



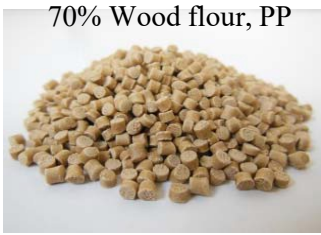

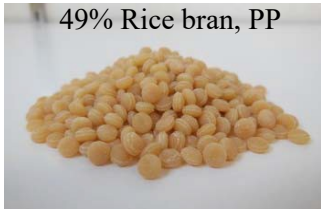

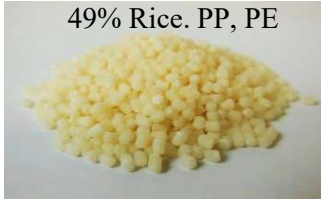

# Introduction of Biomass resins and Biomass bags

**\*Manufacture:Shiraishi Biomass Co., Ltd.**

**Miyako Kagaku Co., Ltd.  
Sales Department I  
Life & Food Material Div.**

# Introduction to Major Biomass Resins

## NEOPLA®Series

Product name	Appearance Biomass and resin used	Applications	Product example
S-SERIES	51% starches, PP 	<ul style="list-style-type: none"> <li>• Sheet forming (Vacuum)</li> <li>• Film forming</li> <li>• Extrusion molding</li> <li>• Injection molding</li> </ul>	
W-SERIES	70% Wood flour, PP 	<ul style="list-style-type: none"> <li>• Injection molding</li> <li>• Extrusion molding</li> </ul>	
RB-SERIES	49% Rice bran, PP 	<ul style="list-style-type: none"> <li>• Sheet forming (Vacuum)</li> <li>• Film forming</li> <li>• Extrusion molding</li> <li>• Injection molding</li> </ul>	 Megumi of bran (20% rice bran)
R-SERIES	49% Rice. PP, PE 	<ul style="list-style-type: none"> <li>• Sheet forming (Vacuum)</li> <li>• Film forming</li> <li>• Extrusion molding</li> <li>• Injection molding</li> </ul>	

## Other

IBP30	30% bamboo + bamboo coal, PP 	<ul style="list-style-type: none"> <li>• Injection molding</li> <li>• Extrusion molding</li> </ul>	
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In addition, resins contains rice husks and other materials are also available.  
Please do not hesitate to consult with us if there are any biomass materials you would like to use.

# NEOPLA®

## W-SERIES

Neopra



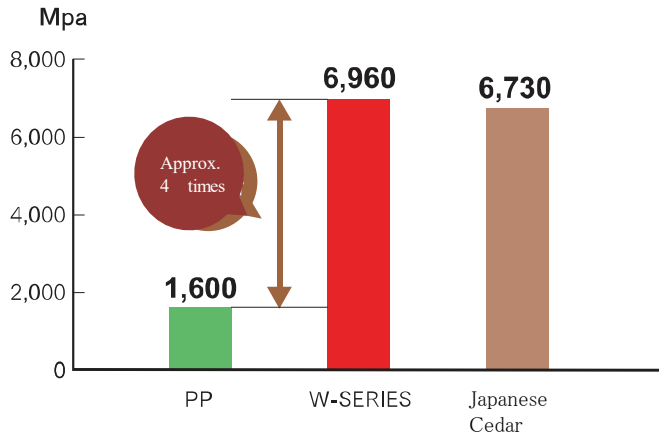
70% wood flour  
content gives a  
texture just like wood

