

**78526****Green Glass Vitrophyre****8.77 g, 2.2 x 1.6 x 1.6 cm****INTRODUCTION**

Sample 78526 was collected as part of the large rake sample at Station 8 (Keil et al., 1974). It is a very primitive volcanic glass, with very low Ti and REE contents.

**PETROGRAPHY**

Butler (1973) described this sample as a "mixture of coherent grey breccia disrupted by numerous veins of pale green glass" (Fig. 1). A thin section of the glass shows that needles and chains of olivine and pyroxene have started to grow (Fig. 2). Warner et. al. (1978f) find that two textural domains are prevalent in the glass. One has feathery pyroxene and acicular, chain olivine and pyroxene; the other has abundant small "hopper" olivine and tiny

chromite euhedra. Relic grains of olivine, pigeonite, plagioclase, chromite, and metal are present in the glass, and two types of very low Ti (VLT) mare basalt are present as lithic clasts.

Waxier et al. (1978a) have studied 78526 carefully and have concluded that it was formed as an impact melt that mixed at least two very different town basalts.

Papike and Vaniman (1978) classify this glass as a VLT basalt.

**MINERAL CHEMISTRY**

The compositions of minerals in 78526 have been reported by Warner et al. (1978f) (Fig. 3). Plagioclase is almost pure anorthite.

Warner et al. (1978a) report that metal grains have a range in composition: in the porphyritic lithology, 1.0-6.7% Ni and 1.3-2.8% Co; in the granular lithology, 0.8 -1.6% Ni and 1.0-1.4% Co; and individual grains in the glass, 1.2-18.9% Ni and 1.0-3.4% Co. None of the metal in 78256 appears to be of meteoritic origin, as all the grains analyzed by Warner et al. contain >1 wt % Co.

**WHOLE-ROCK CHEMISTRY**

Laul and Schmitt (1975c) have reported the chemical composition of 78526 (Table 1 and Fig. 4). In 1977, Murali et al. repeated the analysis and got identical results. Hughes and Schmitt (1985) have used the composition of 78526 to discuss the

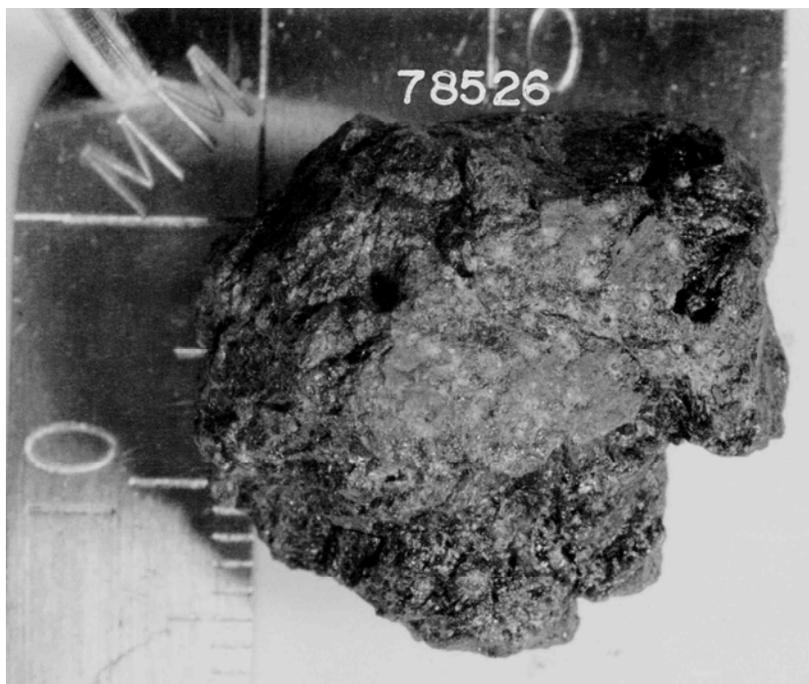


Figure 1: Photograph of 78526. Scale is 1 cm. S73-33667.

Zr-Hf-Ta fractionation during lunar evolution.

Jovanovic and Reed (1978) have determined Cl, Br, I, U, and P in 78526.

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### SIGNIFICANT CLASTS

Small clasts of VLT basalt are included in the glass. In hand specimen, large clasts of basalt appear to be present. At the time of cataloging, 78526 is being actively studied by R Warren and M. Tatsumoto.

