

$$\begin{aligned} 15C_1 - 3C_2 - C_3 &= 3800 \\ 3C_1 + 18C_2 - 6C_3 &= 1200 \\ -4C_1 - C_2 + 13C_3 &= 2350 \end{aligned}$$

$$\begin{array}{ccc|c} 15 & -3 & -1 & 3800 \\ -3 & 18 & -6 & 1200 \\ -4 & -1 & 13 & 2350 \end{array} \xrightarrow{F_2 + 0.2F_1} \begin{array}{ccc|c} 15 & -3 & -1 & 3800 \\ 0 & 17.4 & -6.2 & 1960 \\ -4 & -1 & 13 & 2350 \end{array} \xrightarrow{F_3 + \frac{4}{15}F_1} \begin{array}{ccc|c} 15 & -3 & -1 & 3800 \\ 0 & 17.4 & -6.2 & 1960 \\ 0 & -1.8 & 12.733 & 3363.33 \end{array}$$

$$\xrightarrow{F_3 - \frac{1.8}{17.4}F_2} \begin{array}{ccc|c} 15 & -3 & -1 & 3800 \\ 0 & 17.4 & -6.2 & 1960 \\ 0 & 0 & 13.37 & 3160.57 \end{array}$$

$$\begin{aligned} 13.37C_3 &= 3160.57 \\ C_3 &= \frac{3160.57}{13.37} = 236.39 \end{aligned}$$

$$\begin{aligned} 17.4C_2 - 6.2C_3 &= 1960 \\ 17.4C_2 &= 1960 + 6.2(236.39) = 3428.966 \\ C_2 &= \frac{3428.966}{17.4} = 197.067 \end{aligned}$$

$$15C_1 = 3800 + 3(197.067) + 236.39 = 308.506$$

Matriz con entradas reducidas

$$\begin{array}{ccc|c} 15 & -3 & -1 & 3300 \\ -3 & 18 & -6 & 1000 \\ -4 & -1 & 13 & 2350 \end{array} \xrightarrow{F_2 + 0.2F_1} \begin{array}{ccc|c} 15 & -3 & -1 & 3300 \\ 0 & 17.4 & -6.2 & 1660 \\ -4 & -1 & 13 & 2350 \end{array} \xrightarrow{F_3 + 0.266F_1} \begin{array}{ccc|c} 15 & -3 & -1 & 3300 \\ 0 & 17.4 & -6.2 & 1660 \\ 0 & -1.8 & 12.733 & 3230 \end{array}$$

$$\xrightarrow{F_3 - 0.103F_2} \begin{array}{ccc|c} 15 & -3 & -1 & 3300 \\ 0 & 17.4 & -6.2 & 1660 \\ 0 & 0 & 13.374 & 3058.275 \end{array}$$

$$\begin{aligned} 13.375C_3 &= 3058.275 \\ C_3 &= \frac{3058.275}{13.375} = 228.645 \end{aligned}$$

$$\begin{aligned} 17.4C_2 - 6.2C_3 &= 1660 \\ 17.4C_2 &= 1660 + 6.2(228.645) = 3077.599 \\ C_2 &= \frac{3077.599}{17.4} = 176.874 \end{aligned}$$

$$\begin{aligned} 15C_1 &= 3300 + 3(176.874) + 228.645 = 4059.267 \\ C_1 &= \frac{4059.267}{15} = 270.618 \end{aligned}$$

reducción C_2

$$\Delta C_2 = 236.39 - 228.645 = 7.871 \text{ g/m}^3$$