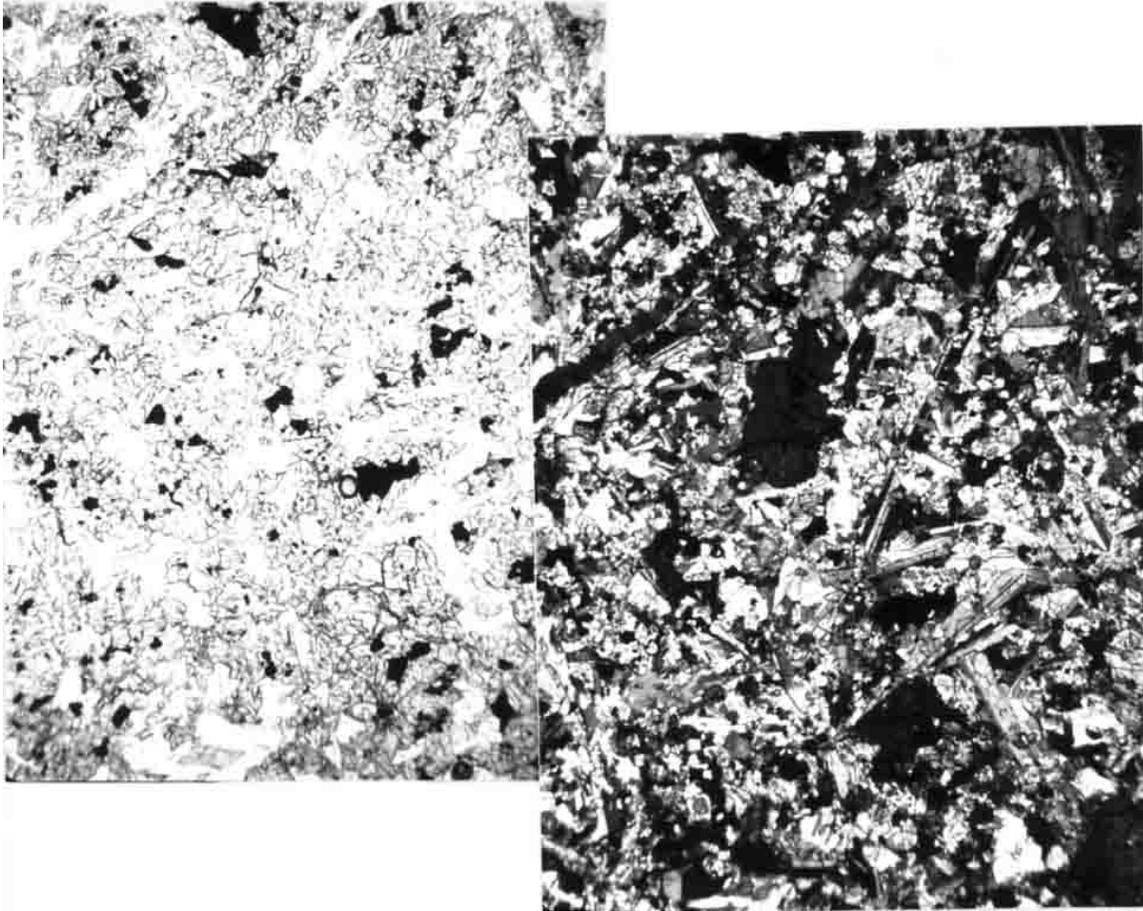


Figure 2. Photomicrographs of 15598,10.
Widths about 3 mm. a) transmitted light; b) crossed polarizers.