

**15287**  
Regolith Breccia  
44.9 grams



Figure 1 a, b: Two views of 15287. Sample is 3 - 4 cm across. S71-44537 and 535.

**Introduction**

15287 was collected from the surface close by the small boulder that yielded 15265. These samples are from station 6 on the lower slope of the Apennine Front (figure 2).

**Petrography**

15287 is a coherent regolith breccia with zap pits on one side. McKay et al. (1989) reported that the maturity index is  $I_s/FeO = 28$  and that there is an abundance of agglutinates. It is porous, with abundant glass particles including green glass. Lithic clasts include mare basalt and KREEP basalt. A thin section photomicrograph is found in the catalog by Ryder (1985).

**Chemistry**

The composition of 15287 is like that of 15265 and the other breccias of this cluster. It is higher in trace elements than the surrounding soil (figure 4).

**Other Studies**

Bogard (in McKay et al. 1989) reported the rare gas content and isotopes.

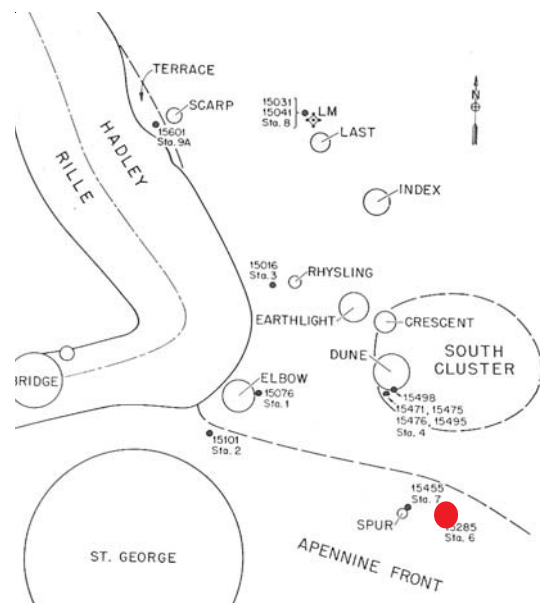


Figure 2: Location of 15287 on lower slope of Apennine Front.

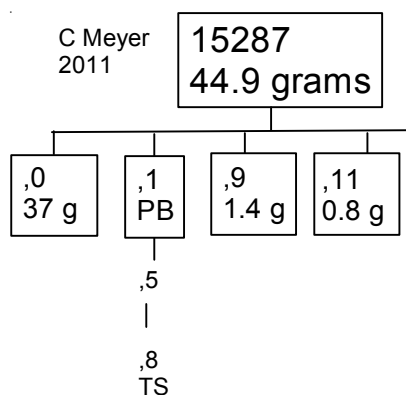
## Mineralogical Mode for 15287

(McKay et al. 1989)

	20-500 micron	500-1000 micron
Mare Basalt	0.3 %	4.3 %
KREEP basalt	2.7	2.1
Plutonic	3	0
Breccias	2	23.4
Olivine	1	0
Pyroxene	16	0
Plagioclase	17	4.3
Opacues	0	0
Glass	14	23.4
Agglutinates	25	36.2

## Processing

15285, 15286, 15287, 15288, 15289 and also 15268 were returned together in documented bag 192 and may be pieces of the same material. There are 4 thin sections.



## References for 15287

Butler P. (1971) Lunar Sample Catalog, Apollo 15. Curators' Office, MSC 03209

LSPET (1972a) The Apollo 15 lunar samples: A preliminary description. *Science* 175, 363-375.

LSPET (1972b) Preliminary examination of lunar samples. Apollo 15 Preliminary Science Report. NASA SP-289, 6-1—6-28.

McKay D.S., Morris R.V. and Wentworth S.J. (1984) Maturity of regolith breccias as revealed by ferromagnetic and petrographic indices (abs). *Lunar Planet. Sci.* XV, 530-531. Lunar Planetary Institute, Houston.

McKay D.S., Bogard D.D., Morris R.V., Korotev R.L., Wentworth S.J. and Johnson P. (1989) Apollo 15 regolith breccias: Window to a KREEP regolith. *Proc. 19<sup>th</sup> Lunar Sci. Conf.* 19-41. Lunar Planetary Institute, Houston.

