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Glass-ceramic <VidroQuartz™> with Coefficient of Thermal Expansion Equivalent to Quartz Glass Developed

Nippon Electric Glass Co., Ltd. (Head Office: Otsu, Shiga, President: Masayuki Arioka) (NEG) has developed a glass-ceramic, <VidroQuartz™>, which has a coefficient of thermal expansion* equivalent to that of quartz glass. The product will be exhibited at JPCA Show 2014, which begins on June 4 at Tokyo Big Site.

Quartz glass has been applied to various industrial fields as a material causing little change in dimensions due to temperature, because it has smaller coefficient of thermal expansion compared to the ordinary glass such as the soda-lime glass used for windows.

Having a coefficient of thermal expansion equivalent to that of quartz glass, our newly developed product, <VidroQuartz™>, can be used as an alternative material to quartz glass in fields where quartz glass has been conventionally used, such as insulation materials for high-temperature processing of semiconductor manufacturing devices, sensor substrates, tools such as spacers for precision instruments, and substrate materials for display.

Compared to quartz glass, <VidroQuartz™> has the following advantages: 1) It achieves superior performance in mass production and production costs; 2) It reduces damage to peripheral parts caused by ultraviolet rays because it has high shielding effect against ultraviolet rays, and; 3) It contributes to miniaturization of optical modules for optical applications because the focal length can be shortened with greater refractive index than when using quartz glass.

NEG will promote the electronic device business while emphasizing various merits of <VidroQuartz™> to explore demands for the replacement of quartz glass.

(*) Coefficient of thermal expansion is a rate of dimensional change in an object caused by temperature change per 1°C.

<Product overview>

- Average coefficient of thermal expansion : $5.8 \times 10^{-7}/^{\circ}\text{C}$ (30 - 300°C)
(Ref) Quartz glass: $5.9 \times 10^{-7}/^{\circ}\text{C}$ (30 - 300°C)
- Refractive index : 1.54
(Ref) Quartz glass: 1.46

- Form / dimensions (Ex.) : (Round) $\phi 200\text{mm}$, $\phi 300\text{mm}$
(Square) 200mm square, 300mm square
(Thickness) 0.5 mm -

For details of forms and dimensions, please consult us separately.

