

Measuring ethylene in recycle EDC vent - EDC/VCM Plant

Applied Analytics Application Note No. AN-062



Application Summary

Analytes:	ethylene
Detector:	OMA-InGaAs Process Analyzer
Process Stream:	recycle EDC vent
Typical Measurement Range:	0-100%

Introduction

Polyvinyl chloride (PVC) is a widely produced and used plastic polymer derived from hydrocarbon feedstocks. Around 40 million tons of PVC are produced every year. The intermediate products for PVC manufacturing are ethylene dichloride (EDC) and vinyl chloride monomer (VCM) and the feedstock is typically naphtha or ethylene. One commonly used process for producing PVC is the oxychlorination process where an ethylene feedstock reacts with chlorine gas to product EDC.

With any mass-produced material, optimization of the manufacturing process is important to maximize efficiency and therefore profitability. Recycling the ethylene feedstock after the oxychlorination reaction is important for maximizing the usage of the raw materials used by the plant. The effluent stream from the reactor contains both EDC and unreacted ethylene, which is then separated in a condenser. The resulting ethylene is then sent back to the reactor inlet as raw material.

The OMA-300-InGaAs Process Analyzer has been used to accurately measure ethylene at high percent levels in the recycle gas. The analyzer measures the purity of the recycled ethylene to ensure that the quality of the recycled feedstock meets specifications, which enables the plant to produce more EDC and maximize the efficiency of the process.

System Benefits: OMA-InGaAs Process Analyzer

- » Continuously measures chemical concentrations in a liquid or gas process stream
- » Totally solid-state build with no moving parts — modern design for low maintenance
- » Ultra-safe fiber optic design with dedicated sample flow cell — no sample fluid in analyzer enclosure
- » Decades of field-proven performance in the world's harshest industrial environment

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Further Reading

Subject	Location
OMA-300-InGaAsProcess Analyzer Data Sheet	https://aai.solutions/documents/AA_DS001N_OMA300_InGaAs.pdf



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