

INTRODUCTION: 67559 is a subophitic, plagioclase-rich impact melt, similar to 68415. The sample is gray and homogeneous (Fig. 1).

It is a rake sample collected near the White Breccia boulders. It is angular, coherent, and free of zap pits.

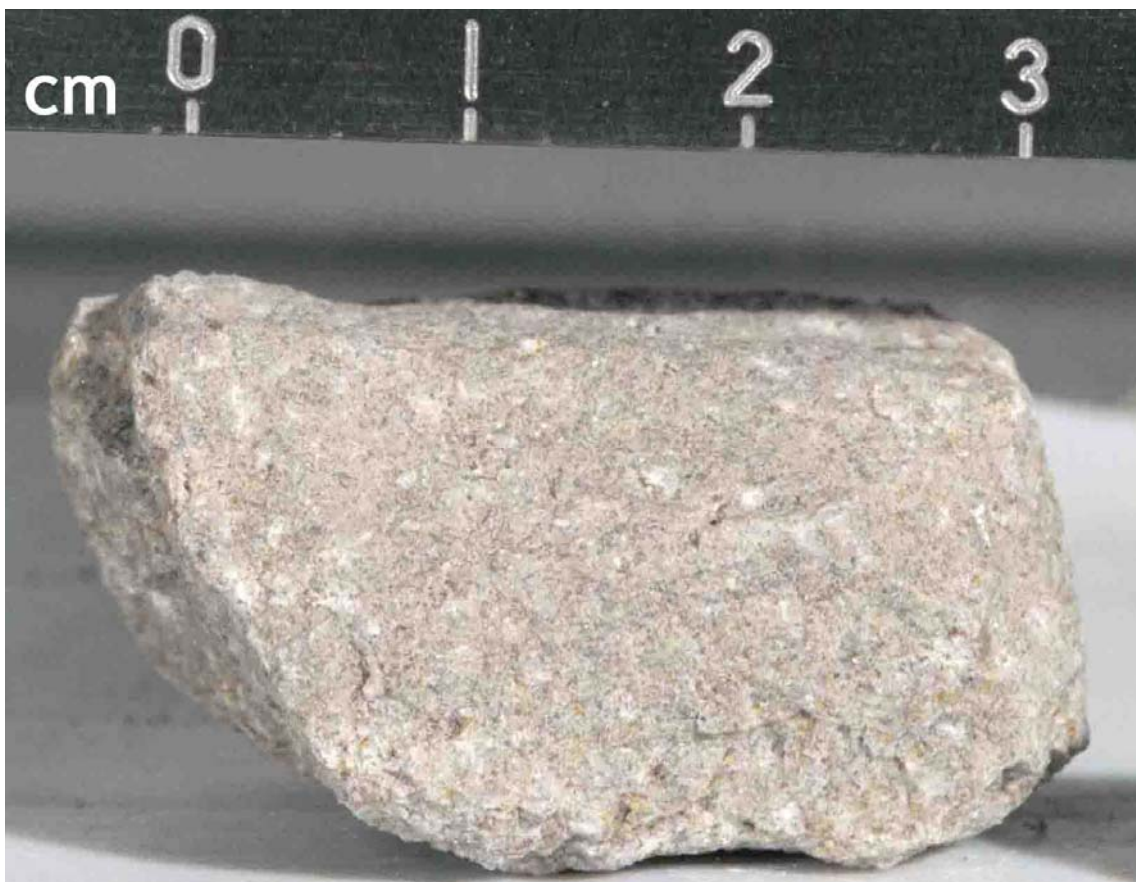


FIGURE 1. S-72-43448.

PETROLOGY: 67559 is briefly described by Steele and Smith (1973) and Vaniman and Papike (1981). It is a coarse-grained, subophitic basalt (Fig. 2). Plagioclase laths are up to 1 mm x 200-300 μm , but most are much smaller; mafic minerals are interstitial. A mode by Vaniman and Papike (1981) has 74.7% plagioclase, 20.1% pyroxene, 2.1% olivine, and 2.1% ilmenite, metal, troilite, and mesostasis. Pyroxene and olivine compositions are given in Figure 3. Plagioclases range from An_{90-98} and have less than 0.2% Fe (Steele and Smith, 1973).

CHEMISTRY: A major element analysis is given by Nava (1974), and Wasson et al. (1977) provide major, rare earth, siderophile and other trace element data. Tera et al. (1974) provide K, Rb, Sr, U, Th, and Pb abundances. The chemistry is summarized in Table 1 and Figure 4. It is a meteorite-contaminated melt, very similar in all respects to 68415 and 68416. It lacks a significant Eu anomaly, a feature noted by Nava (1974; quotes unpublished data of Philpotts).



FIGURE 2. 67559,1. General view, xpl. Width 2 mm.

