Open-BIO
Opening bio-based markets via standards, labelling and procurement

Work package 2
Dissemination

Deliverable N° 2.6:
Final stakeholder event report

Public

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Prepared by:

NEN

Okke-Jaap Prent / Indra te Ronde / Ortwin Costenoble

Vlinderweg 6, 2623 AX, Delft, The Netherlands
Tel.: +31 15 26 90 326
Email: energy@nen.nl
Partner website: www.nen.nl
Project website: www.open-bio.eu

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1 Summary

The EU funded research project "Open-Bio", Opening markets for bio-based products: Standardisation, labelling and procurement, develops insight to the overall sustainability and applicability of bio-based products via tailored-to-demand product information (in a database) and a recognisable label. By means of inter-laboratory testing and socio-economic investigations, the desirability of certain labels and information for consumers and industry, regarding bio-based products, will be determined. There are specific standards and EU Directives that cover some aspects, but the goal is to investigate and develop concepts that are generally applicable to bio-based products. A large part of the project covers research and feasibility demonstration on bio-based content determination techniques, functionality testing and end-of-life intractability. The latter is both active, via composting, recycling or gasification and passive, as biodegradation in soil, water and marine environments. The results thereof will be incorporated in the development of clear, concise and socially acceptable labels, certification and product information in a broader sense.

To support the dissemination of all the results a series of workshops was oganized. This deliverable reports on the Final Advisory Workshop, which took place on 18 October 2016 in Brussels. It was explicitly focussed on European policy mahers and European associations, hence the location. With a total of 43 attendees almost all seats were occupied.

The most significant results of the Open-BIO project were presented and three discussion sessions entertained Some additional leads for further research or for direction of policy and standards'advices were concluded.

2 Introduction

This document serves the following purposes:

- dissemination and information about the organization and the content of the final advisory workshop held on 18 October 2016 at the CEN facilities in Brussel.

The goal of the final advisory workshop was:

- disseminating the final results of the project to a broad audience. During the meeting a total of 43 people from 8 countries attended the workshop.

9 presentations were held by the consortium partners, which were:

1. Overall introduction;
2. Bio-based content methods and sustainability impacts;
3. Functionality ;
4. Biodegradables in soil and freshwater;
5. Marine biodegradables;
6. Managed end of life;
7. Labelling;
8. Public information list;
9. Social acceptance .

These presentations are publically available via the Open-bio website.

3 Organization

3.1 Preparations

Prior to the open-bio final advisory workshop the preparations required for workshop were planned in collaboration with Nova Institute. Nova managed the website for the subscriptions and the overall organisation was handled by NEN.
The organizational process took 3 steps:

1. during the first step the organizational aspects and facilitation aspects were arranged. This included a location at CEN setting up the website for subscription and the save the date notice;
2. the actual invitations were sent during the second step and also the subscriptions for the workshop were managed;
3. The third step of the evaluation included the actual workshop and reporting the findings.

3.2 Agenda

The publically available agenda for the meeting was set up as shown below.

10:30	10:35	Welcome Goal of the workshop	Ortwin Costenoble, NEN
10:35	10:45	Project introduction and link to standardization	Ortwin Costenoble, NEN
10:45	11:05	Bio-based content methods and sustainability impacts	Jaap Hooijmans, ECN
11:05	11:25	Product functionality testing – where things can be improved	Karin Molenveld, Wageningen UR
11:25	11:40	*Questions, discussion about future research, policy impacts and future industry development*	*All*
11:40	11:50	Biodegradation testing of bio-based products in soil and fresh water – outlook to harmonized testing	Demetres Briassoulis, AUA
11:50	12:00	Towards marine biodegradation standard tests - what are the next steps?	Miriam Weber, HYDRA
12:00	12:20	Industrial/home compostability, gasification and recyclability of products – what is possible?	Nike Mortier, OWS
12:20	12:35	*Questions, discussion about future research, policy impacts and future industry development*	*All*
12:35	13:10	*Lunch break (lunch provided)*	
13:10	13:25	Social acceptance – what procurers and consumers want to know and NGO's want to preserve	Marieke Meeusen, Wageningen UR

