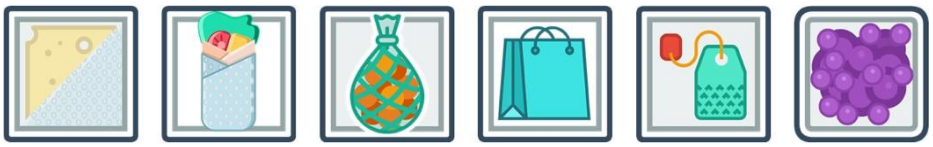
# Novel packaging films and textiles with tailored end of life and performance based on bio-based copolymers and coatings.



## D.7.7 Training materials and report

This project has received funding from the Bio Based Industries Joint Undertaking under the European Union's Horizon 2020 research and innovation programme under grant agreement No 837761

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| **Grant Agreement No:** | 837761 | **Project Acronym:** | BIOnTop |
| **Project Title:** | **Novel packaging films and textiles with tailored end of life and performance based on bio-based copolymers and coatings** | | |
| **Funding scheme:** | BBI-JU-Horizon 2020 – Research & Innovation Action | | |
| **Project Coordinator:** | AIMPLAS | | |
| **Lead Beneficiary** | European Bioplastics e.V. (EUBP) | | |
| **Start date of the project:** | 01.06.2019 | **Duration of the project:** | 48 months |
| **Deliverable:** | **D.7.7 Training materials and report** | | |
| **Contractual delivery date:** | **31.05.2023 (deadline as stated in the DoA)** | | |
| **Actual delivery date:** | **31.03.2023** | | |
| **Type of Deliverable** | R (Document, Report) | | |
| **Dissemination level:** | PU (Public) | | |
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| **Version:** | **1.0** | | |

## History of changes

| Version | Author | Date | Comments |
|---|---|---|---|
| **0.1** | EUBP | 7 March 2023 | First version made available internally |
| **1.0** | EUBP | 30 March 2023 | Final version with integrated comments |

## Acronyms

| | |
|---|---|
| WP | Work Package |
| D | Deliverable |
| EU | European Union |
| EC | European Commission |
| BBI-JU | Bio-Based Industries Joint Undertaking |
| H2020 | Horizon 2020 |
| EUBP | European Bioplastics e.V. (DE) |
| INSTM | Consorzio Interuniversitario Nazionale per la Scienza e Tecnologia dei Materiali (IT) |
| ASU | Hochschule Albstadt-Sigmaringen (DE) |

## Executive summary

A set of training modules and lectures were prepared by the BIOnTop project partners and delivered throughout the lifespan of the project. Some of these training modules were more aligned to the concept of disseminating results (mid-term, final) and were aimed at facilitating acceptance, uptake and exploitation of results. Feedback from these modules and activities have been used to feed the project and post-project improvements. Other training modules were integrated in curricula of the academic partners, as lectures for both undergraduates and master students and were more targeted at educating, facilitating understanding, and sharing knowledge (capacity building).

The audiences covered by the BIOnTop external training sessions were academia, the scientific community, end-user industrial operators, but also policy makers and NGOs.

The materials of the trainings have been uploaded to the BIOnTop community in Zenodo, to facilitate the uptake by larger number of users after the end of the project and in the years to come.

Please note that this specific report is focusing on the training delivered by consortium partners to users outside the consortium. AIMPLAS will report instead on the internal training measures in the final progress report of the project.

## Introduction

This deliverable is a report of the knowledge transfer activities targeting audiences outside the project consortium. This specific report is focusing on the training delivered to actors outside the consortium, while AIMPLAS will report on internal training measures in the final progress report of the project.

The report provides an overview of the external trainings, information about the audiences reached out to, and information on the training materials for each training module.

## 1. Trainings held.

The project held several trainings throughout its lifetime. An overview is provided in the table below.