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### SURFACE STUDIES

The surface of 78526 has many micrometeorite craters.

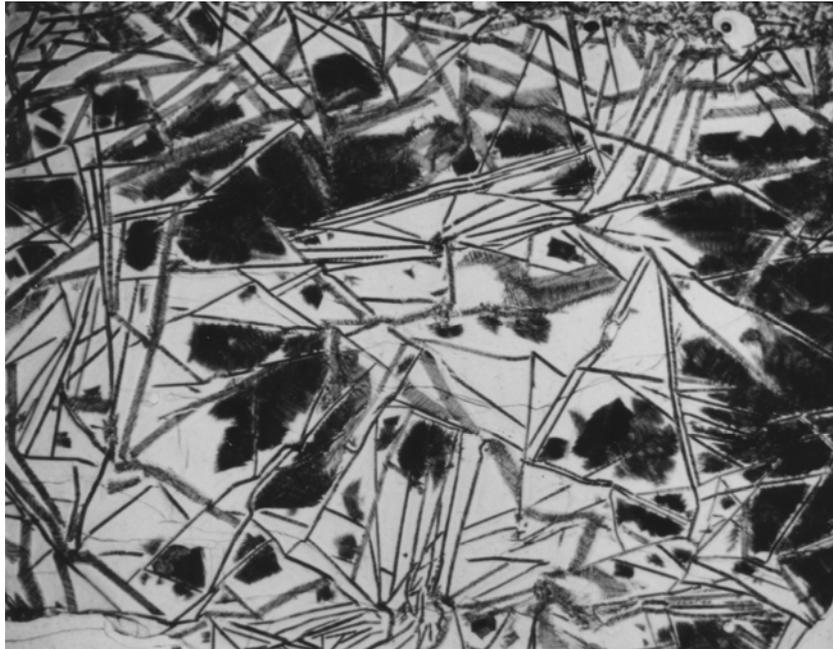


Figure 2: Photomicrograph of thin section 78526,18. Field of view is 3 x 4 mm.

