SENSIDYNE®
Industrial Health & Safety Instrumentation

Save The Beer...

...and protect those working to brew it.

Breweries, like wineries or other ethical beverage-making, fall under strict guidelines for safety and quality. Despite the size of brewery, from large mega-facilities to craft and boutique breweries, gas hazards are present. The gas hazards in breweries exist in both centuries old techniques and with modernized processes. Protecting workers in breweries means monitoring for toxic gas exposures and asphyxiation risks. See the reverse for brewery gas detection solutions for facilities of all sizes.

How it's Made:
Basic elements of making, or more accurately brewing, beer remain the same today as the time when it was a manual process. First barley is milled to expose the natural sugars known as malt before dissolving it in water to form a liquid sugar solution. Yeast is added converting the solution to alcohol, the amount of fermented sugar determines the beer's alcohol content and sweetness. Next hops are added imparting the important bitter flavor to balance, stabilize, and preserve the mixture. The last step is fermentation where the types and amounts of ingredients truly give the final product its character.

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Gas Monitoring in Breweries

The brewing and fermentation of ethical beverages (beer, wine, and spirits) is a centuries-old tradition that uses ingredients such as barley, hops, water, grapes, grains, honey, and many other special ingredients. Over the past few decades, craft beers have gained extraordinary popularity. Defined as breweries of less than 6,000,000 million barrels annual capacity, this includes brewpubs and microbreweries.

Gas hazards in brewing include of Carbon Dioxide from fermentation, disinfectants for cleaning, water purification, or waste stream treatment; Ammonia leaks from refrigeration and other gases; CO2 recovered for reuse; and Nitrogen from craft beer with potential to generate its own specific Oxygen deficiency hazard.

Carbon dioxide (CO2) is the fizz and forms the head on beer. High concentrations of CO2 are toxic and can cause severe breathing difficulty. Above 1,000 PPM (0.1%) CO2 causes drowsiness. A note of caution, CO2 is heavier than air so cellar or low lying and enclosed areas may be very hazardous. Monitor CO2 from floor to chest level.

Breweries of all sizes have requirements for gas monitoring. The gases and specific processes listed above are the more common applications, however with each facility unique needs may exist. Gaining the assistance of an experienced application expert is recommended for a review of existing monitoring systems and maintenance processes.

Gas Name	Formula	NIOSH IDLH[1]	ACGIH TLV[2]	OSHA PEL[3]	Sensor Position
Carbon Dioxide	CO2	4% by vol.	0.50%	0.50%	Floor to Chest
Oxygen	O2	<18%	<19.5%	<19.5%	Chest to Face
Ammonia	NH3	300 ppm	25 ppm	50 ppm	High or Face Level
Chlorine	Cl2	10 ppm	0.5 ppm	0.5 ppm	Floor to Knees
Chlorine Dioxide	ClO2	5.0 ppm	0.1 ppm	0.1 ppm	Floor to Knees
Methane	CH4	Explosive: Alarm @ 10-20% and 40-50% LEL			Near Ceiling
Hydrogen Sulfide	H2S	100 PPM	1.0 ppm	10 ppm	Chest to Face
Ozone	O3	5 ppm	0.1 ppm	0.1 ppm	Chest to Face
Sulfur Dioxide	SO2	100 ppm	2 ppm	5 ppm	Floor to Knees

[1] IDLH: "Immediately Dangerous to Life and Health," A NIOSH value defined as the maximum exposure concentration in the workplace from which one could escape within 30 minutes without any escape-impairing symptoms or any irreversible health effects.
[2] ACGIH: American Council of Governmental Industrial Hygienists; TLV, Threshold Limit Value, the average concentration in ppm for an 8-hour workday and a 40-hour workweek to which nearly all workers may be repeatedly exposed, day after day, without adverse effects.
[3] 29 CFR 1910.1000, OSHA Table Z1; PEL, Permissible Exposure Limit, expressed as an 8 hour TWA, Time Weighted Average.

The Solution for Gas Monitoring in Breweries

Sensidyne provides a comprehensive and highly reliable solution for monitoring CO2, Toxic gases, Oxygen deficiency, and alcohol in facilities brewing and distributing beer, wine, and spirits. Our team of application experts welcomes the opportunity to assist customers to design and specify a system for the protection of their facility.

Visit www.SensidyneGasDetection.com for additional information

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