



**BOTTLES • BAGS • PROJECTS • BIOPOLYMER FILMS**

**#nakustatplastik**

**Natural • Renewable • Compostable • Recyclable**





"For us, the combination of nature and technology is not a contradiction, but an important basis for our work. The idea of sustainability should not stop at the packaging and waste should remain with the generation that creates it. Because plastic can also be natural."

**DI Mag. Johann Zimmermann,  
Managing Director of NaKu**



Ute and Johann Zimmermann decided very early on to use the core term "natural plastic" - today's short form "NaKu" - because they felt that organic was too inappropriate. At that time, there was no clear classification of bioplastics and no definition of what these plastics should be called exactly.

The name had been found, now only the first product made of bioplastic had to be developed. In short – the NaKu bag we know today was born.

**Mag. Ute Zimmermann**  
**commercial management**

# ABOUT NaKu

## Made of Natural Plastic

### **EXPERTISE. PIONEERING SPIRIT. AND A GOOD PORTION OF PASSION.**

Ute and Johann Zimmermann have been committed to natural plastics since 2007. That year, Johann founded the company NaKu together with his wife Ute to develop plastics that protect people and nature from the flood of plastics. NaKu is the plastic-free\* alternative to conventional plastics!

### **THE RAW MATERIALS**

In principle, bioplastics can be made from various renewable raw materials. NaKu uses a corn-based starch compound for its breathable fresh-keeping bags. For NaKu bottles, PLA (polymerized lactic acid) is obtained from sugar or recycled PLA is used as a material.

### **NATURAL PLASTIC**

Natural plastic is the name for a plastic that is made from renewable raw materials and is biodegradable. It combines both requirements and offers advantages throughout its entire life cycle. NaKu has been working with natural plastics for more than 15 years and has

acquired a lot of know-how in this area.

### **RECYCLING**

NaKu's vision is to combine recycling and organic with its products, because natural plastic should first and foremost be recycled and is also very easy to recycle. With our products, both existing mechanical recycling and future-oriented chemical recycling (the recovery of molecular components) work very well.



# BIOPLASTIC

Bags • Bottles • Projects • Biopolymer films

# CONTENTS

## BIO-SACKERL

<u>NaKu B2C &amp; B2B Online Shop</u>	7
<u>organic food storage bags</u>	10
<u>organic freezer bags</u>	11
<u>Cheese sleeping bag</u>	12
<u>Bio-Müllbeutel</u>	13
<u>Bio-Allzwecksackerl</u>	14
<u>organic carrier bags (retail)</u>	15
<u>organic pharmacy bags</u>	16
<u>sausage bag - dog poop bag</u>	17
<u>organic insert bag for organic boxes</u>	18
<u>organic plant bag / organic clothing bag</u>	19
<u>Umtüten -Jausensackerl</u>	20
<u>Individual organic bags</u>	22
<u>Naku barrier tape made of bioplastic</u>	24
<u>plastic bag ban &amp; counterfeits</u>	25
<u>The OK Compost seal</u>	27

## PLA BOTTLES

<u>PLA bottle 250 ml &amp; 500 ml</u>	30
<u>Individual PLA bottles</u>	33
<u>Not Plastic Water</u>	34
<u>VIENO organic sunflower oil</u>	35
<u>120% NaKu bottle</u>	36
<u>recycling of bioplastics</u>	37
<u>PET bottle news</u>	38
<u>Is there anything greener than rPET?</u>	39

## PLA CANS/CONTAINERS

<u>PLA Dose 150, 330 &amp; 525ml</u>	42
<u>PLA sample tubes</u>	45

## BIOPOLYMER FILMS

<u>Biopolymerfolie</u>	49
<u>sugar card</u>	50
<u>organic labels</u>	51

## BIOPLASTIC PROJECTS

<u>ants made of bioplastic</u>	54
<u>Cosmetic gel freeemee cosmetics</u>	55
<u>Your idea – our project</u>	56

## INTERESTING FACTS

<u>Plant Bag – Energy Globe Award</u>	58
<u>Frequently Asked Questions</u>	60
<u>The NaKu cycle</u>	62
<u>The NaKu plastic cross</u>	63
<u>15 years of NaKu</u>	64
<u>Prizes &amp; Awards</u>	66
<u>your contact</u>	67

## *Nature and plastic – a contradiction?* It works with NaKu!

NaKu products fulfill their purpose while protecting our environment.

Packaging material has never been so sustainable. From the selection of natural raw materials, to the manufacture of the products (bottles, bags, etc.) to recycling and composting.

# NaKu B2C & B2B Online Shop

## Convenient shopping around the clock



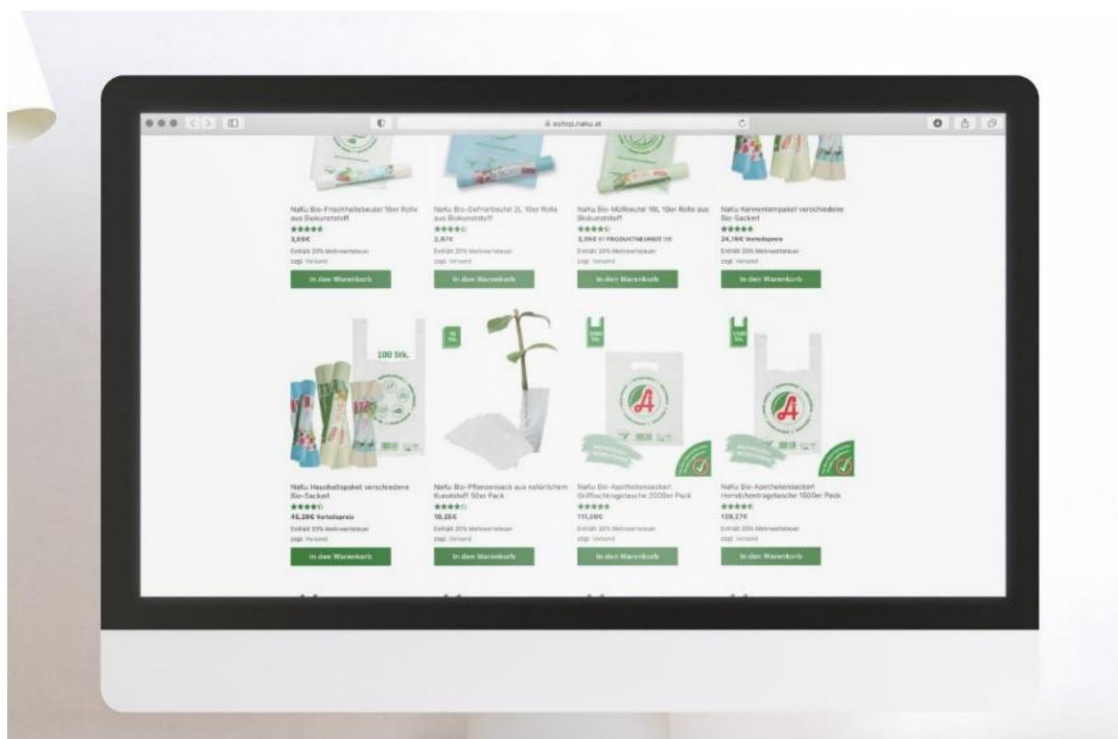
Order directly

All NaKu standard products made of bioplastic are available in our webshop.

Our new special shop for B2B customers offers you as a company many advantages in addition to the features of our B2C shop.

- **Display of net prices**
- **Display of quantity/discount gradations/graduated prices**
- **Special products made of bioplastics only for B2B**
  - **order history**
  - **Possibility to order marketing material**
- **Special B2B promotions**
- **Download area for B2B information material**
- **Optional purchase on account**
  - **In development: shipping tracking & PDF invoice archive**

In order to make our support even more convenient for you and to be able to offer you even more diverse and time-independent contact options in addition to telephone, e-mail and contact form, we are currently working on the integration of a functional chat and chatbot solution.



Stay up to date with our newsletter and sign up here!

TIP!









# BIO-SACKERL

The right bag for every purpose



Order directly

# organic food storage bags

## Keeps food fresh longer



Breathable and water-resistant organic bag made from corn starch. Keeps bread, vegetables and fruit fresh for longer and can be used as an organic waste bag after repeated use.

Rots within a few weeks on the compost according to DIN EN 13432.

A natural and environmentally friendly Product from Austria – made of natural plastic on

Plant-based. A valuable contribution to reducing CO2 emissions and therefore climate-friendly.

This organic food storage bag keeps food such as bread, vegetables and fruit fresh for longer. It's the perfect way to take an active part in combating food waste - simply and easily!

And what could be better than always having fresh fruit and vegetables in the fridge?

In a study by BOKU, apples, mangos, tomatoes, chanterelles, lettuce, bread and rolls were stored in three different ways: open, in plastic bags and in NaKu organic bags. The result is clear. For example, bread lasts more than twice as long in NaKu organic bags than when stored openly and also retains its taste compared to plastic bags. Apples retain their taste especially well when stored in NaKu organic bags. The situation is similar for lettuce and other foods. You can read the **BOKU study** on our website.

- Plastic-free\*
- Compostable – 100% biodegradable
- Environmentally friendly
- Stays fresh up to twice as long

roll of ten food storage bags  
in practical packaging

Width: 210 + 2x55 mm side fold  
Length: 400 mm (including handle)  
Thickness: 25µm  
Capacity: 6 liters

Art.Nr.: R-FB003  
GTIN: 9120041370021



\*free of conventional plastic/no petroleum-based plastic

# organic freezer bags

plastic-free and pollutant-free freezing



Order directly

Breathable and water-resistant organic bag made from corn starch. Keeps bread, vegetables and fruit fresh for longer.

With the NaKu organic freezer bag you can freeze your food or groceries optimally. A green option for everyone who doesn't want to freeze their food in plastic and petroleum.

NaKu organic freezer bags are 100% compostable and free from pollutants and heavy metals - rot within a few weeks on the compost according to DIN EN 13432.