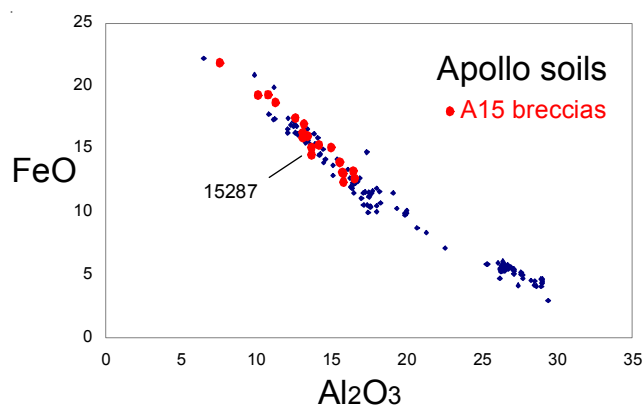


Figure 3: Composition of 15287 compared with Apollo soils and Apollo 15 breccias.

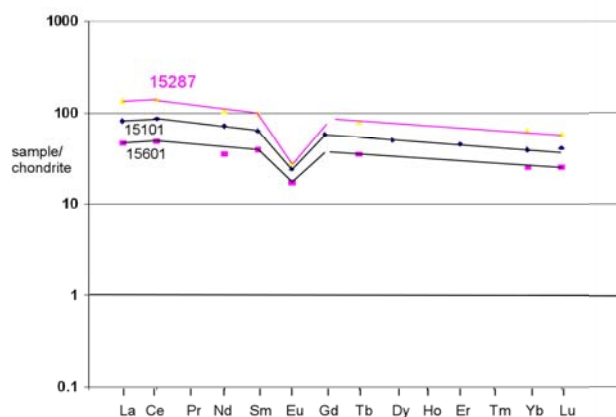


Figure 4: Normalized rare-earth-element diagram for 15287 and Apollo 15 soils.

Ryder G. (1985) Catalog of Apollo 15 Rocks (three volumes). Curatorial Branch Pub. # 72, JSC#20787

Swann G.A., Hait M.H., Schaber G.C., Freeman V.L., Ulrich G.E., Wolfe E.W., Reed V.S. and Sutton R.L. (1971b) Preliminary description of Apollo 15 sample environments. U.S.G.S. Interagency report: 36. pp219 with maps

Swann G.A., Bailey N.G., Batson R.M., Freeman V.L., Hait M.H., Head J.W., Holt H.E., Howard K.A., Irwin J.B., Larson K.B., Muehlberger W.R., Reed V.S., Rennilson J.J., Schaber G.G., Scott D.R., Silver L.T., Sutton R.L., Ulrich G.E., Wilshire H.G. and Wolfe E.W. (1972) 5. Preliminary Geologic Investigation of the Apollo 15 landing site. In Apollo 15 Preliminary Science Rpt. NASA SP-289. pages 5-1-112.

**Table 1. Chemical composition of 15287.**

<i>reference</i>	McKay89	
<i>weight</i>		
SiO <sub>2</sub> %		
TiO <sub>2</sub>	2.03	(a)
Al <sub>2</sub> O <sub>3</sub>	13.9	(a)
FeO	13	(a)
MnO	0.18	(a)
MgO	9.3	(a)
CaO	10.1	(a)
Na <sub>2</sub> O	0.62	(a)
K <sub>2</sub> O		
P <sub>2</sub> O <sub>5</sub>		
S %		
<i>sum</i>		
Sc ppm	26.4	(a)
V	83	(a)
Cr	2410	(a)
Co	29	(a)
Ni	75	(a)
Cu		
Zn		
Ga		
Ge ppb		
As		
Se		
Rb		
Sr	130	(a)
Y		
Zr	740	(a)
Nb		
Mo		
Ru		
Rh		
Pd ppb		
Ag ppb		
Cd ppb		
In ppb		
Sn ppb		
Sb ppb		
Te ppb		
Cs ppm	0.48	(a)
Ba	512	(a)
La	31.7	(a)
Ce	84	(a)
Pr		
Nd	48	(a)
Sm	14.4	(a)
Eu	1.57	(a)
Gd		
Tb	2.82	(a)
Dy		
Ho		
Er		
Tm		
Yb	10.2	(a)
Lu	1.41	(a)
Hf	12	(a)
Ta	1.4	(a)
W ppb		
Re ppb		
Os ppb		
Ir ppb	6.8	(a)
Pt ppb		
Au ppb	3	(a)
Th ppm	5.6	(a)
U ppm	1.3	(a)
<i>technique:</i>	(a) INAA	