



http://www.stemmerich.com

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Neoceram®

DESCRIPTION: Neoceram® is a glass product that offers continuous, high temperature use (700° C / 1292° F) with no fear of destruction from high heat or temperature variation (water or snow on hot glass).

PROPERTIES:

Color Transparent

Thermal

Thermal Expansion Coefficient ($\times 10^{-7}/^{\circ}\text{C}$):

-50 ~ 0°C: -8.5 0 ~ 50°C: -6.5 30 ~ 380°C: -6.0 380 ~ 750°C: -3.0

Specific Heat (cal/g°C): 25°C, 0.17

Thermal Conductivity (Kcal/m-hr-°C): 25°C, 1.3

Maximum Service Temperature: * Continuous: 700°C * Short Term: 800°C

** Thermal Shock Resistance: 100 x 100 x 3 mm Plate: 800°C

Optical

Index of Refraction (n_d): 1.541

ABBE number (v_d): 57

Stress-optical Coefficient ($m\mu/\text{cm}/\text{kg}/\text{cm}^2$): 25°C, 3.0

Mechanical

Density - g/cm³: 2.51 Binding Strength - kgf/cm² JIS R-1601: 1400 Vicker's Hardness - Hv (0.2): 700

Knoop Hardness - Hk (0.2): 500 Young's Modulus - $\times 10^3$ kgf/cm²: 0.9

Chemical Acid Resistance (5% HCl) Alkali Resistance (5%Na₂CO₃) *** Water Resistance (H₂SO₄)

90°C 24 hrs.

90°C 24 hrs.

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0.1 mg/cm²

0.3 mg/cm²

0.19 ml

Electrical Volume resistivity (Log ρ) Ω -cm Dielectric Constant (ϵ) Loss Tangent ($\tan \delta$) $\times 10^{-3}$ Loss Factor $\times 10^{-2}$

25°C 250°C 360°C 1 MHz, 25°C 7.5 1 MHz, 25°C 22 1 MHz, 25°C 167

11.4 6.4 5.3 2.45 GHz, 25°C - 2.45 GHz, 25°C - 2.45 GHz, 25°C -

* Maximum service temperature: Determination of the maximum service temperature is based on mechanical information, and is the temperature of which 100 x 300 x 3.81 mm plate specimens (supported to form a 280-mm span) deform by 1 mm after 1,000 hours continuous or 24 hours of short term heating.

** These figures are only general values derived by a procedure consisting of heated specimens which are then rapidly cooled by plunging them into water. Thermal shock properties of 100°C signify that specimens have been heated to 110°C and plunged into water at 10°C without exhibiting cracking.

*** 10g of specimen (grain size: 300 to 425 microns) is immersed in 50cc of water in an autoclave of 121°C for 30 minutes, then the test solution is titrated by 0.02N H₂SO₄ (ASTM).