

Las Positas College, CA, in the heart of Livermore Valley's wine country, opened its new Viticulture and Winery Technology Facility in August 2024, a state-of-the-art instructional complex. A critical component of the facility is two controlled fermentation chambers, where grapes undergo alcoholic and malolactic fermentation.

The Challenge

The fermentation process in winemaking generates high levels of CO₂, which can accumulate in enclosed spaces like fermentation rooms, creating hazardous conditions. CO₂ levels above 1.5% can cause dizziness, confusion, unconsciousness, or even death. For an educational facility like Las Positas, ensuring a safe environment was paramount.



The TriMark Solution

The college turned to TriMark Scientific (RW Smith), a leader in controlled environment solutions, to design and implement a system that would address these needs:

- **Comply with Regulations:** Meet OSHA, California State Assembly Bill 1989 (security), and other relevant safety and educational standards.
- **Integrate with Existing Infrastructure:** Seamlessly integrate with the facility's cooling and compressed air systems, and other winery equipment while maintaining a compact footprint suitable for an educational setting.
- **Perform as Specified:** 50°F to 70°F and 25°F to 55°F at 60% to 80%RH.
- **Monitor and Remove CO₂:** TriMark's experts determined the need to continuously monitor CO₂ levels and remove excess gas to maintain safe air quality and successfully adapted the original design of the rooms to meet this requirement.
- **Provide Alarms for CO₂ Levels:** Reliable alarms alert occupants of dangerous CO₂ concentrations, enabling timely evacuation and ventilation.

TriMark Scientific's experts worked closely with the project team, customizing the design of the fermentation rooms to meet rigorous space, time, and budget constraints while ensuring safety and compliance. Work was completed in July 2024, ahead of the facility's August opening, so that the lab was ready for the fall harvest and fermentation season.

Benefits and Implications

- The energy-efficient ventilation and cooling systems reduced operational costs, aligning with the college's focus on sustainable agriculture.
- Revenue from wine sales, supported by the reliable operation of the fermentation rooms, helps fund the Viticulture and Winery Technology program.

By addressing the critical challenges of CO₂ removal, TriMark Scientific delivered a tailored solution that enhances safety, supports educational goals, and strengthens Las Positas College's position as a leader in viticulture and enology education.