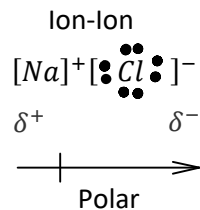


# C11 - 1.5 - Inter Molecular Forces



Dipole : A Polarized Molecule  $+ \quad -$

Intramolecular Force - Between atoms.



Electronegativity

$Na = 0.9$

$Cl = 3.0$

$\delta$  : Partial Charge

$\Delta EN = 3.0 - 0.9$

$\Delta EN = 2.1$

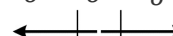
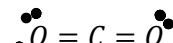
**Polar if  $\Delta EN > 0.5$**

Polar Covalent

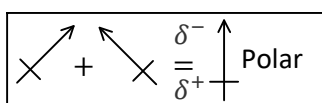
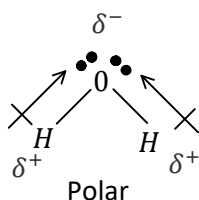


Polar

Covalent

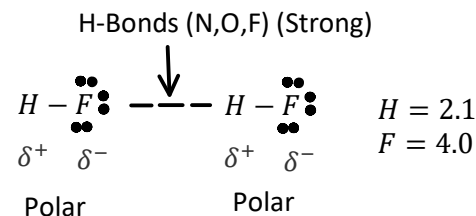
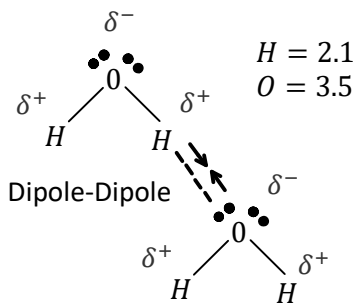
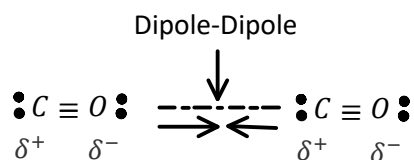


Non-Polar

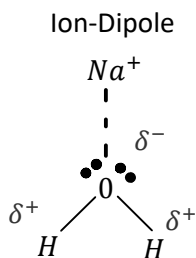
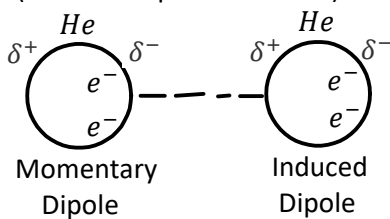


Intermolecular Forces - Between molecules.

**Intra > Inter**



Vander Waals Forces (Weak)  
 (London Dispersion Forces)



-Small H atoms (37pm)

$$F = \frac{kqq}{r^2}$$
 Size inc, F dec

Strength  
 Ion-Ion > Ion-Dipole > H-Bond > Dipole-Dipole > Vander Waals

