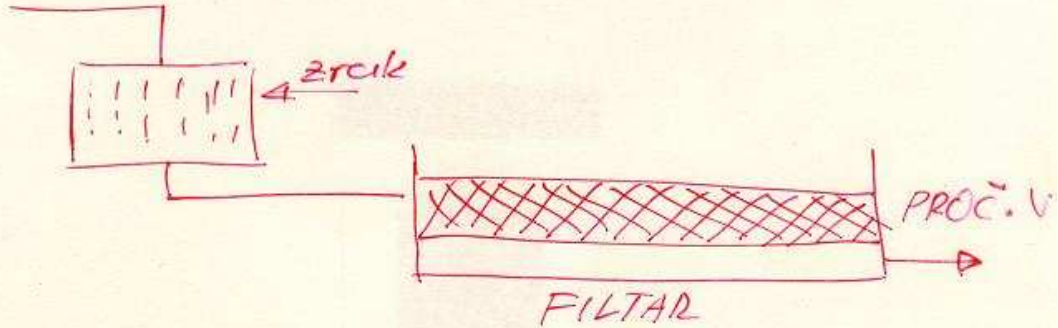


# AERACIJA VODE

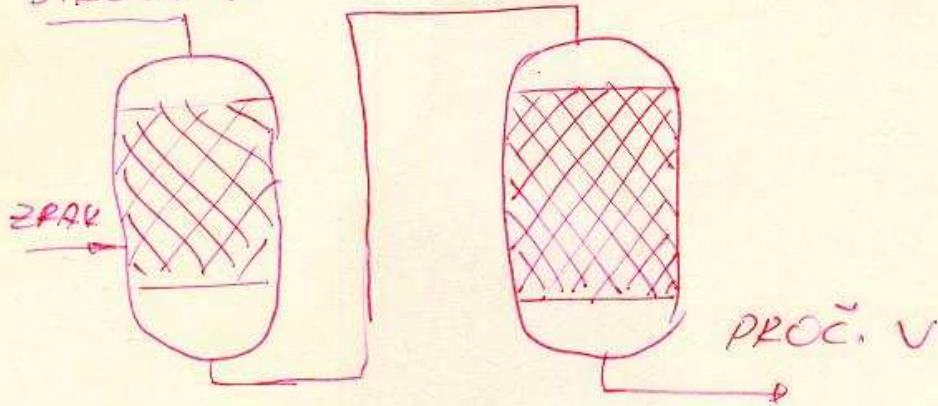
(A)

SIROVA V.



OTVORENI SISTAV  
PRERADBE VODE

SIROVA V.

