
Scheme-9 Reactor-1

Part-1, Case-2

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

$NB_t/NA_t = 0.994182$

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

$WA = 200$
 $WB = 49.7091$
 $NB_t = 2.65115$
 $V_t = 2.12485$
 $V_{at} = 1.02485$
Tot.Solv. = 2
 $SolA/(SolR+SolA) = 0.5$

$NA_0 = 2.66667$
 $NB_0 = 0$

Total input = 249.709 kg
Total output = 249.709 kg

Chemical Balance Error = $-3.55848e-06 \text{ kg}$ (% $-1.42505e-08$)

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

Final Concentrations with Step Size limited to 0.001

$NA \text{ (final)} = 0.0260001$
 $NB \text{ (final)} = 1.21723e-09$
 $NR \text{ (final)} = 2.63018$
 $NS \text{ (final)} = 0.0104856$

Final Concentrations with Step Size limited to 0.01

$NA \text{ (final)} = 0.0270492$
 $NB \text{ (final)} = 4.29138e-07$
 $NR \text{ (final)} = 2.62808$
 $NS \text{ (final)} = 0.0115388$



