

**Biocircularities Trilogy – Ep. 2:  
Identifying the most promising  
biocircular technological options,  
the Biocircularities Webtool  
in action**



# BIO CIRCULAR CITIES

## Tech4Biowaste Database

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Bio-based Industries  
Consortium



Horizon 2020  
European Union Funding  
for Research & Innovation



This project has received funding from the Bio-based Industries Joint Undertaking (JU) under the European Union's Horizon 2020 research and innovation programme under grant agreement No 101023516. The JU receives support from the European Union's Horizon 2020 research and innovation programme and the Bio-based Industries Consortium.

# BTG – Biomass Technology Group

- SME, private company (since 1987), 25+ staff
- The entire bioeconomy value chain
- Two business units
  - Consultancy & Project development
  - Research & Technology development
- BTG consultancy has a team of enthusiastic and experienced consultants with a broad expertise on biomass, bioenergy, biofuels, bio-based products and chemicals.
- BTG bridges academia and market actors and has hands-on in-house experience commercialising bio-based innovations



# BTG – Examples of consultancy services

## Project management

- Due diligence studies
- Technical feasibility and optimisation
- Financial feasibility and financing
- Technology realisation

## Policy support and governance

- Market studies and availability studies
- Insights into drivers and barriers
- Public procurement
- Consumer perception
- Education and capacity building

## Environmental assessments and LCAs

- Exploration
- Comparison
- Screening LCA
- Full LCA

Tailored approach, no 'off the shelf' solutions



# BTG – Examples of relevant reports and studies



And other support and studies for organisations and companies developing bio-based solutions (confidential studies)

# Examples of relevant EU projects



# Tech4Biowaste

A dynamic database of relevant technologies of biowaste utilisation



Bio Base Europa  
Pilot Plant



# Aim



# Aim

**Complete overview of existing and emerging technologies with a Technology Readiness Level (TRL) 4 and higher for biowaste utilisation and valorisation**





# Aim



## Enable technology providers to:

- Show their technology
- Find the right feedstock for their technology
- Find new business partners



## Enable technology searchers to:

- Search for technologies and technology suppliers
- Find the right application for their feedstock
- Make new contacts

# Strategy and design



# Strategy and design

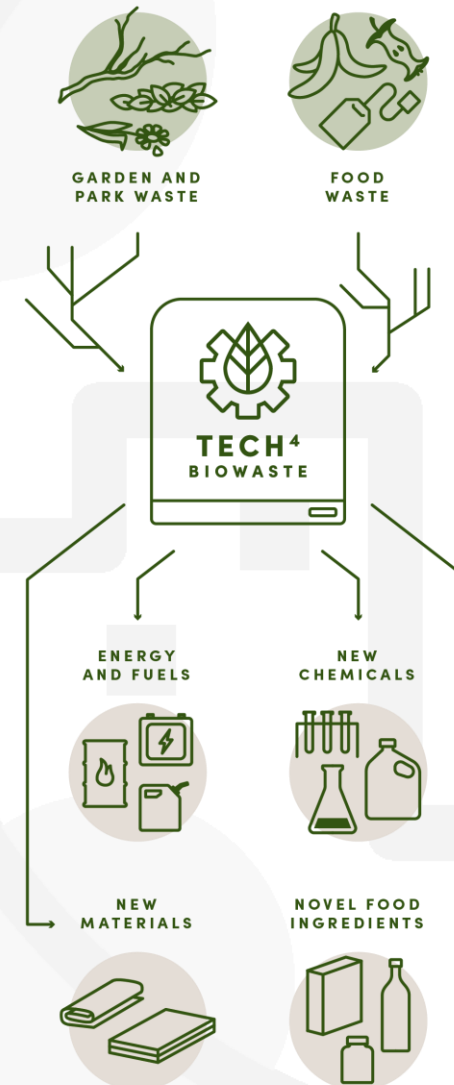


- Explore and quantify the needs of actors in the bio-based sector
- Adopt a hybrid model to populate, update and maintain the database
- Produce a business model and governance structure for long-term operation

# Strategy




## Focus on Biowaste

- Available across EU in large volumes
- High on political & research agenda



# Design


## Database structure

Feedstocks	Technologies	Products
		
Food waste Garden and park waste	Pre-processing Conversion Post-processing	Chemicals Energy and fuels Food ingredients Materials

### Database content

- Short explanation
- Link feedstock-technology-products
- Link pre/post-processing - technology

