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STUDY OF DETERMINATION OF THE INHIBITORY EFFICIENCY OF MMF-2 BRAND INHIBITOR SYNTHESIZED ON THE BASE OF MALEIC ACID, MONOETHANOLAMINE AND PHOSPHATE ACID BY GRAVIMETRIC METHOD

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Abstract. In this article, inhibition of corrosion inhibitor synthesized on the basis of maleic anhydride, monoethanolamine and phosphoric acid was determined by effective gravimetric method. Fon-2(0,5 HCl+200 mg/l NaCl) medium and 70 ^{0}C temperature were studied.

Keywords: corrosion inhibitor, maleic anhydride, monoethanolamine, phosphoric acid, gravimetric method.

INTRODUCTION.

One of the best ways to protect metals from corrosion is the use of corrosion inhibitors. The use of inhibitors can only slow down corrosion, but cannot completely stop it[1,2]. Corrosion is one of the processes that cause great damage not only to industry, but also to material and spiritual heritage. According to their types, corrosion inhibitors are divided into anodic, cathodic and mixed corrosion inhibitors [3,4]. In general, there are several types of corrosion, which are characterized by the source of origin and properties. In preventing corrosion, the use of corrosion inhibitors can allow us to use structures for a relatively longer period of time, but it cannot completely eliminate this problem [5,6].

Experimental part

The gravimetric method is one of the widely used and effective methods for determining the corrosion rate of metal in laboratory conditions. In this case, the tested metal is determined based on the difference in mass loss in the state with and without an inhibitor added to the solution. For this, experiments were carried out to determine the corrosion rate of the steel electrode at different concentrations and at certain temperatures, and the corrosion rate (K) and weight loss (X) associated with the experiment in solutions with and without inhibitors determined based on the gravimetric method.

$$K = \frac{(m_1 - m_2)\cdot 1000}{S\cdot\tau_1} K = \frac{(m_1 - m_2)\cdot 1000}{S\cdot\tau_1} \quad [г/м^{-2}\cdot sutka] \qquad (2.3),$$

$$X = \frac{K_{инг}}{K_0}\cdot 100 X = \frac{K_{инг}}{K_0}\cdot 100, \quad Z = 100 - X, \% \qquad (2.4),$$

Here: m_1 - the initial weight of the metal sample, g: m_2 - the weight of the metal sample after exposure, g: S - the surface area of the sample taken for the practical experiment, m_2: t1 - exposure time, hours, days.

Table-1.

Turli harorat va kontsentratsiyada MMF-2 markali ingibitorining Fon-2 eritmadagi korroziyaga qarshi samaradorligi

Ingibitor	**T,** (K)	**C,** (mg/l)	***W,*** gr/(sm^2·soat)	**γ**	**η,** (%)	**θ**
MMF-1	**303**	-	**1,28**			
		75	0,292	4,38	77,11	0,7711
		100	0,264	4,84	79,31	0,7931
		150	0,198	6,46	84,52	0,8452
		200	0,126	10,16	90,18	0,9018
	313	-	**1.48**	-	-	-
		75	0,333	4,44	77,46	0,7746
		100	0,284	5,21	80,76	0,8076
		150	0,214	6,92	85,53	0,8553
		200	0,133	11,13	90,95	0,9095
	323	-	**1,76**	-	-	-
		75	0,387	4,54	77,96	0,7796
		100	0,297	5,92	83,12	0,8312
		150	0,226	7,79	87,14	0,8714
		200	0,132	13,33	92,48	0,9248
	333	-	**1,93**	-	-	-
		75	0,422	4,57	78,12	0,7812

		100	0,283	6,82	85,32	0,8532
		150	0,132	14,62	93,15	0,9315
		200	0,111	15,86	94,22	0,9422

Based on the results obtained from Table 1 above, we can conclude that the inhibition efficiency of MMF-2 composite corrosion inhibitor Fon-2(0,5 HCl+200 mg/l NaCl) 94,22 %, environment and temperature of 70 ^{0}C and concentration of 200 mg/l is 94,22 %. , we can see that it forms Also, in corrosive environments, we can see a smaller increase in protection when the temperature increases by 10 ^{0}C. It can be concluded that chemical and physical adsorption occur at the same time and that such corrosion inhibitors are mixed corrosion inhibitors. MMF-2 inhibitor at a concentration of 200 mg/l showed an average level of protection of 94,22 %.

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