

スティックチーズ（PB品）



From August 2016

(Improvement of packaging)

- Change the quality of material in film used for casing
 - Rise in sealing quality raises yield in filling and packaging processes
 - Improvement in gas barrier properties against oxygen
 - Improvement in detachability of film
- Reduction of food waste caused by defective packaging



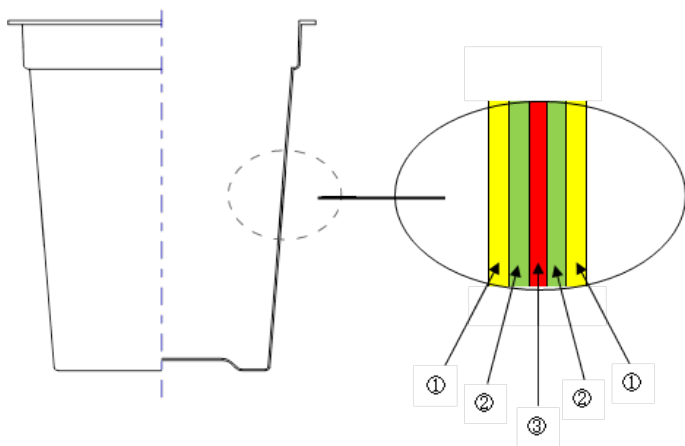
(Extend best-before date)

- Extend best-before date to 9 months from 6 months by improving gas barrier properties

(Reduction of food waste)

- Drop in food residual due to improved detachability

カフェラテ240ml



Drawing:
Composition of cup

- ① Virgin layer
- ② Middle layers
(recycled waste material from cups)
- ③ Anti-oxygen barrier layer

(From February 1993)

(Improvement of packaging)

- Use of oxygen barrier layer between middle layers of cup
- Recycle material wasted in production of cups for use as middle layer for efficient resource utilization

(Improvement at food production stage)

- Sterilize content and cup separately and fill under germ-free conditions



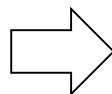
(Extend best-before date)

- Maintain the flavor of content by blocking the passage of oxygen and curbing its degradation via oxidation. Adoption of germ-free filling realizes a 70-day best-before date, compared with the best-before date (of 1 to 2 weeks) for standard chilled beverages.

明治メイバランスMiniカップシリーズ



Conventional product



From May 2015

(Improvement of packaging)

- Shift from paper package to plastic cup
- Improvement in the physical strength of container reduces deformation and damage at distribution and storage stages.



(Extend best-before date)

- Extend best-before date to 12 months from 9 months

スマデリバッグ®



From February 2014

(Improvement of packaging)

- Use of transparent barrier film (GL Film) realizes long-term, normal-temperature storing and the non-use of aluminum makes direct heating in a microwave oven possible.
- Automatic passage of vapor lets vapor out slowly, enabling steamed and boiled meals without using fire.



(Extend best-before date)

- Transparent barrier film useable in microwave oven and having high barrier rate. Extension of best-before date, compared with conventional product, is possible.

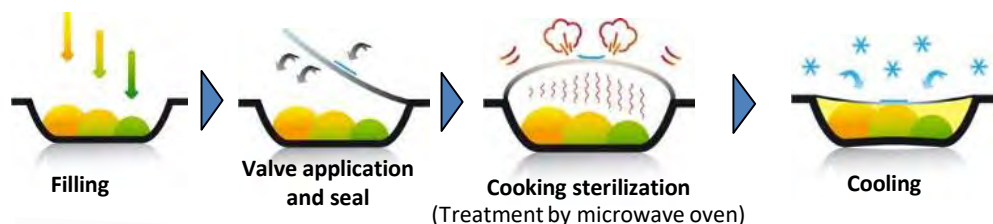
(Shorten cooking time)

- Unlike existing retort products, the addition of ingredients creates a hand-made sentiment. Time is saved for individual diet and cooking.

