



# Tubi Vetro di Conti Gloriana

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## Chemical Composition

The following is a typical analysis of pyrex borosilicate glass  
% by weight

Silica ( SiO <sub>2</sub> )	80.60
Boric oxide ( B <sub>2</sub> O <sub>3</sub> )	12.60
Sodiumoxide ( Na <sub>2</sub> O )	4.20
Alumina ( Al <sub>2</sub> O <sub>3</sub> )	2.20
Ironoxide ( Fe <sub>2</sub> O <sub>3</sub> )	0.04
Calciumoxide ( CaO )	0.10
Magnesiumoxide ( MgO )	0.05
Chlorine ( Cl )	0.10

## Trace Elements

There are less than five parts per million of copper , zinc , lead ,  
chromium , manganese , arsenic and barium.

## Physical properties

Coefficient of Expansion	33x10 <sup>-7</sup> /°C between 20°C 300C°
Specific Heat	750 J/kg°C at 20°C
Thermal Conductivity	1.13W/m°K at 20°C
Density	2.23x10 <sup>3</sup> kg/m <sup>3</sup>
Poisson's Ratio	0.22 between 25°C-400°C
Young's Modulus	6,500kg/mm <sup>2</sup> at 25°C
Rigidity Modulus	2,600kg/mm <sup>2</sup> at 25°C
DHP (Vickers) Hardness	580kg/mm <sup>2</sup> 50 gram load
Knoop Hardness	550kg/mm <sup>2</sup> 50 gram load
Relative Hardness	1.52 (comparative Soda-Lime =1)
Reflective Index	1.474 Sodium D-Line
Dielectric Constant	4.6 at 1 MHz and 20°C
Power Factor	0.50%at 1 MHz and 20°C
Loss factor	2.6% at 1 MHz and 20°C
Log <sub>10</sub> Volume Resistivity	15 ohm-cms at 20°C
Surface Resistivity	10 <sup>13</sup> ohms per square cm at 50% humidity