Measuring Carbon Dioxide in the Soft Drinks Industry

Carbon dioxide is used to carbonate the beverages in the production of soft drinks. In the United States, OSHA requires that the CO_2 level remains at, or below, 5,000 ppm in the atmosphere of any filler room area. Big Springs Inc. is a major soft drink manufacturer and a large local Coca-Cola franchise distributor located in Huntsville, Alabama. The company has successfully used Vaisala's CARBOCAP transmitters for more than a year in their bottling plant.

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Big Springs Inc. is a major soft drink manufacturer and a large local Coca-Cola franchise distributor located in Huntsville, Alabama, USA. John M. Wilkinson, the Administrative Manager, who has worked for 28 years in the company, is in charge of Facility Maintenance. He also oversees the Human Resources Department.

There is a growing need for reliable measurement of carbon dioxide in bottling plant environments. The lack of reliable and inexpensive instruments has made CO_2 measurement difficult and costly. Cooperation between Big Springs Inc. and Vaisala began when Wilkinson found Vaisala's CO_2 products through the Internet.

Safe levels of CO_2 in the workplace

Carbon dioxide is used to carbonate the beverages in the production of soft drinks. While the containers are being filled during the bottling process, large volumes of carbon dioxide are emitted from the fillers into the filler room atmosphere.

As high concentrations of CO_2 are clearly hazardous, most countries, including the USA, have set workplace exposure limits. In the United States, the exposure limit is 5,000 parts per million (ppm). Occupations where carbon dioxide can rise to dangerous levels include brewing and carbonated drink industries.

In the United States, OSHA (Occupational Safety & Health

The carbon dioxide exhaust fans in the filler room are capable of 15 air changes per hour at Springs Inc., which is a major soft drink manufacturer and a large local Coca-Cola franchise distributor located in Huntsville, Alabama.

Administration, U.S. Department of Labor) requires the average exposure limit of CO_2 in weight to remain at, or below, 5,000 ppm during an eight hour working shift. Mr. Wilkinson explains: "We purchased Vaisala's CARBOCAP transmitters to monitor the levels of CO_2 in the filler room. The information from the transmitters is transmitted to the ABB Chart Recorders. The chart recorders monitor and log these levels. When they sense levels over 4,900 ppm, an exhaust fan system is activated to remove the CO_2 from the filler room. The fans turn off once the level returns to 1,000 ppm."

Cooperation began through the Internet

According to Mr. Wilkinson, Big Springs Inc. has worked together with Vaisala for more than a year. "Research on the Internet led me to Vaisala's Boston Office. After studying the company, I discovered that Vaisala has a long history of quality products and reliable services. Not only that, but the transmitters did not require calibration either. The products of most other companies require constant calibration. Another reason for choosing Vaisala's products was Mr. Richard Kershaw, from the Boston Office. He and the technical staff worked with me to create the system that we are currently using."

Benefits of reliable CO_2 measurement

Mr. Wilkinson says that they have generally been satisfied with the CO_2 transmitters. "The fact that we don't have to calibrate the CARBOCAP transmitters saves time. The system simply runs by itself and requires little or no maintenance. I do not believe that there is another company that could match the efficiency and reliability of Vaisala's products, sales and services." ■

The GMT220 series transmitters are designed to measure CO_2 in demanding environments.

GMT220 Series Industrial Carbon Dioxide Transmitter

The Vaisala GMT220 is the first range of CARBOCAP® transmitters available for a wide range of CO_2 applications including greenhouses, fruit storage, safety alarms and demand-controlled ventilation in mushroom farms, livestock husbandry and car park garages. The GMT220 series transmitters are designed to measure CO_2 in harsh and humid environments. The housing is dust and water proof to IP65/NEMA4, and the materials have been chosen to be particularly resistant to corrosion.

The transmitter is easy to install and use. The GMT220 series transmitters have a modular structure, which includes a separate mounting plate to facilitate installation.

The probes of the transmitter make field maintenance straightforward, because they are fully interchangeable. The probes can either be replaced by newly calibrated probes or separate ones that can be used as reference probes for checking calibration. This minimizes the downtime and eliminates the need for expensive calibration equipment. ■