

**INTRODUCTION:** 65016 is a hollow hemisphere of green impact glass (Fig. 1). Its smooth surfaces and spheroidal shape indicates that it cooled during free flight. Vesicles and bubbles are abundant. Most of the vesicles are filled with soil. 65016 was collected near the rim of a subdued 20 m crater; its lunar orientation is unknown. Zap pits are absent.



FIGURE 1. S-72-39403.

**PETROLOGY:** 65016 is nearly holohyaline. A few clasts of cataclastic anorthosite are present which act as nucleation sites for quench crystals (Fig. 2). Spherules of Fe-metal, sometimes intergrown with schreibersite, are uncommon. Schaal et al. (1979) provide a brief petrographic description and tabulate various physical parameters, such as vesicularity.

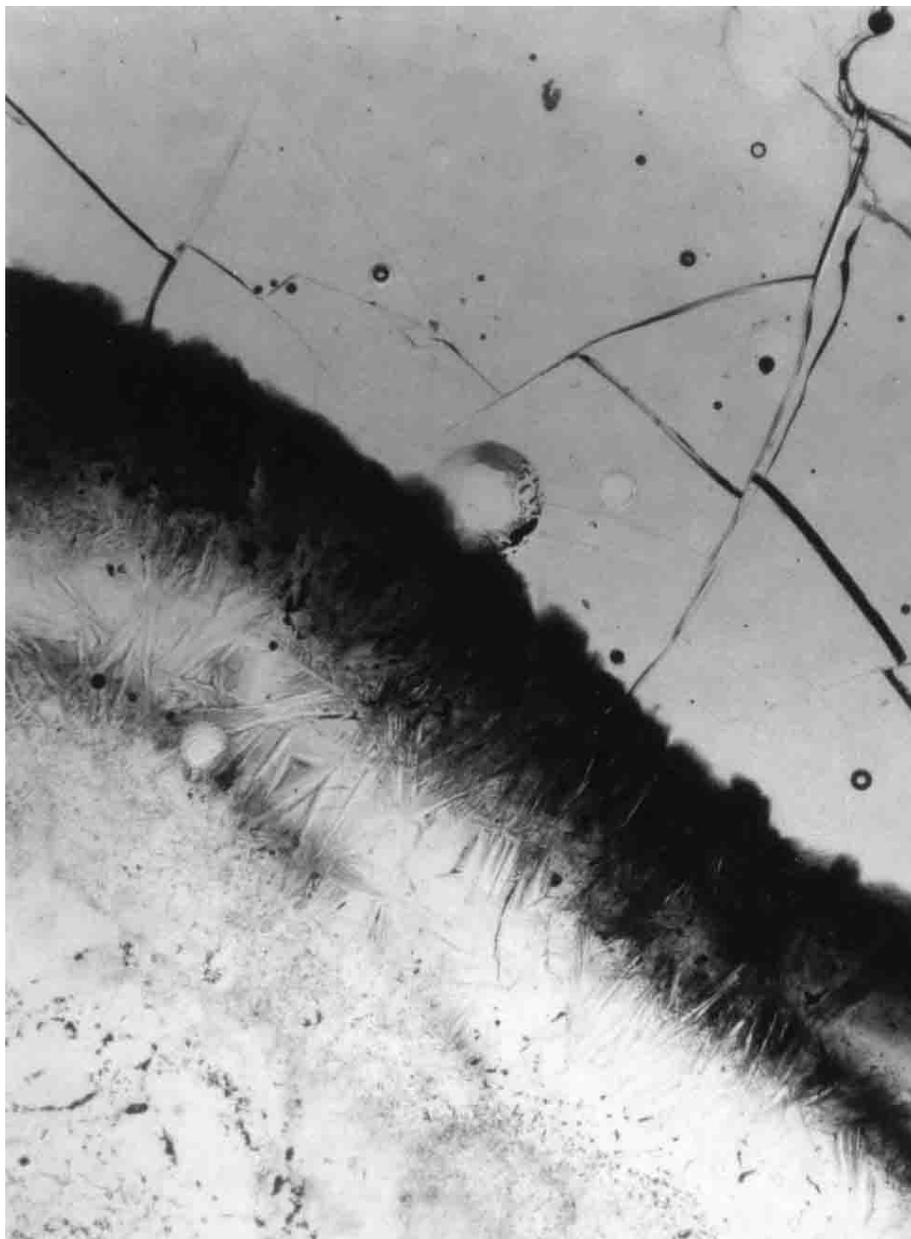


FIGURE 2. 65016,17. Devitrified (bottom) and clear (top) glass, ppl. Width 2 mm.

CHEMISTRY: A major element analysis by electron microprobe is presented by Uhlmann et al. (1977). Ganapathy et al. (1974) report meteoritic siderophile and volatile element abundances. These data are summarized in Table 1.

65016 is compositionally very similar to the local mature soils. Hertogen et al. (1977) tentatively assign 65016 to meteoritic group 5H, note that this is the same group as in glass sample 60095 and the glass coat of 64455, and conclude that all of these glasses probably represent impact melt produced by the South Ray Crater event.

PHYSICAL PROPERTIES: Uhlmann et al. (1974, 1977, 1978) and Klein and Uhlmann (1976) provide an analysis of the kinetics of the glass forming process and the crystallization behavior of a synthetic analog and a natural sample of 65016 (Figs. 3 and 4). Close agreement between the natural and the synthetic samples was obtained. A cooling rate of  $2 \times 10^3$  °C/min was estimated (Uhlmann et al., 1977). The liquidus temperature of 65016 is ~1360°C.

