

Title (en)

REACTION-BONDED SILICON NITRIDE-BASED MATERIALS AND METHOD FOR PRODUCING THE SAME

Title (de)

REAKTIONSGEBUNDENE WERKSTOFFE AUF BASIS VON SILICIUMNITRID UND VERFAHREN ZU DEREN HERSTELLUNG

Title (fr)

MATERIAUX LIES PAR REACTION A BASE DE NITRURE DE SILICIUM ET LEUR PROCEDE DE FABRICATION

Publication

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Application

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Abstract (en)

[origin: DE19855811A1] The invention relates to reaction-bonded silicon nitride-based materials which contain silicon nitride (Si<sub>3</sub>N<sub>4</sub>), silicon carbide (SiC) and silicon oxynitride (Si<sub>2</sub>N<sub>2</sub>O) as crystalline phases, which have a phase consistency of silicon of  $\leq 1\%$  and very good mechanical properties and are very stable in oxidizing conditions at high temperatures. The invention also relates to a method for producing these materials from a mixture of silicon, silicon nitride and organic silicon compounds (preferably polysiloxanes and/or polycarbosilanes) by thermally treating said mixture in a nitrogen-containing atmosphere, so that the organic silicon compounds are pyrolyzed and nitrified in the presence of silicon. The invention also relates to the use of the materials for producing ceramic components.

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