

Title (en)
SINGLE-WALLED CARBON NANOTUBE-CERAMIC COMPOSITES AND METHODS OF USE

Title (de)
EINWANDIGE KOHLENSTOFFNANORÖHREN-KERAMIKVERBUNDWERKSTOFFE UND VERWENDUNGSVERFAHREN

Title (fr)
COMPOSITES EN CERAMIQUE A NANOTUBES DE CARBONE A PAROI UNIQUE, ET PROCEDES D'UTILISATION

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EP 1626862 A4 20110112 (EN)

Application
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Priority
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Abstract (en)
[origin: MXPA05011574A] Composites of single-walled carbon nanotubes (SWNTs) and a ceramic support (e.g., silica) comprising a small amount of catalytic metal, e.g., cobalt and molybdenum, are described. The particle comprising the metal and ceramic support is used as the catalyst for the production of the single-walled carbon nanotubes. The nanotube-ceramic composite thus produced can be used "as prepared" without further purification providing significant cost advantages. The nanotube-ceramic composite has also been shown to have improved properties versus those of purified carbon nanotubes in certain applications such as field emission devices. Use of precipitated and fumed silicas has resulted in nanotube-ceramic composites which may synergistically improve the properties of both the ceramic (e.g., silica) and the single-walled carbon nanotubes. Addition of these composites to polymers may improve their properties. These properties include thermal conductivity, thermal stability (tolerance to degradation), electrical conductivity, modification of crystallization kinetics, strength, elasticity modulus, fracture toughness, and other mechanical properties. Other nanotube-ceramic composites may be produced based on Al_2O_3 , MgO and ZrO_2 , for example, which are suitable for a large variety of applications.

IPC 8 full level
A47B 23/00 (2006.01); **B32B 5/16** (2006.01); **C01B 31/00** (2006.01); **C01B 31/02** (2006.01); **D01F 9/12** (2006.01); **H01J 1/02** (2006.01); **H01M 4/00** (2006.01)

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