STUDY OF THE STRUCTURE OF ANTI-CORROSION COATING BASED ON METHYL METHACRYLATE AND MONOETHANOLAMINE

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Abstract. In this research work, the optimal conditions of a new type of organic anti-corrosion coating based on methyl methacrylate, monoethanolamine and ED-20 epoxy resin were studied. At first, a new compound was synthesized based on methyl methacrylate, monoethanolamine and its structure was studied by YAMR and PMR.

Keywords: organic anti-corrosion coating, methyl methacrylate, monoethanolamine, YAMR and PMR.

Introduction: At the same time, corrosion is causing great damage not only to industrial infrastructures, but also to cultural heritage[1,2]. We can say that there is no sector that does not suffer from the corrosion process, for example: energy, transport, chemical and chemical technology, food and drinking water system, oil and gas production industry, pharmaceutical, engineering, construction. did not Corrosion of metal and reinforced concrete structures, pipelines carrying hydrocarbons and water, air, land and sea transport infrastructure, bridges, piers, marine structures, chemical plants and nuclear reactors, power plants, electronic devices, body implants, cultural heritage ob causing unprecedented damage to objects, artifacts and many other structures[3,4]. If we talk about the economic damage of this process, as an example, we can cite the following figures, for example: according to the results of international research conducted by NACE (IMPACT 2016) [5,6], the annual economic damage of the corrosion process worldwide is 2.5 trillion US it is concluded that it is $, if we analyze this figure in each country section, it is about 3.4% of the average gross domestic product (GDP) of each country. Searching for new types of anti-corrosion coatings with high efficiency and low cost, environmentally friendly in preventing the corrosion process remains one of the current directions of research[7,8]. The inhibition mechanism of anti-corrosion coatings is based on preventing or completely stopping the corrosion of the anti-corrosion coating obtained in certain concentrations by

passivating the surface of metal and metal structures by various physical and chemical mechanisms [9].

Experimental part

Analysis of results of YMR and PMR analysis. YMR and PMR analysis of oligomeric anti-corrosion coating based on methyl methacrylate and monoethanolamine was obtained and analyzed (Fig. 2).

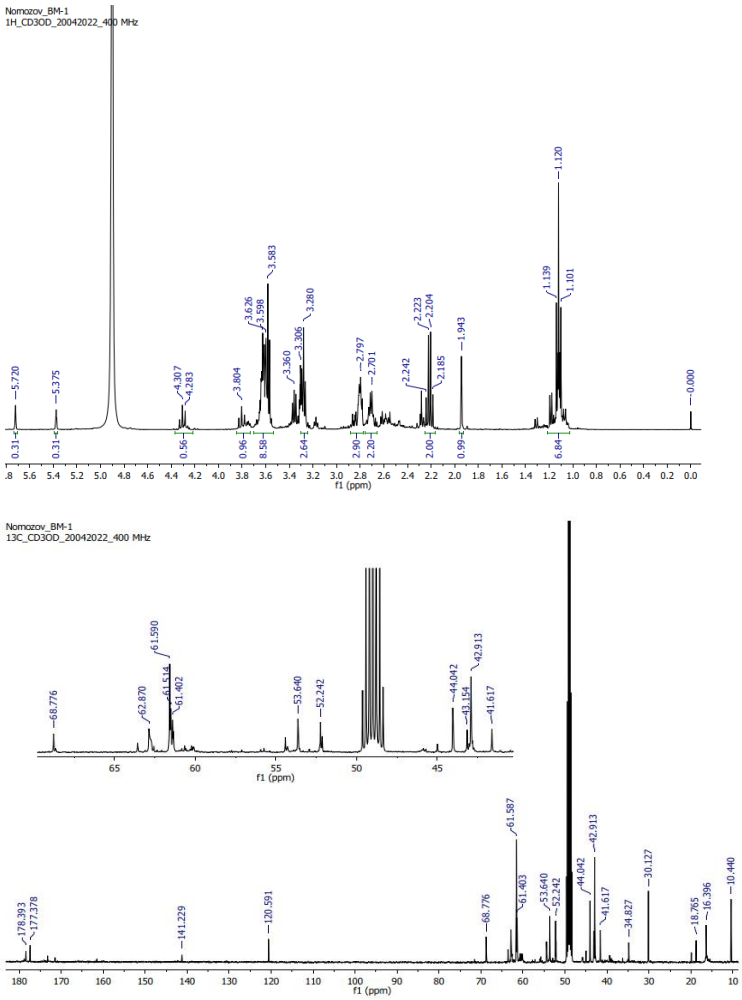
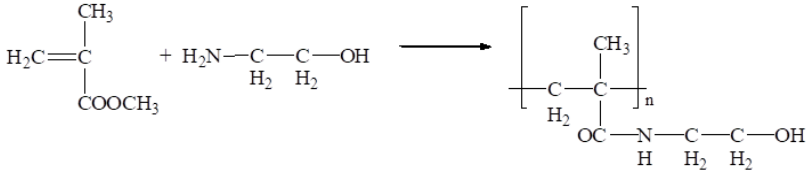


Figure 2. YaMR (A) and PMR (B) analysis of the obtained anti-corrosion coating

When analyzing the YAMR-spectrum (Fig. 2), proton signals spectrum PMR 1H (400 MGs, SD3OD, d, m.u., J/Gs) (N-5) 3.804 m.u., (N-7) 3.626-3.583 m.u., (H -8) 3,360 m.u., (N-4) 3,306-3,280 m.u., (N-6) 2,797-2,701 m.u., (N-1) 1,943 m.u. shows that Spectrum YAMR 13C (400 MGs, SD3OD, d, m.u., J/Gs) quaternary carbon (C-2) that is bonded to the NH group is 120.591 m.u., the carbon of the CH2 group bonded to the NH group (C- 6) - 42,913 m.u., carbon in the CH2 group (C-7) bonded to the OH group - 61,587 m.u., carbon in the CH3 group (C-4) bonded to O in the

sample -53,640 m.u., quaternary in the substance carbon in the methylene group bonded to carbon (C-1) -30.127 m.u. shows . The obtained spectra confirm the structure of the synthesized substance.



Conclusion.

In this research work, the optimal conditions for obtaining an anti-corrosion coating based on methyl methacrylate and monoethanolamine and ED-20 resin's structure was studied by YAMR and PMR.

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