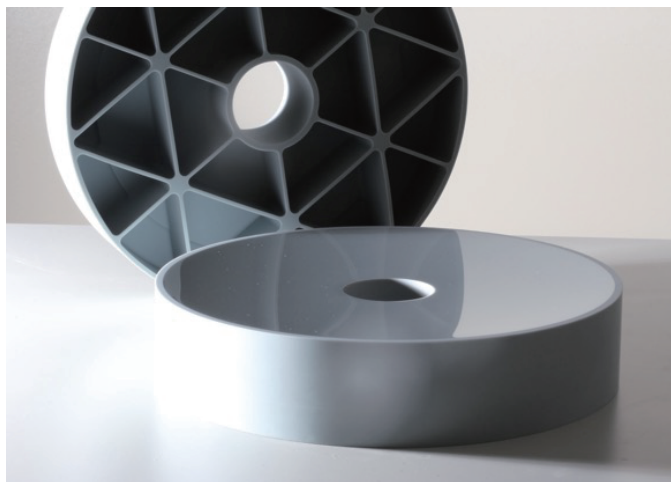


Shooting for the stars! The world's first Fine Cordierite in space!

Fine Cordierite



Low Thermal Expansion Ceramic Mirror

Enabling High Precision and Light Weight with High Rigidity



Approximately 70% weight reduction

with material removal when compared to low CTE glass* via Fine Cordierite's advantage of high rigidity

*according to Kyocera R&D



For Structural Parts

Superior mechanical properties of Fine Cordierite are suitable for structural components



Minimal Temperature Deformation

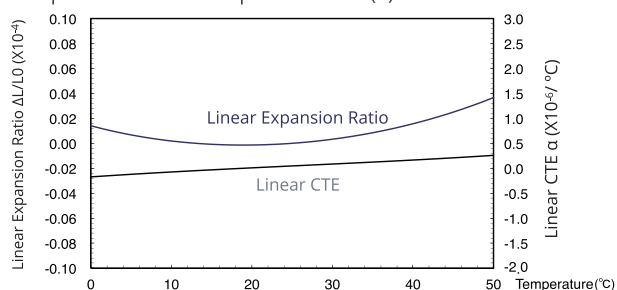
Fine Cordierite is a dense ceramic with an extremely low thermal expansion rate

Material Characteristics comparison with Low CTE Glass

Item	Unit	Low CTE Glass	Cordierite CO720
Density	kg/m ³	2.53	2.55
CTE	ppm/K	0.02	0.02
Elasticity Modulus	GPa	90	144
Specific Rigidity	—	36	56

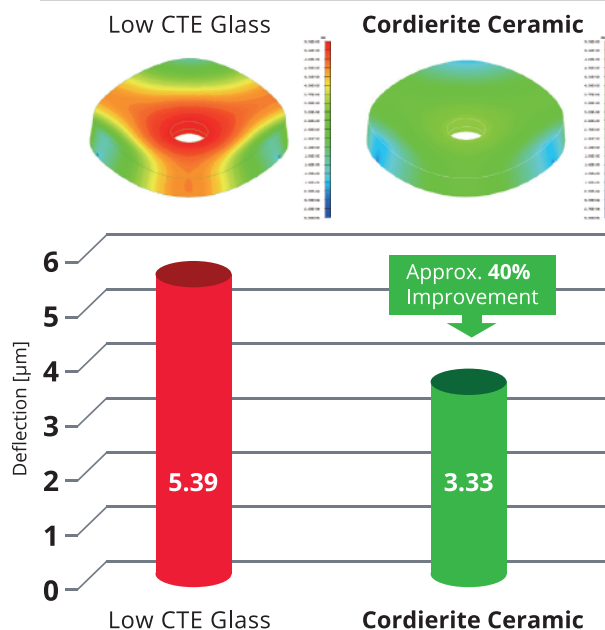
Temperature Dependency Graph 〈Cordierite CO720〉

Temp. Curve of Linear Expansion Ratio (α)



Values are typical properties, and may vary depending on product configurations or manufacturing processes.

Deflection by 3-Point Support



Comparison Conditions

Product Size : Φ 1020 x 120mm(Rib Structure)

Supported Points : Outside 3 Points

Load : Self-weight

The world's first Fine Cordierite primary mirror used in a ground-based telescope

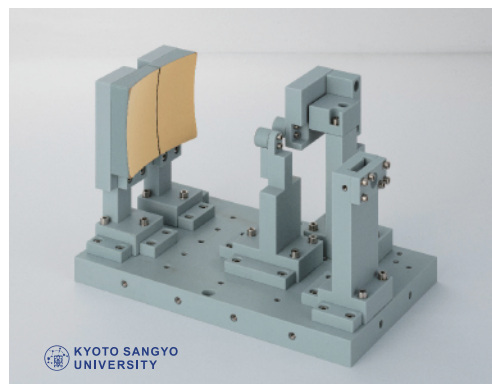
Kyocera is one of the world's leading manufacturers of high precision, high quality ceramic components and products. Kyocera manufactures over 200 varieties of ceramic materials for a wide range of applications with cutting edge technology and services designed to meet each customer's needs.

In the field of space and astronomy exploration, Kyocera has made numerous contributions through its superior quality materials, exemplified by the low thermal expansion ceramic "Fine Cordierite" and other materials such as telescope mirrors, terminals for Li-ion batteries, tank penetration flanges, and much more.



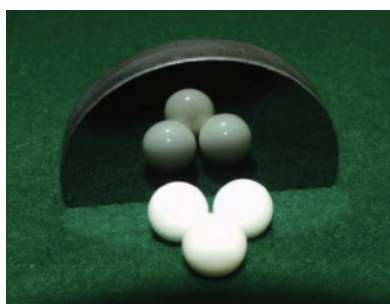
Fine Cordierite Telescope

With superior mechanical properties, Fine Cordierite is suitable for structural parts.



Fine Cordierite Optical System

Low thermal expansion mirror and structural parts are both made from one material: Fine Cordierite.



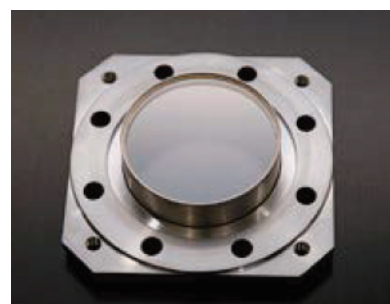
SiC Mirror and Structural Parts

Kyocera develops SiC mirrors and structural parts for use in outer space.



Li-ion Battery Seal

Assembled metallization technology for a ceramic and metal parts.



Sapphire Monitoring Window

Usable under an ultra high strength vacuum.

Scan here to visit our website and learn more about our Fine Cordierite low thermal expansion ceramic.