DNPチルドレディミール包装システム Micvac



From October 2012



(Improvement of packaging)

- 1st introduction in Japan of food production system combining the use of special valve and heating by microwave oven.
- Quick heat sterilization and de-airing packaging are possible.



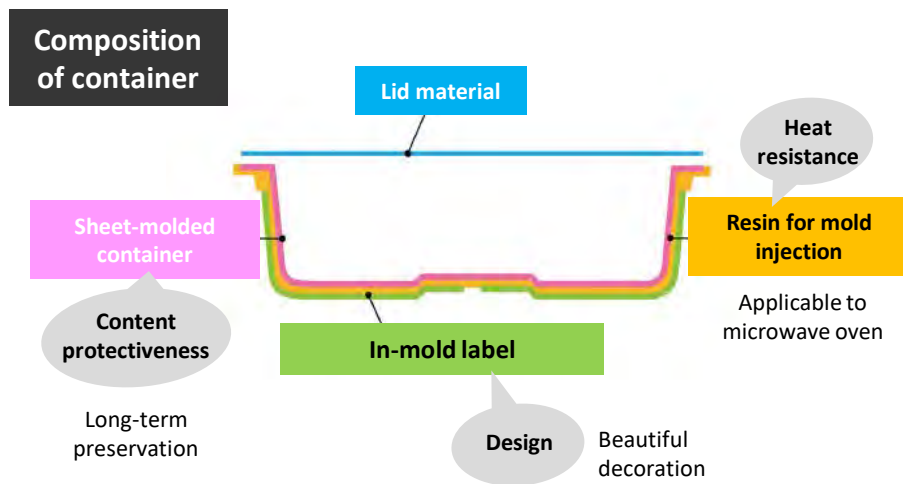
(Extend best-before date)

- Setting best-before date of more than 1 month (47 days) is possible for chilled products
(1 to 2 days for overnight sozai)

DNPインモールドラベル容器 ビューベル スクエアタイプ°



Scheduled for around September 2017



(Improvement of packaging)

- Adoption of a multi-layer sheet, including oxygen-barrier and oxygen-absorption layers and processed into an integrated product modeled by mold injection, as a food container. An in-mold label, with an attractive design, is integrated into its exterior.



(Extend best-before date)

- Ensure 3-year preservation by combining oxygen barrier and oxygen absorption functions of sheet-molded container

(Improvement of user-friendliness)

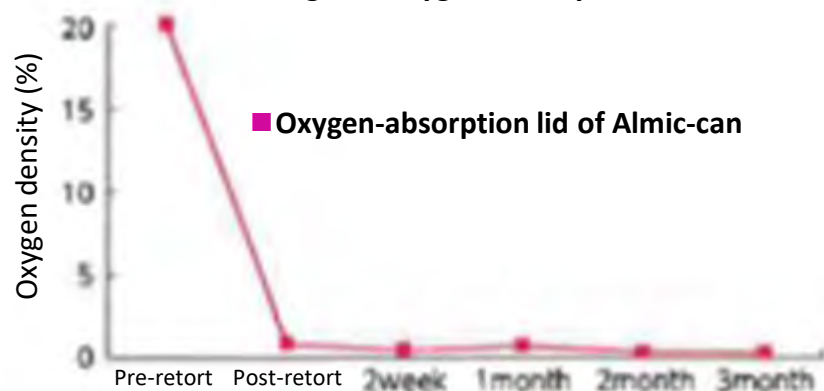
- Plastic container with no metal used can be used in microwave oven
- Usable as a dish because of an attractive design

アルミック缶®



From February 1993

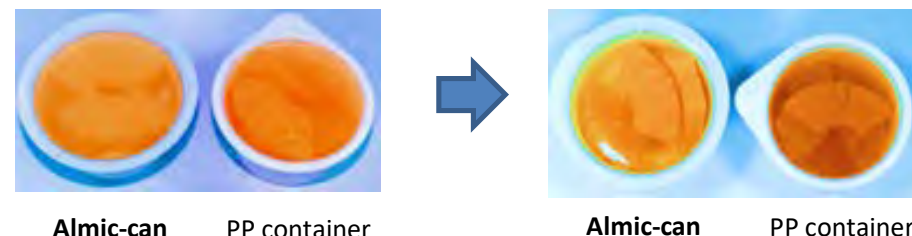
Changes in oxygen density



(Improvement of packaging)

- Almic-can is a container using a laminate material combining aluminum foil and film. While capable of greatly reducing the concentration of oxygen, the container, after being filled with food, is applicable to boiling sterilization and retort sterilization.