# NEOPLA® W-SERIES

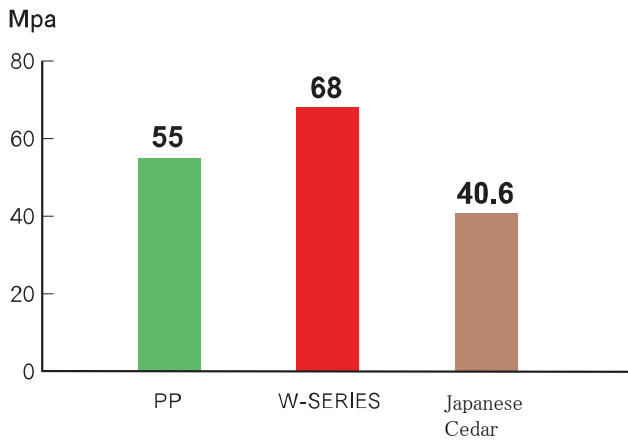
## High content achieved with proprietary technology

The W-SERIES has achieved a wood flour content of up to 70%. Even with a high wood flour content, it is an unprecedented material that allows injection molding and offers rigidity and strength.

Flexural modulus

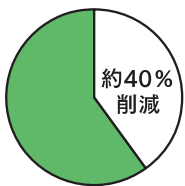


Bending modulus



## Environmentally friendliness achieved

With W-SERIES, up to 70% wood flour can be blended, thereby reducing the use of petroleum sources. Also, no toxic gases are generated when incinerated.



CO2 emissions  
Approx. 40% less\*

\* Values calculated by Shiraishi Biomass

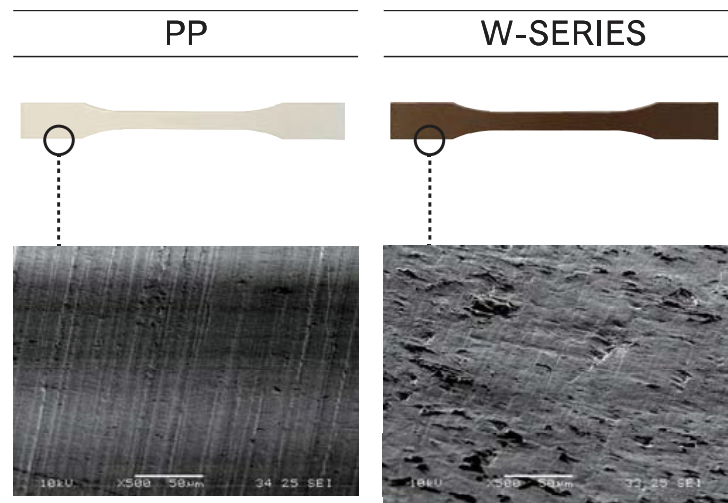


No hazardous gases released.

## Texture just like wood

Increasing the wood flour content has achieved wood-like texture that is not possible with plastic. Undulations are formed even with smooth molds, which causes an approximately twofold difference in surface roughness.

SEM image of molded product surface (500x)



