

# Chap 11      IMF

Gases - Molecules VERY far apart  
easily compressable

- Molecules move FAST

All gases  
are homogeneous

Extremely weak / non-existent IMF  
Shape of container  $\rightarrow$  fill entire volume of container

Dec 13-8:09 AM

Liquids - Stronger IMF than gases  
b/c molecules closer together.

def. volume  $\rightarrow$  No def shape

Dec 13-8:22 AM

Solids      Strong IMF  
 Molecules close together.  
 def. Shape + volume,  
low compressibility.

True solid → crystal.  
 has morph. → amorphous

Dec 13-8:25 AM

IMF       $S > L > G$

INTER molecular forces. → Weaker  
 ↑ Between Molecules      Than

Ionic / covalent ⇒ INTRAMOLECULAR forces, (within molecule)

Dec 13-8:27 AM

## Affect Strength of IMF

- distance between.
- Size

$$F = k \frac{Q_1 Q_2}{d^2}$$

Charge of each magnet

Dec 13-8:30 AM

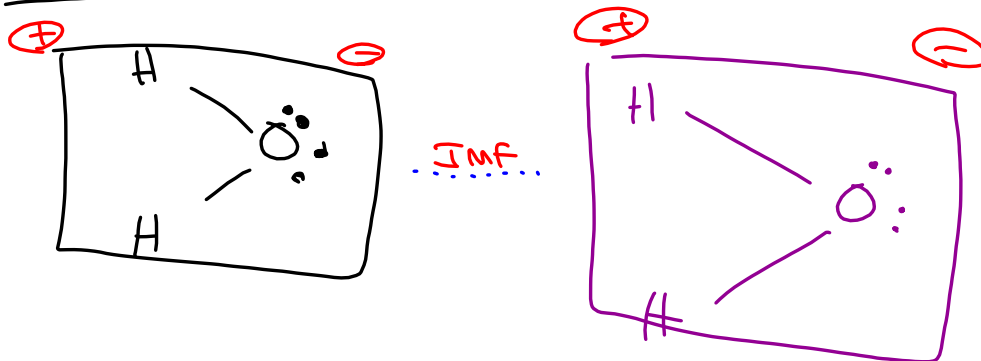
Strong → WEAK IMF

- ① Ion-Ion - charge + dist. between. (size)
- ② Ion-Dipole Polar molecule.

Both ⊕ and ⊖ weaker than ion-ion

Dec 13-8:32 AM

### ③ Dipole - Dipole



Dec 13-8:36 AM

### ④ London Dispersion Forces

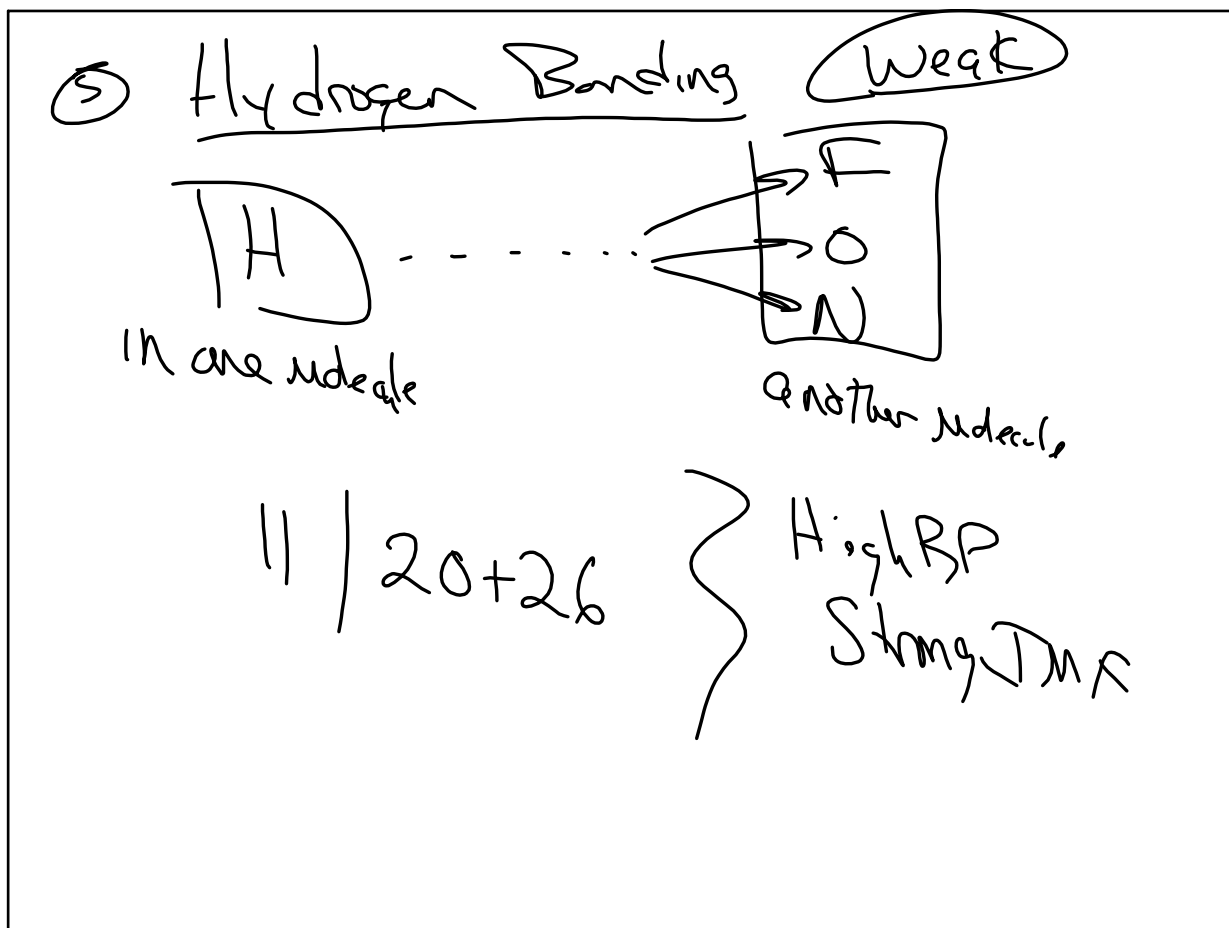
LDF

Everything has this.

"Van der Waals" forces

Dist + size

Dec 13-8:39 AM



Dec 13-8:41 AM