

Measuring Glycols in Airplane Deicing Runoff

Applied Analytics Application Note No. AN-010



Application Summary

Analyte: **propylene glycol**

Detector: **OMA-300 Process Analyzer**

Process Stream: **effluent airplane deicing fluid**

Introduction

Airplane deicing fluids commonly contain propylene glycol as a main ingredient. When discharged into the ground, propylene glycol leads to an increase in biological oxygen demand (BOD). Release of propylene glycol into sewage systems has been restricted since 1995 in the US. To comply with regulations and remain environmentally responsible, facilities that use airplane deicing fluids should measure the amount of propylene glycol being released in effluent fluids.

Continuous monitoring of propylene glycol concentration in effluent water is critical for proper handling of deicing fluids, including recycling processes and storage.

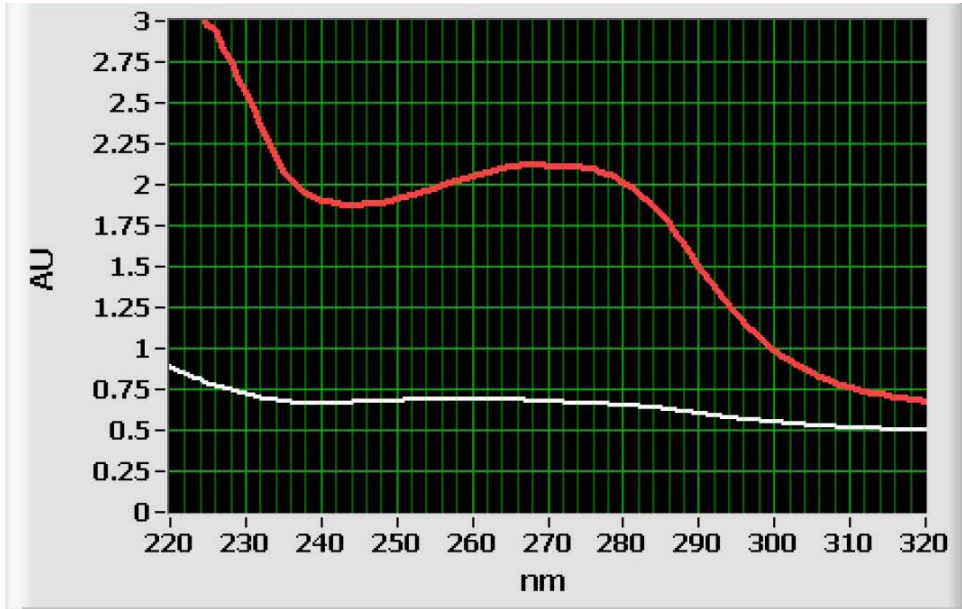
The OMA system continuously measures propylene glycol concentration from low to high levels using full-spectrum absorbance spectrophotometry. Multiple sample streams can be monitored by a single multiplexed OMA, and alarm thresholds can be easily configured by the user.

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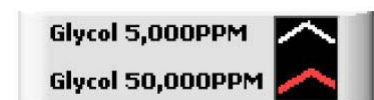
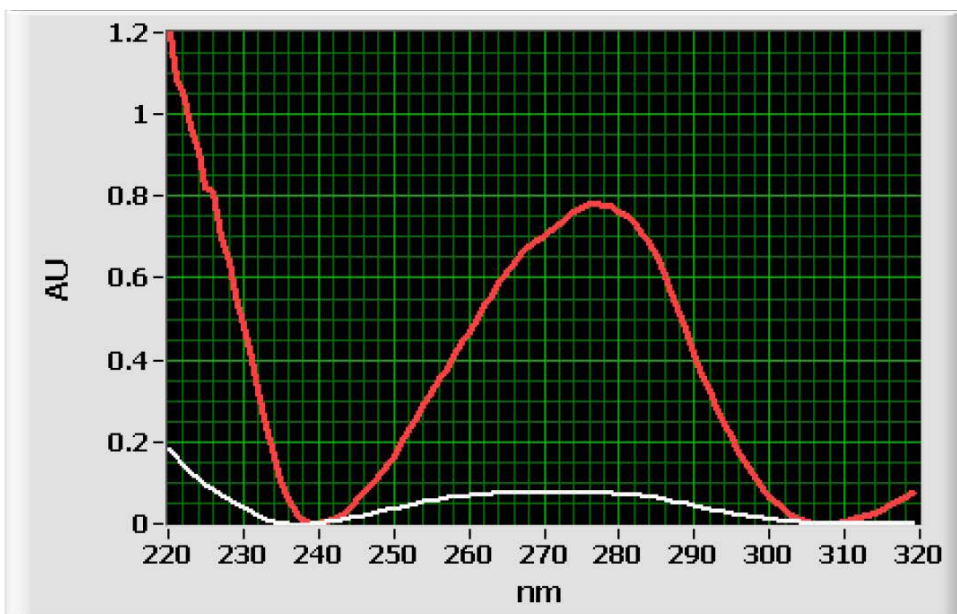
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Propylene Glycol Absorbance Spectrum

The OMA measures the level of the propylene glycol absorbance curve in the continuously drawn sample:



The absorbance background matrix of the effluent water is measured and subtracted in order to normalize the glycol concentration reading:



Accurate background subtraction is made possible by the dispersive 'full-spectrum' analysis, which uses many measurement wavelengths to de-convolute the propylene glycol absorbance from other compounds' absorbance.

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Revised 12 September 2013

Further Reading

Subject	Location
OMA-300 Process Analyzer Data sheet	http://www.a-a-inc.com/documents/AA_DS001A_OMA300.pdf
Advantage of Collateral Data Technical Note	http://www.a-a-inc.com/documents/AA_TN-202_CollateralData.pdf



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