13:25	13:45	Labelling of bio-based products – how feasible is a European-wide label?	Lara Dammer, nova-Institut
13:45	14:05	Product information list – lessons learned from informing bio-based products' users	Martin Behrens, FNR
14:05	14:20	*Questions, discussion about future research, policy impacts and future industry development*	*All*
14:20	14:30	Open-BIO and its links to (future) EU policies	Tomasz Calikowski, EC - DG Research & Innovation
14:30		Closure of the workshop	

After the public part of the meeting the research group of the Open-bio project evaluated the findings in a closed meeting.

4 List of participants

Subscribed to the workshops were a total of 49 individuals from which a total of 43 were present at the meeting and 6 no shows. Initially the expected audience was set at a total of 50 people. The list of participants is given below.

	Firstname	Name	Company	Country
1)	Nella	Baerents	Arizona Chemical	Netherlands
2)	Martin	Behrens	Fachagentur Nachwachsende Rohstoffe	Germany
3)	Thorsten	Bergmann	Evonik Industries	Belgium
4)	Eynat	Biedermann	BASF	Germany
5)	Marjolaine	Blondeau	ECOS (European environmental NGO)	Belgium
6)	Christiaan	Bolck	Wageningen Food & Biobased Research	Netherlands
7)	Demetrios	Briassoulis	Agricultural university of Athens	Greece
8)	Tomasz	Calikowski	EC RTD	Belgium
9)	Ortwin	Costenoble	NEN	Netherlands
10)	Lara	Dammer	nova-Institut	Germany
11)	Bruno	De Wilde	OWS	Belgium
12)	Carla	Dekker	Ministry of Economic Affairs - PIANOo	Netherlands
13)	Clarisse	Doucet	TOTAL Fluides	France
14)	Kevin	Duncan	Croda	United Kingdom
15)	Brigitte-Rose	Emelie	DOW Industrial Solutions	Germany
16)	Edith	Engelen-Smeets	RVO - Netherlands Enterprise Agency	Netherlands
17)	Sara	Gobbi	ASTM International	Belgium

	Firstname	Name	Company	Country
18)	Florian	Graichen	Scion	New Zealand
19)	Jonathan	Guevorts	ValBiom	Belgium
20)	Garbine	Guiu Etxeberria	European Commission	Belgium
21)	Anna	Hatfield	Dow Europe	Switzerland
22)	Jaap	Hooijmans	ECN	Netherlands
23)	Miia	Itänen	ECRN	Belgium
24)	Patrick	Jame	Institut des Sciences Analytiques CNRS	France
25)	Hilda	Juhasz	European Commission	Belgium
26)	Luana	Ladu	TU Berlin	Germany
27)	Christian	Lott	HYDRA Institute for Marine Sciences	Germany
28)	Marieke	Meeusen	LEI - Wageningen UR	Netherlands
29)	philippe	Michon	alternative plastics eranova	France
30)	antonis	Mistroitis	Agricultural University of Athens	Greece
31)	Karin	Molenveld	Wageningen UR	Netherlands
32)	Nike	Mortier	OWS	Belgium
33)	Johnny	Pallot	ISA	France
34)	Asta	Partanen	nova-Institut	Germany
35)	Swinda	Pfau	BTG Biomass Technology Group	Netherlands
36)	Lydia	Pforte	ISCC System	Germany
37)	Michele	Pognani	Novamont	Italy
38)	Okke-Jaap	Prent	NEN	Germany
39)	Katharina	Schlegel	BASF	Germany
40)	James	Sherwood	University of York	United Kingdom
41)	Mareike	Thielen	Technische Universität Berlin	Germany
42)	Maurizio	Tosin	Novamont	Italy
43)	Maarten	van der Zee	Wageningen UR	Netherlands
44)	Miriam	van Eekert	LeAF	Netherlands
45)	Erwin	Vink	NatureWorks	Netherlands
46)	Ineke	Vlot	SMK	Netherlands
47)	Hasso	von Pogrell	European Bioplastics	Germany
48)	John	Vos	BTG Biomass Technology Group	Netherlands
49)	Miriam	Weber	HYDRA Institute for Marine Sciences	Germany