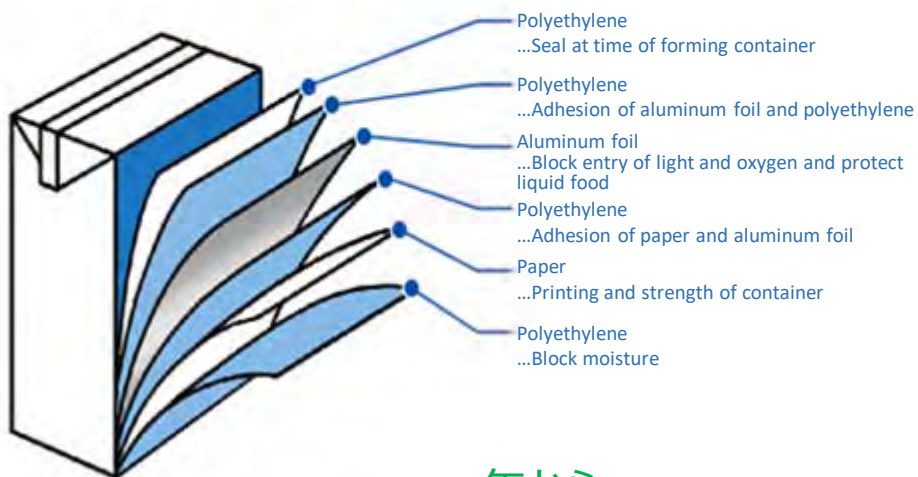
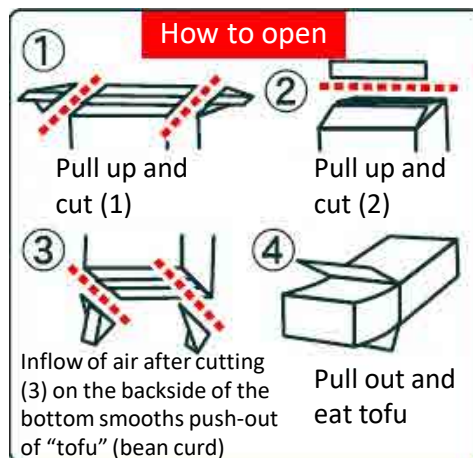
Changes in color of fruit-containing jelly after 3-month preservation



(Extend best-before date)

- Reduce food waste by greatly extending best-before date

森永絹ごし豆腐



1989年から

(Improvement of packaging)

- While tofu is usually placed in a plastic container, a paper container, with attached aluminum foil to block oxygen and light, has been adopted to enhance barrier properties.

(Improvement at food production stage)

- Applying the long-life production method, contents and containers are separately sterilized and filling is made under germ-free conditions.



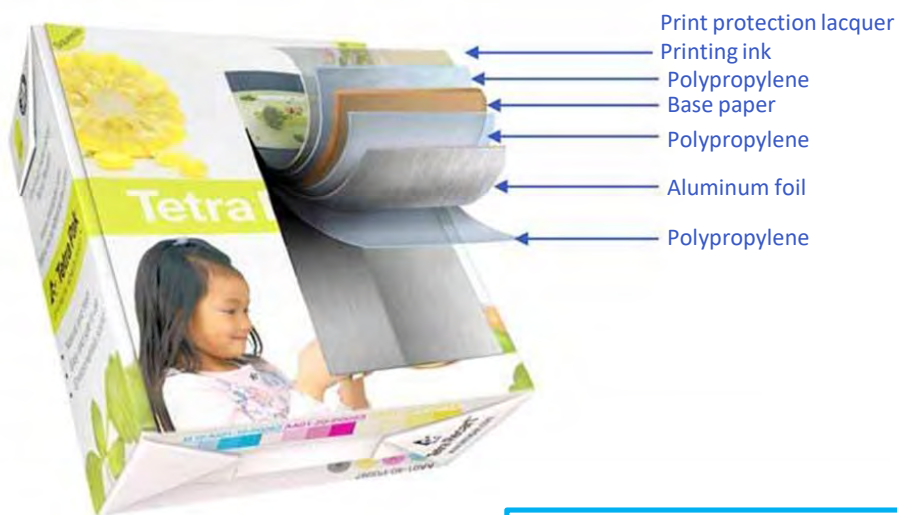
(Extend best-before date)

