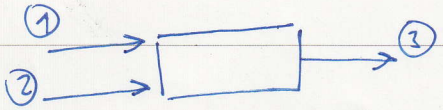
rozsah reakce

NO.
DATE

42-19

~~destilace ethanol-voda~~

$$CH_3OH + \tfrac{1}{2} O_2 \longrightarrow CH_2=O + H_2O$$



$pV = nRT$

$\frac{V_i}{V} = \frac{n_i}{n}$ $[p, R, T]$

	①	②	③
A - methanol	1	—	w_{A3}
B - O_2	—	0.21	w_{B3}
C - formaldehyd	—	—	w_{C3}
D - H_2O	—	—	w_{D3}
E - N_2	—	0.71	w_{E3}
	~~6 mol~~ 1 mol	6 mol	n_3

6+1 neznámých
5 rovnic bilancí
1 $\Sigma x = 1$
1 $\eta = 0.30$

$$\eta = 0.3 = \frac{\xi}{1} \Rightarrow \xi = 0.3 \text{ mol}$$

$1 \Rightarrow n_1$

$$2\xi + 1 + 6 = 1.5\xi + n_3$$

$$1 = n_3 w_{A3} + \xi$$

$$0.21 \cdot 6 = n_3 w_{B3} + 0.5\xi$$

$$\xi = n_3 w_{C3}$$

$$\xi = n_3 w_{D3}$$

$$w_{E3} = 1 - w_{A3} - w_{B3} - w_{C3} - w_{D3}$$

$$n_3 = 0.5 \cdot 0.3 + 7 = 7.15 \text{ mol}$$

$$w_{A3} = \cancel{0.140}\ 0.0979$$

$$w_{B3} = (0.21 \cdot 6 - 0.5 \cdot 0.3)/7.15 = 0.1552$$

$$w_{C3} = 0.04196$$

$$w_{D3} = 0.04196$$

$$w_{E3} = 0.66298$$

9.79% methanol
15.52% kyslík
66.3% dusík
4.20% formaldehyd
4.20% voda