



Simulant Name: MGS-1 Mars Global Simulant

Simulant Type: General Purpose

Reference Material: Rocknest soil

Publication: Cannon et al. 2019

Icarus 317, 470-478

Bulk Density: 1.29 g/cm³

Particle Size Range: 0-1 mm

Mean Particle Size: Data coming soon



Mineralogy

Weight percent, as mixed.

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

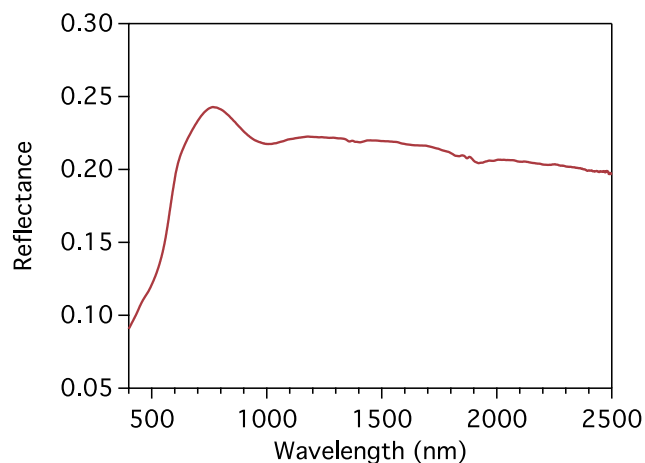
Bulk Chemistry

Weight percent, as measured by XRF.

SiO ₂	45.6
TiO ₂	0.3
Al ₂ O ₃	9.4
Cr ₂ O ₃	0.1
FeO _T	16.9
MnO	0.1
MgO	16.5
CaO	4.0
Na ₂ O	3.7
K ₂ O	0.4
P ₂ O ₅	0.4
SO ₃	2.6
Total	100.0

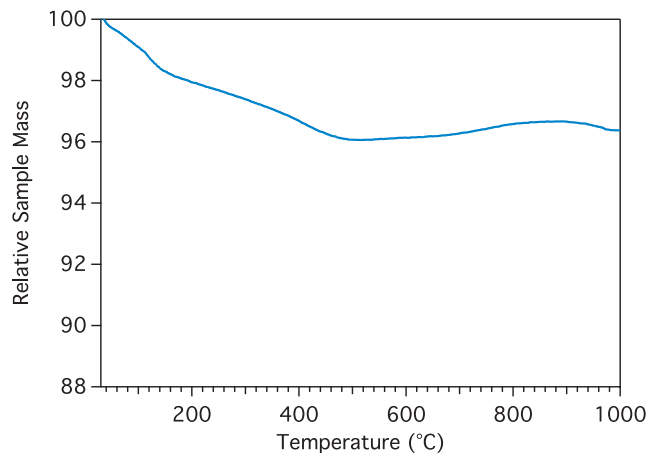
Reflectance Spectrum

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 at 200° C is 2.1 wt.%.



Safety Information

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