



Hydrogen and General Safety Overview

Blended hydrogen is a fuel that has been safely and reliably utilized around the world for decades. For example, Hawai'i Gas has been using hydrogen in its fuel mix for a half-century and has more than 1,100 miles of pipelines that transport up to 15% hydrogen, serving homes, schools, restaurants, and businesses. Here's what our research found:

- » Hydrogen is no more or less dangerous than other flammable fuels, including gasoline and natural gas. In fact, some of hydrogen's differences actually provide safety benefits compared to gasoline or other fuels.¹
- » If a pipeline is leak-tight for natural gas, it would also be leak-tight for a hydrogen blend.²
- » Hydrogen is the most abundant element in the universe and is both non-toxic and non-poisonous.³
- » Hydrogen is lighter than air and diffuses rapidly.⁴
- » The US currently produces about 10 million metric tons of hydrogen each year.⁵

SoCalGas to Implement Robust Safety Plans for UCI

We understand that those working and residing near the demonstration project locations may have concerns. Here's how we plan to help address them:

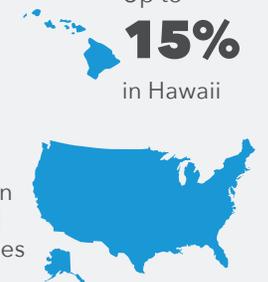
- » Install remote methane/hydrogen monitoring systems that are active 24/7 and monitored in real-time.
- » Perform leak surveys before, after, and on a monthly basis during implementation.
- » Survey equipment monthly to confirm it is operating safely.
- » Conduct gas system operational tests monthly and production site equipment tests on a monthly, quarterly, and yearly frequency based on manufacturer recommendations.
- » Provide hydrogen safety education for campus and emergency personnel.
- » Create specific hydrogen blending customer protocols and emergency response plans.

Hydrogen has been blended into existing gas infrastructure to help decarbonization efforts by a variety of localities around the world for decades:

Up to
20%
underway
in Europe



Up to
15%
in Hawaii



Up to
5%
underway in
continental
United States



5%
underway in
Canada

Up to
10%
underway in
Australia



Hydrogen blended at various percentages by volume.



Popular Misconception

The infamous Hindenburg airship disaster of 1937 gave hydrogen a bad reputation. In the 1990s, researcher Addison Bain investigated the event and concluded the fire was sparked by an electrostatic charge in the atmosphere that ignited the coating of the airship's outer fabric. This conclusion was later confirmed by The Zeppelin Company, the original builder of the Hindenburg airship.⁶



Hydrogen at UCI

SoCalGas has a long history of safely engaging in UCI demonstration projects, including the United States' first successful power-to-gas project in 2016, which blended clean hydrogen into a natural gas pipeline to help power parts of UCI's campus.⁷



Find out more at:
socalgas.com/UCI or email
ProjectInfo@socalgas.com



[H2] INNOVATION EXPERIENCE

Hydrogen Blending Underway in Downey, California

- » Blending up to 20% clean renewable hydrogen with natural gas.
- » Fully functional 1,920 sq ft home has six natural gas appliances receiving a blended gas.
- » Appliances were not modified.
- » The natural gas appliances at the [H2] Innovation Experience home include a stove/oven, water heater, clothes dryer, indoor fireplace, outdoor BBQ, and outdoor fire pit. All models are commonly available at local retail stores.

- » When natural gas is blended with 20% hydrogen, it still contains the same odorant as 100% natural gas, which helps alert occupants to any potential leaks.
- » Appliances are frequently used and are regularly tested.
- » Over 7,000 visitors since January 2023, including students, elected officials, and community organizations.



For more information, visit:
socalgas.com/H2IE

¹ Source: U.S. Department of Energy (DOE). Hydrogen Safety Fact Sheet [Fact Sheet]. https://www1.eere.energy.gov/hydrogenandfuelcells/pdfs/h2_safety_fsheets.pdf

² Source: GTI Energy. Climate Impacts of Fugitive Hydrogen Emissions. Center for Methane Research. <https://www.gti.energy/wp-content/uploads/2025/01/CMR-Climate-Impacts-of-H2-Emissions.pdf>

³ Source: U.S. DOE. Safety, Codes and Standards [Fact Sheet]. Fuel Cell Technologies Office. <https://www.energy.gov/eere/fuelcells/articles/safety-codes-and-standards-fact-sheet>

⁴ Source: U.S. DOE. Hydrogen Safety Fact Sheet [Fact Sheet]. https://www1.eere.energy.gov/hydrogenandfuelcells/pdfs/h2_safety_fsheets.pdf

⁵ Source: U.S. DOE Hydrogen Production Website. <https://www.energy.gov/eere/fuelcells/hydrogen-production>

⁶ Source: U.S. DOE. Hydrogen Safety Fact Sheet [Fact Sheet] https://www1.eere.energy.gov/hydrogenandfuelcells/pdfs/h2_safety_fsheets.pdf

⁷ Source: UC Irvine News. (2016, Dec 6). In a national first, UCI injects renewable hydrogen into campus power supply. <https://news.uci.edu/2016/12/06/in-a-national-first-uci-injects-renewable-hydrogen-into-campus-power-supply/>