

78505**High-Ti Mare Basalt****506.3 g, 6.5 x 7.5 x 8.0 cm****INTRODUCTION**

Sample 78505 was collected as part of a soil sample at Station 8. It is a typical ilmenite-rich mare basalt from Apollo 17 (Fig. 1).

PETROGRAPHY

Brown et al. (1975) give the modal mineralogy of 78505 as 0.5% olivine, 21% opaques, 27.7% plagioclase, 47.7% pyroxene, and 1.9% silica (Fig. 2). Warner et al. (1978) refer to this rock as plagioclase-poikilitic ilmenite basalt.

MINERAL CHEMISTRY

The compositions of minerals in 78505 are given in Warner et al. (1978) (Fig. 3). Heiken and Vaniman (1989) studied ilmenite, and Roedder (1979a) studied the melt inclusions in ilmenite in 78505.

WHOLE-ROCK CHEMISTRY

The chemical composition of 78505 is reported in Warner et al. (1975a) (Table 1 and Fig. 4). Keith et al. (1974) have determined the K, U, and Th contents of 78505 (Table 2).

COSMOGENIC RADIOISOTOPES AND EXPOSURE AGES

Keith et al. (1974) have reported the solar flare and cosmic ray induced activity of ^{26}Al , ^{22}Na , ^{54}Mn , ^{56}Co , and ^{46}Sc (Table 2).

Drozdz et al. (1977) have determined an exposure age of 121 m.y. for 78505 using the ^{81}Kr -Kr method.

MAGNETIC STUDIES

Stephenson et al. (1975 and 1977) used 78505 to look for changes in the Moon's magnetic field.

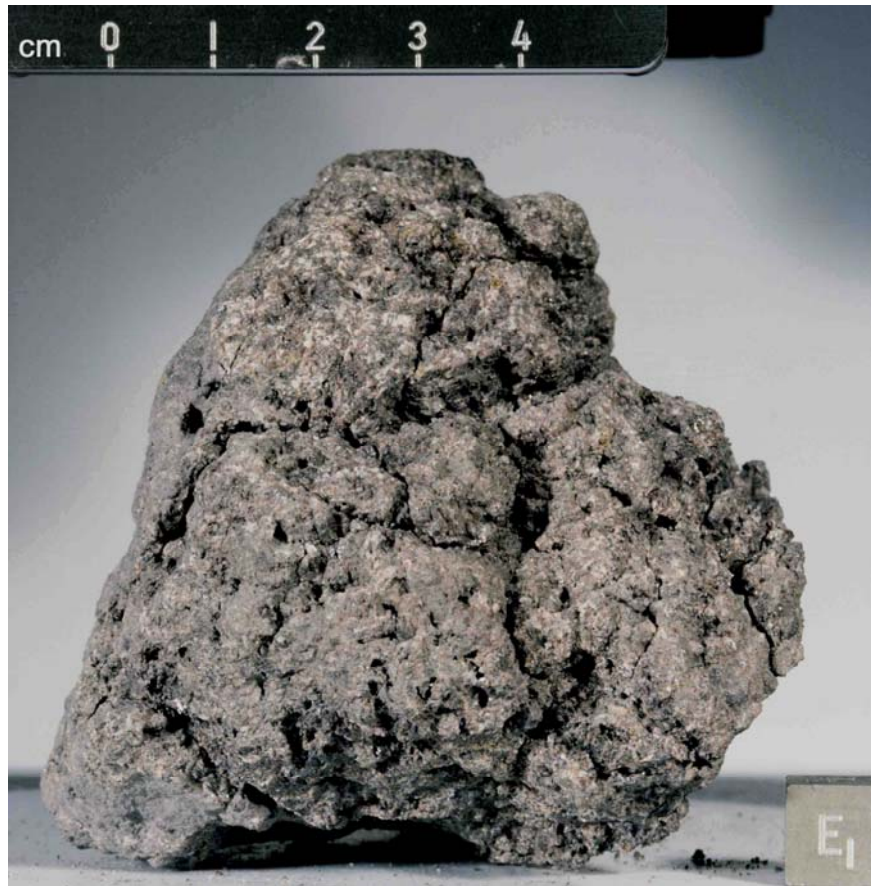


Figure 1: Photograph of 78505. Scale is 1 cm. S73-15384



Figure 2: Photomicrograph of thin section 78505,61. Field of view is 3 x 4 mm.

