poly pak.eu

BIO Packaging Production

Better Than Plastic

Biodolomer® was developed with the direct participation and support of the European Union in order to replace plastic

Polypak BIO Packaging Production, have the honor to present to your attention our solution within

2025	2025	2040	2050
100% recyclable plastic	Halve landfilling compared to 2010	End of single-use plastic packaging	Carbon neutrality
with our solution, **plastic will not exist**	landfilling **=> composting**	transition to using **BIO Biodolomer® Bags**	our solution has a GWP **-25 g CO2e/bag**
✓	✓	✓	✓

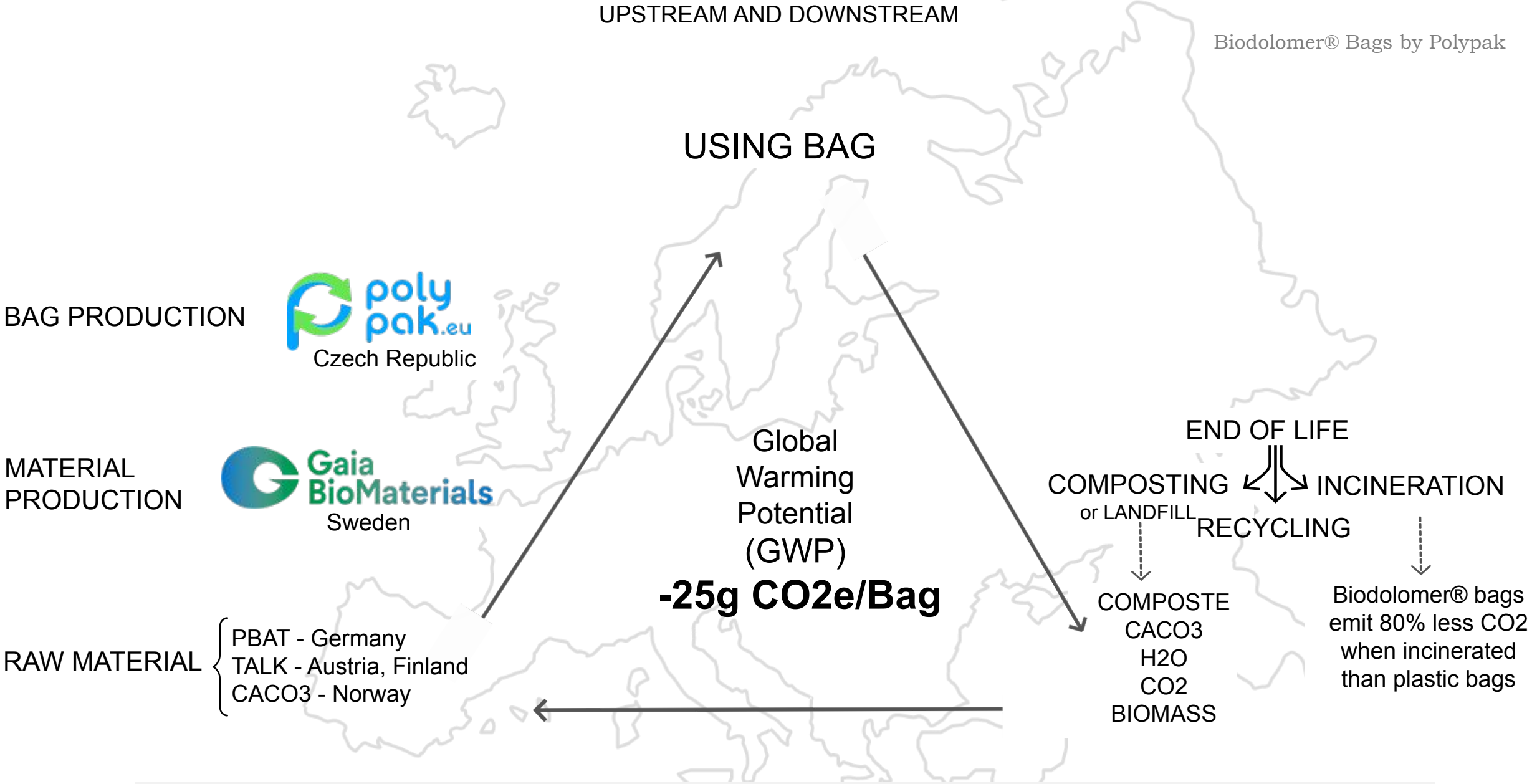
Furthermore, the Agency calls for the implementation of a circular economy that encompasses all sectors related to sustainable development, primarily waste (prevention, disposal, landfill reduction, etc.), as well as eco-design, ecological labeling, and more.

