
Scheme-5 Reactor-1

Part-3, Case-1

$t_a = 900 \text{ sec}$, $t_m = 1200 \text{ sec}$
 $k_1 = 0.1$, $k_2 = 0.002$

$NB_t/NA_t = 1.24019$

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

$WA = 200$
 $WB = 62.0093$
 $NB_t = 3.30716$
 $V_t = 2.131$
 $V_{at} = 1.031$
Tot.Solv. = 2
 $SolA/(SolR+SolA) = 0.5$

$NA_0 = 2.66667$
 $NB_0 = 0$

Total input = 262.009 kg
Total output = 262.01 kg

Chemical Balance Error = 0.00072996 kg (% 2.78601e-06)

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

Final Concentrations with Step Size limited to 0.01

$NA \text{ (final)} = 0.0266596$
 $NB \text{ (final)} = 7.39729e-11$
 $NR \text{ (final)} = 1.97285$
 $NS \text{ (final)} = 0.667161$

Final Concentrations with Step Size limited to 0.1

$NA \text{ (final)} = 0.0266577$
 $NB \text{ (final)} = 7.10631e-09$
 $NR \text{ (final)} = 1.97282$
 $NS \text{ (final)} = 0.667185$



