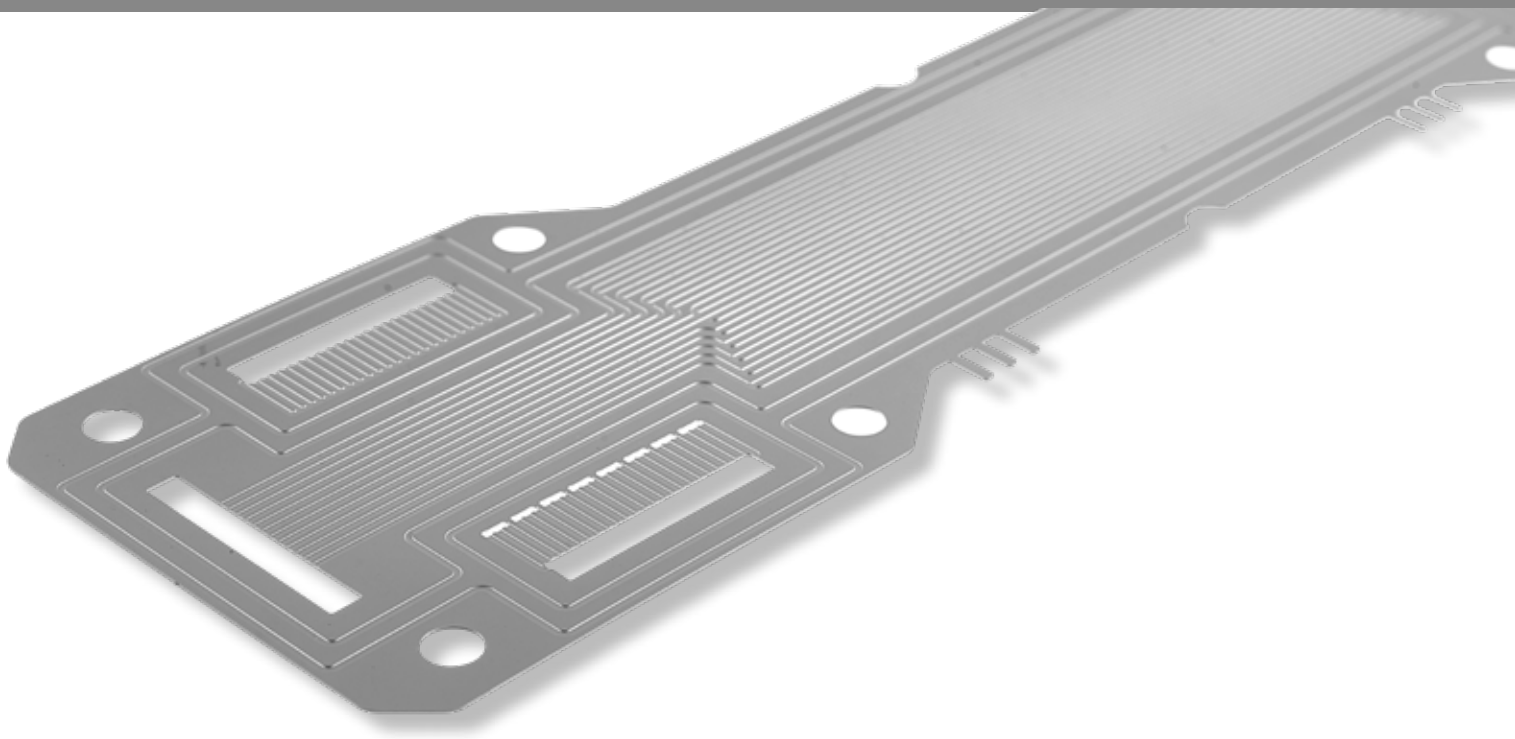
CERAMIC MAXPHASE™ FOR PEM FUEL CELLS



Superior coatings for metal bipolar plates

- Very low contact resistance
- Outstanding corrosion resistance
- No noble metals involved
- Cost-effective production

