

AFTERLIFE

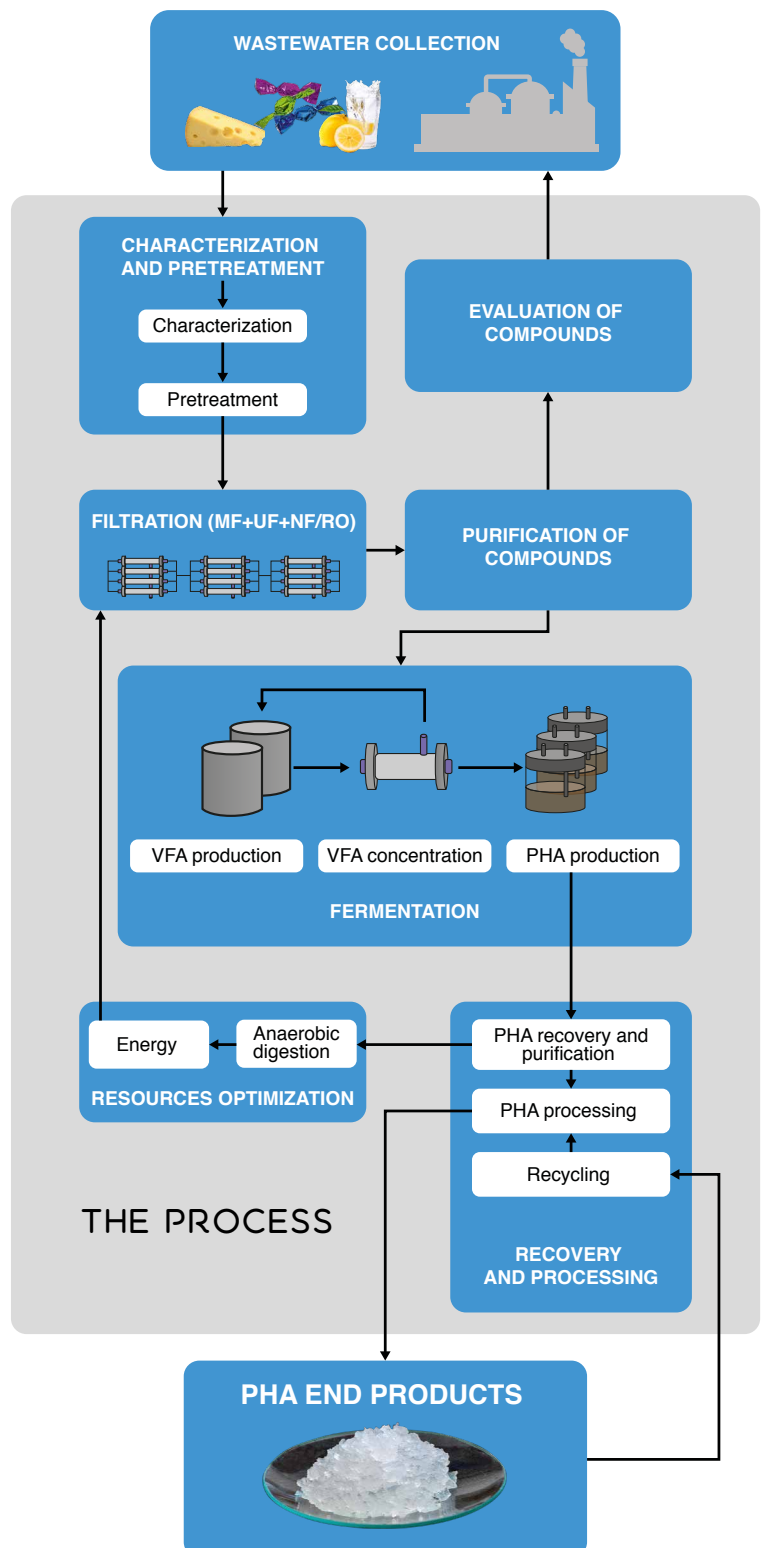
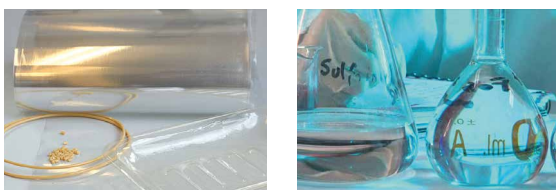
ADVANCED FILTRATION TECHNOLOGIES FOR THE RECOVERY AND LATER CONVERSION OF RELEVANT FRACTIONS FROM WASTEWATER



