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# Scheme-1 Reactor-1

Part-2, Case-5

$t_a = 900 \text{ sec}$ ,  $t_m = 1200 \text{ sec}$   
 $k_1 = 0.1$ ,  $k_2 = 0.01$

$NB_t/NA_t = 1.29007$

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

$WA = 200$   
 $WB = 64.5033$   
 $NB_t = 3.44018$   
 $V_t = 2.13225$   
 $V_{at} = 1.53225$   
 $Tot.Solv. = 2$   
 $SolA/(SolR+SolA) = 0.75$

$NA_0 = 2.66667$   
 $NB_0 = 0$

Total input = 264.503 kg  
Total output = 264.504 kg

Chemical Balance Error = 0.000865495 kg (% 3.27215e-06)

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

Final Concentrations with Step Size limited to 0.01

$NA \text{ (final)} = 0.0266602$   
 $NB \text{ (final)} = 1.33288e-06$   
 $NR \text{ (final)} = 1.83984$   
 $NS \text{ (final)} = 0.800171$

Final Concentrations with Step Size limited to 0.1

$NA \text{ (final)} = 0.0266575$   
 $NB \text{ (final)} = 1.33331e-06$   
 $NR \text{ (final)} = 1.83982$   
 $NS \text{ (final)} = 0.80019$



