

U4-2

$S_f = 10 \text{ m}^2$  / vodní suspenze  
 $V_s = 1.09 \text{ m}^3$   $\rho_s = 1175 \text{ kg/m}^3$

$$q_F^2 + q_n q_F - k_f \tau_f = 0$$

$$V_F = ?$$

$$w_s = 0.15$$

$$\tau_c = 15 \text{ min}$$

$$\tau_c < 90 \text{ min}$$

$$w_k = (1 - 0.35)$$

$$q_n = 0$$

$$k_f = 3.78 \cdot 10^{-6} \text{ m}^2/\text{s}$$

$$m_s = V_s \cdot \rho_s = 1.09 \cdot 1175 = 1280.75 \text{ kg - suspension.}$$

$$m_s = m_F + m_k$$

$$m_s w_s = m_k w_k$$

$$1280.75 = m_F + \frac{m_s w_s}{w_k}$$

$$1280.75 - \frac{1280.75 \cdot 0.15}{1 - 0.35} = m_F = \underline{\underline{985.192 \text{ kg}}}$$

$$V_F = m_F / \rho_F = \frac{985.192}{1000} = \underline{\underline{0.9852 \text{ m}^3}}$$

$$q_F(\tau_F) = 0.9852 / 10 = 0.09852 \text{ m}$$

$$q_F^2(\tau_F) + q_n q_F(\tau_F) - k_f \tau_f = 0$$

$$\frac{q_F^2(\tau_F)}{k_f} = \tau_F \Rightarrow \tau_F = \frac{0.09852^2}{3.78 \cdot 10^{-6}} = \underline{\underline{2568 \text{ s}}}$$

Průsvitání

$$\tau_p = 5400 - 2568 - 600 = \underline{\underline{2232 \text{ s}}}$$

$$4q_p \cdot (q_F + q_n) - k_f \tau_p = 0$$

$$4q_p \cdot (0.09852) = 3.78 \cdot 10^{-6} \cdot 2232$$

$$4q_p = \frac{0.01853}{4} = 0.00463 \text{ m}$$

$$V_p = q_p \cdot S_f = 0.01853 \cdot 10 = 0.1853 \text{ m}^3$$

$$q_p (q_F + q_n) - k_f \tau_p = 0$$

$$q_p (2q_F) - k_f \tau_p = 0$$

$$q_p = \frac{3.78 \cdot 10^{-6} \cdot 2232}{2 \cdot 0.09852} =$$

$$= 0.037063337 \text{ m}$$

$$V_p = q_p S_f = \frac{0.03706}{1000} \cdot 10 = \frac{10}{2}$$

$$V_p = 0.1853$$