



Research Article

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Application chitosan derivatives as inhibitor corrosion on steel with fluidization method

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ABSTRACT

Chitosan derivatives are carboxy methyl chitosan-benzaldehyde (CMChi-B) and carboxy methyl chitosan-urea-glutaric acid (CMChi-UGLU) were synthesized from chitosan. CMChi-B and CMChi-UGLU have been used as new corrosion inhibitor on steel with fluidization method. In this research, corrosion media was NaCl 2% solution and value of maximum inhibition efficiency for CMChi-B and CMChi-UGLU respectively were 80,82% and 80.62%.

Keywords: carboxy methyl chitosan -bezaldehyde, carboxy methyl chitosan-urea-glutaric acid, fluidization, new inhibitor.

INTRODUCTION

Industry development increases in economic growth, but it also produces waste industrial, such as sulphur dioxide and nitrogen oxide. If sulphur dioxide and nitrogen oxide react with rain water, they lead to sulphite acid and nitric acid. The acids known as acid rain and corrosive to equipments which is made from metal [1]. The disadvantages of corrosion are replacing industrial equipment, bridge and construction maintenance, disturbing of production process and transportation [2].

Corrosion is material (metal/alloy and non metal) damage process caused by chemical phenomenon or electro chemical reaction with its environmental or electrochemical reaction of material with oxygen or by thermodynamically reaction on metal and alloy in corrosive media [3-5]. Various methods can be using as corrosion control such us material choice, coating/electro plating inhibiting, cathodic protection, design, material up grading, process control, passivating the surface, raising pH by alkaline beyond pH 10.5, lowering potential [6-10].

Chemical compounds in little quantities minimize can inhibit/decrease or prevents corrosion on metal known as an inhibitor corrosion [11-14]. Hetero atom such as oxygen, nitrogen, sulphur and an electron π (in an organic compounds are most effective as excellent inhibitors, unsaturated bond and hetero atom on this compounds are causes an adsorption process take place on the metal surface [15-32].

In acidic media, inhibitor can use to against corrosion [33], the efficiency and effectively the inhibitors depend on some factors such as density of electron donor on the atom in molecule inhibitor [34], size and molecule structure[35], aromatic properties, electronic structure, steric hindrance, area of molecule, molecular weight of inhibitor, functional group, properties of electron π [36-45]. Benzyl Triethyl Ammonium chloride 0,5M have been