

# Development of Environmentally Friendly Packaging



Unlike transport packaging, whose role is finished as soon as the product is delivered, food containers and packaging have a very important role in preserving and protecting their contents from the moment the customer purchases the product until the contents are consumed. In recognition of their importance, the Ajinomoto Group began to pursue environmentally friendly designs for containers and packaging early on, seeking to minimize their environmental footprint. The Group is taking the initiative to disclose information about packaging materials to stakeholders and cooperate in this area with industry organizations.

## Fiscal 2011 results for Ajinomoto Co., Inc.

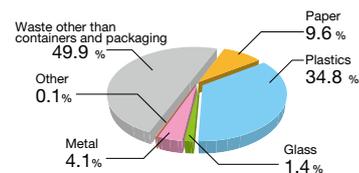
### Paper use

Increase of about **5.5%**  
per unit of production

### Plastic use

Decrease of about **0.2%**  
per unit of production

## Breakdown of container and packaging types in household garbage



Survey on Containers and Packaging Waste (volume comparison) by Ministry of the Environment (fiscal 2010)

## Fiscal 2011 performance overview

Total plastic and paper use reduction up to fiscal 2010 far exceeded the targets in weight under the fiscal 2005–2010 Containers and Packaging 3R Promotion Plan of Ajinomoto Co., Inc. Although the target for paper reduction per unit of production was also met, the same target for plastic was not achieved, as there was an increase of 6%.

Consequently, the second Containers and Packaging 3R Promotion Plan (fiscal 2011–2015) was introduced. In addition to just setting reduction targets, Ajinomoto Co., Inc. surveyed consumers on packaging in order to have them better understand its 3R promotion activities for containers and packaging, as well as

resource recycling initiatives. The respondent preferences were summarized as follows: packaging for less waste, packaging that is easy to separate, packaging that can be refilled, and packaging that is ecological while ensuring that products are reasonable, convenient and delicious. Based on the idea that all these needs can be met, Ajinomoto Co., Inc. has begun under taking the second Containers and Packaging 3R Promotion Plan. Communication will also be promoted to ensure that customers get a sense of the environmental value that is being provided through the new initiatives, and to help alleviate ecological concerns in cooking and make it easier to recycle.

## Major goals and results of the second Containers and Packaging 3R Promotion Plan (fiscal 2011–2015; base year fiscal 2010)

### Reduction target

Reduce plastic and paper use per unit of production by 2% and 5%, respectively, by fiscal 2015

#### Results

- **Paper use per unit of production (g/kg)**  
Increased from 58.1 g/kg in fiscal 2010<sup>1</sup> to 61.3 g/kg (up 5.5%) in fiscal 2011<sup>2</sup>
- **Plastic use per unit of production (g/kg)**  
Decreased from 55.9 g/kg in fiscal 2010<sup>1</sup> to 55.8 g/kg (down 0.2%) in fiscal 2011<sup>2</sup>

### Reuse target

Popularization of refill containers

#### Results

Enhanced for seasoning products, such as *AJI-NO-MOTO*<sup>®</sup>, *HON-DASHI*<sup>®</sup>, and *Ajinomoto KK Consommé*

### Recycling target

Packaging materials that can be easily separated for sorting and recycling

#### Results

Promotion of smaller box design with perforations

### Introduction of new materials and technologies

#### Results

- **Polyethylene made from sugarcane**  
Fiscal 2011: Used in part of the cap for the umami seasoning *AJI-NO-MOTO*<sup>®</sup> (prototype for the Eco-Products Exhibition)  
Fiscal 2012: Used for part of a new plastic bottle of *CALPIS*<sup>®</sup>
- **Shrink film made partly from polylactic acid, derived from corn**  
Already used with the *AJIPANDA*<sup>®</sup> jar for the umami seasoning *AJI-NO-MOTO*<sup>®</sup>  
Fiscal 2012: Use with containers of *PAL SWEET*<sup>®</sup> Calorie Zero liquid type, *AJI-SHIO*<sup>®</sup> salt (60 g and 110 g), *YASASHIO* salt (90 g), *Seto no Honjio* salt (100 g)