Twofold surface roughness

## Take advantage of non-slip property

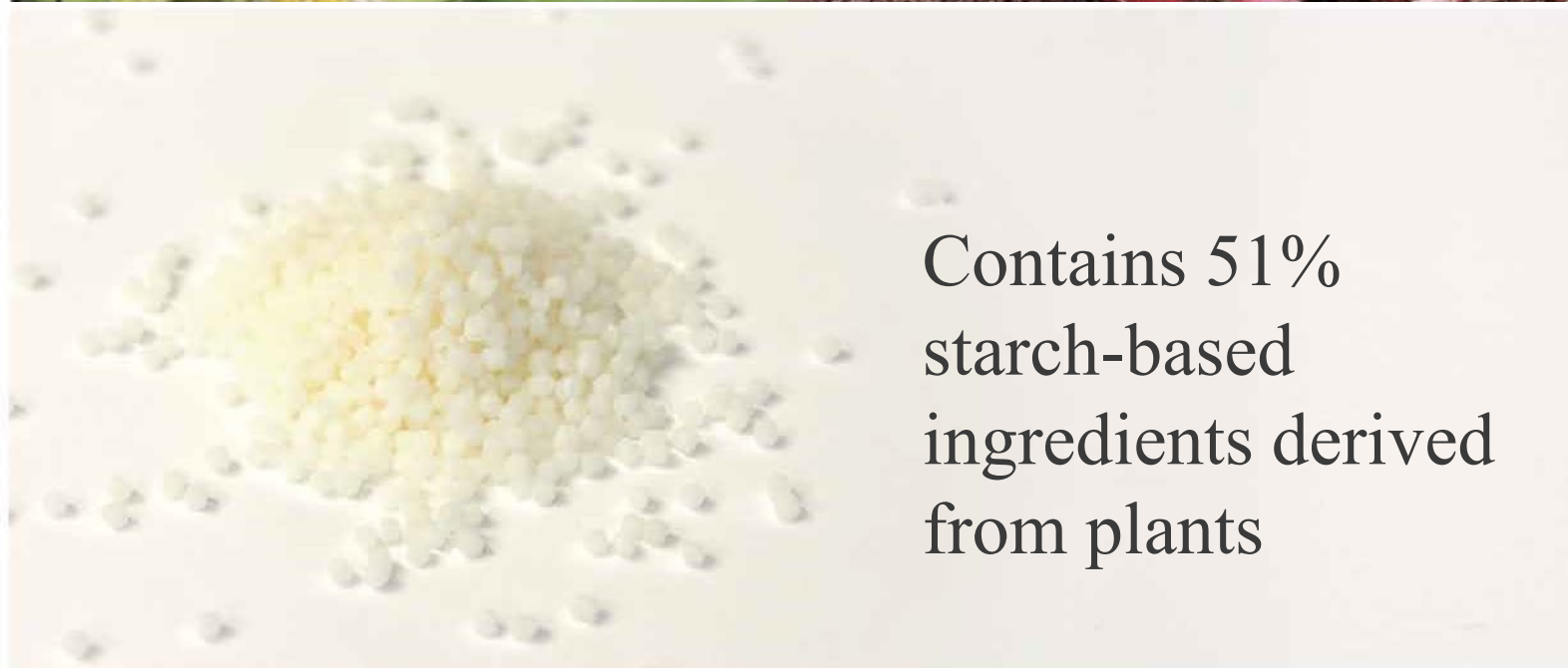
The uneven surface gives the material a non-slip effect that is difficult to achieve with plastic, making it suitable for grips, etc.





# NEOPLA® S-SERIES

Neopra



Contains 51%  
starch-based  
ingredients derived  
from plants

# NEOPLA® S-SERIES

## Can be used for inflation molding and sheet molding

The S-SERIES can be used for inflation molding and sheet molding as it is, without diluting. Varieties for injection and extrusion molding are also available, making possible a wide range of material designs to meet diverse needs.



Sheet molded (vacuum molding) items



Sheet molded (vacuum molding) items

## Environmentally friendliness achieved

In the S-SERIES, 51% plant-derived ingredients are contained, which leads a reduction in the use of petroleum resources. Further, no hazardous gases are released when it is incinerated



