IQF – Introdução a Química-Física

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Conteúdo

I – Minitestes no moodle

Miniteste 1

Questão 1 a)

Questão 2

$$\mathrm{A} + 2\,\mathrm{B} \longrightarrow \mathrm{C} + \mathrm{D}$$

$$= \frac{n_C\,\mathrm{mol_C}}{n_{sys}\,\mathrm{mol_{sys}}} = \frac{\mathrm{mol_C}}{\mathrm{mol_A}}\,\frac{45.4\%\,\mathrm{mol_A}}{\mathrm{mol_A}}\,n_A\,\mathrm{mol_A}\;(n_A\,\mathrm{mol_A} +$$
$$+ \frac{2\,\mathrm{mol_B}}{\mathrm{mol_A}}\,\frac{(100-45.4)\,\%\,\mathrm{mol_A}}{\mathrm{mol_A}}\,n_A\,\mathrm{mol_A} + \frac{\mathrm{mol_C}}{\mathrm{mol_A}}\,\frac{45.4\%\,\mathrm{mol_A}}{\mathrm{mol_A}}\,n_A\,\mathrm{mol_A} +$$
$$+ \frac{\mathrm{mol_D}}{\mathrm{mol_A}}\,\frac{45.4\%\,\mathrm{mol_A}}{\mathrm{mol_A}}\,n_A\,\mathrm{mol_A}\Big)^{-1} =$$
$$= 45.4\%\;(1 + 2\,(100-45.4)\% + 45.4\% + 45.4\%)^{-1}\,\mathrm{mol_C\,mol_{sys}^{-1}} \cong$$
$$\cong 15.13\,\%\,\mathrm{mol_C\,mol_{sys}^{-1}}$$

Questão 5

$$(T_f - 20.41\,^\circ\mathrm{C})\left(\frac{4.184\,\mathrm{J}}{^\circ\mathrm{C\,g_{H_2O\,(l)}}}\,1034\,\mathrm{g_{H_2O\,(l)}} + \frac{1.75\,\mathrm{kJ}}{^\circ\mathrm{C}}\right) =$$
$$= \frac{-726\,\mathrm{kJ}}{\mathrm{mol_{CH_3OH}}}\,\frac{\mathrm{mol_{CH_3OH}}}{32\,\mathrm{g_{CH_3OH}}}\,1.740\,\mathrm{g_{CH_3OH}} \implies$$
$$\implies T_f = 20.41\,^\circ\mathrm{C} + \left(\frac{1.75\,\mathrm{kJ}}{^\circ\mathrm{C}} + \frac{4.184\,\mathrm{J}}{^\circ\mathrm{C\,g_{H_2O\,(l)}}}\,1034\,\mathrm{g_{H_2O\,(l)}}\right)^{-1} *$$
$$* \frac{-726\,\mathrm{kJ}}{\mathrm{mol_{CH_3OH}}}\,\frac{\mathrm{mol_{CH_3OH}}}{32\,\mathrm{g_{CH_3OH}}}\,1.740\,\mathrm{g_{CH_3OH}} \cong$$
$$\cong 26.91\,^\circ\mathrm{C}$$

Questão 7

$$= \Delta(H)_1 - 3\ \Delta H_2 = -3920 - 3\,(-566) = -2222\,\mathrm{kJ}$$

Questão 8

$$= \big(8\,(-393.5) + 9\,(-241.8) - (-249.9) - (8 + 9 - 25/2)\,8.314 * 10^{-3} * *298\big)\ \frac{\mathrm{kJ}}{\mathrm{mol}\ (\mathrm{C_8H_{18}\,(l)})} * \frac{\mathrm{mol_{C_8H_{18}\,(l)}}}{114\,\mathrm{g_{C_8H_{18}\,(l)}}}\,228\,\mathrm{g_{C_8H_{18}\,(l)}} \cong$$
$$\cong -10.17\,\mathrm{MJ}$$

Questão 9

$$v\,\mathrm{L_{HCl_{sol.i}}} = \frac{\mathrm{L_{HCl_{sol.i}}}}{1.189\,\mathrm{kg_{HCl_{sol.i}}}}\,\frac{\mathrm{g_{HCl_{sol.i}}}}{0.38\,\mathrm{g_{HCl}}}\,\frac{36.46\,\mathrm{g_{HCl}}}{\mathrm{mol_{HCl}}}\,\frac{0.5\,\mathrm{mol_{HCl}}}{\mathrm{L_{HCl_{sol.f}}}}\,250\,\mathrm{mL_{HCl_{sol.f}}} \cong$$
$$\cong 10.09\,\mathrm{mL_{HCl_{sol.f}}}$$