

Title (en)
OXIDE CERAMIC FIBRE REINFORCED MATERIAL AND THE USE THEREOF

Title (de)
OXIDKERAMISCHE FASERVERBUNDWERKSTOFFE UND IHRE VERWENDUNG

Title (fr)
MATERIAUX DE CERAMIQUE OXYDEE RENFORCES PAR DES FIBRES ET LEUR UTILISATION

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Application
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Abstract (en)
[origin: WO03045874A2] The invention relates to oxide ceramic fibre reinforced material which is used according to the invention in energy conversion installations. The aim of the invention is to create a fundamentally new concept which meets requirements which have been, until now, totally incompatible, i.e. improve brittle fracture behaviour in order to secure thermal shock stability and damage tolerance in the temperature range of < 1000 DEG C and provide mechanical high temperature stability to ensure the long term form stability (creep resistance) of components. This is achieved by means of oxide ceramic fibre reinforced material which contains fibres having a monocrystalline structure in certain areas and an average coherence length of $\geq 150 \mu\text{m}$, also having a mesoscopically resistant fibre/matrix interface at high temperatures along the length of the axis of the fibre. Said fibre/matrix interface can be subjected to temperatures above room temperature accompanied by propagations of microfissures exhibiting delaminations which are microscopically localised in their length along the axis of the fibre and which remain at a value smaller than the average fibre coherence length being limited to a maximum of $200 \mu\text{m}$. The invention also aims at using the inventive fibre reinforced material for thermal and/or long-term stressed components and/or installations.

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