

$$L_w = \frac{V^{1/3}}{\delta_M} \quad (1)$$

$$\frac{dE}{dt} = f C_T \{ \dot{p}_{Am} \} V^{\frac{2}{3}} - \dot{p}_C \quad (2)$$

$$\frac{dV}{dt} = \frac{\kappa \dot{p}_C - C_T [\dot{p}_M] V}{[E_G]} \quad (3)$$

$$\dot{p}_C = \frac{E \left([E_G] \frac{C_T \{ \dot{p}_{Am} \}}{[E_m]} V^{-\frac{1}{3}} + [\dot{p}_M] \right)}{\kappa \left(\frac{E}{V} \right) + [E_G]} \quad (4)$$

$$f = \frac{X}{X + K} \quad (5)$$

$$C_T = \exp \left(\frac{T_A}{T_1} - \frac{T_A}{T} \right) \left(\frac{1 + \exp \left(\frac{T_{AL}}{T_1} - \frac{T_{AL}}{T_L} \right) + \exp \left(\frac{T_{AH}}{T_H} - \frac{T_{AH}}{T_1} \right)}{1 + \exp \left(\frac{T_{AL}}{T} - \frac{T_{AL}}{T_L} \right) + \exp \left(\frac{T_{AH}}{T_H} - \frac{T_{AH}}{T} \right)} \right) \quad (6)$$