### Providing information to consumers

Providing information to encourage consumers to choose products that contribute to the 3Rs and waste separation

#### Results

"*Aji na Eco*" mark<sup>3</sup> labeling (for 128 products as of the end of October 2012), events, lectures, presenting the company's best practices

<sup>1</sup> Differs from the figure determined in fiscal 2010 due to matching with fiscal 2010 product line. (Fiscal 2010 determined figures from the previous 3R plan: Plastic use per unit of production: 55.4 g/kg; paper use per unit of production: 58.3 g/kg)

<sup>2</sup> Fiscal 2011 figure is preliminary.

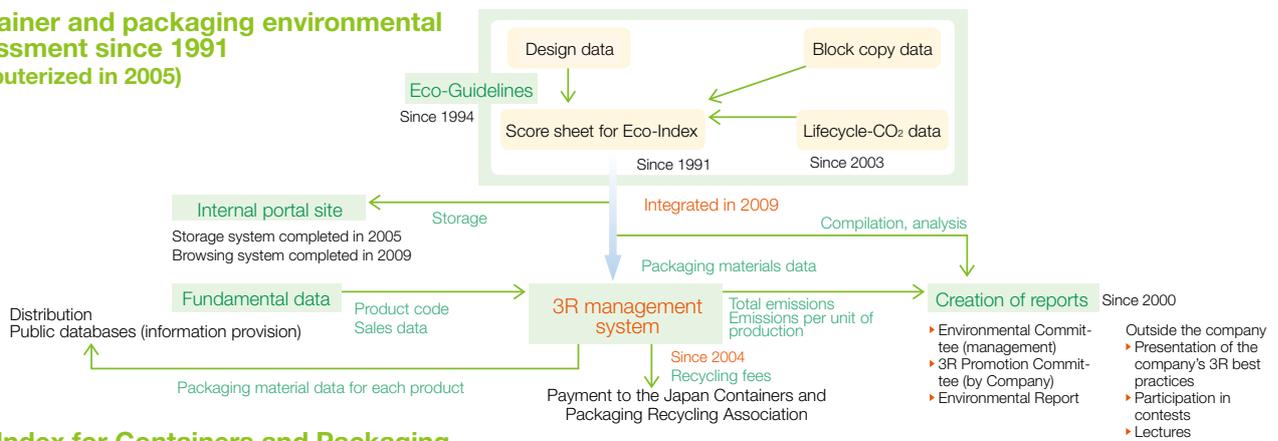
<sup>3</sup> The Japanese term for "*Aji na Eco*" is a registered trademark of Ajinomoto Co., Inc.

## System for promoting environmentally friendly containers and packaging

Before a product is released under the Ajinomoto brand, the product is required to undergo a quality assessment, which includes an evaluation of containers and packaging. The assessment is implemented according to the Eco-Index for Containers and Packaging, the company's original set of assessment standards. Under these standards, each product is checked from four perspectives—(1) Reduction in weight of packaging materials, (2) Selection of materials, (3) Recyclability, and (4) Labeling (and extra information for customers)—to promote eco-friendly design of containers and packaging.

In addition, by integrating this containers and packaging assessment system with the 3R management system, the company can now: (1) use the data on the weight of used packaging materials indicated in the Eco-Index for the calculation of recycling fees; (2) disclose data on the internal portal site; and (3) update data on the weight of used packaging materials every month. This integration of the systems has not only resulted in facilitating the calculation of recycling fees and the promotion of 3Rs at the company, but also in making it possible to implement reporting within and outside the company and provide accurate data to distributors and recycling organizations on a real-time basis.

