



ESL ELECTROSCIENCE

CERAMIC TAPES &
THICK-FILM MATERIALS

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POROUS ANODE TAPE

42421

RoHS Compliant* High Temperature YSZ-Cermet Tape for use in SOFC and other Fuel Cells

The porous anode cermet is a blend of nickel oxide and yttria stabilized zirconia (YSZ) in tape form. It provides the catalytic activity required to promote the reaction necessary to produce fuel ions, such as hydrogen or CO. It is porous so that fuel gas can reach the three-phase boundary present near the electrolyte. In SOFC anode-supported cells, thick anode layers are required to provide mechanical strength for the cell. It is prepared by tape casting a slurry containing the YSZ powder, a thermoplastic binder and surfactant. The slurry is cast on a polyester carrier film which is coated with a release agent.

LAMINATING:	21 MPa @ 70°C
GREEN TAPE THICKNESS:	nominal 180 µm
GREEN TAPE DENSITY:	nominal 3.2 g/cm ³ , depending on solids loading
GREEN TAPE COLOR:	dark green – gray (typical)
TYPICAL SINTERING CYCLE:	0.7°C/minute ramp to 650°C 2-1/2°C/minute ramp to 1450 to 1550°C 2-hour soak at peak temperature to achieve full density
FIRED SHRINKAGE: (3 layers using lamination parameters of 3 kpsi – 70°C – 20 minutes), nominal	X, Y: 21% Z: 21%
FIRED DENSITY: (1450 °C for 120 minutes)	< 85 % of theoretical

ESL Europe (KOP) 42421 0512-B

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See Caution and Disclaimer on other side.

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***None of the six substances referred to in the RoHS Directive (2002/95/EC) are used in the formulation of this product.**

CAUTION: Proper industrial safety precautions should be exercised in using these products. Use with adequate ventilation. Avoid prolonged contact with skin or inhalation of any vapours emitted during use or heating of these compositions. The use of safety eye goggles, gloves or hand protection creams is recommended. Wash hands or skin thoroughly with soap and water after using these products. Do not eat or smoke in areas where these materials are used. Refer to appropriate MSDS sheet.

DISCLAIMER: The product information and recommendations contained herein are based on data obtained by tests we believe to be accurate, but the accuracy and completeness thereof is not guaranteed. No warranty is expressed or implied regarding the accuracy of these data, the results obtained from the use hereof, or that any such use will not infringe any patent. ElectroScience assumes no liability for any injury, loss, or damage, direct or consequential, arising out of its use by others. This information is furnished upon the condition that the person receiving it shall make his own tests to determine the suitability thereof for his particular use, before using it. User assumes all risk and liability whatsoever in connection with his intended use. ElectroScience's only obligation shall be to replace such quantity of the product proved defective.
