

1 “environment” component

This component has no equations.

2 “Cln2” component

$$\frac{d(Cln2)}{d(time)} = (mass * (ks_{n2} + ks_{n2_} * SBF) - kd_{n2} * Cln2)$$

3 “Clb2_T” component

$$\frac{d(Clb2_T)}{d(time)} = (mass * (ks_{b2} + ks_{b2_} * Mcm1) - Vd_{b2} * Clb2_T)$$

Vd_b2_calculation

$$Vd_{b2} = (kd_{b2} * (Hct1_T - Hct1) + kd_{b2_} * Hct1 + kd_{b2_} * Cdc20)$$

Hct1_T_calculation

$$Hct1_T = \left(\frac{(Vd_{b2} - (kd_{b2_} * Hct1 + kd_{b2_} * Cdc20))}{kd_{b2}} + Hct1 \right)$$

4 “Clb2” component

$$Clb2 = (Clb2_T - Clb2_Sic1)$$

5 “Clb5” component

$$Clb5 = (Clb5_T - Clb5_Sic1)$$

6 “Sic1” component

$$Sic1 = (Sic1_T - (Clb2_Sic1 + Clb5_Sic1))$$

7 “Clb5_T” component

$$\frac{d(Clb5_T)}{d(time)} = (mass * (ks_b5 + ks_b5_ * MBF) - Vd_b5 * Clb5_T)$$

Vd_b5_calculation

$$Vd_b5 = (kd_b5 + kd_b5_ * Cdc20)$$

8 “Bck2” component

Bck2_calculation

$$Bck2 = Bck2_0 * mass$$

9 “Cln3” component

Cln3_calculation

$$Cln3 = Cln3_max * \frac{Dn3 * mass}{(Jn3 + Dn3 * mass)}$$

10 “Sic1_T” component

$$\frac{d(Sic1_T)}{d(time)} = \left((ks_c1 + ks_c1_ * Swi5) - Sic1_T * \left(kd1_c1 + \frac{Vd2_c1}{(Jd2_c1 + Sic1_T)} \right) \right)$$

11 “Clb2_Sic1” component

$$\frac{d(Clb2_Sic1)}{d(time)} = \left(kas_b2 * Clb2_Sic1 - Clb2_Sic1 * \left(kdi_b2 + Vd_b2 + kd1_c1 + \frac{Vd2_c1}{(Jd2_c1 + Sic1_T)} \right) \right)$$

12 “Clb5_Sic1” component

$$\frac{d(Clb5_Sic1)}{d(time)} = \left(kas_b5 * Clb5_Sic1 - Clb5_Sic1 * \left(kdi_b5 + Vd_b5 + kd1_c1 + \frac{Vd2_c1}{(Jd2_c1 + Sic1_T)} \right) \right)$$

13 “Vd2_c1” component

Vd2_c1_calculation

$$Vd2_c1 = kd2_c1 * (\epsilon_{c1_n3} * Cln3 + \epsilon_{c1_k2} * Bck2 + Cln2 + \epsilon_{c1_b5} * Clb5 + \epsilon_{c1_b2} * Clb2)$$

14 “Cdc20_T” component

$$\frac{d(Cdc20_T)}{d(time)} = ((ks_20 + ks_20_ * Clb2) - kd_20 * Cdc20_T)$$

15 “Cdc20” component

$$\frac{d(Cdc20)}{d(time)} = (ka_20 * (Cdc20_T - Cdc20) - Cdc20 * (Vi_20 + kd_20))$$

Vi_20_calculation

$$Vi_20 = \begin{cases} ki_20 & \text{if } (time > (END_M + 12.0)) \wedge (time < START_S), \\ ki_20_ & \text{if } (time > START_S) \wedge (time < END_M). \end{cases}$$

16 “Hct1” component

$$\frac{d(Hct1)}{d(time)} = \left(\frac{(ka_t1 + ka_t1_ * Cdc20) * (Hct1_T - Hct1)}{((Ja_t1 + Hct1_T) - Hct1)} - \frac{Vi_t1 * Hct1}{(Ji_t1 + Hct1)} \right)$$

Vi_t1_calculation

$$Vi_t1 = (ki_t1 + ki_t1_ * Cln3 + \epsilon_{i_t1_n2} * Cln2 + \epsilon_{i_t1_b5} * Clb5 + \epsilon_{i_t1_b2} * Clb2)$$

17 “mass” component

$$\frac{d(\text{mass})}{d(\text{time})} = \mu u * \text{mass}$$

18 “ORI” component

$$\frac{d(\text{ORI})}{d(\text{time})} = (k_{s_ori} * Clb5 + \epsilon_{ori_b2} * Clb2 + k_{d_ori} * \text{ORI})$$

19 “BUD” component

$$\frac{d(\text{BUD})}{d(\text{time})} = (k_{s_bud} * Cln2 + Cln3 + \epsilon_{bud_b5} * Clb5 + k_{d_bud} * \text{BUD})$$

20 “SPN” component

$$\frac{d(\text{SPN})}{d(\text{time})} = \left(\frac{Clb2}{(J_spn + Clb2)} - k_{d_spn} * \text{SPN} \right)$$

21 “SBF” component

$$SBF = \frac{2.0 * V}{\left(((k_{i_sbf} + k_{i_sbf_} * Clb2) + V_{a_sbf} * J_{i_sbf} + (k_{i_sbf} + k_{i_sbf_} * Clb2) * J_{a_sbf}) - V_{a_sbf} \right) + \left((((k_{i_sbf} + k_{i_sbf_} * Clb2) + V_{a_sbf} * J_{i_sbf} + (k_{i_sbf} + k_{i_sbf_} * Clb2) * J_{a_sbf}) - V_{a_sbf}) \right)}$$

Va_sbf_calculation

$$V_{a_sbf} = (k_{a_sbf} * Cln2 + \epsilon_{sbf_n3} * (Cln3 + Bck2) + \epsilon_{sbf_b5} * Clb5)$$

22 “MBF” component

$$MBF = SBF$$

