



## ESL ELECTRO-SCIENCE

CERAMIC TAPES &  
THICK-FILM MATERIALS

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### PARTIALLY STABILIZED ZIRCONIA TAPE

### 42020

#### RoHS compliant\* high temperature PSZ tape for use in sensors

ESL 42020 is a flexible cast film of partially stabilized zirconia (PSZ) powder dispersed in an organic matrix. This material is designed to be sintered in the temperature range of 1450°C-1550°C to yield a dense white-colored ceramic. ESL 42020 tape is provided on a silicone-coated polyester film to protect the tape from mechanical damage and aid in handling.

This tape is generally used with Pt inks (ESL 5570 Series) that can be co-fired for use applications such as planar sensors.

#### TYPICAL PROPERTIES:

**TAPE THICKNESS:** (custom thicknesses available) 125  $\mu\text{m} \pm 10\%$

**PROCESSING:** Parts are formed by blanking sheets of the tape to the required green size prior to sintering. The burnout cycle depends on the part configuration and size.

**TYPICAL PEAK SINTERING TEMPERATURE FOR PARTS:** 1450°C-1500°C/1.5 hours

**STABILIZING AGENT:**  $\text{Y}_2\text{O}_3$

**STABILIZER CONTENT:** 5.0 mol %

**FIRED SHRINKAGE:** X: 16.5  $\pm$  1.0 %  
(12-layer bar fired at 1450°C for 1.5 hours) Y: 18.0  $\pm$  1.0 %

**FIRED DENSITY:** (1450°C for 1.5 hours)  $\geq 95\%$  of theoretical

**COMPATIBLE MATERIALS:** ESL 5570 Series Pt, 4530 Insulating Dielectric  
4569 Porous Dielectric

42020 1301-New

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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 vapors 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. Electro-Science 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 their own tests to determine the suitability thereof for their particular use, before using it. User assumes all risk and liability whatsoever in connection with their intended use. Electro-Science's only obligation shall be to replace such quantity of the product proved defective.

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