**Enthalpy (H) & enthalpy change (Δ )**

 **Enthalpy** - the “heat content” of a substance

 or - the total KE & PE of a substance at const. pressure.

 Chemists interested in **enthalpy changes** (Δ )

Enthalpy (H)

H + H

H

2

H

Reaction Proceeds

Heat is released to surroundings.

#### Exothermic



H is **negative** (-)

Enthalpy (H)

O + O



H

Reaction Proceeds

Heat is absorbed from the surroundings.

#### Endothermic



H is **positive** (+)

2

O

**Equations and heat**

 H2 + S ---> H2S Δ = - 20 KJ ( -ive Δ means **exothermic**)

Δ shown

 beside

 6C + 3H2 ---> C6H6 Δ = + 83 KJ ( +ive Δ means **endothermic**)

**Thermochemical equations:**

 (“**Heat Term**” is right in the equation. NO “Δ” shown beside the equation!)

 - “heat term” shown on **left** side of arrow - **endo**thermic (“it uses up heat like a reactant”)

 eg. CH3OH + **201KJ** 🡪 C(s) + 2H2(g) + ½ O2(g)

 -“heat term” shown on **right** side of arrow -**exo**thermic ( “it gives off heat like a product”)

 eg. S(g) + O2(g) ---> SO2(g) + **296 kJ**