Classification of Sedimentary Rocks

Clastic Rocks

Texture		Composition	Rock Name
Clastic	Coarse grained > 2 mm	Rounded fragments of any rock type--quartz, quartzite, chert dominant	CONGLOMERATE
		Angular fragments of any rock type--quartz, quartzite, chert dominant	BRECCIA
	Medium grained 1/16 - 2 mm	Quartz and rock fragments (layers possible)	SANDSTONE
		Quartz with considerable amounts of feldspar	ARKOSE
	Fine grained 1/256 - 1/16 mm	Quartz and clay minerals (can hardly see grains)	SILTSTONE
	Very Fine Grained < 1/256 mm	Quartz and clay minerals	SHALE

Chemical Precipitates

Chemical or Organic (non-clastic)	Medium to coarse grained	Calcite ($CaCO_3$)	CRYSTALLINE LIMESTONE
	Microcrystalline, conchoidal fracture		MICRITE
	Aggregates of oolites (looks like white caviar)		OOLITIC LIMESTONE
	Fossils and fossil fragments loosely cemented		COQUINA (shells)
	Abundant fossils in calcareous matrix		FOSSILIFEROUS LIMESTONE
	Shells of microscopic organisms, clay--soft		CHALK
	Banded Calcite		TRAVERTINE
	Textural variets similar to limestone	**Dolomite ($CaMg(CO_3)_2$)**	**DOLOMITE**
	Cryptocrystalline, dense, conchoidal fracture	**Chalcedony (SiO_2)**	**CHERT**
	Fine to coarse crystalline	**Gypsum (CaSO4 · 2H2O)**	**GYPSUM**
	Fine to coarse crystalline	**Halite (NaCl)**	**ROCK SALT**

Clastic rocks consist predominantly of fragments of debris of other rocks. These materials are familiar as gravel, sand, and mud, and when consolidated, form conglomerate, sandstone, and shale, respectively. Clastic rocks are thus classified according to size with subdivisions based on composition. The grainsize range, compositions types, and nonmenclature are shown in the chart above.

Chemical rocks are precipitated directly from water, usually as a result of evaporation or changes in the chemistry of the water. Limestone and dolomite are the most abundant types of chemically formed rocks. Limestone contains more than 50% calcite. Other materials present in limestone may include clay, quartz, rockfragments, or iorn oxide. The calcite that is precipitated chemically may form crystalline limestone, microcrystalline limestone, or oolitic limestone. Gypsum and halite also form important evaporite deposits, and chert is common as a component in many limestone layers.

Most ***Oragnic rocks*** are composed of fragments of calcite shells of invertebrate amimals. They thus form varieties of limestone such as coquina, skeletall limestone, and chalk. Peat and coal are sedimentary rocks formed from alteration of plant debris.