## 10er Rolle with practical outer packaging



**Width: 210 mm**  
**Length: 300 mm**  
**Thickness: 25µm**  
**Capacity: 2 liters**

**10er Rolle Art.Nr.: R-GB004**  
**GTIN:**  
9120041370083

**100er Pack lose Art.Nr:**  
FlaB-GB004-100



## 10er Rolle with practical outer packaging



**Width: 210 mm**  
**Length: 450 mm**  
**Thickness: 25µm**  
**Capacity: 4 liters**

**10er Rolle Art.Nr.: R-GB004-L**  
**GTIN:**  
9120041370854

**100er Pack lose Art.Nr:**  
FlaB-GB004-L-100



A natural and environmentally friendly product, made from bioplastic based on renewable and GMO-free plants. A valuable contribution to reducing CO2 emissions and therefore climate-friendly.

- Plastic-free\*
- Compostable – 100% biodegradable
- Environmentally friendly
- Can be labeled over the entire surface

roll of 10 and pack of 100



\*free of conventional plastic/no petroleum-based plastic



# Cheese sleeping bag

## for optimal cheese enjoyment

Order directly

With the NaKu cheese sleeping bag - an organic bag made from corn starch especially for cheese - you can pack cheese at your cheese counter optimally and plastic-free\*. The NaKu cheese sleeping bag ensures optimal cheese enjoyment and a long cheese experience. This breathable and water-resistant corn-based cheese bag from NaKu is plastic-free\* and is therefore the ideal container for hygienic storage of cheese in your plastic-free kitchen!

The cheese bag maintains the quality of the cheese and keeps it fresh. The NaKu cheese sleeping bag has a light yellow design and can be conveniently written on over the entire surface. The translucent color also makes it easy to see which cheese is packed in the cheese sleeping bag.

Don't worry about the contact between the cheese and the packaging anymore. With our non-GMO corn-based cheese bag, this is no longer an issue! This plastic-free cheese bag\* is the green option for anyone who doesn't want to store their cheese in plastic and petroleum.

A natural and environmentally friendly product made from natural plastic/bioplactic based on renewable raw materials (plant-based). A valuable contribution to reducing CO2 emissions, climate-friendly, no formation of microplastics.

Rots within a few weeks on the compost according to DIN EN 13432.

### 10er Rolle with practical outer packaging



**Width: 210 mm**  
**Length: 300 mm**  
**Thickness: 25µm**  
**Capacity: 2 liters**

**10er Rolle Art.Nr.:**  
R-KS006  
**GTIN:**  
9120041370816

### 100er Pack for the cheese trade, loose



**Width: 210 mm**  
**Length: 300 mm**  
**Thickness: 25µm**  
**Capacity: 2 liters**

**100er Pack lose Art.Nr.:**  
FlaB-KS006-100

OPTIMAL ZUM VERPACKEN  
AN IHRER KÄSETHEKE



- Storing cheese without plastic\*
- Maintains the cheese flavor optimally without plastic\*
- Odor-reducing
- Reusable, can be used multiple times
- The alternative to plastic and plastic-coated cheese paper
- Compostable – 100% biodegradable
- Environmentally friendly
- Can be labeled over the entire surface

\*free of conventional plastic/no petroleum-based plastic

# Bio-Müllbeutel

The practical helper in the household



Order directly



This compostable (DIN 13432) organic waste bag based on corn starch is perfect for the collection and disposal of your organic waste in your kitchen. The organic waste bags are extremely tear-resistant and easily withstand the

Transport to the organic waste bin.

The organic waste bags are breathable to prevent strong odors and at the same time water-resistant so that nothing leaks out. The NaKu organic waste bags rot in the compost within a few weeks according to

DIN EN 13432.

A natural and environmentally friendly product, made from plant-based bioplastic. A valuable contribution to reducing CO2 emissions and therefore climate-friendly.

Tip: This garbage bag made of corn starch is not only suitable for your organic waste but also your residual waste.



- Plastic-free\*
- Compostable – 100% biodegradable
- Environmentally friendly
- GMO-free
- Odor reduction
- Lace-up carrying handles

Width: 210 + 2x70 mm side fold  
Length: 450 mm (including handle)  
Thickness: 20 µm  
Capacity: 10 liters

Art.Nr.: R-BB005  
GTIN: 9120041370786



10-roll organic garbage bags with practical outer packaging

\*free of conventional plastic/no petroleum-based plastic



Order directly

# Bio-Allzwecksackerl

## Wear – Keep Fresh – Rot

**The NaKu organic all-purpose bag can do three important things:  
Wear – Keep Fresh – Rot!**

This organic all-purpose bag can also  
Foods such as fruits, vegetables and  
Keep bread fresh longer, waste from spoiled  
food is  
reduced!

This organic bag can be recycled at the end of its  
lifespan as a biowaste bag – it rots

completely on the compost! The environment is  
happy !

The NaKu organic all-purpose bag is available in  
two practical sizes, each in a pack of 100.



- Made of natural plastic based on plants/corn starch
- Environmentally friendly and reusable
- Particularly breathable
- Innovation award winner of the state Lower Austria
- Rots within a few weeks on the compost according to DIN EN 13432.

### organic all-purpose bag small

Width: 210 + 2x55 mm side fold

Length: 400 mm (including handle)

Thickness: 25µm

Capacity: 6 liters

Packaging unit: 100 Stk.

Art.Nr.: HT001-100

GTIN: 9120041370038

### large organic all-purpose bag

Width: 240 + 2x70 mm side fold

Length: 500 mm (including handle)

Thickness: 30µm

Capacity: 12 liters

Packaging unit: 100 Stk.

Art.Nr.: HT002-100

GTIN: 9120041370045



# organic tote bag

## Approved for trade



Order directly

**This renewable and compostable NaKu organic carrier bag can also be used in Austria to distribute to customers in stores.**

The lightweight carrier bag does not fall under the Austrian plastic bag ban, as it can still be sold as a lightweight, biodegradable carrier bag. This bag is also approved for sale in stores in Germany.

The organic tote bag is available in two practical sizes.

The NaKu organic carrying bag has three major advantages: Carrying – Keeping fresh – Rotting!

In addition to its carrying function, this organic carrier bag can keep food such as fruit, vegetables and bread fresh for longer, reducing waste from spoiled food!

At the end of its life, it can be used as a biowaste bag – it rots completely in the compost (DIN 13432)

The environment is happy!



- **Natural raw materials**
- **Regionally produced**
- **Organically packaged**
- **Stays fresh longer**
- **Compostable – 100% biodegradable**

### organic tote bag small

Width: 210 + 2x55 mm side

fold

Length: 400 mm (including handle)

Thickness: max. 15µm

VPE: 1500 Stk.

Art.Nr.: HT003g

GTIN: 9120041370748

### organic tote bag large

Width: 240 + 2x70 mm side

fold

Length: 500 mm (including handle)

Thickness max. 15µm

VPE: 2000 Stk.

Art.Nr.: HT004g

GTIN: 9120041370779

**INDIVIDUELL BEDRUCKBAR!**

The organic tote bag can also be individually printed with your company logo!

**Minimum editions:**

Small: 30,000 pieces

Large: 20,000 pieces



Order directly

# organic pharmacy bags

## The solution for pharmacies



The special NaKu bags made of bioplastic for pharmacies offer you and your customers many advantages and by using the NaKu bags you make a significant contribution to our shared environment! The NaKu pharmacy bags are available in two versions. As a small bio bag in handle hole design and in the larger version as a so-called "shirt carrying bag".

**handle hole design**  
 Width: 210 mm  
 Length 300mm  
 Thickness: max. 15µm  
 VPE: 2000 Stk.  
 Art.No.: GLT003 Apo white  
 GTIN: 9120041370762




**shirt version**  
 Width: 210 + 2x55 mm side fold  
 Length: 400 mm (including handle)  
 Thickness: max. 15µm  
 VPE: 1500 Stk.  
 Art.No.: HT003 Apo white  
 GTIN: 9120041370755




**INDIVIDUELL BEDRUCKBAR!**

The NaKu Biosackerl can also be individually printed with your pharmacy logo. Shirt version from 21,000 pieces  
handle hole version from 40,000 pieces!

This renewable and compostable bag can also be used in Austria to distribute to customers in stores. It does not fall under the Austrian plastic bag ban, as it can still be distributed as a lightweight, biodegradable carrier bag.

- Cheaper than paper bags
- Natural plastic made from renewable raw materials
- Better CO2 balance than plastic or paper bags
- Compostable
- GMO-free & free from pollutants and heavy metals



# sausage bag



Order directly

## dog poop bags made of bioplastic

The NaKu sausage bag is a sustainable dog poop bag made from bioplastic and is made from corn starch. This dog poop bag made from renewable resources is biodegradable - the optimal and sustainable solution for a "bag for poop".

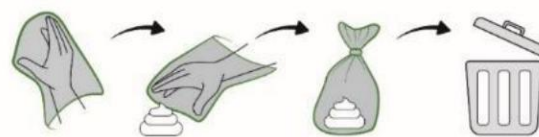
Dog poop bags are often simply left lying around in nature, which leads to the formation of microplastics in the environment. Even though the NaKu organic dog poop bag

is biodegradable, do not dispose of this dog poop bag in the open air! It should be burned for hygiene reasons. If the NaKu organic dog poop bag does end up in nature, no persistent microplastics are created when it decomposes.

Although dog excrement is an organic material, it should not be disposed of in the compost or organic waste bin, as dog excrement can contain components that are not good for the compost for health reasons.

Please dispose of them in the residual waste.

The thermal recycling of NaKu organic dog waste bags is more environmentally friendly than the incineration of conventional dog waste bags. This is because CO<sub>2</sub> is bound during the growth phase of the raw material base - i.e. the plants.



