

V.—COMPOUNDS.

OXIDES.

(a) CALCIUM OXIDE, CaO, when pure, is a white insoluble substance, uniting readily with water under evolution of heat to calcium hydroxide, $\text{Ca}(\text{OH})_2$. It is formed by heating the Carbonate CaCO_3 in kilns Carbonic Acid, CO_2, going off, and CaO, <i>quicklime</i>, remaining.	(a) SrO best obtained by heating the nitrate $\cdot 2 \text{Sr}(\text{NO}_3)_2 = \text{SrO} + 4 \text{NO}_2 + \text{O}_2$, resembles CaO.	(a) BaO same as SrO. BaO_2 is formed by gently heating BaO in oxygen.	(a) MgO is obtained as a white, light, amorphous, infusible powder by heating either the Carbonate or Nitrate Magnesia, <i>usta</i> or calcined Magnesia of Medicine. It is nearly insoluble in water, one part MgO needing 50,000 parts water for solution.
(b) Calcium hydroxide $\text{Ca}(\text{OH})_2$ slaked lime $\text{CaO} + \text{H}_2\text{O} = \text{Ca}(\text{OH})_2$ is soluble in 730 parts of cold water and 1300 parts hot. It absorbs CO_2 from the air so aiding the hardening of mortars. MORTAR is formed by the union of the hydroxide with sand, $2\text{Ca}(\text{OH})_2 + \text{SiO}_2 = \text{Ca}_2\text{SiO}_4$ CALCIUM SILICATE. HYDRAULIC MORTARS are prepared from an impure lime (containing clay and silica) and harden under, waterforming an aluminium calcium silicate. Calcium hydroxide (1) destroys the excess of animal matter in soils; (2) liberates caustic potash KOH from clay soils.	(b) $\text{Sr}(\text{OH})_2 + 8 \text{H}_2\text{O}$ is more soluble in water than $\text{Ca}(\text{OH})_2$ also absorbs CO_2 from air.	(b) $\text{Ba}(\text{OH})_2 + 8 \text{H}_2\text{O}$ is crystalline and more soluble than $\text{Sr}(\text{OH})_2$ soluble in 20 parts of cold water rapidly absorbs CO_2 from air	(b) $\text{Mg}(\text{OH})_2$ is thrown down as white precipitate when a soluble hydroxide (KOH, NaOH, $\text{Ba}(\text{OH})_2$, $\text{Ca}(\text{OH})_2$) is added to the solution of a magnesium salt. The hydroxide is almost insoluble in water but readily soluble in ammonium chloride, NH_4Cl. If ammonium salts be present, no precipitate is formed by the soluble hydroxides, the ammonium salts forming double salts with the magnesium, which are soluble in water.