



INNOVATION FUND

Driving clean innovative technologies towards the market

SKFOAAS: SKF RECONDOIL AS A SERVICE

The Innovation Fund is 100% funded by the EU Emissions Trading System



Project summary

The objective of the SKFOAAS project is to install and operate a first-of-a-kind technology, stand-alone processing plant for reconditioning industrial lubricants. The project will use an innovative Double Separation Technology (DST) developed by SKF to remove all contaminants from the used oil and return it to a clean, usable and high-grade product. The new plant will be built at SKF's facility in Tudela, Spain, with a treatment capacity that will range between 1 000 and 6 000 m³ of used industrial lubricants per year, depending on oil viscosity. The solution will avoid at least 28 times as much CO₂ emissions as emitted to produce virgin oil.

COORDINATOR

SKF Española

LOCATION

Spain

SECTOR

Industrial Lubricants used for Industrial Applications

AMOUNT OF INNOVATION FUND GRANT

EUR 1 620 000

RELEVANT COSTS

EUR 2 700 000

STARTING DATE

01 April 2021

PLANNED DATE OF ENTRY INTO OPERATION

February 2022

3D model of Recond Oil Standalone Plant for industrial lubricant oil reconditioning

A first-of-a-kind technology to regenerate used oil to a high grade product

Current technologies do not allow the reuse of oil in the same application, because existing remanufacturing processes do not achieve the necessary high purification rate. The SKFOAAS project will implement a first-of-a-kind solution to this problem, using the DST treatment facility that will regenerate the used lubricants at same performance level as the new ones, over and over again. The proposed innovation is a technological breakthrough, targeting the implementation of the patented technology at significant commercial scale.

The DST combines chemical and mechanical separation processes. In the first step, a specialized chemical composition, called a booster, is added to the oil. The booster attracts dirt within the oil – all the way down to nano-sized particles – while leaving essential oil additives intact. In the second step, all the dirt is separated from the oil, leaving a clean oil that can be continually regenerated.

Closing the oil loop in industry practices

The SKFOAAS project allows recovery and reuse of oils that would have typically reached the end of their life, requiring disposal, which would typically involve waste incineration. The DST allows almost all impurities until nano size particles within the lubricants in use to be removed. This end product has a purity of more than 99%.

Implementation of the project will lower the need for production of virgin fossil-based oil, avoiding the consumption of fossil fuels and the emissions associated with the production, transportation and recycling of oil. The new plant expects to treat up to 2,5 million litres of used oil annually, avoiding more than 15 000 tCO₂e net absolute greenhouse gas (GHG) emissions (to produce the same amount of product with conventional technologies) during the project's first ten years of operation.

This innovation is aligned with the EU's industrial strategy to introduce circularity in new areas and sectors of the economy, in order to reduce consumption of raw materials, waste generation and GHG emissions. By keeping more oil within the cycle, this technology offers something new to the world: the possibility of a future where oil demand decreases and the opportunity to achieve high levels of reuse of oil in industry practices. Beside the environmental advantages, the solution can bring credible economic advantages derived from the low cost of the regenerated oil in comparison to virgin oil.

A technology which is applicable almost anywhere oil is used, both in Europe and globally

At project and regional level, the proposed technology can be transferred either by increasing the capacity of the plant or through further deployment within the region. The solution could, for example, be deployed near large industrial hubs and for clients operating in different regional industries, such as chemicals, petrochemicals, refineries and aeronautics. The technology has significant potential for replicability in the lubricant oil sector, contributing to environmental advantages and emissions reductions.

Beyond its sector, the SKFOAAS solution can be used across the economy, in almost all the manufacturing industries, such as aerospace, marine, mining, mineral processing, cement production, and cars and trucks manufacturing, in Europe and worldwide.