

## SEDIMENTARY ROCKS


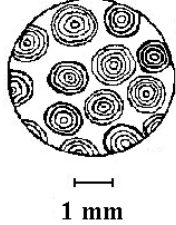
Sedimentary rocks are classified based on their **TEXTURE** and **COMPOSITION**

**TEXTURE**. Is the geometrical arrangement of the constituents of a rock (**SIZE, SHAPE** and **MUTUAL RELATIONSHIPS OF PARTICLES**).

Based on their composition there are three main groups of sedimentary rocks:

<b><u>CLASTIC or</u></b> <b><u>DETRITAL</u></b>	Formed by fragments of mineral or rocks
<b>BIOCHEMICAL</b>	Formed by remains of organisms.
<b>CHEMICAL</b>	Formed by chemical processes. Crystals that have precipitated from solutions

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<b>BIOCHEMICAL –CARBONATES</b>						
Composition	Fragment size	Name of the fragment	Origin	Textural Characteristics	Rock name	
<b>CaCO<sub>3</sub></b> (calcium carbonate) <b>CALCITE</b>  Fizz strongly with dilute HCl  <b>CARBONATES</b>  <u>LIMESTONES</u> are generally <u>gray</u> (but may be tan, pink, white, black, or other colors).	Microscopic 1 - 5 μ	<b>MICRITE</b>	Results from the lithification of <i>lime mud</i> , most of which originates from the breakdown of the hard "skeletons" secreted by calcareous algae which live in warm, shallow seas	The color is variable, ranging from gray to tan, or other colors.  	<b>MICRITIC LIMESTONE</b> or <b>MICRITE</b>	
	Microscopic (larger than above)		Probably formed by the accumulation of the remains of planktonic marine algae called coccolithophores or shells of Foraminifera and/or by chemical precipitation.	White, but it may be stained with iron oxide or other impurities. It is a soft porous rock that crumbles easily. Less dense, and less compact than micrite.	<b>CHALK</b>	
	Macroscopic	<b>ALLOCHEMS</b>				
		<b>FOSSILS</b>	The remains of ancient plants or animals  Many organisms have calcareous shells or skeletons, and their remains may accumulate in lime mud	Whole fossils, broken shell fragments with a calcareous skeleton or body parts.	<b>FOSSILIFEROUS LIMESTONE</b>	
				Composed almost entirely by broken shell fragments	<b>COQUINA</b>	
		<b>OOLITES</b> are small (1/4 - 2mm; sand-sized)), concentrically layered, spherical grains, so named because they look like fish eggs. On a cut or broken surface they look circular, and internal concentric laminations may be seen with a hand lens or microscope.	Commonly are formed by layers of material (usually calcite), that have been deposited around some tiny particle such as a sand grain or fossil fragment and are rolled back and forth in quiet waters		<b>OOLITIC LIMESTONE</b>	

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<b>BIOCHEMICAL -OTHER COMPOSITIONS</b>				
<b>Composition</b>	<b>Fragment size</b>	<b>Origin</b>	<b>Textural Characteristics</b>	<b>Rock name</b>
<b>SiO<sub>2</sub> SILICEOUS</b>	<b>Microscopic to very fine grained silica sediment</b>	<b>Chemical or biochemical origin. Some chert contains siliceous skeletons of micro-organisms known as <i>radiolarians</i> and diatoms.</b>	<b>Chert can be recognized by its extremely fine grain size, smooth feel, and hardness (scratches glass) Breaks with a conchoidal fracture</b>	<b>CHERT Two main varieties: Nodular Bedded</b>
<b>C CARBON</b>		<b>The plant fossils in coal generally indicate deposition in <u>fresh-water swamps</u></b>	<b>Black, light weight smudgy or shiny</b>	<b>COAL</b>

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<b>CHEMICAL</b>			
	<b>Mineralogy</b>	<b>Texture / Properties</b>	<b>Rock name</b>
<b>EVAPORITES</b> <b>Chemical precipitates, which form by precipitation of dissolved minerals from water during evaporation.</b>  Forms by evaporation of cave, spring, or river waters. stalactites and stalagmites	<b>Halite</b> NaCl	<b>Cubic crystals and cubic cleavage; usually transparent; softer than glass; salty taste</b>	<b>Rock salt</b>
	<b>Gypsum</b> $\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$	<b>Very finely sugary, usually white nor pink; silky luster</b> <b>Softer than nail</b>	<b>Gypsum</b> <b>Gypsum rock</b>
	Anhydrite $\text{CaSO}_4$		Anhydrite
	Calcite $\text{CaCO}_3$	Reacts to HCl	Crystalline limestone
	Calcite $\text{CaCO}_3$	Coarsely crystalline; can be recognized by their cylindrical shape and internal "tree-ring-like" appearance. Reacts to HCl	Travertine