
Scheme-4 Reactor-1

Part-1, Case-1

*ta = 60 sec, tm = 600 sec
k1 = 100, k2 = 10*

NBt/NA_t = 1.9271

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

*WA = 200
WB = 96.3552
NB_t = 5.13895
V_t = 2.14818
V_{at} = 1.04818
Tot.Solv. = 2
SolA/(SolR+SolA) = 0.5*

*NA₀ = 2.66667
NB₀ = 0*

*Total input = 296.355 kg
Total output = 296.358 kg*

Chemical Balance Error = 0.00264526 kg (% 8.92596e-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 (final) = 0.0265998
NB (final) = -5.73323e-09
NR (final) = 0.141181
NS (final) = 2.49889*

Final Concentrations with Step Size limited to 0.01

*NA (final) = 0.0266785
NB (final) = 3.00201e-07
NR (final) = 0.141224
NS (final) = 2.49876*

Time when NB (final) < 0: 61.014s

