List of applications of bioplastics
Dear reader,

This list of applications of bioplastics was prepared to help you find an idea how to use bioplastics in your company and to show you that the use of bioplastics is much wider than just bio-waste bags as most of the users think. The products are separated in different groups and accompanied with the short description of possible use and with an explanation of the advantages of the use of bioplastics.

Through the whole guide that you probably read to this point we have tried to avoid all the company names and were more or less successful but at this point we need to include some company names. Not with the purpose of promotion but solely with the purpose to show you all the possible applications of bioplastics. The images are mostly borrowed from European Bioplastics (tab Press/Press pictures) and images borrowed from another source are mentioned below the picture.

This list of applications of bioplastics was prepared in July 2013 and presents the current overview of the bioplastics applications. To the time you are reading this guide we are sure that few new bioplastics applications are already developed since the field of bioplastics is fast developing.

We wish you majority of successful ideas of how to use bioplastics.

Petra
Films, bags

Foils made from bioplastics can be used to produce bio-waste bags, compostable bags, bags made from renewable resources, food wrapping and shrink films to pack beverages and also for other applications. The main advantages of the use of bioplastics are environmental aspects, higher consumer acceptance, increased shelf life of the products and composting as an end of life treatment of compostable products.

Compostable shopping bag
Author: Aldi/BASF

Bio PE shopping bag
Author: Lidl Austria GmbH

Compostable shopping bag
Author: Novamont

Compostable transparent flower wrap
Author: FKuR

Compostable film for fruit and vegetables
Author: Alesco

Compostable shrink film for beverages
Author: Alesco

Compostable bag for cosmetic products
Author: FKuR

Compostable soap wrapping
Author: FKuR, Umbria Olli International
**Food packaging**

Bioplastics food packaging can be used to pack different types of food, from bread and bakery, to fruit and vegetables, sweets, different types of spices and teas to different types of soft drinks. Different types of bioplastic packaging are already available on the market. The main advantages of the use of bioplastics are environmental aspects, higher consumer acceptance, increased shelf life of the packaged food and composting as an end of life treatment of compostable products.

- Cellulose based biodegradable bag for organic pasta. Author: Birkel
- Compostable fruit net bag Author: FKuR
- Water soluble and compostable starch based chocolate tray Author: Marks and Spencer
- Compostable PLA container for fruit and vegetables, Source of the photo Plastice
- Compostable cellulose based packaging for herbs and spices Author: Innovia Films
- Compostable bags for fruits and vegetables, Author: Wentus
Compostable cellulose based packaging
Author: Innovia Films

Beverage bottles made from renewable resources
Author: Blue Lake Citrus Products

Beverage bottles made from renewable resources
Author: Sant’Anna – Fonti di Vinadio

Beverage bottles made 30 mass % from renewable resources
Author: Coca Cola

Beverage bottles made 30 mass % from renewable resources
Author: Heinz
Disposable drinking cups, cutlery and plates

Disposable items are often used at picnics, open-air events, as single use food containers, at catering and in airplanes. They produce a huge amount of waste and are hard to recycle because are contaminated with food. One of the main benefits is that such products can be disposed together with food leftovers and in composting plants they can be turned into compost.

Compostable cup for hot beverages, paper laminated with bioplastics.
Author: Huhtamaki

Compostable cup for cold drinks
Author: Huhtamaki

Biodegradable forks
Author: Novamont

Bowls and hollow ware made from bio-based plastics
Author: Koser/Tecnaro

Biodegradable straws
Author: PLASTiCE
**Agriculture and horticulture products**

Biodegradable plant pots, mulch films, expanded PLA trays for horticultural applications

Biodegradable plant pots are used to plant the seedlings together with the pot. This way the roots of the plant do not get damages and additionally the pot is then turned into compost and fertilizes the soil. Mulch films are used to suppress weeds and conserve water and mostly are used for vegetables and crops. After the crops are harvested the film can be ploughed in and used as a fertilizer. Ploughing-in of mulching films after use instead of collecting them from the field, cleaning off the soil and returning them for recycling, is practical and improves the economics of the operation. The trays from expanded PLA can be used as conventional EPS trays but are compostable.
Consumer electronics

As we all already know we live in an electronic era. Today casings of computers, mobile phones, data storages and all the small electronic accessories are made from plastics to ensure that the appliances are light and mobile whilst being tough and, where necessary, durable. First bioplastic products in the fast-moving consumer electronics sector are keyboard elements, mobile casings, vacuum cleaners or a mouse for your laptop, and with the time passing by bioplastics are more and more present in electronic devices.
Clothing

Bioplastics in clothing sector are replacing conventional plastics or natural materials and are used for footwear and synthetic coated material. One can find bioplastics as a fabric for wedding dress, a jacket or an alternative to leather. The alternative to leather is often used to produce biodegradable shoes. The added value of those products is versatile use also for the most advances high-quality footwear.

Jacket made partially from biobased plastics
Author: Du Pont

Biodegradable wedding dress
Author: Gattinoni

Biodegradable shoes
Source of the image: ecouterre.com-Gucci
Sanitary and cosmetic products

Sanitary and cosmetic products are a source of an unthinkable amount of plastic waste and so the demand to use more sustainable materials is very clear. Some producers use biodegradable materials opposite to some that have replaced the conventional fossil based plastic packaging with more sustainable materials derived from biomass. The disposal of those materials is very simple.
Textiles – Home and Automotive

Bioplastics can be used in a broad range of applications as you were able to see to this point. One of the possible uses of bioplastics is the production of textiles. Different types of plastics can be used to produce those textiles, but the PR messages are promoting their content of the renewable resources, although some of them are also biodegradable. Products made from those textiles have the performance and quality similar to traditional carpets.

Automotive application

As said above bioplastics are used for interior of cars, but bioplastics are present also in other automotive applications. Those applications have very specific requirements (as a fuel line made from renewable resources – nylon).
Sport

Plastics make sports lighter and more affordable. Most of the sport gadgets are made from plastics and a lot of sport clothes are made from plastics. Also bioplastics are slowly entering this field. Below are listed some sport gadgets made from bioplastics.

- **Biodegradable airsoft pellets**
  - Source: Wikimedia Commons

- **Biodegradable golf tees**
  - Source: EcoGolf

- **Ski boot made from renewable resources**
  - Author: Salomon

- **Ski boot made from 80 % of renewable resources**
  - Author: Atomic

- **Seats at stadium ArenA, made from biobased PE**
  - Source: Wikimedia Commons
Other

Here are listed some applications of bioplastics which we were not able to list in any different product group.

- **Biodegradable pencil**
  Author: Telles, Metabolix

- **Travel luggage made 100% from renewable resources**
  Author: Arkema

- **Biobased and biodegradable toys**
  Author: © BioFactur

- **Biodegradable liquid wood hanger**
  Author: Benetton Group

- **Fisher UX made from renewable plastics**
  Author: fischerwerke, Waldachtal

- **Sunglass frames made from renewable resources.**
  Author: Tanaka Foresight Inc., Teijin

- **Sunglass frames made from renewable resources.**
  Author: Arkema
Plastics are a fellow traveller of modern life with whom we have an ambivalent relationship: we love the convenience of plastics but hate them for polluting our environment. Newly developed “bioplastics” are biodegradable or made from renewable resources, to make use of plastics more sustainable. PLASTiCE promotes a joint research scheme that exposes producers to the possibilities of the new plastics while also creating a roadmap for actions that will lead to commercialisation of new types of plastic.

www.plastice.org