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(54) Title (EN): A COMPOSITE AEROGEL AND PREPARATION METHOD AND APPLICATION THEREOF

(54) Title (FR): AÉROGEL COMPOSITE, PROCÉDÉ DE PRÉPARATION ET APPLICATION ASSOCIÉS

(57) Abstract:

(EN): The present invention relates to a polyurethane-silicon-based composite aerogel and preparation method and application thereof, as well as a thermal insulation material comprising the same. The composite aerogel is obtained by reacting a system comprising the following components: an isocyanate; a compound containing an isocyanate reactive group; an amino silane coupling agent; an optional silicon compound capable of forming silicon skeletons and different from the amino silane coupling agent; an organic solvent; and water; the content of silicon groups present in the composite aerogel is no more than 30 wt%, based on that the weight of the composite aerogel is 100 wt%. The composite aerogel of the present invention has advantages of low thermal conductivity and good mechanical strength.

(FR): La présente invention concerne un aérogel composite à base de polyuréthane-silicium et un procédé de préparation et une application associés, ainsi qu'un matériau d'isolation thermique le comprenant. L'aérogel composite est obtenu par réaction d'un système comprenant les composants suivants : un isocyanate ; un composé contenant un groupe réactif à l'isocyanate ; un agent de couplage aminosilane ; un composé de silicium facultatif capable de former des squelettes de silicium et différent de l'agent de couplage aminosilane ; un solvant organique ; et de l'eau ; la teneur en groupes silicium présents dans l'aérogel composite n'est pas supérieure à 30 % en poids, sur la base du fait que le poids de l'aérogel composite est de 100 % en poids. L'aérogel composite de la présente invention présente les avantages d'une faible conductivité thermique et d'une bonne résistance mécanique.

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Declarations:

Declaration made as applicant's entitlement, as at the international filing date, to apply for and be granted a patent (Rules 4.17(ii) and 51bis.1(a)(ii)), in a case where the declaration under Rule 4.17(iv) is not appropriate