

Symposium Information: Refining Industry Corrosion

Presentation Title: High Level Corrosion Risk Assessment Methodology for Refined Hydrocarbon Products

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Abstract

Predicting corrosion risks and developing inspection and mitigation plans form a vital part of any Integrity Management System (IMS). Most of the emphasis from operators is given to upstream and processing facilities, however, the facilities installed downstream, in particular the storage and transport of refined hydrocarbon products, are often considered in the “fit and forget” philosophy. Operators often apply makeshift solutions in case of any failure, but problems can recur which besides denting the operational excellence can affect the environment and safety.

Refined hydrocarbon products such as Jet A1, LPG and ULG 91/95 etc. are not generally corrosive to metals and alloys which are used for their storage and transport; however, they do contain dissolved water, organic sulphides and oxygen containing compounds that can cause corrosion over time. Conventional corrosion prediction models are not relevant since hydrogen sulphide and significant carbon dioxide are not present. In order to overcome this limitation and to allow corrosion risk assessment of both existing and aging facilities, an alternative in-house corrosion risk assessment methodology has been developed. This methodology helps to dilute the corrosion risks associated with these facilities in a well-structured process as practiced for one of the major operators in the Middle East. This paper discusses the methodology adopted to model the corrosion rates and risk assessment involving both probability and consequences within these product streams.

Key Words: risk assessment, unleaded gasoline (ULG), liquefied petroleum gas (LPG), carbon dioxide (CO₂), hydrogen sulphide (H₂S)