

Ida Noviana
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No. _____

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Jika 5 ekstraksi dengan 100 ml bagian ekstraksi eter 90%. Zat terlarut dan larutan berair. Berapa fraksi zat yang terlarut yang akan di hilangkan sepuluh ekstraksi serupa.

Jawab -

% E = 90%

$V_A = 100 \text{ ml}$

$V_o = 90 \text{ ml}$

$n = 5$

$W_o = 1 \text{ gram}$

$W_a = 100\% - 90\% = 10\% \times 1 \text{ gr} = 0,1 \text{ gram}$

$$\left[W_a = W_o \left(\frac{V_A}{V_A + V_o \cdot K_D} \right)^n \right]^{1/n}$$

$W_o = 1 \text{ gram}$

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

$$V_A + V_o K_D = \frac{V_A}{W_a^{1/n}}$$

~~W_a = 0,1 gram~~

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

No.

Date :

$$\% E = 90\%$$

$$K_D = \frac{\frac{100}{0,145} - 100}{90}$$

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

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

$$K_D = 0,6496$$

% E Untuk 10 ekstraksi

$$(100\% - x\%) \text{ gr} = 0,01 \text{ gr}$$

$$\frac{100}{100} - x\% = 0,01 \text{ gr}$$

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

$$x\% = 0,99$$

$$x = 99\%$$