

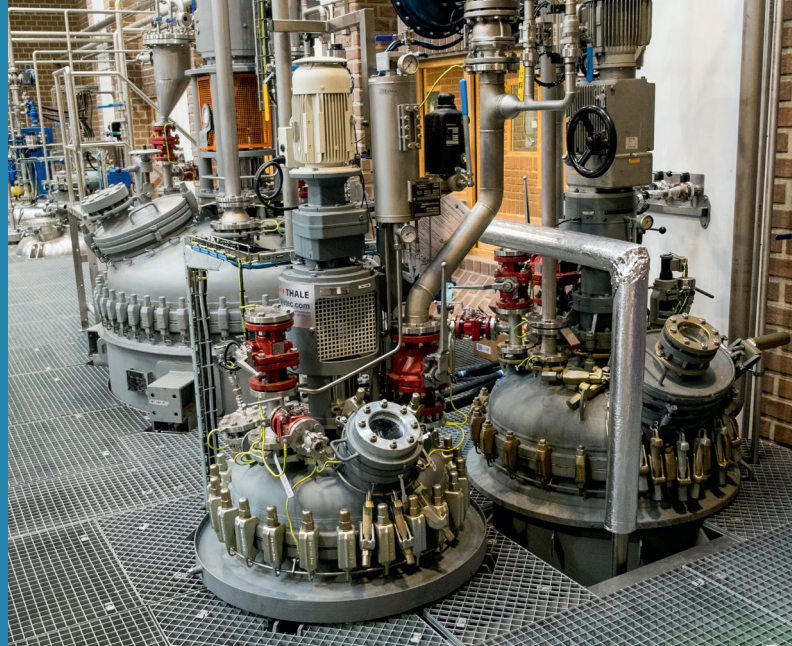
REnewable SOLVEnts with high performance in applications and improved toxicity profiles

Three-year project looking for alternatives to substances categorised as very high concern.

ReSolve, a €4.3 million EU project focused on replacing traditional, fossil-based solvents, with safer bio-based ones, was officially launched on 15th June 2017. Led by the University of York, the project consortium is comprised of 11 partners from 5 countries and is due to finish in May 2020.

The project is set to demonstrate production of novel alternatives to replace the hazardous conventional solvents toluene and *N*-methyl-2-pyrrolidone (NMP), create an additional pipeline of bio-based solvents, establish a toxicological safety testing strategy and evaluate possible production processes of the most advanced bio-based solvent candidates, benchmarked against these conventional solvents.

The project runs under the umbrella of the Bio-based Industries Joint Undertaking (BBI-JU), which is a public-private partnership between the European Commission and the Bio-based Industries Consortium (BIC). ReSolve answers the call for “Bio-based alternatives to improve protection of human health and the environment.”



ReSolve
SAFE AND EFFECTIVE BIO-BASED SOLVENTS

REnewable SOLVEnts with high performance in applications and improved toxicity profiles



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www.ReSolve-bbi.eu





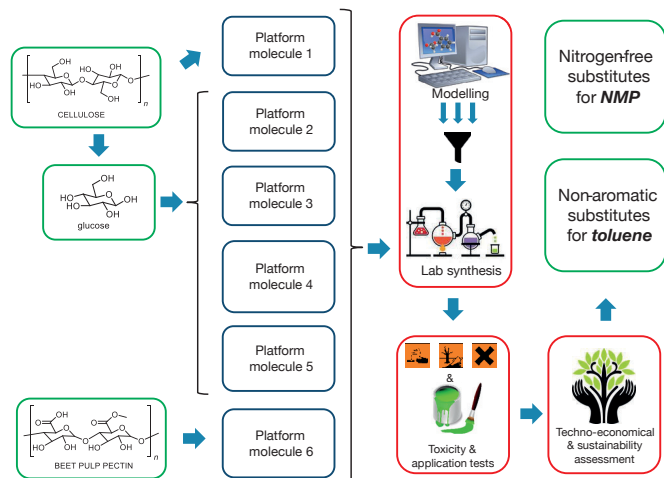
Project Overview

ReSolve sets out to replace two hazardous solvents – toluene and NMP (*N*-methyl-2-pyrrolidone) – with safer alternatives derived from non-food carbohydrates. These new solvents will omit parts of the molecular structure that cause toxicity. The new, safer solvents will have a wide range of applications; project ReSolve will also demonstrate their sustainability, low health impact and high application performance.

These bio-based solvents will allow Europe's solvent industry to avoid the negative economic impact of the regulatory restrictions on the use of hazardous solvents. The impact of this research is relevant to thousands of downstream businesses and consumers, whilst reducing the health impact on millions of European citizens that are routinely exposed to solvents as part of their job.

In addition, ReSolve intends to create a pipeline of new solvent candidates offering substitution options for other hazardous solvents in the near future.

ReSolve: concept



Objectives:

The overall objective of ReSolve is to replace common, fossil-derived solvents that the European REACH regulation has identified as substances of very high concern (SVHC) or has already put restrictions in place. The specific objectives will be to:

- Produce novel carbohydrate-based solvents to replace the existing toxic solvents NMP and toluene. The acceptance of these bio-based substitutes will be based on their application performance and toxicity, which should be at least equal to the benchmark solvent with toxicity below European regulatory thresholds.
- Create an additional pipeline of non-toxic bio-based solvents, evaluate their potential in pertinent applications and ensure they pose minimal risk to human health.
- Establish an innovative, cost-effective integrated testing strategy for rapidly evaluating the toxicology of candidate solvents.
- Production of at least two novel carbohydrate-derived solvents on a scale that is suitable for application testing in a relevant industrial setting.

Expected impacts:

Project ReSolve expects to have the following impacts. It will:

- Allow at least two hazardous or toxic substances used in consumer products and industrial settings to be substituted with safer, bio-based alternatives.
- Create employment in the sector, by replacing toluene and NMP with bio-based solvents manufactured in the EU.
- Improve public health and safety by reducing the use of the toxic and environmentally damaging substances that present hazards to people and sensitive ecosystems.
- Deliver reduced costs and higher market potential. This will reduce use of toxic and environmentally damaging substances.



Consortium of ReSolve

The project comprises eleven partners from five countries: Belgium, Germany, Norway, The Netherlands and The United Kingdom. The research consortium is being managed by the University of York.