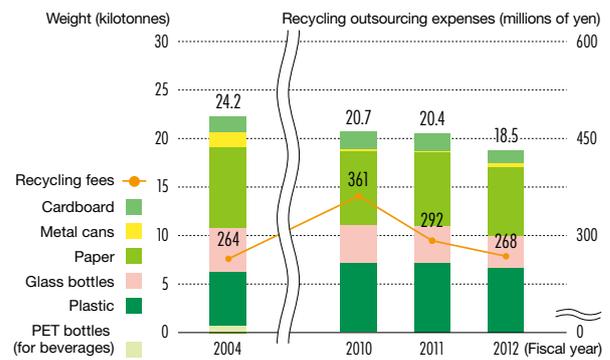
### Container and packaging environmental assessment since 1991 (computerized in 2005)



### Eco-Index for Containers and Packaging (Household edition ver. 8 and business edition ver. 4)

Purpose		Evaluation item	
Reduction of environmental impact	Efficient use of resources	Reduction in weight of packaging materials	Weight of disposed packaging materials
			<ul style="list-style-type: none"> <li>Weight reduction ratio</li> <li>Degree of over-packing</li> <li>Availability of refill products</li> </ul>
	Combating global warming	Reduction in lifecycle-CO <sub>2</sub> emissions	Transport efficiency
			<ul style="list-style-type: none"> <li>Use of materials derived from plants</li> <li>Use of environmentally friendly materials</li> </ul>
Contributing to a recycling-oriented society	Promotion of recycling	Recyclability	Selection of materials
			Utilization ratio of recycled products
			Environmental labeling
	External promotion	Labeling	Adaptability to separated-waste collection
			<ul style="list-style-type: none"> <li>Adaptability to recycling systems</li> <li>Reduction in volume for recycling and disposal</li> </ul>
			Availability of environmental labeling (Availability of environmentally conscious labeling)

### Recycling outsourcing expenses and weight of containers and packaging by material type for products



## Cooperation with outside organizations

Nowadays, it is difficult for consumers to tell which type of packaging is environmentally friendly, given the diverse materials and forms of containers and packaging on the market. In order to address environmental problems relating to packaging across our entire society, it is important that consumers choose environmentally friendly products based on an understanding of the functions and roles of packaging. Ajinomoto Co., Inc. is actively taking opportunities to promote 3R activities in cooperation with the industry organizations.

#### Lecture

- Gravure Research Group, Japanese Society of Printing Science and Technology

#### Journal contribution

- Journal of Printing Science and Technology*, Japanese Society of Printing Science and Technology

#### Presentations

- Containers and Packaging Diet Declaration in Nine Municipalities
- Presentation of 3R best practices to recycling promotion organizations
- Eco-Products Exhibition
- 5th Appreciation Day at the AJINOMOTO STADIUM
- Minato Ward 3R Action Conference

## Development of environmentally friendly packaging

### Reduce: Making packaging lighter

Since the Ajinomoto Group uses many forms of packaging formats, it is working to make them lighter using various means. The Group seeks to use lighter packaging for everything from jars, plastic film, and plastic bottles to cardboard and paper boxes for products.

### Reuse: Offering more refillable products

The Ajinomoto Group offers a wide range of refillable products including the *HON-DASHI*<sup>®</sup> and *Ajinomoto KK Chuka Aji* seasonings, as well as the umami seasoning *AJI-NO-MOTO*<sup>®</sup>.

### Recycle: Making packaging easier to separate for recycling

The Group is developing packaging that is easy for the customer to separate and recycle. In fiscal 2012, labels were introduced that are easy to peel off, and they have already been adopted for *Ajinomoto KK Chuka Aji* and *Ajinomoto KK Marudori Gara Soup*.