**CO2 emissions**  
Approx. 35% less\*

\* Values calculated by Shiraishi Biomass

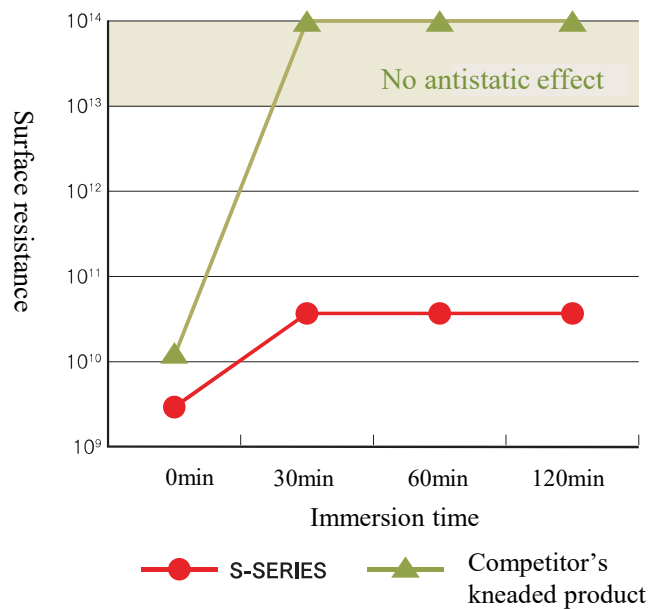


**No hazardous gases released.**

## Highly sustainable antistatic function

Most products coated with or containing antistatic agents lose their effectiveness when wiped down or washed with water, but the S-SERIES takes advantage of the absorbency of biomass to retain its antistatic effect for longer. The graph below shows surface resistance after sustained immersion in warm water at 60°C. The S-SERIES shows low surface resistance even after 120 minutes, indicating that it retains its antistatic effect.

### Comparison test of antistatic property retention



## Not subject to the Container and Packaging Recycling Law

Because bioplastics such as biopolyethylene and polylactide, which are made by synthesizing corn and sugar cane, etc., have the same molecular structure as polyethylene and other petroleum-derived materials, they are classified as plastics under the law. On the other hand, in the S-SERIES, which is a composite material of biomass and plastic, more than half of ingredients are plant origin. Therefore, it is not applicable to plastic under the law, making it exempt from the Container and Packaging Recycling Law



