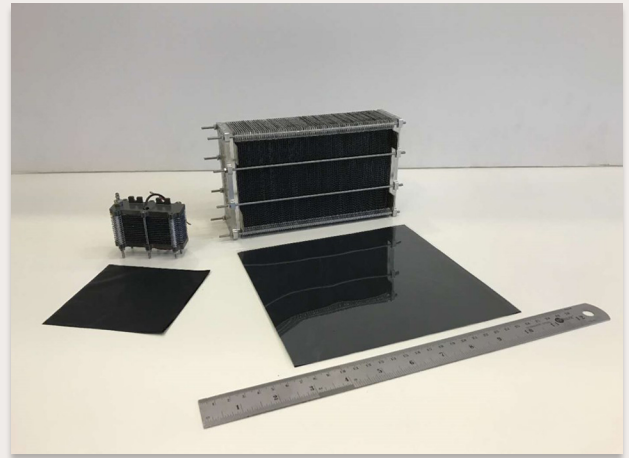


Manufacturing Process of Catalyst-Coated Membrane (CCM) for Fuel Cell Applications

Technology Overview

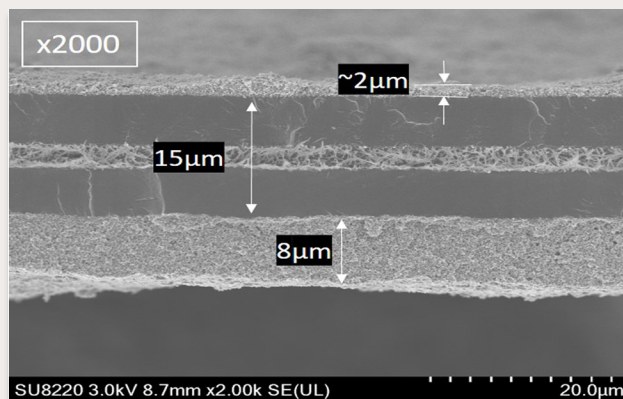
Catalyst-coated membrane (CCM) is a critical stack component in the fuel cell, which facilitates the electrochemical conversion of fuel to electrical energy. One of the main impeding factors for fuel cell commercialisation is the high cost, with catalyst-coated membrane constituting 30%-50% of the total fuel cell cost. The focus on reducing platinum loading is an important research area for fuel cell development.

This invention provides an optimised catalyst ink formulation and preparation methodology, which addresses the issues of defects and catalyst wastage. This is achieved by simplifying the manufacturing process of CCM through direct application of the catalyst layer onto the membrane surface. In addition, the use of a novel jig design effectively secures the membrane substrate and prevents swelling.



Features & Specifications

- Effective manufacturing process enables fabricated CCM to be cost-competitive.
- Novel jig design for securing membrane substrate.
- The invention can be implemented in different fuel cell systems such as air-cooled, water-cooled, and direct methanol fuel cell systems.



Customer Benefits

- Simplified batch manufacturing process.
- The ability to reduce Platinum loading enables the fuel cell cost to be lower.

Potential Applications

Stationary, mobile and portable applications such as unmanned aerial vehicles (UAVs), personal mobility devices (PMDs) and portable off-grid power systems.