

15610 COARSE-GRAINED OLIVINE-NORMATIVE ST. 9A 1.50 g
MARE BASALT

INTRODUCTION: 15610 is a coarse-grained, olivine-bearing mare basalt with a hackly appearance (Fig. 1). The olivine does not form phenocrysts. The sample is brownish gray, blocky and angular, and tough. It contains 10 to 15% cavities with pyroxene prisms crossing them. The yellow-green olivines are visible but not conspicuous macroscopically. A few zap pits occur on one face. 15610 was collected as part of the rake sample at Station 9A.



Figure 1. Post-chip view of 15610. S-72-20378

PETROLOGY: 15610 is a very coarse, gabbroic-textured olivine-bearing basalt. Plagioclases 1 to 2 mm across enclose small pyroxenes and olivines. Some pyroxenes

larger than 1 mm across are twinned, and sparse olivines up to 2 mm across contain silicate liquid inclusions. Dowty et al. (1973a,b) gave a mode of 51% pyroxene, 25% plagioclase, 13% olivine, 8% opaque minerals, 0.6% silica (actually cristobalite) and 2.4% mesostasis. The residual phases include glass, cristobalite, troilite, and sieved fayalite. Microprobe analyses of pyroxene, olivine, plagioclase, Si-K-rich glass, and metal were tabulated by Dowty et al. (1973c) and spinel group and ilmenite analyses were tabulated by Nehru et al. (1973). Nehru et al. (1974) tabulated a chromite analysis and included 15610 in their general discussion. The mineral chemistries (Fig. 3) are typical of Apollo 15 olivine-normative mare basalts. The metal contains 1.0 to 2.3% Co and 0.8 to 12.5% Ni, and the ilmenite contains 0.13 to 1.21% MgO.

CHEMISTRY: The only bulk analysis is the microprobe defocussed-beam analysis of Dowty et al. (1973a,b) (Table 1). The analysis shows a fairly average Apollo 15 olivine-normative mare basalt.

PROCESSING AND SUBDIVISIONS: A single piece was chipped off (,1) (Fig. 1), potted and partly used to make thin sections ,5 and ,6. ,0 is now 1.23 g.

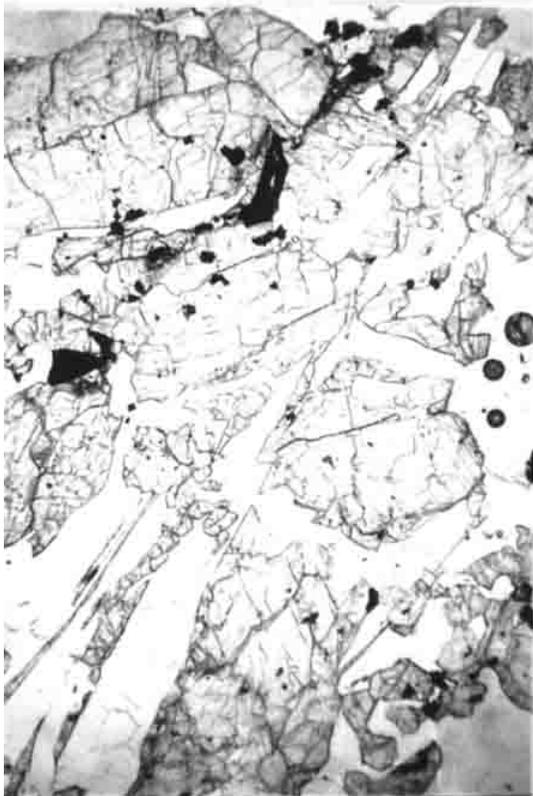


Fig. 2a



Fig. 2b

Figure 2. Photomicrograph of 15610,6. Widths about 3 mm. a) transmitted light; b) crossed polarizers.

