

# Winery Fermentation Rooms

FCS Controller & cGas Detectors (O<sub>2</sub> and CO<sub>2</sub>)

## Peace of mind. Guaranteed.

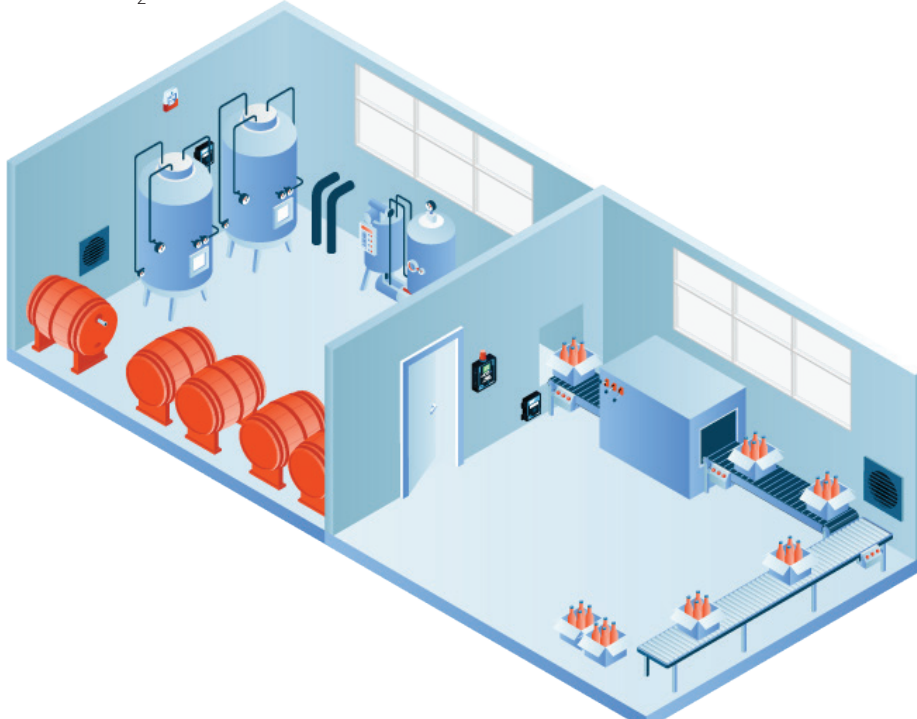
Continuous monitoring of carbon dioxide and oxygen in fermentation rooms

Areas of concern for high levels of Carbon dioxide (CO<sub>2</sub>) in wineries include pits, sumps, storage tanks and bottling rooms, but in particular, fermentation rooms. During fermentation a significant amount of CO<sub>2</sub> is generated. If the tanks are indoors, the CO<sub>2</sub> that escapes can collect in low lying areas and pose a safety hazard to employees. CO<sub>2</sub> is twice as heavy as air and will sink to the bottom of a room or a tank, forming potentially hazardous pools of gas that build up and displace Oxygen (O<sub>2</sub>). Being odourless and colourless, the presence of CO<sub>2</sub> is not known until symptoms of exposure are experienced, unless gas detection equipment is used.

Using Critical Environment Technologies' **FCS** Flexible Control System with a **CGAS** Detector CO<sub>2</sub> Transmitter, and a **CGAS** Detector O<sub>2</sub> transmitter along with a personal, portable O<sub>2</sub> detector is the solution. The placement of the transmitter inside the fermentation room provides continuous monitoring for potential leaks of Carbon dioxide. The **FCS** Controller with a top mounted strobe mounted outside the room door provides a status of the air quality conditions inside the room prior to entry. If a CO<sub>2</sub> leak is detected the top mounted strobe will activate and an audible alarm will sound. The designated relays will activate a pre-set response, such as turning on a remote alarm device, actuating the mechanical ventilation system and/or triggering another set response as required.



Inside the fermentation room, there should be a cGas Detector with an infrared CO<sub>2</sub> sensor, mounted on the wall at the breathing zone height (4 - 6 ft / 1.2 - 1.8 m from the floor). It should be close to the fermentation tanks, micro bins and barrels where the possibility of a carbon dioxide leak is most likely to occur. The measurement range for CO<sub>2</sub> is 0 - 5% volume. There should also be a cGas Detector with an electrochemical O<sub>2</sub> sensor



mounted on the wall near the CO<sub>2</sub> detector at the breathing zone height. It should be close to the fermentation tanks where oxygen is most likely to be depleted in the event of a build-up of CO<sub>2</sub>. The measurement range for O<sub>2</sub> is 0 - 25% volume. With the optional splash guard installed, both enclosures are water tight (IP54 rated) and will withstand water spray or wash down applications.

If Ozone is used to disinfect the bottles and equipment there should be a cGas Detector with an Ozone sensor mounted 6 in / 15 cm from the floor in the bottling area.

The FCS Flexible Control System controller with a top mounted strobe should be mounted outside the door of the fermentation room. It will be connected to all cGas Detectors and will display the target gas levels for viewing prior to entering the rooms. The FCS is pre-programmed and field adjustable, offering 4 dry contact relays, priority settings, logic control, including time of day, data logging, audible alarm and a full colour, resistive touch screen. The FCS should be configured to set off alarms and activate the exhaust ventilation system, shut down the equipment or other alarm procedures as appropriate when a CO<sub>2</sub> or O<sub>3</sub> leak is detected or oxygen levels are deficient. The FCS accepts Modbus® RS-485 digital communication and analog (4 - 20 mA) signal (optional) making it the ideal central controller for any additional gas detectors that may be needed throughout the winery. The cGas Detector CO<sub>2</sub> transmitter is available with analog output (p/n: CGAS-A-CO2-5%) or Modbus output (p/n: CGAS-D-CO2-5%).

Remote visual and audible alarm devices such as the Remote Strobe / Horn (RSH-24V-R or RSA-24V) should be set up inside the fermentation room and if there is another entrance to the room, an RDM Remote Display Module should be mounted outside the door of that entrance, to provide visual confirmation of gas level readings prior to entering the room. In addition, the levels of O<sub>2</sub> and CO<sub>2</sub> should be checked prior to cleaning the tanks by lowering a personal, portable O<sub>2</sub> and CO<sub>2</sub> detector into the vessel to determine if it is safe to enter. Follow local confined entry requirements and regulations.