
Scheme-6 Reactor-1

Part-3, Case-1

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

$NB_t/NA_t = 1.02156$

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

$WA = 200$
 $WB = 51.078$
 $NB_t = 2.72416$
 $V_t = 2.12554$
 $V_{at} = 1.02554$
Tot.Solv. = 2
 $SolA/(SolR+SolA) = 0.5$

$NA_0 = 2.66667$
 $NB_0 = 0$

Total input = 251.078 kg
Total output = 251.078 kg

Chemical Balance Error = 0.000124221 kg (% 4.94749e-07)

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

Final Concentrations with Step Size limited to 0.01

$NA \text{ (final)} = 0.026718$
 $NB \text{ (final)} = 0.0117242$
 $NR \text{ (final)} = 2.56746$
 $NS \text{ (final)} = 0.0724924$

Final Concentrations with Step Size limited to 0.1

$NA \text{ (final)} = 0.0266751$
 $NB \text{ (final)} = 0.0117319$
 $NR \text{ (final)} = 2.56749$
 $NS \text{ (final)} = 0.0725008$



