



Simulant Name: LMS-1 Mare Simulant
Simulant Type: General purpose
Reference Material: Average lunar maria
Uncompressed Bulk Density: 1.56 g/cm³
Median Particle Size: 112 μm
Particle Size Range: <0.04 μm – 1000 μm



Geotechnical Properties

¹**Angle of Repose:** 36.9°
²**Cohesion:** 0.393 kPa
²**Angle of Internal Friction:** 34.84°

Geotechnical Property Sources

¹⁻²[Geomechanical properties of lunar regolith simulants LHS-1 and LMS-1 \(shopify.com\)](https://shopify.com)

Mineralogy

As mixed.

Component	Wt.%
Bronzite	32.8
*Glass-rich Basalt	32.0
Anorthosite	19.8
Olivine	11.1
Ilmenite	4.3

*Glass-rich basalt sourced from Merriam Crater. This is the same source as JSC-1 lunar simulant.

Bulk Chemistry

³Relative abundances. Measured by XRF.

Oxide	Wt.%
SiO ₂	48.22
TiO ₂	2.70
Al ₂ O ₃	12.40
FeO	8.79
MnO	0.06
MgO	15.97
CaO	7.65
Na ₂ O	1.73
K ₂ O	0.42
P ₂ O ₅	0.23
LOI	0.56
Total	98.87

³ [\(PDF\) Characterization of planetary regolith simulants for the research and development of space resource technologies \(researchgate.net\)](https://researchgate.net)



Particle Size Distribution

Using a combination of laser and sieve analysis

