

(För-4) Brännolja, $H_i = 41 \text{ MJ/kg}$.

DoD s.25, $\Rightarrow (\text{CO}_2)_{ot} = 15,9\%$, $g_o = 11,45 \text{ m}^3/\text{kg}$, $l_{ot} = 10,8 \text{ m}^3/\text{kg}$, $g_{ot} = 10,2 \frac{\text{m}^3}{\text{kg}}$

$$a) (\text{CO}_2)_t = 5\% \Rightarrow m \approx \frac{(\text{CO}_2)_{ot}}{(\text{CO}_2)_t} = \frac{15,9\%}{5\%} = 3,18$$

$$\text{Värmebalans: } (H_i)_{25^\circ\text{C}} + \cancel{\lambda_v (h - h_{g,25^\circ\text{C}})} = \cancel{1} + g_v (h_g - h_{g,25^\circ\text{C}})$$

$\xrightarrow{=0}$ Försumma ingående lufts entalpi $\xrightarrow{=0}$ Inget värme avges

$$g_v = g_o + (m-1)l_o = \left[\text{Torr luft} \right] = g_o + (m-1)l_{ot} = 11,45 + (3,18-1) \cdot 10,8 = 35,0 \text{ m}^3/\text{kg}$$

$$\Rightarrow h_g = h_{g,25^\circ\text{C}} + \frac{(H_i)_{25^\circ\text{C}}}{g_v} = 30 \frac{\text{kJ}}{\text{m}^3} + \frac{41 \cdot 10^6}{35} \frac{\text{J}}{\text{m}^3} = 1201 \text{ kJ/m}^3$$

$$\text{DoD s.32} \Rightarrow T_g = 850^\circ\text{C}$$

$$b) (\text{CO}_2)_t = 10\% \Rightarrow m \approx \frac{15,9}{10} = 1,6$$

$$g_v = g_o + (m-1)l_o = 11,45 + (1,6-1) \cdot 10,8 = 17,93 \text{ m}^3/\text{kg}$$

$$\Rightarrow h_g = 30 \frac{\text{kJ}}{\text{m}^3} + \frac{41 \cdot 10^6}{17,93} = 2320 \text{ kJ/m}^3$$

$$\text{DoD s.32} \Rightarrow T_g = 1500^\circ\text{C}$$