Scheme-3 Reactor-2

Part-2, Case-1

tend = 360 sec
k1 = 0.1, k2 = 0.01

NBt/NAt = 1.44783

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

WA = 200
WB = 72.3916
NBt = 3.86089
Vt = 2.1362
Tot.Solv. = 2
SolA/(SolR+SolA) = 0.5

CA0 = 1.24833
CB0 = 1.80737

Total input = 272.392 kg
Total output = 272.393 kg

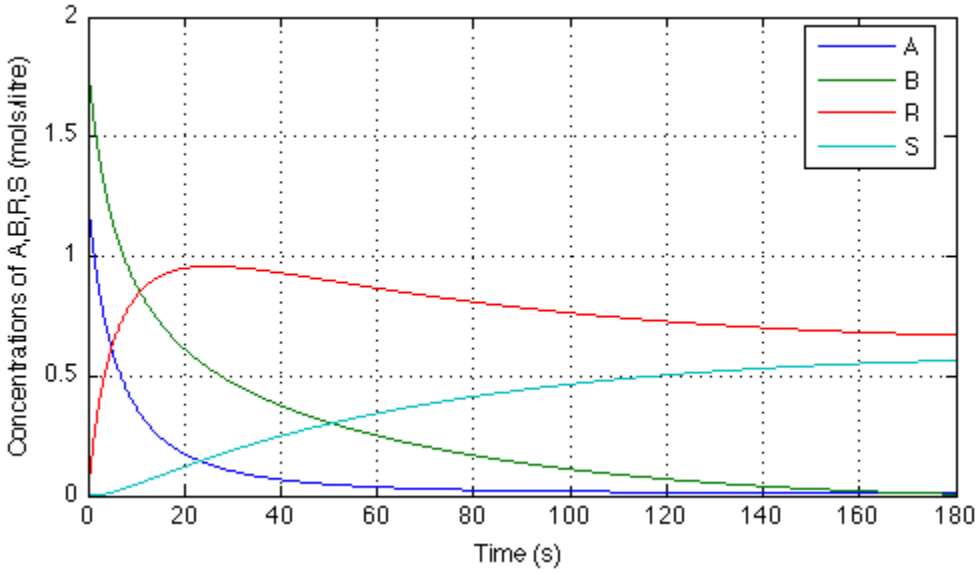
Chemical Balance Error = 0.00122091 kg (% 4.48218e-06)

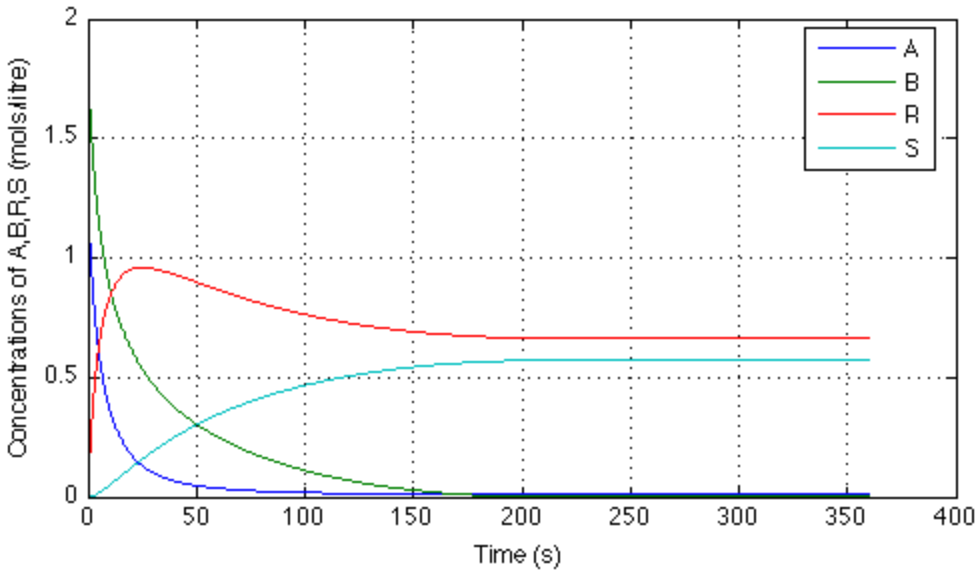
Solver: Explicit Runge-Kutta (4,5) Variable step (Dormand-Prince Pair)
Error tolerance: 0.1%

Final Concentrations with Step Size limited to 0.001
CA (final) = 0.0124925
CB (final) = 1.86107e-12
CR (final) = 0.664299
CS (final) = 0.571533

CA @ 180.0s = 0.0125816
CB @ 180.0s = 0.00703752
CR @ 180.0s = 0.671158
CS @ 180.0s = 0.564585

Final Concentrations with Step Size limited to 0.01
CA (final) = 0.0124925
CB (final) = -3.80399e-12
CR (final) = 0.664299
CS (final) = 0.571533


Concentrations of A,B,R,S (mols/litre)
Time (s)
A
B
R
S
0
0.5
1
1.5
2
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
0.5
1
1.5
2
0
50
100
150
200
250
300
350
400