- **Practical, functional and environmentally friendly dog poop bags**
- **Suitable for all commercially available dog poop bag dispenser**
- **Odor-reducing, leak-proof and durable**
- **Reduction of the petroleum-plastic waste mountain**
- **The alternative to dog poop bags made from conventional petroleum Plastic**
- **Biodegradable and compostable according to DIN 13432**

**Width:** 200 mm

**Length:** 350 mm including punch

**Thickness:** 15 µm

**Print:** black with one-sided NaKu standard print

**Material:** OK Compost INDUSTRIAL

**Packaging unit:** Packed goods



\*free of conventional plastic/no petroleum-based plastic



Order directly

# organic insert bag

## Optimal freshness for your organic box

**This ensures that your harvested organic fruit and vegetables in your organic box retain their optimal freshness!**

From packaging to delivery to enjoyment by your customers, a lot of time passes.

Deliver your products in optimal freshness and plastic-free with the NaKu organic insert bag.

The NaKu organic insert bag is made from starch. Like most other NaKu organic products, it is completely biodegradable and will decompose in the compost within a few weeks in accordance with DIN EN 13432. The NaKu organic insert bag is available in two sizes and is packaged in 1000 pieces each.

### organic insert bag for 2 bowl boxes

Width: 385 mm (+2x150mm side fold), length: 600 mm

Thickness: 20µm

SPE: 1000 Stk.

Minimum order quantity 30,000 pieces

Art.Nr.: SB001



### organic insert bag for 3-pack bowl boxes

Width: 625 mm (+2x200mm side fold), length: 600 mm

Thickness: 20µm

SPE: 1000 Stk.

Minimum order quantity 25,000 pieces

Art.Nr.: SB002



**INDIVIDUELL BEDRUCKBAR!**

The insert bag can also be individually printed with your company logo!

\*free of conventional plastic/no petroleum-based plastic

# More organic bags



Order directly

## organic plant bag

Organic plant bag made of natural plastic based on corn starch.

Plants can be easily grown in this bag and then planted in the soil together with the bag. Due to the biodegradability of the natural plastic, the bag slowly decomposes on its own.

- Biodegradable
- Water retention: ensures permanent moisture at the roots
- Water permeable (make a small Hole in the bottom of the bag): no danger of waterlogging
- Air permeable: roots are not affected growth hindered

Width: 100 mm

Height: 185 mm

Thickness: 45µm

VPE: 50 Stk.

Art.Nr.: PF001



## Organic garment bag – plastic-free\* packaging

The special NaKu garment bags made of bioplastic for dry cleaners, dry cleaners and laundries offer you and your customers many advantages!

NaKu organic clothing bags made of bioplastic are made from natural, GMO-free and rapidly renewable raw materials, are 100% compostable and free from pollutants and heavy metals. By using NaKu clothing bags, you are making a significant contribution to our shared environment and our climate!

The NaKu organic garment bags can also be individually printed with your logo!



- Biodegradable
- Guaranteed free from harmful substances
- Special sizes possible

Dimensions: 625 mm wide

Minimum order quantity: Depending on size and weight from about 10,000 pieces.

Art.Nr.: KS001

\*free of conventional plastic/no petroleum-based plastic



Order directly

# re-bags - cotton bags

With freshness inlay made of bioplastic

Re-bagging helps you organize your everyday life without disposable packaging. The various bags are made of organic cotton with a freshness inlay made of bioplastic. This special inlay keeps snacks, fruit & vegetables, etc. fresh for longer. They are washable and reusable.

To clean, simply turn the inlay inside out and wipe it with a sponge or cloth. Please be careful when packing food with sharp edges.

The collaboration with a German sewing company enables Umtüten to be transparent and flexible. In addition to fair wages, suitable working models are made possible for everyone. The Tüüten are spun, woven, dyed, printed and hand-sewn in the Münsterland region. All within a radius of less than 100km.

The **Snack-Tüüt snack bag** can hold up to 4 sandwiches, croissants or your daily vegetable snack. It is therefore ideal for use when travelling, shopping or at work. Food that needs to be cooled can also be stored in the snack bag in the fridge.

The **wrapped market bag - market bag** - is the sustainable market bag for fruit and vegetables, for example, with a NaKu freshness inlay made of bioplastic. This ensures that fresh fruit and vegetables retain their freshness on the way home from the market.



- Ideal for transporting snacks
  - Vegetable inlay keeps snacks fresh longer
- For up to 4 sandwiches
- Cotton from controlled organic farming
- Wipeable freshness inlay made of natural plastic based on corn starch
- Dimensions: 17 x 21 x 10 cm

- For transporting and storing fruit, vegetables and bread
  - For up to 15 apples, 1 head of lettuce or 2 Brotlaibe
- Fabric made from recycled jeans and cotton from organically controlled cultivation
- Wipeable freshness inlay made of natural plastic based on corn starch
- Dimensions: 40 x 30 cm (plus 10 cm Floor)

reduce  
**plastic**



grow food



Seedit

# Individual organic bags

## Your printing & dimensions

All NaKu organic bags are marked with the NaKu logo and can also be individually printed from a certain order quantity (depending on the product), for example with a company name or logo.

The banderol of the NaKu rolls can be individually printed from an order quantity of 1000 pieces and offers space for your logo, your philosophy or can be used as advertising for your campaign!

There is a one-off cliché creation fee for individual printing. Up to 4 colors can be printed.

The delivery time is 5-8 weeks after the printing plate has been approved.

Single-sided high-resolution digital printing and special dimensions are also possible on request. We are happy to help with any further questions or to clarify your individual wishes and ideas.



### Special dimensions

*Upon request.*



### Individual printing

*Ask about the minimum order quantity of your desired product.*



### High-resolution digital prints

*Upon request.*



### delivery time

*The delivery time is 5-8 weeks after the printing plate has been approved.*



### number of colors

*Up to 6 colors can be printed.*

# Individual organic bags

## Printing area on bags with standard dimensions



### HANDLE HOLE CARRYING BAG





Mehr Info

# NaKu barrier tape made of bioplastic



Everyone knows them, as barrier tapes have a wide range of uses. Whether at sporting events, in road construction, in the building industry or for rescue organizations - barrier tapes are a quick and easy way to mark and cordon off areas in the shortest possible time.

After use, barrier tapes should be collected and disposed of accordingly. Unfortunately, this does not always happen, and parts of barrier tape often remain in nature. Conventional barrier tapes made from petroleum-based plastic pose a problem for our environment, as microplastics are created. These small petroleum-based plastic particles are not only ingested by animals when they eat, but microplastics entering the soil and water also pose a health risk for us humans.

The clear advantage of the NaKu barrier tape made of bioplastics is that it is not only made from renewable/plant-based raw materials, but also its decomposability. If the NaKu barrier tape made of bioplastics is left lying in nature, it will decompose and no persistent microplastics will enter the soil, as is the case with conventional barrier tapes made of petroleum-based plastic.

- plastic-free\*
- 100% biodegradable • environmentally friendly • no creation of persistent microplastics • tear-resistant

## The 100% biodegradable NaKu barrier tape made of bioplastic is ideal for e.g.:

- Green Events
- Sports events
- Concerts/major events
- Emergency services, fire brigades, police,...
- Construction industry/road construction
- Film companies/film shoots
- Forestry companies/reforestation areas

**The NaKu barrier tape made of bioplastic, manufactured from renewable raw materials/plants, is available in the standard version:**

**Width:** 75 mm

**Material:** OK Compost HOME

**Length:** approx. 500 m / roll

**Thickness:** 45

µm **Print:** light green

with one-sided NaKu standard print



**INDIVIDUELL BEDRUCKBAR!**

On special request, we can also provide the NaKu barrier tape made of bioplastic with your individual print.

Minimum order quantity:  
200 rolls

\*free of conventional plastic/no petroleum-based plastic



# „Täuschung bei Biosackerl – NaKu klärt auf.“



VS.



GEFÄLSCHTES BIOSACKERL

ECHTES BIOSACKERL



More info

# DANGER!

## plastic bag ban & fake organic bags

**Since January 1, 2020, conventional plastic bags made from petroleum have been banned in Austria. However, biodegradable organic bags are still permitted.**

Fake “bio bags” are now increasingly appearing on the Austrian market. These are declared to be biodegradable plastic, but in reality are not – a clear deception! It is clear that companies, but ultimately consumers, are being deceived.

The supposedly biodegradable bags are usually made of polyethylene, a much cheaper raw material made from petroleum. As can be seen in the picture here, the alleged biodegradability is deliberately pointed out, but there is no certification.

However, bags approved for trade require a certificate such as the OK compost seal from TÜV Austria. But even here you can be deceived, because there are also bags with fake TÜV seals.

When fake organic bags are on the market, it becomes difficult for laypeople to distinguish them from the real ones. That is why we have **a guide on our website** [created for self-testing at home.](#)

With three very simple methods you can find out very quickly whether the bag you are testing is made of biodegradable plastic or just conventional plastic.



**How compostability is faked.  
Deception with organic bags. NaKu explains.**

# THE OK COMPOST SEAL

## What the OK compost seals mean

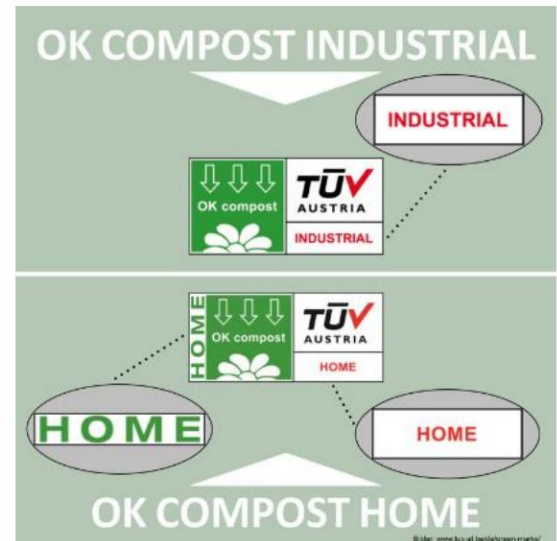
### What do the different seals mean?

