Scheme-1 Reactor-2

Part-3, Case-1

tend = 360 sec
k1 = 0.1, k2 = 0.002

NBt/NAt = 1.08598

Exponent a = 1
Exponent b = 1
Exponent c = 1
Exponent d = 1

WA = 200
WB = 54.2988
NBt = 2.89594
Vt = 2.12715
Tot.Solv. = 2
SolA/(SolR+SolA) = 0.5

CA0 = 1.25363
CB0 = 1.36142

Total input = 254.299 kg
Total output = 254.299 kg

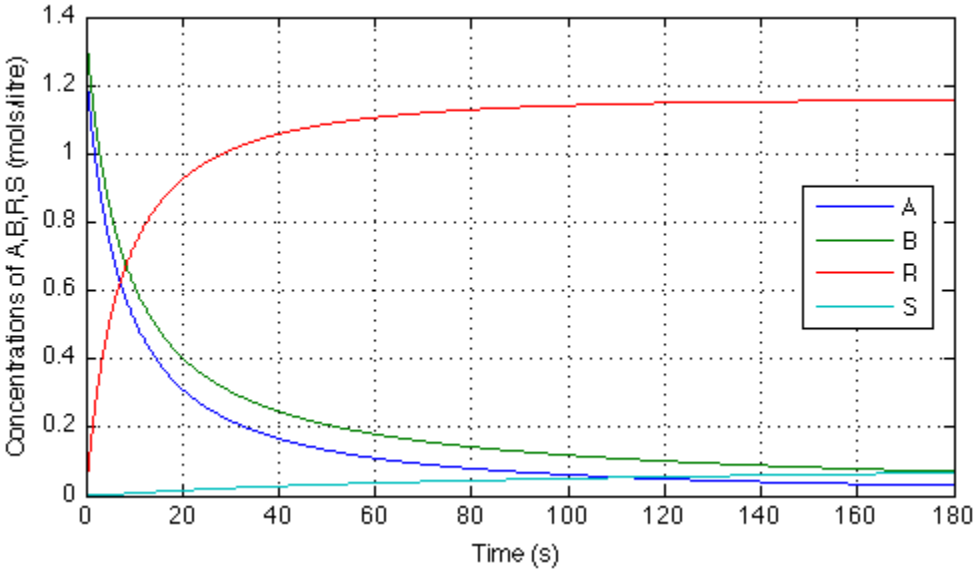
Chemical Balance Error = 0.000185585 kg (% 7.29792e-07)

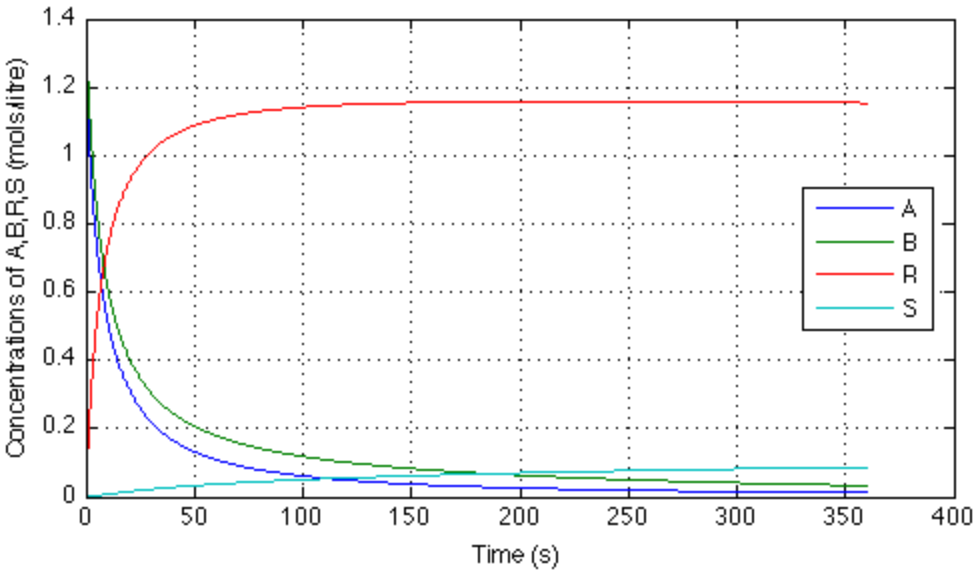
Solver: Explicit Runge-Kutta (4,5) Variable step (Dormand-Prince Pair)
Error tolerance: 0.1%

Final Concentrations with Step Size limited to 0.01
CA (final) = 0.0125271
CB (final) = 0.0330633
CR (final) = 1.15386
CS (final) = 0.0872459

CA @ 180.0s = 0.029833
CB @ 180.0s = 0.0704392
CR @ 180.0s = 1.15663
CS @ 180.0s = 0.0671759

Final Concentrations with Step Size limited to 0.1
CA (final) = 0.0125271
CB (final) = 0.0330633
CR (final) = 1.15386
CS (final) = 0.0872459


Concentrations of A,B,R,S (mols/litre)
Time (s)
A
B
R
S
0
0.2
0.4
0.6
0.8
1
1.2
1.4
0
20
40
60
80
100
120
140
160
180


Concentrations of A,B,R,S (mols/litre)
Time (s)
A
B
R
S
0
0.2
0.4
0.6
0.8
1
1.2
1.4
0
50
100
150
200
250
300
350
400