

February 2018

**In this issue:**

- Internal Corrosion Management
- Critical Micelle Concentration (CMC)

**Forth coming events:**

**March** Tuesday 27<sup>th</sup> 18  
Industrial visit to Element  
new H<sub>2</sub>S / Sour Service lab  
(Element Material  
Technology)

**April** Tuesday 24<sup>th</sup> 18  
New method for subsea  
pipeline inspection  
(Deepwater)  
A newly built corrosion  
management strategy  
(BP/Oceanering)

**May** Tuesday 29<sup>th</sup> 2018  
Industrial visit to Sonomatic  
(Sonomatic Ltd)

## Function - Related Dosage of Corrosion Inhibitors The Development of an on-site Operator Deployable Technology

The February event focused on internal corrosion management Issues, particularly corrosion mitigation by chemical control and optimization. A very enjoyable and informative presentation was given by Emma Perfect, CEO of LUX Assure Ltd, who described the development of an onsite technique for measuring dosage of corrosion inhibitors used in the protection of pipelines. This advanced technique was developed as there was a perceived need to identify more quickly, and more accurately, when dosing levels of inhibitor were either below or above the threshold for protection, and hence allow an operator to adjust levels to better protect equipment from corrosion or have options to lower the dosage level to reduce costs of inhibitor supply.



*A well supported event at Palm Court Hotel*

Development of the LUX Assure Control Concept commenced in 2008 and the company has been supported by key energy industry players including Chevron, ConocoPhillips and Statoil Technology Ventures, along with the Scottish Investment Bank and Archangels / Private Investors. The technique relies on the fact that corrosion inhibitors form micelles in the body of the fluid once all available sites for absorption are occupied. This is essentially a saturation point, and the micelles formed increase in concentration as inhibitor is supplied in excess of optimal levels.

With access provided to suitable trial sites, the development of the technique and a suitable kit for onsite monitoring progressed over a period of 3-4 years until it was fully commercialized in 2013. LUX Assure gathered data to show operators that this technique could be used to test fluids and identify the Critical Micelle Concentration (CMC) of a surfactant above which micelle formation occurs. But the real challenge for LUX Assure was to develop a kit, (now known as CoMic™) which operators offshore could use to sample and analyse fluids in the

field in relatively uncontrolled environments without precise preparation. The specialised kit includes detection reagents and an optical analyser. Final data processing evaluation of the sample is still currently performed back at the offsite laboratory and results and advice swiftly communicated back to the field, but a full onsite service is currently being progressed



#### *CoMic Testing Kit*

The presentation, which was well received, went on to describe case studies and discuss when samples may not be suitable for testing, and also the correct use and interpretation of the data for the test situation. It is hoped that in the near future that all data interpretation can be made by the test operator if a practical and proven site assurance system can be developed.

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