We are often asked what “OK compost Home” means. Many people have probably already seen the “OK compost” seal on organic bags. What are the different “OK compost” –

We explain here what seals of approval actually mean.

The seal is awarded by TÜV Austria. There are two versions. The “OK compost INDUSTRIAL” seal is awarded if the product is biodegradable in an industrial composting plant. This applies to the entire product, including additives such as

Printing inks. Holders of this seal must comply with the DIN EN 13432 standard.



### OK compost INDUSTRIAL

DIN EN 13432 is a European standard that defines the requirements for compostability according to OK compost INDUSTRIAL. Products that want to carry this seal must pass the following tests:

- Chemical testing: Limit values for pollutants such as heavy metals must be observed
- Biodegradable in aqueous medium: 90% of the organic material must be completely degraded to CO<sub>2</sub> after six months.
- Composting: after three months of composting, no more than 10% of the original mass may be left.
- Influences on composting: There must be no negative effects on the entire composting process.
- Ecotoxicity test: The composted material is tested for its effect on plant growth tested.

In fact, this seal guarantees that the material is broken down by at least 90% within 90 days in an industrial composting plant and that it has no negative effects on the compost. Note: In a home compost it can take longer than 90 days.

### OK compost HOME

The OK compost HOME seal is also based on the EN 13432 standard. The same requirements as for INDUSTRIAL must therefore be met. Home composting takes longer due to the lower temperature compared to an industrial composting plant. The OK compost

The HOME seal is intended to guarantee compostability at home in your own garden. All technical requirements are checked to see whether the product will biodegrade in your home compost or not.

In fact, unlike INDUSTRIAL, this seal guarantees that the material will be broken down by at least 90% within six months in a representative home compost pile. The composting process understandably takes longer at room temperature.



# PLA BOTTLES

The right bottle for every purpose





# PLA BOTTLES

The right bottle for every purpose



# PLA/rPLA bottles

120% sustainable! The plastic-free\* alternative!

Order directly

The 120% sustainable NaKu organic bottle is the ideal container for drinks - completely without plastic\*! It does not contain any harmful plasticizers such as bisphenol A, phthalates or antimony. It is made from 100% plant-based raw materials/PLA plus 20% recycled PLA from natural plastic (PLA - polymerized lactic acid), or in other words: from plants and lactic acid.

The NaKu PLA bottle is recyclable and biodegradable ! Our NaKu cycle speaks for itself! Furthermore, the NaKu PLA/rPLA bottle made of bioplastic is 7% lighter than a comparable PET bottle! In addition to all other environmentally friendly aspects, this also saves CO2 during transport .

The lifespan of the NaKu Bio bottle is the same as that of a normal PET bottle, as long as it does not come into contact with microorganisms that would decompose it. However, this does not usually happen in everyday life, so don't worry - the PLA/rPLA bottle is guaranteed to stay leak-proof in your bag!

The cap is made of BioPE, and not PLA/rPLA, like the bottle itself. This means the lid is made from renewable raw materials, but is unfortunately not (yet) compostable.

Info: The PLA/rPLA bottle is not dishwasher safe!  
Max. operating temperature: 55°C  
Compostable according to DIN 13432



## PLA/rPLA bottle 250 ml

Height: 138.5 mm  
Diameter: 55 mm  
Neckfinish: 38mm 3starter

Weight: 19.5 g  
Art.Nr.: FL-NA-250

Art.No.: FL-NA-250-21B (Palette)  
Art.Nr.: FL-NA-250-21K (Karton)

## PLA/rPLA bottle 500 ml

Height: 193.5 mm  
Diameter: 65 mm  
Neckfinish 38mm 3starter

Weight: 26 g  
Art.Nr.: FL-NA-500

Art.Nr.: FL-NA-500-25B (Palette)  
Art.Nr.: FL-NA-500-25K (Karton)

**Look**

Transparent and shiny

**Mechanical properties**

High strength, 7% lower density than PET – lighter

**Chemical resistance**

Suitable for contact with food, refill bottle, recyclable

**temperature resistance**

Maximum operating temperature 55°C



Standard 250 ml and 500 ml bottle  
Any other desired shape on request.

**Available as:**

- Bottle without cap
- Bottle with extra Bio PE cap

**Minimum order quantities:**

unique piece  
cardboard goods  
Palette

**Delivery:** on request

For larger order quantities, the bottle can also be colored (from 300,000 pieces) and individual geometries can be produced (from 25,000 pieces).







# Individual PLA bottles

## your bottle geometry

**Let us create your individual NaKu  
Customize PLA/rPLA bottle.**

Tailored to your needs: We are also happy to produce NaKu PLA bottles and PLA cans with special customization requests.

We can provide a quote for your desired geometry on request. The minimum order quantity for customers with their own geometries is 25,000 pieces per order. For larger order quantities, the bottle can also be colored.

If you have any further questions or would like to clarify your individual wishes and ideas, we will be happy to help.



Smoothies



Freshly  
squeezed fruit juices



nutritional  
supplements



milk drinks



Cosmetics



Solid foods



Spices



More info

# NOT PLASTIC WATER

## Nature in your hands



**Unbelievable but true:** There is nothing in this bottle except nature! Plastic? – Not at all! Because the NaKu bottle is made of 100% natural plastic (PLA), which is made from plants or lactic acid. This means it is completely recyclable and even biodegradable. (DIN 13432)

The spring water bottled in the NOT PLASTIC WATER bottle comes from an intact natural source, is uniquely balanced in minerals, has a high natural oxygen content, and a low sodium content, making it the epitome of refreshing and natural spring water.

**NOT PLASTIC Spring water** is the sustainable and plastic-free alternative with which you can do something good for yourself and nature!



Composting of the bottle in industrial compost (at 60°C) within 35 days according to DIN EN 13432 (standard requires <90 days)

- Guaranteed free of harmful plasticizers
- Made from natural plastic (PLA) instead of petroleum
- Lighter than glass or PET: CO2 savings during transport
- Natural spring water – alkaline pH value
- Strictly controlled – from Austria



Whether as a commercial product for your company, for your own use, your company canteen, your events or trade fair appearances – NOT PLASTIC WATER is the optimal and environmentally friendly beverage solution!

12 NOT PLASTIC WATER PLA bottles each with 330ml WILDALP spring water are packed in a practical and handy box.



Minimum order quantity: 5 boxes (60 PLA bottles 330ml)  
Order grading: 5 boxes, 1 pallet each  
(108 cartons of 12 PLA bottles 330ml WILDALP spring water)

Art.Nr.: Karton: NPW-330ml/Palette: NPW-330ml-Pal

# VIENO organic sunflower oil

Natural enjoyment without plastic



More info

## VIENO organic sunflower oil in the no-plastic bottle

The plastic-free\* alternative. Compostable & recyclable.

### Plastic-free\* – Unbelievable but true

There is nothing but nature in this NaKu bottle! 100% from sustainable PLA, made from plants or lactic acid. Recyclable and compostable (according to DIN 13432)\*

### Highest quality standards and pure nature

VIENO is introducing its organic sunflower oil for the first time in the innovative NaKu PLA bottle – a quality standard without plastic. Austria is a pioneer as the first country in which VIENO organic sunflower oil is available in this groundbreaking NO-PLASTIC bottle.



VIENO organic sunflower oil in the 0.5 liter bottle

### Living Sustainability

VIENO not only stands for premium organic sunflower oil, but also for responsible packaging. The choice of the NaKu PLA bottle shows VIENO's commitment to the environment and reduces the impact of conventional plastic waste.

### Controlled bottling

VIENO's high-quality organic sunflower oil is bottled in Austria, in the Weinviertel, each batch is LVA-controlled and the packaging is completely plastic-free\*.



Photo credit: Caro Strasnik

- Guaranteed free of harmful plasticizers
- Recyclable and compostable according to DIN 13432
- As durable as a conventional PET bottle
- High hardness and rigidity
- 7% lighter than a PET bottle
- Lighter than glass: CO2 savings during transport

### The VIENO organic sunflower oil – quality and packaging

In order to keep healthy cooking oils with a high proportion of unsaturated fatty acids fresh for a long time, the material of the packaging or bottle is crucial. Packaging made of PLA can more than hold its own when compared to PET bottles.

A recent study conducted by a research team at the University of Vienna also showed quality advantages. This study found that bioplastic bottles made of PLA not only protect cooking oil from oxidative spoilage to a similar extent as PET bottles, but that they also produce fewer substances that impair taste and odor.

\*frei von konventionellem Plastik/kein Plastik auf Erdölbasis



# 120% sustainable!

## The plastic-free\* alternative!

### Can something be more than 100% sustainable?

The new NaKu bottle made of PLA/rPLA (bioplastic) achieves this feat: 100% plant-based raw materials/PLA plus 20% recycled PLA guarantee natural and absolutely plastic-free\* drinking pleasure.

By combining plant-based raw materials with resource-saving recycling of bioplastics NaKu was able to realize its vision of a sustainable yet practical plastic bottle get a little closer again.



\*frei von konventionellem Plastik/kein Plastik auf Erdölbasis

# recycling of bioplastics



More info



## Recycling of bioplastics – sustainable, resource-saving

NaKu's vision is to combine recycling and organic with its products. Natural plastic should be recycled first because it is ideal for this. Even if the quantities are currently very small, the aim is to combine the two supreme disciplines of sustainability - regrowth and recycling.

With our products, both physical and chemical recycling is possible.

The sorting on conventional PET sorting systems as well as the recycling and, in the final step, the recovery of the molecular building blocks work very well.



**Physical recycling:** In physical recycling, used bottles are first cleaned and then broken down into small pieces called flakes. These flakes are melted and formed into pellets from which new bottles can be made.

