

12041

Soil

19.3 grams

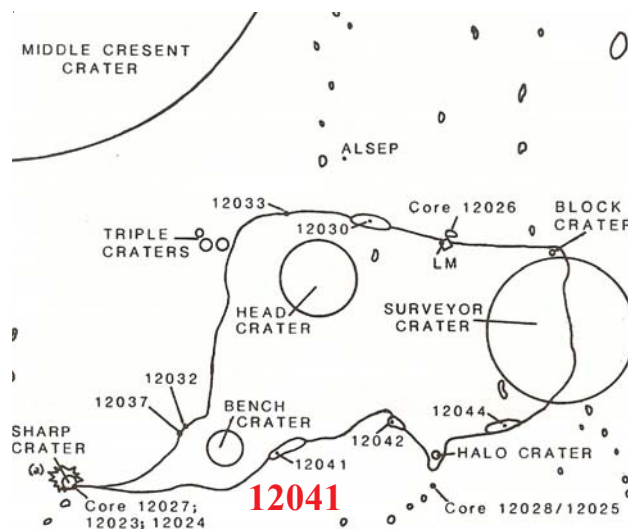


Figure 1: Map of Apollo 12 site with location of 12041.

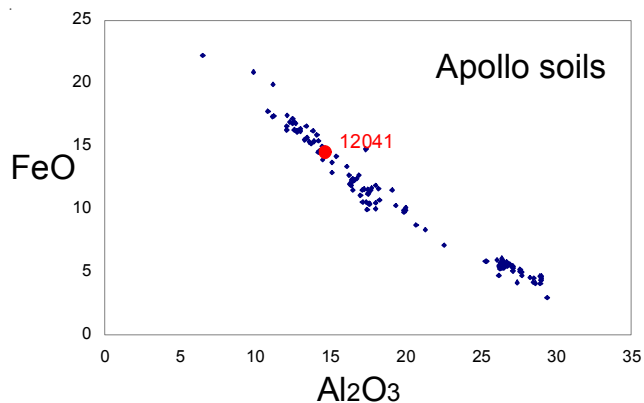


Figure 2: Composition of 12041 compared with other Apollo soil samples.

Introduction

12041 are fines collected along with a glass bead from Bench Crater and returned in documented bag #11.

Petrography

The maturity index for 12041 is $I_s/FeO = 63$ (Morris 1987), the average grain size is 43 microns and there is a large percentage of agglutinates, so this is a mature soil.

Frondel et al. (1971) determined the mineral mode but did not specify agglutinates. Marvin (1978) cataloged the coarse particles.

The glass bead may be split, 4, which has apparently not been studied. The glass bead has been reported as 6.4 mm in diameter (Graf 1993).

Chemistry

The only analysis is by Frondel et al. (1971).

Other Studies

Arrhenius et al. (1971) studied the frequency of grains with high fossil nuclear tracks in 12041 (and all other Apollo 12 soil and core samples)(see diagram in 12070).

Processing

The initial weight of this sample was 24.8 grams, while the inventory weight is now 19.3 grams!

Mineralogical Mode (250-1000 microns)

McKay et al. (1971)

Glazed	
Aggregates	30 %
Single xtl.	14
Glasses	37
Rocks	6
Breccias	13
Spherules	-

Mineralogical Mode

Frondel et al. 1971

Olivine +	
Pyroxene	57.6 %
Plagioclase	17.8
Opagues	9.8
Glass, angular	10.8
Glass, rounded	3.8
Silica	

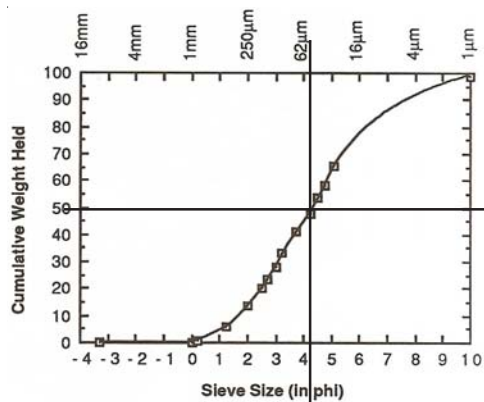
Table 1. Chemical composition of 12041.