- Realize 10-month best-before date, compared with conventional best-before date for tofu (approx. 1 week).
- Reduce food waste at distribution stage and in households by extending best-before date for tofu whose demand tends to be affected by weather conditions.

(Promotion of exports)

- Export approx. 530 tons to some 30 countries, including those in the Middle East and Asia as well as Australia and South Africa, per year.

テトラ・リカルト



Space saving

Easy opening and pouring
by hand



No bulky treatment after use



(Improvement of packaging)

- The container, though paper, can be used as a food container like a glass bottle, can, retort pouch, etc. and is applicable to heat treatment and retort treatment.
- Paper container certified by FSC *



(Extend best-before date)

- Paper container for food capable of preservation at normal temperature (for about 2 years*)

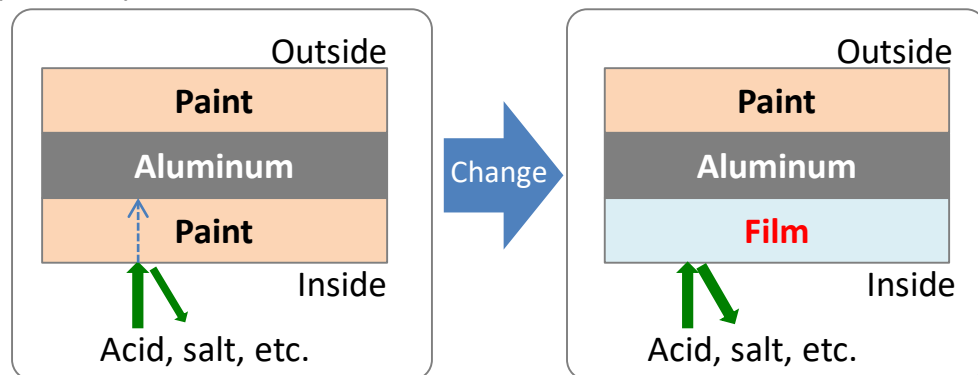
*Best-before date differs depending on food it holds.

*The FSC (Forest Stewardship Council) is an international organization that certifies forests throughout the world and the distribution and processing processes of products lumbered from them. It is a mechanism to support the world's forests by purchasing products carrying the FSA label.

野菜一日これ一本 長期保存用 190g



(Can lid)



From February 2015

(Improvement of packaging)

- Select a can body and lid having a highly corrosion-resistant polyester film attached inside (Polyester film is more resistant to corrosion than paint applied to the conventional can).

(Improvement at food production stage)

- Select and use vegetables for changes in flavor despite long preservation



(Extend best-before date)

- Improved resistance to corrosion has extended the best-before date to 5 years 6 months from 5 years.

レンジでごちそう！ビーフシチュー、 グリルチキン、粗挽き肉団子



(Improvement of packaging)

- Adopt film with high barrier properties against oxygen to prevent oxidation of content
- Adopt film, which is readily tearable horizontally, for pouch that contains product inside so that content can melt and be taken out easily.
- Adopt heat-resistant foam tray which is suitable for heating in microwave oven and can be used as dish after heating because it does not become too hot.



(Extend best-before date)

- While the freshness of dishes cooked overnight usually expires in a few days, a best-before date of 3 months at normal temperatures has been set thanks to high barrier properties.

