

Sustainability report 2023

Polytives GmbH



Meeting the challenges of plastics production
with suitable solutions.

About Polytives

In the literal sense, polytives stands for “polymers”, i.e. plastics, and the English word “additives”.

We develop, produce and distribute innovative plastic additives and advise our customers on how these additives can help them with their individual challenges. Our aim is always to meet the challenges of plastics production with a suitable solution by providing our products with appropriate benefits for users in a wide range of industries. In doing so, we are convinced that we should all live and work in a way that preserves the natural environment and valuable resources for future generations.

Introductory words from the Management Board

” Sustainability should be a high priority for every entrepreneur. Not only in terms of sustainable business practices, but also in terms of meaningful interaction with society and nature. To this end, it is important to be aware of your own activities, their impact and how you can iteratively optimise processes again and again. “

Viktoria Rothleitner | Member of the Management Board

” For us, sustainability means using our expertise to make plastics more technologically sustainable. We use innovative additives to improve the performance of plastics and reduce their environmental impact. With resource-efficient and recyclable solutions, we are driving forward a more sustainable plastics industry. “

Oliver Eckardt | Member of the Management Board



The social aspect

Social sustainability is playing an increasingly important role in effective corporate management. We endeavour to implement this principle for our company with the following guiding principles.

Transparency and communication

We value open dialogue and regular constructive communication with employees, customers, suppliers and other stakeholders.

Professionalism

Our team is made up of different characters. Individual strengths are harmonised in such a way that results are achieved reliably and jointly.

Employee well-being

We have created a working environment that endeavours to promote safety, health and work-life balance in the best possible way. For example, we plan team events or finance a local transport ticket for everyone who wants to take advantage of it.

Respect

We work in a flat company hierarchy. It is therefore important to treat each other with respect and tolerance. This is very important to us both in our dealings with each other and with our partners.

