

TERMODINÀMICA

ENERGIA INTERNA I ENTALPIA

Sempre

$$\Delta U = q + w$$

$$\Delta H = \Delta U + \Delta(PV)$$

Gasos ideals

$$P\Delta V = \Delta nRT$$

Pressió Constant

$$w = -P\Delta V$$

$$\Delta H = q_p$$

Volum Constant

$$\Delta U = q_v$$

ESPONTANEÏTAT DE REACCIONS

$$\Delta G = \Delta H - T\Delta S$$

$$\Delta G < 0 \quad \text{Espontània}$$

$$\Delta G > 0 \quad \text{No espontània}$$

$$\Delta S < 0 \quad \text{S'ordena}$$

$$\Delta S > 0 \quad \text{Es desordena}$$

HESS I SIMILARS

$$\Delta H = \sum n_p \cdot \Delta H_{f,p} - \sum n_r \cdot \Delta H_{f,r}$$

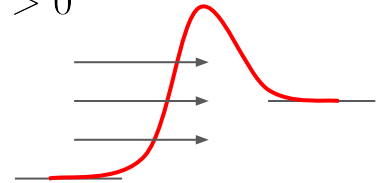
$$\Delta H = \sum E_{enll.trencats} - \sum E_{enll.creats}$$

$$\Delta S = \sum n_p \cdot \Delta S_p - \sum n_r \cdot \Delta S_r$$

$$\Delta G = \sum n_p \cdot \Delta G_p - \sum n_r \cdot \Delta G_r$$

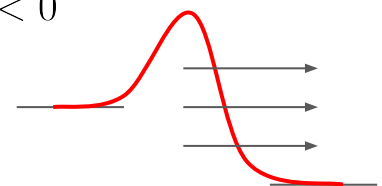
Endotèrmica

$$\Delta H > 0$$



Exotèrmica

$$\Delta H < 0$$



CALORIMETRIA

$$Q = mc_e\Delta T$$

$$Q = ml$$

$$\Delta w; \Delta Q; \Delta U; \Delta H < 0$$

El sistema **perd** energia (la dóna cap a l'exterior).

$$\Delta w; \Delta Q; \Delta U; \Delta H > 0$$

El sistema **guanya** energia (li donem des de l'exterior).