**Chemical recycling:** In contrast, chemical recycling breaks down the material of the bottles into its molecular components. These are then reassembled (repolymerized) to create a fresh raw material that is used to make new bottles. This depolymerization means the circularity of raw materials and is easier for us with lactic acid to avoid any loss of quality.



These two recycling methods offer effective ways to extend the life cycle of plastic products and use resources sustainably. A large proportion of our bottles currently consist of at least 20% chemically recycled bioplastic.

# PET BOTTLES

## Science - Studies - State of the Art



### **From the media: How much microplastics and nanoplastics do we ingest by drinking from PET bottles?**

Naixin Qian's team at Columbia University in New York obtained conventional 1-liter plastic water bottles from three different US supermarkets and examined them for nanoplastics. Each of these PET bottles contained around 240,000 plastic fragments. Unlike with PET bottles, we do not ingest any persistent microplastics when drinking from bioplastics.



### **New study on the shelf life of cooking oils: What happens when oil goes rancid?**

Researchers at the University of Vienna have studied the shelf life of sunflower oil in different bottles. Different bottles were examined, including the bio-based NaKu bottle.

We all know the pungent smell of rancid oil. Find out what happens to the oil when it goes bad and what you need to do to make oil last longer on our website!



### **New study on health and cooking oils: Are PET bottles questionable?**

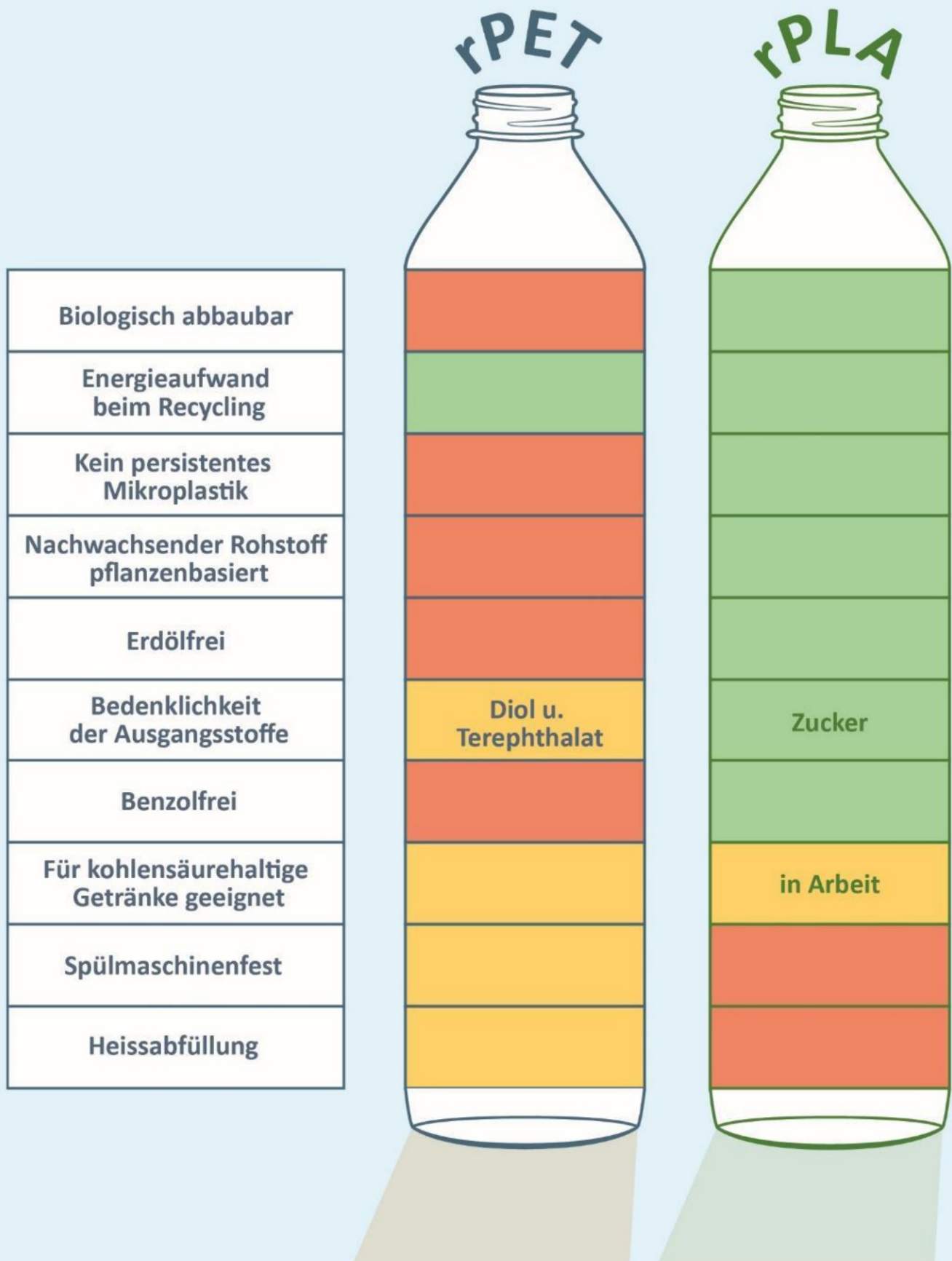
The new study by the University of Vienna also found that the PET bottle releases carcinogenic benzene into the oil over the period of storage.

The researchers in this study tested the stored sunflower oil for benzene after 56 days and measured a concentration in the samples stored in PET bottles that was 140 times higher than permitted for drinking water.

In comparison to the PET bottle, the NaKu bottle tested in this study is made of completely natural materials (sugar as the raw material), which is why no harmful substances can be released from the bottle.

# Gibt es etwas Grüneres als rPET?

## rPET und rPLA im Vergleich





# PLA-LECTOR

The right can for every purpose





# PLA-LECTOR

The right can for every purpose



Order directly

# PLA-LECTOR/BIO-LECTOR

The cans made of bioplastic for many purposes

The environmentally friendly can made from renewable/plant-based raw materials.

**Plastic-free\* packaging!** The resealable NaKu organic container made of PLA/rPLA is ideal for ice cream, but is also suitable for food supplements, powders, tablets, spices, pasta, and many other foods.

We can print labels with your individual logo for both the lid and the organic jar. produce.

- made from renewable raw materials (PLA)
- recyclebar
- Can and lid can be labeled
- Can be washed with warm water, but not dishwasher safe (max. 55°)
- Versatile & reusable

Our cans are made from plants and lactic acid. They do not contain any harmful plasticizers such as bisphenol A, phthalates or antimony and are made of

100% made from bioplastic (PLA), or in other words: from plants and lactic acid. This protects the environment and is also very good for us humans, as no potentially harmful substances are released when it comes into contact with food!

The lifespan of the NaKu Bio-Dose is the same as that of a conventional can made of petroleum plastic, as long as it does not come into contact with microorganisms that would decompose it. But this rarely happens in everyday life, so don't worry -

The organic container is guaranteed to be leak-proof!

While oil is becoming increasingly scarce and expensive, natural resources offer a renewable source of raw materials.

Info: the PLA container is not dishwasher safe! Max. Operating temperature: 55°C



\*frei von konventionellem Plastik/kein Plastik auf Erdölbasis



**PLA/rPLA-Can 500**

Volume: 525 +/- 12 ml Weight:  
40.9 +/- 1g Dimensions:  
114 mm high Diameter: max. 87.5 mm  
Thread: 82 mm Twist Off

Art.No.: DO-NA-525

**PLA/rPLA can 325**

Volume: 334 +/- 6 ml Weight:  
25.1 +/- 1 g Dimensions:  
69.9 mm high Diameter: max. 87.23 mm  
Thread: 82 mm Twist Off

Art.No.: DO-NA-334

**PLA/rPLA-Dose 150**

Volume: 162 +/- 7 ml Weight:  
14.4 +/- 0.5 g Dimensions: 70  
mm high Diameter: max. 60.6 mm  
Thread: 53 mm Twist Off Art.No.: DO-  
NA-162

*Let us tailor your individual NaKu PLA/rPLA container.*

***Tailored to your needs:***

*We are also happy to produce NaKu PLA bottles and PLA cans with special customization requests.*



# test tube/test tube

## made of bioplastic/PLA



Order directly

The NaKu bio-test tube / bio-sample tube made of PLA/bioplastic is the ideal environmentally friendly container for a wide range of applications - completely without plastic\*! It contains no plasticizers such as bisphenol A, phthalates or antimony and is made of 100% natural plastic (PLA), or in other words: plants and lactic acid.

Biotest tubes/biosample tubes are very durable due to the particularly thick material.

The special wide neck shape makes filling easier.

The wide rim allows the bio-tubes to be hung optimally in the stand. The screw cap with tamper-evident ring can be used to seal the bio-test tube.

Delivery is in packs of 10, including screw cap with tamper evident ring.

If you need larger quantities or other geometries of test tubes/sample tubes made of PLA/bioplastic, please contact us.

The PLA test tubes are not dishwasher safe!

Max. operating temperature: 55°C



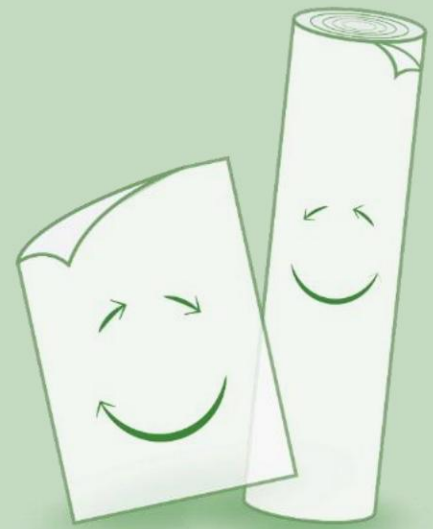
- **Made from plant-based raw materials/PLA**
- **100% biodegradable**
- **Compostable**
- **Free of pollutants**
- **No persistent microplastics**
- **Extra large filling opening**
- **Filling quantity up to the retaining ring: approx. 28 ml**
- **Outside diameter: approx. 24 mm**
- **Diameter at widest point of neck: approx. 36 mm**
- **External height without closure: approx. 96 mm**

The cap is made of BioPE, and not PLA, like the bottle itself. This means the lid is made from renewable raw materials, but is unfortunately not (yet) compostable.

