

## Non-silicate minerals relevant to historical geology

<i>Mineral name</i>	<i>Chemical formula</i>	<i>Significance</i>
<b>Oxides:</b>		
Hematite	$\overset{+3}{\text{Fe}}_2\text{O}_3$	As the most oxidized form of iron, evidence of an O <sub>2</sub> -bearing atmosphere.
Magnetite	$\overset{+2 \ \& \ +3}{\text{Fe}}_3\text{O}_4$	Used to determine direction to poles when a rock formed long ago, and thus evidence regarding past continental positions.
<b>Sulfides:</b>		
Pyrite	$\overset{+2}{\text{Fe}}\overset{0 \ \& \ -2}{\text{S}}_2$	As reduced forms of iron and sulfur, evidence when found in ancient Earth-surface materials of absence of O <sub>2</sub> from atmosphere then.
<b>Halides:</b>		
Halite	NaCl	Evidence of evaporation of seawater (or lake water).
<b>Sulfates:</b>		
Gypsum	$\overset{+6}{\text{Ca}}\text{SO}_4 \cdot 2\text{H}_2\text{O}$	Evidence of evaporation of seawater (or lake water).
Anhydrite	CaSO <sub>4</sub>	Evidence of evaporation of seawater (or lake water).
} Evaporite minerals		
<b>Carbonates:</b>		
Aragonite	CaCO <sub>3</sub>	Two polymorphs Used by organisms to make their shells etc.
Calcite	CaCO <sub>3</sub>	
Dolomite	CaMg(CO <sub>3</sub> ) <sub>2</sub>	Forms when groundwater moves magnesium into limestones, resulting in dolostone, and thus another clue of marine deposition and past oceans.