



# NatureSphere<sup>TM</sup>

100% cellulose that returns to nature after use



# Forest-derived beads in perfect harmony with the green and blue of nature

The sky, the sea, the forests...  
Nature, once so abundant, is  
now losing its lushness.

From food packaging films  
through to activated carbon  
that purifies air and water, we  
produce a variety of materials  
that are indispensable to  
people's lives.

Underpinning our everyday  
endeavors with constant research  
to maintain uninterrupted supply of  
these materials, and to create better  
products, is one consistent  
philosophy:

To enhance both people's lives and the  
environment through the products we  
manufacture.

We began the production of cellulose films (Cellophane™),  
a sustainable product derived from wood, some 70 years ago,  
complemented more recently by our compostable NatureFlex™  
grades.

These 'transparent papers' provide hygienic protection to food and other daily

items and are used by brands  
for consumers all over the  
world.

Now, we have found another  
solution to provide consumers  
with even greater peace of  
mind:

NatureSphere™ - cellulose  
beads that return to nature - a  
new material that is the fruit of  
our long-standing research and  
development of cellulose  
manufacturing technology.

"Made from cellulose, NatureSphere™  
provides a natural alternative to the  
microbeads used in cosmetics and other  
products.

With no organic solvents used in the  
manufacturing process, the material is ecologically  
benign for the ocean, air, animals and plants, and can  
be safely returned to the earth after use."

In harmony with the green and blue of nature.  
NatureSphere™ is a bead borne from the forest. Environmentally sound and  
easy to use, it benefits both the minds and bodies of its users.





# NatureSphere™

NatureSphere™ is a pure cellulose bead made from wood from managed forestry sources, which can safely return to the soil after use.

This cellulose is processed using our unique Rahcel™ production method that does not require organic solvents to form the spheres. In turn, this means there is no risk of any solvents being retained in the products. No toxic substances are generated and no aerial pollution is created during the manufacturing process.

The beads will decompose naturally, whether they flow into the ocean, soil, or air.

NatureSphere™ is ecologically benign, both in its manufacturing process and as a final product:

Processed into a 7 µm particle, cellulose beads are particularly suitable for cosmetics, gently providing good spreadability on the skin, as well as elegant matte and smooth textures.

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## Key Features:

1 Spherical microbeads of approx. 7 µm

2 Smooth texture

3 Made of 100% cellulose and biodegradable

4 Free from solvents

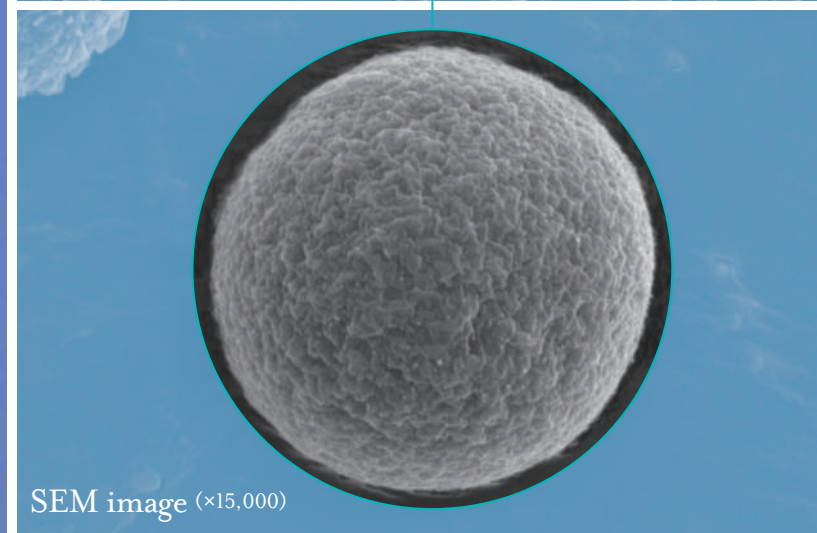
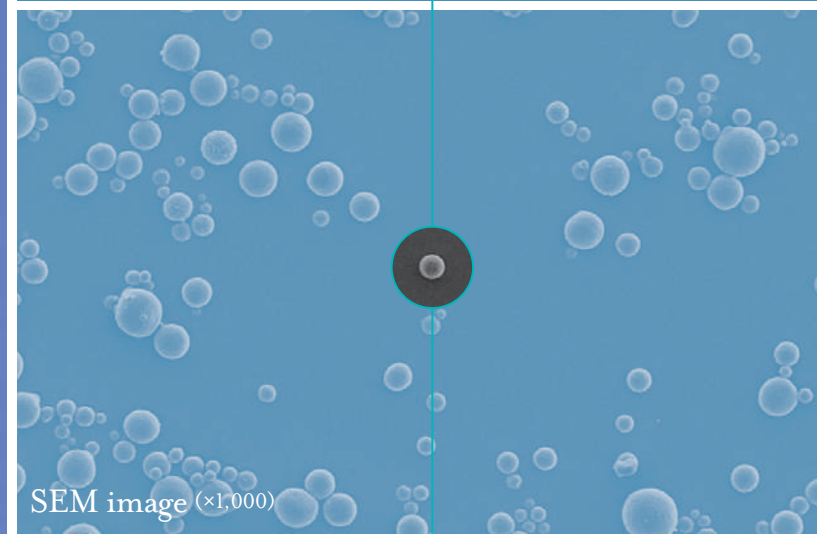
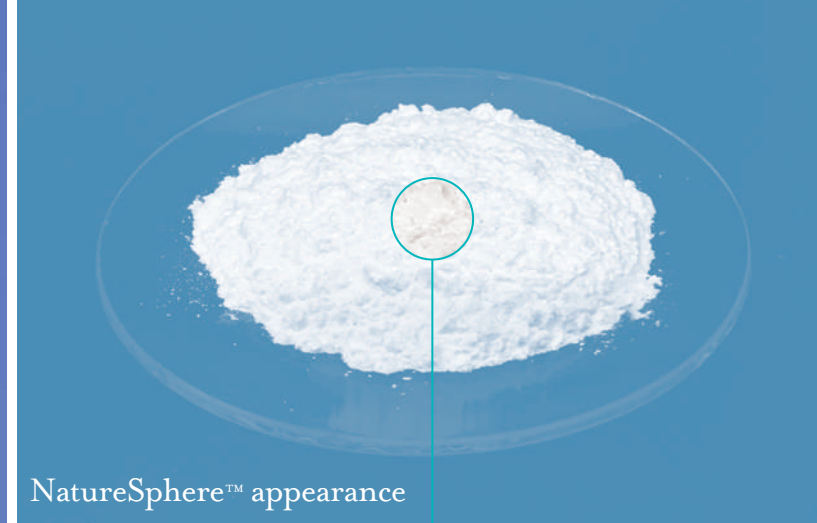