### Main developments in fiscal 2011

Product	Initiative	Year-on-year reduction
<i>HON-DASHI</i> <i>Nimono-Jozu</i>	Jar weight reduction	Glass: 9.8 t
<i>SLIM UP SUGAR</i> (sticks)	Upgraded and redesigned packaging, inner box, and cardboard	Plastics: 7.3 t Paper: 6.1 t
<i>Cook Do</i> <sup>®</sup> (Chinese stir-fry sauce)	Reduced width of pouch seal	Plastics: 10 t
<i>CALPIS Water</i> <sup>®</sup>	500 ml and 900 ml: Plastic bottle weight reduced 1.5 L: Lighter shrink film	PET Plastic: 172 t Plastics: 9 t
<i>CALPIS SODA</i> <sup>®</sup>	Reduced weight of corrugated cardboard boxes for 1.5 L ribbed plastic bottles	Cardboard: 19 t



*SLIM UP SUGAR*

At the time of product redesign, the packaging was also revised from an environmental standpoint. For instance, the shape was changed from a gusseted pouch to a standing pouch, along with the materials. This resulted in a reduction in usage of about 7.3 tonnes annually. Also, through the redesign of the inner and outer boxes to match the smaller pouch size, paper use was also reduced by about 6.1 tonnes per year.

### Highlight

#### Utilizing plant-derived bio-plastics for packaging Now used in containers of 24 household products

In September 2012, Ajinomoto Co., Inc. launched an initiative to replace heat shrink labels and cap shrink wrapping used on containers for food products and sweeteners. The conventional petrochemical-derived plastic is being replaced with carbon-neutral polylactic acid (PLA) derived from biomass.

The company plans to use the PLA film for all 24 of its household products by the end of fiscal 2013, starting with the *AJIPANDA*<sup>®</sup> 75 gram jar for the umami seasoning *AJI-NO-MOTO*<sup>®</sup>, as well as *PAL SWEET*<sup>®</sup>.

#### The world's thinnest PLA labels

As the newly adopted PLA film contains over 25% (by weight) material derived from feed-use corn, it has yielded the world's thinnest<sup>1</sup> PLA labels at 35 micrometers (µm). In addition to introducing the world's thinnest PLA labels as the first such trial in the industry<sup>1</sup> for seasoning and sweetener packaging, the simultaneous switch to PLA labels for a company's entire product line is unprecedented in Japan.<sup>1</sup> As such, it represents a very progressive and significant initiative for contributing to a recycling oriented society.

Repeated testing was carried out to facilitate the switch from the old petrochemical-derived labels (40 to 60 µm in thickness). The company succeeded in discovering the optimal conditions for PLA label mounting and heat treatment processes, enabling the first initiative of its kind in the industry.

#### New *AJI-NO-MOTO*<sup>®</sup> jar made with only eco-friendly packaging

Along with PLA labels, in fiscal 2012, Ajinomoto Co., Inc. also plans to use eco-friendly plastic for the cap of the *AJIPANDA*<sup>®</sup> jar (75 g) of the umami seasoning *AJI-NO-MOTO*<sup>®</sup>. The plastic for this purpose contains biomass polyethylene made from sugarcane. Along with glass containing a high percentage of recycled material, this step will enable packaging that is completely environmental. In order to make the improvement easier for everyone to recognize, the company plans to launch a limited-edition design of green caps<sup>2</sup> before full-scale production.



Prototype containers get a positive reaction from visitors at the Eco-Products Exhibition in December 2011.

#### Adoption of carbon neutral packaging materials contributes to CO<sub>2</sub> emissions reduction

Use of PLA labels and biomass-plastic caps is expected to reduce annual CO<sub>2</sub> emissions by 100 tonnes<sup>3</sup> and 55 tonnes,<sup>3</sup> respectively, leading to a total reduction of 50% or more compared to the previous year.

By introducing the world's thinnest PLA labels for all products, there will be an average 24% reduction in plastic packaging weight. After switching to environmental plastic for all 24 targeted products, a total weight reduction of over 10 tonnes per year<sup>3</sup> is expected.

The company's own "*Aji-na-Eco*" mark will also be displayed on packaging to make it easier for consumers in stores to recognize the environmental contribution being made by these everyday products. The aim is to help raise environmental awareness in daily life, while promoting green purchasing and the use of ecological products.

