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# Scheme-8 Reactor-1

Part-1, Case-1

$t_a = 60 \text{ sec}$ ,  $t_m = 600 \text{ sec}$   
 $k_1 = 100$ ,  $k_2 = 10$

$NB_t/NA_t = 1.75967$

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

$WA = 200$   
 $WB = 87.9833$   
 $NB_t = 4.69244$   
 $V_t = 2.14399$   
 $V_{at} = 1.04399$   
 $Tot.Solv. = 2$   
 $SolA/(SolR+SolA) = 0.5$

$NA_0 = 2.66667$   
 $NB_0 = 0$

Total input = 287.983 kg  
Total output = 287.985 kg

Chemical Balance Error = 0.00218609 kg (% 7.59104e-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

$NA \text{ (final)} = 0.0266569$   
 $NB \text{ (final)} = 1.38338e-321$   
 $NR \text{ (final)} = 0.587571$   
 $NS \text{ (final)} = 2.05244$

Final Concentrations with Step Size limited to 0.01

$NA \text{ (final)} = 0.0267026$   
 $NB \text{ (final)} = 1.33398e-322$   
 $NR \text{ (final)} = 0.587646$   
 $NS \text{ (final)} = 2.05232$



