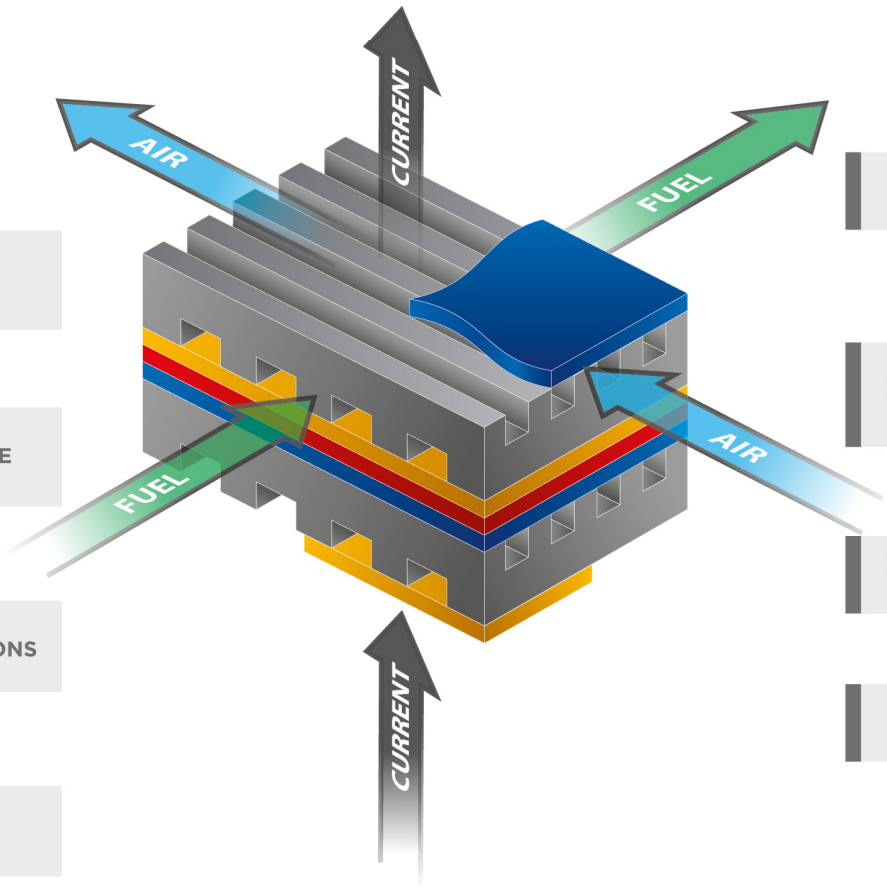
LUCIDEON
insight creating advantage

FUEL CELLS SERVICES

SOFC MATERIALS DEVELOPMENT

ELEMENTAL DIFFUSION PROFILES

POWDER COMPOSITION & MORPHOLOGY



INTERFACE CONDITION ASSESSMENT

BONDING / ADHESION FAILURE ANALYSIS

DENSITY CHARACTERIZATIONS

DEGRADATION ASSESSMENT

COATING INTEGRITY ASSESSMENT

METALLOGRAPHIC CROSS-SECTION EXAMINATIONS

CONTAMINATION IDENTIFICATION

GLASS SEAL EVALUATIONS

CERAMICS PROCESSING IMPROVEMENTS & SINTERING STUDIES

SOFC MATERIALS DEVELOPMENT

Lucideon's materials experts utilize state-of-the-art analytical techniques to provide product development insight. This allows you to adjust the critical parameters required to both generate high power densities and mitigate degradation kinetics quickly, shortening product development time to create a superior product.

POWDER COMPOSITION & MORPHOLOGY

Identification of the critical stoichiometry, morphology and an understanding of the impurities in various powders increases your confidence in and understanding of the materials provided by various suppliers, and the processes used in Fuel Cell Technology.

INTERFACE CONDITION ASSESSMENT

High-quality metallographic preparation techniques provide the foundation for characterizing the interfaces within the cell membranes, and sealing interfaces and contact areas to provide a fundamental understanding of the bonding between layers after processing, testing and thermal cycling. Through metallography, SEM and EDS analysis our expert analysts evaluate bonding, diffusion of materials and accumulation of any impurities affecting kinetics which define the cell integrity or overall product lifetime.

METALLOGRAPHIC CROSS-SECTION EXAMINATIONS

Lucideon's extensive knowledge of materials, expertise in metallographic preparation of ceramics, glasses and metals, and high-quality imaging and analysis techniques provide a fundamental understanding of fuel cell material behavior.

DENSITY CHARACTERIZATIONS

Our experts have significant experience in measuring the density properties of components made with Powder Metallurgy, MIM and Additive Manufacturing.

ELEMENTAL DIFFUSION PROFILES

We can characterize elemental diffusion profiles at interfaces through techniques including EDS line scanning and mapping, EBSD, and various analytical chemistry techniques, all of which will increase the fundamental understanding of your product.

CERAMICS PROCESSING IMPROVEMENTS & SINTERING STUDIES

Our ceramics experts can help to improve your competitive advantage and profitability by developing customized materials, sintering techniques, sintering profiles. We can also characterize the resulting structures and material properties.

DEGRADATION ASSESSMENT

Lucideon can provide fundamental understanding of the condition of fuel cells after testing, identifying the critical parameters required to generate high power densities and the mitigation of degradation kinetics. With industry know-how our team has first-hand knowledge of the development of high performing technologies.

COATING INTEGRITY ASSESSMENT

To ensure your coatings are performing as designed and are stable after deposition and testing, Lucideon employs the latest metallographic preparation and analysis techniques. Utilize our coatings experience across many industries to decrease product development times.

CONTAMINANT IDENTIFICATION

Employing a wide variety of analytical techniques, and extensive knowledge of materials and industry-related issues, our experts can identify contaminants and their source.

GLASS SEAL EVALUATIONS

Characterizing crystallization temperatures, composition and glass-to-metal interfaces is vital to the development of the fuel cell stack. Thermal and chemical testing of the glass material and microstructural evaluations are an integral part of fuel cell development.

FAILURE ANALYSIS

Our experience in materials and process development, fuel cell technologies and the contributing factors to premature material degradation and failures enables you to increase the efficiency and extend the lifetime of fuel cell products.