

## CoorsTek ADS-96R 96% Alumina Thick Film Substrate

Category : Ceramic , Oxide , Aluminum Oxide

### Material Notes:

This high-purity material ensures strong, reliable performance for ceramic substrate application. Applications: thick films and lasers

Order this product through the following link:

[http://www.lookpolymers.com/polymer\\_CoorsTek-ADS-96R-96-Alumina-Thick-Film-Substrate.php](http://www.lookpolymers.com/polymer_CoorsTek-ADS-96R-96-Alumina-Thick-Film-Substrate.php)

| Physical Properties | Metric       | English                  | Comments                     |
|---------------------|--------------|--------------------------|------------------------------|
| Density             | 3.75 g/cc    | 0.135 lb/in <sup>3</sup> | ASTM-C373                    |
| Water Absorption    | 0.00 %       | 0.00 %                   | ASTM-C373                    |
| Particle Size       | 4.0 - 7.0 μm | 4.0 - 7.0 μm             | Grain Size; Intercept Method |

| Mechanical Properties   | Metric  | English   | Comments   |
|-------------------------|---------|-----------|------------|
| Hardness, Rockwell 45 N | 82      | 82        | ASTM-E18   |
| Modulus of Elasticity   | 331 GPa | 48000 ksi | ASTM-C623  |
| Flexural Strength       | 400 MPa | 58000 psi | ASTM-F394  |
| Poissons Ratio          | 0.25    | 0.25      | ASTM-C623  |
| Shear Modulus           | 132 GPa | 19100 ksi | Calculated |

| Thermal Properties         | Metric                      | English                            | Comments  |
|----------------------------|-----------------------------|------------------------------------|-----------|
| CTE, linear                | 6.40 μm/m-°C                | 3.56 μin/in-°F                     | ASTM-C372 |
|                            | @Temperature 25.0 - 200 °C  | @Temperature 77.0 - 392 °F         |           |
|                            | 7.20 μm/m-°C                | 4.00 μin/in-°F                     | ASTM-C372 |
|                            | @Temperature 25.0 - 500 °C  | @Temperature 77.0 - 932 °F         |           |
| 7.90 μm/m-°C               | 4.39 μin/in-°F              | ASTM-C372                          |           |
| @Temperature 25.0 - 800 °C | @Temperature 77.0 - 1470 °F |                                    |           |
| Thermal Conductivity       | 8.20 μm/m-°C                | 4.56 μin/in-°F                     | ASTM-C372 |
|                            | @Temperature 25.0 - 1000 °C | @Temperature 77.0 - 1830 °F        |           |
|                            | 12.0 W/m-K                  | 83.3 BTU-in/hr-ft <sup>2</sup> -°F |           |
|                            | @Temperature 400 °C         | @Temperature 752 °F                |           |

| Thermal Properties | 20.0 W/m-K<br>Metric | 139 BTU-in/hr-ft <sup>2</sup> -°F<br>English | Comments |
|--------------------|----------------------|--|----------|
|                    | @Temperature 100 °C  | @Temperature 212 °F                          |          |
|                    | 26.0 W/m-K           | 180 BTU-in/hr-ft <sup>2</sup> -°F            |          |
|                    | @Temperature 20.0 °C | @Temperature 68.0 °F                         |          |

| Component Elements Properties | Metric | English | Comments |
|-------------------------------|--------|---------|----------|
| Al2O3                         | 96 %   | 96 %    |          |

| Electrical Properties | Metric                | English               | Comments                         |
|-----------------------|-----------------------|-----------------------|----------------------------------|
| Volume Resistivity    | 1.00e+8 ohm-cm        | 1.00e+8 ohm-cm        | ASTM-D1829                       |
|                       | @Temperature 700 °C   | @Temperature 1290 °F  |                                  |
|                       | 1.00e+9 ohm-cm        | 1.00e+9 ohm-cm        | ASTM-D1829                       |
|                       | @Temperature 500 °C   | @Temperature 932 °F   |                                  |
| 1.00e+12 ohm-cm       | 1.00e+12 ohm-cm       | ASTM-D1829            |                                  |
| @Temperature 300 °C   | @Temperature 572 °F   |                       |                                  |
|                       | >= 1.00e+14 ohm-cm    | >= 1.00e+14 ohm-cm    | ASTM-D1829                       |
|                       | @Temperature 25.0 °C  | @Temperature 77.0 °F  |                                  |
| Dielectric Constant   | 9.5                   | 9.5                   | ASTM-D150                        |
|                       | @Frequency 1000 Hz    | @Frequency 1000 Hz    |                                  |
|                       | 9.5                   | 9.5                   | ASTM-D150                        |
|                       | @Frequency 1.00e+6 Hz | @Frequency 1.00e+6 Hz |                                  |
| Dielectric Strength   | 19.3 kV/mm            | 490 kV/in             | ASTM-D149                        |
|                       | @Thickness 1.02 mm    | @Thickness 0.0400 in  |                                  |
|                       | 23.6 kV/mm            | 600 kV/in             | 60 cycles AC avg. RMS; ASTM-D149 |
|                       | @Thickness 0.635 mm   | @Thickness 0.0250 in  |                                  |
| Dissipation Factor    | 0.00040               | 0.00040               | Loss Tangent; ASTM-D150          |
|                       | @Frequency 1.00e+6 Hz | @Frequency 1.00e+6 Hz |                                  |
|                       | 0.0010                | 0.0010                | Loss Tangent; ASTM-D150          |
|                       | @Frequency 1000 Hz    | @Frequency 1000 Hz    |                                  |
| Dielectric Loss Index | 0.0040                | 0.0040                | Loss Factor; ASTM-D150           |
|                       | @Frequency 1.00e+6 Hz | @Frequency 1.00e+6 Hz |                                  |

| Electrical Properties | Metric             | English            | Comments               |
|-----------------------|--------------------|--------------------|------------------------|
|                       | @Frequency 1000 Hz | @Frequency 1000 Hz | Loss Factor; ASTM-D150 |

| Descriptive Properties               | Value | Comments  |
|--------------------------------------|-------|---|
| Color                                | White |   |
| Permeability                         | NIL   |   |
| Surface Finish - ( $\mu\text{in.}$ ) | <0.89 | as-fired; Profilometer, 0.0002" Radius Stylus, 0.100" Cutoff, ANSI/ASME B46.1 |
|                                      | <35   | CLA; Profilometer, 0.0002" Radius Stylus, 0.100" Cutoff, ANSI/ASME B46.1      |

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