

# Chap 7

. 7 8 .

$$A \rightarrow \begin{cases} R & \text{desired} \\ S & \text{undesired} \end{cases}$$

$$r_R = \frac{dC_R}{dt} = k_1 C_A^{a_1}$$

$$r_S = \frac{dC_S}{dt} = k_2 C_A^{a_2}$$

$$\frac{r_R}{r_S} = \frac{dC_R}{dC_S} = \frac{k_1}{k_2} C_A^{a_1 - a_2}$$

- (i)  $a_1 - a_2 > 0$       R/S
- (ii)  $a_1 - a_2 < 0$       R/S
- (iii)  $a_1 - a_2 = 0$       R/S

. PFR  
. MFR

A,B      가

A,B      가

7.1.

, B      , PFR  
가

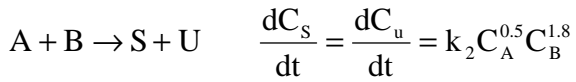
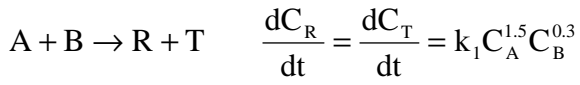
, MFR

A      PFR

B

. A

7.1



$$\frac{r_R}{r_S} = \frac{k_1}{k_2} C_A C_B^{-1.5}$$

A, B  
 PFR A B  
 A B PFR MFR  
 A (1 ) B (-1.5 )가 B  
 MFR B PFR

(yield)

$$\phi = \left( \frac{R}{A} \right) = \frac{dC_R}{-dC_A}$$

A R

$$\Phi = \left( \frac{R}{A} \right) = \frac{C_{Rf}}{C_{A0} - C_{Af}} = \frac{C_R}{(-\Delta C_A)}$$

PFR

$$\Phi_p = \frac{-1}{C_{A0} - C_{Af}} \int_{C_{A0}}^{C_{Af}} \phi dC_A = \frac{1}{\Delta C_A} \int_{C_{A0}}^{C_{Af}} \phi dC_A$$

MFR

$$\Phi_m = \varphi_{at C_{af}}$$

$$\Phi_p \quad \Phi_m$$

$$\Phi_m = \left( \frac{d\Phi_p}{dC_A} \right)_{C_A=C_{Af}} \quad \Phi_p = \frac{1}{\Delta C_A} \int_{C_{A0}}^{C_{Af}} \Phi_m dC_A$$

$$\Phi_{N,mixed} = \frac{\varphi_1(C_{A0} - C_{A1}) + \varphi_2(C_{A1} - C_{A2}) + \dots + \varphi_N(C_{A,N-1} - C_{AN})}{C_{A0} - C_{AN}}$$

$$C_{Rf} = \Phi(C_{A0} - C_{Af})$$

7.3

가

PFR, MFR

R

7.4

가 (a)  
 PFR, (b) MFR, 가 가 (c)  
 MFR PFR

7.3 7.4

$$\varphi(S/A) = \frac{2C_A}{(1+C_A)^2}$$

(a) MFR S

$$C_{sf} = \frac{2C_A}{(1+C_A)^2} (C_{A0} - C_A)$$

$$\frac{dC_{sf}}{dC_A} = 0$$

(b) PFR S

$$C_{sf} = - \int_{C_{A0}}^{C_A} \frac{2C_A}{(1+C_A)^2} dC_A \quad \text{E7.3} \quad \text{PFR}$$

,  $C_A = 0$  , S 가 가 .

(c)  $\frac{d\phi}{dC_A} = 0$   
MFR . PFR ( ) MFR  
( )가 .

(d) ( )  $\frac{d\phi}{dC_A} = 0$   
MFR PFR .