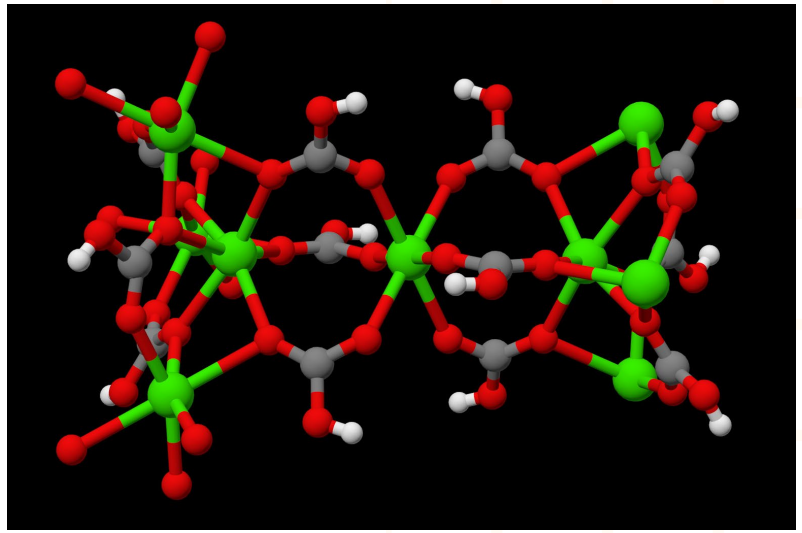
Calcium hydrogencarbonate crystals produced

Slide by Neil Goalby. Available from rsc.li/4bCk1rV

Calcium hydrogencarbonate ($Ca(HCO_3)_2$) only exists in aqueous solutions. Up until now, attempts to crystallise solid calcium hydrogencarbonate caused the mineral to decompose into more stable calcium carbonate.

Scientists have now used ethanol as the solvent instead of water to produce solid crystals. They pumped carbon dioxide into an ethanol solution containing calcium chloride ($CaCl_2$) and ammonia, which formed a stable precipitate of calcium hydrogencarbonate.



A 3D model of chemistry's newest crystal

Questions

1. What is the state symbol for an aqueous solvent?
2. Describe the method for producing crystals from an aqueous solution.
3. Calculate the percentage of calcium in $Ca(HCO_3)_2$