reference	Frondel71	
weight		
SiO2 %	46.8	(a)
TiO2	2.7	(a)
Al2O3	15.4	(a)
FeO	14.2	(a)
MnO	0.2	(a)
MgO	9.1	(a)
CaO	10.9	(a)
Na2O	0.43	(a)
K2O	0.25	(a)
P2O5		
S %		
sum		
Sc ppm		
V		
Cr	1847	(a)

Mineralogical Mode

McKay et al. 1971

Grain size	37-62.5	62.5-125
Olivine	4 %	2
Pyroxene	26	13
Plagioclase	7	1
Glass	15	23
Aggregates	39	58



average grain size = 43 microns

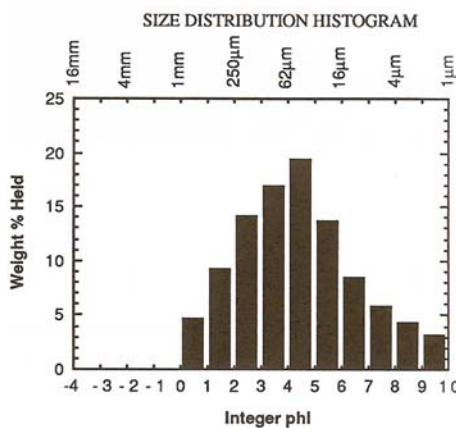
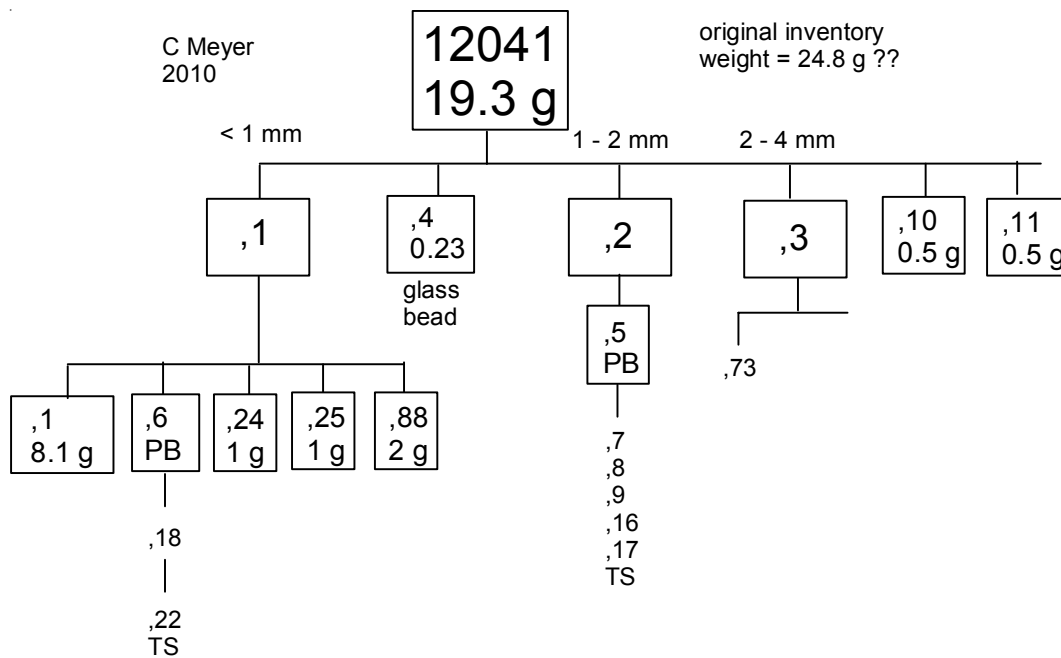


Figure 3: Grain size distribution for 12041 (Graf 1993, from data by King et al. 1971).



References for 12041

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