The single files of the trainings are available in the Annex to this deliverable, with links pointing at long-term repositories where the training materials have been archived for facilitating uptake and re-use.

| ID | Title | Audience | Type of training | Comments | Partner in lead |
|---|---|---|---|---|---|
| EXT1 | Bio-based packaging: Overview of bio-based packaging and innovative techniques for bio-based barrier improvement | Academia | Lecture | Recurring activity integrated in the curriculum at ASU | ASU |
| EXT2 | Sustainable Food Packaging Technology | Academia | Lecture | Recurring activity integrated in the curriculum at ASU | ASU |
| EXT3 | Biobased Materials Research: Advances from ECOFUNCO And BIOnTop European-funded Projects | Academia, industry, NGOs, policy making | Workshop | One time event | Centexbel, ASU and EUBP |
| EXT4 a | Bioplastics | Academia | Lecture | Recurring activity integrated in the curriculum at | INSTM |
| EXT5 | Processing and recycling of bioplastic blends and composites | Academia | Lecture | Recurring activity integrated in the curriculum at INSTM | INSTM |
| EXT6 | BIOnTop Meet the experts | Industry, NGOs, policy makers | Interactive training format | One time event | ASU, EUBP, ENCO |
| EXT8 | Bioplastics: the BIOnTop approach | Academia | Lecture | Recurring activity integrated in | INSTM |

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| | | | | the curriculum at | |
| EXT12 | Principle of chemical grafting and effect of fatty acid grafting onto whey protein-based films | Academia | Lecture | Recurring activity integrated in the curriculum at ASU | ASU |
| EXT13 | Workshop on Biobased, compostable and recyclable packaging films and textiles | Academia, industry, policy making | Workshop | One time event | INSTM |
| EXT14 | Safety and risk management for novel products and processes | Academia, industry | Training | One time event split in two sessions | ARCHA and EUBP |

Table 1: BIOnTop Trainings delivered, overview.

**Goals**

- Ensuring the education and the training of the next generation of scientists and technologists needed in Europe to foster the future of circular bioeconomy and maximise the creativity and innovation potential.
- Ensuring the dissemination of results (mid-term, final), facilitating acceptance, uptake and exploitation of results.
- Getting feedback from the training modules to feed the project and post-project improvements and adjustments.

**Formats**

- Lectures: Lectures integrated in academic curricula.
- Trainings: More formal training modules, organised and split over more than one day, specifically set up by one or two partners only.
- Workshop: More interactive formats, run over one day, with contributions from several partners.

**Audiences**

- Academia: This audience is including the scientific community, from undergraduates to senior scientists.
- Industry stakeholders: operating in the field of bioplastics, biobased products, but also in the production and application of novel biobased materials and products. It also included technologists and scientists working in research in the private sector.

- NGOs and policy makers: focused on topics such as bioplastics, biobased products, bioeconomy, circular economy.

## 2. Training materials

For each training delivered, we have mapped out the materials and recordings available in the files in the annex.

- All training materials have been made available in Zenodo https://zenodo.org/communities/biontop, in open access, in the forms of documents and PowerPoints. Zenodo is a long-term repository made available by CERN and the European Commission.
- For the video recordings, the materials are uploaded to YouTube, in the playlist of the BIOnTop projects. We have set up different playlists for the different events. See the files of each training for more information on the single recordings.

## Conclusions

By the time the project finalizes its final report, EUBP will monitor again the use of the material and report in the final progress report on the performance (e.g., views, downloads).

Planning a long-term access to the materials, EUBP will set up a specific section related to capacity building on its website (www.european-bioplastics.org) and ensure that the training materials can be taken up by large audiences in the future years, after the project closure.

