
Scheme-7 Reactor-1

Part-3, Case-1

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

$NB_t/NA_t = 0.996309$

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

$WA = 200$
 $WB = 49.8154$
 $NB_t = 2.65682$
 $V_t = 2.12491$
 $V_{at} = 1.02491$
 $Tot.Solv. = 2$
 $SolA/(SolR+SolA) = 0.5$

$NA_0 = 2.66667$
 $NB_0 = 0$

Total input = 249.815 kg
Total output = 249.816 kg

Chemical Balance Error = 6.63643e-05 kg (% 2.65653e-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

$NA \text{ (final)} = 0.0266434$
 $NB \text{ (final)} = 0.000888665$
 $NR \text{ (final)} = 2.62411$
 $NS \text{ (final)} = 0.0159146$

Final Concentrations with Step Size limited to 0.1

$NA \text{ (final)} = 0.0266712$
 $NB \text{ (final)} = 0.000877912$
 $NR \text{ (final)} = 2.62409$
 $NS \text{ (final)} = 0.015904$



