



# PRODUCT DATA SHEET

## G-1011 AND G-1012 GLASS TRANSFER TAPES

### General Information

G-1011 and G-1012 Glass Transfer Tapes fulfill a dual purpose; they can be used either as a vitreous glaze for glazing purposes or as a devitrified opaque glaze for sealing purposes. These products will glaze and seal materials in the  $70-90 \times 10^{-7}$  thermal expansion range. These materials include ceramics (beryllia, alumina), glasses and low expansions metals (platinum, titanium). They are particularly suggested for flatpacks seals where the parts are first preglazed (vitreous stage) and then sealed together (devitrified stage) after devices (such as silicon chips) have been assembled and attached. These two Glass Transfer Tapes have virtually identical physical properties except for their fired color:

G-1011 fires a light gray color.

G-1012 fires a black color.

### Physical Properties

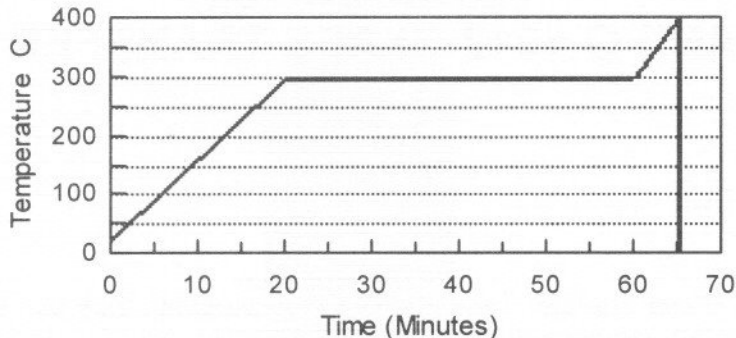
Glass Family.....Lead-tin-silicate  
Glass Type.....Devitrifying  
Annealing Point..... $320 \pm 10^\circ\text{C}$   
Softening Point..... $390 \pm 10^\circ\text{C}$   
Coefficient of Thermal Expansion:  
    G-1011..... $70-90 \times 10^{-7}$  in/in/ $^\circ\text{C}$   
    G-1012..... $82 \times 10^{-7}$  in/in/ $^\circ\text{C}$   
Dielectric Constant, 1 Megacycle,  $25^\circ\text{C}$  K...~23

## Firing Data

### 1. Preglazing

## PREGLAZING STEP

Firing Curve



It is very important that during the preglazing step the glass layer should remain in the vitreous stage and not be devitrified. The final temperature of the preglazing curve is dependent on the geometry of the surface and the thickness of the glass layer and has to be determined individually. The data given on this curve are only approximate values.

### 2. Sealing

- Start at room temperature with 5-20 psi of pressure on the parts to be sealed to insure proper flow of molten glass.
- Heat to 440-450°C in 10-30 minutes using air or inert gas atmosphere.
- Hold for approximately 5 minutes.
- Cool slowly; minimum cooling time is 30 minutes. Slower cooling (such as overnight) is also suitable.

The above firing cycle is a general recommendation. The amount of weight needed and mass of the parts to be sealed may require longer or shorter heat ups and hold. Experiment to determine the ideal hold for your particular sealing requirement.

## Ordering Information

G-1011 and G-1012 Glass Transfer Tapes are made to order. .005" thickness is generally recommended for sealing purposes, although other thickness are available. Maximum width is 24 inches. 500 in.<sup>2</sup> is the minimum order. Tapes are available slit to any width (.125" minimum) and may incur additional charges depending upon quantity. Please phone or FAX for a quote.

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