With our solution in the field of garbage bags usage
You have addressed these objectives with Polypak in 2023

THE ENTIRE PRODUCT LIFE CYCLE AND ITS IMPACT ON THE ENVIRONMENT

UPSTREAM AND DOWNSTREAM

Biodolomer® Bags by Polypak



The GWP effect considers the full life cycle assessment (LCA) of the product both upstream and downstream

Based on the results obtained from the LCA assessment for Biodolomer® within EU LIFE15 ENV/SE/000315
and the comparative analysis with plastic bags, the following conclusion can be drawn regarding the effectiveness of transitioning from plastic bags to Biodolomer® bags

LCA FOR BIODOLOMER® WITHIN EU LIFE15 ENV/SE/000315

Bag Type	Net Effect, Gwp g CO2e/Bag	Net Effect, Gwp g CO2e/ 1.000.000 Pcs Bags
Biodolomer bag	-25 Page 26, Table 7 LCA results	-25.130.000
Fossil based PE bag	152 Figure 9 GWP results for bag products, page 27	152.000.000

CONCLUSION: Each million used Biodolomer® bags results in a cumulative GWP effect of **177 tonnes CO2e/1 million bags**

The calculated effect takes into account the entire life cycle of the product (LCA),both upstream and downstream

COMPLIANCE OF THE PRODUCT WITH CURRENT REGULATORY STANDARDS

Biodolomer® Bags by poly pak.eu

EN 13432 TA8022004937 Resin OK Compost Home 70 my (Compostablity)

- Biodolomer®_F_disintegration_study_ambient_temp (Disintegration study)
- Förbränningstest_O100152-183369rev1 (Incineration test, swedish)
- 221114 Biodolomer F Disposal recommendations.pdf
- 230202 GAIA Biodolomer MOAH-MOSH-POSH-POAH statement
- 230301 GAIA Biodolomer PFAS statement
- 230127 GAIA Biodolomer REACH RoHS statement
- 230127 GAIA Biodolomer SVHC statement
- Biodolomer_F_7W0334_EN kompostierbar
- LCA_for_Biodolomer_Final_version
- Report_Migration_MPPO_2016-047811

SWEDAC ACKREDITERING
Ackred.nr. 1002
Provning
ISO/IEC 17025

Compostable 7W0334

HOME OK compost
TÜV AUSTRIA
HOME S0455

Each stage of the product's LCA has been tested to ensure compliance with regulations and standards

THE EDUCATIONAL EFFORT REQUIRED TO TAKE FULL ADVANTAGE OF THESE NEW MATERIALS

- Glass
- Plastic films
- Cans
- Cardboard
- Scrap metal
- Wood
- Biowaste

Each waste type is sorted into Biodolomer bags

Biodolomer® Bags by Polypak

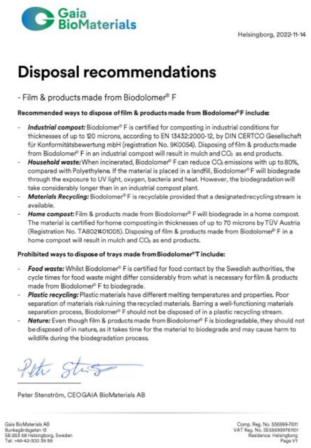
A certain amount of non-recyclable plastic waste, including garbage bags, is eventually incinerated or landfilled