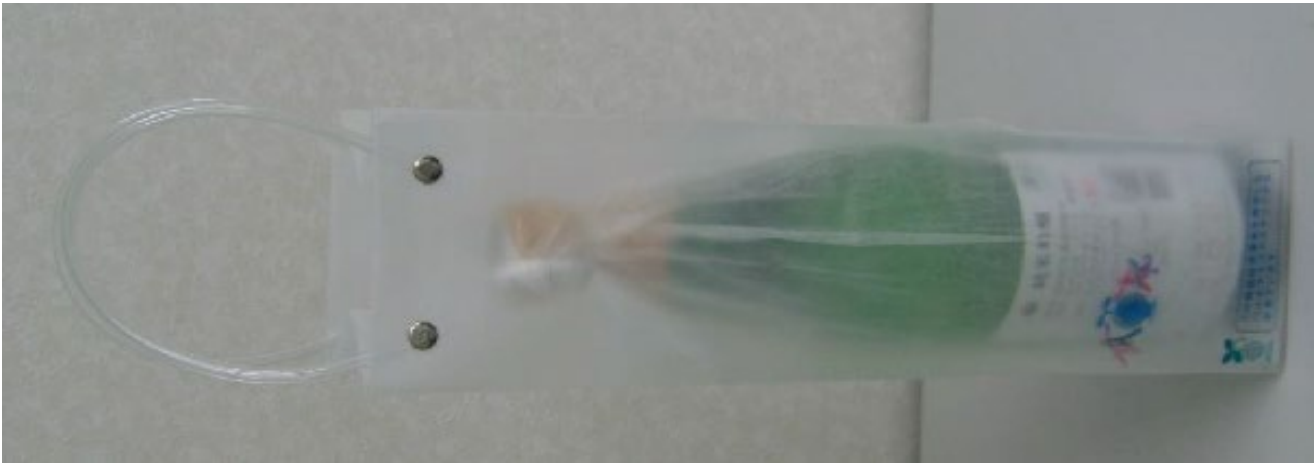
**It is not plastic!**

# Example of starch blending bag products ①





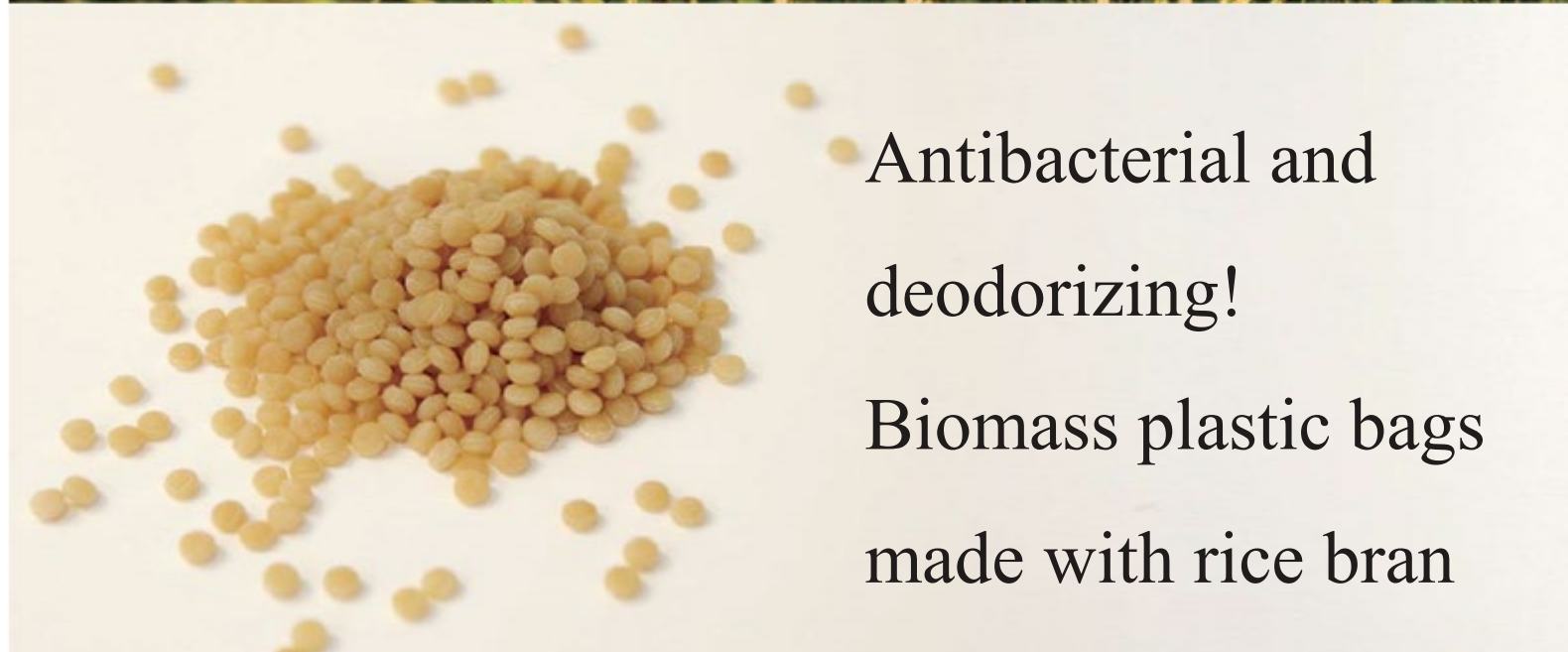
# Example of starch blending bag products ②





# NEOPLA® RB-SERIES

Neopra



Antibacterial and  
deodorizing!

Biomass plastic bags  
made with rice bran

# NEOPLA® RB-SERIES

## Antibacterial & deodorizing! Biomass plastic bags made with rice bran

The RB-SERIES is a biomass resin containing rice bran. When molding, blending RB-SERIES allows a high-performing and high-function plastic bag that provides strong antibacterial properties, deodorizing properties against certain specific substances, and an odor-masking effect.