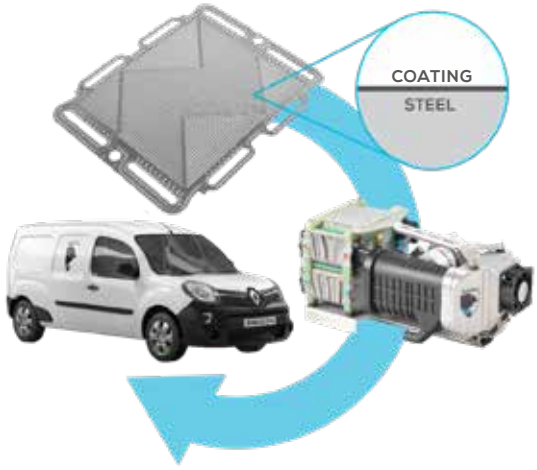
The Ceramic MAXPHASE™ coating is the primary choice by automotive companies globally for metal bipolar plates in PEM fuel cells.

Impact Coatings' technology, with unique properties for efficient and durable fuel cells, in combination with very cost-effective production solutions, enables the automotive industry to ramp up production of fuel cell electric vehicles today.

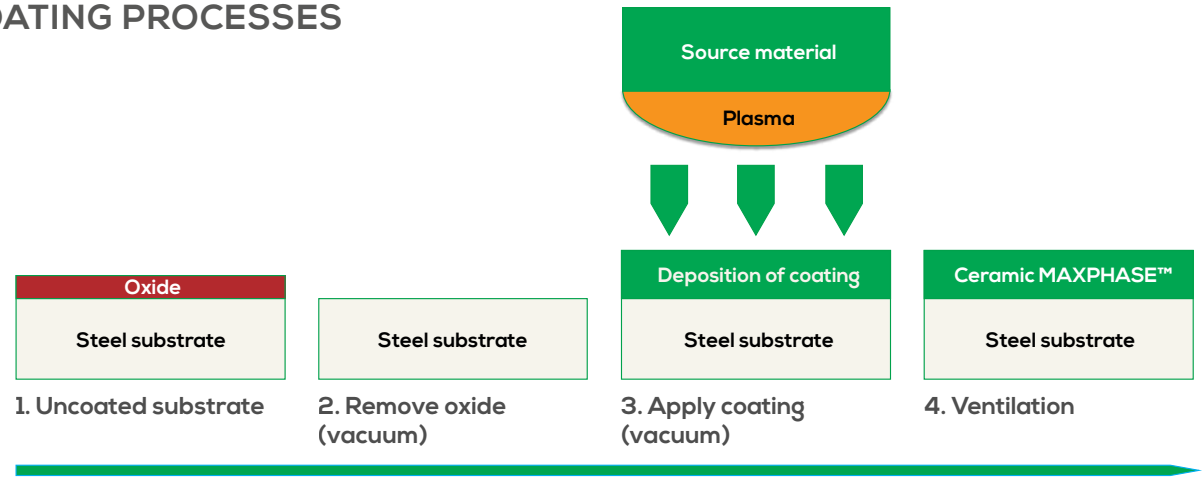
IMPACT COATINGS

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 and there are no noble metals involved.

CERAMIC MAXPHASE™ TECHNICAL DATA

PROPERTY	VALUE
Contact resistance [1]	< 3 mΩcm^2
Corrosion current [2]	< 1 µA/cm^2
Lifetime	> 5,000 hours for stainless steel 316L plates
Coating thickness	< 0.5 µm
Coating adhesion	ISO 2409:2013, classification 0
Chemical composition	Ceramic material without noble metals
Substrates	Half plates, bipolar plates, and end plates
Recommended substrate materials	Stainless steel 316L (Contact us for other alloys and metals!)
Typical substrate thickness	0.1 – 0.2 mm (Contact us for other thicknesses!)
Coating system	INLINECOATER™FC (physical vapor deposition – PVD)

[1] 140 N/cm^2, measured using gold coated cylinder and Toray 030 carbon paper

[2] Potentiostatic test (1 mM H_2SO_4, 1 ppm F-, 0.6 V vs. Ag/AgCl, 80 °C)

IMPACT COATINGS

Impact Coatings AB • Westmansgatan 29G, SE-582 16 Linköping, Sweden • Tel: +46 13 35 99 50
info@impactcoatings.se • www.impactcoatings.com