

Chasing the Pipe Dream: Existing Pipelines Networks for Hydrogen Fuel Transportation

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The Society of Petroleum Engineers recently held its Abu Dhabi International Petroleum Exhibition and Conference (ADIPEC) 2022, concluding on November 3rd. The event featured important new hydrogen technologies that may help accelerate the global energy transformation to a decarbonized future.

[Oceanit](#), a Hawaii [USA](#)-based innovation company, unveiled a novel nanotechnology called 'HydroPel' in a presentation on 'Achieving Decarbonization Through the Transformation of Existing Pipelines for Hydrogen-Methane Blends'.

Hydrogen is regarded as the fuel of the future, but experts believe that to scale an H₂ transformation, hydrogen must be readily transported via pipelines, just as natural gas is today. However, moving vast amounts of clean-burning H₂ in pipelines presents a unique risk: hydrogen embrittlement.

This phenomenon occurs when H₂'s tiny molecules diffuse into metals, making it brittle, and eventually leading to cracking, fracturing, and failure.

Because of this risk, many experts believe that brand new H₂-specific pipelines must be constructed; made from very expensive embrittlement-resistant metals and built for a vast delivery reach, similar to existing natural gas pipeline networks.

The U.S. alone already has over 3 million miles of natural gas pipeline. To replicate this gas network for hydrogen would cost astronomical amounts of money and time. However, Oceanit's introduction of HydroPel signals a total gamechanger.

HydroPel is an advanced surface treatment that creates a nano-protective barrier on steel pipes, preventing H₂ diffusion and embrittlement. It can be applied in-situ to existing pipelines, unlocking the ability for millions of miles of infrastructure to safely transport hydrogen-natural gas blends. HydroPel could eliminate the massive costs of new H₂ infrastructure, connecting the world to clean hydrogen via natural gas lines already in use.

Oceanit recently partnered with natural gas supplier, Hawai'i Gas, the only franchised gas utility in the State of Hawai'i, and only utility in the [United States](#) to blend safe pressures of H₂ in their lines. The partnership will further develop HydroPel, enabling higher percentage blends of H₂ to be carried, and will work towards expanding hydrogen transport capabilities in Hawai'i and beyond.

ADIPEC 2022 boasted over 160,000 attendees, including policymakers, industry experts, and innovators brought together under the banner of, 'The Future of Energy: Secure, Affordable, Sustainable'. With the emphasis clearly on technologies that will help speed a global energy transformation to decarbonization, the advent of HydroPel could bring the H₂ pipe dream closer to reality.

To read more about HydroPel, visit [here](#).

Read the [original article](#) on Hydrogen Fuel News.