



New raw materials for environmentally friendly lubricants

Factsheet: About the „PHAt“ project

Concept

"PHAt" [fæt:] is an interdisciplinary project aiming at the investigation of new raw materials originating from natural sources that are supposed to be biodegradable for use in technical lubricants and solid film lubricants. Especially, the project focusses on the development of environmentally friendly thickeners and binders. For this purpose, the four project partners from industry and academia perform research, whether the polymers called "polyhydroxyalkanoates" (PHA for short) are suitable as thickeners or binders. Naturally, polyhydroxyalkanoates are produced by microorganisms. PHA are isolated from this source and are subsequently modified to improve the properties of the product. The so produced new thickeners or binders are expected to be temperature- and oxygen-stable in lubricants and solid film lubricants. Further, the flow properties are supposed to be optimal without impairing the biodegradability of the product. Therefore, these materials are excellently suited for applications in open environment, such as the energy industry or agriculture. The project is being funded by the Federal Ministry of Education and Research with approx. 1.25 million euros for three years.

Innovation for the environment

No matter whether tractor, wind turbine or train: no machine can run without lubrication. Unfortunately, the use of oil or grease in an open system results inevitably in their abrasion into the environment due to the operation of the mechanical parts. Consequently, it is of great importance for application areas like the open sea, in forests or on farmland to have residue-free, biodegradable lubricants available.

However, not all lubricants can be made sustainably and environmentally friendly according to the current state of art. For example, greases contain thickeners based on metal soaps, inorganic filling material, plastics or polyureas. In most cases, these materials are not biodegradable and can therefore have adverse effects on the environment. Resulting from a lack of alternatives, the usage of these conventional thickening agents is nevertheless necessary in order to achieve the properties required for the lubricant.

Taken this necessity into account, the PHAt project partners are developing nature-based thickeners as an alternative. Using new processing steps, environmentally friendly lubricants are formed, which at the end ought to be completely biodegradable. Thereby, the PHAt project partners contribute to greater independence from fossil fuels and to the protection of our environment.



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Boilerplate for press releases

The „PHAt“ project

The PHAt project aims at the investigation of new natural and preferably biodegradable raw materials for use in technical lubricants and solid film lubricants. Especially, the project focusses on the development of environmentally friendly thickeners. The research consortium comprises expertise from industry and academia. They address the question whether potentially biodegradable polymers based on nature-derived material, so called polyhydroxyalkanoates (PHA), are suitable as thickeners. Thus, they can be used as an alternative to petroleum-based products in the future. The project is being funded by the Federal Ministry of Education and Research with approx. 1.25 million euros for three years.

<https://phat-projekt.de/en>

Project partners: Fraunhofer UMSICHT, Fritzmeier Umwelttechnik GmbH & Co. KG, FUCHS SCHMIERSTOFFE GmbH in cooperation with FUCHS LUBRITECH GmbH, UnaveraChemLab GmbH

Industrielle Biotechnologie Bayern Netzwerk GmbH

The Industrielle Biotechnologie Bayern Netzwerk GmbH (IBB Netzwerk GmbH) is a network and service organization in the field of industrial biotechnology and sustainable economics. The aim is to catalyze the implementation of valuable scientific knowledge in these fields into innovative, marketable products as well as processes. As a subcontractor, IBB Netzwerk GmbH is responsible for the dissemination of the results of the project. This is achieved by a project website, updates in social media, newsletters and press releases. Furthermore, the organization of project meetings is supported. The company is located in Munich. Further information can be found at: <https://www.ibbnetzwerk-gmbh.com/en>

Press releases

Please find all press releases and further information at: <https://phat-projekt.de/press/?lang=en>

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