Eco-friendly possibilities of End-of-Life

Biodolomer® Bags

COMPOST	INCINERATION	LANDFILL
with BIOwaste	with non-recyclable waste	with non-recyclable waste
Home till 70 mic	-80% CO_2 than plastic	Home Compost till 70 mic

<u>Each of the 4 End-of-Life options has been tested and has the corresponding conclusion</u>



Gaia BioMaterials

Helsingborg, 2022-11-14

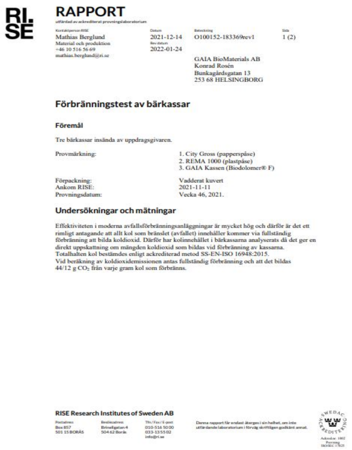
Disposal recommendations

- Film & products made from Biodolomer® F

Peter Stenström, CEO GAIA BioMaterials AB

CERTIFICATE FOR AWARDING AND USE OF THE 'OK COMPOST HOME' CONFORMITY MARK

TA8022004937



RAPPORT

Förbränningstest av bärkassar

RISE Research Institutes of Sweden AB

CERTIFICATE FOR AWARDING AND USE OF THE 'OK COMPOST HOME' CONFORMITY MARK

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In all cases of End-of-Life use, a waste bag made from Biodolomer® does't harm the environment

COMPLIANCE WITH OPERATIONAL CONSTRAINTS AND DEFINED REQUIREMENTS

BASIC REQUIREMENTS FOR GARBAGE BAGS

Biodolomer® Bags by Polypak

Transparency (safety in airport conditions)

Opacity varies from 27 to 40%

Elasticity, puncture and tear strength

Dart Drop - 350g (25 µm film)

Tensile Strength - 60 / 52 MPa

Tensile Modulus - 600 / 350 MPa

Tightness, water permeability

The water vapor transmission rate at 23°C/50%RH is 102 cc/m2/day for film of 35 µm

No toxic substances

REACH, RoHS & SIN list compliant
MOAH, MOSH, POSH or POAH - limit not exceeded
SVHC - limit not exceeded
PFAS/ PFOS / PFOA is not used as a raw material in the manufacture of bags

Use at high and low temperatures

Specific migration has been performed on the whole construction at conditions 10 days 40°C Overall migration has been performed on the whole construction by immersion to food simulants A:10% Ethanol, D2. Isooctane at conditions OM1; 10 days 20°C. And D2: 95% Ethanol 1 day 20°C. Results < 10 mg/dm2

- Tensile strength (-18C) MD/TD 35,88/17,66 MPa(plastic 32,98 / 17,24)
- Ultimate Elongation (-18C) MD/TD - 778 / 689 MPa

The Biodolomer bag has been tested to meet all required parameters under various temperature conditions
The results demonstrate that our solution meets all requirements and is safe for use in an airport environment

ABILITY TO PRODUCE INDUSTRIAL VOLUMES

Gaia BioMaterials
Sweden

The annual production capacity of raw materials is 10,000 tons

polypak.eu
Czech Republic

2023: Production cycle - the estimated production time for
1 million bags is 72 hours

2024: Production cycle - the estimated production time for
2 million bags is 72 hours

Businesses and Society are striving for sustainable development
The market for eco-friendly packaging is growing dynamically
Our investment plan takes this into account and is designed to triple the production volume from 2023 to 2025

THE MATURITY OF THE SOLUTION

OUR SOLUTION WENT THROUGH ALL THE KEY STAGES OF DEVELOPMENT AND IMPLEMENTATION ON THE MARKET

Research and development

- We have conducted a thorough market research and determined that our product complies with the principles of sustainable development
- An analysis of the needs and requirements of customers in the context of sustainable development was carried out
- Developed a sustainable product concept and design to ensure that it meets these requirements

