PLASTIC EXPLAINED

by PACKWISE

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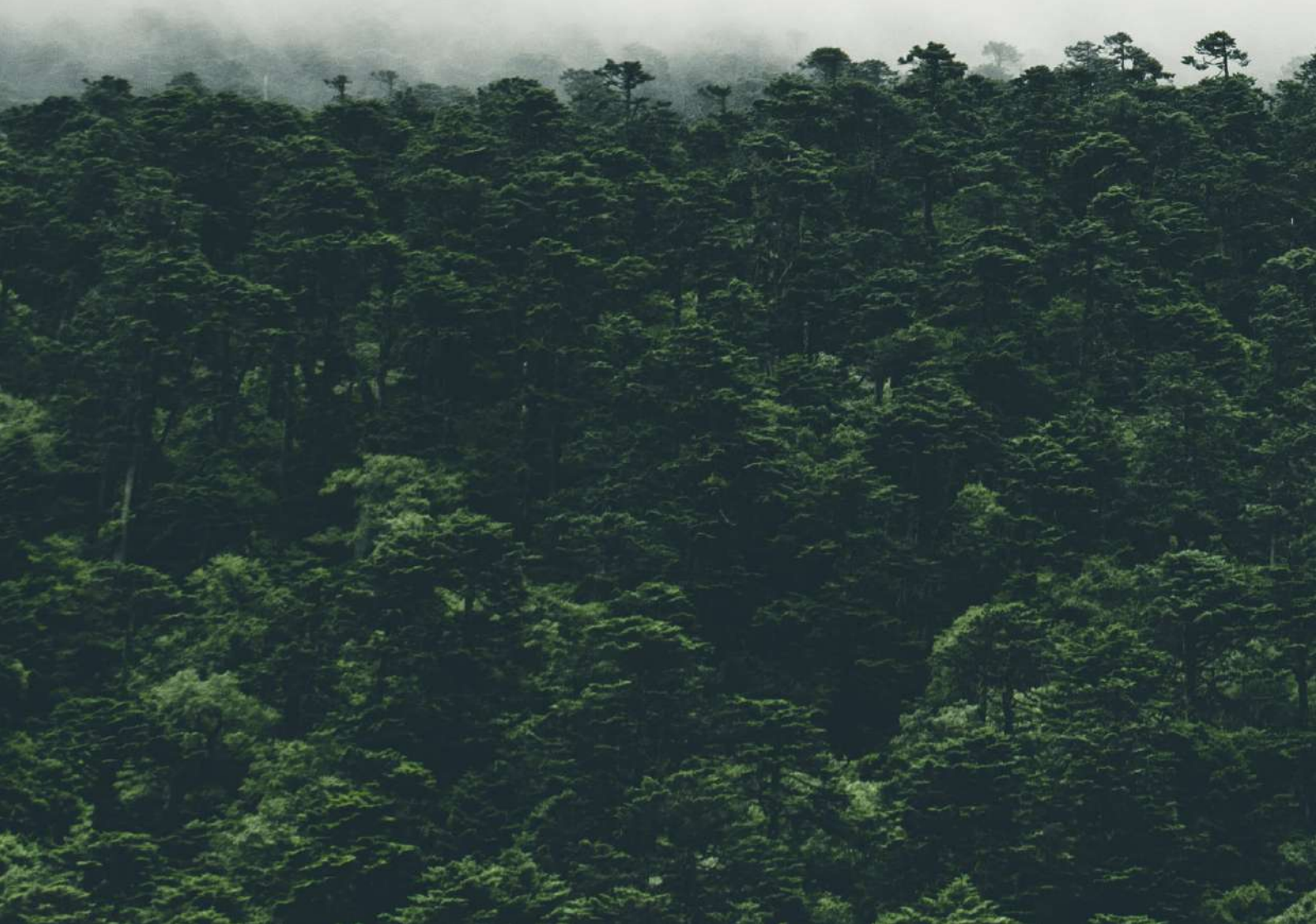
The term sustainability has been around since the 1980's and is an important topic around the world. It is broadly defined as "passing the earth on to the next generation in as good condition as we took it".

Here at Packwise, we have made a report explaining the different types of plastic and their environmental impact. You can read more about our work with sustainable packaging by clicking the button below.

To find out more about various types of plastic and their characteristics and to see our full report on plastic as a material continue reading.



DIFFERENT TYPES OF PLASTIC

FOSSIL FUELS

The manufacturing of plastics is energy intensive, with 4% of the world's oil production going into just the processing of plastic.

ENVIRONMENTAL IMPACT

Plastic degrades slowly, resulting toxic fumes.
Creating it takes large amount of chemical pollutants and fossil fuels.

★☆☆

RENEWABILITY

Plastic is made directly from fossil fuels, most definitely a nonrenewable resource.

★★☆

ENERGY, RESOURCE AND POLLUTION FROM MANUFACTURING

The manufacturing of plastics is energy intensive, with 4% of the world's oil production going into just the processing of plastic.

