Containers and Packaging

Background to initiatives

Containers and packaging are essential to protect the quality of products for delivery to our customers. To address the issues caused by containers and packaging, the entire industry has promoted 3R (reduce, reuse, recycle) and achieved a high recycling rate. With regard to paper containers, in order to solve problems related to human rights and the destruction of forests that provide raw materials, we soon began promoting sustainable paper use. By the end of 2020, we had achieved 100% use of FSC-certified paper for all paper containers in the Japan Alcohol and Non-alcoholic Beverages Businesses. In response to issues related to plastics, we also aim to solve issues specific to countries where we operate our businesses and create a "society that continuously circulates plastics" from a global perspective.

We will create together

A society that circulates containers and packaging in a sustainable way

- Develop and disseminate sustainable containers and packaging
- Build a resource circulation system to make containers and packaging sustainable

Raw materials

Reduce
- P.46 Sustainable PET bottles and R100 PET bottles
- P.48 Sustainable paper containers and FSC-certified paper
- P.49 Cardboard cartons for products
- P.49 6-can pack
- P.49 Aluminum cans
- P.50 Returnable glass bottles
- P.50 No label products
- P.50 PET bottles

Reuse
- P.52 Returnable glass bottles

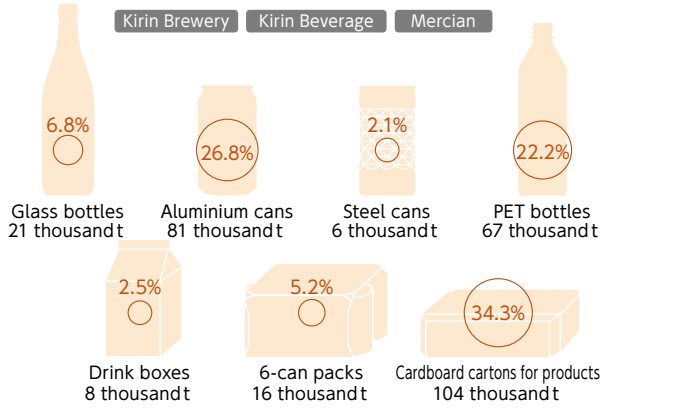
Recycle
- P.53 PET bottles
- P.53 Glass bottles
- P.53 Cans
- P.54 Promotion of recycling in Australia and New Zealand

Society
- P.55 With the Society

Points

- Expanded use of "R100 PET bottles" made from 100% recycled PET resin to cover *Kirin Nama-cha, Kirin Nama-cha Hoji Sencha, Kirin Nama-cha Life Plus Immune System Assist, and Kirin Nama-cha Caffeine Zero.*
- With the aim of creating a "society that continuously circulates PET bottles," we have begun technical studies on PET recycling using chemical recycling in a joint project with Mitsubishi Chemical Corporation. As part of our aim to create a resource circulation system, we expanded our trial of the collection of used PET bottles to drugstores in addition to convenience stores.
- Maintained our achievement of the 100% use of FSC-certified paper for all paper containers in the Japan Alcohol and Non-alcoholic Beverages Businesses.
- Joined the "Alliance to End Plastic Waste (AEPW)," an industry-led NGO.

