

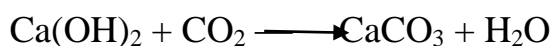
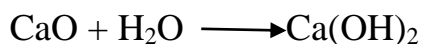
Properties of Quick Lime

Plasticity:

The term "plasticity" is commonly used to describe the spreading quality of the material of the material in plastering. If it spreads easily and smoothly, it is plastic, if it sticks under the trowel, or cracks, and drops behind the trowel, it is non plastic.

Setting time:

The setting of lime and lime mortar is a chemical process involving the evaporation of the large excess of water used in forming the lime paste, followed by the gradual replacement of the water of hydroxide by CO₂ in the atmosphere, causing the lime hydrate to revert to the original calcium carbonate.



Sand- carrying capacity:

Practically all lime used structurally is made up in the form of mortar by the addition of sand to lime paste for the following reasons:

- 1) Sand is cheaper than lime.
- 2) To diminish the great shrinkage which accompanies the setting and hardening of lime, and to prevent the consequent cracking.
- 3) To counteract the extreme stickiness' of some high- calcium limes.

It is important that the "sand- carrying capacity" of the lime be properly established. If too little sand is used, excessive shrinkage will cause a weakening of bond between the plaster or mortar and the masonry materials or plastered surface. On the other hand, too much sand produces a non-plastic and weak mortar.

Tensile and compressive strength of lime mortars:

The physical properties of lime mortar vary with the:

- 1) Chemical composition of the lime: Magnesia lime makes it stronger than calcium limes.
- 2) Character of the sand: Fine sand makes stronger mortar than coarse sand.

- 3) The amount of water: Suitable amount of water produces stronger lime mortar.
- 4) The conditions under which the mortar sets: The humidity and amount of CO₂ in the atmosphere influence the rate of setting of lime drying the air and charging it with carbon dioxide, greatly accelerating the setting process.

Hydrated lime:

Process of manufacture:

Hydrated lime is a dry powder resulting from the hydration, at the place of manufacture, of ordinary quick lime. Three stages of manufacture characterize the preparation of hydrated lime:

- 1) The quick lime is crushed or pulverized to a fairly small size.
- 2) The crushed materials are thoroughly mixed with a sufficient quantity of water.
- 3) The slaked lime is, by air separation, screening, or otherwise separated from lumps of anhydrate lime and impurities, or the entire mass must be finely pulverized.

Uses of Hydrated Lime:

Hydrated lime may be used as:

- 1) Building materials.
- 2) Finishing materials.

Properties:

- 1) Mortar prepared from hydrated lime is generally inferior to those prepared from quick lime from the stand point of plasticity and sand - carrying capacity.
- 2) The strength of hydrated lime mortars, both in tension and in compression, is somewhat higher than that of the corresponding quick lime mortars.
- 3) Hydrated lime mortars are more quickly setting than from ordinary quick lime mortars.