
Scheme-3 Reactor-1

Part-1, Case-1

$t_a = 60 \text{ sec}$, $t_m = 600 \text{ sec}$
 $k_1 = 100$, $k_2 = 10$

$NB_t/NA_t = 1.90873$

Exponent $a = 1$
Exponent $b = 1$
Exponent $c = 0.5$
Exponent $d = 1.5$

$WA = 200$
 $WB = 95.4365$
 $NB_t = 5.08995$
 $V_t = 2.14772$
 $V_{at} = 1.04772$
 $Tot.Solv. = 2$
 $SolA/(SolR+SolA) = 0.5$

$NA_0 = 2.66667$
 $NB_0 = 0$

Total input = 295.437 kg
Total output = 295.439 kg

Chemical Balance Error = 0.00242915 kg (% 8.22225e-06)

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

Final Concentrations with Step Size limited to 0.0001

$NA \text{ (final)} = 0.0267484$
 $NB \text{ (final)} = 1.39146e-10$
 $NR \text{ (final)} = 0.18989$
 $NS \text{ (final)} = 2.45003$

Final Concentrations with Step Size limited to 0.001

$NA \text{ (final)} = 0.026742$
 $NB \text{ (final)} = 1.39655e-08$
 $NR \text{ (final)} = 0.189894$
 $NS \text{ (final)} = 2.45003$