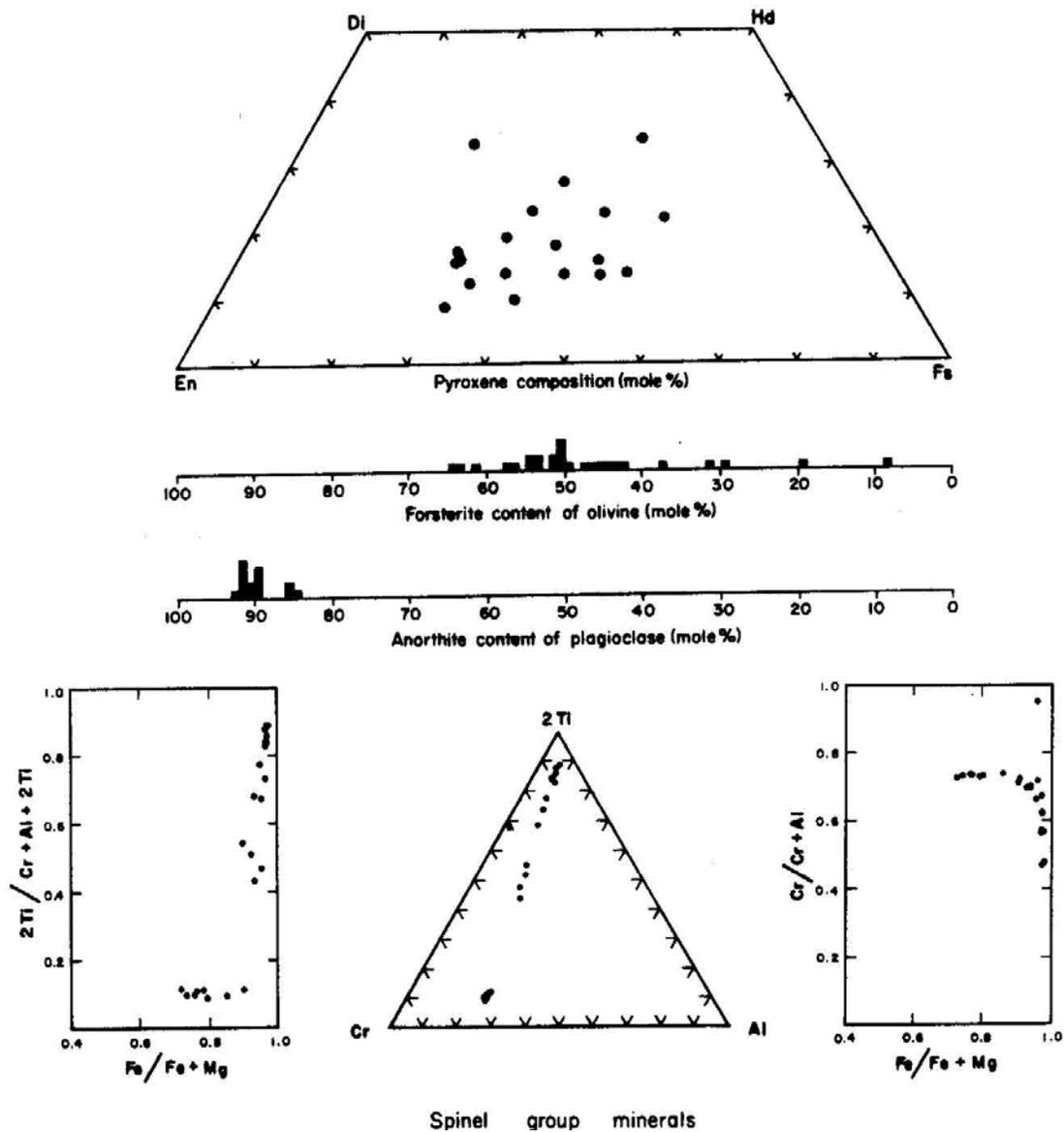


Figure 3. Chemistry of minerals in 15610 (Dowty et al., 1973b).

TABLE 15610-1. Defocussed beam bulk analysis
(Dowty et al., 1973a,b)

| | | |
|------|--------------------------------|------|
| Wt % | SiO ₂ | 44.8 |
| | TiO ₂ | 2.86 |
| | Al ₂ O ₃ | 7.8 |
| | FeO | 22.9 |
| | MgO | 10.7 |
| | CaO | 9.6 |
| | Na ₂ O | 0.28 |
| | K ₂ O | 0.06 |
| | P ₂ O ₅ | 0.18 |
| | ppm | Cr |
| Mn | | 1940 |