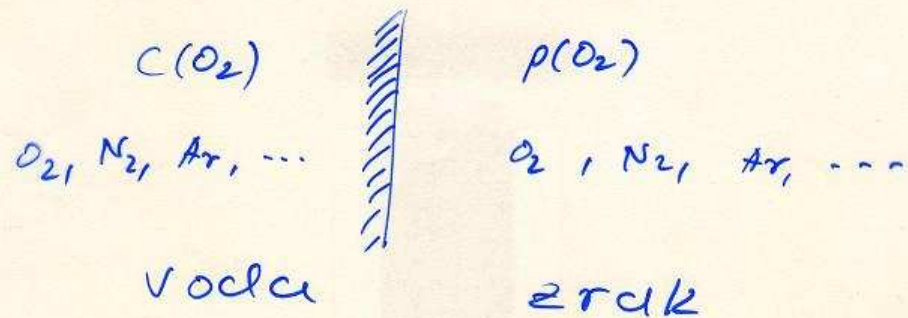


ZATVORENI SISTAV  
PRERADBE VODE

# TOPLJIVOST PLINOVA

3

## Henry-ov zakon



$$C(O_2)_s = k_H \cdot p(O_2)$$

$k_H$  - Henry-ova konstanta

$$k_H / \text{g m}^{-3} \text{Pa}^{-1}$$

$$C(O_2)_s = K_D \cdot C(O_2)_g$$

$K_D$  - koeficijent raspodjele

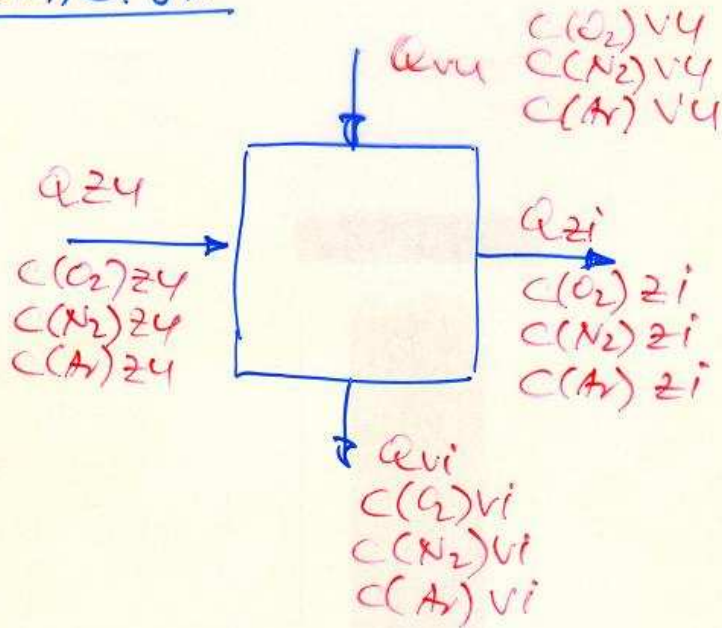
$$K_D / 1$$

$$k_H = K_D \cdot M / R \cdot T$$

$$(K_D)_2 = (K_D)_1 \cdot e^{\text{konst.} \cdot (T_2 - T_1)}$$

# AERACIJA

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$$\begin{aligned} C(O_2)vu &= COvu \\ C(N_2)vu &= CNvu \\ C(A)vu &= CAvu \\ &\vdots \\ &\text{itd} \end{aligned}$$

$$\begin{aligned} COzu &= 9.344 \text{ mol m}^{-3} \\ CNzu &= 34.824 \text{ mol m}^{-3} \\ CAzu &= 0.415 \text{ mol dm}^{-3} \end{aligned}$$

$$\begin{aligned} X(O_2) &= 0.2035 \\ X(N_2) &= 0.7808 \\ X(A) &= 0.0033 \\ K_D(O_2) &= 0.0333 \\ K_D(N_2) &= 0.0166 \\ K_D(A) &= 0.0372 \end{aligned}$$



$$CO_{Vi} = K_D(O_2) \cdot CO_{zi}$$

$$CN_{Vi} = K_D(N_2) \cdot CN_{zi}$$

$$CA_{Vi} = K_D(A) \cdot CA_{zi}$$

$$Q_{zu} \cdot CO_{zu} = Q_{vi} \cdot CO_{vi} + \underline{Q_{zi} \cdot CO_{zi}}$$

$$Q_{zu} \cdot CN_{zu} = Q_{vi} \cdot CN_{vi} + \underline{Q_{zi} \cdot CN_{zi}}$$

$$Q_{zu} \cdot CA_{zu} = Q_{vi} \cdot CA_{vi} + \underline{Q_{zi} \cdot CA_{zi}}$$

