

654. Koliko grama  $\text{CH}_3\text{COONa}$  treba dodati u  $20\text{cm}^3$  rastvora  $\text{CH}_3\text{COOH}$  koncentracije  $4 \cdot 10^{-2} \text{ mol/dm}^3$ , da bi PH rastvora bio 4,44?  $K_k(\text{CH}_3\text{COOH}) = 1.8 \cdot 10^{-5} \text{ mol/dm}^3$ .

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

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

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$$[H^+] = \frac{c(\text{CH}_3\text{COOH})}{c(\text{CH}_3\text{COONa})} \cdot K_k$$

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

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

$$\log[H^+] = -4.44$$

$$[H^+] = 3.63 \cdot 10^{-5} \frac{\text{mol}}{\text{dm}^3}$$

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$$[H^+] = \frac{c(\text{CH}_3\text{COOH})}{c(\text{CH}_3\text{COONa})} \cdot K_k$$

$$c(\text{CH}_3\text{COONa}) = \frac{c(\text{CH}_3\text{COOH})}{[H^+]} \cdot K_k$$

$$c(\text{CH}_3\text{COONa}) = \frac{4 \cdot 10^{-2} \frac{\text{mol}}{\text{dm}^3}}{3.6 \cdot 10^{-5} \frac{\text{mol}}{\text{dm}^3}} \cdot 1.8 \cdot 10^{-5} \frac{\text{mol}}{\text{dm}^3}$$

$$c(\text{CH}_3\text{COONa}) = 2 \cdot 10^{-2} \frac{\text{mol}}{\text{dm}^3}$$

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$$V = 20 \cdot 10^{-3} \text{ dm}^3$$

$$n = c \cdot V$$

$$n = 2 \cdot 10^{-2} \frac{\text{mol}}{\text{dm}^3} \cdot 2 \cdot 10^{-2} \text{ dm}^3$$

$$n_{(\text{CH}_3\text{COONa})} = 4 \cdot 10^{-4} \text{ mol}$$

$$m_{(\text{CH}_3\text{COONa})} = 0.03 \text{ g}$$