76136

High-Ti Mare Basalt
86.6 g, 6 x 4 x 3 cm

INTRODUCTION

The top of this rock is covered with many large (--0.5 mm) micro-meteorite pits lined with grey glass (Fig. 1). Several large crystal-lined cavities occur in this basalt. This rock is a typical Apollo 17 basalt fragment.

PETROGRAPHY

Sample 76136 consists of large, randomly-oriented ilmenite plates in a fine-grained holocrystalIine matrix with -6% equant olivine rimmed by blocky pyroxene. The pyroxene-plagioclase matrix varies from crudely variolitic (or sheath-like) to intersertal in texture (Fig. 2).

Brown et al. (1975) report the mineral mode of 76136 to be 15% plagioclase, 46% clinopyroxene, 6% olivine, 31% opaques, and 1.5% silica.

WHOLE-ROCK CHEMISTRY

Rhodes et al. (1976a) define three self-consistent basalt types at Apollo 17 on the basis of fine-grained, rapidly chilled samples. The chemical variation within each group is attributed to moderate amounts (5-20%) of crystal fractionation dominated by removal of olivine, armalcolite/ilmenite, and chrome spinel. Table 1 gives the composition, and Fig. 3 compares the REE content of 76136 with the soil and the boulder.

RADIOGENIC ISOTOPES

Nyquist et al. (1976) report whole-rock Rb-Sr data (Table 2).

Figure 1: Micrometeorite craters on surface of 76136, ilmenite basalt. S73-23931.

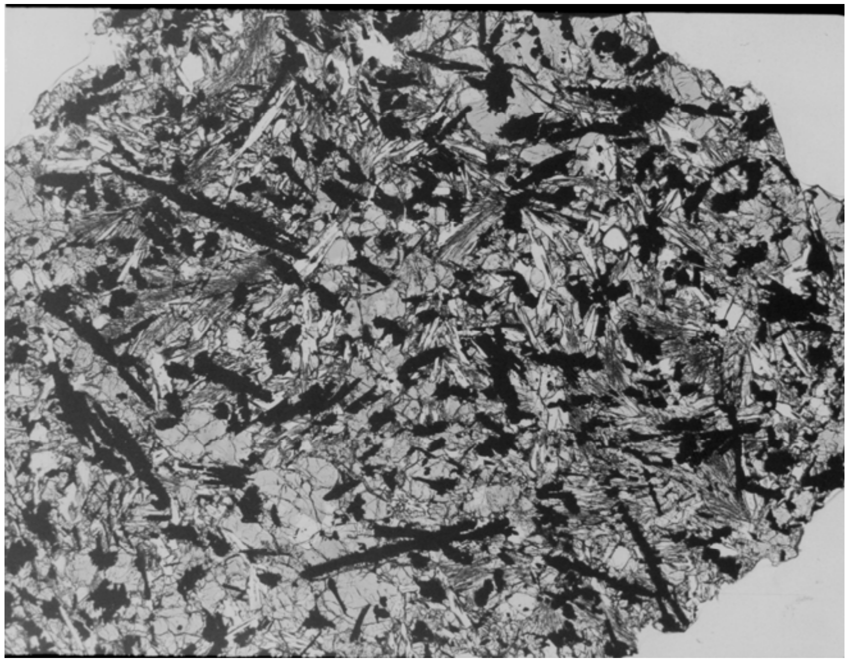

Figure 2: Photomicrograph of texture of 76136 basalt. Field of view is 4 x 5 mm.

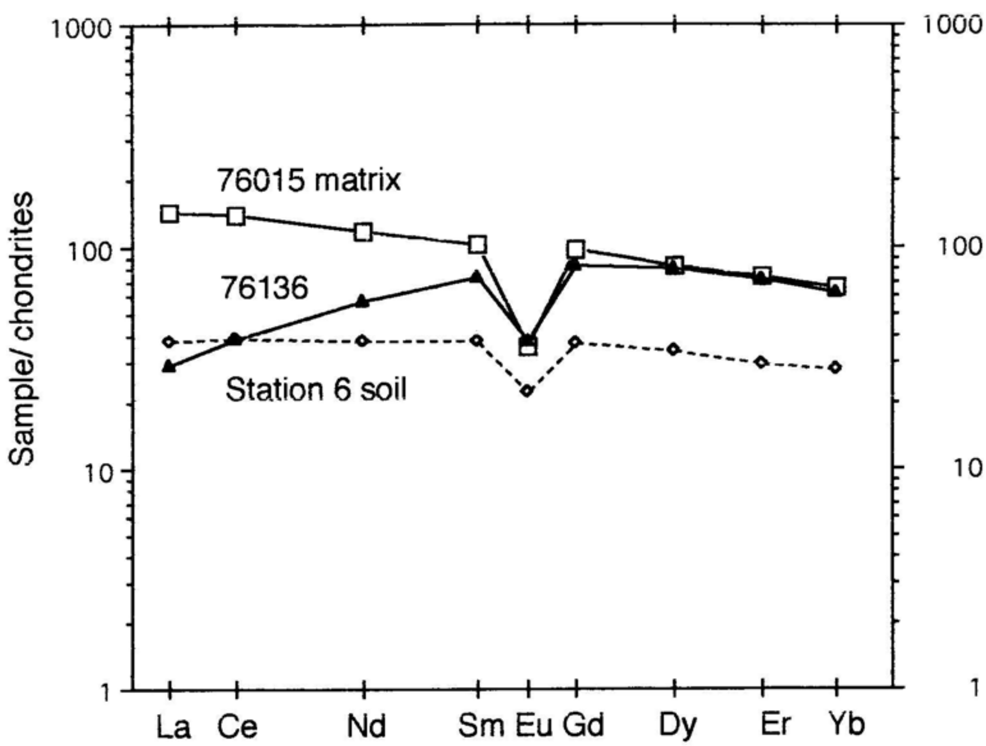

Figure 3: Normalized rare earth element composition of 76136 compared with soil and boulder at Station 6.

Table 1: Whole-.rock chemistry of 76136.
From Rhodes et al. (1976a).

Split Technique	,8 XRF, ID, *INAA*	Split Technique	,8 XRF, ID, *INAA*
SiO_2 (wt%)	38.60	Li	8.9
TiO_2	12.64	Ba	83.7
Al_2O_3	8.65	Ni	
Cr_2O_3	0.44	Co	*18.7*
FeO	19.12	Sc	*82*
MnO	0.28	La	6.91
MgO	8.61	Ce	23.8
CaO	10.53	Nd	26.2
Na_2O	0.38	Sm	10.9
K_2O	0.06	Eu	2.14
P_2O_5	0.06	Gd	16.4
S	0.18	Tb	
Nb (ppm)		Dy	19.3
Zr		Er	11.4
Hf	*9.4*	Yb	10.2
Sr	190	Lu	*1.42*
Rb	0.67		

Table 2: Rb-Sr composition of 76136.
Data from Nyquist et al. (1976).

Sample	76136,8
wt (mg)	60
Rb (ppm)	0.665
Sr (ppm)	190
$^{87}Rb/^{86}Sr$	0.0101 ± 2
$^{87}Sr/^{86}Sr$	0.69974 ± 4
T_B	4.42 ± 0.36
T_L	4.89 ± 0.36

B = Model age assuming I = 0.69910 (BABI + JSC bias)
L = Model age assuming I = 0.69903 (Apollo 16 anorthosites for T = 4.6 b.y.)