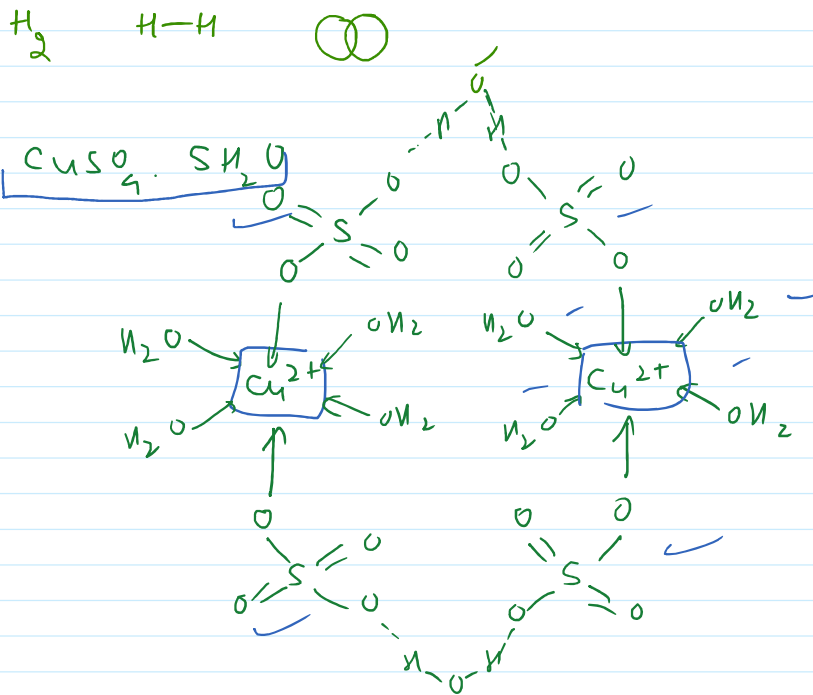
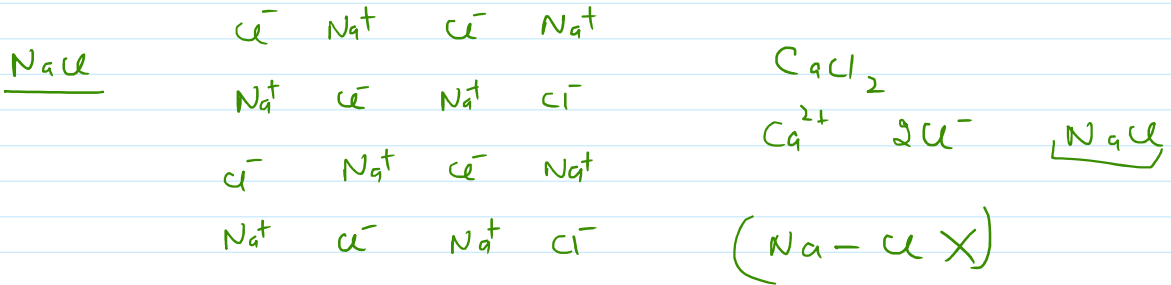


## Water of crystallisation

Water of crystallisation is the fixed number of water molecules present in one formula unit of a salt.



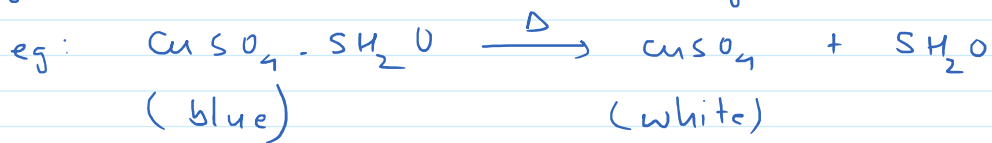
Eg:

- i) In  $\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$ , there are 5 water molecules as water of crystallisation
- ii) In  $\text{Na}_2\text{CO}_3 \cdot 10\text{H}_2\text{O}$ , there are 10 molecules of water of crystallisation.
- iii) In  $\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$ , there are 2 molecules of water of crystallisation.
- iv) In  $\text{CaSO}_4 \cdot \frac{1}{2}\text{H}_2\text{O}$ , there is  $\frac{1}{2}$  molecule of water of crystallisation.

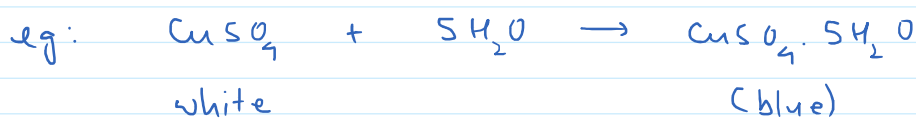
crystallisation.

Heating of hydrated salts

When a hydrated salt is heated, it loses its water of crystallisation and becomes anhydrous.

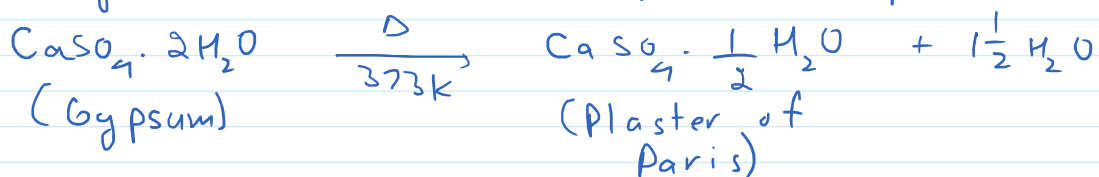


When few drops of water are added to anhydrous salt, it absorbs those drops and again becomes hydrated salt.

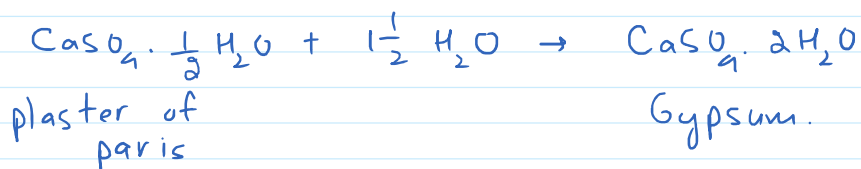


Plaster of Paris

Gypsum ( $\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$ ) on heating at 373K loses water of crystallisation and becomes calcium sulphate hemi-hydrate. This is called plaster of Paris.



Plaster of Paris is a white powder, on mixing with water, it changes to gypsum once again giving a hard solid mass



Uses:

- i) For supporting fractured bones in the right position.
- ii) For making toys, materials for decoration.
- iii) For making surfaces smooth.