

CASE STUDY



OMMICA™ – Testing methanol content in Alaskan crude

BACKGROUND Oil pipelines in Alaska can reach elevations of more than 4,739 feet and encounter air temperatures as low as -95°F (-71°C). It's cold and inhospitable. And if the oil flow freezes at any point along that stretch, it could spell catastrophe for the pipeline operator. Thawing out pipes is a lengthy process that could be impossible in winter, when temperatures plummet in hard-to-reach locations.

Some pipelines in Alaska are elevated on vertical supports due to permafrost, and heat pipes transfer ground heat into the air along the pipeline. The operators that transport their oil via these pipelines have always taken freezing extremely seriously, and under certain emergency scenarios might pump ice inhibitors, such as methanol, into the crude.

The problem is that, downstream, too much residual inhibitor can damage refinery equipment, and so high levels can really impact the value of the oil. Levels therefore have to be monitored carefully.

Typically, operators use Gas Chromatography (GC), an industry-recognized method for measuring methanol content in oil. One operator in Alaska set about looking for a supplemental method to monitor methanol levels in their oil. Using GC with a supplementary method would enable the operator to cross-check data and validate results, as well as allow flexibility to analyse samples from various field locations in a timely manner.

TESTING

Traditionally, the operator's lab relied on the GC process because it gives highly accurate results and can be configured for running a variety of different tests. However, GC also has several drawbacks. The equipment is expensive, requires specially trained chemists to operate and takes a long time to set up (up to half a day). If the equipment is needed for another test – such as switching between methanol testing and crude composition analysis – it has to be set up again. All of this is of course inconvenient, but it's a process that chemists in the industry are accustomed to.

OMMICA is an innovative colourimetric testing kit that accurately determines methanol levels, returning results within an hour. It requires far less training, lab space and equipment to use and, crucially, has no maintenance risks or requirements. In theory, using OMMICA would save the operator significant time and money while giving equally accurate results. The GC equipment could be freed up to focus on other tests, such as crude composition analysis, and employing both OMMICA and GC allows for cross-checking data and validating results as well as allowing flexibility to analyse samples from various field locations in a timely manner.

The operator commissioned an independent third-party testing programme to assess OMMICA's suitability. The tests were carried out by an independent lab in Houston, using a series of oil samples spiked with methanol. OMMICA and three other technologies on trial were tested to see which most closely correlated with GC. Results showed OMMICA demonstrated a close correlation with the GC results accepted as industry standard. OMMICA also showed close readings to theoretical concentrations of the spiked samples.

SUMMARY

The operator chose OMMICA as a supplemental product, and OMMICA Ltd immediately supplied the operator's lab with several testing kits, allowing the operator to assess methanol levels of the incoming crude. The Arctic pipeline operator has reported that OMMICA is performing as expected and meeting their needs.

Duncan Baillie, Business Development Manager at OMMICA Ltd, notes "From our perspective the whole testing process, whilst demonstrating accuracy, also really brought home its practical benefits of OMMICA over other methods. While others were taking half a day to get everything ready and set up, it took us about an hour."

With both third-party testing and user feedback validating the decision, the operator could be confident in the ongoing use of OMMICA as a supplementary solution to GC at the terminal for methanol in oil determination.

PROBLEM	SOLUTION	RESULT
Alaskan operator required supplemental method to GC to monitor methanol levels in incoming crude oil at terminal	OMMICA was deployed alongside GC and independent 3rd party testing was undertaken to assess accuracy of method	Following successful independent validation, the operator was confident in the use of OMMICA to assess methanol levels in crude