- As sample tubes for sample sticks
- For collecting and transporting food samples
- Rock samples & rock pieces from mineral collectors or gold prospectors
- For filling spices & salt
- For storing liquids
- For collecting/storing plant seeds
- For collecting insects

*\*Free from conventional plastic/ no petroleum-based plastic*





# biopolymer films

biopolymer film made of bioplastic

renner  
print  
media

**BIO**  
Polymer  
Label



KEIN PLASTIK • KEIN HOLZ  
AUS SCHNELL  
NACHWACHSENDEN  
PFLANZLICHEN  
ROHSTOFFEN

renner-print.at



# Biopolymerfolie

The film made from plant-based raw materials



More information

The biopolymer film is ideal for use where stronger paper or conventional films made from petroleum plastic are to be replaced in an environmentally friendly and sustainable way and where recyclability, biodegradability and composting are an issue. This also applies to applications where the product can intentionally or inadvertently end up in nature.

The biopolymer film is used where long- and medium-term use is required and/or water resistance or humid environmental conditions play a role.

The biopolymer film is based on rapidly renewable plant-based raw materials (sugar & starch), whereas paper is made from slow-growing trees.



## Why a film made of bioplastic

The production and energy required for paper production is many times higher than for the production of biopolymer film. The production process of paper itself - with all its additives, bleaching and drying processes - also takes longer, and an enormous amount of water is needed to produce paper. Biopolymer film does not contain any chemical additives.

Conventional films (e.g. for plastic labels and plastic product labels) are made from petroleum. This is neither environmentally friendly nor sustainable. If such film products end up in nature, they rot and produce persistent microplastics that are hazardous to the health of animals and humans.

Such films are also usually contaminated with harmful substances.

## The biopolymer film is the starting material for countless applications

- (clothing) labels
- Loop labels/loop labels
- Carrying handles and
- Stick-on labels and price labels and picture cards
- Tree protection covers
- Door hangers
- Label cards
- Billboards & advertising banners and much more...

- Made from rapidly renewable, plant-based raw materials
  - pollutant-free
  - Recyclable & industrially compostable according to DIN 13432
  - No formation of persistent microplastics
- Easy to write on and print on
- Water-resistant, dimensionally stable & tear-resistant
- Lower energy consumption than in the production of paper
  - No gluing is required (necessary for conventional paper, otherwise it cannot be written on)
  - Locally produced – made in Austria



More information

# sugar card

## Sugar instead of PVC



- Credit cards, bank/ATM cards
- Lift tickets, ski passes
- Hotel cards, room cards
- Employee ID cards, access cards
- Tank karts
- Customer cards
- Scratch cards, voucher cards
- Entrance tickets, annual passes
- ID cards and much more...

PVC 2,1 kg CO<sub>2</sub>

PLA 0,51 kg CO<sub>2</sub>

rPLA 0,19 kg CO<sub>2</sub>

Äquivalent pro kg Material

The card is a product that is only used for a relatively short period of time. The environmental aspects and the advantages of a card made from renewable raw materials = bioplastic are obvious.

From the white blank card to the refined card – everything is possible! Of course also with barcode, chip, and much more.

Did you know that conventional cards are still made of PVC? In Austria alone, 70 million cards are needed every year. One card weighs about 5 grams –  
Therefore, we are talking about 350,000 KG of PVC annually.

### The CO<sub>2</sub> balance of the sugar card

The production of the sugar card produces 50% less CO<sub>2</sub> compared to PVC cards. This applies to the card itself without taking into account the antenna/chip. Compared to PCV, using PLA as a raw material results in a CO<sub>2</sub> saving of 75%.

### The material of the sugar card

The sugar card is made of sugar and starch. It already contains 15% recycled bioplastic.

### The compostability of the sugar card

The map material is compostable according to DIN 13432. The compostability of the entire card depends on the built-in antenna technology and the printing inks used.

### The recyclability of the sugar card

A project to recycle the card is underway. A minimum amount of around 1 tonne of material is required for recycling. For a card weight of 5 grams, this is around  
240,000 cards. Other products made from bioplastics can also be recycled.

BEDRUCKT UND UNBEDRUCKT LIEFERBAR

- Renewable raw materials
- Lower CO<sub>2</sub> footprint compared to PVC cards
- Compostable & recyclable
  - Water-resistant, dimensionally stable & tear-resistant
  - Card technically tested according to CQM, ISO 7810 & 10373
- Easy to write on and print on
  - Regionally produced

# organic labels



More information

## Especially for sustainable gardening For soils and plants without microplastics

Everyone knows them, as the use of stick-on labels and loop labels is very diverse. They are a quick and easy way to label plants in pots or beds in no time at all, or to mark prices - and they are completely environmentally friendly, as they are made from bioplastic based on rapidly renewable raw materials.

The bioplastic stick-on labels and loop labels can be used multiple times, are waterproof and can withstand various weather conditions, while paper disintegrates in the rain. They are also compostable according to DIN 13432.

### Ideal for environmentally conscious and sustainable companies

The clear advantage of bioplastic stick-on labels and loop labels is that they are made from rapidly renewable, plant-based raw materials and that they are degradable. Unlike conventional PVC products, they do not leave any resistant microplastics in the soil, which also prevents plants such as vegetables from absorbing microplastics from the soil as they grow.

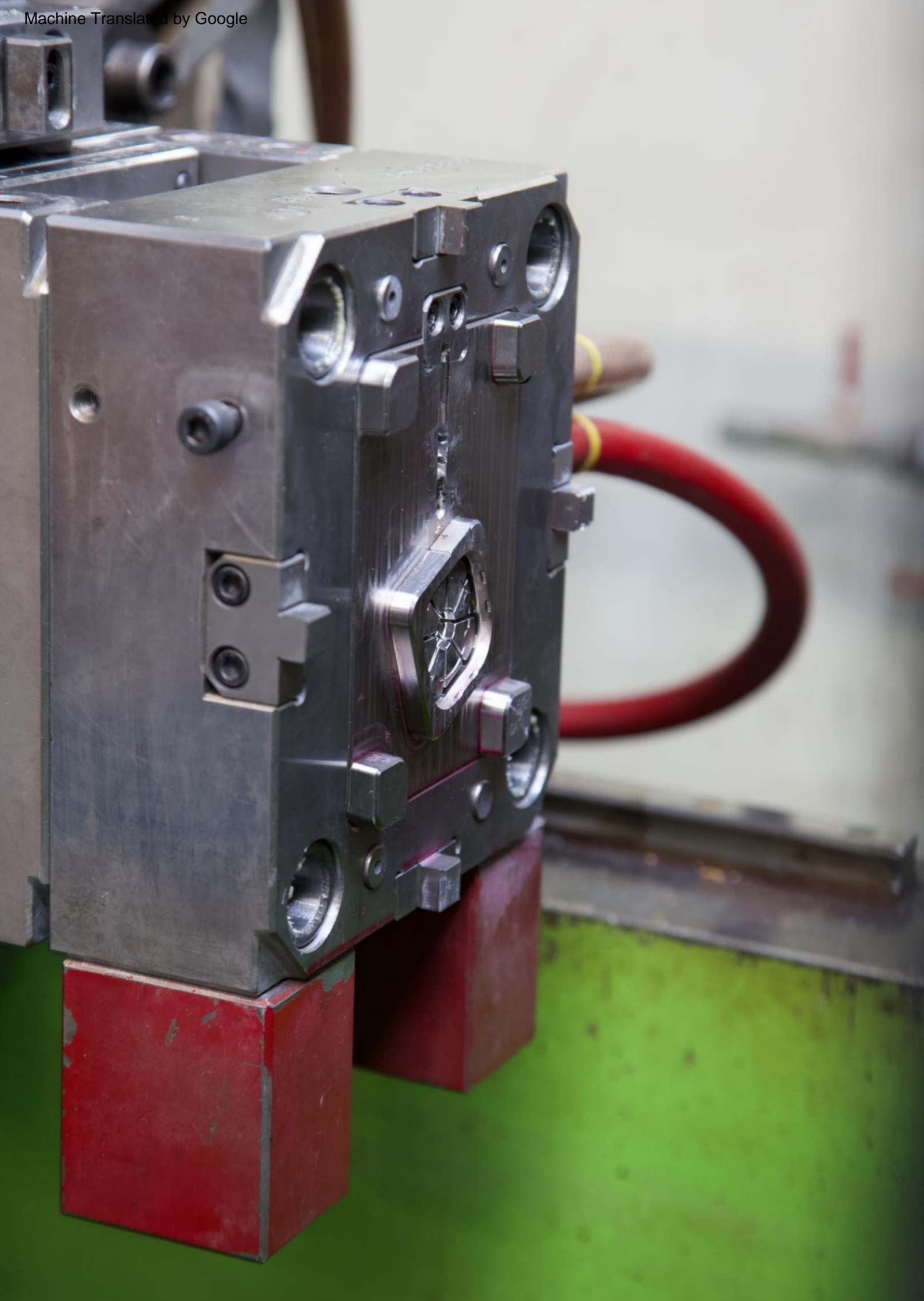
PVC stick-on labels and loop labels break down into microplastics. And nobody wants these in the soil, in the plant itself or in the compost. This risk does not exist when using organic labels, as they are biodegradable and do not leave behind any persistent microplastics.

There are also stick-on labels and loop labels made from paper. The production and energy required for paper production is many times higher than for the production of bioplastics. The production process of paper itself, with all its additives, bleaching and drying processes, also takes longer, and an enormous amount of water is needed to produce paper.



