



## Hydrogen Ventilation

Ventilation is an important safety consideration when working with all flammable gases, including hydrogen. Through proper ventilation, you can reduce the likelihood of a flammable mixture of hydrogen forming in an enclosure, following a release or leak. Appropriate ventilation can include passive or active features.

Passive ventilation, achieved through roof or eave vents, plays a pivotal role in mitigating hydrogen buildup in the event of a leak or discharge.

For indoor installations, a comprehensive evaluation of passive ventilation is necessary to ascertain that any hydrogen leakage can safely dissipate, encompassing both regular conditions and emergency scenarios. In such settings, the positioning of inlet openings at floor level along exterior walls of the room is recommended. Correspondingly, outlet openings should be strategically located at the highest points along exterior walls or the roof, effectively preventing the formation of hydrogen pockets.

In the context of outdoor installations, care should be taken to prevent the accumulation of hydrogen under weather awnings. It is advisable to ensure a minimum of 75% openness on the sides of such installations, enhancing airflow and reducing the potential for hydrogen buildup.

When passive ventilation falls short, turning to active ventilation becomes crucial to curbing flammable mixture accumulation. This necessitates meticulous attention to key aspects: equipment selection based on suitable electrical classification for hydrogen use, consistent operation whenever hydrogen is present, fail-safe measures in case of system failure, and the addition of hydrogen sensors for swift detection. By following these guidelines, active ventilation installations can significantly enhance safety and proficiently manage hydrogen-related risks, ultimately guaranteeing a secure operational environment.

The above provides basic safety considerations. Projects/facility design teams should utilize hydrogen safety experts for detailed analysis and design.



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