RADIOGENIC ISOTOPES: Tera et al. (1974) report Rb-Sr and U-Th-Pb isotopic data. $^{87}\text{Rb}/^{86}\text{Sr} = 0.03128$, $^{87}\text{Sr}/^{86}\text{Sr} = 0.70087 \pm 6$ and $T_{\text{BABI}} = 4.22 \pm 0.13$ b.y., all very similar to corresponding data for 68415 and 68416. The lead isotopic results are also very similar to those from 68415, giving a concordant age at 4.42 b.y. The data do not specify the crystallization age.

PROCESSING AND SUBDIVISIONS: Several small chips were removed and thin section ,1 was made from a different chip than were thin sections ,9 and ,10.

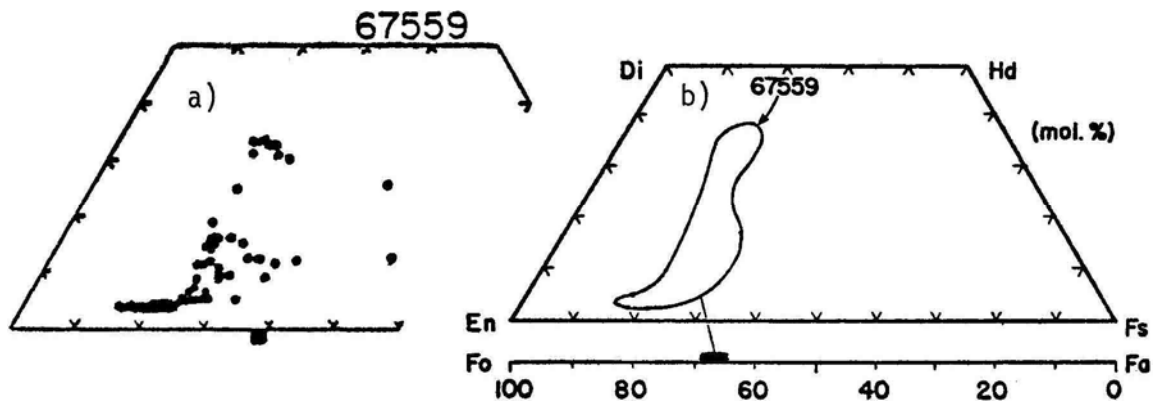


FIGURE 3. Pyroxene and olivine compositions.
a) from Vaniman and Papike (1981).
b) from Steele and Smith (1973).

TABLE 1. Summary chemistry of 67559.

SiO ₂	45	Sr	179
TiO ₂	0.26-0.47	La	7.2
Al ₂ O ₃	~28.5	Lu	0.34
Cr ₂ O ₃	0.09	Rb	2
FeO	4.3	Sc	8.8
MnO	0.06	Ni	257
MgO	~4	Co	20.6
CaO	16.5	Ir ppb	11
Na ₂ O	0.5	Au ppb	5.0
K ₂ O	0.08	C	
P ₂ O ₅	0.11	N	
		S	
		Zn	≤5.6
		Cu	

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

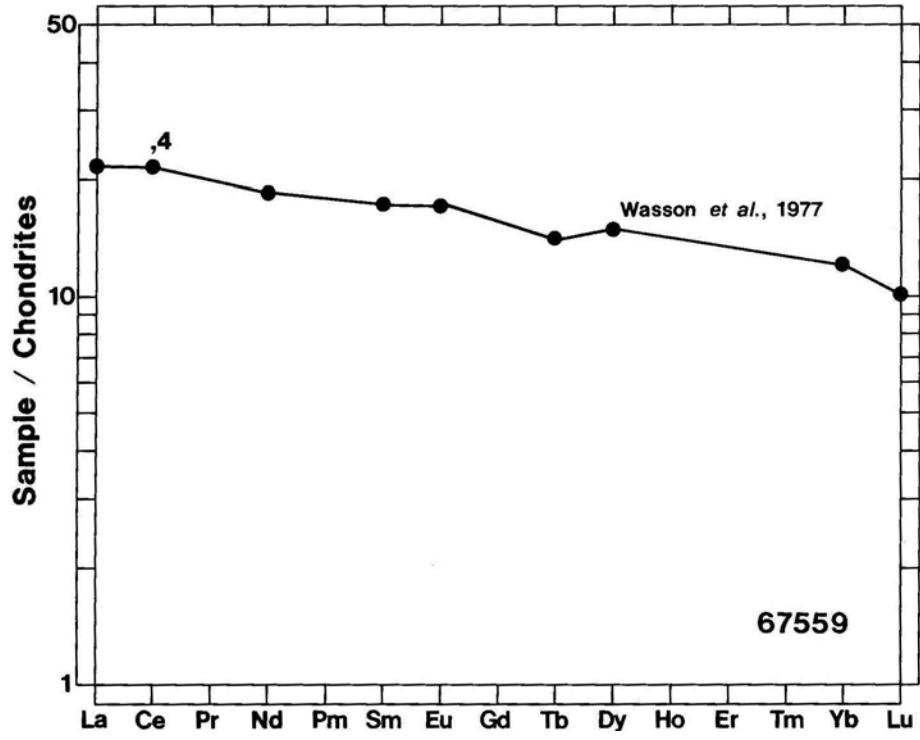


FIGURE 4. Rare earths.