## Annex: Detailed files on the BIOnTop trainings

biontop

# EXT1 TRAINING Report

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|---|---|
| **Training title** | Bio-based packaging: Overview of bio-based packaging and innovative techniques for bio-based barrier improvement |
| Training type | **Lecture** |
| Date and location | Every winter semester, Albstadt-Sigmaringen University. |
| Organised by | Albstadt-Sigmaringen University. |
| Goals of the training session | This workshop's goals were:<br>– Lecture to introduce innovative technologies.<br>– Broaden the mindset of master students.<br>– Lecture on relevant technologies applicable in industry in the future.<br>– Lecture on alternative (hopefully more sustainable) technologies. |
| Training participants | Academia: Master students. |
| Outcomes of the training | The outcomes of the workshops are:<br>– Increased knowledge of biobased packaging.<br>– Increased knowledge of results of BIOnTOp. |
| Summary of the training materials | In this lecture, the topic of packaging was introduced by showing key advantages and disadvantages of material such as natural materials, ceramics, glass, paper-paperboard, cardboard, metal, and plastics. The functions of packaging and the most used plastics were presented. Afterwards the wording of bioplastics and the difference between biobased and biodegradable was explained. The categories of bioplastics describe either biobased or biodegradable or both characteristics. The main properties of the most studied and market available poly lactic acid (PLA) as bioplastic as well as poly hydroxyl alkanoate (PHA) were presented regarding raw material, synthesis, chemical structure, barrier properties, physical characteristics and current end of life scenarios. Afterwards common multilayer (petrochemical) packaging is shown, and the function of each layer was explained (gas barrier layer, layer for mechanical properties, adhesive layer, printable layer, etc.). The key message here is |

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| | that the packaging has a specific function to protect the packaged goods and for these individual parameters such as mechanical and barrier properties are necessary. An alternative to highly functional multilayer packaging for sensitive foods is not market available yet.<br><br>In the second part of this lecture the BIOntop approach is presented by explaining the project overview, objectives, and activities. One approach that is focused by the researchers of the Sustainable Packaging Institute of the Albstadt-Sigmaringen University is the use of a protein layer which is biobased and biodegradable as an alternative to other oxygen barrier layer such as ethylene vinyl alcohol (EVOH). Based on the hydrophilic nature of the protein layer, an innovative nanoscale hydrophobization technique, the fatty acid grafting was introduced. The principle of fatty acid grafting and how this decreases the water/water vapor sensitivity of the protein layer was explained. The fatty acids are attached covalently to the surface of the protein layer. This technique is influenced by different grafting parameters that are type and concentration of fatty acid/fatty acid chloride used, type of substrate, temperature, technique, and solvent if needed. The transfer method and an up scalable technique the gravure printing technique have been shown. Current results from the scientific literature regarding fatty acid grafting of OVOH films are presented. The optimization of the grafting parameters is key to inducing great effect towards the grafted surface. Grafted surfaces obtain a water repellency, dissolve slower, and possibly obtain lower water vapor transmission rates. Opportunities and limitations of fatty acid grafting technology are summarized and discussed. In the end, application scenarios of the fatty acid grafting technology were summarized, and a discussion was set up to discuss the topic of bioplastics from different perspectives (e.g., from an environmental activist, politician, entrepreneur of a packaging company, and a scientist). |

## EXT2 TRAINING Report

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| **Training title** | Sustainable Food Packaging Technology |
| Training type | **Lecture** |
| Date and location | Series of lectures during the winter term 2022 / 2023, hybrid (Albstadt-Sigmaringen University, in Sigmaringen & online). |
| Organised by | Albstadt-Sigmaringen University. |
| Goals of the training session | The goal was to:<br>– Provide a basic overview of food packaging technology with emphasis on packaging sustainability.<br>– Lecture on real challenges on an EU scale, enabling them to interact with other qualified actors in an international environment.<br>– Enable participants to design effective and efficient packaging concepts for the food industry. |
| Training participants | Academia: National (German) and international (Indonesia, Mexico and others), bachelor students. |
| Agenda of the training | – Background of BIOnTop project / State of the art: Advantages of petrochemical-based plastics such as their barrier properties, flexibility, easy handling, low price but also disadvantages such as limited recyclability as well as bio-based alternatives and their barriers and opportunities.<br>– Objective of BIOnTop: Development of cost-efficient bio-based plastic concepts that also offer sufficient barrier properties for sensitive foodstuffs and are at the same time recyclable.<br>– BIOnTop project as an example for the sustainability strategy consistency. |
| Outcomes of the training | Train students in the topics presented during the workshop with an examination at the end of the semester. |
| Summary of the training materials | Sustainability is a multifaceted concept that can be defined in many ways. Several dimensions of sustainability (typically environmental, economic and social) can be defined where there may be trade-offs between social, economic and environmental concerns. For example, product protection through multi-layer packaging vs. recyclability, use of renewable raw |

