

Hydrates hairline
cracks are induced.
most pores are

[Environment](#), [Air](#)



**ASSIGN
BUSTER**

Hydrates are composed with water of crystallization in their structures.

When a hydrate is heated, it absorbs enormous quantity of heat (endothermic) and forms an anhydrous mineral. When an anhydrate is immersed into water; it absorbs water and releases enormous quantity of heat transforming into a hydrate mineral 6. In other way, it can be expressed that a hydrate is formed by releasing enormous quantity of heat from its anhydrous product. For an example; the formation of snow from freezing water releases heat and snowfall warms up the atmosphere may be cited. The heat released into the pore space might promote further evaporation of pore fluids. Most of the hydrates are stable and soluble in water at room temperature. Some hydrates spontaneously lose water of crystallization by efflorescence.

Others absorb water into their structure forming hygroscopic hydrates. Some deliquescent mineral like sodium hydroxide absorb huge quantities of water and form as liquid. The decomposition of carbohydrates generally releases water. Thus water of crystallization in a hydrate minerals play critical role on their changes in their specific gravities and in turning their volumes 7.

Hydration is not a reversible reaction; however, the environment crystallization of hydrates plays critical role for the formation of hydrates and anhydrites 8. The repeated hydration and dehydration changes the volume of saline minerals which in turn affects the volume of pore spaces and hairline cracks are induced. Most pores are partially or completely filled with saline pore fluids and repeated influxes of saline fluids and evaporations play critical role on the evolution of saline precipitates 9. The evaporation of

saline fluids precipitates saline minerals initially at peripheral portions of saline droplets inside the pores. The ionic components of chloride, carbonate and sulphate, hydroxide and water play critical role in the formation of mixed crystals of mineral components rather than individual minerals. The scope of the investigation mainly lies to trace the trend of changes of chemical composition during successive crystallization of chloride components from the primary carbonate source.

Generally, the composition of groundwater is enriched with bicarbonates and depleted in carbonates. Similar condition is true in the case of saline waters interlocked in the pore spaces of lime-mortars.