



Simulant Name: MGS-1 Mars Global Simulant

Simulant Type: General Purpose

Reference Material: Rocknest soil

Publication: Cannon et al. 2018

Bulk Density: 1.29 g/cm³

Default Particle Size: 0-1 mm



Mineralogy

Weight percent, as mixed.

Plagioclase	27.1	Hydrated silica	3.0
Basaltic glass	22.9	Magnetite	1.9
Pyroxene	20.3	Anhydrite	1.7
Olivine	13.7	Fe-carbonate	1.4
Mg-sulfate	4.0	Hematite	0.5
Ferrihydrite	3.5		

Bulk Chemistry

Weight percent, as measured by XRF.

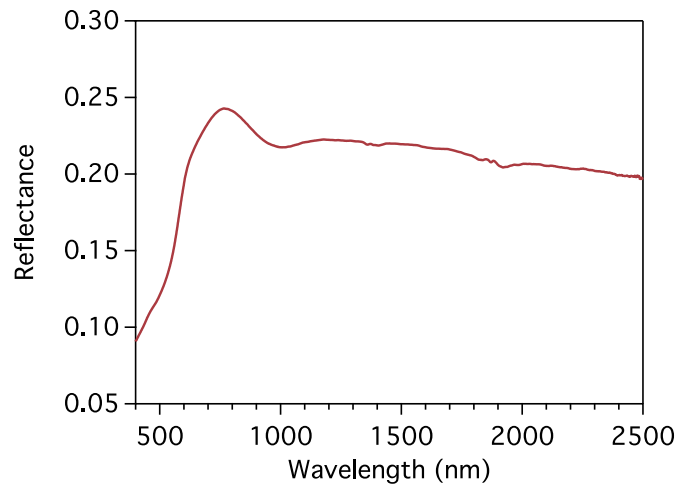
SiO ₂	45.57	CaO	4.03
TiO ₂	0.30	Na ₂ O	3.66
Al ₂ O ₃	9.43	K ₂ O	0.43
Cr ₂ O ₃	0.12	P ₂ O ₅	0.37
FeO _T	16.85	SO ₃	2.63
MgO	16.50	MnO	0.1

Safety Information

See SDS for details. Primary hazard is dust inhalation; wear a respirator in dusty conditions.

Reflectance Spectrum

As measured on an ASD Fieldspec at 30° incidence and 0° emergence angles.



Volatile Release Pattern

As measured on a SAM-analog TG/EGA instrument at JSC. Total evolved water <500° C is 3.2 wt.%.

