

On-line Measurement of Specific Gravity for Accurate and Efficient Quality Control

Industry: Food & Beverage

Product: Liquid Density Meter

Introduction

In the food industry, the control of concentrations on the production line is critical to product quality, determining, among other things, how good the food tastes. One such procedure for doing this involves taking a sample from the production process and measuring its specific gravity (density) with a hydrometer. This is a time-consuming manual procedure, however, and results may vary depending on the operator.

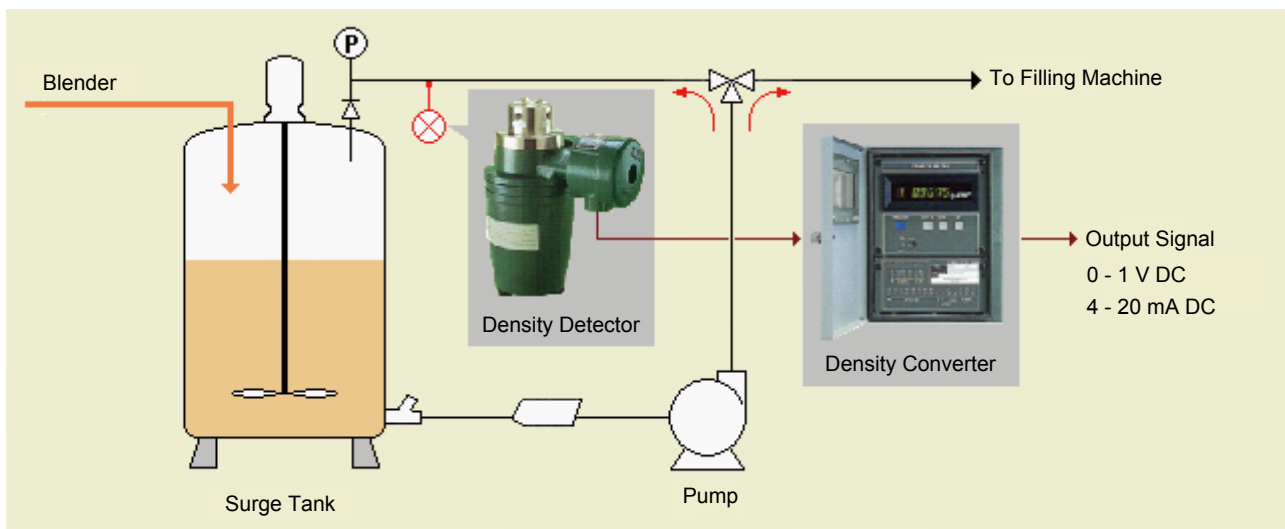
This application note introduces a lactic acid beverage blending process to show how on-line measurement with the DM8 vibration liquid density meter can improve the efficiency of product quality control.

Expected Benefits

- Raises the accuracy and efficiency of quality control on food and beverage production lines
- Improves the efficiency of preventive monitoring
- Reduces operating costs

Process Overview

In the blending (dilution) process at a lactic acid beverage plant, the product concentration was controlled by manually measuring the liquid density. The plant now uses an on-line measurement process based on the DM8 liquid density meter, as shown in the following figure. This achieves high accuracy in concentration control as well as increased efficiency in loss control and preventive monitoring.



Solution Details

Measurement System

Sanitary use detector: VD6DS-S3*B
 Converter: DM8C-A□*B
 Dedicated cable: DM8W-L□□□□*A
 Sampling system:

The VD6SM sampling unit is not designed for sanitary use. For a sanitary use sampling unit, contact Yokogawa.

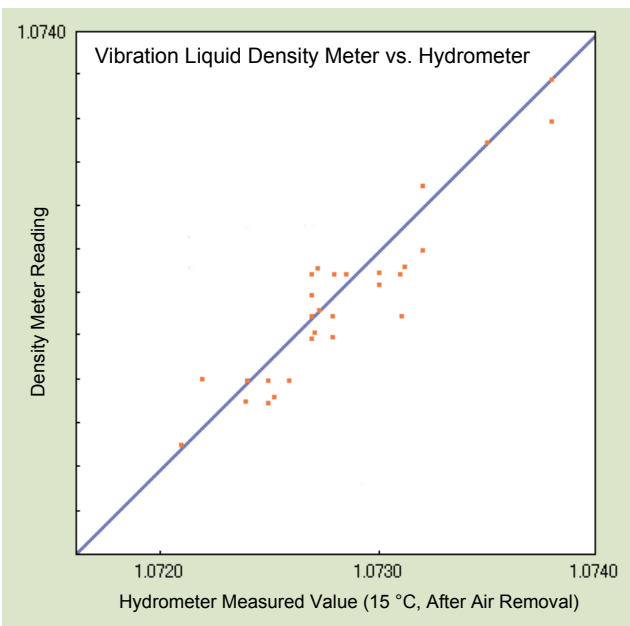
Utilities

DM8C converter/VD6DS detector:
 Power supply (to converter): 90 to 132/180 to 264 V AC, 50/60 Hz
 Power consumption: 20 VA

Field Data

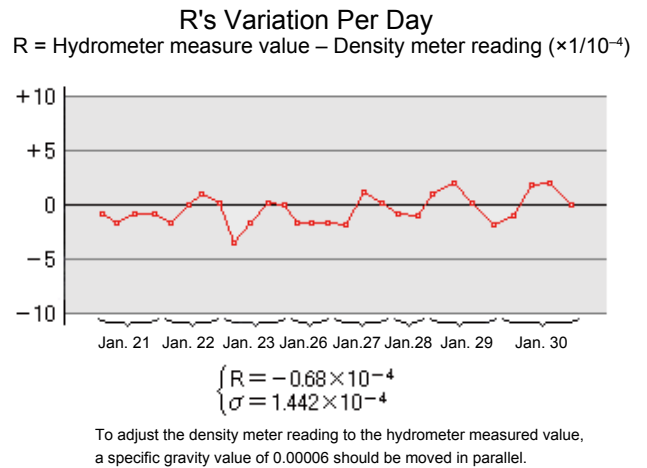
Process conditions

Pressure: 150 kPa
 Temperature: 4 to 6 °C



Results

On-line measurement using the DM8 vibration liquid density meter enables the automation of various controls, thereby improving efficiency.



To adjust the density meter reading to the hydrometer measured value, a specific gravity value of 0.00006 should be moved in parallel.