
Scheme-3 Reactor-1

Part-3, Case-2

$t_a = 450 \text{ sec}$, $t_m = 1200 \text{ sec}$
 $k_1 = 0.1$, $k_2 = 0.002$

$NB_t/NA_t = 1.21397$

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

$WA = 200$
 $WB = 60.6983$
 $NB_t = 3.23724$
 $V_t = 2.13035$
 $V_{at} = 1.03035$
 $Tot.Solv. = 2$
 $SolA/(SolR+SolA) = 0.5$

$NA_0 = 2.66667$
 $NB_0 = 0$
Time when $NB = 0$: 0
Total input = 260.698 kg
Total output = 260.699 kg

Chemical Balance Error = 0.000609533 kg (% 2.33808e-06)

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

Final Concentrations with Step Size limited to 0.001

$NA \text{ (final)} = 0.0266605$
 $NB \text{ (final)} = -7.06311e-13$
 $NR \text{ (final)} = 2.04277$
 $NS \text{ (final)} = 0.597239$

Final Concentrations with Step Size limited to 0.01

$NA \text{ (final)} = 0.0266594$
 $NB \text{ (final)} = 7.06385e-11$
 $NR \text{ (final)} = 2.04276$
 $NS \text{ (final)} = 0.597244$



