

75121
Soil
375 grams

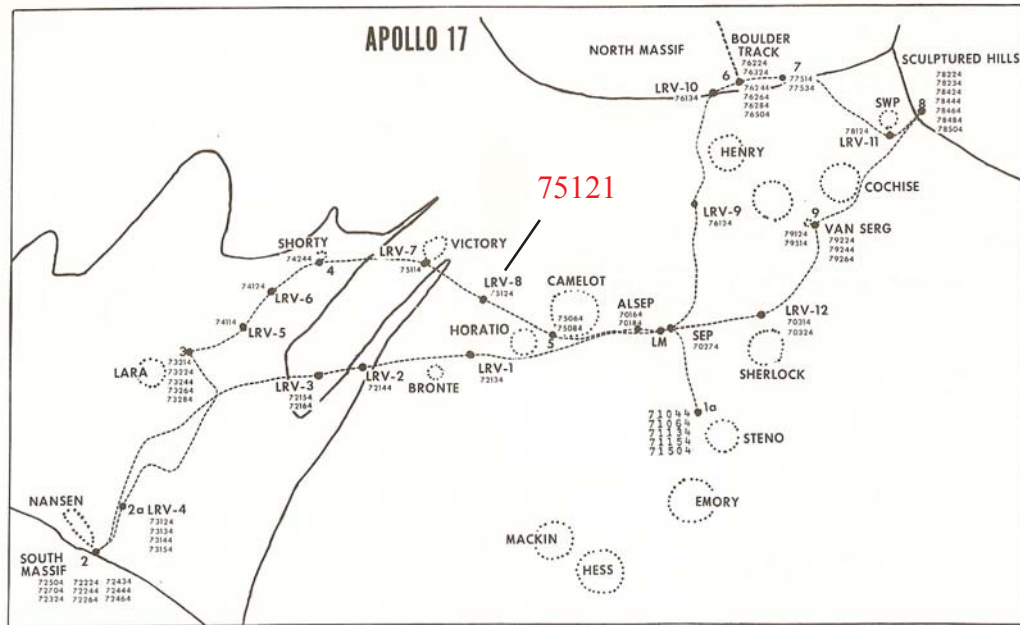


Figure 1: Location of soil sample 75121 at LRV-8 on Apollo 17 map (Meyer 1973). S73-24071

Introduction

75120 was scooped from the lunar regolith at LRV – 8 (while driving at high speed). It is nothing more than a typical mare soil.

Petrography

The maturity of 75121 is $I_s/FeO = 67$ and the average grain size is 56 microns (Morris 1978, Graf 1993). The agglutinate count is very high (63%).

Chemistry

For some reason or other Korotev and Kremser (1992) decided to analyze it (figures 2 and 5).

Moore et al. (1974) determined 145 ppm carbon (figure 4) and Gibson and Moore (1974) reported 1140 ppm sulfur.

Modal content of soil 75121 (90-150 micron).

From Heiken and McKay 1974.

| | |
|--------------|-------|
| | 75121 |
| Agglutinates | 63 % |
| Basalt | 8 |
| Breccia | 6 |
| Anorthosite | |
| Norite | |
| Gabbro | |
| Plagioclase | 4 |
| Pyroxene | 8.7 |
| Olivine | |
| Ilmenite | 0.7 |
| Orange glass | 3 |
| Glass other | 5.4 |

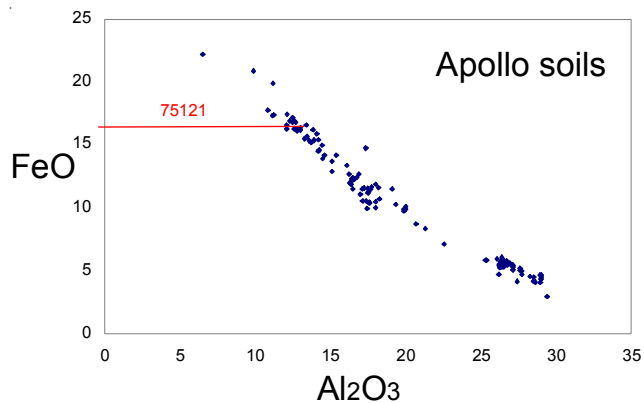


Figure 2: FeO content of 75121 compared with composition of other Apollo soil samples.

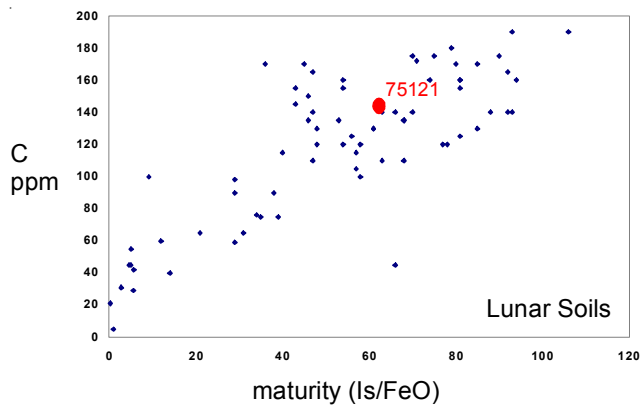
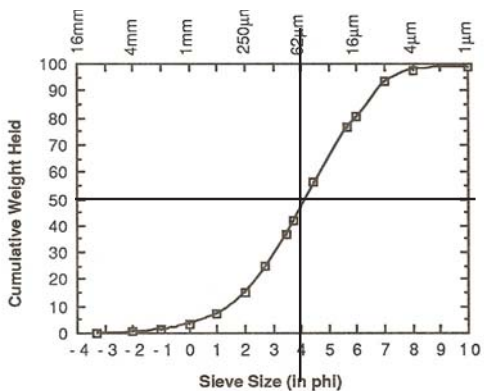


