

Press release

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New research project aims to bring residual materials from hemp processing into the cycle

The hemp industry has developed into a strongly growing economic sector due to new political framework conditions and innovative product fields. Against the backdrop of dwindling resources, the processing of hemp as a raw material is also focusing on the exploitation of biogenic residual and waste materials. In the new project "HanfNRG", coordinated by the DBFZ, the energetic utilisation options of residues from hemp processing are to be investigated together with the practical partner, Hanffaser Uckermark eG, for exemplary integration into the energy concept of a hemp fibre factory.

Hemp is a cheap and versatile raw material. In addition to numerous products in the areas of clothing, cosmetics, consumption and fuel, the useful plant is also a valuable resource in the construction sector. For example, hemp is used as an admixture in mortar (hemp-lime mortar), as tamping hemp for roofs and facades, as sound insulation, wall insulation and insulating plaster, as well as acoustic and linen fleece or for drywall panels. The residual and waste materials from processing that have been largely unused so far are mainly leaves and blossoms, hemp hurds and hemp dust or extraction residues from hemp oil production. In the "HempNRG" project, these are to be put to a preferably energetic use in the production plant. "The results of the project should contribute to an increased cascade use of fibre-rich biogenic residues and to strengthening value creation in rural areas, as well as supporting the development of a circular bioeconomy," says the project leader, Harald Wedwitschka from the DBFZ.

The project focuses on the insulation production process. In industrial hemp fibre production, high-quality natural fibres are obtained from dried hemp straw, which are used to produce ecological insulation materials. Hemp insulation materials are characterised by a better CO₂ balance compared to conventional insulation materials such as mineral wool or polystyrene and offer the possibility of fixing CO₂ in the insulation material over several decades. In addition to the main product, hemp fibres, the insulation manufacturing process produces about the same amount of cellulose-containing residues, only a small part of which is currently used economically and which could be either fermented, gasified or incinerated. Usable end products would be biogas/biomethane, thermal energy, process heat, synthesis gas or digestate products. "In the project, the suitability of these processes for an optimal use of the different residues is to be investigated," adds Wedwitschka.

In addition to the preliminary studies of residue storage and treatment options necessary for further utilisation, the project will survey practical partners throughout Germany on possible potentials and organise workshops on the possibilities and obstacles in the energetic utilisation of production residues. The aim of the project, which will run until September 2025 and is funded by the Federal Ministry for Economic Affairs and Climate Action, is to combine the results for a technology concept

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development and an ecological and economic evaluation.

Further information: www.dbfz.de/en/hanfnerg



Residual and waste materials from the processing of hemp fibres: Leaves, flowers, hemp hurds, dust collector waste (Photo: © DBFZ)

Smart Bioenergy – innovations for a sustainable future

The DBFZ works as a central and independent thinker in the field of energy and material use of biomass on the question of how the limited available biomass resources can contribute to the existing and future energy system with sustainability and high efficiency. As part of the research the DBFZ identifies, develops, accompanies, evaluates and demonstrates the most promising fields of application for bioenergy and the especially positively outstanding examples together with partners from research, industry and public. With the scientific work of the DBFZ, the knowledge of the possibilities and limitations of energy and integrated material use of renewable raw materials in a biobased economy as a whole should be expanded and the outstanding position of the industrial location Germany in this sector permanently secured – www.dbfz.de/en.

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