# Size and Shape of NatureSphere™

NatureSphere™ microbeads are processed into spherical shapes at a nominal 7µm in order to provide a smooth texture.

As the raw material is 100% cellulose derived from wood, it provides a level of biodegradability that cannot be matched by conventional microplastic beads.





# Texture of NatureSphere™

NatureSphere™ contains a large number of spherical microbeads that give the material a high light scattering effect, plus enhanced lubricity and gentleness compared to conventional microplastic beads.

When used in cosmetics, it spreads smoothly and adheres uniformly on the skin.

By diffusing and reflecting light, it covers the skin surface in a matte finish with a smooth texture, enhancing the impression of elegance.

General microbeads

NatureSphere™

After preparing a 30% powder dispersion liquid, a 10  $\mu\text{m}$  coating film is manufactured and tested.



# Safety Profile of NatureSphere™

NatureSphere™ is a 100% natural cellulose material made only from managed forestry sources and processed into a spherical shape using a special, organic solvent-free manufacturing method. After use, even if it flows into the ocean or into soil, it will biodegrade into CO<sub>2</sub> and H<sub>2</sub>O and natural biomass.

Originally developed by Futamura, NatureSphere™ is ecologically benign, both as a product and in the manufacturing process.

In addition, it is chemically resistant and does not dissolve in alcohol or organic solvents, and is also heat resistant.

## Woodchips in use.



The raw material we use (wood-pulp) is from managed sources that are only produced in full compliance with global legal and forestry standards.

## Safety of NatureSphere™

Test case	Judgement
Human patch test	Negative

Eluted heavy metals	Measurements
Chromium	Less than 2ppm
Molybdenum	Less than 10ppm
Arsenic	Less than 0.5ppm
Lead	Less than 0.5ppm
Cadmium	Less than 0.1ppm
Total mercury	Less than 0.01ppm
Tin	Less than 5ppm
Cobalt	Less than 0.5ppm
Nickel	Less than 0.5ppm
Antimony	Less than 0.5ppm
Barium	Less than 10ppm

\*All below the detection limit.

Annual production : 120 t planned.

