

GearOil-Loop

New joint research project for recycling processes of lubricants and reusable gear oils



More than 4 million tons of lubricants are produced and consumed in the EU every year. The majority of these lubricants are currently still obtained from fossil raw materials. There is enormous potential for avoiding CO₂ emissions in the recovery of high-quality base materials from waste oil. A consortium of research institutes and industrial companies is developing effective recycling technologies for corresponding material cycles.

Starke & Sohn GmbH is the only company in the re-refining and recycling industry involved in the project.

40 percent of waste oil from industrial processes can today be reprocessed into base oils. However, the technological processes for these procedures are not sophisticated enough to reclaim the valuable base materials for high-performance lubricants from waste oil and use them to produce new long-life lubricants.

With the joint research project, the consortium aims to develop a recycling process and a gear oil that is especially suitable for recyclability and contains at least 50 percent recycled base oil. The aim is to demonstrate how an industrially and economically feasible recycling process could work.

This goal is challenging, not least because a recyclable gear oil and the recycling process are being developed and tested at the same time. This dual development strand requires intensive cooperation between all partners along the development and value chain.

In addition to lubricant development and lubricant recycling, important phases include testing the application behavior of the lubricants in gearboxes and bearings as well as fundamental studies on friction and wear behavior to confirm that the developed lubricants can keep up with conventional, i.e. non-recycled gear oils in terms of performance and durability.

The sustainability of the closed loop concept will also be evaluated, taking into account raw materials, manufacturing and recycling processes and the performance of the lubricants.

With this project, the “GearOil-Loop” consortium aims to create a circular economy for gear oils in which the fossil raw materials used can be used for as long as possible and cause as little waste and CO₂ emissions as possible.

The project consortium is opening up a new field of circular economy with recyclable higher-viscosity gear oils and the necessary recycling technologies.

The project will run for three years and is publicly funded by the German Federal Ministry of Economics and Climate Protection (Bundesministerium für Wirtschaft und Klimaschutz (BMWK)).

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Further project partners:

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- ifeu - Institut für Energie- und Umweltforschung Heidelberg gGmbH, Heidelberg
- Fraunhofer-Institut für Chemische Technologie ICT, Pfinztal
- Fraunhofer-Institut für Werkstoffmechanik IWM, Freiburg
- BASF SE, Ludwigshafen, Projektpartner ohne Zuwendung
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