
Scheme-4 Reactor-1

Part-3, Case-1

$t_a = 900 \text{ sec}$, $t_m = 1200 \text{ sec}$
 $k_1 = 0.1$, $k_2 = 0.002$

$NB_t/NA_t = 1.26479$

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

$WA = 200$
 $WB = 63.2396$
 $NB_t = 3.37278$
 $V_t = 2.13162$
 $V_{at} = 1.03162$
 $Tot.Solv. = 2$
 $SolA/(SolR+SolA) = 0.5$

$NA_0 = 2.66667$
 $NB_0 = 0$

Total input = 263.24 kg
Total output = 263.24 kg

Chemical Balance Error = 0.000796835 kg (% 3.02703e-06)

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

Final Concentrations with Step Size limited to 0.01

$NA \text{ (final)} = 0.0266738$
 $NB \text{ (final)} = 5.74192e-11$
 $NR \text{ (final)} = 1.9072$
 $NS \text{ (final)} = 0.732791$

Final Concentrations with Step Size limited to 0.1

$NA \text{ (final)} = 0.0266644$
 $NB \text{ (final)} = 7.93064e-11$
 $NR \text{ (final)} = 1.9072$
 $NS \text{ (final)} = 0.732807$



