

# [Hydrates hairline cracks are induced. most pores are](https://assignbuster.com/hydrates-hairline-cracks-are-induced-most-pores-are/)

[](https://assignbuster.com/)[Environment](https://assignbuster.com/essay-subjects/environment/), [Air](https://assignbuster.com/essay-subjects/environment/air/)

Hydratesare composed with water of crystallization in their structures.

When a hydrateis heated, it absorbs enormous quantity of heat (endothermic) and formsanhydrous mineral. When an anhydrate is immersed into water; it absorbs waterand releases enormous quantity of heat transforming into a hydrate mineral 6. In other way, it can be expressed that a hydrate is formed by releasingenormous quantity of heat from its anhydrous product. For an example; theformation snow from freezing water releases heat and snowfalls warms up theatmosphere may be cited. The heat released into the pore space might promotefurther evaporation of pore fluids. Most of the hydrates are stable and solublein water at room temperature. Some hydrates spontaneously loss water ofcrystallization by efflorescence.

Others absorb water into their structureforming hydroscopic hydrates. Some deliquescent mineral like sodium hydroxideabsorb huge quantities of water and form as liquid. The decomposition ofcarbohydrates generally releases water. Thus water of crystallization in a hydrate minerals playcritical role on their changes in their specific gravities and in turning theirvolumes 7.

Hydration is not a reversible reaction; however, the environmentcrystallization of hydrates plays critical role for the formation of hydratesand anhydrates 8.  The repeatedhydration and dehydration changes the volume of saline minerals which in turnaffects the volume of pore spaces and hairline cracks are induced. Most poresare partially or completely filled with saline pore fluids and repeatedinfluxes of saline fluids and evaporations play critical role on the evolutionof saline precipitates 9.  Theevaporation of saline fluids precipitates saline minerals initially atperipheral portions of saline droplets inside the pores. The ionic componentsof chloride, carbonate and sulphate, hydroxide and water play critical role inthe formation of mixed crystals of mineral components rather than individualminerals. The scope of the investigation mainly lies to trace the trend ofchanges of chemical composition during successive crystallization of chloridecomponents from the primary carbonate source.

Generally, the composition ofgroundwater is enriched with bicarbonates and depleted in carbonates. Similarcondition is true in the case of saline waters interlocked in the pore spacesof lime-mortars.