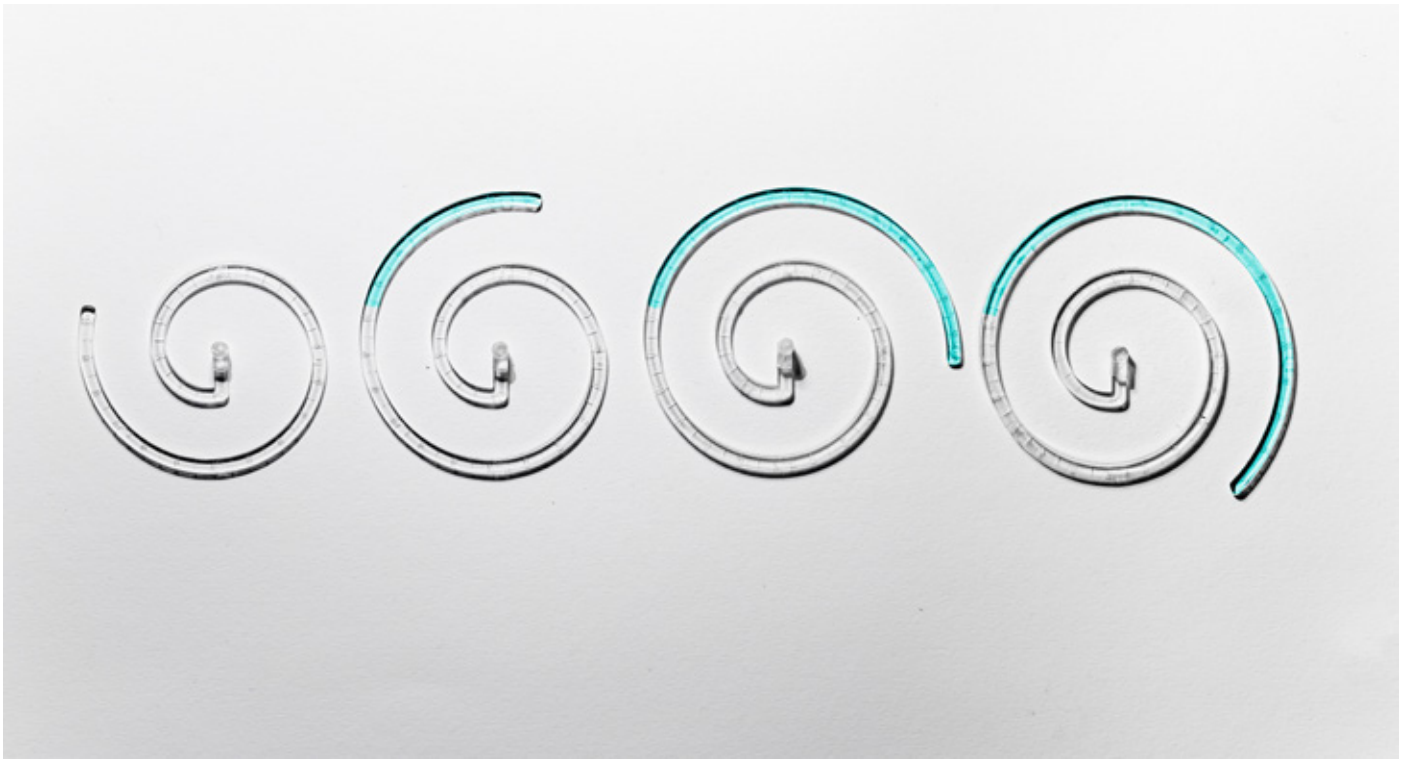
The ecological and economic side

Plastics are the subject of controversial debate, especially when it comes to their impact on the environment. Due to their production and disposal, they play a major role in environmental pollution and climate change. However, due to their positive and versatile properties, they have become indispensable in many areas of life and also have the potential to be the more sustainable option. This is precisely why it is important to play a part in protecting nature within the plastics industry.

This is precisely where our current product family of flow improvers, which also includes *bFI A 3745*, comes in. Although we are concentrating on the development of further additives, we are not losing sight of optimising existing solutions: increasing efficiency and minimising raw materials are always approaches that we want to pursue further.

We are planning to carry out part of our production in-house at our new company site in Rudolstadt, which we will move into at the end of 2023. The new location will provide us with the necessary infrastructure and, according to our optimistic view, will enrich the region in the long term.

” We all want to do something to save the environment and when you see that you are actually making a difference, it is of course very motivating. What’s more, everyone here can



talk to each other as equals, which offers the opportunity to build direct relationships and creates a pleasant working atmosphere. “

Martin Hädrich | Chemical technical assistant

” I wanted to do something practical in my Master's thesis and what was on offer in Würzburg was very far removed from practice. After that, I wanted to do application-orientated work and at Polytives my work is based on application-orientated research and laboratory work. “

Andreas Eisenhut | Lab manager

What we can improve with our products

Our plastic additives offer our customers the opportunity to optimise their processes and create higher quality products. Although there may be an initial investment in this process, the medium-term result is financial savings and protection of the environment. Product recycling in particular should be considered in this value chain. With our additives, we want to maintain or even increase the recyclability of our customers' products — and make it easier for them to use recycled materials.

What advantages does our growing *bFI* flow improver family offer in detail? The flow improver makes machine operation and material handling more gentle, which is reflected in an increased service life and easier processing. The control of the melting temperature, which can be regulated by adding our flow improver, has an immense influence on the plastics processing and recycling process. In various applications, the required temperature is reduced by 30 °C (from 220 °C to 190 °C) and, depending on the type of plastic, by as much as 50 °C (from 280 °C to 230 °C). The temperature differences affect the amount of heating energy required and, depend-

ing on the process, the duration and intensity of downstream cooling. Similarly, the pressures required in the process can be massively reduced, which also represents a major energy-saving potential.

We are also convinced that our additives contribute to the realisation of circular economy systems. Gentle processing temperatures mean that new materials or material combinations can be processed and processes simplified. Even if the benefits must always be considered in the specific application, the following general observations can be made:

- Maintaining the initial mechanical properties of polymers/ recyclates, even at high dosages
- Reduction or avoidance of toxic additives (leads to a non-toxic, pure, food-compatible product)
- Better realisation of filigree components
- Maintaining the recyclability of products that our customer manufactures with customised additives (our additive generally has the same structure as the base plastic)
- Realising potential for energy and cost savings in processing
- Plastic recyclates that are difficult to process further due to their high melt viscosity are given a second chance in injection moulding (upcycling of the recycled material is achieved)

” It is the excitement of bringing a completely new product onto the market with the team and potentially improving an entire industry with it. Personally, it's a great challenge because I can be involved in all the processes.

Steffen Felzer | Sales Director

Our handling of operating resources and external conditions

We take care to utilise our chemicals efficiently and recycle the solvents we use by separating them from our product and reusing them. Our distillation process enables recoveries of up to 75%. Our contract manufacturer, with whom we started producing industrially relevant quantities of our polymer additives in 2023, also has resource-saving, economical technologies, which is in line with our mentality.

Handling of solvents 2023

The start of external production led to an increase in solvent consumption — however, corresponding quantities were also recovered: in 2022, the figure was 30 litres for internal production only — in 2023, together with external production, it was 2775 litres.

Laboratory waste

In contrast to last year, in which 558 kg of waste was generated during our laboratory work, this year our laboratory generated 445 kg of waste in the course of our research, development and production. Of this 445 kg, 290 kg is attributable to solvents that are not yet technically recyclable and 155 kg to solids. The lower waste production compared to the previous year is due to the fact that laboratory work had to be paused for several months as part of the relocation.

