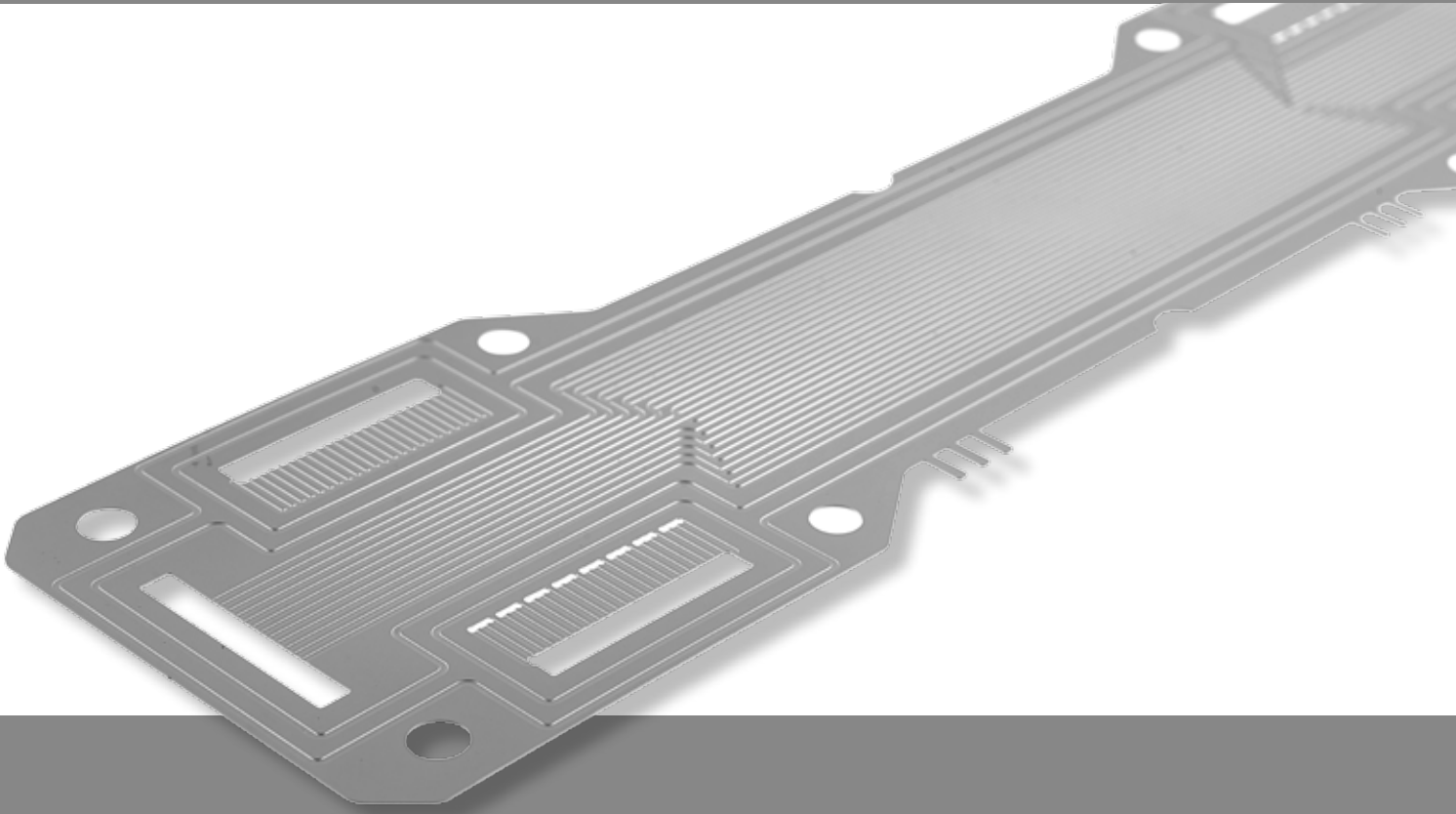


CERAMIC MAXPHASE™ FOR FUEL CELLS



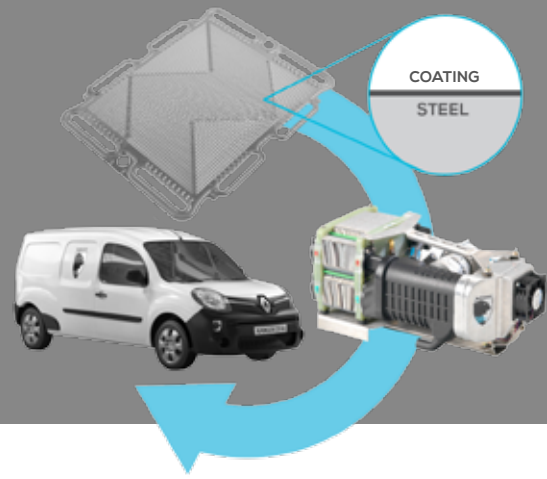
Superior coatings for bipolar plates

- Low contact resistance
- High conductivity
- Outstanding corrosion resistance
- Cost-effective

The Ceramic MaxPhase™ coating is the primary choice by automotive companies globally for bipolar plates in PEM fuel cells. Unique properties for efficient and long-life fuel cells, in combination with very cost-effective production solutions, make the automotive industry rely on Impact Coatings as production ramp up for hydrogen-powered electrical vehicles.