5 Results per work package

5.1 Presentation and findings

During the public session a presentation of each work package was given. In these presentation each of the work packages gave a quick summary of the used method and the findings achieved during the research. All presentations are made available on the site of open-bio and a quick summary is given in the sub-paragrpahs 5.1.1 up to 5.1.7.
Link: http://www.biobasedeconomy.eu/research/open-bio/publications/

5.1.1 Work package 3: Bio-based content methods and sustainability impacts

The work in work package 3 Bio-based content methods and sustainability impacts focused on the bio-based content methods, testing and evaluation, renewability of bio-based products, the status of certification for sustainable bio-based products and the use of stable isotope analysis. The main conclusions of work package 3 can be split in two main findings. The first is the contribution to the standards through collaborations with CEN/TC 411; *FprEN 16640, EN 16785-1 and prEN 16785-2* . The second is the establishment of the blueprints on the alternative bio-based product analysis, future advancements into circular economy standards and improvements to sustainability schemes.

5.1.2 Work package 4: Functionality

The research in work package 4 Functionality focused on the evaluation of the functionality of certain bio-based products. During the presentation the research on food packaging & mulch films, disposable cups & plates and solvents was explained in more detail.
The main conclusions and results of work package 4 were described in the dedicated standardization reports on bio-based product testing (restricted to CEN and ISO groups) and the overview report on functionality testing (publicly available). The public report is available on the Open-bio website.

5.1.3 Work package 5: Biodegradables

Work package 5 Biodegradables was presented in two presentations: *"Biodegradables in soil and freshwater"* and *"Marine biodegradables"*.

5.1.3.1 Biodegradables in soil and freshwater

The research on the biodegradables in soil and freshwater focused on the development of testing methods for the biodegradation of bio-based liquids and solids in freshwater & soil. The revision of biodegradable test methods, the conclusion that polyesteric materials PBSe and mainly PBSeT exhibit difficult to asses biodegradation behaviour, were the main results. The focus of future research should, according to the researcher, be investigating the biodegradable mechanisms of materials and products exhibiting unpredictable or difficult to measure biodegradation behaviour in the soil and freshwater. If future research will focus on thes topic the most contribution to the understanding of the behaviour of biodegradables in soil and freshwater could be achieved.

5.1.3.2 Marine biodegradables

The work package 5 Marine biodegradables research focused on testing the biodegradability of materials in the marine environment. Within the marine environment the research focused on three areas; sandy beach, sandy seafloor and a watercollum. For each of the three shallow water conditons a toolset for the analyses of marine biodegradation of biodegradables has been developed and tested. With promising results the three toolsets are now ready for the standardisation process.

Research into more biospheres in the marine ecosystems would be the best step forwarded according to the research group. Focus should mainly be on the deep ocean, no-oxygen mud and climate zone. Designing such sets of toolsis has been anabled with the knowledge gained during the research.

5.1.4 Work package 6: Managed end of life

Work package 6 Managed end of life focused on the end of life options for biodegradable products. The work package had as main focus; mechanical recycling, organic recycling and chemical recycling.

For the mechanical recycling the research investigated if bio-based products can be recycled mechanically and if they pose a threat to mechanical recycling of fossilbased products. During the research they found that bio-based materials are hardly found in recycled plastics. A possible reason for the absence of bio-based materials in recycled plastics was that bio-based materials can be sorted trough NIR and flotation. Even though it was possible to sort out bio-based materials from the recycle streams. It is possible that bio-based materials reach the fossil based recycling stream. If they do reach the fossilbased recycling streams, biobased recyclates have similar effects on the stream as other "impurities" currently found in the recyclates. Recycling bio-based plastics in a separate stream can be done with the same process as used for PLA and PET can be used. Effectively the conclusion for the mechanically recycling of bio-based materials was that is was possible and that the threat the ypose to the recycling of fossilbased products is minimal.

