
Scheme-7 Reactor-1

Part-2, Case-3

$t_a = 1800 \text{ sec}$, $t_m = 1200 \text{ sec}$
 $k_1 = 0.1$, $k_2 = 0.01$

$NB_t/NA_t = 1.01406$

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

$WA = 200$
 $WB = 50.703$
 $NB_t = 2.70416$
 $V_t = 2.12535$
 $V_{at} = 1.02535$
Tot.Solv. = 2
 $SolA/(SolR+SolA) = 0.5$

$NA_0 = 2.66667$
 $NB_0 = 0$

Total input = 250.703 kg
Total output = 250.703 kg

Chemical Balance Error = $8.9706e-05 \text{ kg}$ (% $3.57818e-07$)

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

Final Concentrations with Step Size limited to 0.01

$NA \text{ (final)} = 0.0266574$
 $NB \text{ (final)} = 0.000121889$
 $NR \text{ (final)} = 2.57598$
 $NS \text{ (final)} = 0.0640318$

Final Concentrations with Step Size limited to 0.1

$NA \text{ (final)} = 0.0266694$
 $NB \text{ (final)} = 0.000120401$
 $NR \text{ (final)} = 2.57599$
 $NS \text{ (final)} = 0.0640091$



