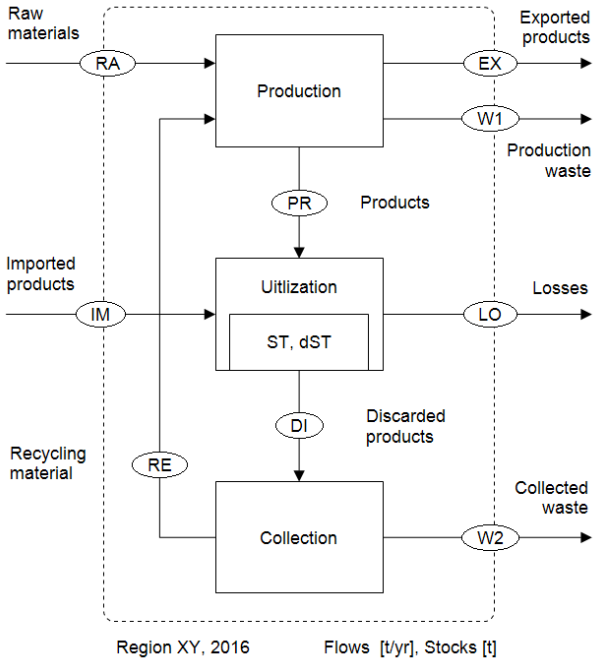
Lösung 1



Gleichungssystem:

1. RA + RE = EX + W1 + PR
2. PR + IM = LO + DI + dST
3. DI = W2 + RE

Zusätzliche Gleichungen:

4. RE = DI * RR
5. LO = ST * LR

Gleichungen, Variablen:

5 Gleichungen, 13 Variablen
=> 8 gegebene Parameter notwendig

Übung 2

Runden Sie auf signifikante Stellen:

12.345 ± 123	=>	12.3<u>5</u>0 ± 1<u>2</u>0
234,567 ± 0,345	=>	234,<u>6</u> ± 0,<u>3</u>
987,234 ± 0,267	=>	987,2<u>3</u> ± 0,2<u>7</u>
134 ± 8,16	=>	13<u>4</u> ± <u>8</u>
6.627 ± 50,16	=>	6.6<u>3</u>0 ± <u>5</u>0

Lösung 3

$$m_3 = m_1 - m_2 = V_1 * \rho_1 - m_2$$

$$\bar{m}_3 = \bar{V}_1 * \bar{\rho}_1 - \bar{m}_2 = 80 * 0.2 - 100 = 160 - 100 = 60$$

$$\frac{\partial m_3}{\partial V_1} = \rho_1, \qquad \frac{\partial m_3}{\partial \rho_1} = V_1, \qquad \frac{\partial m_3}{\partial m_2} = -1$$

$$var(m_3) = \left(\frac{\partial m_3}{\partial V_1}\right)^2 * var(V_1) + \left(\frac{\partial m_3}{\partial \rho_1}\right)^2 * var(\rho_1) + \left(\frac{\partial m_3}{\partial m_2}\right)^2 * var(m_2)$$

$$var(m_3) = \bar{\rho}_1{}^2 * var(V_1) + \bar{V}_1{}^2 * var(\rho_1) + (-1)^2 * var(m_2)$$

$$var(m_3) = 2^2 * 8^2 + 80^2 * 0.2^2 + 1^2 * 10^2 = 612$$

$$s(m_3) = \sqrt{612} = 24.7 \text{ kg/a}$$