The **AFTERLIFE** project proposes a flexible, cost- and resource-efficient process for recovering and valorising the relevant fractions from wastewater. It will represent an advance on existing approaches to wastewater treatment, which rely on physic-chemical and biological methods.

The **AFTERLIFE** process will separate out the different components of value using a series of membrane filtration units that will separate all the solids in the wastewater. These will then be treated to obtain high-pure extracts and metabolites or, alternatively, to be converted into value-added biopolymers; polyhydroxyalkanoates (PHAs).

In addition to the value extracted from the solids, the remaining outflow of the water will be ultrapure and ready for re-use.



OBJECTIVES

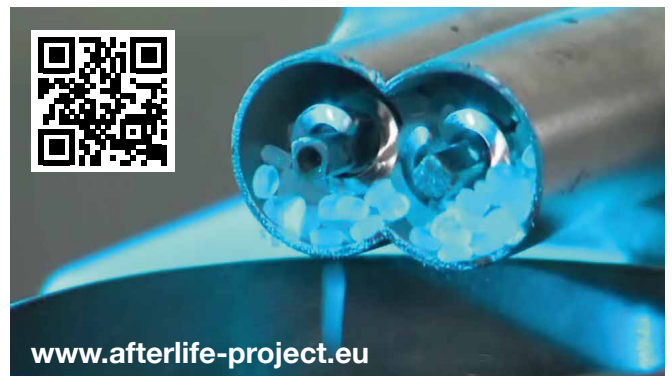
The overarching objective of the AFTERLIFE project is to demonstrate, at TRL-5, an innovative wastewater treatment that simultaneously recovers compounds of interest while converting the remaining organic matter into a high-volume added value biopolymer. Specifically, it sets out to:

- Develop the filtration system for recovering suspended and soluble solids in wastewater by using membrane filtration units.
- Develop the process for recovering and purifying valuable compounds in the concentrates extracted in the filtration step.
- Develop an anaerobic/aerobic process for converting the low value-added organic matter into PHAs.
- Optimise the resources in the process, following a circular economy approach
- Design and optimise the AFTERLIFE process from a holistic perspective following a Multidisciplinary Design Optimisation (MDO) approach
- Conduct a demonstration, at a pilot scale, using real industrial wastewater to generate the end products
- Prove the economic and industrial feasibility for AFTERLIFE process along with a comprehensive Lifecycle Analysis (LCA) and cost assessment.
- Promote exploitation of the project's results and expand its impact.

EXPECTED IMPACTS:

The AFTERLIFE project aims to deliver a substantial positive impact in the progress of wastewater treatment technologies and relevant fractions recovery. Specifically, it will:

- Validate that AFTERLIFE provides recovery rates that are comparable to, or better than, those of competing technologies.
- Successfully recycle or reuse at least 10 percent, in dry weight, of the suspended solid fractions.
- Create a new cross-sectorial interconnection in bio-based economy clusters.
- Create cooperation projects through cross-industry clusters
- Set the foundations for at least one new bio-based value chain and one new bio-based material.
- Lead to 30 new consumer products by 2020.
- Attract broad participation from SMES.



AFTERLIFE is a European collaborative project framed on the Bio-based Industries (BBI) call. 15 partners from 7 European countries (Belgium, Germany, Finland, Croatia, Italy, Spain and Portugal) participate in this European 4 million € project.