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| | materials in paper carrier bags vs. sufficient functionality and more frequent reusability of plastic carrier bags.<br><br>To achieve sustainability, two economic forms are assumed: circular economy and bioeconomy. The combination of these two strategies is the circular bioeconomy, the most promising approach to a more sustainable way of life and economy due to the shortcomings of the two concepts. There are three main strategies for achieving sustainability objectives, and it is assumed that a combination of these is required to achieve the objectives: efficiency, consistency and sufficiency.<br><br>Biopolymers are an example of the consistency strategy and bioeconomy and a promising alternative to petrochemical-based plastics for more sustainable food packaging. Biopolymers can be biobased and or biodegradable. The potential environmental impacts of biopolymers can be more beneficial than those of their petrochemical counterparts, for example in the case of climate change (global warming potential, GWP). with a shift in potential environmental impacts often occurring. However, there is often a so-called shift of burden (shift in the potential environmental impacts), for example, biopolymers often perform worse in the environmental impact category eutrophication potential (EP) and land use and land use change (LULUC). Polylactic acid (PLA) is a biobased polymer that is becoming increasingly popular in the packaging industry. It is derived from renewable resources such as corn-starch, sugar cane, or cassava roots. PLA can be used in a variety of packaging applications, including food packaging and other consumer goods. It is also compostable, which allows for end-of-life options such as industrial composting. However, there are still challenges to overcome, some of which are being addressed in the BIOnTop project.<br><br>The BIOnTop project aims to develop cost-effective and sustainable packaging concepts for sensitive foods that offer sufficient barrier properties with circular End-of-Life (EoL) Options like recyclability and biodegradability. Current research on biobased plastics lacks sufficient barrier properties to protect sensitive foods. The goal is to address the environmental impacts of plastic waste by developing more sustainable packaging solutions The project focus on the further development of polymers such as PLA, as well as more sustainable EoL Options. |

## EXT3 TRAINING Report

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| **Training title** | Biobased Materials Research: Advances from ECOFUNCO And BIOnTop European-funded Projects |
| Training type | **Workshop** |
| Date and location | 16 June 2021. |
| Organised by | Ecofunco and BIOnTop project. |
| Other partners of BIOnTop involved in the training | ASU, Centexbel, and EUBP. |
| Goals of the training session | This workshop goal was to:<br>– Disseminate BionTOP - Waterbased PHA dispersions for coatings and prints.<br>– Disseminate on the state of the art in chemical fatty acid and the results of chemical fatty acid grafting. |
| Training participants | Academia and industry |
| Agenda of the training | Three interventions by BIOnTop:<br>– Erik Sauter (ASU), BionTOP - Principle of chemical grafting and effect of fatty acid grafting onto whey protein-based films.<br>– Willem Uyttendaele (Centexbel), BionTop - Waterbased PHA dispersions for coatings and prints.<br>– Christian Schulz (EUBP), BIOnTop - Introduction and overview on BionTop activities and expected results. |
| Outcomes of the training | The outcomes of the workshops are:<br>– Increased knowledge of results related to the chemical fatty acid grafting.<br>– Increased knowledge of results of waterbased PHA dispersions for coatings and prints.<br>– Increased knowledge of BIOnTop results. |
| Training materials | – Intervention Nr. 1 ASU: Principle of chemical grafting and effect of fatty acid grafting onto whey protein-based films |

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| | Video recording<br>– Intervention Nr. 2 Centexbel: Waterbased PHA dispersions for coatings and prints<br><br>Presentation: https://zenodo.org/record/7684321<br><br>Video recording: https://www.youtube.com/watch?v=qecvE4Kriw4<br><br>– Intervention Nr. 3 European Bioplastics: BIOnTop mid-term results<br><br>https://www.youtube.com/watch?v=1m-Iu6epX_o |

