NUREL BIOPOLYMERS

inzea® BIOPOLYMERS

COMPOSTABLE BAG SOLUTIONS

THE SUSTAINABLE CHOICE

biopolymers.nurel.com

INZEA BIOPOLYMERS: A CERTIFIED, COMPOSTABLE ALTERNATIVE FOR ALL BAG NEEDS

INZEA® offers a comprehensive range of certified **compostable** and **bio-based biopolymers** specifically developed for **bag manufacturing**. Our materials are used across a wide variety of applications, from **thin bags** for **fresh fruit & vegetables**, to **retail**, **courier**, and **waste bags**.

Designed for **easy processing** on **conventional equipment**, INZEA® biopolymers enable brands and manufacturers to create **high-performance**, certified **compostable** bags that support circularity, reduce dependence on fossil resources, and meet evolving regulatory and consumer expectations.

TESTS & CERTIFICATIONS

OK compost INDUSTRIAL

This label, based on European standard **EN 13432**, guarantees that a material is compostable in **industrial composting facilities** under controlled conditions.

KEY CERTIFICATION CRITERIA

- **90% of biodegradation** in maximun **6 months** at 50±2°C with a 50-55% RH.
- **Disintegration: less than 10%** of fragments >2 mm after 12 weeks
- **No residual fragments** larger than 2 mm after the desintegration period)
- **No negative impact** on final **compost** quality (eco-toxicity, plant growth)
- **Heavy metal and chemical safety** limits must be respected

OK compost HOME

This certification ensures that a material will biodegrade effectively under **domestic composting** conditions at 20 -30 °C.

KEY CERTIFICATION CRITERIA

- **≥ 90% biodegradation** within 12 months at typical home compost temperatures (20 -30 °C)
- **Disintegration**: material with a size greater than 2mm must be <10% after 6 months
- **Ecotoxicity tests**: ensures no adverse impact on soil or plant growth
- **Heavy metal** and **chemical safety** limits must be respected

Biobased content

The biobased content of our biopolymers has been measured by BETA according to the **ASTM D6866** standard.

This verifies the renewable carbon content of a material using **radiocarbon analysis**, ensuring precise **measurement of biomass-derived carbon**.

This method distinguishes between biogenic (renewable) and fossil (non-renewable) carbon, providing reliable, third-party-validated data to support sustainability claims and environmental transparency.

COMPOSTABLE RETAIL & BOUTIQUE BAGS

INZEA® biopolymers enable the production of **certified compostable bags (up to 300 microns thick)** that are strong enough to be reused multiple times. They offer a practical, sustainable alternative to conventional plastic bags in retail and boutique

T-SHIRT, LOOP HANDLE & DIE-CUT

INZEA® biopolymers are specifically developed for producing durable, certified compostable bags commonly used in retail and boutique environments. Our materials work with standard processing technologies and meet the functional demands of modern retail packaging.

FROM COST-EFFECTIVE TO PREMIUM GRADES

INZEA® offers a broad portfolio of formulations-from economical grades for high-volume production to premium options with superior strength and finish. This allows customers to choose the solution that best fits their technical needs and positioning.

SECOND-GENERATION BIOPOLYMERS

INZEA® also includes grades made from second-generation biopolymers, sourced from non-food biomass such as agricultural waste and forestry waste. These options help reduce environmental impact and avoid competition with food resources.

ODOUR-FREE, CONSUMER-FRIENDLY MATERIALS

All our materials are engineered to ensure an odour-free experience during processing and in the final product, enhancing consumer satisfaction and brand perception.

CERTIFICATIONS

TÜV AUSTRIA
OK compost INDUSTRIAL
Up to 300 µ

TÜV AUSTRIA
OK compost HOME

Biobased Content

COMPOSTABLE BAGS FOR FRESH FRUIT & VEGETABLES

INZEA® biopolymers are designed for lightweight compostable produce bags used in supermarkets for fresh fruit and vegetables. Our formulations meet the **technical and regulatory needs** of **key european markets**.

COMPLIANT & MARKET-READY

Developed to meet regulationacross Europe, including 60% biobased content and home compostability certifications.

MULTILAYER COEXTRUSION OPTIONS

Suitable grades for multilayer coextrusion, offering enhanced performance and technical versatility for more demanding applications.

CERTIFIED BIOBASED CONTENT UP TO 66%

INZEA® solutions include grades with up to 66% biobased content, (verified by BETA according to ASTM D6866), helping brands meet sustainability targets and comply with emerging eco-labelling standards.

TRANSPARENT SINGLE-LAYER OPTIONS

Transparent monolayer formulations for straightforward processing, providing excellent clarity in single-layer structures.

COLOR OPTIONS: NATURAL AND TRANSPARENT GRADES

Available in natural and transparent versions, offering visual flexibility while maintaining excellent functionality.

ULTRA-THIN FILM PROCESSING (FROM 10 MICRONS)

Allow for extrusion of ultra-thin films starting at just 10 microns, maintaining excellent mechanical strength and process stability- ideal for high-volume produce bag production.

