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Optimax Systems, Inc

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Ontario, NY 14519

Aerospace Manufacturing Glass

Selecting suitable optical material is important when designing aerospace optical systems.

Schott and Ohara offer a variety of i-line glasses with enhanced blue transmittance which are successfully utilized in space applications. Advanced melting techniques and purer raw materials are used in developing these i-line glasses, improving the internal transmittance and homogeneity values. Proper radiation filtering is necessary for protection of the optics. These glasses are commonly used in semiconductor applications; therefore, they are melted frequently and readily available.

Another consideration when choosing optics for aerospace is radiation resistance. Exposure to high energy radiation changes the transmittance of optical glass. Adding cerium to the composition improves the glasses' resistance to radiation. By doing this, the transmittance edge is shifted to longer wavelengths but stabilized against radiation to a high degree. The higher amount of cerium in the composition, the greater the stabilizing effect and the more resistant the glass is to high radiation. In general, Schott radiation resistant glasses are inquiry glasses and may not be in stock.

These radiation hardened glasses tend to have a longer life cycle in space, but exhibit lower transmission in the blue compared to their undoped counterparts (i.e. N-BK-7 vs. BK7G18 – SCHOTT Technical Information #42). For optical systems requiring high blue transmittance, i-line glasses and Fluoride Crystals (CaF_2 , BaF_2 , MgF_2) can be used with proper radiation filtering that protects the optical elements. However, for optical systems that are going to be exposed to high radiation over long time periods, cerium stabilized glasses are the preferred solution. Popular materials are listed in the chart below.

Manufacturer	Glass Type	Code
OHARA	S-FPL51Y	497811
OHARA	S-FSL5Y	487703
OHARA	BSL7Y	516643
OHARA	BAL15Y	557587
OHARA	BAL35Y	589612

OHARA	BSM51Y	603606
OHARA	PBL1Y	548458
OHARA	PBL6Y	532490
OHARA	PBL25Y	581408
OHARA	PBL26Y	567428
OHARA	PBM2Y	620363
OHARA	PBM8Y	596393
OHARA	PBM18Y	596387
SCHOTT	FK5HT *	487704
SCHOTT	BK7 HT	516641
SCHOTT	K5HT	522595
SCHOTT	K7 HT	511604
SCHOTT	LLF1HT	548458
SCHOTT	LLF6 HT	531489
SCHOTT	LF5HT	581409
SCHOTT	F2 HT	620363
SCHOTT	F8HT	595391
SCHOTT	F14 HT	601382
SCHOTT	BK7 G18	520637
SCHOTT	K 5 G20	523568
SCHOTT	LaK9 G15	691547
SCHOTT	LF 5 G15	584408
SCHOTT	F2 G12	621366

Fused Silica

Sapphire

Barium Fluoride

Calcium Fluoride

Magnesium Fluoride

Germanium **

Silicon

ZnS Multispectral / Cleartran **

*HT: High Transmittance

**With

proper filtering to block UV radiation, IR crystals can be used

Schott glasses are not supplied as raw material; glasses offered in blank form only. Call Optimax for availability.

Contact Us

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