- Made from rapidly renewable, plant-based raw materials
  - pollutant-free
- compostable according to DIN 13432
  - No formation of persistent microplastics
- Easy to write on and print on
- water-resistant, dimensionally stable & tear-resistant
- Reusable
  - Locally produced – made in Austria

BEDRUCKT UND UNBEDRUCKT LIEFERBAR





# PROJECTS

Your idea – our joint project



More info

# art project

## ants made of bioplastic

### art project by Julia Bugram with NaKu

Julia Bugram's ant project is an art project that takes place in public spaces. Ants made of bioplastic are glued to school paths, squares, etc. by children in order to explore public spaces.

To ensure that the ants do not pose an environmental burden when exposed to the weather, they are made from bioplastic.

### Why does NaKu Ants made of bioplastic?

NaKu generally produces special projects for customers using bioplastics. This is NaKu's third pillar. Here we produce children's toys, special packaging for natural cosmetics and much more. As standard, NaKu produces films and bags as well as bottles and cans made of bioplastics. NaKu has been working with bioplastics for more than 15 years and has acquired a lot of know-how in this area over the years.

# organic packaging

## replaceable cartridge made of bioplastic



More info

**Natural cream packaged plastic-free\*!** The interchangeable cartridge made of bioplastic – which contains the natural cream – is inserted into the freemee cosmetics cream jar made of fine wood and glass .

If the cream is empty, the bioplastic cartridge is simply replaced.



We are operating in the luxury segment here and therefore all components of the bioplastic cartridge must be perfectly coordinated and easy to handle. This applies in particular to those components that move within the cartridge and must also seal during movement.

The original plan was to manufacture the five individual components of the bioplastic replacement cartridge from one material. However, since the requirements for the individual components are very different, we came to the conclusion during product development and test runs to use three different bioplastic material variations.

Hannah and Patrick from freemee cosmetics are very careful to use only degradable and renewable raw materials for their natural cosmetics. Their goal is not to put any waste into the world that cannot be returned to nature. Therefore, the cream jar and the packaging are 100% degradable, recyclable and 99.9% emptyable. The goal of freemee cosmetics to reduce waste as much as possible can also be achieved with this system. The system of the replaceable bioplastic cartridge can save up to 75% waste compared to other cosmetic packaging.

**Do you also have a project that you would like to have realized using bioplastic?  
Then contact us right away!**

# your idea

## Our joint bioplastics project

**We can also realize your project using  
our bioplastic!**

As can be seen from the example of the bioplastic cartridge for the freemee cosmetics  
As you can see from the cream jar, very complex components or a complex interaction of individual components made of bioplastic are also possible. The ant project shows you that even very small components can be made from bioplastic. However, the production itself is often not as easy as you might imagine.

Why isn't it that simple? Well, in the field of bioplastics, the choice of materials is currently (still) more limited than it is with conventional plastics. However, with our know-how, a lot is possible.

**Do you also have a project that  
you would like to have realized using bioplastic?**

**Then contact us right away!**







# INTERESTING FACTS

Information on bioplastics



More info

# ENERGY GLOBE

## NaKu planting bag made of bioplastic

**NaKu was awarded as winner in the Earth category at the Energy Globe Austria and was also nominated for the 22nd Energy Globe World Award!**

This was the **organic plant bag** specially developed by NaKu for the Kenyan reforestation project "Books for Trees" of the HBLFA Gartenbau Schönbrunn for people and the environment and won in the Earth category!

Thanks to the reforestation project "Books for Trees" by the HBLFA Gartenbau Schönbrunn, forests in Kenya are being reforested to prevent further land erosion due to previous deforestation. The ban on plastic bags in Kenya meant that the continuation of this reforestation project was about to end.



***We are of course particularly proud of our nomination for the 22nd Energy Globe World Award in the Earth category. We were selected from a total of around 3,000 submissions from more than 180 countries by the international jury from all 5 continents chaired by Maneka Gandhi.***

The challenge for NaKu was to develop a sustainable and cost-effective plant bag solution based on bioplastics in the shortest possible time. Together with HBLFA Gartenbau Schönbrunn, we have developed a plant bag made of bioplastics that ensures a permanent water supply to the roots and thus optimizes plant growth.

The plant bag made of bioplastic decomposes after a short time without leaving behind microplastics. Different formulations, geometries and thicknesses were tested for optimal growth and easy handling.

The newly developed organic planting bag is now being tested on a large scale in various climate zones in Kenya. The first 30,000 trees are already being planted in NaKu planting bags in Kenya!

The organic plant bag is very easy to use and eliminates the steps that are necessary with plant bags made of conventional plastic. This makes the work much easier.





More info

## FREQUENTLY ASKED QUESTIONS

# Your Questions - Our Answers

### **WHAT IS NATURAL PLASTIC?**

*Natural plastic is very similar to conventional plastic in its properties, but is made from plants and therefore offers an environmentally friendly alternative to petroleum products. At NaKu, most products are made from renewable raw materials and are completely biodegradable. Sugar, starch and cellulose instead of styrene, terephthalate and vinyl chloride.*

### **WHAT BENEFITS DOES THE NAKU BAG BRING TO THE CLIMATE, FOR EXAMPLE WITH REGARD TO CO<sub>2</sub> ?**

*Processing NaKu granulate requires similar amounts of energy as processing conventional plastics. Due to their compostability and the fact that the raw material is produced from renewable resources, natural plastic carrier bags currently have a better carbon footprint than the same items made from conventional plastic.*

### **ARE ANY OTHER CHEMICALS ADDED DURING PROCESSING? IF YES, WHICH ONE?**

*Only materials that meet the strict requirements of DIN EN 13432, the current standard for biodegradable materials, are added. After our products have decomposed, they become grade A compost, which is the best nutrient for new plants.*

### **CAN YOU CERTIFY FREEDOM FROM GMOs AND POLLUTANTS?**

*It is very important to us that the starch used in our products is free from genetic engineering. The only disadvantage: all the advantages (genetically modified, CO<sub>2</sub> -saving production, food-safe, biodegradable, etc.) of our product unfortunately still result in higher production costs.*





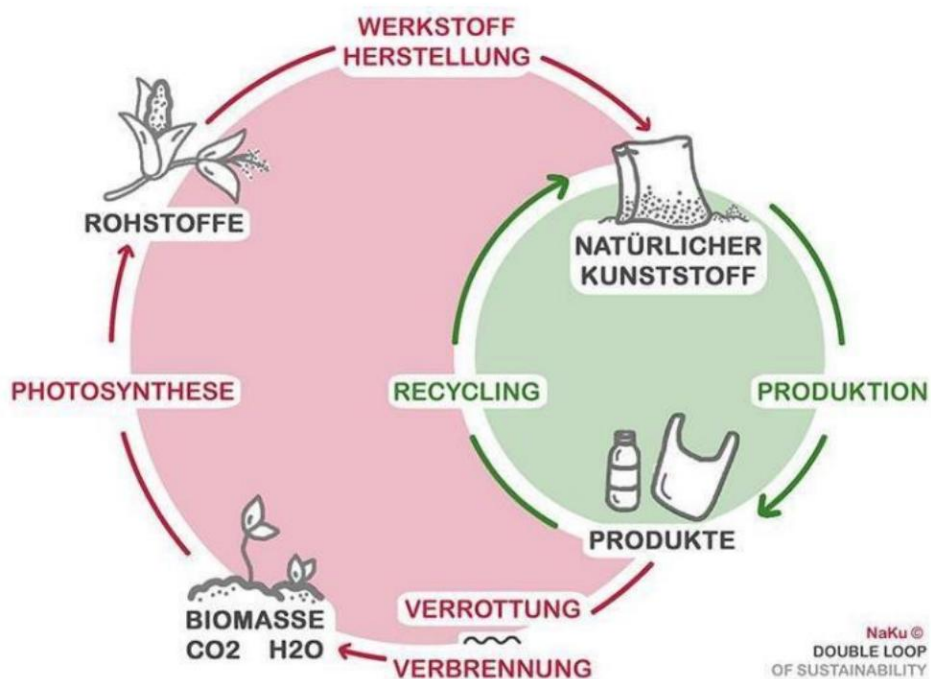
More info

# The NaKu cycle

## Nature and plastic – a contradiction?

NaKu products fulfill their purpose while protecting our environment.

Packaging material has never been so sustainable – from the selection of natural raw materials, to the production of the products (bottles, bags, etc.) to recycling and composting.



NaKu's vision is to combine the recycling cycle and the biological cycle with its products, because natural plastic should first and foremost be recycled and is also very easy to recycle.

With our products, both existing mechanical recycling and future-oriented chemical recycling (the recovery of molecular components) work very well.