SECOND GENERATION BIOPOLYMERS

Transparent grades based on second-generation biopolymers, with up to 60% renewable content from non-food biomass sources, minimizing environmental impact.

CERTIFICATIONS

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OK compost INDUSTRIAL

TÜV AUSTRIA
OK compost HOME

Biobased content up to 66%

LEAK-PROOF COMPOSTABLE TRASH BAGS

INZEA® develops high-performance compostable biopolymers tailored for the production of trash bags, including **drawstring formats** and **leak-proof** solutions for **organic waste**.

INZEA M35 | ENGINEERED ANTI-LEAK PERFORMANCE

INZEA is specially formulated to offer superior **liquid barrier properties**, preventing leaks even under high-moisture conditions. Ideal for applications requiring extra protection and durability.

A KEY ADVANTAGE INZEA can also be used to **produce both the bag film and the drawstring closure**, simplifying production and improving compostability.

SUPERIOR WATER VAPOUR BARRIER

INZEA delivers up to three times lower water vapour transmition rate (WVTR) compared to standard compostable grades, ensuring enhanced durability and leak resistance in real-world, high-moisture waste applications.

100% FUNCTIONAL EQUIVALENCE TO CONVENTIONAL POLYOLEFINS (LDPE, HDPE)

- Excellent mechanical strength
- Reliable sealability and processability
- Compatibility with standard production lines
- Certified Compostable grades for trash bags and drawstring film up to 300 microns

HIGHER MODULUS VS. CONVENTIONAL GRADES

With a higher elastic modulus, INZEA offers better rigidity and tear resistance, making bags easier to handle, carry, and open-particularly in larger formats.

CERTIFIED COMPOSTABILITY

INZEA® offers TÜV AUSTRIA OK compost INDUSTRIAL certified materials suitable for trash bags and drawstring films, combining environmental responsibility with strong end-user performance.

EXTENDED SHELF LIFE & STORAGE STABILITY

Formulated to retain performance over time, INZEA® grades offer longer shelf life without premature degradation during storage or distribution.

FRAGRANCED OPTIONS AVAILABLE

To improve user experience, we offer fragranced versions (e.g. lavender) especially suitable for household and kitchen use.

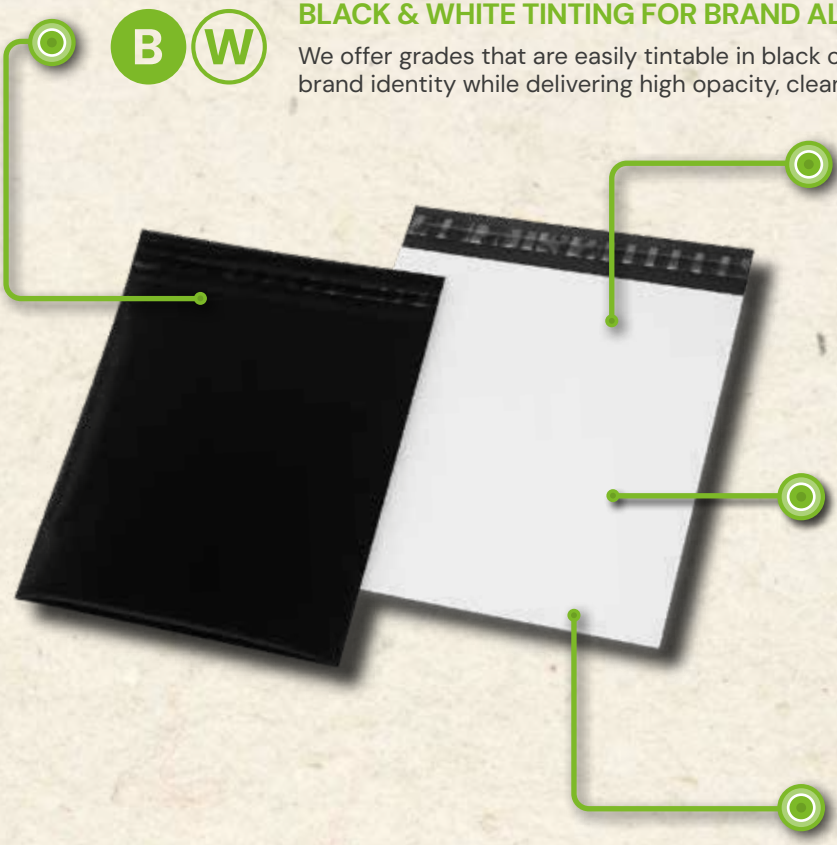
CERTIFICATIONS

OK compost | TÜV AUSTRIA | INDUSTRIAL S0436

TÜV AUSTRIA
OK compost INDUSTRIAL

COMPOSTABLE MAILING AND COURIER BAGS

INZEA® biopolymers are specially developed for the production of certified compostable mailing bags used in e-commerce and courier deliveries. Designed to combine logistical performance, visual quality, and environmental responsibility, these materials offer a sustainable alternative to conventional plastic in last-mile delivery packaging.



