

① Diket :

$$\% E = 99,9 \%$$

$$V_0 = 50 \text{ ml}$$

$$V_a = 50 \text{ ml}$$

$$n = 5$$

$$W_A = 100 \% - 99,9 \%$$

$$= \frac{0,1 \%}{100} \times 1 \text{ gram}$$

$$= 0,001 \text{ gram}$$

$$\Rightarrow W_A = W_0 \left(\frac{V_a}{V_a + K_D \cdot V_0} \right)^n$$

$$0,001 \text{ gram} = 1 \text{ gram} \left(\frac{50 \text{ ml}}{50 \text{ ml} + 50 \text{ ml} \cdot K_D} \right)^5$$

$$\left[0,001 \text{ gram} = 1 \text{ gram} \left(\frac{1}{1 + K_D} \right)^5 \right]^{1/5}$$

$$(0,001 \text{ gram})^{1/5} = \left(\frac{1}{1 + K_D} \right)^1$$

$$0,2511 (1 + D) = 1$$

$$0,2511 + 0,2511 D = 1$$

$$0,2511 K_D = 1 - 0,2511$$

$$0,2511 K_D = 0,75$$

$$K_D = 2,98 \approx 3$$

KIKY

No. :

Date. :

(3-2) Diketahui :

$$\% E = 90 \%$$

$$V_a = 100 \text{ ml}$$

$$V_o = 90 \text{ ml}$$

$$n = 5$$

$$W_o = 1 \text{ gram}$$

$$\begin{aligned} W_a &= 100\% - 90\% \\ &= 10\% \times 1 \text{ gram} \\ &= 0,1 \text{ gram} \end{aligned}$$

$$\Rightarrow \left[W_a = W_o \left(\frac{V_a}{V_a + V_o K_D} \right)^n \right] \times \frac{1}{n}$$

$$W_o = 1 \text{ gram}$$

$$(W_a)^{1/n} = 1 \left(\frac{V_a}{V_a + V_o K_D} \right)$$

$$(V_a + V_o K_D) = \frac{V_a}{W_a^{1/n}}$$

$$K_D = \frac{\left(\frac{V_a}{W_a^{1/n}} - V_a \right)}{V_o}$$

$$\Rightarrow \% E = 90\%$$

$$\hookrightarrow K_D = \frac{\frac{100}{0,1 \times 1/5} - 100}{90}$$

$$K_D = \frac{\frac{100}{0,631} - 100}{90}$$

$$K_D = \frac{158,47 - 100}{90}$$

$$K_D = 0,65$$

$$\Rightarrow \% E \text{ untuk 10 kali}$$

$$(100\% - X\%) \text{ gram} = 0,01 \text{ g}$$

$$\frac{100}{100} - X\% = 0,01 \text{ g}$$

$$X\% = 1 - 0,01 \text{ gr}$$

$$X\% = 0,99$$

$$X = 99\%$$