Testing

- The product has been tested for sustainability, functionality and performance

Production and scaling

- The product is put into production on an industrial scale

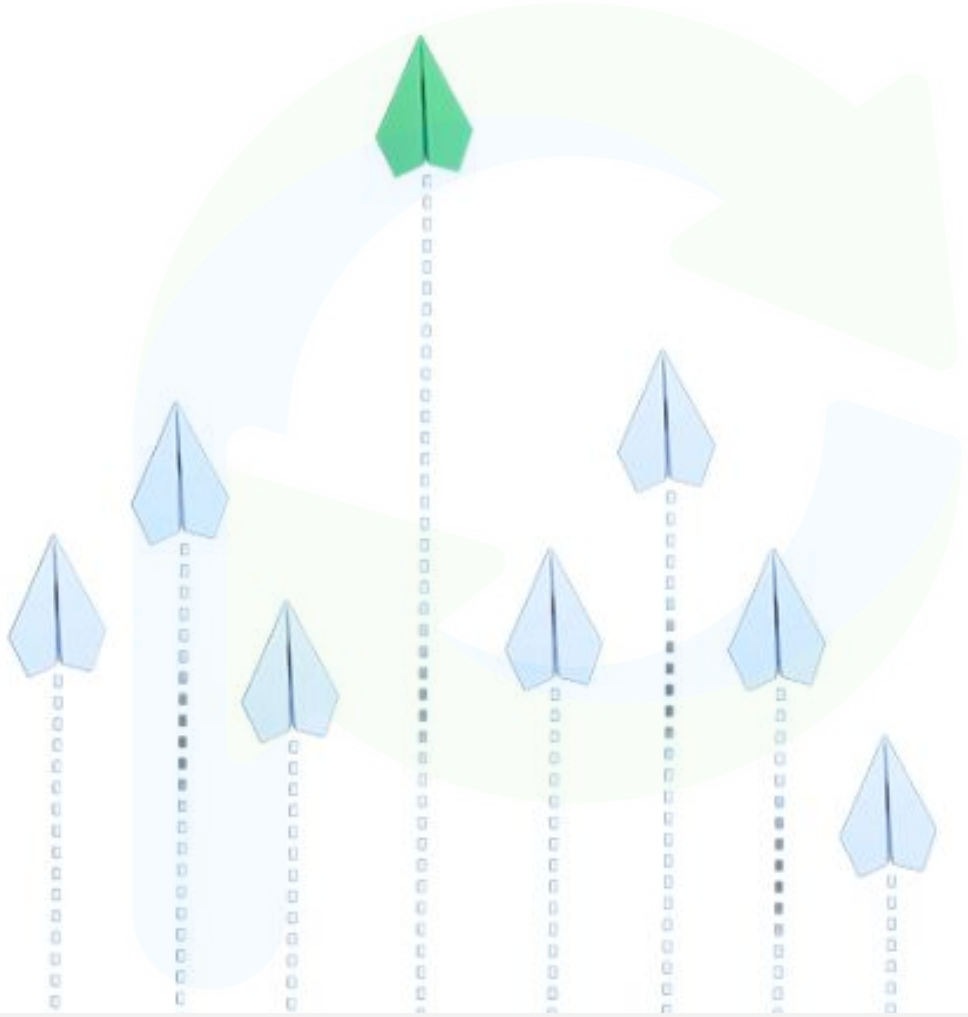
Market entry and commercialization

- The product is brought to the market and sold to the target audience
- Monitored reviews and feedback from customers

Our product complies with the principles of sustainable development and meets all the requirements of consumers, offering both environmentally friendly properties and meeting the needs of consumers

COMPETITIVE COST

THE PRICE OF THE PROPOSED SOLUTION IS JUSTIFIED BY THE FOLLOWING KEY POINTS



- **Quality**

High-quality product that has undergone necessary testing and certification

- **Innovation**

Unique technologies and methods that provide superior results and advantages compared to alternative solutions

- **Industrial Production Capability**

The ability to scale up production and meet increasing orders, ensuring consistent supply and timely delivery

- **Potential for Growth**

The solution offers the potential for expanding market demand and capturing new opportunities, providing long-term growth prospects for both our company and our customers

