

Carbon fibres from wood - DITF nomination for the "Cellulose Fibre Innovation of the Year" award

For the second time, the nova Institute for Ecology and Innovation is honouring outstanding scientific research that provides sustainable solutions for the cellulose fibre value chain as part of the "International Conference on Cellulose Fibres 2022". The DITF Denkendorf is one of the six nominees - and with the topic of "carbon fibres from wood" presents itself in the midst of a current research field that provides resource-saving alternatives to fossil-based fibres.

The conference, which will be held as a hybrid event in Cologne (Germany) from 2 to 3 February 2022, sees itself as an international forum for the development of new cellulose fibres and materials as well as their manufacturing processes. Exhibitors include leading fibre manufacturers; participants come from thirteen countries. The conference advisory board has nominated six products from among numerous submissions that are convincing due to their sustainable production processes and special application possibilities.

The Competence Centre Biopolymer Materials at DITF Denkendorf took part in the competition with the presentation of carbon fibres, which are obtained from the raw material wood in a novel and sustainable process. The HighPerCellCarbon® technology describes a patented process that has been further developed under the leadership of Dr. Frank Hermanutz: As a result, carbon fibres based on biopolymers can be produced in a sustainable and particularly environmentally friendly process.

The HighPerCell_{Carbon}® process involves the wet spinning of cellulose fibres using ionic liquids (IL) as direct solvents. The filament spinning process is the central technical part. It takes place in an environmentally friendly and closed system. The solvent (IL) is completely recycled. The cellulose fibres produced in this way are converted directly into carbon fibres in a further development step by a low-pressure stabilisation process, followed by a suitable carbonisation process. No waste gases or toxic by-products are produced during the entire process sequence.

The HighPerCell_{Carbon}® process is thus convincing in terms of sustainability in several respects: in addition to the recyclability of the solvent used, the use of wood as a raw material in particular stands for resource conservation. Petroleum-based raw materials, which are usually used in the industrial production of carbon fibres, are substituted by renewable biopolymers. Carbon fibres are used in many lightweight construction applications. Global demand has been characterised by significant growth rates for years. An environmentally friendly production process like HighPerCell_{Carbon}® is elementary for the sustainable management of an important industrial sector.

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Further information

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