Combined Seperating and Throrling Calorimeter

$$m_{1\,av} = \frac{100 + 100 + 100}{3} = 100\,mL$$

$$m_{2\,av} = \frac{27 + 26 + 29}{3} = 27.33\,mL$$

$$\text{Pressure Average} = \frac{7.2 + 7.2 + 7.4}{3} = 7.27$$

$$\text{Average Temperature after throttling} = \frac{44 + 46 + 46}{3} = 45.33^\circ C$$

$$\text{Average Temperature before throttling} = \frac{98 + 98 + 98}{3} = 98^\circ C$$

$$\text{average Time} = 120\,s$$

$$\dot{m}_1 = \frac{P_w V_w \times 10^{-6}\,m^3}{\text{average time}} = \frac{1000 * 100 * 10^{-6}}{120} = 0.00083\,kg/s$$

$$\dot{m}_2 = \frac{1000 \times 27.33 \times 10^{-6}}{120} = 0.00023\,kg/s$$

$$x_1 = \frac{\dot{m}_1}{\dot{m}_1 + \dot{m}_2} = \frac{0.00083}{0.00083 + 0.00023} = \frac{0.00083}{0.00106} = 0.783$$

$$x_1 = 0.78$$