



Near Zero Coefficient of Thermal Expansion Beta-Eucryptite without Microcracking

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Summary: A method to produce doped Beta-eucryptite that does not display the normal problem of microcracking

Description: Researchers at the Colorado School of Mines have developed a method of producing doped Beta-eucryptite that does not display the normal problem of microcracking. Beta-eucryptite may be used for applications in which a very low coefficient of thermal expansion (CTE) is desired such as thermal shock-resistant structures, nanolithography platforms, and optical windows. The reason that microcracks form is due to the large difference in CTE between different crystallographic directions. However, the CTE is altered by the dopant (in concentrations as low as 0.5 molar percent) from a value that is small and negative to a value that is very small and positive. The CTE alteration is thought to arise because the dopant modifies the response of the crystal structure to a temperature change.

Main Advantages of this Invention

- No microcracking in the Beta-eucryptite
- Dopant is made from readily available materials
- Slight modification to existing manufacturing procedures

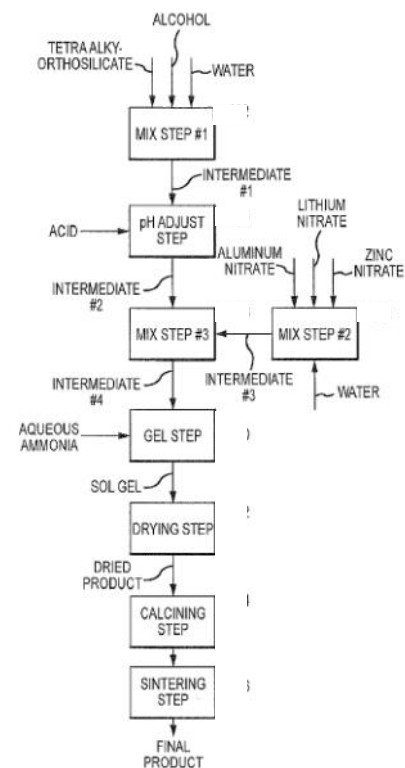
Potential Areas of Application

- Thermal shock-resistant structures
- Nanolithography platforms
- Optical windows

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Intellectual Property Status: US 7,696,116 and US 9,056,794.

Opportunity: We are seeking an exclusive or non-exclusive licensee for marketing, manufacturing, and sale of this technology.



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