

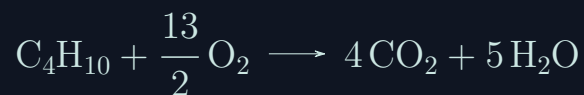
# IEQB - Exercícios reatores com reação

Felipe Pinto - 61387

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## Conteúdo

## 4.6



	in	out
$\text{C}_4\text{H}_{10}$		
$\text{O}_2$		5.12 % mol
$\text{N}_2$	84.25 % mol	84.25 % mol
$\text{CO}_2$	-	10.63 % mol
$\text{H}_2\text{O}$	-	
Total		

...

## 4.7



	in (mol/min)	out (mol/min)	%out
$\text{C}_3\text{H}_8$	200	70	3.7
$\text{H}_2\text{O}$	900	510	27
$\text{CO}$	-	390	21
$\text{H}_2$	-	910	48
Total	1100	1880	100

$$\text{mol}_{\text{H}_2\text{O in}}/\text{min} = \text{mol}_{\text{C}_3\text{H}_8 \text{ in}} \frac{3 \text{ mol}_{\text{H}_2\text{O in}}}{1 \text{ mol}_{\text{C}_3\text{H}_8 \text{ in}}} * 1.5 = 200 \frac{3}{1} * 1.5 \cong 900 \text{ mol}_{\text{H}_2\text{O in}}$$

$$\text{mol}_{\text{C}_3\text{H}_8 \text{ out}} = 200 \text{ mol}_{\text{C}_3\text{H}_8 \text{ in}} \frac{35 \text{ mol}_{\text{C}_3\text{H}_8 \text{ out}}}{100 \text{ mol}_{\text{C}_3\text{H}_8 \text{ in}}} \cong 70 \text{ mol}_{\text{C}_3\text{H}_8 \text{ out}}$$

$$\text{mol}_{\text{H}_2\text{O out}} = 900 \text{ mol}_{\text{H}_2\text{O in}} - 200 \text{ mol}_{\text{C}_3\text{H}_8 \text{ in}} \frac{3 \text{ mol}_{\text{H}_2\text{O in}}}{1 \text{ mol}_{\text{C}_3\text{H}_8 \text{ in}}} \frac{65 \text{ mol}_{\text{H}_2\text{O in}}}{100 \text{ mol}_{\text{H}_2\text{O in}}} \cong 510 \text{ mol}_{\text{H}_2\text{O out}}$$

$$\text{mol}_{\text{CO out}} = \frac{3 \text{ mol}_{\text{CO out}}}{1 \text{ mol}_{\text{C}_3\text{H}_8 \text{ in}}} \frac{65 \text{ mol}_{\text{C}_3\text{H}_8 \text{ in}}}{100 \text{ mol}_{\text{C}_3\text{H}_8 \text{ in}}} 200 \text{ mol}_{\text{C}_3\text{H}_8 \text{ in}} \cong 390 \text{ mol}_{\text{CO out}}$$

$$\text{mol}_{\text{H}_2 \text{ out}} = \frac{7 \text{ mol}_{\text{H}_2 \text{ out}}}{3 \text{ mol}_{\text{CO out}}} 390 \text{ mol}_{\text{CO out}} \cong 910 \text{ mol}_{\text{H}_2 \text{ out}}$$