

# Generalized Rock Identification Chart For Common SEDIMENTARY ROCKS

TEXTURE	CLAST / CRYSTAL DESCRIPTION				ROCK NAME	DESCRIPTION	DEPOSITIONAL ENVIRONMENTS	
	Composition	Size	Rounding	Sorting				
<b>Clastic</b> <small>(made of pieces)</small> <b>Detrital</b> <small>(made of inorganic pieces)</small>	mineral grains (quartz, feldspar, mica, etc.)	gravel (>2 mm)	angular	poorly sorted	<b>SEDIMENTARY BRECCIA</b>	angular clasts represent shorter transport distance	mountain streams, glacier, alluvial fan, reefs	
			rounded	poorly sorted	<b>CONGLOMERATE</b>	rounded clasts represent longer transport distance or high-energy current	alluvial fan, stream channel, beach	
	lithics (rock fragments)	sand (2 to 1/16 mm)	well rounded (quartz arenite) to angular (arkose)	well sorted (quartz arenite) to poorly sorted (arkose)	<b>SANDSTONE</b> (>85% sand-sized particles)	gritty or "sandpaper" feel, sedimentary structures common (ripple marks, cross beds, graded beds) <b>Quartz Arenite</b> - mostly quartz (>90%), clean, "mature" sandstone, light color <b>Feldspathic Arenite (Arkose)</b> - mostly feldspar (>25%), "immature" sandstone, orange to reddish color <b>Wacke</b> - >15% mud-sized matrix	<b>Quartz Arenite</b> desert dune, beach <b>Feldspathic Arenite</b> granitic terrains, alluvial fan, stream channel <b>Wacke</b> deep marine, deep lake	
<b>Chemical</b> <small>(crystals formed by inorganic precipitation)</small> <b>Biochemical</b> <small>(made of the shells of organisms)</small>	clay minerals (illite, smectite, kaolinite, etc.) iron oxides	mud (<1/16 mm)	-	well sorted	<b>MUDSTONE (SHALE)</b> (>50% mud-sized particles)	many colors (red, gray, green-gray, black), sedimentary structures common (ripple marks, mud cracks, fossils) <b>Shale</b> = fissile mudstone (splits easily) <b>Siltstone</b> (1/16 to 1/256 mm particles) <b>Claystone</b> (<1/256 mm particles)	stream channel, flood plain, river delta, lake, playa lake shallow to deep marine	
	shells & shell fragments (CaCO <sub>3</sub> )	>2 mm	angular	poorly sorted	carbonate rock	<b>COQUINA</b>	weakly cemented shells and shell fragments sometimes termed "bioclastic"	beach, reef, shallow to deep marine
		< 1/16 mm	-	well sorted		<b>CHALK</b>		
	calcite (CaCO <sub>3</sub> )	coarse-grained to microcrystalline	n/a	n/a	<b>LIMESTONE</b>	H = 3 - easily scratched with a steel nail, reacts readily with HCl, rhombic cleavage <b>Micrite Travertine</b>	shallow to deep marine, lagoon, playa lake, groundwater	
	dolomite (CaMg(CO <sub>3</sub> ) <sub>2</sub> )		n/a	n/a	<b>DOLOSTONE</b>	similar to limestone except only weakly reacts with HCl (when powdered), formed from alteration of limestone	shallow to deep marine, lagoon, playa lake, groundwater	
	silica (SiO <sub>2</sub> )	microcrystalline	n/a	n/a	<b>CHERT</b>	very hard (H = 7) - not scratched by steel, fractures on curved surfaces, variable color (dark = flint)	deep marine (bedded), groundwater (nodular), playa lakes	
	gypsum (CaSO <sub>4</sub> * 2H <sub>2</sub> O)	extremely variable	n/a	n/a	evaporite	<b>ROCK GYPSUM</b>	soft (H = 2) - easily scratched with a fingernail, many varieties (e.g., bladed, fibrous, etc.)	shallow & arid coastlines, lagoon, playa lake, groundwater
						<b>ROCK SALT</b>	soft (H = 2.5) - scratched with a copper penny, salty taste, may form cubic crystals	playa lake
	organic remains (carbon-rich)	n/a	n/a	n/a	<b>COAL</b>	brown to black, lightweight, brittle, soft (H < 2.5), several varieties (based on %C) <b>Peat Lignite Bituminous</b>	swamp, flood plain	