

Hydrogen Safety

Since the Hindenburg airship disaster shook public confidence almost 100 years ago, we as a society have been skeptical of adopting hydrogen use at a large scale. However, hydrogen fuel cells, like any other fuel source, have both benefits and challenges associated with production, storage, distribution, and use. Hydrogen is generally safer to use and handle when converted to electricity through fuel cells than other commonly used fuels, and it is less prone to explosions or fires. Hydrogen gas ignites at almost double the temperature as gasoline (932 vs 495 degrees Fahrenheit), making it less flammable.

Additionally, Hydrogen is 14 times lighter than air, meaning it will evaporate into the atmosphere instead of pooling on the ground in the event of a leak. In addition, many fuel cell vehicles and hydrogen fueling stations are designed to prevent hydrogen from leaking, with redundant safety features that ensure an equipment shut down should an accident occur. Hydrogen is both non-toxic and non-poisonous, and is unlikely to cause asphyxiation, making it a safe fuel to work with and handle in close proximity. Further, hydrogen emissions do not cause atmospheric or water pollution, prompting the U.S. Department of Energy to invest billions of dollars towards various hydrogen applications in the last two years.

Hydrogen production stations also come with robust safety measures. Many are equipped with gas detection devices, seismic detectors, and infrared cameras for fire detection. If any of these are triggered, a shutdown of the entire production facility happens immediately.

Riding on a hydrogen fuel cell bus presents no greater risk to safety than riding on a diesel-powered one. As hydrogen technology progresses and costs diminish, expect to see hydrogen fuel cell buses powering the transition towards a zero-emissions future in the U.S.

Get your workforce certified

The [Center for Hydrogen Safety](#), a global nonprofit dedicated to promoting hydrogen safety and best practices worldwide managed by the American Institute of Chemical Engineers, offers a fundamental [hydrogen safety credential](#) designed for anyone whose work exposes them to hydrogen equipment or systems.

More Hydrogen Safety Resources

- [Hydrogen Tools—Hydrogen Safety Panel](#)
- [U.S. Department of Energy's Hydrogen & Fuel Cell Technologies Office](#)
- [National Renewable Energy Lab—Hydrogen Safety, Codes & Standards](#)

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