$F_1 = F_{10} - \xi_1 \Rightarrow \xi_1 = F_{10} - F_1 = 1 - 0,345 = 0,655$

$F_T = F_{T0} + \xi_2 = 0,345$

$F_T = F_{T0} + F_0 \alpha_2 \Rightarrow \alpha_2 = \frac{F_T}{F_0} = \frac{0,345}{2,33} = 0,148$

3/ calcul des débits molaire à la sortie de réacteur.

$F_{1S} = 0,345$ mol/s

$F_{TS} = 0,345$ mol/s

$F_{2S} = F_{20} + F_0 (-\alpha_1 - \alpha_2)$

$= \frac{1}{0,75} + 2,33(-0,28 - 0,148) = 0,336$ mol/s

$F_{3S} = F_{30} + F_0 (3\alpha_1 + \alpha_2)$

$= 2,33(3 \cdot 0,28 + 0,148) = 2,3$ mol/s

$F_{4S} = F_{40} + (\xi_1 - \xi_2) = 0,655 - 0,345 = 0,31$ mol/s.

Exercice 2 :

SO_2 (28%) + Air (72%) = 72 mol

$n_{SO_2} = 28$ mol ; n_{Air}

20% → O_2 ; 80% → N_2

$n_{O_2} = 0,2 \cdot 72 = 14,4$ mol ; $n_{N_2} = 0,8 \cdot 72 = 57,6$ mol

$SO_2 + \frac{1}{2} O_2 \longrightarrow SO_3$

1/ calcul de α

$F_1 = F_{10}(1 - X_1) = F_{10} + F_0 \cdot \alpha_1 \alpha_1$

$\alpha_1 = \frac{F_{10}}{F_0} \cdot X_A = \frac{n_{10}}{n_0} \cdot X_A = \frac{28}{42,4} 0,45$

$= 0,30$

2/ calcul de α et β

$\beta = \frac{P_0/T_0}{P/T} = \frac{1,013/273}{1,485 \cdot 10^5/500} = 0,123 < 1$ dilatation.

Si $\beta > 1$ contraction.

$\alpha = \frac{\Delta V}{\varepsilon + 1}$, I = Rapport d'inerte $I = \frac{n_I}{n_0}$.