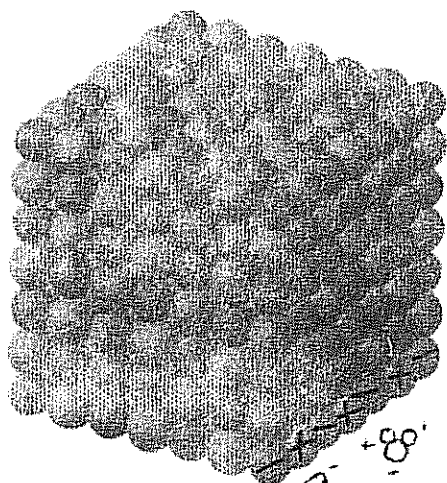


Physical Properties of Ionic & Covalent Compounds

Potassium Chloride *Ionic Compound*
 KCl



Strong forces between cations & anions hold the ionic crystal together.

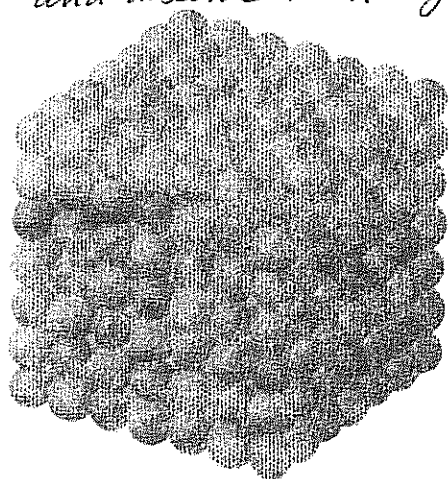
Giving the substance enough heat to break the strong attraction between ions is difficult. Lots of energy is needed.

Therefore, ionic compounds have

↑ high melting pt.
↑ high boiling pt.

Solubility

Charges on polar molecules (like water) attract to ions in ionic compounds and dissolve them by pulling the crystal apart. The many small forces of water are enough to break the strong ionic bond.



Soluble in polar substances

Electrolyte is

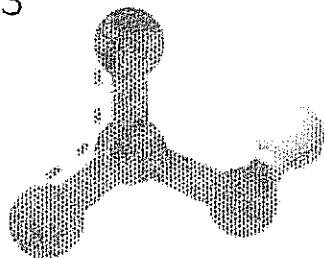
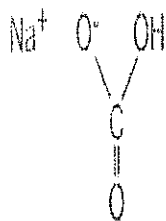
an ionic substance dissolved in H_2O .

Ionic compounds are represented by formula units.

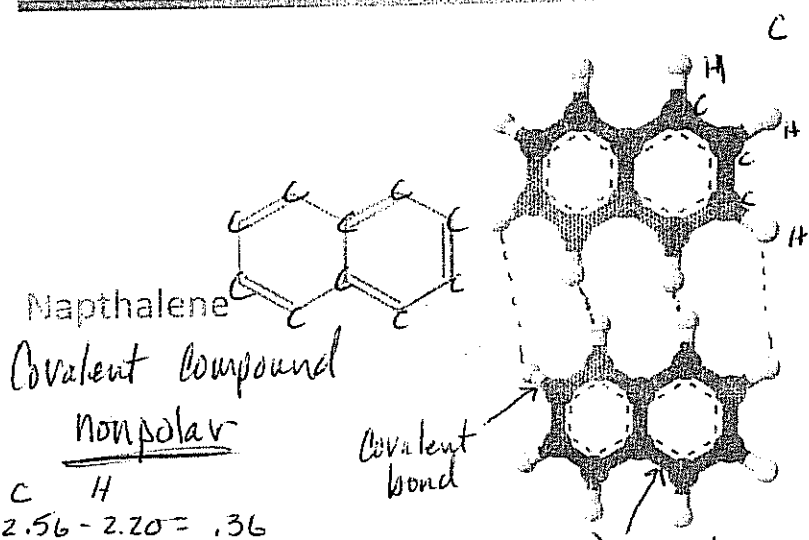
ex. $CaCl_2$
 $NaCl$

(lowest ratio of cations to anion in compound)

Sodium Bicarbonate *Ionic Compound*
 $NaHCO_3$



Physical Properties of Ionic & Covalent Compounds



Covalent compounds are molecules.
They have a distinct shape & amount of atoms.

Solid covalent compounds are held together by bonds between molecules.

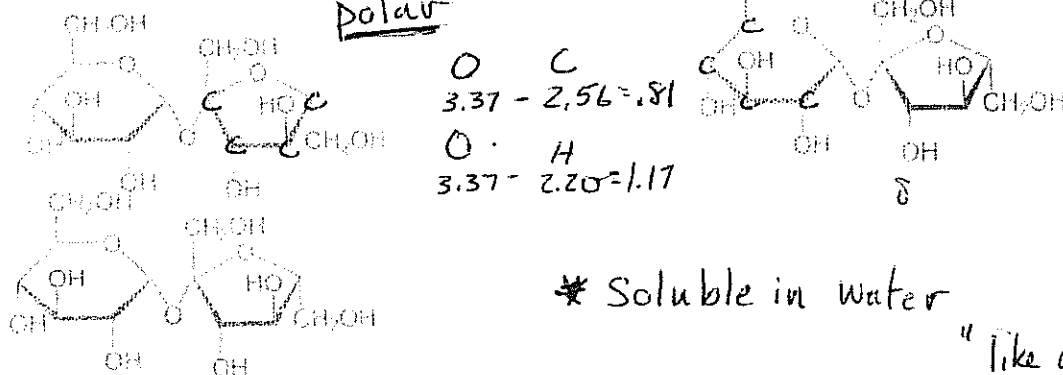
- During melting, these weaker bonds between molecules break.

= ↓ low melting pt.

= ↓ low boiling pt.

* Not Soluble in water, (no charges) covalent bond

Sucrose Covalent Compound
polar



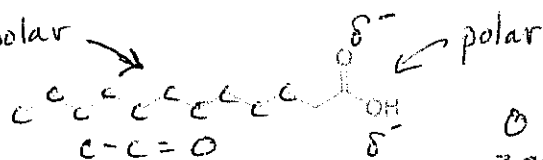
* Soluble in water

"like dissolves like"

polar dissolves polar & ionic
(anything charged)

Lauric Acid covalent

non polar



$O \quad H$
 $3.37 - 2.20 = 1.17$

