New polymeric materials with exceptional mechanical and thermal properties

- SCHEDA
- APPROFONDIMENTI

Identificativo proposta:TOES20210728004 **RICHIEDI MAGGIORI INFORMAZIONI**

A Spanish university research group has developed new aromatic polyamides (aramids) models and polymeric materials reinforced with carbon nano-fillers (chemically functionalised previously with these polyamide models), constituting materials with exceptional mechanical and thermal properties. License agreements or manufacturing agreements are sought with industry, academia and R&D institutions in the sectors of water purification, energy storage, safety materials or textile.

The Spanish research group is an interdisciplinary group in the areas of knowledge of chemistry and materials. This Spanish research belongs to a medium-sized Spanish university founded in 1994, housing others 76 research groups more. The university has been very active in several European research and innovation programmes (H2020 and previous FPs, LIFE, Justice, ERASMUS+, Interreg, COST, LLP, IEE, Research Fund for Coal and Steel, D. G. for Competition Policy and Strategy, Science for Peace and Security Programme-OTAN…) with over 50 European projects; with the role of coordinator in 22 projects and over 8.4 M€ overall EU funding received. Currently, this university participates in 26 on-going projects (in 12 of them as coordinator) in 8 different EU programmes with an average of 1.7 M€ of EU funding in the last 4 years. Aramids reinforced with nano-fillers are prepared by dispersing the functionalized nano-filler in a solution of the aramid, and subsequent removal of the solvent. These polymers can be prepared in the form of a porous membrane, dense membrane, coating, fiber etc. obtaining materials with exceptional mechanical and thermal properties. Nano and microporous materials are made by adding an ionic liquid in the preparation process and its subsequent elimination in a solvent, producing high-performance materials with reduced density. These materials can be used as high-performance polymers in different applications, such as: - reinforcement in different structures - high resistance textile fibers - flexible conductive materials - energy storage elements in electrochemical applications - filtration membranes and water purification. The researcher group is interested in international cooperation under license agreement and / or manufacturing agreement, with other research organization or universities and any size companies in the field of water purification, energy storage, safety materials and textile (military, firefighters, security forces), among others.

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