Business trips and travelling

Wherever possible, we try to travel by public transport. However, various business trips made in our company car (hybrid model) were unavoidable. This emitted 890 kg of CO₂ equivalents (CO₂e) in the previous year. In 2023, we caused emissions of 9553 kg of CO₂ equivalents due to increased travelling.

The change of location means that the journey to and from work for employees travelling by car is twice as long in some cases. The ideal connection to the public railway network compensates for this somewhat.

Electricity and energy

Most of our electricity in Jena, both in the office and in the laboratory, comes from sustainable energy sources. We are very keen for our landlord at our new location in Rudolstadt to accompany this development and support us in our endeavours.

“ I am driven by the idea of being able to contribute to an economic innovation and actively promote an industry in transition towards greater environmental friendliness. Our young company with its agile team allows us to pass on our products to the industry in the spirit of sustainability right from the start. “

Frank Seiler | Assistant to the Management Board

Our CO₂ balance sheet for 2023 and corresponding compensation measures

Looking back to 2023, we recorded and documented our CO₂ emissions for the first time, as far and as accurately as possible. We used the online tool ecocockpit to do this. For the calculation, emission sources are categorised, recorded and documented in three scopes (see Table 1).

Scope 1 — Emissions:	Scope 2 — Emissions:	Scope 3 — Emissions:
Internal combustion processes	Purchased energy sources	Services and third-party products
own production facilities, own company vehicles	Electricity, steam, heat / cold	Raw materials and supplies, logistics, waste disposal, etc.

Table 1: The three scopes used to categorise the emissions generated.

According to our calculations and estimates, we released approx. 78561 kg of CO₂ equivalents in 2023. This total includes a surcharge of 10% per scope to cover non- or underreported emissions.

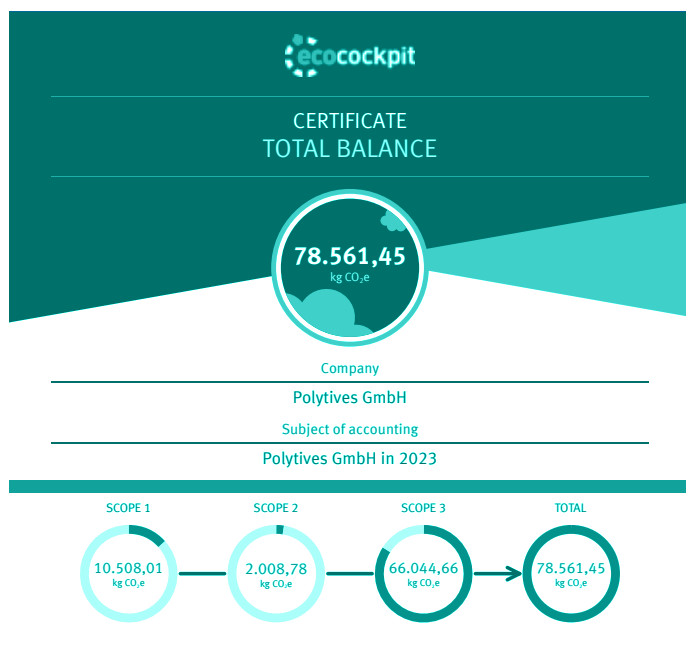


Fig. 1: Overall balance and result of the partial scopes, calculated using ecocockpit

Scope 1

Emissions in this scope totalled approx. 10508 kg CO₂e. The largest contributor here is private transport. Thanks to our cooperation with MYCLIMATE, we are able to directly offset these vehicle-based emissions in particular and thus support various climate protection projects. However, we noticed a discrepancy between the information provided by MYCLIMATE and a manual calculation using the ecocockpit software: ecocockpit calculates a quantity of CO₂ equivalents that is approx. 1 tonne greater. We have decided to include this 1 tonne difference in emitted CO₂ equivalents in our balancing so that the data basis can be related as uniformly as possible to the databases behind ecocockpit.



Scope 2

In Scope 2, CO₂e in the order of approx. 2009 kg was generated. Compared to Scope 1 and 3, this amount is very low. This clearly shows the impact of the increased use of sustainable energy sources for the site's own power supply.

Scope 3

The largest proportion of our emissions, at around 66045 kg CO₂e, can be found in Scope 3. Data collection in this area is complex, as the observed processes extend across the entire supply chain and the majority of suppliers and industry associations are not yet able to provide a reliable data basis themselves.

