

658. Izračunati PH rastvora nastalog dodavanjem 0,94g HNO_2 u 800 cm^3 rastvora NaNO_2 koncentracije $0,1 \text{ mol/dm}^3$. $K_k(\text{HNO}_2) = 4,5 \cdot 10^{-4} \text{ mol/dm}^3$.

Za rastvore kiselih pufera koncentracija vodoničnih jona $[H^+]$ se izračunava po formuli:

$$[H^+] = \frac{c_{(kiselina)}}{c_{(soli)}} \cdot K_k$$

$$[H^+] = \frac{c(\text{HNO}_2)}{c(\text{NaNO}_2)} \cdot K_k$$

$$m(\text{HNO}_2) = 0,94 \text{ g}$$

$$M(\text{HNO}_2) = 47 \frac{\text{g}}{\text{mol}}$$

$$n(\text{HNO}_2) = \frac{m(\text{HNO}_2)}{M(\text{HNO}_2)}$$

$$n(\text{HNO}_2) = \frac{0,94 \text{ g}}{47 \frac{\text{g}}{\text{mol}}}$$

$$n(\text{HNO}_2) = 0,02 \text{ mol}$$

$$c(\text{HNO}_2) = \frac{n(\text{HNO}_2)}{V}$$

$$c(\text{HNO}_2) = \frac{0,02 \text{ mol}}{0,8 \text{ dm}^3}$$

$$c(\text{HNO}_2) = 0,025 \frac{\text{mol}}{\text{dm}^3}$$

$$[H^+] = \frac{c(\text{HNO}_2)}{c(\text{NaNO}_2)} \cdot K_k$$

$$[H^+] = \frac{0,025 \frac{\text{mol}}{\text{dm}^3}}{0,1 \frac{\text{mol}}{\text{dm}^3}} \cdot 4,5 \cdot 10^{-4} \frac{\text{mol}}{\text{dm}^3}$$

$$[H^+] = 1,125 \cdot 10^{-4} \frac{\text{mol}}{\text{dm}^3}$$

$$PH = -\log[H^+]$$

$$PH = -\log 1,125 \cdot 10^{-4}$$

$$PH = 3,95$$