6 CFU 23-01-2012

ESERCIZIO (2)

$$5{,}06\ g = g_{CH_4} + g_{CO} + g_{N_2}$$

$$g = n \cdot mm$$

$$5{,}06 = n_{CH_4} \cdot 16 + n_{CO} \cdot 28 + n_{N_2} \cdot 28$$

$$\boxed{5{,}06 = n_{CH_4} \cdot 16 + (n_{CO} + n_{N_2}) \cdot 28}$$

$$P_{TOT} V = n_{TOT} R T$$

$$n_{TOT} = n_{CH_4} + (n_{CO} + n_{N_2}) = \frac{PV}{RT} = \frac{10{,}25 \cdot 1}{0{,}0821 \cdot 498}$$

$$n_{TOT} = \boxed{0{,}25 = n_{CH_4} + (n_{CO} + n_{N_2})}$$

$$(n_{CO} + n_{N_2}) = 0{,}25 - n_{CH_4}$$

$$5{,}06 = n_{CH_4} \cdot 16 + (0{,}25 - n_{CH_4}) 28$$

$$5{,}06 = n_{CH_4} \cdot 16 + 7 - 28\, n_{CH_4}$$

$$(28 - 16)\, n_{CH_4} = 7 - 5{,}06 \qquad n_{CH_4} = \frac{1{,}94}{12} = 0{,}16$$

$$P_{CH_4} = \frac{n_{CH_4} RT}{V} = \frac{0{,}16 \cdot 0{,}0821 \cdot 498}{1} = 6{,}5 \text{ atm}$$

oppure $P_{CH_4} = P_{TOT}\, x_{CH_4} = 10{,}25 \frac{0{,}16}{0{,}25} = 6{,}5$ atm