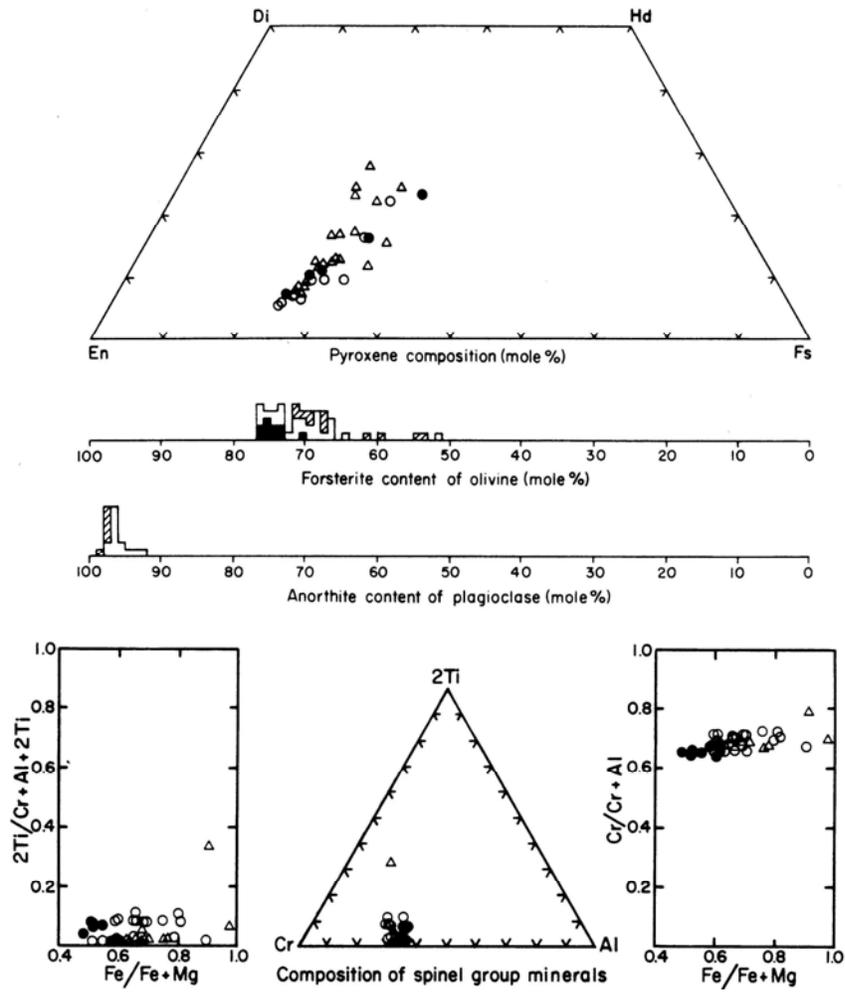


Figure 3: Compositions of minerals in 78526. From Warner et al. (1978a and f).

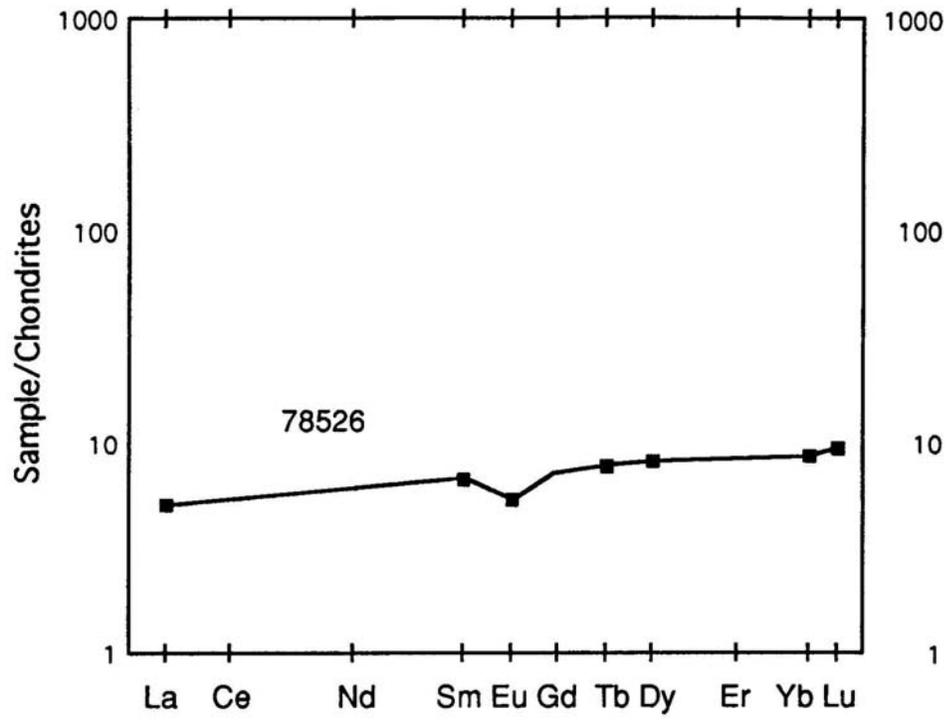


Figure 4: Normalized rare earth element diagram for 78526. Data from Laul and Schmitt (1975).

**Table 1: Whole-rock chemistry of 78526.**  
a) Laul and Schmitt (1975c); b) Murali et al. (1977a)

<b>Split Technique</b>	<b>,1 (a) INAA</b>	<b>,6 (b) INAA</b>
SiO <sub>2</sub> (wt%)	–	–
TiO <sub>2</sub>	0.8	1.1
Al <sub>2</sub> O <sub>3</sub>	11.1	10.7
Cr <sub>2</sub> O <sub>3</sub>	0.74	1.02
FeO	17.4	17.6
MnO	0.261	0.278
MgO	11	12
CaO	10	9.7
Na <sub>2</sub> O	0.15	0.16
K <sub>2</sub> O	0.02	0.015
Nb (ppm)		
Zr	–	226
Hf	0.5	0.7
Ta	0.06	
Ni	–	
Co	45.4	44
Sc	51	48
La	1.2	1.3
Ce	–	
Nd	–	
Sm	1	1.1
Eu	0.3	0.25
Gd		
Tb	0.28	0.27
Dy	2	1.8
Er		
Yb	1.4	1.4
Lu	0.23	0.24
Ge (ppb)		
Ir		
Au		