- **Sustainability**

Environmental and social responsibility, reflected in the reduction of negative impact on the environment and society

- **Professionalism**

High level of knowledge, experience, and expertise of our team, ensuring reliable and professional service

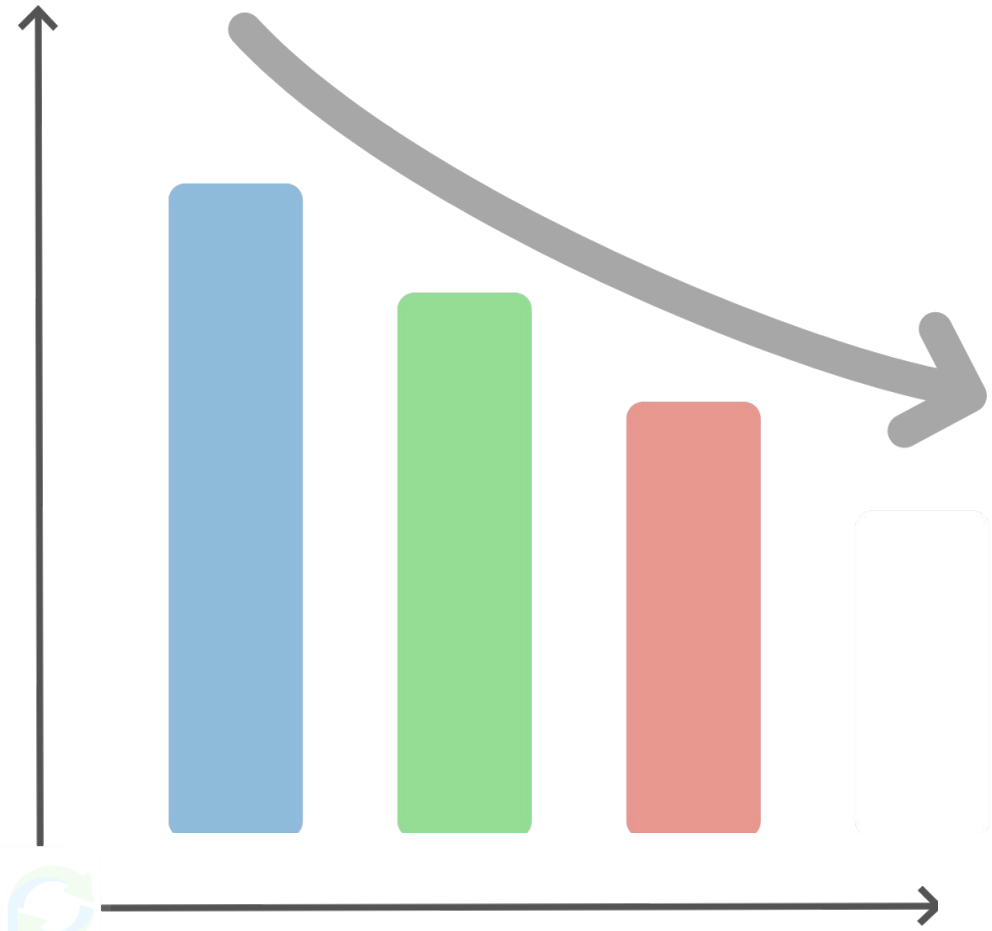
- **Customer Satisfaction**

Established reputation and positive feedback from our clients, confirming the quality and value of the proposed solution

The previously provided quotations reflect the pricing for the experimental batch
In the event of an increase in order volume, we are committed to offering the most competitive prices

FLEXIBILITY IN PRICING

Biodolomer® Bags



110 L, 35 µm

325 000 pc- 0.472 €/pc

640 000 pc- 0.448 €/pc

2 000 000 pc- 0.397 €/pc

4 000 000 pc- 0.327 €/pc

-30%

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BIO Packaging Production

Thank you for your attention!

We are truly honored to present our solution to you
We are committed to fostering further cooperation and working towards a cleaner and sustainable future

Saving the Planet one bag at a time