

A little curious about paper

Takasuke Ishitani (President, The Japan Food Packaging Association)



Takasuke Ishitani

Born 1943 in Tottori Prefecture, Graduated from Tokyo University of Agriculture and Technology 1967. Chief advisor of the Japan-China (Beijing) Agricultural Research Center in 2002. President of Japan Food Packaging Association since 2005.

Food packaging that supports food distribution and long-term storage. Doctor Ishitani looks forward to new possibilities opened up by paper. From 1967 Mr. Takaya Ishitani studied at the Food Research Institute of the Ministry of Agriculture, Forestry and Fisheries, developing a food packaging history from cans and bottles to modern packaging. He is chairman of the Food Packaging Association of Japan, has been active in research and development of packaging technology, and promotes technology in Japan and abroad. He talked to us about the new possibilities that food packaging and paper have opened up in Japan.

Until the 1970s the food packaging in Japan, was mainly based on European or American technology. With the changing economics in the 1980s, there was a growing requirement for packaging technology which was specifically suitable for the Japanese food market.

One of the most important functions of food packaging is to deliver food safely to customers. Many types of food products deteriorate when exposed to oxygen, so a plastic film that blocks

oxygen is often used as a countermeasure, either with either an inert gas, or with an oxygen scavenger included. The latter is popular in Asia, as it can prevent mold and oxidative deterioration without special equipment.

Currently, low-cost, high-performance plastic products are the mainstream of food packaging, but they can contribute to marine pollution. Customers usually discard food packaging as soon as the food has been used. They have a strong perception of it as being "disposable", but one of the important purposes of the packaging is to maintain the safety of the food till it reaches the point of use by the customers.

When we think about plastic regulations, we usually

think of Europe, but I noticed when I was working in China that plastic regulations were often discussed even there.

In cities with heavy rains and floods, there were many areas where plastic was banned in favour of paper, because discarded plastic clogged drains.

Marine plastic is now a major global issue. It is necessary for the Food Packaging Association to keep an eye on this movement.

The new "Shield Plus®" is a packaging material that can be used as a convenient plastic alternative. It is paper, but with added oxygen and water-vapor barrier properties that were not previously available. "Shield Plus®" does not use aluminum foil, so it can be used in microwave ovens. There are other benefits too, such as being recyclable and helping to reducing the load on waste incinerators.

I have long been involved in food packaging research and development. My research mainly involved plastics, and increasing the length of time we could save food. Paper's low barrier properties and low water-resistance have been a problem in the past, but with the advancement of technology, we expect that paper will play a major role in the future development of food packaging. This is not only because of environmental considerations and technological advances, but also because paper can project an image of higher quality than plastic.

I therefore see a potentially significant future demand for paper packaging in high-grade food products.

紙季折々 Shiki Oriori

Nippon Paper Group

CSR Communication Brochure

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Let's Think about Sustainable Food Packaging

Food packaging has evolved significantly with the times, and has become an indispensable part of our lives.

Now, society is calling for sustainability and we need food packaging that can contribute to the challenge

In this issue, we will look at the history of food packaging, consider its future, and examine the role of the paper products that we can provide.



CSR Report 2017 Receives "21st Environmental Communication Award" Excellence Award

The "Nippon Paper Group CSR Report 2017" received the "21st Environmental Communication Award" award for excellence in the environmental report category. The award commends outstanding work for the purpose of promoting environmental communication among businesses, by the Japanese Ministry of the Environment and the Global Environmental Forum.

While promoting CSR activities, we will work on making easy-to-understand and complete reports.



Award ceremony at the Environmental Communication Awards

EDITOR'S NOTE

Food safety is very important in food packaging. Although food safety standards have been established in other countries (such as HACCP), they have been slow to be taken up in Japan for a number of reasons. While the government is promoting food exports, this has become an inhibiting factor. In future we can expect further activity to promote standards such as HACCP in Japan.
Keiko Fujita

* Our paper pack products are made in at factories that have already obtained the international food safety certification FSSC 22000 (incorporating HACCP).

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Shaping the Future with Trees

Food Packaging Past and Future

Food packaging has evolved with concepts such as "food protection", "convenience of handling", and "providing information". But from now on, packaging must contribute to sustainability. In this volume we will look at the history of food packaging. Then we will discuss the future, along with the role of paper packaging, and introduce some of our products.

The history of food packaging – How it has evolved with the times

Looking at major food packaging materials, we see that since the industrial revolution, technology for preserving enabled food to be transported to distant markets. Glass bottles and metal cans became well established. After World War II, plastic and paper emerged as food packaging. Plastic has many advantages; excellent processability, light weight, functional. New types were developed, and plastics quickly became the first choice for a wide range of foods. However, the United Nations Conference on Environment and Development in 1992 and the Sustainable Development Goals (SDGs) adopted by the UN in 2015, etc., recognized the depletion of natural resources and increasing waste as global issues. Food packaging has now become a question of how to build a sustainable society.

