



# Impurities in CO<sub>2</sub>

Monitor Trace Impurities in Carbon Dioxide used in  
Carbonated Beverages and Food Packaging



**Baseline**<sup>®</sup>  
a mocon company

# The Importance of Monitoring CO<sub>2</sub> Impurities



The function of dissolved Carbon dioxide (CO<sub>2</sub>) gas in beverages is to provide effervescence and some acidity without introducing any undesired sensory effects. As CO<sub>2</sub> is a key ingredient in many products, CO<sub>2</sub> quality management is essential for ensuring consumer satisfaction.

Carbon dioxide is produced for the food and beverage industry as a side product of multiple processes such as fermentation, combustion, ammonia & hydrogen production, as well as the creation of bioethanol. Due to the source of the CO<sub>2</sub> and the complex supply chain that is often required to deliver CO<sub>2</sub> to user facilities, additional contaminants may be introduced into the CO<sub>2</sub>.



Bottlers who use CO<sub>2</sub> are responsible for ensuring that their CO<sub>2</sub> supply chain vendors follow good manufacturing and handling practices. Bottling operators should recognize that a poorly designed or maintained CO<sub>2</sub> delivery system can degrade CO<sub>2</sub> quality. It is necessary to take proper quality control actions to prevent such problems.



# For Detection of the Most Critical CO<sub>2</sub> Impurities

Acetaldehyde, Benzene, Methanol, Total Sulfur Content & Total Hydrocarbons

## BevAlert® Analytical System Features

- Fully Automated Computer Controlled
- Automatic Calibration
- Remote Access and Control
- Multipoint Sampling
- Built In Alarm Capability for Concentration, Flow and Diagnostics
- Touch Screen for Easy Set-Up and Control
- View Real Time, Historical or Diagnostic Data

## Operating Principles and Technology

- Gas Chromatography
  - Photoionization Detector (PID) - Acetaldehyde
  - Photoionization Detector (PID) - Benzene, Toluene, Ethylbenzene and Xylene
  - Photoionization Detector (PID) - Methanol
  - Photoionization Detector (PID) - Total Sulfur
- Continuous Total Hydrocarbon Analysis
  - Flame Ionization Detector (FID)



**BevAlert®**  
**Analytical System**



# Integrated System with World Class Design



## Multi-Point Sampling

Automatic sampling points, regulated by flow controls and alarms.

## Integrated Software

Fully automated computer controlled system allows for remote access of data and diagnostics. Monitor all critical quality control parameters with visual graphics viewable on dashboard. Allows for continuous analysis of multiple locations.



# Meets or Exceeds ISBT Guidelines



## Gas Analysis Technology

The technology of choice for CO<sub>2</sub> suppliers is gas chromatography. High resolution gas chromatography is based on solid science and the BevAlert® is designed with auditors in mind. Analytical results generate sharp, symmetrical and resolved peaks.

The BevAlert®, with integrated instruments, measures what is important: Total Hydrocarbons, Acetaldehyde, Methanol, Benzene, Toluene, Ethylbenzene, Xylene, Total Sulfur with many more options available.



## LCD Touch Screen

Allows for uncomplicated set-up and control plus quick and effortless maneuvering between displays. Wash-down rated screen is ideal for applications in food and beverage processing.

## Nema 3R 4X Enclosure

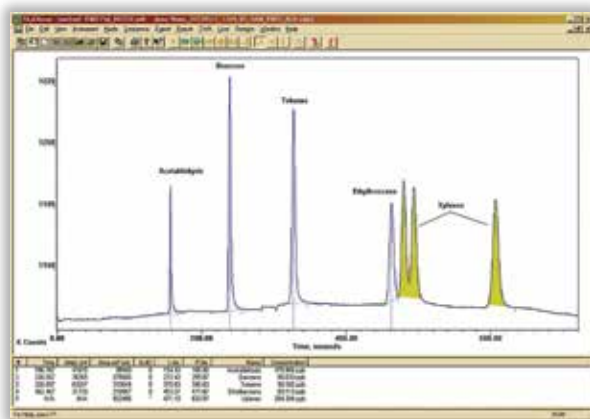
Wash down rated, internally pressure regulated and power ventilated cabinet offer a safe and secure housing for the instrumentation.

## Options

Contact Baseline for additional Options including but not limited to: Trailer Sample Panel, Moisture, Oxygen, Vinyl Chloride, Ethanol, Xylenes, n-Pentane, Hydrogen Sulfide.

## Fully Integrated System Offers:

- Quality Assurance and Brand Confidence
- Exact and Precise Measurement
- Proven and Reliable Technology
- Repeatability and Traceability



### Model 9000 Total Hydrocarbon Analyzer

MDQ: < 10 ppb

Linear Dynamic Range: 0 - 200 ppm

Accuracy, Linearity, Repeatability: +/- 1%

### Model 8900 Total Sulfur Analyzer

MDQ: < 20 ppb

Linear Dynamic Range: 0 - 5 ppm

Accuracy, Linearity, Repeatability: +/- 1%

### Model 8900 Acetaldehyde, Methanol, Benzene Analyzer

MDQ: Acetaldehyde < 50 ppb, Methanol < 2 ppm,

Benzene < 2 ppb

Linear Dynamic Range: 0 - 5 ppm

Accuracy, Linearity, Repeatability: +/- 1%

Simple Quality Control for Bottlers

# BevAlert®

## Analytical System

### International Society of Beverage Technologists® (ISBT) Guidelines

This quality guideline focuses on purity grade selection, transport, storage, dispensing, and safe handling of carbon dioxide (CO<sub>2</sub>) used in beverage production. An expert international committee comprised of beverage manufacturers, CO<sub>2</sub> producers, supply chain vendors, analytical service providers, and in-line polisher/filter suppliers developed these guidelines based upon best available practices.

### World Class Service and Support

- BevAlert® is supported worldwide by factory trained and certified technicians
- Technicians can remotely access the system offering guidance, operational changes and verification of performance
- Baseline's Service Department offers 24 hour remote monitoring and login capabilities



P.O. Box 649,  
19661 Highway 36 • Lyons, CO 80540  
P: 1.800.321.4665 • 1.303.823.6661  
F: 303.823.5151  
E: [info@baselineindustries.com](mailto:info@baselineindustries.com)  
[www.baselineinc.com](http://www.baselineinc.com)

MOCON and Baseline are registered trademarks of MOCON, Inc.  
Other trademarks are those of their respective holders.