NUREL BIOPOLYMERS

inzea® BIOPOLYMERS

PACKAGING SOLUTIONS

THE SUSTAINABLE CHOICE

biopolymers.nurel.com

A NEW ERA OF SUSTAINABLE PACKAGING

Packaging is essential to protect food and extend shelf life, but traditional plastics are hard to recycle and often end up in landfills or incineration. INZEA® offers compostable biopolymers that replace conventional plastics while ensuring functionality, food safety and sustainability.

Available in grades for extrusion, thermoforming, lamination and coating, INZEA® enables brands to deliver packaging solutions aligned with the circular bioeconomy.

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

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**: 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, measured by **BETA under ASTM D6866,** uses radiocarbon analysis to distinguish renewable from fossil carbon, ensuring reliable third-party data for sustainability claims.

FOOD CONTACT

All INZEA® grades comply with **EU Regulation 10/2011** for Food Contact, and NUREL holds **FSSC 22000** certification, ensuring compliance with good manufacturing practices and food safety standards.

APPLICATIONS:


Fresh vegetable bags


Laminated and Thermoformed Trays


Barrier Packaging


Paper Coating


Paper Laminating


Mesh packaging


Shrink Films


Stand-up Poaches


Lids


Freezer bags

BARRIER PACKAGING

INZEA® + ENOXITE® BARRIER

INZEA® offers compostable solutions with oxygen barrier, ensuring the **correct preservation of foodstuffs** while reducing environmental impact. Thanks to INZEA®, it is possible to achieve **100% biodegradable and compostable packaging with a high oxygen barrier**that maintains product freshness and safety.

ENHANCED PERFORMANCE WITH ENOXITE®

For the most demanding applications, **INZEA® barrier biopolymers can be combined with ENOXITE® barrier materials**, providing superior oxygen and moisture resistance. This combination ensures extended shelf life for sensitive foods while maintaining **compostability.**

MULTI-LAYER COMPOSTABLE SOLUTIONS

Conventional multilayer packaging is very difficult to recycle, yet often required to meet technical preservation needs. INZEA® biopolymers provide grades for **2 to 5-layer co-extrusions**, offering a compostable alternative that ensures food safety and preservation while allowing the entire package to be composted together with organic waste.

FOOD CONTACT SAFETY

Certified under EU & FDA regulations.

OXYGEN & GREASE BARRIER

Ensures strong barrier while maintaining compostability.

PROCESSING VERSATILITY

Suitable for blown film, cast film and thermoforming processes.

MECHANICAL PERFORMANCE

Excellent weldability, rigidity and strength for reliable packaging.

PRINTABLE & LAMINABLE

Compatible with automatic packaging lines and lamination structures.

TRANSPARENT GRADES

For attractive & functional packaging.

CERTIFIED COMPOSTABILITY

TÜV certified for Industrial and Home composting.

OK compost TÜV AUSTRIA INDUSTRIAL 50436

HOME OK compost TÜV AUSTRIA HOME 50436

COMPOSTABLE STRUCTURES

SYMMETRIC COEXTRUSION STRUCTURE: Inzea F18CH/tie/E20/tie/Inzea F18CH (60 µm)*	
	ENOXITE E20 (5 µm)
OTR, 50% RH/23°C (cc/m²·day)	3,0

SYMMETRIC COEXTRUSION STRUCTURE: Inzea M30TH/ E20/ Inzea M30TH (40 µm)*	
	ENOXITE E20 (5 µm)
OTR, 0% RH/23°C (cc/m²·day)	5,9

PAPER LAMINATION & COATING

PAPER & CELLULOSE LAMINATION
INZEA® M30TH

INZEA® biopolymers are the perfect solution for **laminating cellulose, paper and board sheets** and trays that require **compostable**, **waterproof** and **greaseproof** protection. Paper and board packaging are increasingly used as **sustainable alternatives**, but they need to be reinforced to resist liquids and fats.

EASY WASTE MANAGEMENT

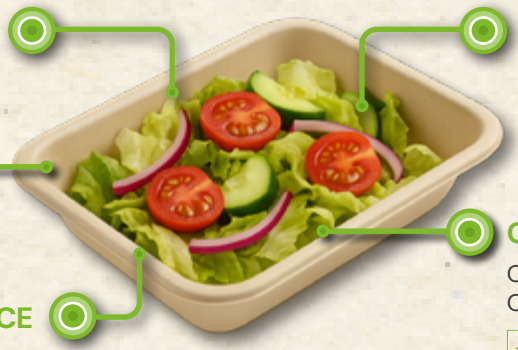
Laminated paper can be composted together with organic residues.

