

## Descriptive Petrographic Terms

Allotriomorphic Granular	A granular texture in which most grains are anhedral.
Anorthite	A white to gray triclinic mineral of the plagioclase feldspar group. Anorthite is the plagioclase mineral that is richest in calcium and occurs in alkaline igneous rocks such as gabbro. Chemical formula: $\text{CaAl}_2\text{Si}_2\text{O}_8$ .
Anorthosite	An igneous rock made up almost entirely of plagioclase feldspar. This rock dominates the lunar highlands.
Aphanite	Texture: crystals not visible to unaided eye, but visible with microscope.
Basalt	Fine-grained, dark-colored extrusive igneous rock with less than about 52 weight percent silica ( $\text{SiO}_2$ ). Because of its low silica content, basalt has a low viscosity (resistance to flow). Basalt is composed primarily of plagioclase feldspar and pyroxene; other minerals such as olivine and ilmenite are often present. Basalt is the most common volcanic rock on the terrestrial planets.
Breccia	Clastic rock composed of angular rock fragments cemented together in a finer grained matrix.
Cataclastic	Rock that has been granulated by impact and usually slightly welded together by increased temperature
Clast	A rock fragment or mineral grain resulting from the breakdown of larger rocks usually by impact processes.
Clast-medium	Impact generated rock with approximately 10-30 percent clasts.
Clast-poor	Impact generated rock with less than 10 percent clasts.
Clast-rich	Impact generated rock with greater than 30 percent clasts.
Clod	Weakly compacted regolith, lightly sintered, crumbles with finger pressure.
Coarse-grained	Crystal size greater than 5mm.
Coherent	Rock very resistant to disaggregation, well stuck together.
Crystalline	Texture: crystals readily visible, little or no interstitial glass.
Dendrite	Complex crystal form dictated by crystal structure of mineral that forms during rapid crystallization.

Dunite	A coarse-grained igneous rock that consists mainly of olivine.
Feldspar	Mineral: Ca, Na, K, Al silicate.
Fine-grained	Crystal size less than 1 mm.
Fracture	Zone of weakness in a rock created by differential pressure on the rock.
Friable	Moderately coherent rock, can rub grains loose with fingers, but cannot crush rock as is possible for a clod.
Gabbro	Rock: medium to coarse grained igneous rock formed by slow cooling within a planetary crust, plagioclase is dominant mineral with clinopyroxene.
Glass Bonded	Rock fragments welded together by glass.
Glass Splash	Impact generated glass coating surface of a rock clearly added as a splash.
Glass-coated	More extensive glass coating than a simple splash.
Glass-rich	Glass throughout rock as a matrix for the rock and mineral clasts.
Glomerophytic	Monomineralic clusters within matrix of an igneous rock.
Granoblastic	Granular texture coarsened by heating and crystal growth, usually equigranular with granular texture.
Granular	Texture: Completely crystalline rock with crystals visible to naked eye and usually equant.
Homogeneous	Texture: Uniform features, e.g. crystal distribution, size, relationships.
Hypidiomorphic Granular	A granular texture in an igneous rock where the mineral constituents show partial crystal boundaries, most crystals are subhedral.
Ilmenite	Opaque mineral found in basalt; nearly pure iron-titanium oxide (FeTiO <sub>3</sub> ).
Impact Melt	Melted rock and soil created during an impact event, usually contains some crystals.
Impact Melt Glass	Glass formed during an impact event that is usually separated from the main melt mass.
Impactite	Rock formed by an impact event can be either melt, partial melt or a welded clastic rock.

Intergranular	A variety of intersertal texture in which the interspaces are filled with granular material.
Intersertal	A groundmass texture in an igneous rock in which unoriented feldspar laths form a fretwork that encloses glassy or cryptocrystalline material.
Layered	A banding in a rock that is usually defined by parallel mineral or textural variations.
Lithic	Rock material.
Matrix	Part of a rock texture that is interstitial to the dominant crystals.
Maturity Index	The maturity of a lunar soil refers to the degree of reworking by micrometeorites, as evidenced by grain size, proportions of agglutinates, proportions of grains with high solar flare track densities, solar wind gas content, or minute metallic Fe content as determined by $Is/FeO$ ferromagnetic resonance measurement (Morris 1978).
Medium-Grained	Crystal size between 1 mm and 5 mm.
Micro-	Adjective indicating a small or fine-grained version of a given feature.
Monomict	Clastic rocks comprised of grains of a single mineral or rock type.
Norite	Coarse grained igneous rock formed by slow cooling in a planetary crust comprised of plagioclase and orthopyroxene.
Olivine	Mineral: Fe, Mg silicate.
Ophitic	Basaltic texture characterized by laths of plagioclase enclosed by anhedral grains of pyroxene. Believed to represent contemporaneous crystallization of the two minerals, rather than sequential, as in poikilitic texture.
Plagioclase	Common mineral; ranges from $NaAlSi_3O_8$ (albite) to $CaAl_2Si_2O_8$ (anorthite).
Poikilitic	Relatively large crystals of one mineral enclosing numerous smaller crystals of one or more other minerals which are randomly oriented and generally, but not necessarily, uniformly distributed. The host crystal is called an oikocryst, and the included crystals are called chadacrysts.
Polymict	Clastic rocks comprised of grains of different minerals or rock (clast) types.

Porphyritic	Igneous Texture: significant crystal size difference between large and much finer grained mineral components, larger crystals presumably grew first.
Pristine	Igneous rock not modified by impact or other metamorphic processes, retains original chemistry and texture.
Pyroxene	Mineral: Fe, Mg, Ca silicate
Radiate	Crystal growth form in which multiple crystals originate from a single point in space, see spherulite.
Recrystallized	Original crystallized rock texture modified by thermal alteration.
Regolith	Layer of fragmental debris produced by impact processes on the surface of an airless planetary body. Collection of ejecta from large and small craters, primary and secondary, close by and far away. The lunar regolith has a density of about 1.5 g/cm <sup>3</sup> .
Shocked	Minerals have experienced high impact generated pressure that alters the mineral, fractured, changed to amorphous.
Sintered	Rock formed by its crystals bonded by heating that creates incipient melting along grain boundaries.
Spherulite	A texture in which crystals of a single crystal nucleate and grow rapidly from a single point in space in all or sectorial directions, can have a complete sphere of crystals or a partial sphere often shaped like a bow-tie in cross section, individual crystals can be dendritic.
Subangular	A mineral shape that is intermediate between angular and rounded.
Subophitic	Common texture of basaltic rock wherein feldspar crystals are about the same size as pyroxene and only partly enclosed by them (see ophitic).
Troctolite	Coarse grained igneous rock formed by slow cooling in a planetary crust comprised of plagioclase and olivine.
Ultramafic	Rock comprised of dominantly Fe, Mg silicate minerals, e.g., olivine.
Vein	Planar or irregular fractures in a rock filled with injected material usually melted rock or fine-grained debris.
Vesicle	Cavities in igneous rocks, usually spherical, created by the exsolution of gases dissolved in a magma; they form as the pressure decreases as the magma moves closer to a planetary surface.

Vitrophyre	Texture: Rock that is dominantly glass with no or few crystals visible even with a microscope.
Vug	Cavities in igneous rocks, usually irregular in shape, created by the decreased volume of the crystallized magma compared to the liquid usually lined by euhedral crystals grown from a vapor phase.
Welded	Rock formed by partial melting of crystal and rock fragments to form a coherent rock.