$$CO_{zi} + CN_{zi} + CA_{zi} = 44,6$$

$$Q_{vu} = Q_{vi}$$

$$CO_{vu} = 0$$

$$CN_{vu} = 0$$

$$CA_{vu} = 0$$

$$CO_{zi} =$$

$$CN_{zi} =$$

$$CA_{zi} =$$

$$Q_{zi} =$$

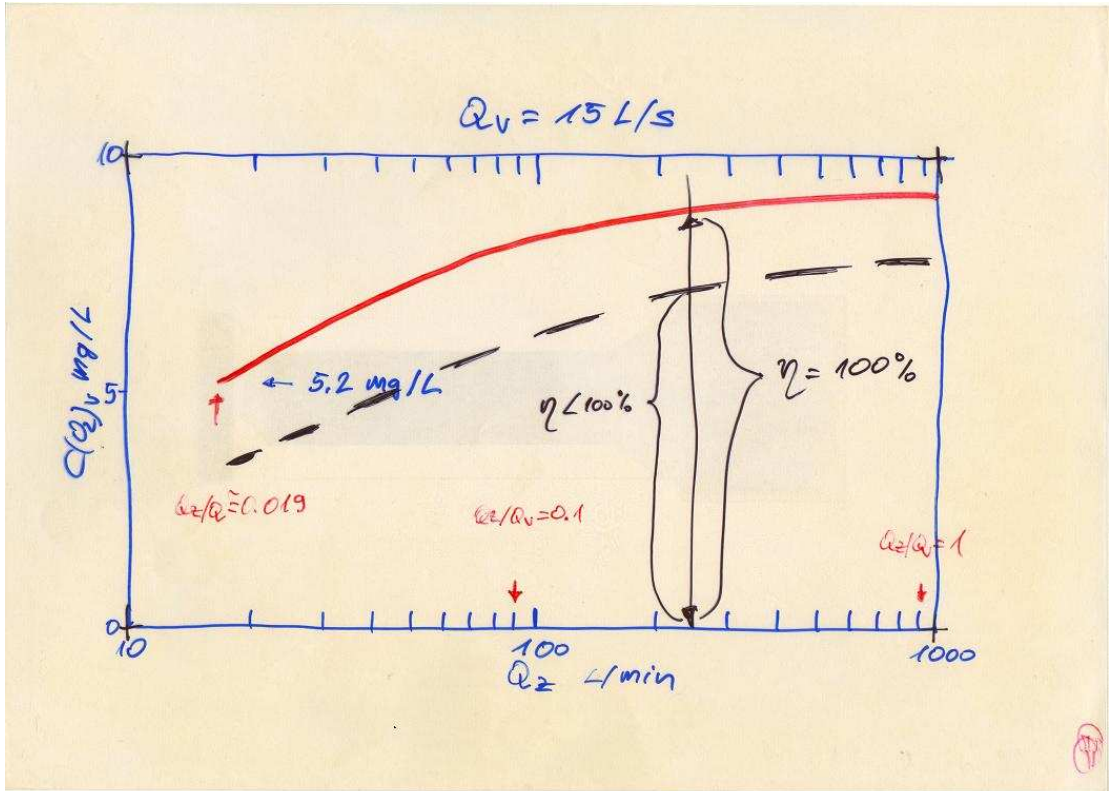
$$Q_{vu} =$$

$$Q_{zu} =$$

$$CO_{zu} =$$

$$CN_{zu} =$$

$$CA_{zu} =$$



## KOEFICIJENT AERACIJE

9

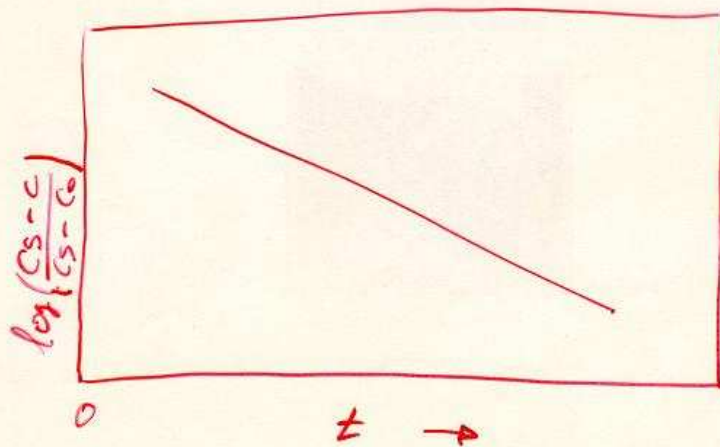
$$\frac{dc}{dt} = k_2 (C_s - c)$$

$$\int_{c_0}^c \frac{dc}{C_s - c} = k_2 \int_0^t dt$$

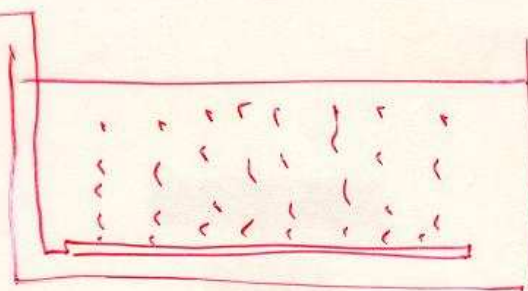
$$\frac{C_s - c}{C_s - c_0} = e^{-k_2 \cdot t}$$

$$\log\left(\frac{C_s - c}{C_s - c_0}\right) = \log e^{-k_2 \cdot t}$$

$$\log\left(\frac{C_s - c}{C_s - c_0}\right) = -0.4343 \cdot k_2 \cdot t$$



Zrak



h

$t(s)$	$c(g\ m^{-3})$	$e^{-k_2 \cdot t}$
0	3.8	1
120	5.2	0.791
240	6.3	0.627
360	7.2	0.493
480	7.9	0.388
600	8.4	0.313
720	8.8	0.294
840	9.2	0.194

$$C_s = 10.5\ g/m^3\ O_2$$

$$\log\left(\frac{C_s - c}{C_s - c_0}\right) = -0.4343 \cdot k_2 \cdot t$$

$$y = a \cdot x + b$$

$$a = 0.4343 \cdot k_2 = 9.299 \cdot 10^{-4}$$

$$k_2 = \frac{9.299 \cdot 10^{-4}}{0.4343} = 2.14 \cdot 10^{-3}\ s^{-1}$$



## KOEFICIJENT EFIKASNOSTI AERACIJE

2

$$(C_e - C_o) = K(C_s - C_o)$$
$$K = 1 - e^{-k_2 \cdot t_k}$$

SIROVA VODA

$C_o$

