# Karta wzorów

$$pV = nRT$$

$$\left[p + a\left(\frac{n}{V}\right)^2\right](V - b\,n) = nRT$$

$$2\pi r\sigma = \pi \times r^2 \times h \times d \times g$$

$$P = V \times \sigma^{\frac{1}{4}}$$

$$\frac{\eta_1}{\eta_2} = \frac{t_1 \times d_1}{t_2 \times d_2}$$

$$W_{obj} = -nRT\ln\frac{V_2}{V_1}$$

$$\Delta U = \Delta H + \Delta W_{obj}$$

$$W_{obj} = \frac{p_2V_2 - p_1V_1}{k-1}$$

$$W_{obj} = -p_{prac}\Delta V$$

$$\Delta H_r^o = \sum \Delta H_{tw,prod}^o - \sum \Delta H_{tw,substr}^o$$

$$\left(\frac{\partial \Delta H_r}{\partial T}\right)_p = \sum_i \upsilon C_{p,i}$$

$$\Delta S_r^o = \sum \Delta S_{tw,prod}^o - \sum \Delta S_{tw,substr}^o$$

$$dS = \frac{Q_{elodwr}}{T}$$

$$\Delta G_r^o = \sum \Delta G_{tw,prod}^o - \sum \Delta G_{tw,substr}^o$$

$$dH = C_p \times dT$$

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

$$W = U\,I\,t$$

$$\Delta S = nR\ln\frac{V_2}{V_1}$$

$$\ln\frac{p_2}{p_1} = \frac{\Delta H_{p.f.}}{R}\left(\frac{T_2 - T_1}{T_1\,T_2}\right)$$

$$\frac{dp}{dT} = \frac{\Delta H_{p.f.}}{T\Delta V}$$

$$p_2 - p_1 = \frac{\Delta H_{topn}}{\Delta V}ln\frac{T_2}{T_1}$$

$$p = p_a + p_b$$

$$p_y^0 \cdot m_x \cdot M_y = m_y \cdot M_x \cdot p_x^0$$

$$p_A = X_A^p\,p$$

$$p = p_A^0 + p_B^0$$

$$p_i = p_i^0\,X_i$$

$$p_A = X_A H$$

$$\Delta S = -R\Sigma n_i \ln X_i$$

$$ln\frac{K_2}{K_1} = \frac{\Delta H_r}{R}(\frac{T_2 - T_1}{T_1 T_2})$$

$$\pi = c \cdot R \cdot T$$

$$\Delta p = p^0_{rozp}\ X_s$$

$$\Delta T_k = \frac{RT^2 M_{rozp}}{1000\ \Delta H_{topn}} \frac{1000\ m_s}{M_s m_{rozp}}$$

$$\frac{\Delta p}{p^0_A} = \frac{m_s M_e}{M_s m_e}$$

$$m = \frac{\Delta T_k}{K_k}$$

$$K = \frac{\alpha^2 C}{1 - \alpha}$$

$$pH = pK_a + log\frac{[sól]}{[kwas]}$$

$$M \cdot D(1 - \bar{V}\rho_o) = RTs$$

$$\bar{x} = \sqrt{2Dt}$$

$$\Gamma = -\frac{c}{RT}\left(\frac{d\sigma}{dc}\right)$$

$$\xi \cdot \varepsilon = \mu k \pi \eta$$

$$\theta = \frac{bp}{1 + bp}$$

$$a = \omega^2 x$$

$$\omega = \frac{2\pi}{t}$$

$$D = \frac{RT}{6\ \pi\ \eta N_A r}$$

$$\Delta x = \sqrt{\frac{RT}{N_A}\frac{t}{3\pi\ \eta r}}$$

$$[\eta] = K\ M^{\alpha}$$

$$loga = \frac{1}{n}logc + logk$$

$$\gamma = \left(\frac{k_2}{k_1}\right)^{\frac{10}{\Delta T}}$$

$$lnC = lnC_0 - kt$$

$$C = C_0 - kt$$

$$\frac{1}{C} = \frac{1}{C_0} + kt$$

$$lnk = lnA - \frac{E_a}{R} \cdot \frac{1}{T}$$

$$\upsilon = \mu \times E$$

$$\mathrm{E} = \mathrm{E}^0 + \frac{\mathrm{RT}}{\mathrm{nF}} \ln \frac{\mathrm{a_{utl}}}{\mathrm{a_{red}}}$$

$$\mathrm{E} = \mathrm{E}^0 + \frac{RT}{nF} \ln c$$

$$\Delta \mathrm{G}^\circ = -\mathrm{RT} \ln K$$

$$\Delta \mathrm{G}^\circ = -n\mathrm{F}E$$