Year	Material	History
19th Century	Glass and Can	Father of Food Packaging Glass bottles have been around for over 1500 years. Napoleon's armies used glass to seal and sterilize food from 1804. Then, the less fragile steel can was invented in America, and by the 1860s, canned food was being mass-produced for the military food, revolutionizing supply lines. Glass and metal are used as packaging for preserved foods and beverages because of their high barrier properties which protect foods from the water vapor and oxygen that cause rot and deterioration. They are also characterized by a high after-use recycling rates.
		Plastics - evolutionary child of food packaging Plastics evolved greatly with the development of the petrochemical industry after World War II. Plastic is lighter than glass and metal, versatile, and inexpensive. Plastics have been developed with high barrier properties (like bottles and cans), and have rapidly become the preferred material for much food and beverage packaging. Frozen, refrigerated, and microwave foods have evolved alongside new plastics. However, the environmental burden associated with the disposal of petroleum-derived plastic has become a social issue.
20th Century	Paper	King of information transmission and processing Paper has a long history as outer boxes for food, and as paper bags, because of its excellent printability, ease of use, and light weight. More recently, paper has come to be used as inner packaging too. As paper's strength and water resistance were improved, paper packs for liquids were developed in the US and Europe. They became widely used in place of expensive and heavy glass. Barrier properties, required for food packaging, have been improved, and because of sustainability, paper is a material that is attracting attention for the future.

21st Century

1992 United Nations Conference on Environment Development (1992) and adoption of SDGs (2015)

2015 U.N. SDGs

Environmental problems have been discussed internationally since the 1970s. The concept of "sustainable development", combining economic development with care for the environment and society, has been proposed. The UN held its Environment Development Conference in 1992. That led to the passing of the Japan Containers and Packaging Recycling Law. In 2015 the UN agreed 17 Sustainable Development Goals (SDGs). Goal 12 commits to "Securing sustainable production and consumption" by 2030. From now on, society expects food packaging to contribute to solving social issues.

Main Feature		Main Sustainability Requirement			
General performance	Cost	From Renewable resources	Recyclability	Lightness	Bio-degradables
⊙			⊙		
⊙	⊙	△	⊙	⊙	△
△		⊙	⊙	⊙	⊙

Note: Symbols show suitability for food packaging (as per EcoDESforFOOD+)
 ⊙ Excellent, ⊙ Good, △ Depends on conditions, Blank None or inferior

For achieving the sustainable food packaging

In addition to convenience, society now requires sustainability in food packaging. Packaging materials are now expected to be; recyclable, light weight (saves energy in transport), biodegradable (decomposes in nature), and made from renewable raw materials. New attention is being paid to paper as a material with these qualities. As food packaging, paper's lack of barrier properties and its permeability to gas and water vapor was an issue. Now, this is being overcome by the development of new technologies.

Plastic waste and marine pollution

Marine pollution due to large amounts of discarded plastic entering rivers has become a social problem, mainly in developing countries. Petroleum-derived plastic does not completely decompose in the natural world, remaining as microplastics. There is growing concern for the impact on marine life. Some countries are fighting this by prohibiting non-biodegradable disposable plastic containers.



Solve social issues with food packaging

Do not waste food

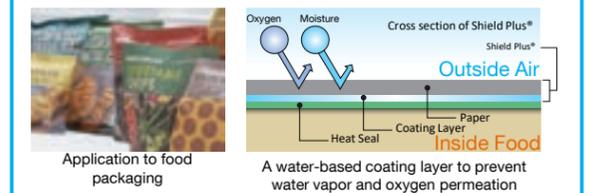
One third of world food production is discarded (1.3 billion tons / year: FAO, 2011). SDG 12.3 aims to reduce food waste by half by 2030. If food is packaged only in required amounts, waste is reduced. Good packaging also reduces food damage during transport. If food can be protected from rot and deterioration, expiration dates can be extended. A more manageable, sustainable food packaging has been developed that meets these requirements.



Paper packaging material capable of maintaining food quality

... Nippon Paper Shield Plus®

Since November 2017, we have been selling "Shield Plus®", a paper which keeps out water vapor and oxygen. It is a sustainable packaging material, it prevents oxidation and flavor-loss, while the paper texture provides beautiful printability. It has received international attention.



* Also published in the Ministry of Agriculture, Forestry and Fisheries' "High-performance case studies of containers and packaging contributing to reduction of food loss" (2016 / 8-).

Nippon Paper Industries

Liquid paper pack NP-PAK

Light paper packs to replace milk bottles were first proposed in the late 19th century. In 1915 US businessman, Mr. Warner, invented the current "gable roof paper container". Post-war mass production made paper packs popular in the West. We acquired the right technology in 1964, and now hold the largest share of Japan's beverage paper packs market Japan.



The Original "Gable Roof Paper Container"

A paper pack like a plastic bottle

Since 2016, we have been selling "plastic bottle-like paper packs". With an open-and-close cap, and a hand-fitting shape, it brings new value to the shape and function of the paper pack that had not previously changed for 50 years. The flowing, eye-catching design is also attracting attention.



Pure-Pak® Diamond Curve

Paper pack recycling

The Japan Milk Container Environment Council, (a member of the Company), is promoting the recycling of paper packs, with collection boxes installed in schools and public facilities. The collection rate for fiscal 2016 is 44.3%. We are encouraging further recycling. The recovered paper pack is then re-manufactured into toilet paper and tissue paper.

