
Scheme-7 Reactor-1

Part-1, Case-2

$t_a = 600 \text{ sec}$, $t_m = 600 \text{ sec}$
 $k_1 = 100$, $k_2 = 10$

$NB_t/NA_t = 0.990056$

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

$WA = 200$
 $WB = 49.5028$
 $NB_t = 2.64015$
 $V_t = 2.12475$
 $V_{at} = 1.02475$
 $Tot.Solv. = 2$
 $SolA/(SolR+SolA) = 0.5$

$NA_0 = 2.66667$
 $NB_0 = 0$

Total input = 249.503 kg
Total output = 249.503 kg

Chemical Balance Error = $-3.97343e-05 \text{ kg}$ (% $-1.59254e-07$)

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

Final Concentrations with Step Size limited to 0.01

$NA \text{ (final)} = 0.026601$
 $NB \text{ (final)} = 2.34071e-07$
 $NR \text{ (final)} = 2.63999$
 $NS \text{ (final)} = 7.99934e-05$

Final Concentrations with Step Size limited to 0.1

$NA \text{ (final)} = 0.0266726$
 $NB \text{ (final)} = 7.27961e-07$
 $NR \text{ (final)} = 2.63989$
 $NS \text{ (final)} = 0.000103753$