<sup>1</sup> Survey by Ajinomoto Co., Inc. as of August 31, 2012.

<sup>2</sup> Limited release began in December 2012.

<sup>3</sup> Calculated by Ajinomoto Co., Inc. using a formula based on fiscal 2011 sales volume (compared to the previous year).

## Promoting "Aji-na-Eco" mark products with environmental packaging

Modern product packages are already small and thin, so it is often difficult for customers to notice changes made in package weight, thickness, and size and materials used. However, when the enormous sales volume of products is taken into account, these efforts can result in significant environmental benefits.

Today's consumers want to purchase the most environmentally friendly products, so the Ajinomoto Group introduced its unique "Aji-na-Eco"<sup>1</sup> mark in autumn 2010 to show the eco-friendliness of its product packages. Details are now being added alongside the mark, indicating features such as refillable, recycled paper used, no tray, reduced packaging, and plant-based tray. As of October 31, 2012, there are a total of six different types of "Aji-na-Eco" logo marks. Five types to indicate different

environmental features of the packaging, and one to show an environmental feature of the product (self-defrosting frozen food). The marks are now shown on 128 products, an increase of 49 compared to the same period last year.

<sup>1</sup> The Japanese term for "Aji na Eco" is a registered trademark of Ajinomoto Co., Inc.



味なエコ  
eco

**What is "Aji na Eco"?**

"Aji na Eco" is a term describing the smart and ecological products or information provided by the Ajinomoto Group, and the logo mark evokes the image of our green planet, the pleasure of eating, and a global environment made even better through food.

128

Number of "Aji na Eco" mark products

As of the end of October 2012 (Ajinomoto Group)

**Refillable**

By using refillable products, the glass container can be used for a long time, thereby reducing CO<sub>2</sub> emissions.



**No tray**

These frozen food products are packaged in a large bag without a tray inside. It reduces the amount of waste, thereby lowering CO<sub>2</sub> emissions by about 20% to 50%.



**Recycled paper**

Recycled paper is used in the boxes of these products. For gift package products, the lid contains 80% waste paper, and the cardboard does not contain any coating agents. Ecological for both the gift giver and recipient.



**Reduced packaging**

The outer packing box is environmentally friendly and does not contain any partitions. By eliminating these partitions, CO<sub>2</sub> emissions are lowered by 30% annually. Box strength was enhanced by making it octagonal at the corners.



**Plant-based tray**

By using a product tray made from plant material, this packaging reduces petroleum consumption and CO<sub>2</sub> emissions.

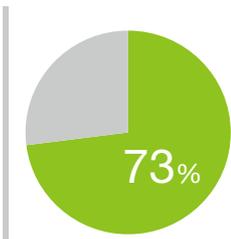




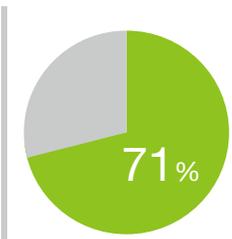
## Survey on environmental consciousness of customers

Ajinomoto Co., Inc. conducted a survey to gauge consumers' daily dietary behaviors and environmental consciousness. The survey found that many consumers feel guilty about generating waste or buying something that has an ill effect on the environment.

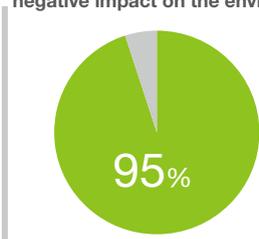
I sometimes feel that our household waste is too much.



I feel stressed when I dispose of garbage.



I feel that excessive packaging is leading to increased garbage, thereby having a negative impact on the environment.



Examples of individual opinions

- Garbage becomes bulky.
- I'm concerned that too much incombustible garbage is being generated.
- Unnecessary packaging is often used for gift products, which I think is not eco-friendly.

Outline of the survey → Respondents: Homemakers in their 20s to 50s; survey area: nationwide; sample size: 300; method: web survey; period: November 6-8, 2010; research organization: Dentsu Research Inc.