Figure 3: Carbon content and maturity of 75121 compared with other soils.



average grain size = 56 microns

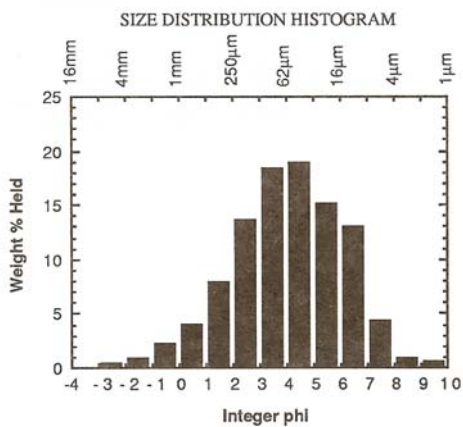


Figure 4: Grain size distribution of 75120 (Graf 1993, data from McKay).

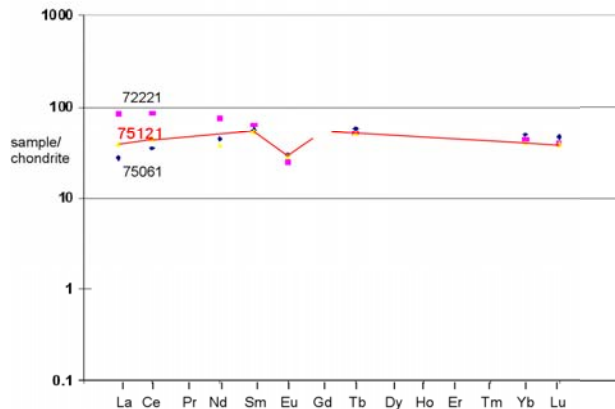
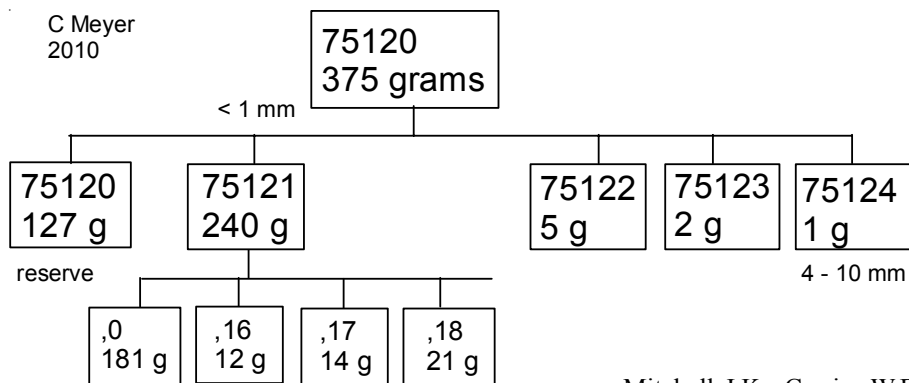


Figure 5: Normalized rare-earth-element diagram for 75121 compared with mare and highland soils from Apollo 17.

Table 1. Chemical composition of 75121.

| | | |
|--------------------------------|-----------|-----|
| <i>reference</i> | Korotev92 | |
| <i>weight</i> | | |
| SiO ₂ % | | |
| TiO ₂ | | |
| Al ₂ O ₃ | | |
| FeO | 16 | (a) |
| MnO | | |
| MgO | | |
| CaO | | |
| Na ₂ O | 0.398 | (a) |
| K ₂ O | | |
| P ₂ O ₅ | | |
| S % | | |
| <i>sum</i> | | |
| Sc ppm | 49.9 | (a) |
| V | | |
| Cr | 2900 | (a) |
| Co | 38.2 | (a) |
| Ni | 220 | (a) |
| Cu | | |
| Zn | | |
| Ga | | |
| Ge ppb | | |
| As | | |
| Se | | |
| Rb | | |
| Sr | 210 | |
| Y | | |
| Zr | 130 | (a) |
| Nb | | |
| Mo | | |
| Ru | | |
| Rh | | |
| Pd ppb | | |
| Ag ppb | | |
| Cd ppb | | |
| In ppb | | |
| Sn ppb | | |
| Sb ppb | | |
| Te ppb | | |
| Cs ppm | | |
| Ba | 124 | (a) |
| La | 9.07 | (a) |
| Ce | 26.6 | (a) |
| Pr | | |
| Nd | 17 | (a) |
| Sm | 7.84 | (a) |
| Eu | 1.59 | (a) |
| Gd | | |
| Tb | 1.82 | (a) |
| Dy | | |
| Ho | | |
| Er | | |
| Tm | | |
| Yb | 6.41 | (a) |
| Lu | 0.922 | (a) |
| Hf | 6.65 | (a) |
| Ta | 1.06 | (a) |
| W ppb | | |
| Re ppb | | |
| Os ppb | | |
| Ir ppb | 12 | (a) |
| Pt ppb | | |
| Au ppb | 4.5 | (a) |
| Th ppm | 1.1 | (a) |
| U ppm | 0.53 | (a) |
| <i>technique:</i> | (a) INAA | |



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