



Simulant Name: MGS-1S Sulfate ISRU

Simulant Type: Water extraction applications

Reference Material: M-WIP Reference Case B

Publication: Cannon et al. 2019

Icarus 317, 470-478

Bulk Density: Data coming soon

Particle Size Range: 0-1 mm



Mineralogy

Weight percent, as mixed.

Gypsum	40.0
Plagioclase	16.4
Basaltic glass	13.7
Pyroxene	12.2
Olivine	8.2
Mg-sulfate	2.4
Ferrihydrite	2.1
Hydrated silica	1.8
Magnetite	1.1
Anhydrite	1.0
Fe-carbonate	0.8
Hematite	0.3

Bulk Chemistry

Weight percent, as measured by XRF.

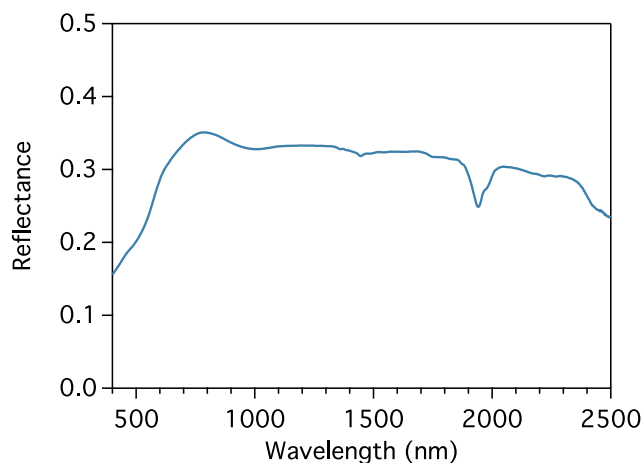
SiO ₂	29.3
TiO ₂	0.3
Al ₂ O ₃	6.4
Cr ₂ O ₃	0.1
FeO _T	11.3
MnO	0.1
MgO	16.2
CaO	14.8
Na ₂ O	2.1
K ₂ O	0.5
P ₂ O ₅	0.3
SO ₃	18.7
Total	100.1

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 at 200° C is 7.8 wt.%.

