

IGNEOUS ROCKS 2221

Rocks which have formed from the molten state are called IGNEOUS rocks. Igneous rocks that have cooled and crystallized deep beneath the surface of the earth are called INTRUSIVE or PLUTONIC rocks. Plutonic rocks usually display PHANERITIC or PORPHYRITIC texture. Rocks that were formed when lava reached the surface of the earth through fissures, vents, or volcanoes and cooled very quickly are called EXTRUSIVE or VOLCANIC rocks. *Volcanic* rocks will usually exhibit APHANITIC texture.

PHANERITIC TEXTURE Mineral grains are of nearly equal size and are clearly visible to the naked eye.

1. **PEGMATITE** is a very coarse-grained plutonic rock with a composition similar to granite.
2. **GRANITE** is a crystalline rock consisting of potassium or sodium feldspar and quartz, with hornblende and mica as common accessory minerals.
3. **SYENITE** is a plutonic igneous rock which consists primarily of sodium feldspar with accessory mafic minerals like hornblende or biotite.
4. **ANORTHOSITE** is a plutonic rock consisting of 90 to 100 percent feldspars and minor amounts of quartz.
5. **GABBRO** is a crystalline plutonic rock consisting of plagioclase with minor amounts of augite.

PORPHYRITIC TEXTURE A mineral structure in which larger crystals, known as *phenocrysts*, are inset in a groundmass of finer crystalline structure.

6. **RHYOLITE PORPHYRY** contains larger feldspar crystals in an aphanitic groundmass of alkali feldspar and quartz.
7. **TRACHYTE PORPHYRY** is composed of potassium feldspar, minor plagioclase feldspar, and accessory hornblende.

APHANITIC TEXTURE Microcrystalline Mineral grains too small to be seen by the naked eye.

8. **BASALT** is an extrusive igneous rock composed of plagioclase and pyroxene and occasionally olivine. Accessory minerals are occasionally visible.
9. **RHYOLITE** is a light-colored rock consisting of microcrystalline potassium feldspar, quartz, and minor accessory minerals.
10. **ANDESITE** is a light-colored rock consisting of plagioclase feldspar and hornblende, biotite or augite.
11. **TUFF** is formed from compacted volcanic fragments.

APHANITIC TEXTURE Glassy

12. **OBSIDIAN** is a glassy volcanic rock formed by the rapid cooling of rhyolitic lavas.
13. **PITCHSTONE** is formed by the rapid cooling of rhyolitic lavas and has a resinous or pitchy appearance.
14. **PUMICE** is a light-colored volcanic rock of rhyolitic composition; the texture results from bubbles formed by escaping gases.
15. **SCORIA** is a dark colored volcanic rock of basaltic composition with a porous texture caused by escaping gases.