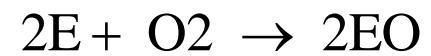
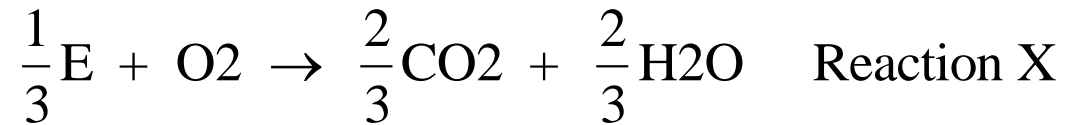


EO reactor

Reactions (simplified)



Reaction P 



Reaction X

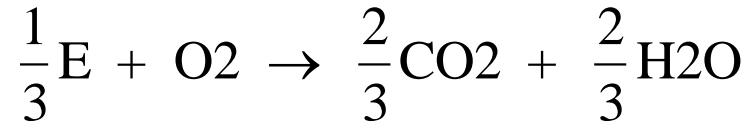
Conditions

- 10 bar
- $\sim 240\text{ }^{\circ}\text{C}$
- Oxygen conversion $\sim 40\%$
- Oxygen fraction in feed $\sim 7\%$

Kinetics



Reaction P

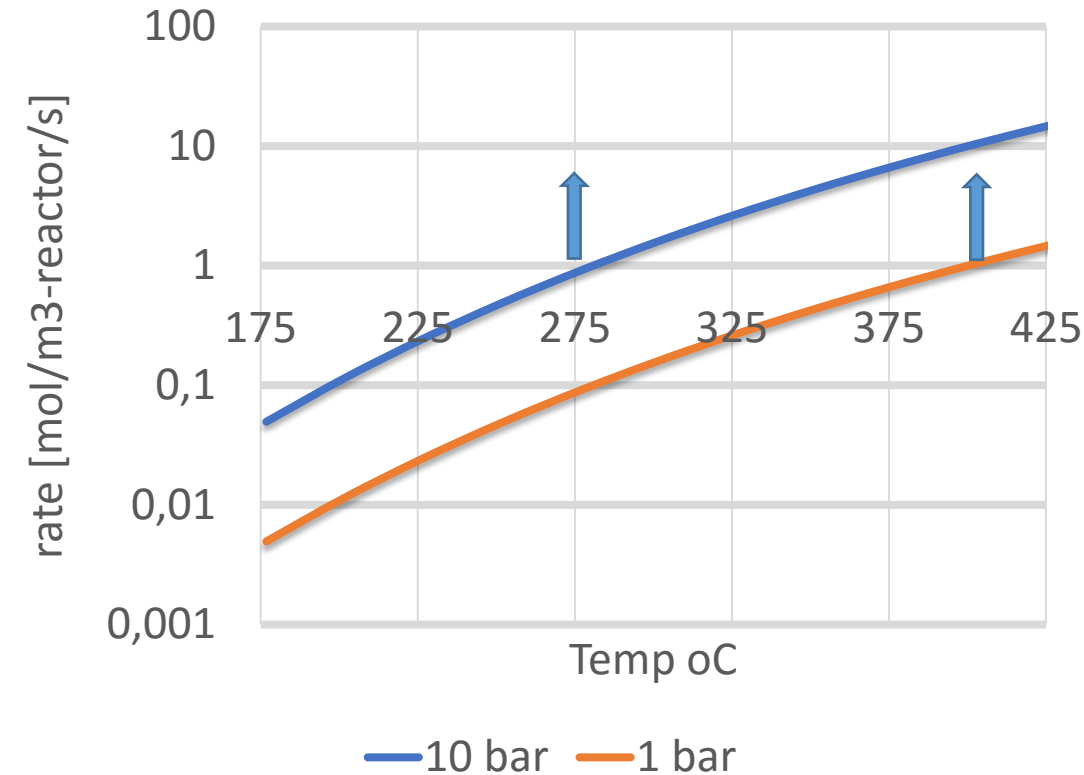


Reaction X

$$-R_p = k_p C_{\text{O}_2} = 35.2 e^{\frac{-7200}{T}} C_{\text{O}_2}, \quad \frac{\text{mol O}_2}{\text{kg}_{\text{cat}} \cdot \text{s}}$$

$$-R_x = k_x C_{\text{O}_2} = 74.1 \times 10^3 e^{\frac{-10800}{T}} C_{\text{O}_2}, \quad \frac{\text{mol O}_2}{\text{kg}_{\text{cat}} \cdot \text{s}}$$

1 D homogeneous model
isothermal
40% oxygen conversion
Only R_p





Adiabatic temperature rise

- R_p : -211 kJ/mol O_2
 - R_x : -442 kJ/mol O_2
-
- Only R_p : 202 °C at 7% oxygen in the feed
-
- Only R_x : 418 °C at 7% oxygen in the feed