As a result, emission data is not yet available for many of the chemicals we purchase. To compensate for this missing amount, we have applied a specific surcharge for chemicals only, in addition to the 10% safety surcharge mentioned above. This surcharge amounts to approx. 12875 kg CO₂e and was arrived at by using the highest emission value of the chemicals purchased by us as a model for the emission data in this sub-scope that were unknown to us. This empirical estimate remains harmonised with the data from ecocockpit and takes into account the quantity of all chemicals that we would otherwise have to disregard without any information. A lot of other data, such as kilometres travelled by train or transport routes of our suppliers, had to be estimated similarly. In future, we hope to close many of these information gaps in order to be able to provide precise data.

Compensation

We offset all CO₂ emissions that were not compensated from the outset with the help of the "Tree Sponsorship Thuringia" programme. As a result, trees were planted in Thuringia for us in support of the Thuringia Sustainability Agreement (NAT), of which we are a member. These have the potential

to convert 87500 kg of CO₂ equivalents into oxygen. With the measures we are taking, we are offsetting a surplus of almost 10 tonnes of CO₂ equivalents.

Even though we are still a relatively young company, we are aware of our responsibility to protect our environment so that it can continue to serve as the basis for our lives and business. In addition to our own requirement to offset 100% of our emissions, we endeavour to make our procurement and logistics as climate-neutral and sustainable as possible.

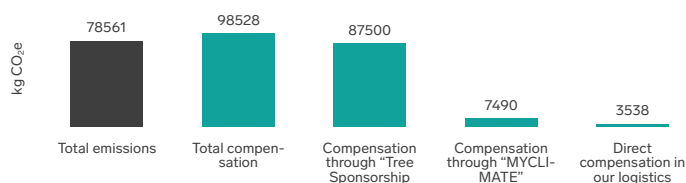


Fig. 2: Overview of offset CO₂ equivalents

Conclusion

Our company can actively contribute to environmental protection and sustainability in two ways: We can work to gradually reduce our own greenhouse gas emissions and offset them at the same time. To this end, we have drawn up our holistic carbon footprint (cradle-to-gate approach) for 2023 for the first time. We can now estimate in which areas the greatest emissions are generated. On the other hand, our products help to reduce the energy input in the market and optimise the internal workflows of our customers' processing and recycling processes.

Overall, cooperation and collaboration between companies is particularly important for reducing emissions, be it through general process coordination and work agreements, participation in circular economy systems or openness to techno-

logical or organisational innovation. Despite focussing on our economic success, we want to continue to do justice to social sustainability and environmental protection in the further development of our company.



Tree sponsorship

Polytives GmbH Compensation of CO₂ equivalents for 2023

This sponsorship supports the sustainable reforestation of Thuringia's forests.

This sponsorship of 25 trees

gives animals a home, creates a habitat for many plant species and converts CO₂ into clean air to breathe. In this way, biodiversity in Thuringia is preserved for future generations.

87500 kg of CO₂

will be converted into clean air through this sponsorship.



duction, which is designed in line with the above-mentioned objectives. Part of our vision for the future is to develop our products towards full recyclability. To achieve this, it is necessary to be able to produce the preliminary products in a recyclable manner. This is not feasible on our own, but requires strong partners with a similar mindset as well as technological, economic and regulatory approaches and ideas.

As announced in the 2022 report, after the relocation we will examine the extent to which we can realise the implementation of a photovoltaic system with our landlord.

After balancing our CO₂ emissions for the first time in 2023, we want to work on optimising this process quantitatively and qualitatively in the future. This will enable us to better identify targeted savings potential and generally adapt processes to our circumstances.

We are confident that society's general desire for sustainability will lead to a growing demand for resource-efficient solutions. While ESG factors will play a greater role in investment evaluation on the financial side, the labelling of environmentally friendly companies or products will increase. We would also like to hand over our bFI products to our industry partners with as much certification as possible and are exploring various options for this, e.g. the ECOVADIS "Efforts in Sustainability" award. The next step from the company's overall balance sheet, which has now been established, is the product balance sheet - and thus another fundamentally meaningful benchmark and measure of our endeavours.

“What gets me is the spirit of optimism that prevails here. Our statement at the beginning was: “We want to revolutionise the plastics market.” Together we are trying to realise this goal. “

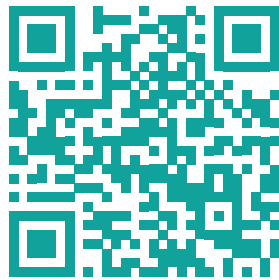
Oliver Guntner | Quality manager

Future outlook

As a company, we strive for future-orientated development based on sustainable action. We want to help initiate a change in the image of plastics and at the same time consolidate our position in the plastics industry. By improving our production processes, we continue to pursue the goal of both making our products more efficient and minimising our use of materials. We are also opening up new areas of application for our flow improvers and scaling up our production facilities.

With the final holistic relocation of our company site from Jena to Rudolstadt, we are creating the basis for using the office and production space gained to set up our internal pro-





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