

**71515****Glass-Bonded Agglutinate  
1.635 g, 2 cm at longest****INTRODUCTION**

71515 was described as an irregular, intergranular and friable, glass-bonded agglutinate (Apollo 17 Lunar Sample Information Catalog, 1973) (Fig. 1). Clasts are gray-brown, whereas the glass is light brown and vitreous. About eight fragments of fine-grained, coherent, annealed breccia, with brown fine-grained matrices and small white clasts of shocked plagioclase, are welded into an aggregate by glass crusts and filaments. Fragments of basalt are also present in the aggregate. Some fragment surfaces exhibit microslickensides.

**PETROGRAPHY AND  
MINERAL CHEMISTRY**

The mineralogy and petrography of 71515 has been reported by Warner et al. (1978) No thin section was available during the preparation of this catalog.

**WHOLE-ROCK CHEMISTRY**

Warner et al. (1979b,c) included the glass composition of 71515 in their study of Apollo 17 glasses and their relationship to known lunar rock-types. However, the glass composition was not directly quoted. Laul et al. (1975b) reported the whole-rock composition of 71515,0 in their

study of Apollo 17 rake samples. These authors described 71515 as a basalt-breccia. It contains 10.3 wt% TiO<sub>2</sub> (Table 1) with a MG# of 47.7. The REE profile is LREE-depleted with a maximum in the MREE (Fig. 2). The HREE exhibit a steady decline from the MREE, but are still present in greater abundances (relative to chondrites) than the LREE (Fig. 2). A negative Eu anomaly is present [(Eu/Eu\*)<sub>N</sub> = 0.55].

**PROCESSING**

Of the original 1.635g of 71515,0, a total of 1.2658 remains. 71515,1 was renumbered to,9001, and thin section ,4 was made from this sample.



Figure 1: Hand specimen photograph of 71515,0. Note the glassy surface. Small divisions on scale are in millimeters.

**Table 1: Whole-rock chemistry of 71515.**

Data from haul et al. (1975).

Sample 71515,0 Method N		Sample 71515,0 Method N	
SiO <sub>2</sub> (wt %)		Cu	
TiO <sub>2</sub>	10.3	Ni	
Al <sub>2</sub> O <sub>3</sub>	11.2	Co	30.7
Cr <sub>2</sub> O <sub>3</sub>	0.458	V	100
FeO	18.2	Sc	67
MnO	0.222	La	6.9
MgO	9.3	Ce	23
CaO	10.4	Nd	
Na <sub>2</sub> O	0.37	Sm	8.7
K <sub>2</sub> O	0.065	Eu	1.66
P <sub>2</sub> O <sub>5</sub>		Gd	
S		Tb	2.1
Nb (ppm)		Dy	14
Zr		Er	
Hf	6.6	Yb	7.1
Ta	1.4	Lu	1.0
U		Ga	
Th		F	
W		Cl	
Y		C	
Sr		N	
Rb		H	
Li		He	
Ba		Ge (ppb)	
Cs		Ir	
Be		Au	
Zn		Ru	
Pb		Os	

Analysis by: N = INAA.

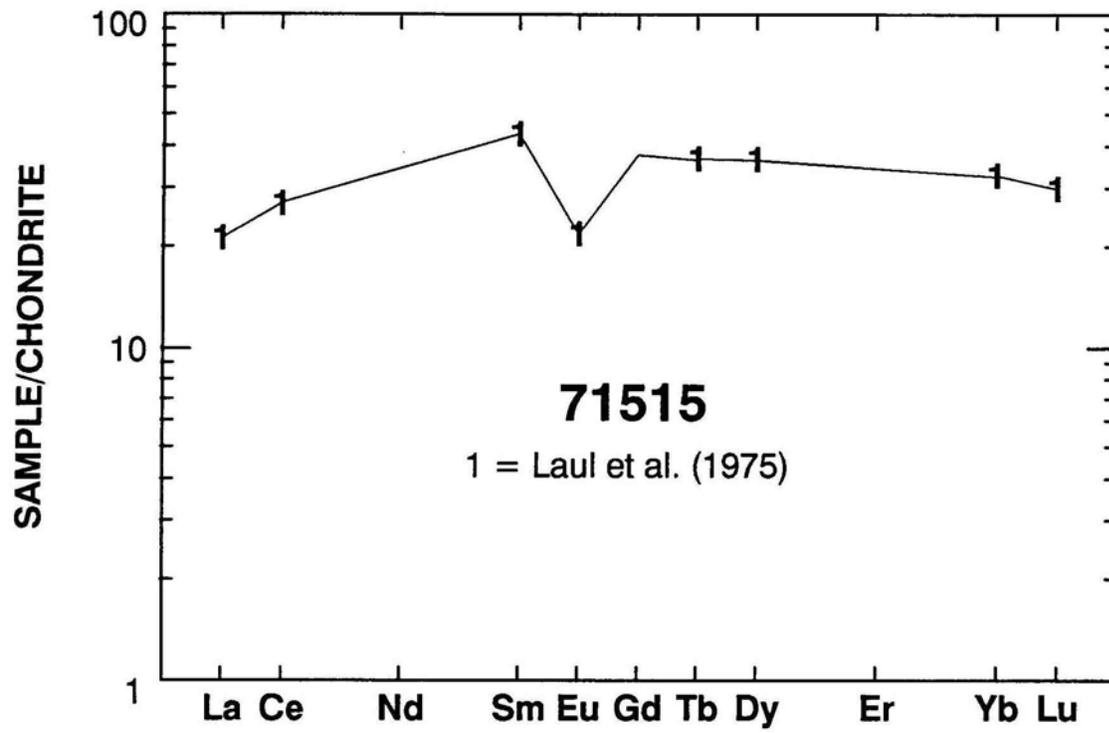


Figure 2: Chondrite-normalized rare-earth element plot of 71515. Data from Laul et al. (1975).