APPLICATION NOTE

CAS DATALOGGERS

Measuring Temperature & Pressure In Sparkling Wine Bottles

MSR Data Loggers Aid Product Development of Beverages

Previously, data loggers were primarily used in the food processing industry to monitor environmental conditions in warehouses, wine cellars, or during the transportation of foodstuffs. However, in this application, "Pures" grape juice cuvée from Reh Kendermann winery in Bingen am Rhein saw data loggers used in a completely different way. During the development of "Pures," a white carbonated grape beverage, MSR145 data loggers were utilized to capture data inside a Champagne bottle as it was processed. These small data loggers, equipped with temperature and pressure sensors, supported product development and reliably recorded data on the product.

Measurement "In Vivo"

During the manufacture of the grape juice cuvée, the grape juice is carbonated and heat-treated. The primary factor affecting quality at this stage is pasteurization, an issue Johannes Grobeis, technical director at Reh Kendermann, handled with particular care. "Maintaining timing and temperature was very important to me. Low temperatures carry the risk of impairing product preservation, while temperatures that are too high can cause the caps to burst." To obtain exact results, Johannes Grobeis wanted to place a data logger inside the bottle and then pasteurize the device along with the grape juice to record the critical parameters "in vivo."

Since the logger had to fit through the neck of the bottle, its diameter could not exceed the bottle's opening. At just 18.5 mm (3/4”) wide, the logger fits perfectly

through the narrow opening.

Using the logger "in vivo" presented a range of challenges for the measuring device. The data logger not only had to be absolutely watertight, but it also needed to withstand temperatures of 72°C (160°F) and pressures of over 10 bar (145 PSI) during the development phase. The MSR145 mini data logger fulfilled these requirements. "Thanks to our special manufacturing procedures, we can insert-mold the logger, which is already designed to be watertight, inside a silicon sleeve with absolutely no bubbles. During hardening, the silicon becomes fully cured, making the device 100 percent watertight," according to Wendelin Egli, CEO of MSR Electronics.

Benefits of the MSR145

"Based on the measurement results, we were able to verify and standardize the critical process parameters relating to process engineering and product safety within the shortest possible time and with minimum testing requirements," Johannes Grobeis explains. "Because we had the ability to record data under real-time conditions, we only needed two large-scale tests before Pures was ready for the market." For Johannes Grobeis, using the data logger was beneficial in every respect: "Using the 'measuring probe' not only saved us a huge amount of time, but we also obtained recordings made in the bottle under real-time conditions. With traditional systems that are incorporated into the bottle closure and actuated from outside, real-time measurements are not possible."

This Application Note has been adapted from an article written by MSR Electronics GmbH. MSR is the manufacturer of the MSR145, their versatile universal data logger for long-term measurements.

For more information on the MSR145, or to find the ideal solution for your application-specific needs, contact a CAS DataLogger Application Specialist at **(800) 956-4437** or www.DataLoggerInc.com.