Radiation Resistant Glass Types for Harsh Environments

SCHOTT's radiation resistant glass portfolio enables superior performance even strong ionizing radiation for decades.

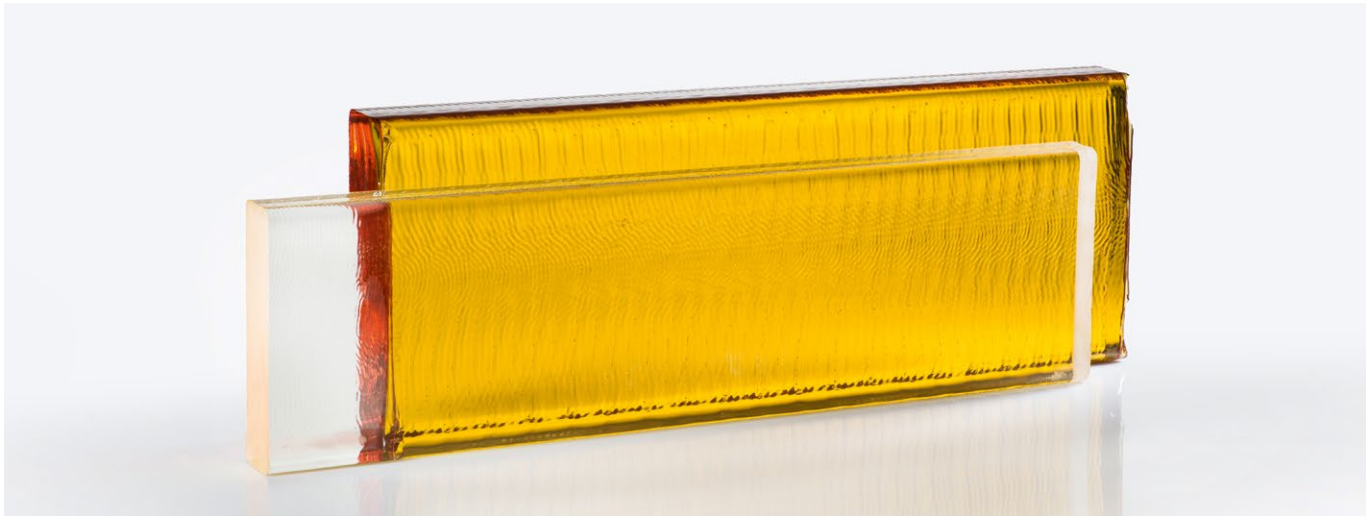

Figure 1: Exemplary picture of a LF5G19 (in the front) and a SF6G05 raw glass strip.

Product Information

Ionization caused by photon and particle radiation changes the transmittance of standard optical glasses. But, optical glasses can be stabilized against such transmittance losses by adding cerium (Ce) to the composition. The added cerium (a polyvalent ion) changes the intrinsic color of the glass. The transmittance edge is shifted to longer wavelengths. In contrast to non stabilized glasses ionizing radiation is not effecting this edge significantly as shown in the transmission curve in figure 2.

More detailed information available in the Technical Information TIE-42 in the optical glass download section on our website.

Advantages

- Stable transmission even in strong ionizing radiation
- Several decades of proven reliability in harsh environments
- Off the shelf available and secured supply for the next upcoming years
- Complete portfolio enabling full radiation resistant designs

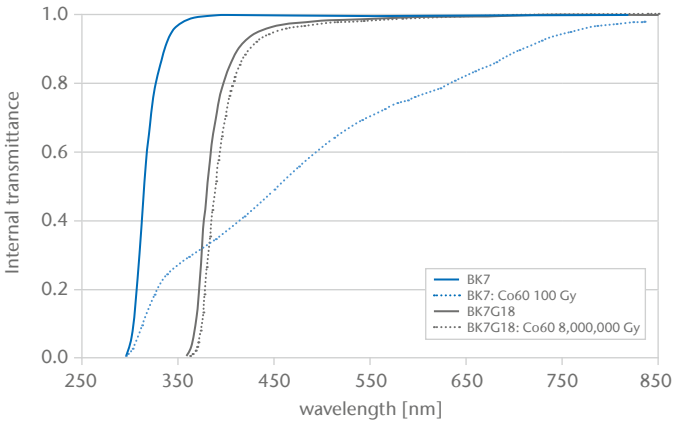

Figure 2: Comparison of the internal transmittance curve of BK7G18 and BK7. Additionally the impact of 100 Gy gamma radiation (Co60) on BK7 and a much higher gamma radiation of $8*10^6$ Gy on BK7G18 can be compared. Compared to BK7 the reduction of internal transmittance of BK7G18 at a radiation amount which is 5 orders of magnitude higher is very low.

Materials

- BK7G18
- LAK9G15
- F2G12
- K5G20
- LF5G19
- SF6G05

Applications

- Medical
- Space
- Security
- Nuclear industry
- Science

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