



European  
Commission



# INNOVATION FUND

Deployment of net-zero and innovative technologies

## SC-HOOP: Sustainable Chemical recycling through HOOP technology

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

### | Project Factsheet

Sustainable Chemical recycling through HOOP technology

The SC-HOOP® (Sustainable Chemical recycling through HOOP® technology) project is the realisation of a pilot plant with a feedstock capacity of 6 000 tonnes/year. The plant is based on a Versalis proprietary technology named HOOP®, for the valorisation of plastic waste that is currently not recyclable. This will be used to produce a recycled naphtha which can replace steam cracker feedstocks, to produce new polymers suitable for all applications with a relative greenhouse gas emission avoidance of 81% compared to the reference scenario.

From all of the collected plastic waste in Europe, only about a third is recycled. This is mainly because plastic products are made up of heterogeneous materials with complex structures.

#### COORDINATOR

VERSALIS SPA

#### LOCATION

Italy

#### CATEGORY

Energy intensive industries (EII)

#### SECTOR

Chemicals

#### AMOUNT OF INNOVATION FUND GRANT

EUR 16,193,000

#### EXPECTED GHG EMISSIONS AVOIDANCE

139,838 tonnes CO2 equivalent

#### STARTING DATE

01 July, 2023

#### ENTRY INTO OPERATION DATE

31 March, 2026

#### FINANCIAL CLOSE DATE

31 July, 2024

These are difficult to re-process whilst maintaining the quality standards, they can hinder mechanical recycling and they can cause down-cycling. The SC-HOOP® project is complementary to mechanical recycling and drastically improves the circularity of plastic products, closing the loop of plastics lifecycle. The HOOP® technology presents several advantages with respect to traditional pyrolysis, such as: higher yield, greater feedstock flexibility and high quality of r-naphtha suitable to be directly fed to steam crackers. The pilot plant will produce 4 860 tonnes/year of recycled naphtha, converting 6 000 tons/year of mixed plastic waste, with absolute greenhouse gas emissions avoidance of 139 838 tonnes of CO2 equivalent over the first ten years of operation compared to equivalent virgin naphtha production from oil refinery.

Chemical recycling and - more specifically the SC-HOOP® project - is pivotal in supporting the implementation and development of circular

economy. The SC-HOOP® project development is strategic to achieve the challenging EU recycling targets and full circularity of plastics.

The HOOP® technology can be applied “as is” to any location where mixed plastic waste is available. In future industrial scale-up, proximity with a steam-cracking plant makes the whole process economically and environmentally more convenient. The proximity simplifies the logistics, but also crucially enhances energy and material recovery.

The HOOP® technology is designed to build its innovative section in a modular way, such as the reaction section, while other sections can be easily scaled-up. The pilot plant construction and operation will allow the consolidation of data for scale up and the plant could be replicated in other Versalis site units.

## | Participants

VERSALIS SPA

Italy

ENI SPA

Italy