# BIOVOX

## MedEco Compounds

Sustainability facts

### At a glance:

- ☑ Biobased and recyclable
- ☑ Energy efficient processing
- Adapted for the **circular economy**
- ☑ Less material due to high strength and stiffness
- ☑ No competition to food production
- ☑ Lower carbon footprint than fossil plastics with similar properties
- $\ensuremath{\boxtimes}$  Human rights are respected throughout the whole supply chain
- ☑ No deforestation for plantations

## In detail

On the next pages we take a closer look into our sustainability:





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### Key facts

#### What makes BIOVOX bioplastics "sustainable"?

We address this question right at the beginning: Our bioplastics are up to 100% **biobased**, **circular**, and their **low carbon footprint** saves up to 85%  $CO_2e$  compared to conventional medical plastics.

At the end of their lifecycle, our compounds do not release any fossil carbon into the atmosphere. All our materials are **recyclable** and can thus be used in a circular economy. Thanks to their suitability for chemical recycling, they can also be used to restore medical products to medicalgrade quality. Along the supply chain, we also ensure the protection of **biodiversity and rainforests**, and fulfill our **social responsibilities**.



#### Lets take a closer look at the sustainability key facts:

MedEco Family	Rigid					Soft		Perform	
Grade >>	ICB	ICB C1	IGH	XCB	XGB	IPI	XPI	ICH	XCI
<b>Carbon footprint</b> C2Gate [kg CO <sub>2</sub> e / kg compound]	0,60	0,58	0,73	0,60	0,68	-1,77	-1,48	No data yet	
Biobased carbon content	100%	100%	100%	100%	100%	95%	95%	55%	38%
Mechanical Recycling									
Chemical <b>Recycling</b>								(▲)	(▲)
Supply Chain Act compliant									

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### **Carbon footprint**

#### How much CO<sub>2</sub>e do BIOVOX bioplastics emit?

The answer depends on which of our product families you choose: MedEco Rigid types and MedEco Soft types have the lowest footprint, whereas our high performing MedEco Perform Bioplastics are higher in  $CO_2e$  emissions. By choosing our most sustainable materials you can save up to 85%  $CO_2e!$  Additional savings can be realized through lower processing temperatures and materials savings thanks to increased stiffness depending on the grade.

The bars on the right show the visibly higher footprint of conventional plastics. Take a look at the exact numbers below:



#### Methodology and assumptions

- Acc. DIN EN ISO 14040 & 14044
- Based on real supply chain data where available. Publicly available data sources were used otherwise.
- Cradle-to-Gate includes raw material production and compounding. Not included are logistics, conversion, sterilization etc.
- Incineration is currently the most likely EOL scenario. Big improvements can be realized with recycling.

>> Click & Calculate

Calculate your saving potential!

https://tinyurl.com/saveCO2

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**CO**<sub>2</sub>

### **Recycling & Circular Economy**

#### Ready for circular economy

The EU requires every industry to transform into a circular economy. BIOVOX MedEco is the best option now, as it has a low carbon footprint, and becomes even better with chemical recycling.

#### A closed loop for MedTech!

Yes, recycling is also possible for medical applications – quality and traceability can be assured by choosing right recycling process:



Figure based on Norbert Niessner (2022): Recycling of Plastic

Feedstock plants act as a carbon sink, binding  $CO_2$  from the atmosphere. This is the same amount of carbon that would get released again when the plastic is incinerated - closing the loop over one year instead of millions of years as with fossil oil: this is meant by the term defossilization.

Mechanical recycling is out of scope for the very most medical applications: traceability and quality are not achievable at scale. Monomer recycling, however, meets the quality & purity standards for medical grades: The material is absolutely identical to virgin material. A true and compliant same level recycling, saving on carbon and land use.

Only polyesters such as MedEco Rigid can be chemically recycled to monomers. Polyolefins can only be chemically recycled with the more energy-intensive **feedstock recycling** (e.g. pyrolysis).



#### How much CO<sub>2</sub>e can be saved through recycling?

The energy efficient recycling process halves the carbon emission of recycled MedEco compared to the production of virgin material not considering biogenic credits. Emissions from incineration are eliminated completely.



### **Supply Chain Compliance**

BIOVOX ensures, that human rights as well as environmental standards are respected along the whole supply chain.



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We are producing in Germany. Our raw materials are sustainably sourced in Europe and Asia.

#### **Biodiversity & Rainforests**

All feedstock of BIOVOX bioplastics are certified through ISCC plus & bonsucro, ensuring zero deforestation as well as the protection of biodiversity, soil, water and air.

#### Social Responsibility

The feedstock certification also includes social and human rights. Covered are good working conditions with safety and health standards as well as communal rights and rural development.

#### MedEco is a lot – but no competition to food!

Currently **less than 0,01%** of agricultural land is used for bioplastics. In a circular economy, all plastics can be replaced on 2.8% of arable land or 0.31% of total land area. This calculation does not account for the uncommon use of waste as feedstock due to  $CO_2$  emissions and costs, which is possible with our bioplastics.



## And what if everything was made from bioplastics?

Today only **0,08%** of the arable land is used for bioplastics production.

All plastics in the world can be farmed on **13,9%** of the arable land.

Circular economy needs a maximum of **2,8%** arable land or rather **0,31%** of the global land area.



Arrange a free consultation now!

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