

Rješenja zadataka

Ekstrakcija

1. $X_1=1,28$ kg/kg; $Y_1=0,86$ kg/kg; $X_2=0,61$ kg/kg; $Y_2=0,34$ kg/kg; $X_3=0,30$ kg/kg; $Y_3=0,15$ kg/kg
2. $N=3$; $\varepsilon_1=0,53$; $\varepsilon_2=0,53$; $\varepsilon_3=0,52$; $\varepsilon_{uk}=0,89$;
3. $X_1=0,1025$ kg/kg; $Y_1=0,0516$ kg/kg; $X_2=0,055$ kg/kg; $Y_2=0,026$ kg/kg; $X_3=0,028$ kg/kg; $Y_3=0,131$ kg/kg
4. Grafički: $NTU = 2,8$; $HTU = 0,536$ m; Računski: $NTU = 2,49$; $HTU = 0,602$ m; $S_{min} = 1,04$ kg/kg
5. $S = 1,874$ kg/kg; Grafički: $NTU = 3,2$; $HTU = 0,625$ m; Računski: $NTU = 3,0$; $HTU = 0,666$ m; $K_R a = 8,47 \cdot 10^{-4} \text{ s}^{-1}$
6. $S_{min} = 0,521$ kg/kg; $S = 0,675$ kg/kg; $NTU = 5,6$; $\varepsilon=0,895$

Destilacija

1. $R_{min} = 0,702$; $NTU_{min} = 5$; $NTU = 8,6$; $D = 505,26$ mol/h; $B = 494,76$ mol/h
2. $R_{min} = 0,52$; $NTU = 14,75$; $D = 66,67$ mol/h; $B = 33,33$ mol/h; $NTU_F = 7$
3. $R_{min} = 1,5$; $NTU = 20$; $D = 105,88$ mol/h; $B = 94,12$ mol/h; $NTU_F = 7$
4. $R_{min} = 0,702$; $NTU_{min} = 2,95$; $NTU = 6,3$; $D = 505,26$ mol/h; $B = 494,76$ mol/h
5. $m_v = 28146,69$ kg/s; $Q_{isp} = 3,9 \cdot 10^6$ kW
6. $m_v = 104,59$ kg/s; $Q_{isp} = 1,34 \cdot 10^4$ kW; $NTU = 11$
7. $m_v = 20800,45$ kg/s; $NTU = 6,2$; $T = 75$ °C

Sušenje

1. $m_{sz} = 13,17$ kg/s
2. $m_{sz} = 6,95$ kg/s; $Q = 590,75$ kW
3. $Q = 42,31$ kW
4. $\Delta m_v = 0,597$ kg
5. $X_0 = 0,2431$ kg/kg; $T_1 = 90$ °C; $Q = 253,375$ kW