

TERMOQUÍMICA

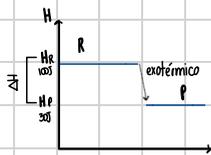
$$1 \text{ cal} = 4,18 \text{ J}$$

$$\text{Calor específico} = \Delta T^\circ$$

Calor latente = muda estado

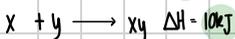
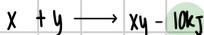
ENTALPIA energia transformada em calor

$$\Delta H = H_f - H_i$$

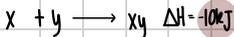
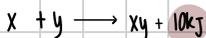
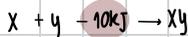


$$\Delta H = 30 \text{ J} - 100 \text{ J} = -70 \text{ J}$$

ENDO



EXO



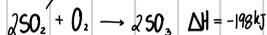
FAZORES QUE ALTERAM ΔH

- estados físicos dos reagentes ($s > l > g$)
- estados alotrópicos (alótropo mais estável: $\Delta H = 0$)
- temperatura
- quantidade de reagentes e produtos

VERT: $\Delta H = H_P - H_R$

$$\Delta H = -125 - (-395) = -31,5$$

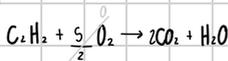
QZ: $\rightarrow -297 \text{ kJ/mol}$



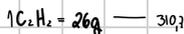
$$-198 = 2x - 2(-297)$$

$$2x = 792 \therefore 1 \text{ mol} = -396$$

Q3:



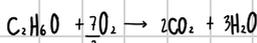
$$\Delta H = 2(-94,1) + (-68,3) - 95,2 = -310,7$$



$$5100 \quad \text{---} \quad x$$

$$x = 62150$$

Q4:

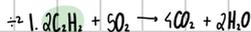


$$0,5 \text{ mol} \quad \text{---} \quad 148$$

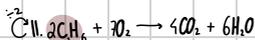
$$3 \quad \text{---} \quad x$$

$$x = 888 \text{ menor}$$

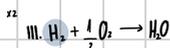
LEI DE HESS



$$\Delta H_1 = -2602 \therefore -1301$$



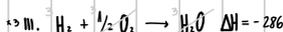
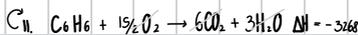
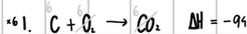
$$\Delta H_2 = -3423 \therefore +1561,5$$



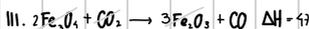
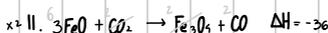
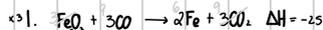
$$\Delta H_3 = -286 \therefore -572$$



$$\Sigma \Delta H = -310,5 \text{ kJ}$$



$$\Delta H_r = -564 + 3268 + (-858) = +1846$$



$$\Delta H = 100/6 \cong 17$$

$$\text{ENEM: } -18,8 - (-2,4) = -16,4$$

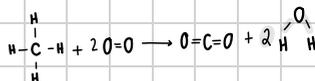
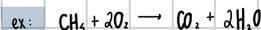
$$1 \text{ g} \quad \text{---} \quad -16,4 \text{ kJ}$$

$$5 \text{ g} \quad \text{---} \quad -82 \text{ kJ}$$

ENERGIA DE LIGAÇÃO

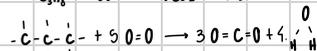
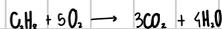
+ REAGENTES

- PRODUTOS



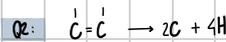
$$\Delta H = 4(\text{C-H}) + 2(\text{O}=\text{O}) + 2(\text{C}=\text{O}) + 4(\text{O-H})$$

Q1:

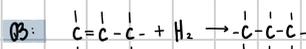


$$2(308) + 8(413) + 5(498) + 6(-394) + 8(-462)$$

$$696 + 3304 + 2490 - 4464 - 3696 = -1670 \text{ kJ}$$



$$4(98,8) + x = 542 \therefore x = 146,8$$



$$614 + 347 + 6(413) + 436 + 2(-394) + 8(-413)$$

$$3139 - 694 - 3304 + 436 = -123$$