FOOD CONTACT SAFETY

Compliance for applications in direct contact with food.

GREASE & LIQUID RESISTANCE

Protects against fats and liquids without compromising compostability.



STRONG ADHESION

Excellent bonding to paper, board and cellulose.

CERTIFIED COMPOSTABILITY

OK compost INDUSTRIAL &
OK compost HOME certified.

EXTRUSION COATING
INZEA® F16C

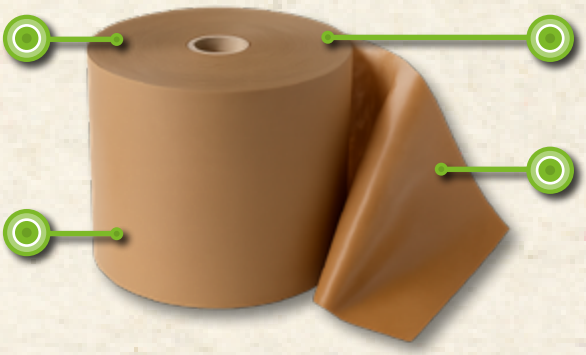
For cardboard and paper products that require film coatings to extend their functionality, INZEA® offers **compostable extrusion coating grades**.

HIGH-SPEED COATING

Enables thin coatings at high speed, achieving low grammage while ensuring full protection.

FOOD CONTACT SAFETY

Fully compliant with food-contact standards for reliable applications.



BARRIER PERFORMANCE

Provides effective protection against liquids and fats from food.

COMPOSTABLE END-OF-LIFE

Coated products can be managed together with organic waste in industrial composting facilities.

PAPER-LIKE PACKAGING FOR FRESH FOOD

INZEA® F18P

In butchers, fishmongers, supermarkets and fast-food chains, **fresh food wrapping is essential**. Traditional PE-laminated paper, however, cannot be composted or recycled with food residues. With INZEA® Paper-Like solutions, fresh food packaging becomes **functional**, **resistant and easy to compost**, enabling efficient waste management alongside organic waste.

PAPER PROPERTIES PRESERVED

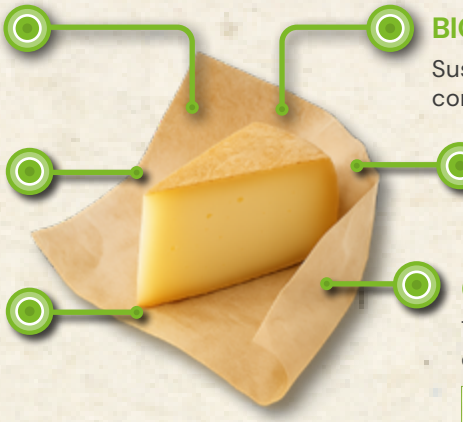
Maintains dead fold, printability and dyeing capabilities.

EASY PROCESSING

Processable on standard extrusion equipment, no lamination required.

GREASE & LIQUID RESISTANCE

Protects against sauces, fats and moisture without compromising performance.



BIODEGRADABLE & COMPOSTABLE

Sustainable material that can be composted with organic waste.

FOOD CONTACT SAFETY

Certified for use with fresh food.

CERTIFIED COMPOSTABILITY

TÜV AUSTRIA OK compost INDUSTRIAL certification.

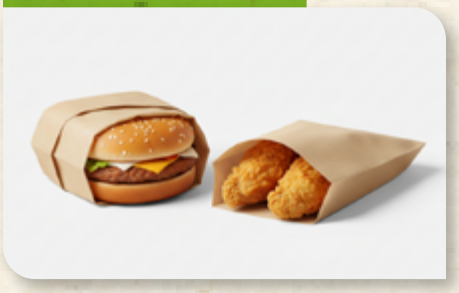
OK compost TÜV AUSTRIA INDUSTRIAL S0436

APPLICATIONS:

WRAPPING FOR BUTCHERIES, FISHMONGERS & BAKERIES

BUTTER & MARGARINE

FAST-FOOD PRODUCTS



NATURAL COSMETIC

CLAMSHELLS & THERMOFORMED BOXES

FROM SEAWEED. BACK TO NATURE

NEW GENERATION OF BIOBASED & PLASTIC-FREE MATERIALS

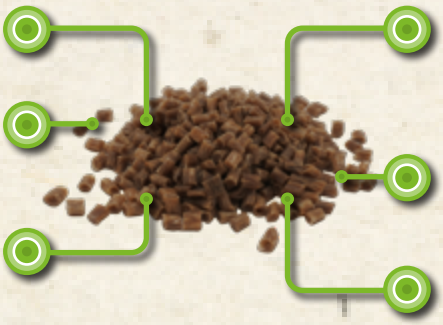
Up to 100% biobased, INZEA® offers one of the most versatile seaweed-based material portfolios on the market, designed to meet different performance, processing and end-of-life requirements.