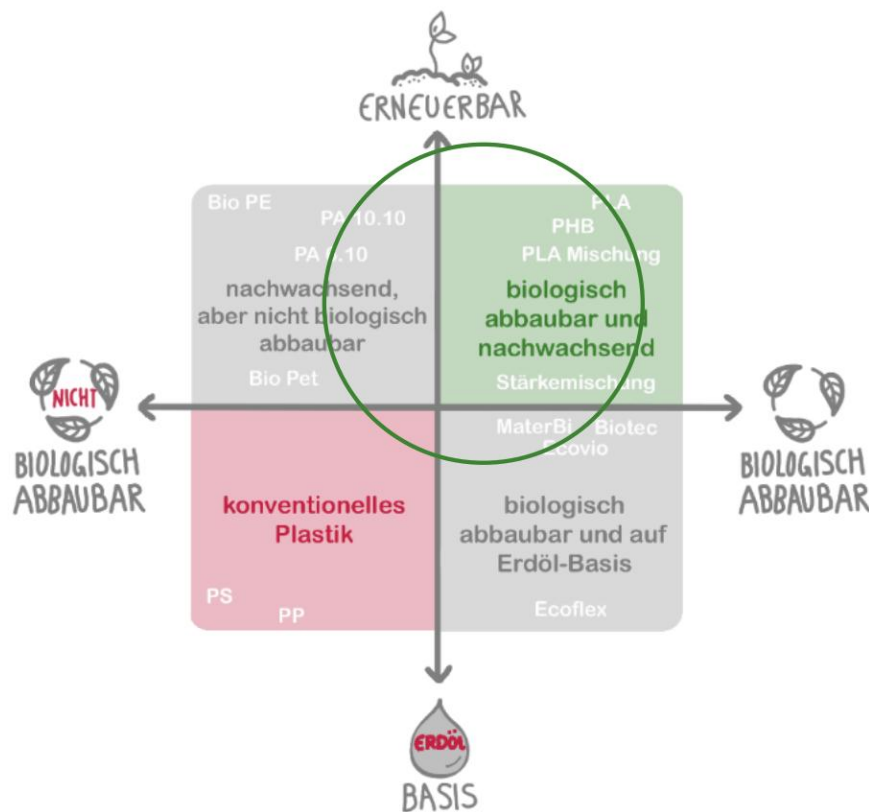
# The plastic cross



More info

## Nature and plastic – a contradiction?

Natural plastics are used in a wide range of industries due to their good degradability and high biocompatibility. They are particularly suitable for everyday products with a shorter service life. The use of natural plastics ranges from bottles, shopping bags, films, cups, party tableware, disposable products, hygiene items, self-dissolving wound sutures, fruit, vegetable and bread packaging to children's and baby equipment.



Natural plastic is the name for a **Plastic made from renewable raw materials** and is biodegradable. It combines both requirements and offers advantages throughout its entire life cycle. NaKu

has been working with natural plastics for more than 15 years and has acquired a lot of know-how in this field over the years.

Modern technology enables the production of various bioplastics. These can be made from

Plants from domestic agriculture such as potatoes, corn or grain.

Bio-based plastics obtained in this way are very similar to conventional materials. They can be processed using the same technologies and machines.

The crucial difference, however, is that if our natural plastic is exposed to a combination of heat, moisture and bacteria over a long period of time, it will rot completely.

In this way, NaKu products made of natural plastic can be disposed of with the plastic collection after use or composted. Nevertheless, our 100% biodegradable products should not simply be thrown away carelessly. Our products therefore do not burden future generations with mountains of plastic waste.

NaKu has set itself the goal of using this environmentally friendly and resource-saving technology of bioplastics to create everyday products with a high development standard. Natural plastic is therefore usable by everyone.



More info

# 2022 – 15 years of NaKu

## From Pioneer and Visionary to Globe Award



### How it all began – the first thoughts

When Ute and Johann Zimmermann's children were still small (Moritz is currently in the middle of his high school graduation, Johann Jr. is already studying), the parents had to justify how much single-use plastic a family of four actually throws away in the trash and why everyone is participating in a system that is so clearly going in the wrong direction. So the search began to find out whether there really is no alternative.

Johann Zimmermann first encountered the then new plastic (lignin-based bioplastic) in 1999/2000. Both Zimmermanns were fascinated by the fact that there was a 100% bio-based, renewable material, even though it smelled and was sticky and even specialists found it difficult to get anything out of the machine.

### The path to independence and company foundation - 2007

Ute and Johann Zimmermann have always wanted to start their own company since 1994. The decisive factor in finally taking this step was some inspiration from friends and Johann Zimmermann's boss at the time, who knew about this long-standing wish.

### The naming and the first product

No sooner said than done – the question now arose as to what to call the company? Ute and Johann Zimmermann decided very early on to use the core term "natural plastic" – today's short form "NaKu" – because they felt that organic was too inappropriate. At that time, there was no clear classification of bioplastics and no definition of how these plastics could be used.

should name exactly.

The name had been found, now only the first product made of bioplastic had to be developed. In short – the NaKu bag we know today was born.

Over the course of the following years, new bags made of bioplastic were added to this first variant. On the one hand, as organic carrier bags in different sizes and thicknesses, and on the other hand for special household uses such as organic freezer bags, organic fresh food bags or organic garbage bags.

Innovations such as the bioplastic garment bag for dry cleaners or the NaKu plant bag followed.

### The first years

It is not always easy to be a visionary and pioneer. The years up to 2017 were challenging for NaKu. NaKu was repeatedly attacked with the same arguments: bioplastics are not bio at all, bioplastics are not a renewable raw material. NaKu is just

Greenwashing. Bioplastic is made from genetically modified plants, etc.

There was a great deal of resistance against this new material, especially in the plastics industry . Even though the general public never saw it as black and white, but rather as grey, the question was quickly asked within the plastics industry: If THEY at NaKu make the good plastic, what do we do?

But there were also other reservations about bioplastics. Ute Zimmermann reports: "The use of biodegradable products requires that you deal with the consequences of the product. It requires how seriously I take sustainability. Is it a fig leaf for better marketing, or is it part of my company philosophy?"

Johann Zimmermann says from experience and many conversations: "Price was and is the main reason for deciding against a product made of natural plastic. If our materials cost as much as conventional PET, it would be quite clear for our customers to choose the organic version.

This has also meant that many of those with whom we developed products together have decided otherwise."



## Succeeding with persistence and trust in your own products

But it wouldn't be Johann and Ute Zimmermann if they let this headwind stop them. The products mentioned above were developed with persistence, and recyclable and compostable bottles made from PLA followed. A study on the freshness-keeping function of NaKu bags was carried out at BOKU Vienna in 2009 and it was proven that food stays fresh longer - an issue that is more relevant than ever today when it comes to food waste.

In the following years, many awards were won for NaKu products made of bioplastics, including Genius, Clusterland Award, ÖGUT Environmental Award, Innovation Award Lower Austria, DAPHNE Environmental Technology Award, and many more. The "crowning achievement" in 2021 was the victory at the Energy Globe Award Austria in the soil category with the NaKu planting bag made of bioplastics, which was developed together with the HBLFA Gartenbau Schönbrunn for the Book for Trees project in Kenya.

## NaKu in the Corona years

The last few years - marked by Corona - have been a real challenge for every company. However, NaKu has used this time for time-consuming new product developments and customer projects. A particularly technically challenging customer project was the interchangeable cartridge made of bioplastic for a sustainable reusable jar (made of wood and glass) for freemee cosmetics' natural cosmetics.

Furthermore, NOT PLASTIC WATER was developed with WILDALP. A unique product, spring water from the Gesäuse, bottled in a special NaKu PLA bottle. This makes plastic-free drinking possible for the first time.

## And so it goes on

Johann and Ute Zimmermann have been giving lectures at universities, schools and conferences on the subject of bioplastics for many years.

They are particularly concerned with educating people and passing on their many years of knowledge about bioplastics. In the meantime, fake bio bags are increasingly appearing on the market - a clear deception by retailers who, due to the plastic bag ban,

only light and degradable carrier bags made of bioplastics are allowed to be distributed. Here too, education and information are required, and corresponding information videos have been produced.

Very intensive work is being carried out on the NaKu Double Loop and on better positioning bioplastics and their recyclability.

Previous test runs to recycle bags made of bioplastics have been positive. Initial test productions with already recycled PLA for bottles were also promising.

## 2022 – A milestone: The 120% sustainable NaKu PLA/rPLA bottle comes onto the market

The new NaKu rPLA bottle is made from 100% plant-based raw materials and already contains 20% recycled PLA.

## 2023 – Study by the University of Vienna

The new study by the University of Vienna also found that the NaKu

Compared to a PLA bottle, a PET bottle releases carcinogenic benzene into the oil over the storage period.

In comparison to the PET bottle, the NaKu bottle tested in this study is made of completely natural materials (sugar as the raw material), which is why no harmful substances can be released from the bottle.

***"For us, the combination of nature and technology is not a contradiction, but the only way to secure life on this planet in the long term. The idea of sustainability should not stop at packaging and waste should remain with the generation that causes it.***

***Because plastic can also be natural."***

**DI Mag. Johann Zimmermann**



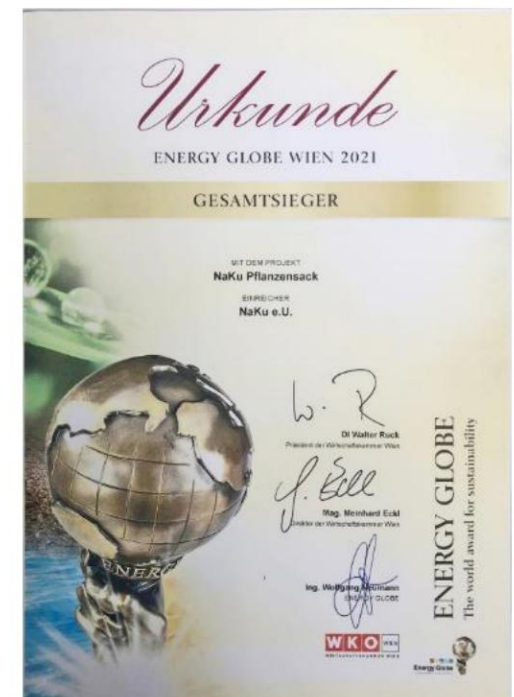
Zimmermann family

Note on our own behalf: You can find information on the topics discussed at [www.naku.at](http://www.naku.at) further information.





awards



# YOUR CONTACT



your personal contact

## Get in touch – Contact us!

Do you need special organic bag dimensions or bag printing?

Are you looking for special bottle containers or are you not sure whether your desired bottle shape can be implemented?

Would you like to produce an existing or new product from natural plastic?

### Then contact us with your ideas and wishes!

Products made from bioplastics are sustainable because they are made from rapidly renewable plant-based raw materials, are compostable, biodegradable and recyclable.



**Margit Hödel**  
Sales & Keyaccount



E-Mail: [office@naku.at](mailto:office@naku.at)

Telephone: +43(0)660 551 77 89

**My US**

**Branch**

Zimbagasse 5a, 1140 Vienna

**Office**

Viktor Kaplan Straße 2, 2700 Wr. Neustadt

