

Application News

Accurate Flow Metering Solutions for the Biofuel Manufacturing Industry

Industry: Industrial

Service: Flow Rate/Total

Fluid: Sulphuric Acid, Methanol, Caustics and Biodiesel

Overview

Today, there is a growing demand for discarded restaurant grease and other suitable substances refined into biodiesel. Believe it or not, consumers can run their cars off french fry oil from the local fast food restaurant—if the oil is sent through the biodiesel refining process. Refining converts vegetable oil, soybean oil, rapeseed oil, animal fat and similar biological sources into biodiesel fuel. This is done through a process known as transesterification in which methanol and sodium hydroxide or potassium hydroxide (KOH) break down the fat molecules in the oil.

Situation

The biodiesel production process involves adding and mixing a number of chemicals into grease at a temperature of around 140° F, and then filtering and dispensing the refined biodiesel fuel into storage containers or truck-mounted dispensers for delivery to customers. As plants increase production, there is a greater need to streamline the process and increase efficiency through automation.

Solution

Flow Technology can help customers to optimize biodiesel processes through the use of precision electromagnetic and turbine flow meters, as well as advanced batch controllers. This equipment is designed for the highest accuracy, even in demanding application environments, and provides a low cost-of-ownership and reliable performance, year after year.

System Description

Sulphuric Acid: Flow Technology's EL500 and EL2200 Series Electromagnetic flow meters are ideal for measuring the flow of Sulphuric Acid. Teflon liners and Hastelloy C22 electrodes are resistant to this acid, and accuracy to within 0.2% of reading and excellent turndown range assures users of excellent performance. Line size requirements are typically 3/4" to 1-1/2".

Technical Information: EL2200-025A15FP5CA flow meter with MC308CVM2D3C21N electronics, 25 GPM

Methanol: Flow Technology's best-in-class turbine flow meters are ideal for measuring the flow of Methanol. Accuracy of 0.05% of reading and 0.1% linearity ensure precise measurements.

Technical Information: FT-32C1NS-LEA-3 flow meter with LN5CV1B7 electronics, 150 GPM

Caustic (typically 30% Sodium Methatate in Methanol): Here again, the EL500 and EL2200 Series electromagnetic flow meters are an excellent choice. Typical line sizes in this application are up to 2".

Technical Information: EL2200-050A15FP5CA flow meter with MC308CVM2D3C21N electronics, 150 GPM

Refined Biodiesel: The best flow solution for biodiesel is a combination of a turbine flow meter and Flow Technology's LinearLink linearizing electronics with the option of a controller and display for batching and/or totalization.

Technical Information: FT-32C1NS-LEA-3 flow meter with LN5CV1B7 electronics, 150 GPM

Biodiesel Dispensing (from trucks or tanks): In this case, temperature-compensating electronics are used along with a turbine meter to account for viscosity changes due to temperature. Line sizes up to 4" can be accommodated. Calibrations in Flow Technology's NIST traceable and NVLAP-accredited calibration lab ensure a highly accurate solution.

Technical Information: FT-32C1NS-LEA-3 flow meter with LNT-3-COV1-9, MB10-1A30 display, 150 GPM



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