

BoMax Hydrogen

A solution in visible light – and plain sight?

The world is demanding clean renewable hydrogen made in a carbon neutral way, but we're not there yet. We must find a way to provide our energy needs with clean, renewable resources. Batteries, wind and solar currently play a necessary part. But the real long-term solution to expanding renewable energy is green hydrogen. Green hydrogen is produced without fossil fuels.

This is where Florida-based BoMax Hydrogen, LLC believes it has a role to play. So far, steam methane reforming (SMR) from fossil fuels provides the bulk of hydrogen for fuel resources, fertiliser production, and industrial needs. In its view, electrolysis, after years of research and money, is still lacking in its energy inputs versus energy outputs. What is really needed, it says, is a way to make hydrogen without the heavy reliance on fossil fuels – and believes BoMax Hydrogen, LLC is that method.

The concept

The concept behind BoMax utilises an inexpensive light harvesting material, combined with an enzyme component that when put in front of visible light produces hydrogen in its headspace at ambient temperatures and pressures.

According to BoMax, it's a concept that is capable of producing hydrogen for days and weeks at a time. The hydrogen produced is funnelled to a fuel cell and is pure – requiring no costly purification. The reaction components are described as inexpensive and a cost analysis study demonstrated BoMax cost-competitiveness with hydrogen sold on the California hydrogen highway.

The BoMax solution has demonstrated proof of concept (POC) in the lab, with continuous hydrogen production for 39 days. The company points to another advantage: in a 72-day reaction, when the system was put in front of lights, removed and then put back in front of the lights numerous times, the BoMax system performed in an enhanced way without compromising the catalyst efficiency.

Moving beyond concept

At this stage, however, the BoMax concept is

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not proven at scale nor market-ready. The proof in this particular pudding is yet to be seen. So what's the next step?

The company explained to H2 View that scale-up and the introduction of tested prototypes as market-ready products is the next step. It claims that a microwave-sized BoMax unit could provide hydrogen to run 20 fuel cell-powered drones per day; a BoMax unit the size of an air conditioning unit could provide hydrogen for a 1,500 square foot residence, it says; a tractor trailer-sized BoMax unit could provide 200kg of hydrogen to fill 40 fuel cell electric vehicles (FCEVs).

What all of these credentials are lacking is the funding and scale up to make them happen and realise what BoMax Hydrogen believes is a competitive contributor to the clean energies transition. The story continues... **H2V**

More information

Deborah B. Maxwell, PhD
Chief Science Officer
BoMax Hydrogen, LLC
debbie@bomaxhydrogen.com
www.bomax-hydrogen.com