

Tulane Earth & Environmental Sciences

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PHYSICAL GEOLOGY ROCK IDENTIFICATION

IGNEOUS ROCKS

GRANITE pink to white/gray color, light colored minerals dominant, - mostly orthoclase, phaneritic or porphyritic

DIORITE equal amounts of light and dark minerals, "salt and pepper texture" phaneritic or porphyritic

GABBRO mostly dark colored minerals, phaneritic, rarely porphyritic

DUNITE mostly olivine, usually phaneritic

RHYOLITE light colored (light gray, white, pinkish), aphanitic, can be porphyritic

ANDESITE intermediate colored (gray, medium gray); aphanitic, can be porphyritic

BASALT dark colored (black) aphanitic, commonly porphyritic

PUMICE light colored, vesicular texture (bubbly rock), light weight

SCORIA dark colored vesicular texture bubbly rock), light weight

OBSIDIAN dark volcanic glass, has sharper edges and is more vitreous than chert

SEDIMENTARY ROCKS

CONGLOMERATE has rounded pebbles, pebbles may be loose, inorganic

BRECCIA same as above but with sharp edged pebbles, inorganic

QUARTZ SANDSTONE sandstone with only quartz, light colored (white or tan) well sorted, inorganic

ARKOSE sandstone with orthoclase, reddish color, inorganic

SILTSTONE very fine grained, will feel gritty, inorganic

SHALE very fine grained, feels smooth, inorganic

CHERT does not fizz in acid, generally light color, dull luster compared to obsidian, microcrystalline silica (SiO₂) organic, Harder than glass

COAL black, light weight, crumbly, made out of plant debris, organic

GYPSUM fibrous, silky feel, monomineralic, soft, non clastic (chemical)

Lime-
stones

MICRITIC LIMESTONE (MICRITE) fizzes in acid, massive looking, looks like cement, organic
CHALK limestone, light weight, fizzes in acid, writes on things, organic
OOLITIC LIMESTONE fizzes in acid, made of sand sized carbonate spherical particles (oolites) organ
FOSSILIFEROUS LIMESTONE has visible fossil fragments, fizzes in acid, organic
COQUINA limestone, fizzes in acid, made entirely of shell fragments, organic

METAMORPHIC ROCKS

SLATE foliated, break into flat slabs, harder than shale, protolith=shale

PHYLLITE foliated, breaks into slabs that may be contorted, lustrous sheen, shinier than slate, protolith=shale

MICA SCHIST foliated, has lots of mica flakes that are visible on flat surfaces only,

GARNET SCHIST foliated, same as above but also contains lots of "little" garnets (red mineral)

GNEISS foliated, alternating bands of light and dark colored minerals, "tiger stripes"

QUARTZITE non foliated, crystalline, sugary texture, light colored, rougher surface than chert, harder than glass, protolith=quartz sandstone

MARBLE non foliated crystalline, sugary texture, usually light, but may be colored, softer than glass, fizzes in acid, protolith=limestone

AMPHIBOLITE non foliated but may be foliated, black color, flakes easily, made of mostly hornblende crystals

METACONGLOMERATE non foliated, visible pebbles that are welded into the rock, and wont fall out, protolith=conglomerate

TERMS YOU NEED TO KNOW

phaneritic, aphanitic, porphyritic, glassy, vesicular, felsic, mafic, intrusive, extrusive, clastic, nonclastic, organic, inorganic, grain size, foliated, non foliated, rock mineralogy