(Sale) From 2017

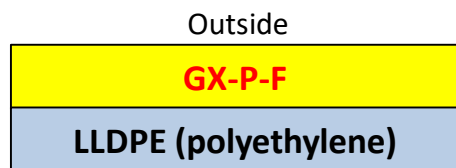
白い恋人

Individual package

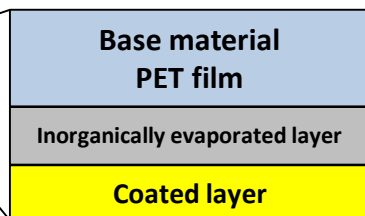


(Sale) From May 2017

(Composition of individual package)



(Cross-section drawing of GX-P-F)



(Improvement of packaging)

- Barrier film GL Film, used for individual packaging, has been replaced with high-end GX-P-F to secure higher barrier properties against oxygen, moisture, etc.



(Extend best-before date)

- Improved barrier properties make it possible to maintain the flavor of freshly made products for a long time and extend the best-before date to 6 months from 4 months.

GL FILM

GL Film is a transparent barrier film developed by Toppan Printing Co. and exercises high barrier properties against oxygen, moisture, etc. due to the lamination of inorganically evaporated and coated layers on its base film.

GX-P-F is a transparent high barrier film graded as an alternative to aluminum foil.

甘酒 4 袋入・おしるこ 4 袋入
(フリーズドライ)



(Improvement of packaging)

- Select material that blocks moisture, oxygen, etc. for inside pouch
- Improve adhesive strength of film in heat-adhered section
- Stabilize sealing by reviewing heat-seal temperature and pressure



(Extend best-before date)

- Blocking moisture, oxygen, etc., together with improving the hermeticity of the container, extends the best-before date to 24 months from 12 months.

From August 2017

ウィダーinゼリー エネルギーイン



(Improvement of packaging)

- Select material (AL foil LLDPE) that blocks moisture, oxygen, etc. for pouch
- Improve the hermeticity of the opening and closing part by improving the shape of the cap and straw.
- Improve shock resistance by improving strong film while making the entire pouch thinner

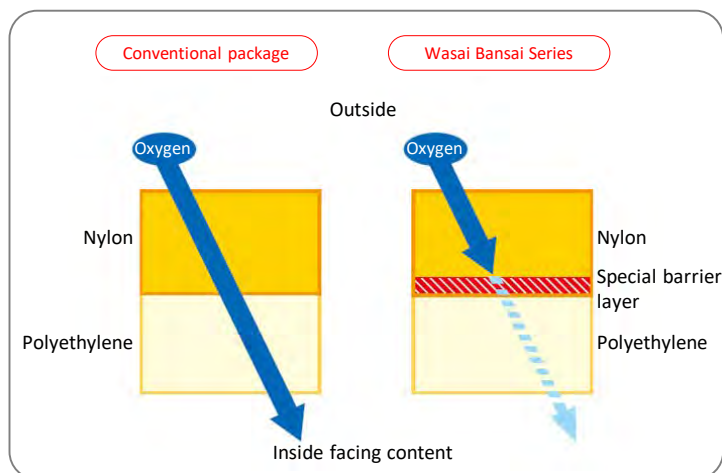
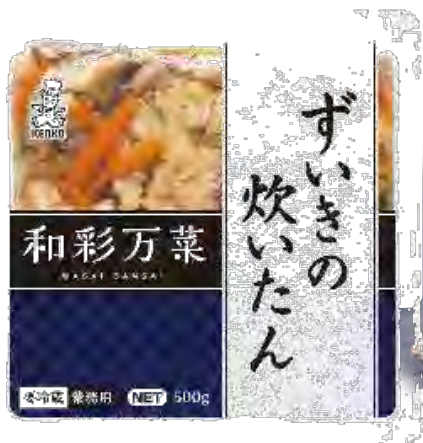


(Extend best-before date)