★★☆

END-OF-LIFE

Almost all plastic can and should be recycled, but it is not an easy process for consumers

RECYCLABILITY OF DIFFERENT TYPES

PET

Recyclable at least ten times.

Bottles (Water, soft drinks, ketchup, beer & food jars.)

LDPE

Recyclable at least ten times.

Squeezable bottles, bags (food and trash)

HDPE

Recyclable at least ten times.

Shampoo bottles, household products, caps and tubs.

PP

Recyclable at least ten times.

Caps, medicine bottles, microwave-proof containers, margarine tubs

RECYCLED PLASTIC

Made from PCR plastic, sometimes with added virgin plastic.

ENVIRONMENTAL IMPACT

Reduce the amount of fossil fuel resources. It has a lower carbon footprint than virgin plastics. Divert material from landfill and can themselves be recycled. The recycling process is harmful to the environment (VOC*, carbon emissions).

★ ☆ ☆

RENEWABILITY

Plastic is made directly from fossil fuels, most definitely a nonrenewable resource.

★ ★ ★

ENERGY, RESOURCE AND POLLUTION FROM MANUFACTURING

Recycling plastic helps save a lot of energy and natural resources as these are the main ingredients required for making virgin plastic.

★ ★ ☆

END-OF-LIFE

Almost all plastic can and should be recycled, but it is not an easy process for consumers.

RECYCLABILITY OF DIFFERENT TYPES

PCR-PET

Recyclable.

Bottles, containers, carpet, clothing, protective packaging.

PCR-HDPE

Recyclable.

Toys and playground equipment, recycling bins, piping, plastic lumber, rope, trash cans.

BIO-PLASTIC

Made from plants, including corn, sugarcane and algae.

ENVIRONMENTAL IMPACT

The production results in greater amounts of pollutants (pesticides, fertilizers and chemical processing). It creates more ozon depletion than traditional plastic. Bio-plastic produces fewer greenhouse gas emissions. It results in ntensive agriculture, water pollution, petroleum.

★★☆

RENEWABILITY

The material is renewable, but its production has so many negative consequences.

★★☆

ENERGY, RESOURCE AND POLLUTION FROM MANUFACTURING

The process is more energy intensive than for traditional plastics (manufacturing compostable plastic bags requires 2.7 times more energy than traditional plastic).

★☆☆

END-OF-LIFE

It can be recyclable, biodegradable or compostable.

RECYCLABILITY OF DIFFERENT TYPES

BIO-PET (BIO-BASED)

Recyclable*

Bottles, containers, pots, boxes.

BIO-PE (BIO-BASED)

Recyclable at least ten times.

Bottles, carry bags. Identical to fossil-fuel PE.

PLA (BIODEGRADABLE)

Recyclable, combustible and compostable**

Film, food packaging, disposable cutlery and textiles.

*Where a recycling stream for a specific plastic type is established (e.g. PE or PET), the bio-based alternatives (bio-PE, bio-PET) can be recycled together with their conventional counterparts.

**Because PLA degrades so readily, and because recycling it is cost prohibitive, there are currently no facilities to recycle it.

OCEAN WASTE PLASTIC

Made from waste plastic.

ENVIRONMENTAL IMPACT

It has a lower carbon footprint than virgin PET. Shatterproof, providing safety and hygience in the logistical chain, retail environments and the home. Safe to be used in food and beverage packaging. Use of rPET saves raw materials, reduces waste and creates a better environment.*

★☆☆

RENEWABILITY

Make sure that the materials you do use are as recyclable as possible.

★★★

ENERGY, RESOURCE AND POLLUTION FROM MANUFACTURING

A plastic bottle can last for 450 years in the marine environment, slowly fragmenting into smaller and smaller pieces which eventually end up microscopic but never truly go away. This means that every piece of plastic that has ever been produced is still with us, in some form.

★★☆

END-OF-LIFE

rPLA: The recycling of PLA after its use will be feasible as soon as the commercial volumes and sales increase sufficiently to cover the investments required (the environmental impact of recycling it is over 50x better than composting and 16 times better than combusting it).

ENVIRONMENTAL FACTS

- More than 8 million tons of plastic are dumped in our oceans every year
- 1 in 3 species of marine mammals have been found entangled in marine litter
- Over 90% of all seabirds have plastic pieces in their stomachs
- A plastic bottle can last for 450 years in the marine environment, slowly fragmenting into smaller and smaller pieces which eventually end up microscopic but never truly go away. This means that every piece of plastic that has ever been produced is still with us, in some form

*Currently, only PET and HDPE plastic products are recycled under curbside recycling programs. PP and LDPE typically are not recycled because these plastic materials get stuck in the sorting equipment in recycling facilities causing it to break or stop. Some plastic types are not recycled because they are not economically feasible to do so

FACTS ABOUT DIFFERENT MATERIALS

PET
(POLYETHYLENE TEREPHTHALATE)