Material mix of containers and packaging in 2021, by weight

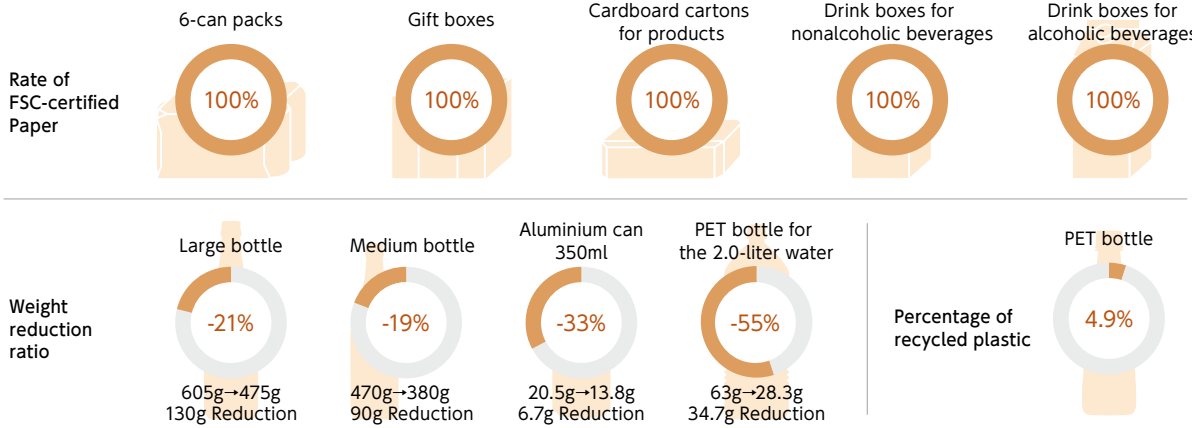


Global resource use of containers and packaging: 480 thousand tons For details→P.126

Overview of initiatives

Initiative	Issue	Progress
Initiatives to achieve our vision	Joint research	In a joint project with Mitsubishi Chemical Corporation, we began studying technologies for using chemical recycling to recycle PET.
	Consortium	We were the first Japanese food company to participate in AEPW, as part of our aim to create a "society that continuously recycles plastics."
Develop and disseminate sustainable containers and packaging	Paper containers	Achieved 100% use of FSC-certified paper for all paper containers in the Japan Alcohol and Non-alcoholic Beverages Businesses in November 2020.
	Expanded use of recycled PET resin	Since 2021, we have expanded the use of "R100 PET bottles" made from 100% recycled PET resin to cover *Kirin Nama-cha, Kirin Nama-cha Hoji Sencha, Kirin Nama-cha Life Plus Immune System Assist, and Kirin Nama-cha Caffeine Zero.*
	Weight reduction of PET bottles	In 2020, we achieved a 16% weight reduction in some 2L and 1.5L large PET bottle products in lines such as *Kirin Gogo-no-Kocha* and *Kirin Nama-cha*. In addition, we adopted "roll labels," which are much thinner and smaller than shrink labels, for vending machine products. We have developed a 720ml PET bottle for wine that is the lightest in Mercian's history (29g, making it 5g lighter than the previous 34g).
	Weight reduction of other containers	We have been continuously using the lightest returnable beer bottles produced in Japan, some of the lightest aluminum cans produced in Japan, smart-cut cartons, etc.
Build a resource circulation system to make containers and packaging sustainable	Recycling of PET bottles	As part of our aim to achieve the Kirin Group Plastic Policy (established in 2019), we have begun trialing the collection of used PET bottles at convenience stores using a bottle collection machine developed by our Institute for Packaging Innovation, as a system for recycling PET bottles.
	No label products	In 2021, we launched *Kirin Nama-cha No Label, Kirin Nama-cha Hoji Sencha No Label,* and *Kirin Gogo-no-Kocha Oishii Muto (sugar-free) No Label*, and in 2022, we expanded our range of no label products with the launch of *Kirin FIRE ONE DAY Black No Label.*
	Reuse of beer bottles	Firmly maintain a reuse system.
	Recycling of cans	Continuing to provide voluntary support for the recovery of aluminum cans.

Progress



1993 Developed the lightest returnable large bottles produced in Japan and introduced them into the market on a limited trial basis.

1994 Began using 204-diameter beer cans.

2003 Completed the switch to 100% use of the lightest returnable large bottle produced in Japan.

2004 Began using corner-cut cartons.

2014 Began developing and deploying the lightest returnable medium bottle produced in Japan. Began using some PET bottles made from 100% recycled PET resin.

2017 Revised the Kirin Group Action Plan for the Sustainable Use of Biological Resources, and declared our aim to achieve 100% use of FSC-certified paper for all paper containers at domestic beverage manufacturers by the end of 2020.

2019 Developed the Kirin Group Plastic Policy. Began using "R100 PET bottles" made from 100% recycled PET resin for Kirin Nama-cha Decaf.

2020 In the Kirin Group's Environmental Vision 2050, we declared our aim to achieve 100% sustainable containers and packaging using recycled materials and biomass by 2050. Achieved 100% use of FSC-certified paper in all containers at domestic beverage producers. In a joint project with Mitsubishi Chemical Corporation, we began studying technologies for chemical recycling of PET bottles.

2021 Expanded use of "R100 PET bottles" to cover Kirin Nama-cha and Kirin Nama-cha Hoji Sencha. Began sales of no label products. Joined the "Alliance to End Plastic Waste (AEPW)," an industry-led NGO. Began trialing the collection of used PET bottles at convenience stores.