BLACK & WHITE TINTING FOR BRAND ALIGNMENT

We offer grades that are easily tintable in black or white, allowing packaging to align with brand identity while delivering high opacity, clean coverage, and a premium surface finish.

ADHESIVE-COMPATIBLE FOR SECURE CLOSURES

INZEA® grades are fully compatible with adhesive sealing systems, including thermal seals and peel-and-seal strips, ensuring excellent bond strength and tamper resistance during transit.

SECOND-GENERATION BIOPOLYMERS

INZEA® includes second-generation grades based on non-food biomass sources, such as agricultural and forestry residues. These materials reduce dependence on food crops and offer an even lower environmental footprint.

COMPOSTABLE LABELING

We also offer compostable label materials, enabling fully compostable packaging from bag to label-perfect for brands committed to complete environmental transparency.

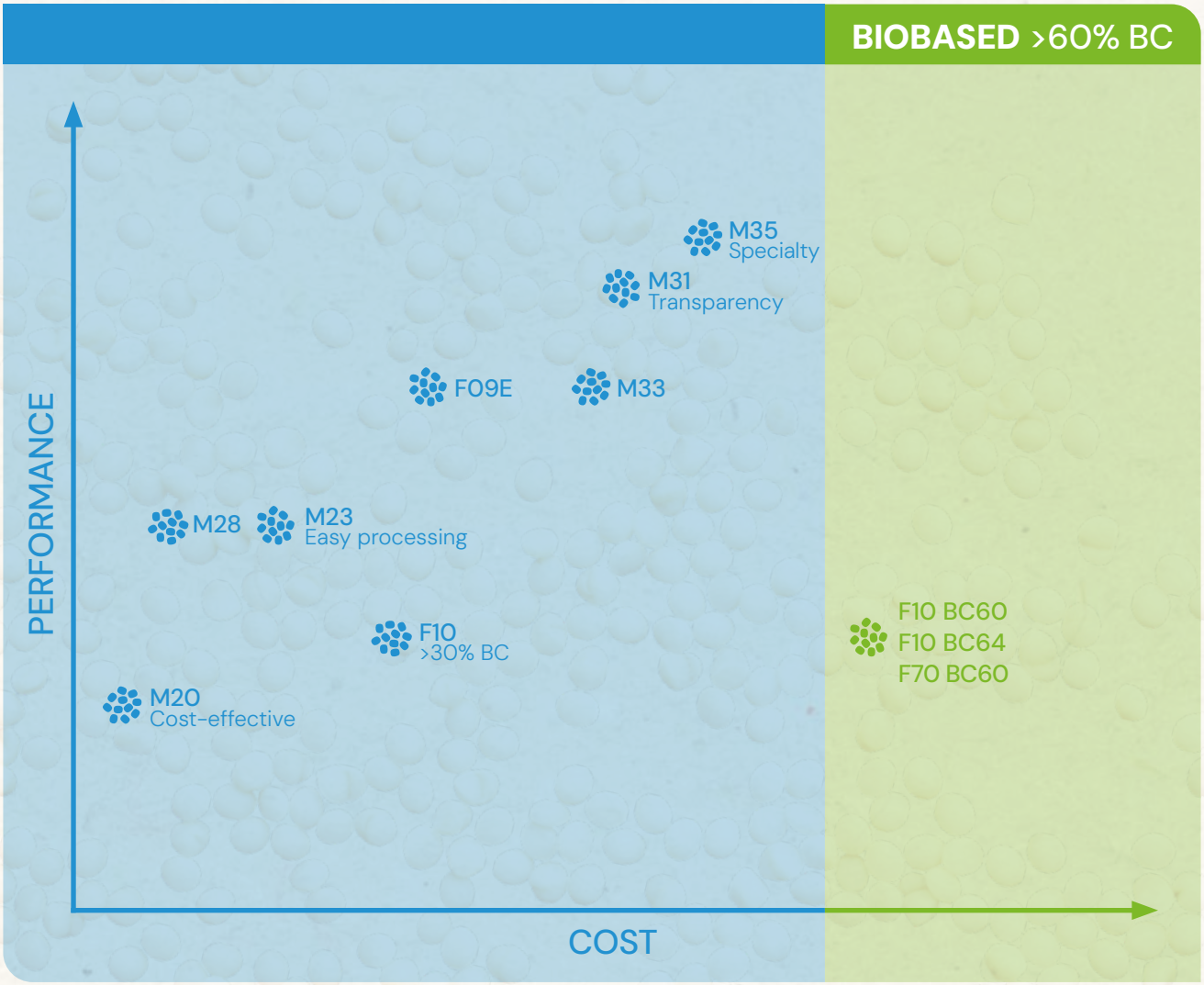
CERTIFICATIONS

TÜV AUSTRIA
OK compost INDUSTRIAL

TÜV AUSTRIA
OK compost HOME

Biobased Content

PERFORMANCE



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