- Blocking moisture, oxygen, etc., together with improving the hermeticity of the container, extends the best-before date to 12 months from 10 months

From March 2014

「和彩万菜®」シリーズ



From October 2014

(Improvement of packaging)

- Use of packaging material, with high barrier properties against oxygen, curbs changes in the flavor and color of products

(Change of content volume)

- Change the volume of products for commercial use to 500g from 1kg



(Extend best-before date)

- Curbing oxidation extends (doubles) the best-before date to 90 days from 45 days for conventional Chilled Long Life Wasozai

(Reduction of food waste for offering at stores)

- Cut in the volume of packaging reduces leftovers and contributes to reduction of food waste after opening.

レスキューフーズ 白いごはん

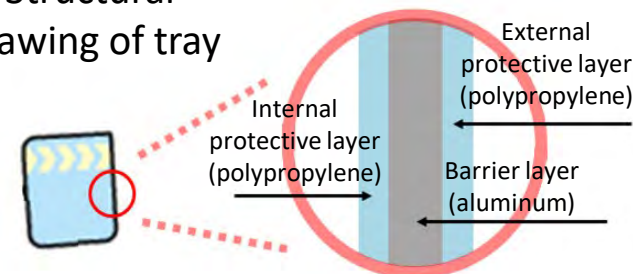


(Renewal) From autumn of 2017

(Improvement of packaging)

- Replace plastic tray for rice with aluminum hybrid tray to block oxygen and light
- Adopt material for protective layer of tray to prevent odor from transferring to rice

Structural drawing of tray



(Improvement at food production stage)

- Develop original rice cooking method and improve quality of rice, fresh after steaming



(Extend best-before date)

- Extends the best-before date to 5 years and 6 months from 3 years and 6 months by blocking oxygen and light

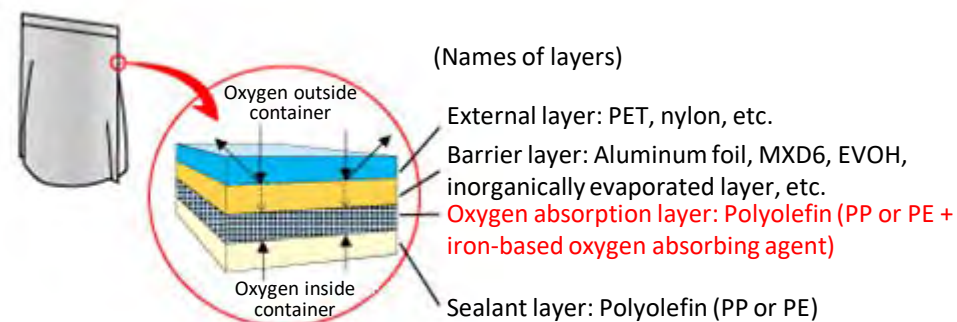
レスキューフーズ ビーフカレー



(Renewal) From autumn of 2017

(Improvement of packaging)

- Shift from ordinary aluminum pouch to functional high barrier aluminum with oxygen absorbing layer



(Improvement at food production stage)

- Improve beef curry cooking method to adopt specifications suitable for long-term preservation



(Extend best-before date)

- Curbing oxidation extends the best-before date to 5 years and 6 months from 3 years and 6 months.

ダイアミロン[®] MF CAタイプ



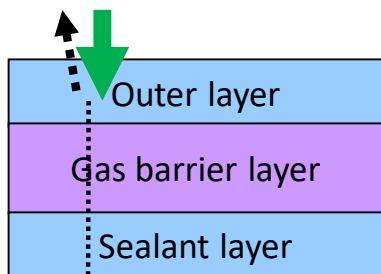
(Usage example: Dispapak)

(Improvement of packaging)

- The conventional product uses a multi-layer sheet with high barrier properties against oxygen and curbs the passage of oxygen from outside into the container. But it permits a tiny amount of oxygen to pass through.
- Develop, therefore, the “Diamiron[®] MF CA Type” by adding a resin layer capable of absorbing oxygen.

