Heraeus

Advanced Materials

X-200W

White LTCC Dielectric Powder

Description:
Heraeus' X-200W LTCC powder mix is designed to be cast into green tape used for module and passive component applications. In these applications the relatively low permittivity and low loss of this material allow for the production of high performance components and multilayer circuits.
X-200W is compatible with binder systems typically used in tape fabrication. In tape form this material is also compatible with Heraeus' silver and gold conductor systems.

- **Key Benefits:**
  - Silver conductor compatible
  - Lead and cadmium free
  - High Q
  - Near zero T_f (temperature coefficient of frequency)

- **Typical Powder Properties:**

  Particle Size (microns):
  D90: 5.0 – 7.0
  D50: 2.25 – 3.25

  Surface Area (m^2/g): 2.4 – 3.0

  Fired Density (g/cm^3): 3.0 – 3.2

Burnout and Firing in a Box Oven:

Heating Rate	5-5.5°C/minute
Peak Temperature	870-880°C
Dwell Time @ Peak	20-30 minutes
Cooling Rate	~ 3 – 6 °C/min
Setter	96% Alumina

- **Typical Fired Properties:**

  Dielectric Constant
  @ 30 MHz, 25°C * 8.8 – 9.5

  Dissipation Factor
  @ 30 MHz $\leq 2x10^{-3}$

  Thermal Coefficient of Expansion (25°C to 300°C)
  5.6 ppm/°C

  Breakdown Voltage
  > 1 kV @ 25 μm

  Insulation Resistance (@ 25°C)
  > 10^{13} Ωcm

  Temperature Coefficient of Frequency (T_f)
  <10 ppm/°C (-40 to 80 °C)

  Thermal Conductivity
  3 W/mK

*****30 MHz data measured on pressed disc, ~20mm diameter x 1.7mm thick.

YY0706.3

Heraeus

Advanced Materials

X-200W

White LTCC Dielectric Powder

Americas
Heraeus Incorporated
Thick Film Materials Division
24 Union Hill Road
West Conshohocken, PA 19428
USA
Phone: +1 (610) 825-6050
E-Mail: techservice.hcd@heraeus.com
Internet: www.thickfilm.net

Europe
W.C. Heraeus GmbH
Thick Film Materials Division
Heraeusstr. 12-14
63450 Hanau
Germany
Phone: +49 (6181) 35-5466
E-mail: th-info@heraeus.com
Internet: www.heraeus-th.com

Asia
Heraeus Materials Technology
Shanghai Ltd.
No. 1 Guang Zhong Road
Zhuanqiao Town, Minhang District
Shanghai 201108
People's Republic of China
Phone: + 86 (21) 6442-6838
E-Mail: th.hmts@heraeus.com
Internet: www.heraeus-th.com

W. C. Heraeus