
Scheme-7 Reactor-1

Part-2, Case-1

$t_a = 900 \text{ sec}$, $t_m = 1200 \text{ sec}$
 $k_1 = 0.1$, $k_2 = 0.01$

$NB_t/NA_t = 1.02444$

Exponent $a = 1.5$
Exponent $b = 0.5$
Exponent $c = 1.5$
Exponent $d = 0.5$

$WA = 200$
 $WB = 51.222$
 $NB_t = 2.73184$
 $V_t = 2.12561$
 $V_{at} = 1.02561$
 $Tot.Solv. = 2$
 $SolA/(SolR+SolA) = 0.5$

$NA_0 = 2.66667$
 $NB_0 = 0$

Total input = 251.222 kg
Total output = 251.222 kg

Chemical Balance Error = 0.000143417 kg (% 5.70877e-07)

Solver: Explicit Runge-Kutta (4,5) Variable step (Dormand-Prince Pair)
Error tolerance: 0.1%

Final Concentrations with Step Size limited to 0.01

$NA \text{ (final)} = 0.0266547$
 $NB \text{ (final)} = 0.000288053$
 $NR \text{ (final)} = 2.54847$
 $NS \text{ (final)} = 0.0915427$

Final Concentrations with Step Size limited to 0.1

$NA \text{ (final)} = 0.0266665$
 $NB \text{ (final)} = 0.000285807$
 $NR \text{ (final)} = 2.54849$
 $NS \text{ (final)} = 0.0915136$



