

Accepted Manuscript

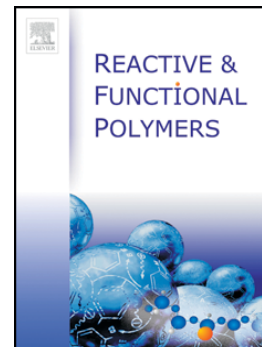
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PII: S1381-5148(15)30031-6
DOI: doi: [10.1016/j.reactfunctpolym.2015.08.006](https://doi.org/10.1016/j.reactfunctpolym.2015.08.006)
Reference: REACT 3550

To appear in:

Received date: 9 December 2014
Revised date: 2 June 2015
Accepted date: 13 August 2015



Please cite this article as: Brylee David B. Tiu, Rigoberto C. Advincula, Polymeric Corrosion Inhibitors for the Oil & Gas Industry: Design Principles and Mechanism, (2015), doi: [10.1016/j.reactfunctpolym.2015.08.006](https://doi.org/10.1016/j.reactfunctpolym.2015.08.006)

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Polymeric Corrosion Inhibitors for the Oil & Gas Industry: Design Principles and Mechanism

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Abstract

This work aims to provide an overview of the most common functional groups of polymeric corrosion inhibitors for the oil and gas industry. Exploration, production and transportation of petroleum and natural gas products constantly deal with highly corrosive environment due to oxygen, acid stimulation, CO₂ and H₂S contamination so versatile materials are required in order to keep corrosion rates in control. Unlike small molecule corrosion inhibitors, polymers have the advantage of better film-forming capabilities and multi-functional chemistries, which could significantly improve protective barrier properties. In line with this, only structures tested in relevant oil and gas media are included in order to highlight certain moieties capable of complex formation with the metal surface or chelation on corrosive agents resulting to better inhibiting performance.

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