## EXT4 TRAINING Report

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| **Training title** | Introduction to Bioplastics |
| Training type | **Lecture** |
| Date and location | In 2021, at the Consorzio Interuniversitario Nazionale per la Scienza e Tecnologia dei Materiali (INSTM). |
| Organised by | INSTM. |
| Goals of the training session | The training was held in the framework of the course on Reactive processing and recycling of polymers of the University of Pisa.<br>This training's goal was to:<br>– Lecture on bioplastics and compostability of bioplastics.<br>– Lecture on the processing and recycling of polymers. |
| List of contents | Bioplastics, biodegradable polymers, PLA, PHA, PHB, blends and their properties, composting, biodegradability, technology, standards, BIOnTop. |
| Outcomes of the training | Informing, facilitating understanding, and raising awareness and sharing knowledge (capacity building). |
| Training materials | Available on https://zenodo.org/communities/biontop |
| Recordings | https://www.youtube.com/playlist?list=PL55WHEvTORx5d6PYc3SkJkQNAm8i640CQ |

## EXT5 TRAINING Report

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| **Training title** | Processing and recycling of bioplastic blends and composites |
| Training type | **Lecture** |
| Date and location | In 2021, at the Consorzio Interuniversitario Nazionale per la Scienza e Tecnologia dei Materiali (INSTM). |
| Organised by | INSTM. |
| Goals of the training session | The training was held in the framework of the course on Reactive processing and recycling of polymers of the University of Pisa.<br>This training's goal was to:<br>– Lecture on bioplastics and compostability of bioplastics.<br>– Lecture on the processing and recycling of polymers. |
| Training participants | Academia. |
| List of contents | Four innovative projects / initiatives showcasing the recycling of polymers: PolyBioSkin, Biorepack, BIOnTPp, ECOFUNCO. For each project: objective, methodology, technology, main scientific results, mid-term outcomes. |
| Outcomes of the training | Informing, facilitating understanding, and raising awareness and sharing knowledge (capacity building). |
| Training materials | Available on https://zenodo.org/communities/biontop |
| Recordings | https://www.youtube.com/playlist?list=PL55WHEvTORx5d6PYc3SkJkQNAm8i640CQ |

## EXT6 TRAINING Report

| **Training title** | BIOnTop Breakfast with the expert |
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| Training type | **Informal training** |
| Date and location | 6 December 2022, Berlin (DE), alongside the European Bioplastics Association annual event. |
| Organised by | European Bioplastics together with Albstadt-Sigmaringen University and ENCO Consulting. |
| Goals of the training session | Transfer expertise to the participants.<br>Allow uptake. |
| Training participants | Industry, NGOs, policy makers |
| List of contents | Overview of the main results of the project<br>The development of bioploymers coatings in BIOnTop. |
| Outcomes of the training | Raise awareness on potential uptake and timeline for the uptake. |
| Training materials | https://zenodo.org/record/7347740#.ZBGMyezML0o |

## EXT8 TRAINING Report

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| **Training title** | Bioplastics: Approach of BIOnTop for biobased, biodegradable and recyclable materials for packaging |
| Training type | **Lecture** |
| Date and location | 29 November 2022, at the Consorzio Interuniversitario Nazionale per la Scienza e Tecnologia dei Materiali (INSTM). |
| Organised by | INSTM. |
| Goals of the training session | This training's goals were to:<br>– Lecture on bioplastics.<br>– Lecture on the importance of PLA, its synthesis and properties<br>– Lecture on the role of BIOnTop in improving PLA based materials properties. |
| Training participants | Academia: students of second year of Chemical Engineering degree course. The course is Materials Science and Engineering (9 CFU), including lectures and exercise training about metal, ceramics, polymers, composites and structure/properties of materials |
| Agenda of the training | This training was carried out at the end of the explanation of polymers in the course to make students able of understanding the topic |
| Outcomes of the training | The outcomes of the training:<br>– Increased knowledge of bioplastics<br>– Increased knowledge of the importance of PLA and BIOnTop scientific results. |
| Training materials | Available on https://zenodo.org/communities/biontop |
| Recordings | https://www.youtube.com/playlist?list=PL55WHEvTORx5d6PYc3SkJkQNAm8i640CQ |

