Special lead-free glass for NTC Thermistors

Negative Temperature Coefficient (NTC) Thermistors are a well-known and widespread method for temperature measurement. Especially for high temperature applications the NTC chip must be sealed in a glass sleeve for protection. When compared to traditional lead glasses, SCHOTT 8360 lead-free specialty glass possesses nearly identical properties, making it an ideal alternative for use cases that require lead glasses. This means that manufacturing processes can easily transition to this specialty glass.

SCHOTT 8360 – Benefits at a glance

Lead-free
· No special lead disposal concerns

Low sealing temperatures
· Identical processing compared to current lead glasses
· No need to change the manufacturing process

Highly impermeable glass for long lasting thermistors
· Glass seals tightly with Cu-sheathed wire
· Existing electrical connections with Cu-sheathed wire are maintained

Optimized dielectric properties
· High dielectric constant
· Low dielectric loss

Learn more

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Every industry sector, including the consumer, health, automotive, and technology industry, faces increasing regulatory concerns regarding human health and environmental responsibility. A prime example is the substance lead, which is gradually and rapidly being prohibited from all applications. Being ahead of possible changes is an essential step to stay competitive. For this reason, SCHOTT is launching a lead-free glass for the encapsulation of an NTC Thermistor chip which behaves in the production process just like a soon outdated lead glass.

SCHOTT 8360 – lead-free

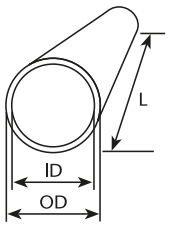
NTC Thermistor

Comparison example:

	Lead-free SCHOTT 8360	Lead glass (e.g. SCHOTT 8531)	
Coefficient of mean linear thermal expansion α (20°C; 300°C)	9.1	9.1	$10^{-6}K^{-1}$
Transformation temperature Tg	465	435	°C
Glass temperature at viscosity η in dPa·s $10^{7.6}$ (softening point)	575	585	°C
Glass temperature at viscosity η in dPa·s 10^{4} (working point)	745	820	°C
Dielectric constant ε for 1 MHz at 25°C	7.3	9.5	
Dielectric loss factor tan δ for 1 MHz at 25°C	24	9	10^{-4}

Dimensional characteristics

Characteristic	Dimension [mm]
Outside diameter (OD)	0.8 – 3.0
Inside diameter (ID)	0.66 – 2.0
Length (L)	1.5 – 7.0



Other OD, ID and lengths upon request.

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