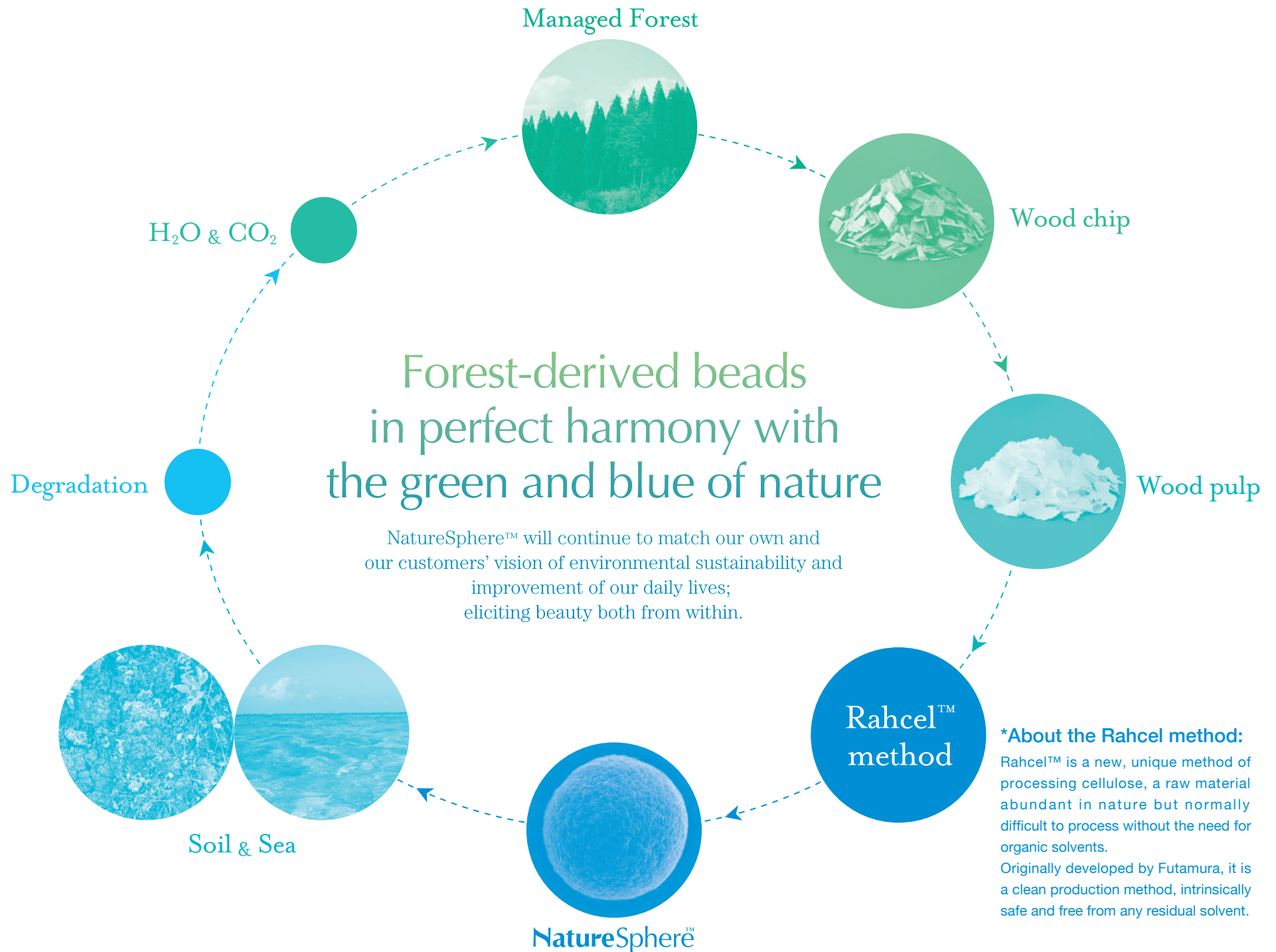
## Certification



OK biodegradable MARINE



OK compost HOME







# Company profile

Company name	Futamura Chemical Co., Ltd.
Location of Head Office	2-29-16, Meieki, Nakamura-ku, Nagoya-shi, Aichi
Establishment	October 25, 1950
President	Yasuo Nagae
Capital	500 million yen
Turnover	95.1 billion yen
Sales distribution	Film Business : 87.3% Activated Carbon Business : 10.0% Other Business : 2.7%
Number of employees	1,387
Average age	40 years old
Business items	Polypropylene film Linear low density polyethylene film Polyester film / Cellulose film Fibrous casing / Non-woven fabric Activated carbon / Functional products Phenolic laminated sheets Starch products / Agricultural materials / RPF





We also produce a variety of other cellulose products, including films, non-woven materials and casings.

New brand

**NatureFlex™**  
NEXT GENERATION PACKAGING



New brand

**NatureLace™**



Cellophane



Fibrous casing



TCF



Bag of powdered medicine



Food packaging



Cellophane tape



Facemask



Bodypaper



Meat processing casings





