

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

**EP 1144337 A2 20011017 (DE)**

Application

**EP 99969908 A 19991201**

Priority

- DE 19855811 A 19981203
- EP 9909341 W 19991201

Abstract (en)

[origin: DE19855811A1] The invention relates to reaction-bonded silicon nitride-based materials which contain silicon nitride ( $\text{Si}_3\text{N}_4$ ), silicon carbide ( $\text{SiC}$ ) and silicon oxynitride ( $\text{Si}_2\text{N}_2\text{O}$ ) 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.

IPC 1-7

**C04B 35/591**; **C04B 35/589**

IPC 8 full level

**C04B 35/589** (2006.01); **C04B 35/591** (2006.01); **C04B 35/593** (2006.01)

CPC (source: EP)

**C04B 35/589** (2013.01); **C04B 35/591** (2013.01); **C04B 35/5935** (2013.01)

Citation (search report)

See references of WO 0032537A2

Designated contracting state (EPC)

AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE

DOCDB simple family (publication)

**DE 19855811 A1 20000608**; AU 3148600 A 20000619; EP 1144337 A2 20011017; WO 0032537 A2 20000608; WO 0032537 A3 20001005

DOCDB simple family (application)

**DE 19855811 A 19981203**; AU 3148600 A 19991201; EP 9909341 W 19991201; EP 99969908 A 19991201