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Conversion of Carcinogenic Liquid-Wastes of Poly Vinyl Chloride (PVC) Industry to an Environmentally Safe Product: Corrosion Inhibitor and Biocide

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Abstract : Most of Poly Vinyl Chloride (PVC) petrochemical companies produce huge amount of byproduct which characterized as carcinogenic liquid-wastes, insoluble in water, highly corrosive and highly offensive. This byproduct is partially use, a small part, in the production of hydrochloric acid and the huge part is a waste. Therefore, the aim of this work was to conversion of such PVC wastes, to an environmentally safe product that act as a corrosion Inhibitor for metals in aqueous media and as a biocide for microorganisms. This conversion method was accomplished mainly to protect the environment and to produce high economic value-products. The conversion process was established and the final product was tested for the toxicity, water solubility in comparison to the crude product. Furthermore, the end product was tested as a corrosion inhibitor in 1M HCl and as a broad-spectrum biocide against standard microbial strains and against the environmentally isolated Sulfate-reducing bacteria (SRB) microbial community.

Keywords : PVC, surfactant, corrosion inhibitor, biocide, SRB
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