

15639 COARSE-GRAINED OLIVINE-NORMATIVE ST. 9A 7.00 g
MARE BASALT

INTRODUCTION: 15639 is a coarse-grained olivine-bearing mare basalt which is vuggy but not vesicular (Fig. 1). Yellow-green olivines and lathy plagioclases are conspicuous macroscopically. In chemistry, the sample is a member of the Apollo 15 olivine-normative mare basalt group. The sample is tough and has some small glass splashes and possibly zap pits. 15639 was collected as part of the rake sample at Station 9A.



Figure 1. Pre-chip view of 15639. S-71-49551

PETROLOGY: 15639 is an olivine microgabbro (Fig. 2) with a moderately diabasic texture. The olivine does not form phenocrysts.

CHEMISTRY: A bulk rock analysis (Table 1, Fig. 3) shows the sample to be a member of the Apollo 15 olivine-normative mare basalt group, and on the basis of the low TiO_2 and (imprecisely-determined) high MgO , probably one of the least-evolved.

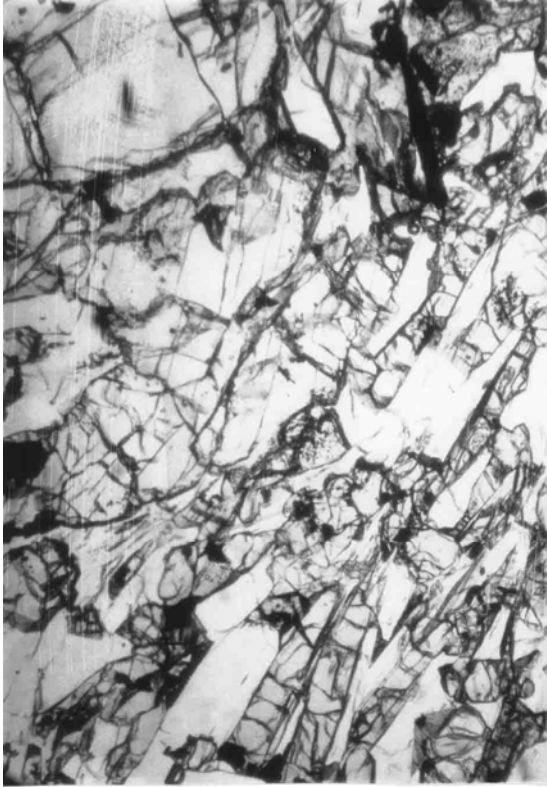


Fig. 2a



Fig. 2b

Figure 2. Photomicrographs of 15639,4.
Widths about 3 mm. a) transmitted light; b) crossed polarizers.

TABLE 15639-1. Bulk rock chemical analysis

		.1
Wt %	SiO ₂	
	TiO ₂	1.8
	Al ₂ O ₃	9.4
	FeO	21.9
	MgO	12
	CaO	8.9
	Na ₂ O	0.280
	K ₂ O	0.038
	P ₂ O ₅	
	(ppm)	Sc
V		194
Cr		4130
Mn		2030
Co		54
Ni		
Rb		
Sr		
Y		
Zr		
Nb		
Hf		2.1
Ba		
Th		
U		
Pb		
La		4.1
Ce		
Pr		
Nd		
Sm		2.8
Eu		0.76
Gd		
Tb		0.5
Dy		3.3
Ho		
Er		
Tm		
Yb		1.8
Lu		0.21
Li		
Be		
B		
C		
N		
S		
F		
Cl		
Br		
Cu		
Zn		
(ppb)	I	
	At	
	Ga	
	Ge	
	As	
	Se	
	Mo	
	Tc	
	Ru	
	Rh	
	Pd	
	Ag	
	Cd	
	In	
	Sn	
	Sb	
	Te	
	Cs	
	Ta	350
	W	
	Re	
	Os	
	Ir	
	Pt	
	Au	
	Hg	
	Tl	
	Bi	

References and methods:

(1) Ma et al. (1978); INAA

Notes:

- (a) + 30 ppm
- (b) ± 40 ppm

(1)

PHYSICAL PROPERTIES: Gose et al. (1972) and Pearce et al. (1973) measured a natural magnetic intensity (NRM) of 6.7×10^{-6} emu/g for the entire rock. This value is typical of Apollo 15 mare basalts.

PROCESSING AND SUBDIVISIONS: In 1977, chipping produced two chips (,1) and a separate chip which remains part of ,0 (now 6.56 g). ,1 was used for chemical analysis and to make thin section ,4.

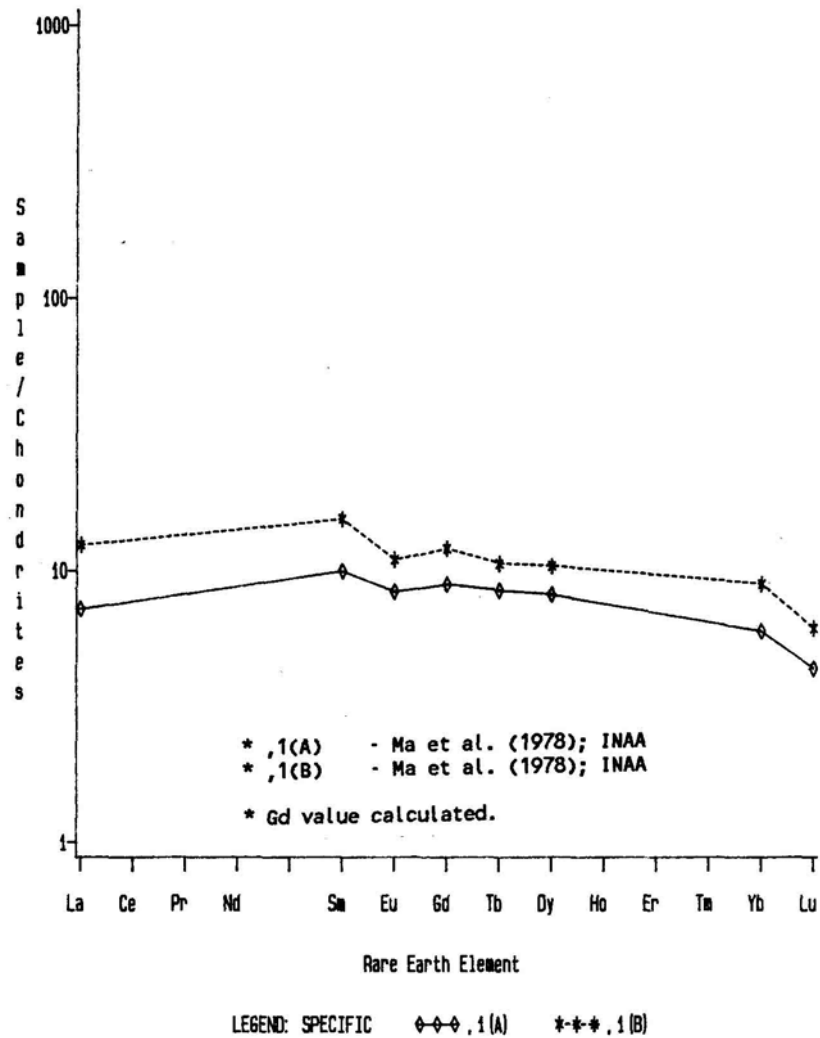


Figure 3. Rare earths in 15639.