

Title (en)

METHOD AND DEVICE FOR GROWING A RARE EARTH SESQUIOXIDE CRYSTAL

Title (de)

VERFAHREN UND VORRICHTUNG ZUM ZÜCHTEN EINES SELTENERD-SESQUIOXID-KRISTALLS

Title (fr)

PROCÉDÉ ET DISPOSITIF DE CROISSANCE D'UN CRISTAL DE SESQUIOXYDE DE TERRES RARES

Publication

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Application

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Priority

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Abstract (en)

[origin: WO2022028800A1] The invention relates to a method for growing a rare earth sesquioxide crystal with a cubic crystal structure from a melt. The rare earth sesquioxide crystal contains at least 5% yttrium oxide and at least 5% scandium oxide such that the liquidus temperature of the crystal lies below 2400°C. Alternatively, the rare earth sesquioxide crystal can also contain yttrium oxide and at least 5% scandium oxide, and the proportions of yttrium oxide and scandium oxide can be selected in a starting material such that the rare earth sesquioxide crystal to be grown has a liquidus temperature below 2400°C. The starting material can be melted at a temperature of 2400°C or lower in a crucible which consists of a material that has a melting temperature below 3000°C. The rare earth sesquioxide crystal can be grown from the molten starting material using a crystal growing method, for example the Czochralski method or the HEM method. A crucible-free growth of the rare earth sesquioxide crystal is also possible at a temperature of 2400°C or lower, for example using an optical zone melting process.

IPC 8 full level

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CPC (source: EP)

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