For the chemical recycling the focus was on the recycling through PLA hydrolysis. During the research the team found that the PLA film recovered from anaerobic digesters can be chemically recycled. Were PLA film could be recovered PET and PP could not be depolymerised under the set chemical recycling conditions.

For organic recycling the research focused on three main topics; industrial composing, home composing and anaerobic digestion. For these topics the focus was on which pre-/standardisation work would benefit the organic recycling the most. According to the research the most significant contribution could be made with the development of standards in the sectors of home composing and anaerobic digestion. For home composing some national standards existed but no real similarity in test parameters could be found. Therefor the development of a test method for testing the decomposition of materials in a home composting setting was developed. For anaerobic digestion the main focus was on the development of a B2B typology toolbox.

5.1.5 Work package 7: Labelling

Work package 7 Labelling focused on the possibility to develop a combined eco- and bio-based label. The final conclusion of the work package was that a horizontal combined eco- and bio-based label for all products is not possible. The shier diversity of bio-based products makes is impossible to have a composed ecolabel for all bio-based products. Designing eco-labels for individual parts of the bio-based chain would be a possible way forward.

As overarching findings they indicated that there is controversy on which methods to accept for declaring bio-based content, that bio-based certification would be an unfair burden for bio-based products due to increasing costs and the optimum end of life options for certain product groups are hard to define.

5.1.6 Work package 8: Public information list

Work package 8 Public information list focused on the initiation of the development of an ideal European product information database on bio-based products that could be used for public procurement, business and promote uptake of bio-based products among consumers. The approach used for the development of the product information database consisted of four steps. The first step was mapping the existing bio-based product databases and identifying the best practices for procurement and dissemination activities. This step resulted in the evaluation of 46 product information lists. The second step was a best practice analysis focussing on success/longevity, financing/ stability/ market / market competition, bio-based perspective and user friendliness of other databased. With the lessons from the other databesed step three was to set up a comprehensive EU based database. The the outlines for the database designed the database was compelted with product lists of 50 products and 268 to be incorporated products.

5.1.7 Work package 9: Social acceptance

Work package 9 Social acceptance evaluated the social acceptance of biodegradables. Trough the evaluation of acceptance criteria for consumers, business and governmental parties the researchers identified the barriers for social acceptance. For consumers they found that quite a large group of consumers are still unfamiliar with the term bio-based. But this group does have positive associations between biobased, the environment, natural and healthy products. The most important barriers in relation to B2B promotion of biobased products were the high production costs and the volatile feedstock prices. For public procurers/governmental parties the barriers were: high product prices, problems with verifying the claims and the lack of information about "bio-based" products. Efforst on the promotion of communication should focus on removing these barrier. The most effective promotional measures for the public sector would be a political decision to promote "bio-based" products trough public procurement. Furthermore a practical guide and tools facilitating the procurement process would be most welcome.

As final conclusion the work package advices 3 policy recommendation; better communication and demonstrate environmental benefits, build a long-term political supportive strategy, integrate bio-based content requirements in existing eco-labelling schemes.

6 Conclusions

Overall the Open-bio final advisory workshop was fruitful and informed a broad audience within the EU market on the results of the Open-bio project. With a group of 43 attendee from 8 countries and multiple companies the attending group is considdered sufficiently diverse. For the project the final advisory workshop was regarded the key moment informing the intreseted parties. Based on the feedback from the attendants during the three discussion sessions, it can be concluded dat the results and conclusions from the Open Bio project are shared.

The labeling policy suggestions were debated and not shared by all attendees in the actual form. Several people had questions, especially those involved in developing the Ecolabels. The EC representatives had no specific comments.

The presentations on the various end-of-life standards gave some leads on where they should be tabled. The attendants had too few in-depth experience with the matter, but the certification was an item for discussion and possible continuous study. On the bio-based content leads given during the workshop there were no further comments.

The EC representative concluded that the project had given quite a few of good results and leads for policy makers and industry.