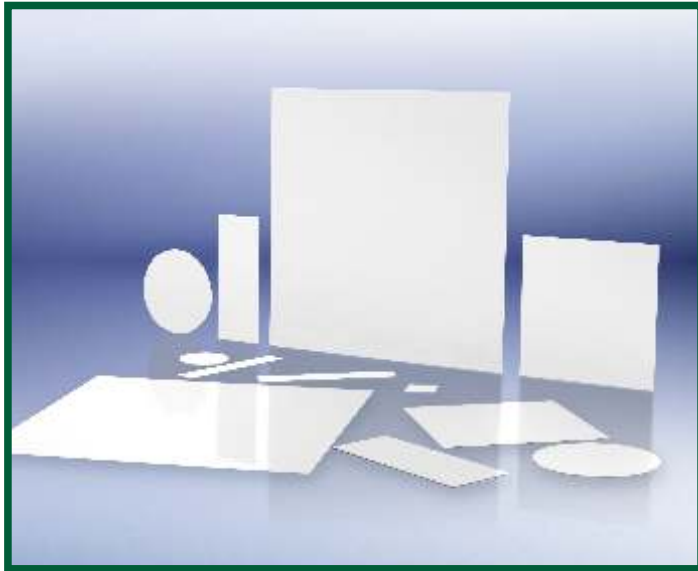


## Electrolyte Substrates

### Technical Information



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

- high ionic conductivity
- high mechanical strength
- improving power density

#### KEY FEATURES:

- thin electrolyte substrates
- partially or fully stabilized
- stabilized with yttria or/and scandia
- high planarity and density

#### TECHNICAL DATA:

Characteristics	Unit	3YSZ	8YSZ	10Sc1CeSZ	YScSZ
Dopant, stabilization	[mol%]	Yttria, 3	Yttria, 8	Scandia, 10 Ceria, 1	Yttria/ Scandia/Ceria
Ionic conductivity (measured at 850°C)	[S/cm]	0.021	0.085	0.259	0.065
Mechanical strength (Kerafol double ring test, 8YSZ=100%)	[%]	519	100	116	252
Sinter density (measured)	[g/cm <sup>3</sup> ]	> 6.00	> 5.95	> 5.70	> 5.90
Helium leakage of substrates with a thickness of 150 µm	[mbar l/s]	< 10 <sup>-8</sup>	< 10 <sup>-8</sup>	< 10 <sup>-8</sup>	< 10 <sup>-8</sup>
TEC <sub>20...850°C</sub>	[ppm/K]	11.2	10.2	10.1	10.28

#### GEOMETRIES AND THICKNESSES:

- thicknesses between 100 and 300 microns depending on material (±10%)
- standard dimensions: 50 x 50 mm<sup>2</sup>, 100 x 100 mm<sup>2</sup> (tolerances ±1.0%)