## EXT12 TRAINING Report

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| **Training title** | Technology of fatty acid grafting: Principle of chemical grafting and effect of fatty acid grafting onto whey protein-based films |
| Training type | **Lecture** |
| Date and location | 06 October 2021. |
| Organised by | Albstadt-Sigmaringen University. |
| Goals of the training session | This workshop goals were to:<br>– Train on the state of the art in chemical fatty acid.<br>– Disseminate the results of chemical fatty acid grafting. |
| Training participants | Early career researchers |
| Contents | – Principle of chemical grafting.<br>– Methods of chemical grafting.<br>– Research results of chemical grafting. |
| Outcomes of the training | The outcomes of the workshops are:<br>– Increased knowledge of the principles of chemical fatty acid grafting.<br>– Increased knowledge of current results of chemical fatty acid profiling of WPI films, together with the effects of hydrophobization of hydrophilic substrates. |
| Summary of the training materials | In this lecture, the Sustainable Packaging Institute of the Albstadt-Sigmaringen University was introduced showing the location, subject areas, and main research and development focus. A deeper look into the research performed within the BIOnTop project was done by starting to present the principle of the chemical fatty acid grafting technique. This technique provides an innovative and nanoscale biobased approach to hydrophobized surfaces. This can be for instance useful for hydrophilic material. The chemical reaction(s), conditions and grafting parameters are illustrated, and their influence is shown exemplarily. Market available and affordable fatty acid chlorides needed for the hydrophobization of surfaces by the grafting technique are quite limited. In fact, myristic acid chloride, palmitoyl chloride, stearoyl chloride, and palmitoyl anhydride are fatty acids that are suitable reagents. On lab scale, commonly the transfer method is used for the grafting process, however, there are several steps needed because the |

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| | grafting reagents are transferred by a transmitter paper towards the substrate surface. In comparison, the gravure printing technique was shown as potential up scalable method for the grafting process. The gravure printing method was tested for its applicability to transfer the grafting reagents which was a main point being addressed within BIOnTop. The gravure printing method has some advantages over the transfer method. For instance, no solvent is needed and there are different printing plates available to adjust the amount of fatty acid reagents being transferred by the gravure printing device. Images of the practical processing in the lab are presenting illustrating how the fatty acid reagents are transferred via the transfer versus the gravure printing method.<br>Results obtained within BIOnTop have been presented: The effect of fatty acid grafting using different reagents on the water vapor transmission rate of whey protein-based films were shown. In addition, the effect of using different temperatures between 60 – 160 °C revealed a strong effect on the water vapor transmission rate of grafted protein filmed. A trend of increasing temperature affecting decreasing water vapor transmission rate was implied. The water contact angle of the grafted whey protein films was measured, however, no significant differences amongst the different grafting temperatures were detected. Two videos were shown. In the first video a water droplet was placed using a syringe on top of a whey protein film and a direct immersion of this was observed. In the second video, a water droplet was placed on top of a grafted whey protein film and the repellent effect was directly visible. In the end, concluding remarks about fatty acid grafting on whey protein films summarized the lecture up and provided an overview of the potential applicability of the fatty acid grafting technology to hydrophobized materials such as biobased packaging material. |

## EXT13 TRAINING Report

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| **Training title** | Biobased, compostable and recyclable packaging films and textiles |
| Training type | **Workshop** |
| Date and location | 14 December 2022. |
| Organised by | INSTM at the Consorzio Interuniversitario Nazionale per la Scienza e Tecnologia dei Materiali (INSTM). |
| Other partners of BIOnTop involved in the training | INSTM, AIMPLAS, Planet Bioplastics, Centexbel, ASU, European Bioplastics. |
| Goals of the training session | – Share the results of the project.<br>– Present the latest achievement in the project R&D.<br>– Present relevant technologies for industrial applications. |
| Training participants | Academia and industry |
| Outcomes of the training | Disseminate and foster uptake. |
| Training materials and trainers | – Introduction to biobased, compostable and recyclable packaging films and textiles https://zenodo.org/record/7468837#.Y6MtwezMJz8<br>– Results of the EU-funded project BIOnTop https://zenodo.org/record/7468750#.Y6Mt-ezMJz8<br>– Biobased, biodegradable, and recyclable materials for films and trays https://zenodo.org/record/7468805#.Y6Mt0OzMJz8<br>– Biobased materials for textile packaging and its coating https://zenodo.org/record/7468799#.Y6Mt4OzMJz8<br>– Surface modification of films<br>– Bioplastics from research to policy: Where is the European policy making heading for? https://zenodo.org/record/7468762#.Y6Mt7ezMJz8<br><br>Andrea Lazzeri (Planet Bioplastics, University Pisa), Rafael Alonso (AIMPLAS), Maria Beatrice Coltelli (INSTM and University Pisa), Willem |

