
Scheme-9 Reactor-1

Part-3, Case-2

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

$NB_t/NA_t = 1.0402$

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

$WA = 200$
 $WB = 52.0101$
 $NB_t = 2.77387$
 $V_t = 2.12601$
 $V_{at} = 1.02601$
 $Tot.Solv. = 2$
 $SolA/(SolR+SolA) = 0.5$

$NA_0 = 2.66667$
 $NB_0 = 0$

Total input = 252.01 kg
Total output = 252.01 kg

Chemical Balance Error = 0.000144362 kg (% 5.72843e-07)

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

Final Concentrations with Step Size limited to 0.001

$NA \text{ (final)} = 0.0266247$
 $NB \text{ (final)} = 1.17383e-06$
 $NR \text{ (final)} = 2.50621$
 $NS \text{ (final)} = 0.133828$

Final Concentrations with Step Size limited to 0.01

$NA \text{ (final)} = 0.0266235$
 $NB \text{ (final)} = 1.18481e-06$
 $NR \text{ (final)} = 2.50621$
 $NS \text{ (final)} = 0.133832$