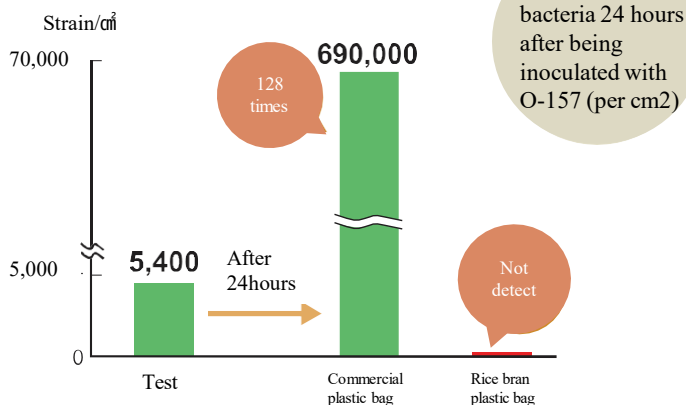
Quality Labeling | Raw materials: polyethylene (PE), rice bran, other  
Size: 500 mm x 400 mm Thickness: 0.04 mm



### Antibacterial effect\*

Because rice bran contains an abundance of active ingredients such as “gamma oryzanol” and “ferulic acid,” it has long been used as a pickling medium (*nuka-zuke*, *heshiko*) to preserve vegetables and fish.

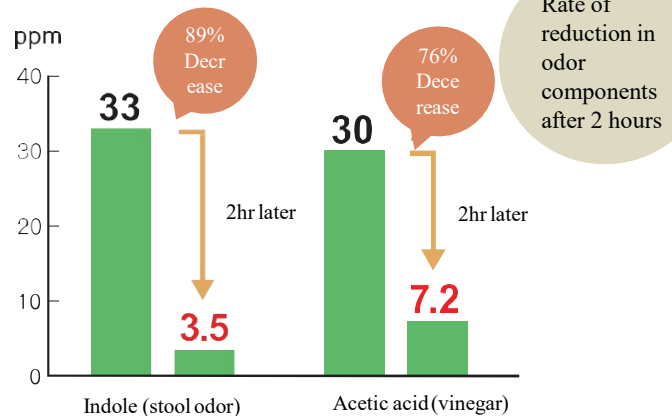
※ O-157, O-111; E. Coli; S. aureus



Testing Organization: Japan Food Research Laboratories

### Deodorant effect

It has been proven that adding rice bran material inside film has the effect of absorbing sources of odors (particularly, fecal odors and acetic acid). This film also has a pleasant aroma, which masks unpleasant odors.



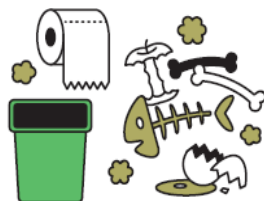
Testing Organization: Boken Quality Evaluation Institute

### Can be used in a variety of applications

The antibacterial and deodorizing properties make it suitable for a variety of uses in the kitchen, bathroom, and toilet. It can also be used as clothes bags for sports or travel, storage bags for meat, fish, and vegetables, and bags for pet droppings and diapers, etc.