PLASTIC-FREE SOLUTIONS*
Aligned with EU plastic-free criteria.

UP TO 100% SEAWEED-BASED
Advanced grades made entirely from renewable seaweed.

BIOBASED CONTENT
Up to 100%, adapted to application and technical needs.

* Designed to meet EU criteria for plastic-free materials under the Single-Use Plastics Directive (selected grades).



NATURALLY BIODEGRADABLE
Options including home compostable, industrial compostable, and biodegradable in all environments (soil & water).

LOW-IMPACT BY NATURE
Seaweed grows without land, freshwater or fertilizers and captures CO_2.

RESPONSIBLY SOURCED
From coastal areas in Iceland & Chile.

APPLICATIONS:

RIGID PACKAGING: THERMOFORMED TRAYS, CONTAINERS, INJECTION-MOULDED PARTS

FLEXIBLE PACKAGING: COMPOSTABLE FILMS FOR BAGS AND POUCHES

				FILM: ISO 527-3				ISO 179/1eA	ISO 178	
	% Renewable	Biodegradability	Plastic free	Thikness, microns	Module, MPa	Stress at Break, MPa	Strain at Break, %	Charpy notched impact strenght, 23 °C, KJ/m²	Flexural Modulus, MPa	Flexural Strength, MPa
A101	20	HOME	NO	100	50	5	500	30	100	5
A103	60	INDUSTRIAL	NO	100	500	7	40	5	1400	30
A105	100	INDUSTRIAL	NO	-	-	-	-	1	1040	7
A201	20	HOME	NO	100	50	5	500	-	-	-
A203	60	INDUSTRIAL	NO	100	700	10	100	5	1500	30
A206	100	ALL ENVIRONMENTS	YES	100	150	19	50	40	50	2
A208	100	ALL ENVIRONMENTS	YES	-	-	-	-	10	1140	25

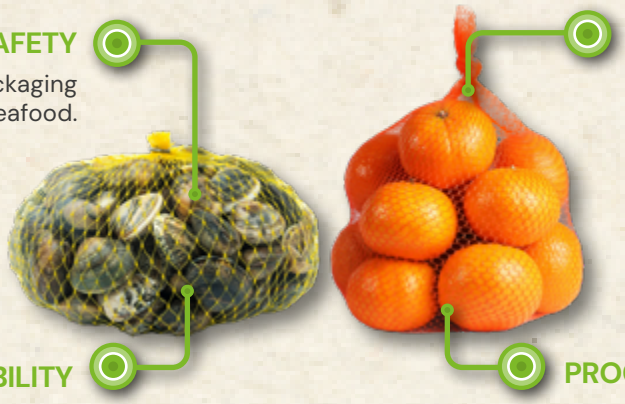
OTHER PACKAGING SOLUTIONS

MESH PACKAGING
INZEA® F08 & FH05

INZEA® biopolymers are suitable for producing compostable mesh bags, widely used for fruits, vegetables and seafood. They offer the same strength and functionality as conventional plastics while being fully compostable.

FOOD CONTACT SAFETY

Certified compliance for safe packaging of fresh produce and seafood.



CERTIFIED COMPOSTABILITY

Compostable grades for replacing PE and PP mesh in food packaging, certified for Industrial composting.

STRENGTH & FLEXIBILITY

F08 and FH05 provide durability and flexibility for heavy loads like potatoes, onions or citrus.

PROCESSING VERSATILITY

Suitable for extrusion and knitting processes on standard mesh machinery.

SHRINK & BUNDLING PACKAGING
INZEA® F15C & F18CH

INZEA® compostable shrink film is designed for second skin applications (such as cucumbers) and for product bundling (toilet paper, napkins, bottles). It combines transparency, sealability and sustainability

SECOND SKIN APPLICATIONS

F15C provides a tight, protective wrapping that preserves freshness.

CLARITY & SEALABILITY

Transparent and easily sealable, ensuring product visibility and protection.

PRODUCT BUNDLING

Suitable for grouping multiple items, reducing secondary packaging.

CERTIFIED COMPOSTABILITY

TÜV AUSTRIA OK compost INDUSTRIAL & OK compost HOME certifications.

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