	PET	BIO-PET	PCR-PET
+	• Light weight and tough material • Low transport costs • Chemical resistant • Impact strength • Transparent • Completely recyclable	• Made of renewable materials • Similar mechanical and thermical properties to PET • Recyclable	• Lower carbon footprint than virgin PET • Shatterproof, provides safety and hygiene in the logistical chain, retail environments and the home • Safe to use in food and beverage packaging • Its use saves raw materials, reduces waste & creates a better environment
−	• Susceptible to oxidation (for example beer or wine storage – taste degradation)	• The materials are produced by internsive agricultural practices and are therefore more or less sustainable (according to the quantities of pesticides and fertilizers used).	• Not as clear as virgin PET. • The recycling process harms the environment.


PROUDLY MADE
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COS THEY WILL TURN YOU
INTO A GOD OR GODDESS OF
*SUPERMODEL PROPORTIONS
DEFINITELY CONTAINS
Organic Coconut Oil
120 CAPSULES
800MG
TONIK.

PE
(POLYETHYLENE)

	PE	BIO-PE	PCR-PE
+	• HDPE: Chemical resistance, NOT LDPE • Higher tensile strength compared to other forms of polyethylene • Low cost polymer with good processability • Good low temperature resistance • Excellent electrical insulating properties • Very low water absorption	• From a renewable resource • Can be perfectly integrated in recycling streams • Same charachteristics as PE • Higher tensile strength than other forms of polyethylene • Low cost polymer with good processability • Good with low temperatures • Excellent electrical insulating properties • Very low water absorption	• Takes about half as much energy as incineration disposal • Helps reduce the expense associated with manufacturing products made from these materials • Helps reduce the expense associated with waste disposal (e.g., landfill costs) • It is cheaper to make LDPE and HDPE from recycled matter than to use new materials.
−	• LDPE: low chemical resistance • Lower stiffness than PP and high mold shrinkage • Poor UV- and low heat resistance • High-frequency welding and joining impossible	• The materials are produced by internsive agricultural practices and are therefore more or less sustainable (according to the quantities of pesticides and fertilizers used)	• It is often too dirty and needs to be washed and dried before recycling

PLA
(POLYLACTIC ACID)

PP
(POLYPROPYLENE)

PLA

+

- Transparent
- Approved for food contact applications and therefore very suitable for food packaging
- It is biodegradable, carbon-neutral and edible

−

- There isn't any separate recycling stream yet.
- Currently, sorting and recycling it is inefficient and cost prohibitive.
- Because it degrades so readily, there are currently no facilities to recycle it.

rPLA

+

- The environmental impact of recycling PLA is over 50 times better than composting and 16 times better than combusting PLA

−

- Needs a separate stream to recycle it.
- Currently, sorting and recycling it is inefficient and cost prohibitive.
- Because it degrades so readily, there are currently no facilities to recycle it.

PLA

+

- Inexpensive
- High flexural strength and very resistant to absorbing moisture.
- Has good chemical resistance over a wide range of bases and acids and possesses good faqigue resistance.
- Has good impact strength and a good electrical insulator.
- Light weight.

−

- Has a high thermal expansion coefficient which limits its high temperature applications
- Susceptible to UV degradation and to osidation
- Poor resistance to chlorinated solvents and aromatics and is highly flammable

At Packwise, we specialize in packaging design and custom-made packaging solutions that, through improved design or functionality enhance the customer satifaction.

Our goal is to create tailor-made solutions, which increase the value of our customers' products.

CONTACT US!

We would really like to hear from you. You are very welcome to either send us an email or call us. Please find our contact information below.

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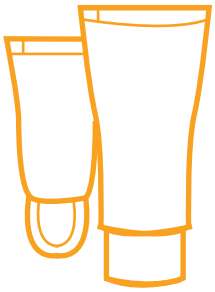
PACKWISE

Sustainability has seen an increased interest when it comes to the development and production of new products. It is becoming more and more relevant to develop sustainable alternatives and make environmentally friendly choices - also when it comes to the development and design of packaging.

At Packwise, we want to contribute to the positive growth, and we have therefore developed this e-book, which aims to provide a greater understanding of the different types of plastic.

Plastic has for a long time been a controversial material, as over a number of years there has been an overproduction of disposable plastic, which has been a burden on the environment. However, it is important to be aware that not all types of plastic are harmful in the same way as disposable plastic. In fact, there are several plastic materials that can be recycled or degraded naturally. In this e-book, we highlight fossil fuels, recycled plastics, bio-plastics and ocean waste plastics, and rank them according to their 'sustainability score'. This way, it is easier for you to navigate the different types of plastic and choose the right one for your particular product and brand. In the e-book, you gain an in-depth knowledge of PET, PE, PLA and PP, and both advantages and disadvantages are highlighted.



If you want to learn more about what are the different types of plastic, their origin and positive or negatives, read on here.

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