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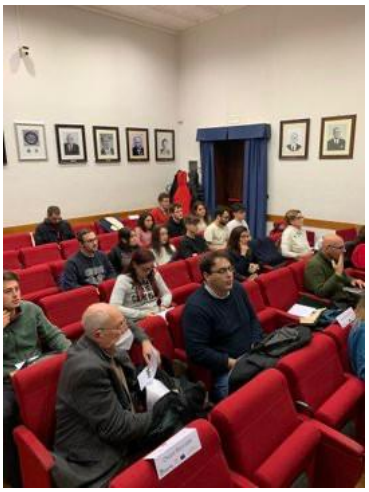
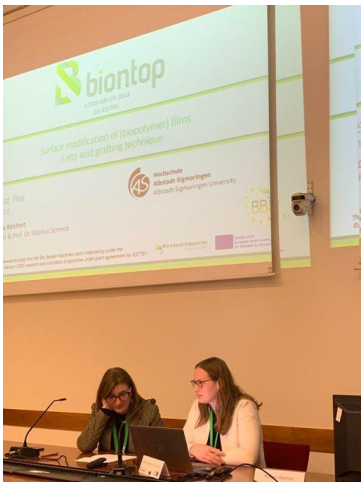
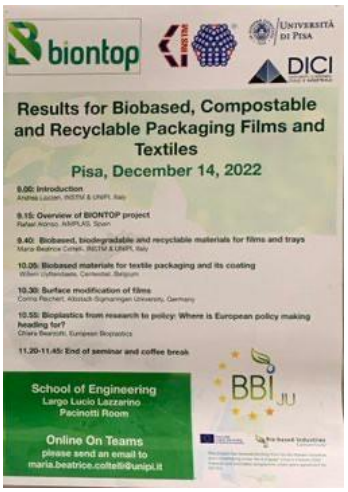
| | Uyttendaele and Ruben Geerinck (CENTEXBEL), Corina Reichert (Albstadt-Sigmaringen University), Chiara Bearzotti (European Bioplastics). |
| Recordings | Videorecording is available on the YouTube Playlist of BIOnTop https://www.youtube.com/playlist?list=PL55WHEvTORx5d6PYc3SkJkQNAm8i640CQ |





## EXT14 TRAINING Report

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| **Training title** | Safety and risk management for novel products and processes |
| Training type | **Training** |
| Date and location | Online, 7-14 March 2023. |
| Organised by | European Bioplastics and ARCHA s.r.l. |
| Goals of the training session | Provide tools for ensuring compliance to the EU directives and regulations on safety and health at work. |
| Training participants | Academia and industry |
| Agenda of the training | – How to ensure compliance to the EU directives on safety and health at work?<br>– What are the specific legal requirements you need to be aware of?<br>– What is the broader legal and regulatory framework?<br>– How can you focus on the risk management and risk assessment?<br>– How can you ensure the compliance to the EU directives related to health and safety at work (Ref: https://osha.europa.eu/en/safety-and-health-legislation/european-directives)?<br>– How can you ensure compliance to health and safety requirements for novel products, for food contact packaging products? |
| Outcomes of the training | Train participants on how to ensure compliance with the EU directives and regulations. |
| Training materials | First set of slides for the training on 7 March 2023:<br>https://zenodo.org/record/7705154#.ZBCIJ-zML0o<br>Second set of slides for the training on 14 March 2023:<br>https://zenodo.org/record/7733631#.ZBCGNOzML0o |
| Recordings | A playlist with the recording of the training is available: https://www.youtube.com/playlist?list=PL55WHEvTORx5d6PYc3SkJkQNAm8i640CQ |

**BIOnTop Training: Safety and risk management for novel products and processes**

Legal requirements, legal framework, focus on risk assessment and risk management

**online, 7th and 14th March 2023**