

VAMOS



Value added materials from organic waste sugars

<https://vamosbbi.com/>

Summary

Sugar is one of the most essential raw materials for industrial bioprocessing supply chains. Currently, the sector relies on first-generation sugar from agricultural biomass such as sugar cane, sugar beet and other starch-containing crops. However, this means the supply chain relies on crops that often have a high environmental and social impact and are subject to fluctuations in cost and supply.

Type of Action:
Innovation Action -
Demonstration

Value Chain: VC1 –
lignocellulose

Start date: 01 September
2019

End date: 31 August 2022
BBI JU contribution: €
6,984,813

Second-generation lignocellulosic sugars can overcome some of these issues. However, these present their own challenges, such as high dilution and low purity, that can push up production costs. In addition, the sugars derived are usually a complex mix that does not offer direct substitution with first-generation sugars. Addressing these issues would establish a fresh, sustainable and renewable resource for the industrial bioprocessing sector.

Second-generation sugars are easily available from sources such as municipal solid waste (MSW), composed of either mixed domestic residual waste or waste rejected from sorting and recycling processes and often contains significant quantities of paper/card (lignocellulosic) based materials.

The VAMOS project aims to showcase, at demonstration scale, the feasibility of producing and valorising these second-generation sugars. The sugar will be utilised in the production of three bio-based products for non-food contact applications, delivering competitive, sustainable, affordable and high-performance bio-based materials from these low-value residual waste sugars. In so doing, the VAMOS project will revolutionise the sector by creating a new value chain.

Objectives

As a demonstration project, VAMOS seeks to:

- Reduce the levels of waste being sent to landfill.
- Reduce environmental plastic pollution levels.
- Reduce the amount of suitable food producing land diverted to feedstock production.
- Increase sustainability in the construction sector.
- Help reduce the current high price of bio-

Expected impacts

The VAMOS project seeks to demonstrate the potential for making the following impacts. It will:

- Create a new cross-sectoral interconnection by converting the organic fraction of waste normally destined for landfill into bioproducts. These will find applications in the Fast-Moving Consumer Goods sector (FMCG), construction, textile and furnishings industries.
- Define the basis for three new bio-based value chains using second generation

sugars. This will allow the feasibility and potential of these chains to be assessed for the technological, environmental and economic challenges.

- Create nine new demonstration products based on MSW sugar or MSW lignin. These will be created in cooperation with potential partners to assess their properties against existing products and their potential financial viability given the superior predictability of MSW feedstock prices.
- Set the basis for establishing financial opportunities in recovering lignocellulose from MSW. It will also increase the value of the feedstock, which is currently low.

Project coordination

- Oakdene Hollins Ltd (United Kingdom)
- Fiberight Ltd (United Kingdom)
- Celignis Ltd (Ireland)
- EW Biotech GmbH (Germany)
- AEP Polymers SRL (Italy)
- Transfercenter für Kunststofftechnik GmbH (Austria)
- IFEU - Institut für Energie und Umweltforschung Heidelberg GmbH (Germany)
- Aberystwyth University Royal Charter (United Kingdom)
- Imperial College Of Science Technology And Medicine (United Kingdom)
- Novozymes A/S (Denmark)
- Knauf Insulation Ltd (United Kingdom)

Organisation name: Oakdene Hollins Ltd (United Kingdom)