IMPACT
COATINGS

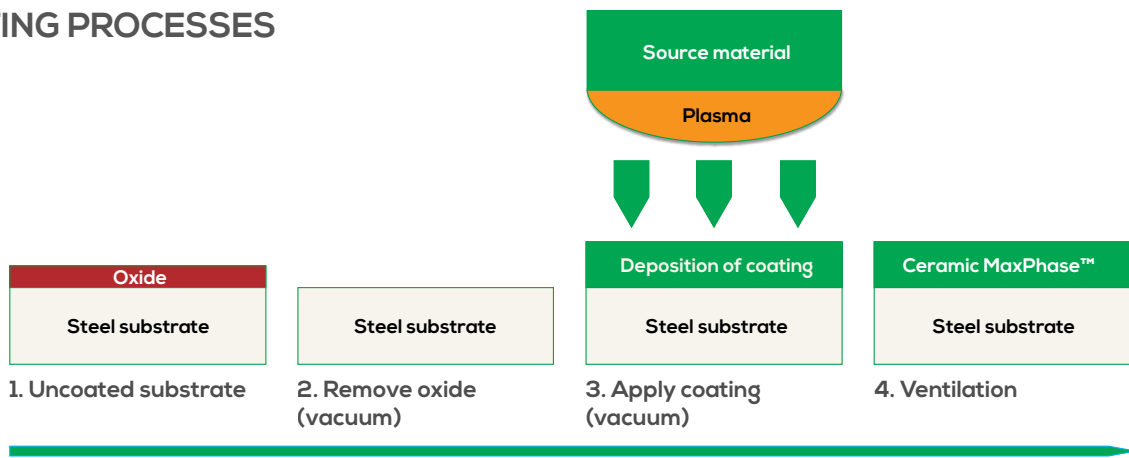
Enhance the power of fuel cells



The Ceramic MaxPhase™ coating enhances performance and lifetime of metal bipolar plates in fuel cells. The PVD (physical vapor deposition) coating is proven state-of-the-art for both proton exchange membrane fuel cells (PEMFC) and direct methanol fuel cells (DMFC).

Offering a unique combination of low contact resistance, high corrosion resistance, and low cost, it exceeds both performance and cost reduction targets set up by the US Department of Energy.

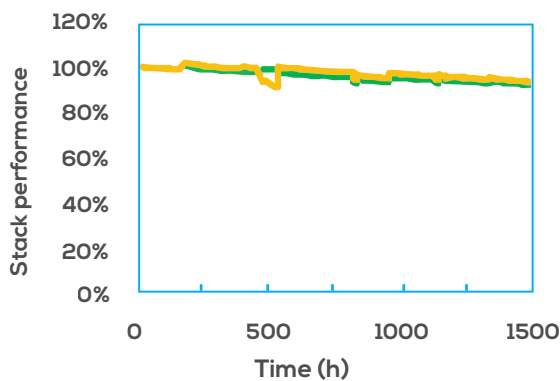
COATING PROCESSES



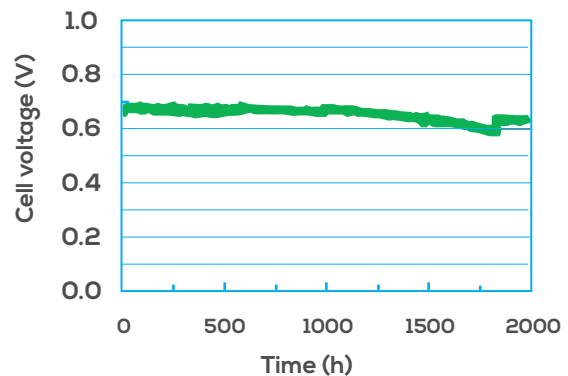
The process is a vacuum-based plasma treatment and involves vaporization of the source material, which condenses on the substrate and forms a coating.

Ceramic MaxPhase consists only of safe and low-cost materials: transition metals, group-A elements, and nitrogen and/or carbon.

STACK TESTS WITH CERAMIC MAXPHASE™ COATED BIPOLAR PLATES



Impact Coatings does not perform in-house stack tests. However, here are some general examples from our customers.



Customers have:

- reported 4 000 hours of operation (stationary, 1 - 10 kW class)
- reported 5 000 hours of operation (automotive)
- provided the data above, for 1 500 and 2 000 hours tests