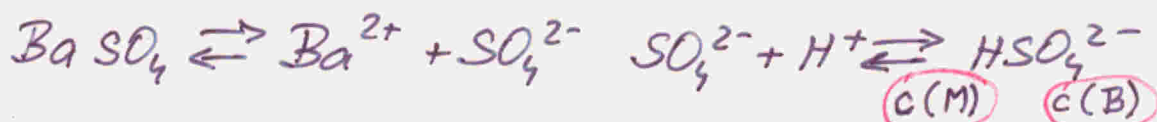
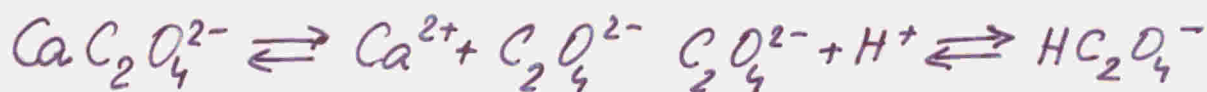
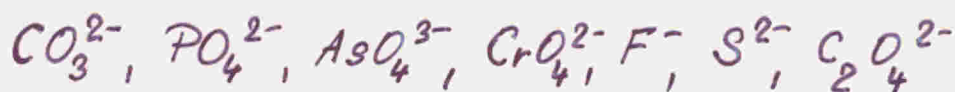


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Podmíněný součin rozpustnosti  $K'_s = [M']^m \cdot [B']^n =$

$$= [M]^m \cdot \alpha_{M(L)}^m \cdot [B]^n \cdot \alpha_{B(H)}^n = \underline{K_s \cdot \alpha_{M(L)}^m \cdot \alpha_{B(H)}^n}$$

$\alpha$  - koeficienty vedlejších reakcí

$$\alpha_{M(L)} = \frac{[M']}{[M]} = \frac{1}{[M]} \{ [M] + [ML] + [ML_2] + \dots \} = 1 + \beta_{ML} [L] + \beta_{ML_2} [L]^2 + \dots$$

$\alpha \geq 1$        $\beta_{ML} = \frac{[ML]}{[M][L]}$        $\beta_{ML_2} = \frac{[ML_2]}{[M][L]^2}$       oelkove konstanty stability

Příklad: dvojsytná kyselina:  $\text{H}_2\text{B} \rightleftharpoons \text{HB}^- + \text{H}^+ \quad K_1 = \frac{[\text{H}^+][\text{HB}^-]}{[\text{H}_2\text{B}]}$   
 $\text{HB}^- \rightleftharpoons \text{B}^{2-} + \text{H}^+ \quad K_2 = \frac{[\text{H}^+][\text{B}^{2-}]}{[\text{HB}^-]}$

$$\alpha_{B(H)} = \frac{1}{[B]} \{ [B] + [\text{HB}] + [\text{H}_2\text{B}] \} =$$
$$= \frac{1}{[B]} \left\{ [B] + [B] \cdot [\text{H}] \cdot \frac{1}{K_2} + [\text{HB}] \cdot [\text{H}] \cdot \frac{1}{K_1} \right\} = \frac{1}{[B]} \left\{ [B] + [B] \cdot [\text{H}] \cdot \frac{1}{K_2} + [B] \cdot [\text{H}]^2 \cdot \frac{1}{K_1 K_2} \right\} = \underline{1 + \frac{[\text{H}]}{K_2} + \frac{[\text{H}]^2}{K_1 K_2}}$$

Příklad: Jaká je rozpustnost  $\text{CaF}_2$  v 0,01M-HCl?  $K_{\text{HF}} = 6 \cdot 10^{-4}$   
 $K_s(\text{CaF}_2) = 4 \cdot 10^{-11}$ ,  $\text{F}^- + \text{H}^+ \rightleftharpoons \text{HF} \Rightarrow \alpha_{\text{F}^-} = \left\{ 1 + \frac{[\text{H}^+]}{K_{\text{HF}}} \right\}$

$$\alpha_{\text{F}^-} = 1 + (6 \cdot 10^{-4})^{-1} [10^{-2}] = 18; \quad c(\text{CaF}_2) = \sqrt[3]{K'_s/4} = \sqrt[3]{K_s \cdot \alpha_{\text{F}^-}^2/4}$$
$$= \sqrt[3]{K_s/4} \cdot \sqrt[3]{\alpha_{\text{F}^-}^2} = \sqrt[3]{4 \cdot 10^{-11}/4} \cdot \sqrt[3]{18^2} = 2,16 \cdot 10^{-4} \cdot 312^{1/3} = 2,15 \cdot 10^{-4} \cdot 6,78 = 0,0015 \text{ M}$$