

Compostable Bags

The Compost Bag Company Ltd are committed to providing the most environmental products possible, as ethically as possible.

The 'Circular Economy' is a recent buzzword for something we have always had to do - managing the entire cycle of our products, from soil, back to soil.



Unlike some industries our everyday issues involve the entire life cycle of our products. Legislation requires that we hold EN13432 Compostable certification, therefore end-of-life, what happens to our products after they have been used, is a central issue. Achieving this certificate involves managing all the raw materials that go into our bags, even the ink. A simple waste bag has a complex scientific background and impact. But with increasing public interest in 'plastics' this rough guide attempts to give an overview of key points, in everyday terms.

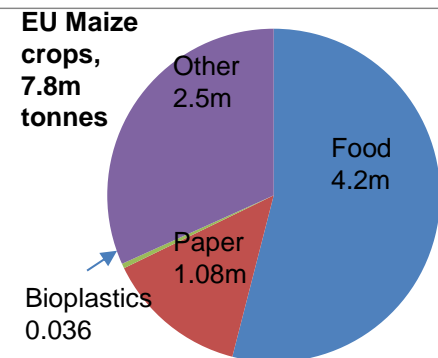


Our raw materials

The raw material for our bags is called Mater-Bi®. This family of plant based plastics (bio-polymers) is made by world renowned experts Novamont SpA in Italy, who we have worked with for over 16 years. The cornstarch and plant oils used in making our bioplastics come from EU grown maize. No palm or soya products, no virgin soil or deforestation involved.

No Genetic Modification – Novamont guarantee 'no GMO DNA/organisms' in their raw materials. None. They also insist on a 'Mass Balance' from their agricultural suppliers to prove that the GMO-free crops (which they pay extra for) were indeed grown and supplied to them.

Ethical agriculture and land use – Very little land is taken up growing bioplastic. Of the 7.8 million tonnes of maize that the EU grows about 14% is used for the starch in paper and cardboard and only 1% is used for bioplastic. Even so, other options are being used. The 'Matrica' project developed chemicals from thistles grown on non-arable soils in the far south of Europe that were incapable of growing higher value crops such as food. Farming 'cardoma' thistles, basically weeds, requires virtually no water, fertilisers or pesticides. The thistle heads provide oils and starches and the stalks power the bio-refinery. This project rejuvenated a local farming community and switched a refinery from fossil fuels to plant extracts. You can read more about it here: <http://www.matrica.it/>



Novamont's commitment to ethical sustainability is set out in an inspiring format – the '17 things' United Nations 2015 Sustainable Development goals. You can read about them here: <https://uk.novamont.com/>



Polymers made with plants – It is possible to use 100% plant based chemicals when making a bioplastic but only for things like the extrusions you may have seen replacing polystyrene packing. All of the bioplastics used in compostable bags, regardless of the supplier, will have been made from a set of chemicals that

are not all plant based. In 2017 Novamont used 75853 tonnes of renewable materials and only 51,064 non-renewables (60% sustainability). Scientists using C¹⁴ Carbon dating can also test a bag to see age of the polymers. The raw material for our bags, Mater-Bi®, has the highest sustainable content of any raw material that liner bags can be made of.



Changing attitudes and uses - The waste industry remains our main customer and until recently the way our bags break down has been the main reason for buying them.

But there are more reasons for using plant based polymers than how they biodegrade. The sustainability of plant-based bags (above) has become increasingly important to environmentally conscious buyers who are moving away from single use plastic.

The packaging industry is looking at transpiration (the way biofilms can protect food and still let it 'breathe'). This can be beneficial in food packaging preventing the air trapped inside 'going off' (anaerobic) giving it a much longer shelf life.

Farmers are also using our films, laid over the soil to protect young plants during the early stage of growth. Long black sheets of our film help retain water in the soil, and forms a physical barrier stopping weeds from germinating without using chemicals. Biodegradation is timed so that the film is mulching away into the soil at just the right time for harvesting the crop..



Innovations

New bio-chemicals and polymers are developing every day. As well as the Matrica project we are working with other innovations in material science. Important chemicals used in making bags can come from renewable sources – for example CaCO₃ calcium carbonate from waste oyster shells, and ethanol from sugar cane waste.

Even the ink is compostable – the inks printed on our bags have to be low in chemicals to be safe in soil. Our inks are separately certified EN13432 Compostable. This solvent-free ink is water based and UV dried. Our factory emissions are a tenth of what they were ten years ago.



Ordinary plastic? – We are best known for, and prefer to supply bio-based plastics. We are founding members of the BBIA Biobased and Biodegradable Industry Association. In most situations a bio-based bag is better. When the customers we work with insist on ordinary plastic bags we will use 100% post-consumer recycled polymers. But...

In the long term – even where bags are going into AD - Anaerobic Digestion instead of composting we still recommend compostable bags for any food waste recycling scheme.



Compostables are ideal in Dry-AD sites, as residues are composted. Some wet-AD facilities were designed to work with ordinary plastic packaging in their inputs. For them compostable bags don't work as well but many can and do still accept them and some send them for composting. We understand that extracted plastics are usually landfilled as they are too wet for incineration.

There is increasing concern about bits of this plastic getting onto farmland. In March 2019 the Environment Agency announced its intentions to tighten up on 'intentional contamination' of feedstock wastes going into organic treatment facilities.