◇Add oxygen absorption layer to oxygen barrier layer

O₂ from outside

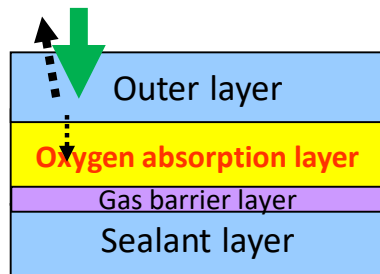


(Facing content)

Absorb oxygen from outside to further curb the passage of oxygen

(Sale) From February 2011

O₂ from outside



(Facing content)

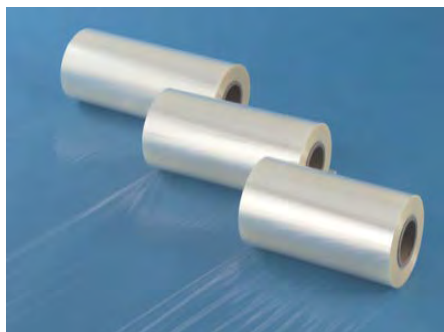
(Extend best-before date)

- Realize a best-before date of 12 months by curbing the passage of oxygen, compared with a best-before date of 4-8 months achieved by the conventional gas barrier wrapping method.



透明蒸着バリアフィルム
テックバリア®

バリアナイロンフィルム
スーパーニール®



Transparent evaporated barrier film "Techbarrier"

Oxygen from outside

Barrier nylon (Supernyl®)

Sealant layer

**Transparent evaporated nylon
(Techbarrier®)**

Sealant layer

Slight passage
of oxygen

Facing content

Enlarged drawing

Exterior packaging

Individually
packaged

By courtesy of Echigo Seika Co. Ltd.

- Curb the oxidation of content by inhibiting the passage of oxygen with 2 barrier films
- Enclose deoxygenating agent in each individual package

(Improvement of packaging)

- Use multilayer film "Supernyl®" with enhanced barrier properties against oxygen as exterior packaging
- Adopt transparent evaporated nylon film "Techbarrier®," with stronger barrier properties against oxygen and barrier properties against moisture, for each individual package
- (*Thickness of films is unchanged out of concern about environment load)
- Curb oxidation by individual package after opening exterior package



(Extend best-before date)

- Extend the best-before date for rectangular rice cake to 24 months from the normal 12 months by curbing oxidation
- Use of resilient nylon film curbs food waste caused by package breach

(Sale) From April 2015 *Related example posted on Page 24

インブレムHG

Immediately after
disinfection treatment Preservation
for 1 month Preservation
for 3 months

インブレム
HG



Curbing of
discoloring

Conventional
product



Content: Bamboo shoots treated in water



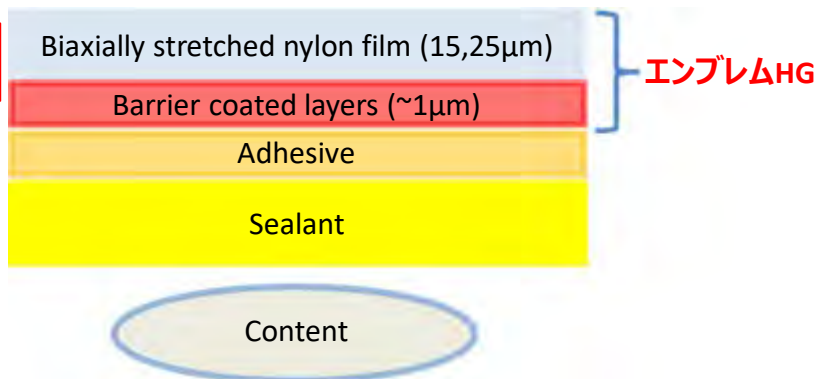
(Improvement of packaging)

- Flexible barrier layer created in nylon film maintains the quality of content by retaining effective barrier properties against oxygen even after boiling and retort treatment.

