

High temperature, ultra-high efficiency capillary-fed electrolysis



Hysata is an Australian electrolyser manufacturing company that has developed the world's most efficient electrolyser, a critical technology required to produce green hydrogen.

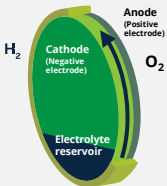
Hysata's electrolyser achieves 95% system efficiency, surpassing incumbent technologies by 20% and is already ahead of the International Renewable Energy Agency's 2050 electrolyser efficiency target.

This step change in technology will transform the economics of green hydrogen production.



Capillary-fed electrolysis

Two core innovations enable world-leading efficiency



- 1 Ultra low resistance separator
- 2 Bubble-free operation

The cell's unique "sponge" membrane sucks electrolyte up from the reservoir to the electrodes, producing "bubble-free" hydrogen & oxygen.



Project introduction and aim

The TRAC R&D project will aim to develop a fast-wicking, porous, inter-electrode separator for use in a capillary-fed cell that can operate at heightened temperatures. The updated cell design will need to maintain or improve upon Hysata's high benchmark for reliability, safety, and importantly efficiency of 41.5kWh/kg H₂.



Temperature effect on hydrogen output

Based on Hysata's internal testing, an increase in operating temperature increases the current density of the cell. This improves hydrogen output without impacting voltage (efficiency).



Methods

The project will simultaneously investigate two proprietary methodologies to produce a separator with optimal wickability, pore-size, porosity, and reliability.

Project Timeline