In our work with the BBIA Biobased and Biodegradable Industry Association, which includes wet-AD operators, it is widely accepted that plastic bags are not suitable in food recycling schemes.

On the continent, where most of our AD technology comes from, schemes are more developed with compostable bags in the input and all outputs composted before landspreading.

Manufacturing

Our bags are made by our parent company in Belgium, Compost Bag Company, established in 1982. <https://www.compostbag.eu/en/>.

Manufacturing is externally audited to ISO9001 Quality and ISO14001 Environmental Management Standards, and operating with all the corporate ethics expected of any leading EU manufacturer, our group's approach is to do business "respecting both man and nature".

100% Renewable Energy – For several years the factory has been powered by 100% renewable energy. Coastal wind power provides all the energy for the factory, also charging the Hybrid vehicles that are already being phased in to replace ordinary company cars.

The Ultra Violet lamps that we use to dry the water based inks on our bags are currently being replaced with LED types and significant power reduction is hoped for in this recent innovation.

0% Use of Water - the factory is certified 'zero emissions' as it cleans and recirculates all water used in bag production.

Re-using waste material – when starting up the machines and stopping a production run a significant amount of scrap can be produced. None of this is wasted. Scrap polymer is re-melted into granules, cleaned and blended in back at the start. This happens to create the pale green tint from the compostable ink.

Almost all compostable bag suppliers have adopted this same colour scheme and in fact it is helpful for the compost industry as the safe green bags merge with the garden waste and food scraps - bright colours stand out and are easier to see and remove. Re-circulated granules are also used in our compostable dog waste bags which are usually tinted opaque black with a 'masterbatch' dye.

Packaging – We use as little packaging as possible while protecting the bags. Pallets are standard reusable sizes. Pallet Wrap is widely recycled from commercial waste streams. Cartons are good quality cardboard often reused, always recyclable. Our wood based packing etc is from FSC sustainably managed forests. Paper bands are secure rolls of bags and we only seal them into packs if there is a risk that children or animals could get at them.



Delivery

Our factory is one of the closest available to the UK which gives many benefits.

Using the CO2e calculator provided by our shipping company [Keune & Nagel](#) one typical 22 tonne delivery of bags from Belgium via Hook of Holland is a journey of about 736km, including a 346km sea crossing to Immingham and creates 588kg CO2e.

By comparison a similar load from a French competitor via Calais would create 1522kg and a far-east supplier 18,575km away creates 2373kg CO2e.

Not only do our bags use less CO2 to reach you, they arrive here only a few days old with a full shelf life (you will see the manufacture date on all our products whereas our competitors seldom offer this information).

On the UK delivery leg, with our long-term delivery partners we maximise the use of Euro5 and Euro6 vehicles, and our parcel delivery courier DPD is Carbon Neutral.

Helping both Buyers and Users

If a caddy liner wasn't a good fit on their caddy, if seams burst, or the bag just felt weak, people simply fill it less full, or even 'double-bag' it, so a cheap bag could end up costing twice as much, and use twice the resources. By listening and adapting our designs we give users a bag they feel confident with, using as few resources as possible, encouraging them to participate in food recycling schemes as much as possible.



Very few of our buyers are experts in biodegradable waste bags, so we share best practices and our own experience to help them make good decisions, avoid wastage or over-provision. As well as being well used over the last 19 years our caddy liners have been laboratory tested to hold 3kg at room temperature and even at 75 degrees (very hot tea?) they will hold 1.5kg for over 30 minutes hanging by their knot without breaking.

End of Life

Our caddy liners are intended to stay in a closed loop system, collecting food scraps and being treated in organic processes, back into soil improver.

Composting: Our bags are certified EN13432, some for Home as well as Industrial composting. Composting is an aerobic reaction with Carbon (C) and Hydrogen (H) combining with Oxygen (O) forming some CO₂ and H₂O and leaving behind biomass, not unlike a twig or leaf.

Anaerobic Digestion: Our bags are ideal in Dry AD systems and okay in Wet AD systems. Inside a tank, without air, organic Carbon/Hydrogen matter breaks down into CH₄ gas (Methane) and biomass. The gas can be burnt to generate power. Afterwards the residue, including fragments of our bags, can be composted or spread to land to biodegrade in soil over time.

In the environment: if for any reason a compostable bag escapes into the environment it is not harmful. It will biodegrade, slowly, depending on how much oxygen is around, not unlike a twig or leaf.

In recycling: if for any reason our bags get into plastic that is being saved for recycling it will be a contaminant much the same as the paper label on a bottle, etc. Thankfully the amount is so low that the plastic recycling industry can cope with the few occasions that this happens.

Other-degradables: Biodegradable is a word that can be misused and should not be confused with other types of plastic that breaks up into fragments, Tiny particles of ordinary plastic are not good for the environment and 'degradable' plastics, once thought to be a good idea, are now being banned in many countries. The prestigious [Ellen McCarthur Foundation](#) supports compostable bags and is against degradables.

Landfill and Incineration: Any waste material that has a value to our economy, including our organic wastes, should stay within our economy. Organics are destroyed (poisoned) in a Landfill pit. It seems a pity to landfill or incinerate bio-polymers but there is still an advantage over ordinary plastic. We wasted materials that only took us a year or two to create, not a few million years.

We hope this quick guide has been helpful. If you want to know more please get in touch.

