

Etalon pH metra, Symmetry tip SM235

$F = 96\,485,341\,5(39)$ C/mol ($u_r = 4,0 \cdot 10^{-8}$) Faradejeva konstanta
 $R = 8,314\,472(15)$ J/(mol · K) ($u_r = 1,7 \cdot 10^{-6}$) molarna gasna konstanta
 T [K] = t [°C] + 273,15

A, baznost (pH) na referentnoj temperaturi

$A_{U0} = 7$, baznost pri nultom naponu između elektroda za pH

$$S, \text{ osetljivost elektroda za pH [1]} \quad S \equiv \frac{\left(\frac{\partial U_T}{\partial A}\right)_{\text{elektroda}}}{\left(\frac{\partial U_T}{\partial A}\right)_{\text{teoretski}}}$$

U_T , napon između elektroda za pH, pri temperaturi rastvora T [K]

$$A = A_{U0} - \frac{F}{R \cdot \ln 10} \cdot \frac{U_T}{T \cdot S}$$

$$U_T = -\frac{R \cdot \ln 10}{F} \cdot T \cdot S \cdot (A - A_{U0})$$

$$\frac{\partial U_T}{\partial A} = -\frac{R \cdot \ln 10}{F} \cdot T \cdot S$$

Željene vrednosti

$S = 1$

U [mV]	414.1159	207.0580	0.0000	-207.0580	-414.1159
pH @ T = 0 °C	-0.6407	3.1797	7.0000	10.8203	14.6407
pH @ T = 25 °C	0.0000	3.5000	7.0000	10.5000	14.0000
pH @ T = 50 °C	0.5415	3.7708	7.0000	10.2292	13.4585
pH @ T = 75 °C	1.0053	4.0027	7.0000	9.9973	12.9947

Ostvarene vrednosti kod SM235

$S = 1$

U [mV]	414.1293	207.0647	0.0000	-207.0647	-414.1293
pH @ T = 0 °C	-0.6409	3.1795	7.0000	10.8205	14.6409
pH @ T = 25 °C	-0.0002	3.4999	7.0000	10.5001	14.0002
pH @ T = 50 °C	0.5413	3.7707	7.0000	10.2293	13.4587
pH @ T = 75 °C	1.0051	4.0026	7.0000	9.9974	12.9949

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