



TECHNOLOGY DESCRIPTION

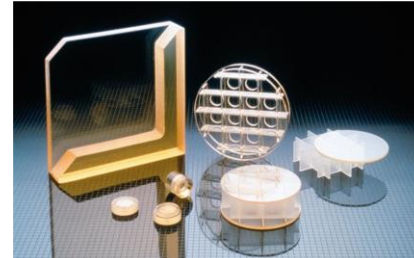
The glass ceramic is produced by thermal conversion of a semi-transparent starting material. Over 90% of the material is then in the crystalline phase with a keatite crystal structure. As a result of the conversion process, the material is thermally stable and does not change even over many heating cycles. In the long-term use, the glass-ceramic is characterised by a temperature resistance of up to 850°C. The thermal expansion accounts for $2.0 \cdot 10^{-6} \text{ K}^{-1}$ in the range 20–700°C, and for $2.5 \cdot 10^{-6} \text{ K}^{-1}$ at room temperature.



INNOVATIVE ASPECTS

The novel glass-ceramic can be characterised by the following main features:

- The material has low thermal expansion and high temperature resistance up to 850°C.
- The excellent homogeneity and internal quality of the material can be visually inspected in the semi-transparent state before conversion.
- The converted material is no longer transparent but brilliant white.
- The glass ceramic is free of pores and can be easily polished.
- The components can be produced in almost any shape (up to dimensions of several metres).



TECHNOLOGY READINESS (in space application)

TRL 6-9 (2024)

COUNTRY OF ORIGIN

Germany

LATEST UPDATE

06/2024

| TAGS | #low thermal expansion | #glass ceramic | #temperature resistance | #thermal conversion | #keatite crystal structure | #thermal stable |
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APPLICATION AREAS

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| Aviation | Health | Electrical & Electronic Engineering | Construction & Civil Engineering | Mechanical Engineering | Space technologies | Transport & Logistics |
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