

Multi-Campaign Distillation Process Enabled through Micro Motion Meters

RESULTS

- Accurate measurement of multiple ingredients with single meter
- Accurate measurement of finished product
- Reduced requirement for laboratory analysis
- Reduced process time
- Reduced rework requirement
- Automatic interface detection



APPLICATION

A chemical company distills four different oxo alcohols, using four different campaigns, or recipes, in one production line. The campaigns are based on mass measurements of the feed materials.

One feed line is used to deliver feed materials to the reactor, one ingredient at a time. An orifice meter on the feed line measured velocity of the process fluid, and a density correction factory was applied to the meter data to calculate quantities. The final product was sent to a laboratory for manual analysis. After the product was approved, the production line could be assigned to a new campaign.

CHALLENGE

Because the feed materials vary in density, but only one density correction factor was applied, measurements from the orifice meter were correct for only one ingredient. When laboratory analysis determined that rework was required, additional reactor time and boiler time were required, causing production delays and additional expense.

The manufacturer needed a meter that could measure all feed materials accurately.

SOLUTION

For each production line, two Micro Motion® F-Series meters were installed: one on the feed line and one on the finished product. Because Micro Motion meters measure mass directly, each ingredient is measured accurately, minimizing the amount of rework required. Additionally, because each finished product has a slightly different mass and density, the meter on the out line is able to detect variations from spec. Requirements for laboratory analysis are minimized, for less manual labor and less turnaround time on

\$60,000 Savings in Six Months

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each batch. And, as a side benefit, the meter on the feed line can verify that the correct fluid is being delivered. Before installation of the Micro Motion solution, the manufacturer had no interface detection in place, and had to assume that the storage tank contained the correct ingredient.

In the first six months of use, the new system yielded \$30,000 savings in utility costs and \$30,000 savings in reduced operations costs.

