

Title (en)

POLYMER NANOCOMPOSITE HAVING SWITCHABLE MECHANICAL PROPERTIES

Title (de)

POLYMERNANOKOMPOSIT MIT UMSCHALTbaren MECHANISCHEN EIGENSCHAFTEN

Title (fr)

NANOCOMPOSITE DE POLYMÈRE AYANT DES PROPRIÉTÉS MÉCANIQUES COMMUTABLES

Publication

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Application

EP 13758849 A 20130904

Priority

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- EP 2013068226 W 20130904
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Abstract (en)

[origin: WO2014040885A2] A polymer nanocomposite (1) having switchable mechanical properties comprises a matrix polymer (2) and a nanoparticle network, wherein the nanoparticle network is formed by a formation of a substantially three-dimensional network of nanoparticles (3) which are incorporated in the matrix polymer (2) and interact with each other and/or with the matrix polymer (2). The polymer nanocomposite (1) in a first switching state comprises a first stiffness characterized by a first tensile storage modulus (E') greater than 6 GPa, in a second switching state comprises a second stiffness characterized by a second tensile storage modulus (E') of less than 1 GPa and is switchable between the first switching state and the second switching state by exposing the polymer nanocomposite (1) to a stimulus that influences interactions among the nanoparticles (3) and/or between the nanoparticles (3) and the matrix polymer (2). In this way a polymer nanocomposite is provided which in a beneficial way may be employed within medical applications

IPC 8 full level

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CPC (source: EP)

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