

The corrected Reactions:

$$\frac{dx_1}{dt} = 0$$

$$\frac{dx_3}{dt} = 0$$

$$\begin{aligned} \frac{dx_8}{dt} = & k_4 x_7 - k_{f5} x_8 x_9 + k_{r5} x_{11} + k_6 x_{11} - k_{f7} x_8 x_{10} + k_{r7} x_{12} - k_{f9} x_8 x_{15} + k_{r9} x_{16} - k_{f21} x_{29} x_8 + k_{r21} x_{30} + \\ & k_{f37} x_{39} - k_{r37} x_8 x_{46} + k_{f39} x_{40} - k_{r39} x_{45} x_8 + k_{f32} x_{41} - k_{r32} x_{44} x_8 \end{aligned}$$

Where $k_{r30} x_{45} x_8$ is changed to $k_{r39} x_{45} x_8$

$$\frac{dx_{16}}{dt} = k_{f9} x_{15} x_8 - k_{r9} x_{16} - k_{10} x_{16} - k_{f34} x_{16} + k_{r34} x_{39}$$

Where $k_{f9} x_{14} x_8$ is changed to $k_{f9} x_{15} x_8$

$$\frac{dx_{20}}{dt} = k_{14} x_{13} - k_{r8} x_{20} + k_{f8} x_{21}^2 - k_{f15} x_{23} x_{20} + k_{r15} x_{27}$$

$$\frac{dx_{21}}{dt} = 2k_{r8} x_{20} - 2k_{f8} x_{21}^2 - k_{f15} x_{23} x_{21} + k_{r15} x_{28} + k_{r13} x_{24} - k_{f13} x_{21} x_{22}$$

$$\frac{dx_{22}}{dt} = k_{16} x_{28} + k_{r13} x_{24} - k_{f13} x_{21} x_{22} - k_{17} x_{22}$$

$$\frac{dx_{24}}{dt} = k_{16} x_{27} - k_{r13} x_{24} + k_{f13} x_{21} x_{22}$$

Where k_{f60} is changed to k_{r8} , k_{r60} is changed to k_{f8} , k_{f61} is changed to k_{r13} , and k_{r61} is changed to k_{f13} .

The corrected rate constants:

$$k_{r30} = 0.4$$

$$k_{r34} = 0.06$$

$$k_{r44} = 0.001833$$

$$k_{r46} = 0.001833$$

$$k_{f50} = 2.5 \times 10^{-4}$$

$$k_{55} = 6.7$$