

15634 COARSE-GRAINED OLIVINE-NORMATIVE ST. 9A 5.20 g
MARE BASALT

INTRODUCTION: 15634 is a coarse-grained, olivine-bearing mare basalt which contains some vugs but is not vesicular (Fig. 1). The yellow-green olivines are conspicuous macroscopically. In chemistry, the sample is a member (perhaps Mg-rich) of the Apollo 15 olivine-normative mare basalt group. It is tough and has no zap pits. 15634 was collected as part of the rake sample at Station 9A.

PETROLOGY: 15634 is a coarse-grained, olivine-bearing mare basalt, similar to the other coarse-grained members of the group (Fig. 2).



Figure 1. Pre-split view of 15634. S-71-49287

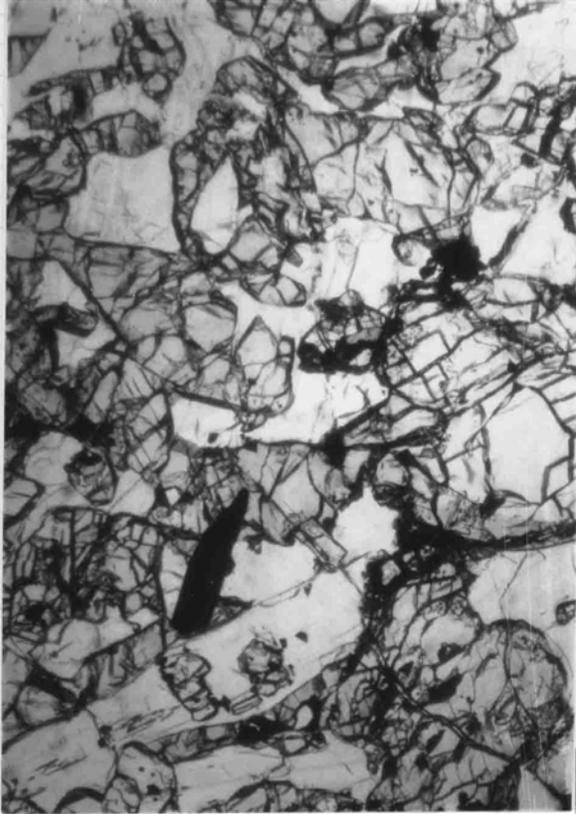


Fig. 2a



Fig. 2b

Figure 2. Photomicrographs of 15634,4.
Widths about 3 mm. a) transmitted light; b) crossed polarizers.

CHEMISTRY: A bulk rock chemical analysis is listed in Table 1 and the rare earths shown in Figure 3. The major element chemistry shows the sample to be an Apollo 15 olivine-normative mare basalt, and the low TiO₂ and (imprecisely-determined) MgO suggest it is an Mg-rich member. The rare earths are 2 to 3 times lower than other members of the group, and on the basis of low values of La/Sm and Sm/Eu, Ma et al. (1978) suggested it was from a flow different from the others.

PHYSICAL PROPERTIES: Gose et al. (1972) and Pearce et al. (1973) reported a natural magnetic intensity (NRM) of 4.1×10^{-6} emu/g for the entire rock (erroneously listed as 15664 in Pearce et al., 1973). This value is typical for Apollo 15 mare basalts.

PROCESSING AND SUBDIVISIONS: In 1977, chipping produced ,1 (3 chips) which was used for chemical analysis and to make thin section ,4. ,0 is now 5.20 g.

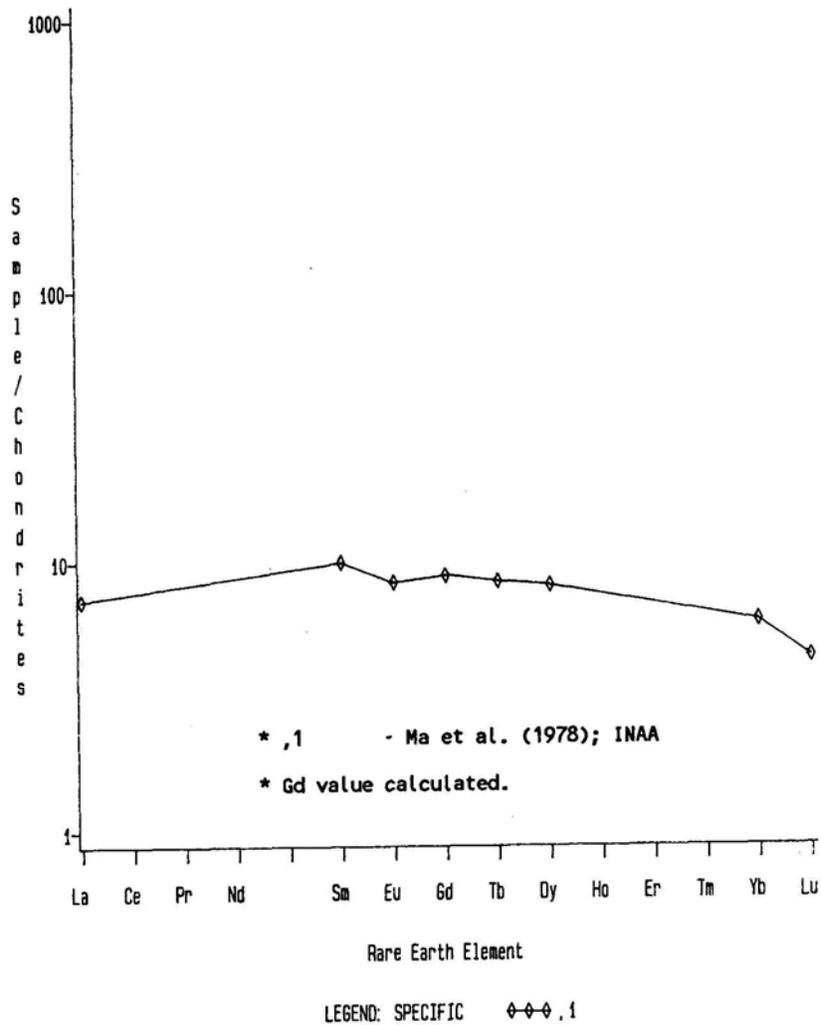


Figure 3. Rare earths in 15634

TABLE 15634-1. Bulk rock chemical analysis

		%
Wt %	SiO ₂	
	TiO ₂	1.5
	Al ₂ O ₃	9.8
	FeO	19.9
	MgO	13
	CaO	9.1
	Na ₂ O	0.269
	K ₂ O	0.020
	P ₂ O ₅	
(ppm)	Sc	38
	V	223
	Cr	4365
	Mn	1155
	Co	55
	Ni	100(a)
	Rb	
	Sr	
	Y	
	Zr	
	Nb	
	Hf	1.1
	Ba	20(b)
	Th	
	U	
	Pb	
	La	2.4
	Ce	
	Pr	
	Nd	
	Sm	1.8
	Eu	0.58
	Gd	
	Tb	0.4
	Dy	2.6
	Ho	
	Er	
	Tm	
	Yb	1.2
	Lu	0.15
	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	150
	W	
	Re	
	Os	
	Ir	
	Pt	
	Au	
	Hg	
	Tl	
Pb		

References and methods:

(1) Ma *et al.* (1978); INRA

Notes:

(a) +50 ppm
 (b) \pm 20 ppm