## Technology providers

Pulping provider			
General information			
Company:	Bloom Biorenewables Ltd		
Country:	Switzerland		
Contact:	info@bloombiorenewables.com		
Webpage:	<a href="https://www.bloombiorenewables.com/">https://www.bloombiorenewables.com/</a>		
Technology and process details			
Technology name:	Aldehyde-assisted fractionation (AAF)	Technology category:	Conversion (Other processes and technologies)
TRL:	5-6	Capacity:	5 kg·h <sup>-1</sup>
Pressure:	1 bar	Reagent:	Organic solvent, acid, aldehyde
Temperature:	80 - 100 °C	Other:	
Feedstock and product details			
Feedstock:	Lignocellulosic biomass	Product:	Ingredients for fine chemicals, bulk chemicals and fuels, with a focus on fragrances, cosmetics, additives, bioplastics, resins.

### With short texts

# Design

Decision support tool (DST)

Product	Legend									
	<ul style="list-style-type: none"> <li>Biochemical processes and technologies</li> <li>Chemical processes and technologies</li> <li>Material processes and technologies</li> <li>Thermochemical processes and technologies</li> <li>Other processes and technologies</li> </ul>									
	Food waste					Garden and park waste				
	2G sugar	Food related wastestreams	Industrial side streams - Glycerol	Industrial side streams - Paper & cardboard	Industrial side streams - Plastic waste	Industrial side streams - Process waters	Industrial side streams - Oils & derivatives	Bark	Cellulose	Lignin
Chemicals - Agriculture	•••	••••••••	••	••••		••	••	••••••	•	••
Chemicals - Bulk chemicals	••••	••••••••	•••	•••	••••••	••	•••	••••••	•••	•••
Chemicals - Enzymes	••	•••	•	••	•	••	••	••	••	••
Chemicals - Personal & home care	•••	•••	••	••	•	•	••	••	••	••
Chemicals - Polymer monomers & building blocks	•••	•••	••	•••	••••••					
Chemicals - Specialty chemicals	•••	••••	•••	••••	••••					
Energy & Fuels - Biogas	•••	•••	••	•••	•					
Energy & fuels - Fuel additives	••	•••	••	••	••					
Energy & fuels - Heat & electricity		•••		•						••
Energy & fuels - Liquid fuels	•••	••••••	•	••••	•••					•••
Food ingredients	••	••••	•••	••	•					•
Materials	••••	••••	•	•••	•••					•••

**Pulping provider**

General information			
Company:	Bloom Biorenewables Ltd		
Country:	Switzerland		
Contact:	info@bloombiorenewables.com		
Webpage:	https://www.bloombiorenewables.com/		

BLOOM

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Technology providers [ WYSIWYG edit | Wikitext edit ]

Company name	Country	Technology subcategory
Amphi-Star	Belgium	-
Avecom	Belgium	-
Blucon Biotech GmbH	Germany	-
Cetaqua Galicia	Spain	-
Holiferm	United Kingdom	-
Nature's Principles	The Netherlands	-
Nosh.bio	Germany	-
NovelYeast bv	Belgium	-
PERSEO Biotechnology SL	Spain	-
Sophie's BioNutrients	The Netherlands	-

Technology name	TRL	Capacity	Reagent	Other	Feedstock	Product
Fermentation intensification and in-line separation	1-9	-				•
Biorefinery	5-6	-				•
Sustainable functional ingredients for the food industry	5	-				•
Yeast fermentation to biofuels and bio-based chemicals. Protein production	3-5	-				•
PERSEO Bioethanol @	7-8	1000				•
Fermentation of microalgae	6	-				•

# From here onwards



# Expected impacts



**Increase the efficiency of actors in the bio-based sector in finding and selecting the best technologies to improve and scale up their bio-based concepts.**



**Increase business opportunities for actors in the bio-based sector through interaction with others when using the database.**



**Improve bio-based processes and services by finding and applying the best technologies**

**In medium-long term, T4B will also contribute to: Economic, Political and Environmental impact**



# Keep in touch!

## Connect with Tech4Biowaste

### Email

[info@tech4biowaste.eu](mailto:info@tech4biowaste.eu)

### Web

[www.tech4biowaste.eu](http://www.tech4biowaste.eu)



## Connect with BTG

### Email

[spekrijse@btgworld.com](mailto:spekrijse@btgworld.com)

### Web

[www.btgworld.com](http://www.btgworld.com)



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# BIO CIRCULAR CITIES

Exploring the circular  
bioeconomy potential  
in cities

**Thank you**  
[www.biocircarcities.eu](http://www.biocircarcities.eu) | [@biorcirc\\_cities](https://twitter.com/biorcirc_cities)