Sports and travel



Kitchen, Bathroom, Toilet



Keeping meat and fish



Keeping vegetables



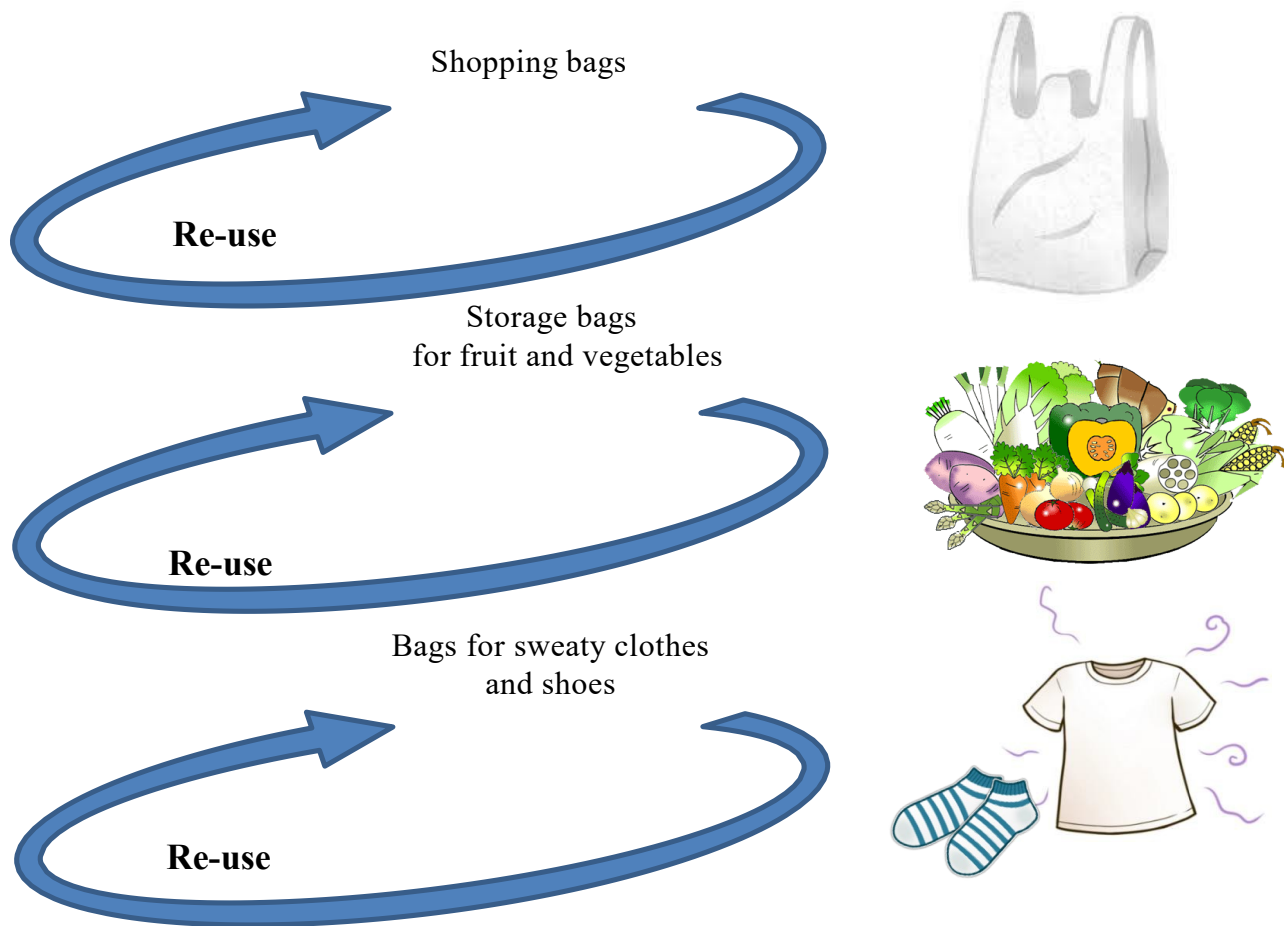
Pets



Containing diapers

# Have antibacterial and deodorizing functions

## How to use Neopla® U Bags



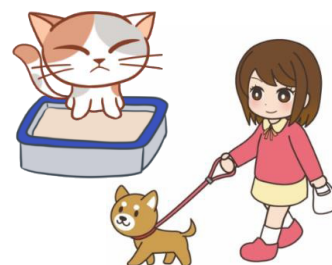
After repeated use, use one more time as



Garbage bags



Disposal bags for baby/adult diapers



Disposal bags for pet droppings



# Examples of products containing rice bran ①

- サイズ：縦80cm×横65cm
- 厚さ：0.03mm
- 入数：10枚/袋



- サイズ：縦35cm×横30cm
- 厚さ：0.04mm
- 入数：3枚/箱

## Examples of products containing rice bran ②





# Examples of products containing rice bran ③





## Examples of products containing rice bran ④



# **Inquiry**

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