

Model procesos

// Variables

//Concentraciones

Cx as realvariable;

Cg as realvariable;

Cf as realvariable;

Cm as realvariable;

Cs as realvariable;

//Parametros cineticos

mu as realvariable;

kg as realvariable;

kf as realvariable;

km as realvariable;

ks as realvariable;

cxm as realvariable;

//Rendimientos

Ygx as realvariable;

Ygf as realvariable;

Ygm as realvariable;

Ygs as realvariable;

Ymx as realvariable;

// Modelo cinético de Producción

//Balance de biomasa: Ecuación logística

$\dot{C}_x = \mu \cdot C_x \cdot (1 - (C_x / c_{xm}))$;

//Balance de productos

$\dot{C}_f = k_f \cdot C_x \cdot C_g$; //Fumárico

$\dot{C}_s = k_s \cdot C_x$; //Succínico

$\dot{C}_m = k_m \cdot C_x \cdot C_g + Y_{mx} \cdot \dot{C}_x$; //Málico

//Consumo de sustrato

$\dot{C}_g = -Y_{gx} \cdot \dot{C}_x - k_g \cdot C_x - Y_{gf} \cdot k_f \cdot C_x \cdot C_g - Y_{gm} \cdot (k_m \cdot C_x \cdot C_g - Y_{mx} \cdot \dot{C}_x) - Y_{gs} \cdot k_s \cdot C_x$;

End