Lumiglas®

## Ultra-high pressure sapphire glass;
## Ultra-high pressure sapphire glass tube

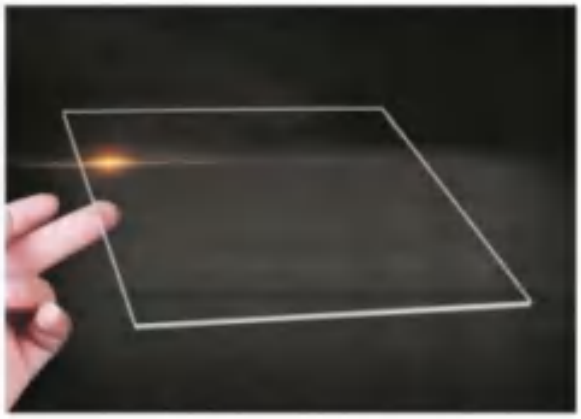
Lumistar specializes in the production of sapphire glass and high pressure sapphire glass tubes.

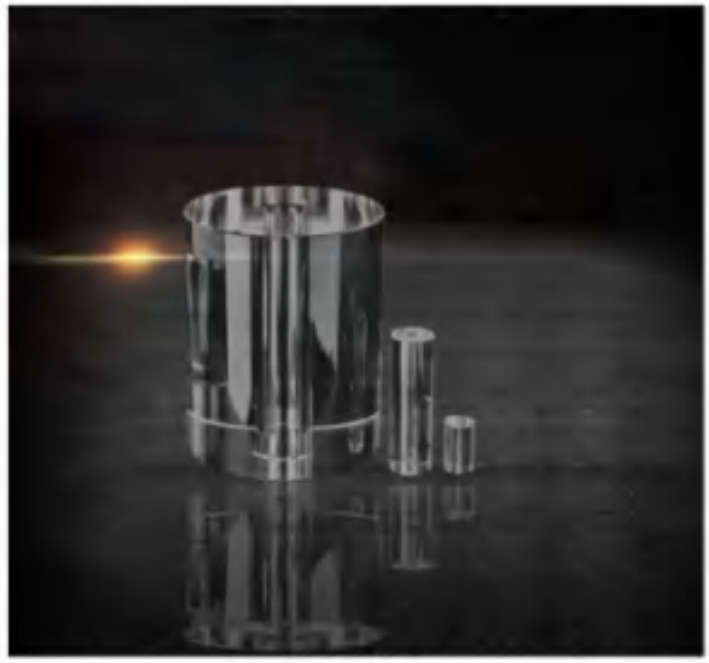
Sapphire has excellent optical properties, capable of transmitting deep ultraviolet, visible light, near infrared, and mid-wave infrared light from 0.18 to 5.5um.

Sapphire has outstanding mechanical strength, with a flexural strength of up to 850MPa, making the preferred material for high-temperature and high-pressure glass view windows. Lumistar can calculate various pressure strengths under different temperature curves for users.

Lumistar can design and manufacture all kinds of high temperature and high pressure sapphire glass windows, sapphire glass tubes, pressure resistance to meet the pressure requirements of high vacuum to ultra-high pressure $1E^{-13}$ to 150MPa, and can also be coated with waterproof film, oilproof film, AR anti-reflection film and so on according to the needs of users.

Maximum specifications available: diameter 400mm.





Ultra-high pressure sapphire glass tube

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## Sapphire performance

| | | |
|---|---|---|
| General performance | Chemical Formula | $Al_2O_3$ |
| | Crystal System | Trigonal |
| | Class | Hexagonal-scalenohedral |
| | Melting Temperature | 2050°C |
| Thermal performance | Thermal Expansion | Parallel to C-axis: $6.7x10^{-6}$ |
| | | Perpendicular to C-axis: $5.0X\ 10^{-6}$ |
| | Specific Heat | 0.18 Cal/gm°K(25°C) |
| Mechanical properties | Density | 3.99-4.10g/$cm^3$ |
| | Hardness | 9 Moh's Scale |
| | | (Hv)≥1700kg/$mm^2$ |
| | Modulus Of Elasticity | 340-380Gpa |
| | Compressive Strength | 2.1Gpa |
| | Tensile Strength | 0.19Gpa |
| Optical performance | Index of Refraction | Parallel to C-axis: 1.769 |
| | | Perpendicular to C-axis:1.76 |
| | Index of IR Transmission | 3-5.5um≥90% (coated with anti-reflective film) |
| Electrical performance | Electrical Resistance | $10^{11}$ /cm |
| | | $10^6$ /cm |
| | | $10^3$ /cm |
| | Dieleetrie Constant | 7.5-10 |
| Chemical performance | Corrosion Resistance | Can not be corroded by acid or alkaliat normal temperature, only can becorroded by HF at 300°C |