(Extend best-before date)

- High barrier properties against oxygen have improved the function of maintaining the quality of content. Best-before date for commercial-use sozai has been extended to 12 months from 6 months.
- Strong effects of curbing discoloring reduce disposal waste resulting from discoloring, etc.

Composition
of film



(Sale) From January 2015

鍋キューブ®



Individual packaging

From August 2012

(Improvement of packaging)

- Develop cubic ingredient for hot-pot soup and individually package for consumption per person (1 cube)

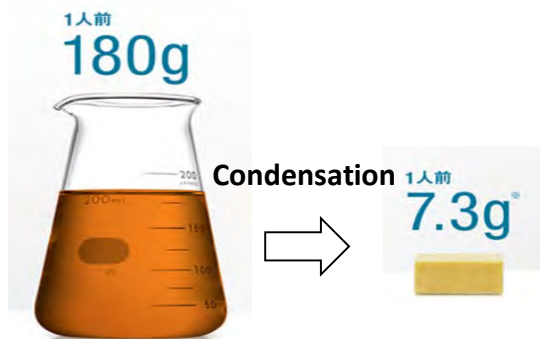
(Improvement at food production stage)

- Develop original blending and manufacturing technologies for solidification into cubes and easy melting in cooking



(Reduction of food waste)

- As each cube is for consumption per person, the amount of cooking is adjustable from 1 person to many people, making it possible to reduce household food waste caused by leftovers.



*Weight of each Nabe Cube® (Tori Dashi/Umarshio)

シーチキンマヨネーズタイプ しょうゆ風味 40g



From March 2015

(Reference: 70g of canned tuna and 50g of canned tuna mixed with mayonnaise)

(Improvement of packaging)

- Quadrisect 40g of content and adopt package for 10g each for use as ingredient for “onigiri” rice balls*
(10g and 15g for school lunches)

(Improvements in food production process)

- Improvements in the production process were made to filling equipment, wrapping film, contents for filling, etc. in the production process in accordance with packaging features.

(Eat alone and reduce food waste)

- Quadrisect enables small-amount cooking, such as use for each “onigiri,” and so reduces waste.

これは便利® ロースハム、ロース生ハム、
ベーコン、パンチエッタ



(Improvement of packaging)

- Use fun-size package consisting of 4 slices or so each
- Cut weight of package by approx. 7%, compared with hollow package of sliced hams



(Reduction of food waste)

- Change to a fun-size number of slices reduces the possibility of leftovers and so cuts back on household waste after opening.

From 2004

明治北海道十勝ポーノ
切り出し生チーズシリーズ

From March 2011



(Improvement of packaging)

- Process gouda cheese, mozzarella cheese, cheddar cheese, etc. into 10g sticks and adopt fun-size package for each of them.



(Reduction of food waste)

- Processing into user-friendly amount and size facilitates full consumption and reduces food waste.

ミニチーズセット



From 2012



Contents of set

(Improvement of packaging)

- Adopt films with different permeabilities of oxygen in accordance with kinds of natural cheese
- Containers with anti-oxygen barrier properties, deoxygenating agencies and inert gas replacement are often used for natural cheese to curb the generation of molds, etc.
- Brie cheese, ripened by white molds, loses its product value in the distribution process if its maturation is hampered in an anaerobic state created by sealing.



(Extend best-before date)

- Extend best-before dates to three weeks to 1.5 months from conventional 1 week to 1 month depending on types of cheese.

(Reduction of food waste)

- Reduce food waste by cutting various kinds of cheese into small sizes

おかき煎等



From October 2013

◎ Aluminum evaporated packaging is effective in the adhesiveness of aluminum and light insulation.

Film printed inside OPP material is pasted with film having aluminum evaporated to CPP material. Thickness is 20u.

(Improvement of packaging)

- Reduce cracks, etc. on softly fried products by individually packaging them.
- Use of aluminum-evaporated film prevents the degradation of product quality



(Reduction of disposal waste)

- Prevent degradation of product quality
- Individual packaging reduces disposal waste caused by cracks, etc. during production and distribution processes.