CASE STUDY

OMMICA™: Mono-ethylene glycol (MEG) in oil analysis.

BACKGROUND

A newly commissioned oil installation in the North Sea uses continuous injection of mono-ethylene glycol (MEG) to prevent hydrate formation in flow-lines.

In initial operations, there can be a higher than normal loss of MEG into the crude oil stream, prior to achieving stability in the MEG regeneration unit, with resulting increase in costs to replace the MEG.

As MEG is considered a crude contaminant, it can lead to unwillingness of the refinery to accept cargo shipments containing excessive levels of MEG. The refinery may also Impose a waiver fee, due to contamination or damage of microbial sieve beds used for effluent water, post crude washing.

Statoil's Mongstad refinery received such a shipment of cargo crude meaning that prompt analysis showing MEG content of crude oil to be processed at refinery was essential. Results from this analysis allowed informed decisions to be made regarding potential additional washing and processing of the contaminated cargo crude.

TESTING

Use of Gas Chromatography (GC) for MEG in oil analysis is widely recognised, however in this instance it was not practical to analyse the samples using GC in the short time-frame given. In addition to this, multiple samples were to be tested and OMMICA™ was found more suitable than GC.

Following the creation of a standard curve using the OMMICA™ kit reagents, samples of oil from the cargo tankers were received and analysed using OMMICA™ oil analysis kits. Samples were also sent to an external lab for correlation with the GC method of analysis.

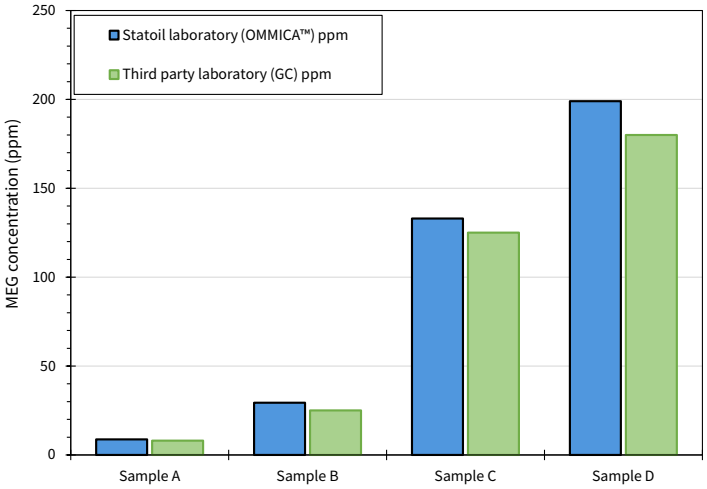

FIGURE 1: CORRELATION OF GC AND OMMICA™ FOR MEG ANALYSIS

Testing was carried out over a number of weeks and results were correlated as can be seen in Figure 1. As can be seen from the graph, OMMICA™ and GC results correlate very well. Less than a 20% difference in results was found between two different methods, using non-identical samples in different labs. This is widely considered an acceptable variance.

The successful outcome of this correlation testing meant that Statoil Mongstad continue to use OMMICA™ at the refinery laboratory to analyse for MEG in oil samples from suspect cargo crude shipments.

OMMICA™

Simple, onsite analysis of MEG and methanol in produced fluids

LUX Assure Ltd
Unit 5.3, Research Avenue South
Heriot Watt Research Park, Edinburgh EH14 4AP
United Kingdom

www.luxassure.com
+44(0)131 516 7290 contact@luxassure.com

SUMMARY

The ability to carry out near real time analysis on multiple samples has given Statoil Mongstad the benefit of being able to make informed decisions on the processing and potential segregation of cargo crude prior to entry to the refinery. This in turn has the potential of giving savings in terms of demurrage, storage prior to result and potential additional process steps to ensure MEG levels are well within specification to avoid risk of out-of-specification material.

Following the successful deployment of OMMICA™ analysis in this instance and strong correlation with GC, the OMMICA™ method has been endorsed by Statoil Mongstad for use in analysing incoming crude oil for MEG content.

LUX Assure Ltd
Unit 5.3, Research Avenue South
Heriot Watt Research Park, Edinburgh EH14 4AP
United Kingdom

www.luxassure.com
+44(0)131 516 7290 contact@luxassure.com