

Planetary Simulant Database

Loose guidelines for simulant fidelity

| Category | Moon (highlands) | Moon (mare) | Mars | Asteroid/Comet /Phobos |
|------------------|---|---|---|---|
| Basic | Single rock type or non-relevant minerals. May not accurately re-produce chemistry, mineralogy, or geotechnical properties of reference material. | Single rock type or non-relevant minerals. May not accurately re-produce chemistry, mineralogy, or geotechnical properties of reference material. | Single rock type or non-relevant minerals. May not accurately re-produce chemistry, mineralogy, or geotechnical properties of reference material. | Single rock type or non-relevant minerals. May not accurately re-produce chemistry, mineralogy, or geotechnical properties of reference material. |
| Standard | Crushed anorthosite with or without extra components, crushed to a lunar-like particle size distribution. | Basaltic material with or without extra components, crushed to a lunar-like particle size distribution. | Basaltic feedstock (or individual silicates) mixed with secondary oxides and/or salts. | Either the mineralogy or the physical properties are highly accurate. |
| Enhanced | Material that meets the "Standard" definition and has synthetic agglutinates added (not just glass). | Material that meets the "Standard" definition and has synthetic agglutinates added (not just glass). | Simulant with completely accurate mineralogy and a representative particle size distribution. | Both the mineralogy and physical properties are highly accurate. |
| Specialty | Includes dust simulants, and simulants that replicate features including volatiles, nanophase iron, etc. | Includes dust simulants, and simulants that replicate features including volatiles, nanophase iron, etc. | Includes dust simulants, and simulants that replicate features including volatiles, nanophase iron, etc. | Includes dust simulants, and simulants that replicate features including volatiles, nanophase iron, etc. |