

# Ceramic tapes made in Germany.

## Customer References:



- Imperial College London
- Empa, Materials Science & Technology
- ISCS-LPI, Ecole Polytechnique Federale de Lausanne



## For further information please contact:

**KERAFOL®**  
 Keramische Folien GmbH  
 Stegenthumbach 4-6  
 D-92676 Eschenbach i.d.Opf.  
 Tel: +49 9645 / 88 300  
 Fax: +49 9645 / 88 390  
 e-mail: [sofc@kerafol.com](mailto:sofc@kerafol.com)  
 Internet: [www.kerafol.com](http://www.kerafol.com)

[www.kerafol.com](http://www.kerafol.com)

last updated: 02/2011



## Customized Solutions for Solid Oxide Fuel Cells

ELECTROLYTES

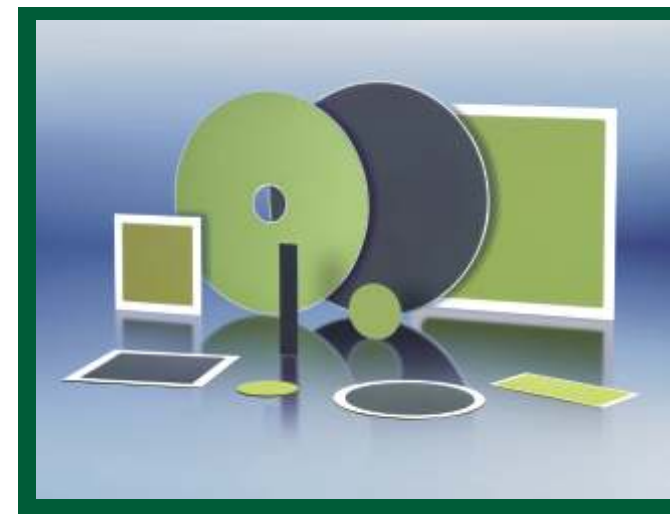
ELECTROLYTE  
SUPPORTED CELLS

GLASS SEALING TAPES

SETTER PLATES

TAPE DEVELOPMENT  
& PRODUCTION

RESEARCH &  
DEVELOPMENT



**KERAFOL®**  
 KERAMISCHE FOLIEN GMBH

Innovation in Environmental  
Technology and Power Generation

KERAFOL - Keramische Folien GmbH, founded 1985 and located in Eschenbach, Bavaria, is one of the worldwide leaders in manufacturing ceramic tapes and substrates of different oxide and non-oxide materials.



# Customized Solutions for Solid Oxide Fuel Cells

## Electrolytes

The main targets for the use of ceramics in Solid Oxide Fuel Cells are:

- high mechanical strength
- high ionic conductivity

### We provide:

- partially stabilized 3YSZ substrates, fully stabilized 8YSZ and 10Sc1CeSZ substrates
- newly developed YScSZ material for requirements in high mechanical strength and high ionic conductivity
- electrolytes in standard and customized geometries and thicknesses

## Electrolyte Supported Cells

In cooperation with the Fraunhofer Institute for Ceramic Technology and Systems we developed pastes for electrolyte supported cells (MEAs: Membrane Electrode Assemblies) which are now produced at KERAFOL®.

### We provide:

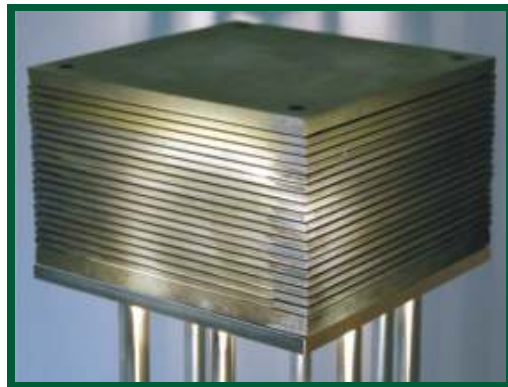
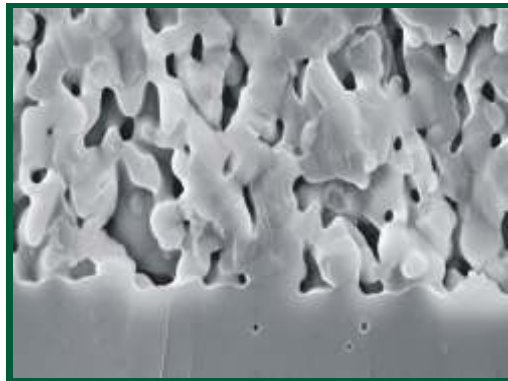
- fuel cells with efficient electrodes and extremely good properties:
  - long term stability
  - stable during multiple reduction/oxidation cycles
  - high planarity
- $\text{La}_x\text{Sr}_y\text{MnO}_3$  as cathode, NiO cermet as anode
- cells in standard dimensions of 50x50 mm, 100x100 mm and customized geometries

## Glass Sealing Tapes

With the scientific support of Fraunhofer Institute for Ceramic Technologies and Systems we developed glass sealing tapes for solid oxide fuel cells which can now be produced in different geometries and thicknesses.

### We provide:

- glass sealing tapes KeraGlas ST K01 and KeraGlas ST K02
  - joining partner of steel/steel or steel/ceramics
  - long term stable (tested at IKTS for 5000 h at designated operating temperatures)
  - form stable glass ceramics after partial crystallization



## Setter Plates

High quality kiln furniture is necessary for firing high quality products. Especially the anodes of fuel cells tend to react with alumina kiln furniture.

### We provide:

- Keralpor 99Z: cost effective zirconia layered setter plates for the fuel cell production
- Keralpor 99: alumina setter plates - high porosity, smooth surface, light and robust - in different geometries and thicknesses

⇒ Very accurate sinter results are possible!

## Tape Development & Production

With long experience in developing and producing ceramic tapes of different materials for various applications, **we offer:**

- customized solutions
- consulting & development
- production services from lab scale to mass production

## Research & Development

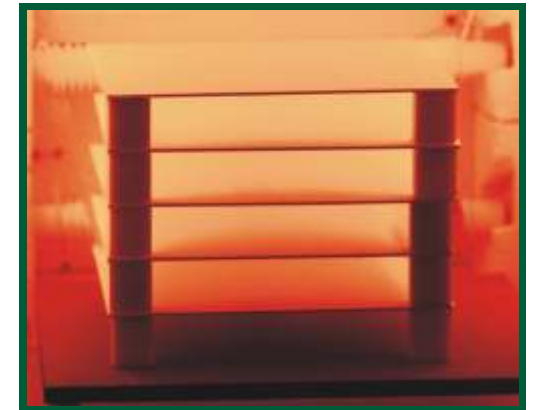
In order to offer our customers competent customized advice and individual solutions, our engineers and staff are working in laboratories with modern testing and measuring equipment.

### We offer:

- optimization of existing concepts
- development of new innovative products

### Current projects:

- improvement of glass sealing tapes for different interconnector materials
- development of Solid Oxide Electrolyser Cells (SOEC)
- production of zirconia based microtubes for the use in tubular SOFC systems and micro-SOFC
- development of ceria based electrolyte substrates (CGO/GDC) for low temperature SOFC applications



The Solid Oxide Fuel Cell is one of the key technologies to improve the way of power generation. SOFC converts fossile or renewable fuels with a very high efficiency to electricity and heat.