

## ANNOTATION

Explanatory note to the master's thesis: "Inhibition of atmospheric corrosion of steel by volatile organic compounds": 106 p., 25 fig., 18 tab., 72 sources.

Object of research - inhibition of atmospheric corrosion of steel by volatile corrosion inhibitors

Subject of research – surface activity and adsorption capacity of thymol, menthol and vanillin

Purpose – to evaluate the efficiency of anticorrosive action and formation mechanism of a protective film of thymol, menthol and vanillin as volatile corrosion inhibitors steel.

Research method and apparatus – research methods of corrosion and electrochemical inhibiting properties of thymol, menthol and vanillin in conditions of periodic moisture condensation on the surface of the steel. Adsorption properties of organic substances and their adsorption centers evaluated by performed quantum-chemical calculations of their spatial and electronic structure. The presence of a protective film on the surface was determined by infrared spectrometry. The morphology of obtained protective film was performed using scanning electron microscopy.

The results – it has been found that using the quantum-chemical calculations can predict the adsorption activity of thymol, vanillin and menthol. Researched the anticorrosion efficiency of films that are formed from the vapor phase of inhibiting substances in the conditions of periodic condensation of distilled water, in the mineralized film of moisture. It has been shown that volatile organic compounds are mixed type inhibitors that inhibit both anodic and cathodic corrosion process, with prevail braking of cathodic reaction.

Keywords: ATMOSPHERIC CORROSION, VOLATILE ORGANIC SURFACTANTS, MILD STEEL, CORROSION BRAKING