

Monitoring Interface Between Compounds in a Pipeline

Applied Analytics Application Note No. AN-021 — Revised 19 July 2013



Application Summary

Analytes: 1st derivative of the full absorbance spectrum

Detector: OMA-300 Process Analyzer

Process Stream: compounds transported sequentially through a pipeline

Introduction

In some cases, a single pipeline is used to transport a diverse array of chemical products. When discrete chemicals are moved sequentially through the same pipeline, a mechanical separator known as a “sealing pig” or “batching pig” is inserted between the sequential products to prevent inter-contamination.

Since the pigs are never completely effective at blocking the interface, a significant volume does suffer intermixing and must be removed for reprocessing. The amount of material routed to reprocessing is usually just pre-programmed with a large margin of error on either end of the interface to ensure removal of intermixed products. This is a simplistic model that is unnecessarily wasteful of material and time.

The OMA system continuously monitors full-spectrum absorbance in the pipeline stream. A change in this spectrum indicates a change in the purity/composition of the material passing through the pipeline. Therefore, the OMA immediately detects the ‘interface’ point where the material has begun to intermix with the subsequent material in the pipeline.

Monitoring the 1st derivative of a complete UV-Vis/SW-NIR absorbance spectrum allows the OMA to detect changes in composition with high sensitivity and fast response. The user can define the threshold contamination level which will signal for rerouting of the stream.

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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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