Hapke et al. (1978) present ultraviolet reflectance spectra for a sample listed as 65016, but the data are actually for 65015.

PROCESSING AND SUBDIVISIONS: Several chips have been broken off for allocation and for stock at JSC.

TABLE 1. Summary chemistry of 65016.

SiO <sub>2</sub>	44.2
TiO <sub>2</sub>	0.6
Al <sub>2</sub> O <sub>3</sub>	26.5
Cr <sub>2</sub> O <sub>3</sub>	
FeO	5.5
MnO	
MgO	7.3
CaO	15.3
Na <sub>2</sub> O	0.4
K <sub>2</sub> O	0.1
P <sub>2</sub> O <sub>5</sub>	
Sr	
La	
Lu	
Rb	1.44
Sc	
Ni	532
Co	
Ir ppb	26.3
Au ppb	7.19
C	
N	
S	
Zn	0.52
Cu	

Oxides in wt%; others in ppm except as noted.

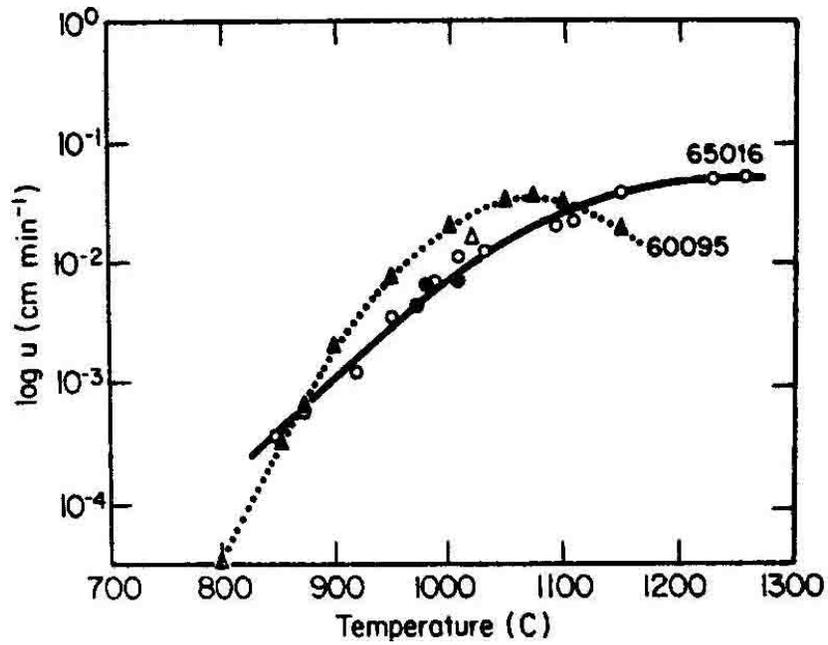


FIGURE 3. Growth rate v. temperature for synthetic compositions; from Klein and Uhlmann (1976).

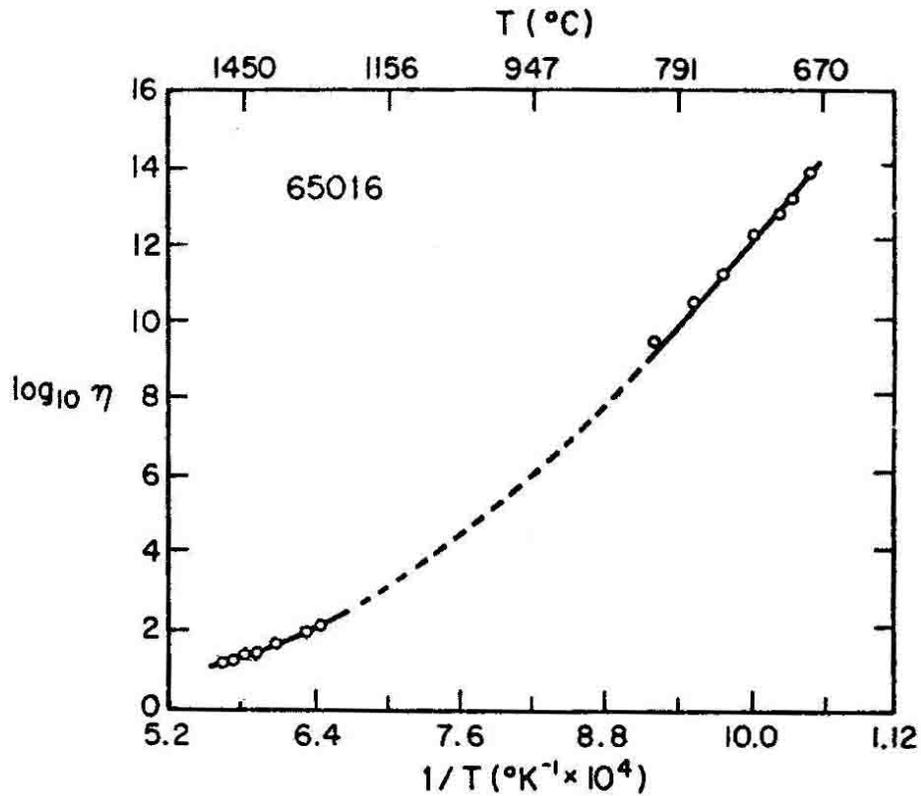


FIGURE 4. Viscosity vs. temperature for synthetic composition; from Uhlmann et al. (1974).