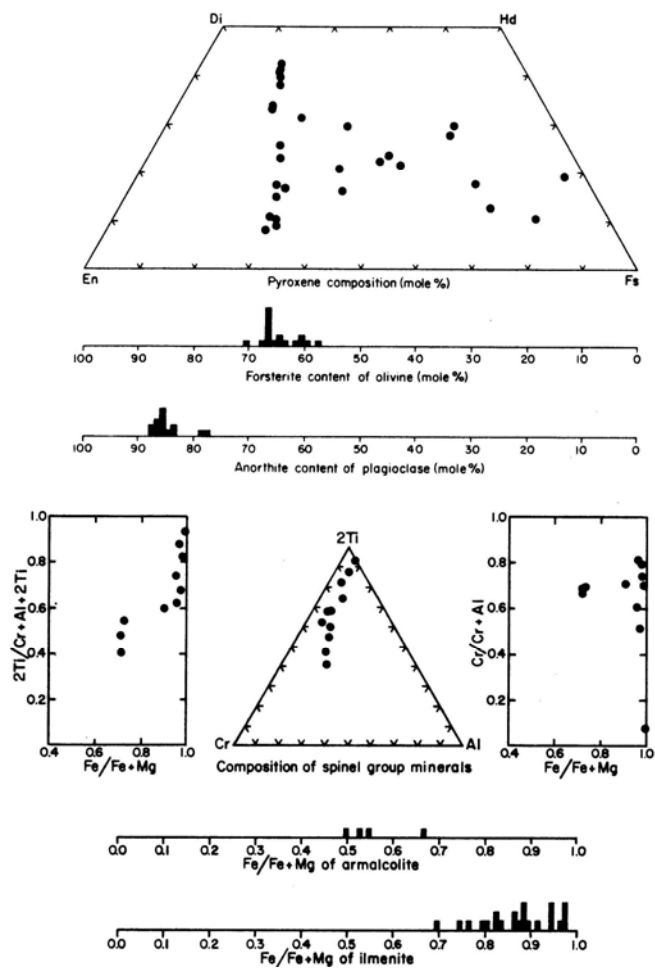


Figure 3: Compositions of minerals in 78505. From Warner et al. (1978).

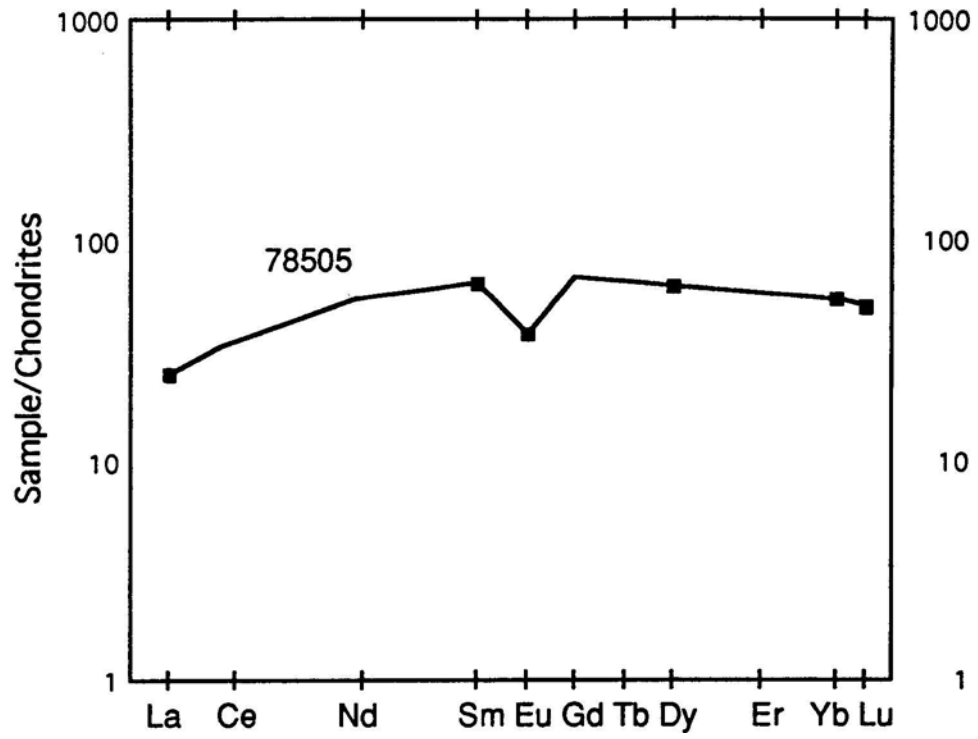


Figure 4: Normalized rare earth element diagram for 78505. Data from Warner et al. (1975a).

Table 1: Whole-rock chemistry of 78505.
From Warner et al. (1975a).

Split Technique	,32 INAA	Split Technique	,32 INAA
SiO ₂ (wt%)	–	La	5.9
TiO ₂	12.0	Ce	
Al ₂ O ₃	10.6	Nd	
Cr ₂ O ₃	0.436	Sm	9.4
FeO	18.6	Eu	2.1
MnO	0.227	Gd	
MgO	9.5	Tb	
CaO	9.9	Dy	15
Na ₂ O	0.458	Er	
K ₂ O	0.07	Yb	8.9
Nb (ppm)		Lu	1.2
Ni		Ge (ppb)	
Co	18.7	Ir	
Sc	74	Au	

Table 2: Solar flare induced activity from large solar flare, August 1972.
From Keith et al. (1974).

	Sample 78505
dpm/Kg	
²⁶ Al	72 ± 10
²² Na	67 ± 8
⁵⁴ Mn	100 ± 6
⁵⁶ Co	59 ± 13
⁴⁶ Sc	45 ± 4
Th (ppm)	.39 ± .05
U (ppm)	.135 ± .012
K (%)	.0508 ± .008