SAFCell Secures Hydrogen Generating Technologies from Caltech & Northwestern University

SAFCell, Inc. has exclusively optioned all Caltech and Northwestern patents related to hydrogen generation using solid acid electrolyte membranes.

PASADENA, CA, UNITED STATES, October 9, 2021 /EINPresswire.com/ -- SAFCell, Inc. has signed option agreements with both Caltech and Northwestern to exclusively license all patents related to hydrogen generation using solid acid electrolyte membranes and related technologies. With these rights, their proprietary proton cells can be used to generate ultra-pure hydrogen from a host of "liquid hydrogen carriers," such as ammonia, methanol and methylcyclohexane. With an aim to decarbonize global energy demands with cutting edge science, the SAFCell team is excited about exclusive access to these proven technologies.

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> *Calum Chisholm*

SAFCell, working with researchers at both Caltech and Northwestern University, have demonstrated hydrogen generation from liquid and gaseous fuels, including the three leading "liquid hydrogen carriers." Decarbonizing global energy demands with clean hydrogen depends on moving vast quantities of the energetic fuel, a task made safer and greatly simplified by liquid hydrogen carriers. Hydrogen is expected to become cost competitive with natural gas, but the traditional methods of transporting hydrogen as a highly compressed gas (i.e., typically at 2,000-10,000 psi) or as a liquid (at -253□) are prohibitively expensive. Most energy producers plan to go green by attaching hydrogen to a liquid molecule. The hydrogen is then transported and stored in this "liquid hydrogen carrier" form until it arrives at point of use, where it is converted back into hydrogen or used directly. Liquid hydrogen carriers are also especially effective for hard to electrify sectors, such as heavy-duty transportation, off-grid housing, industrial heating, and chemical production.

The use of hydrogen in many energy intensive sectors, particularly for transportation applications like heavy duty trucking and aviation, has the potential to completely eliminate greenhouse gas and particulate emissions. However, the current "hydrogen fuel cell" technology developed for transportation applications requires ultra-pure hydrogen, and cannot run on the

liquid hydrogen carriers being considered for bulk hydrogen transport and storage. Hence, a device is needed to extract hydrogen from its liquid form. SAFCell has now secured world-wide rights to use solid acid electrolyte technologies to convert liquid hydrogen carriers into ultra-pure, compressed hydrogen.

Commenting on the intellectual property, SAFCell's CEO, Calum Chisholm said:
"SAFCell now has the rights and ability to convert simple liquid fuels directly into ultrapure, compressed hydrogen in one economic and highly efficient step. This is a unique property our intermediate temperature solid acid systems, as other technologies are either too cold to perform the hydrogen liberation step, or too hot to scale to the very large-scale systems needed for this application."

Dr. Chisholm anticipates a rapidly growing demand for this hydrogen generation technology as the world's production of green hydrogen is expected to increase nearly 500 times by 2030. "The current methods for transporting and storing hydrogen will not scale to the use of hydrogen as a world-wide energy carrier. In the very near future, large scale hydrogen will be converted into a simple liquid and SAFCell will be ready to convert it back to hydrogen or electricity at point of use," said Dr. Chisholm.
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About SAFCell Inc.
SAFCell is an electrochemical energy company with a focus on unique solid acid electrolytes that are used to convert real world liquid and gaseous fuels into electricity or ultra-pure compressed hydrogen. SAFCell is partnering with world-leading fuel cell and hydrogen system integrators to produce solid acid systems with power ranges from tens of watts to megawatts and hydrogen production rates from kilograms to thousands of kilograms per day.

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