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RESEARCH OF SURFACE MORPHOLOGY OF A SYNTHED INHIBITOR BASED ON MALEINE ANGIIRIDID

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Abstract. In this article, the corrosion inhibitor synthesized based on maleic anhydride, monoethanolamine, and phosphoric acid to determine the mechanisms of steel inhibition are studied. This shows that the inhibitor protect steel at a high level in various aggressive environments. Its effect on the steel surface using a scanning electron microscope.

Keywords: maleic anhydride, monoethanolamine, phosphoric acid, scanning electron microscope

Introduction

Corrosion is a reversible process, which converts pure metal to different chemical compounds[1]. Nowadays, corrosion is turning into a major issue in many industries, building materials, infrastructure, tools, ships, trains, vehicles, machines, and appliances [2,3]. Corrosion is not only responsible for an economic loss but also associated with safety issues because it decreases the shelf life of steel[4]. This problem turns into a major issue for the entire world, so researchers are trying to address this issue in various ways[5,6].

Experimental part

Scanning electron microscope analysis. A scanning electron microscope (SEM) uses a focused beam of high-energy electrons on the surface of solid samples to produce a variety of signals. SEM allows obtaining information such as the surface structure (external morphology), chemical composition, orientation of components, as well as the crystal structure of the sample from the signals obtained from the electron interaction of the sample. The purpose of SEM analysis is to determine the presence of an inhibitor on the steel surface.

The pre-corrosion, post-corrosion and inhibited states of the steel surface were studied using a SEM-EVO MA 10 (Zeiss, Germany) scanning electron microscope.

Figure 1a. Original photograph of the steel sample

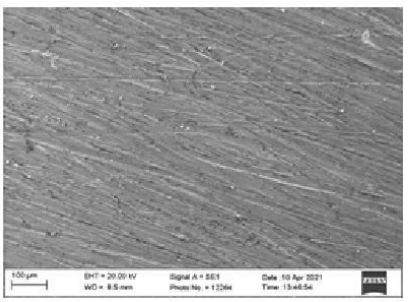

Figure 1b. SEM photograph of a steel sample

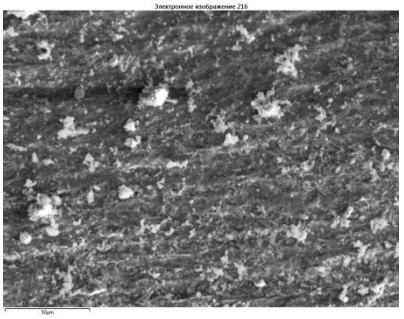

Figure 1c. SEM photograph of annealed steel sample

As you can see from the pictures given above, Figure 3.4a shows the first photo of a steel sample cleaned with different grades of sandpaper and washed in acetone. Also,

microphotographs of the initial steel sample were taken using a scanning electron microscope in an environment without an inhibitor (Fig. 3.4b) and with an inhibitor (Fig. 3.4c).

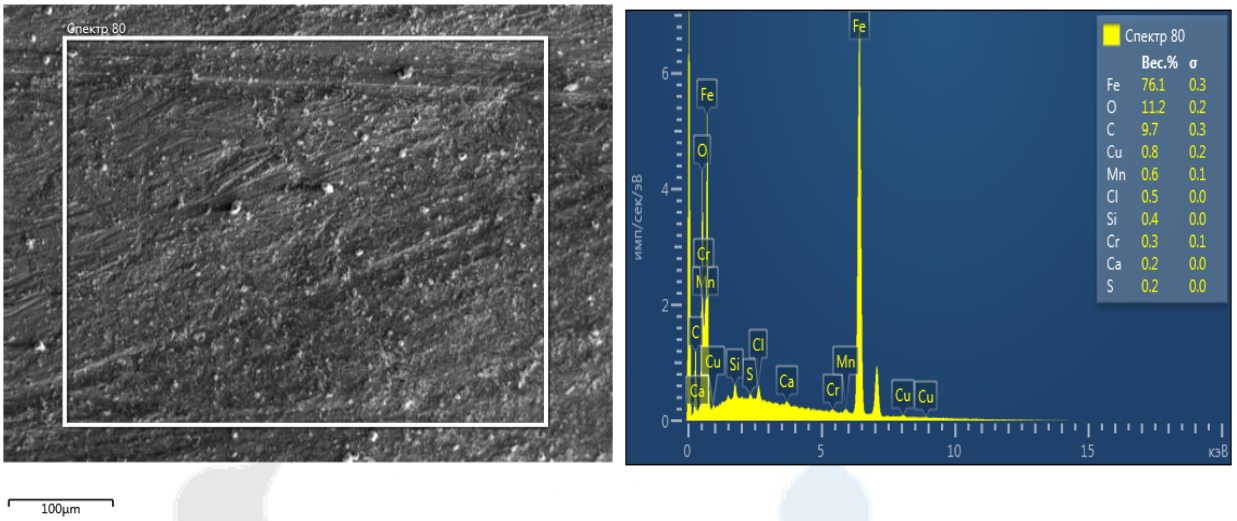

Figure 3.5. SEM and elemental analysis of St20 sample inhibited with MMF-1 inhibitor

It is known from Figure 3.5 that the SEM and elemental analysis of MMF-1 brand corrosion inhibitor in Fon-1 environment using a scanning electron microscope is presented. It is known that the inhibitor is adsorbed on the steel surface and protects against aggressive environments. It can also be seen from the element analysis.

Conclusion.

The ingredient mechanism of the syntheist on the basis of Monic Anhydrede, Monoethehehorene and Phosphoric Acid has scanned changes on steel surface in non-ingredients, which scan and neutralized corrository.

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