2022 Revised the "Action Plan for the Sustainable Use of Biological Resources," and expanded the number of Group companies that aim to use paper containers that have been confirmed to take sustainability into consideration. Launched a demonstration trial on the collection of used PET bottles at drugstores.

* The product pictures used on page 44 are as of the end of June 2022.

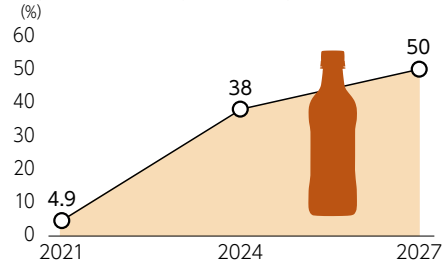
Sustainable PET bottles

Plastic Policy

Kirin Holdings developed the Kirin Group Plastic Policy in February 2019 with the intention of finding solutions to issues related to plastic.
The convenience of plastic has made it a popular material for many different products, including containers and packaging. With such a vast range of types and applications of plastics, collection and recycling rates vary depending on the type of plastic used, and it cannot be said that all plastic resources are being efficiently circulated. Mismanaged plastic waste discarded into the environment is finding its way into the oceans, causing marine pollution and global concern about the potential adverse effects on ecosystems. To solve these problems, we must promote resource recycling for PET bottles.
In the Kirin Group Plastic Policy, to further promote the resource circulation of PET bottles, we pledged a target of increasing the percentage of recycled resin in PET bottles for the Japan market to 50% by 2027. We also declared that we would consider the introduction of PET resin made derived from inedible plant material, with the aim of moving away from petroleum resources.
In the Kirin Group's Environmental Vision 2050 that we announced in February 2020, we declared our goal of creating a "society that sustainably recycles containers and packaging" by 2050. To that end, we are working to move to 100% sustainable containers and packaging that use recycled materials, biomass, etc.

More information on our Plastic Policy→P.117

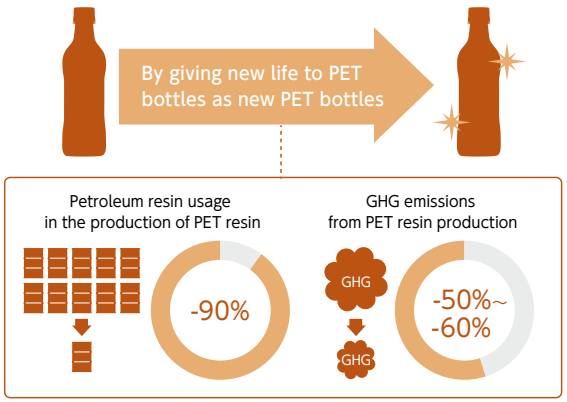
Recycled resin usage ratio target



Expansion of the use of "R100 PET bottles" made from 100% recycled PET resin

In accordance with the Plastic Policy that we established in 2019, the Kirin Group is gradually expanding the use of "R100 PET bottles" made from 100% recycled PET resin.
"R100 PET bottles" use "mechanical recycling" technology to enable the use of recycled PET resin as a raw material for PET bottles. With the technology, we sort, crush, and clean used PET bottles, and then treat them at high temperatures in a state close to a vacuum. This means we can volatilize and remove impurities in the resin, and recover the molecular weight reduced during the recycling process to a level suitable for bottle molding.
Recycled PET resin use 90% less resin derived from petroleum and achieves a reduction in GHG emissions of 50-60% compared with regular petroleum-derived PET materials.
We began using recycled resin for some of the packaging of *Kirin Gogo-no-Kocha Oishii Muto (sugar-free)* product in February 2014. Subsequently, in 2019, we began using "R100 PET bottles," which use 100% recycled PET resin, for *Kirin Nama-cha Decaf*, followed by *Kirin Nama-cha* and *Kirin Nama-cha Hoji Sencha* (600ml size for each), which are only available in convenience stores throughout Japan, from 2021. We also began using "R100 PET bottles" for Kirin Nama-cha Life Plus Immune System Assist from October 2021, and *Kirin Nama-cha Caffeine Zero* in April 2022, and we have since continued its use in these products. Of the *Kirin Nama-cha* products that we launched nationwide in April 2022, we plan to also gradually introduce the "R100 PET bottles" for vending machine products (555ml) by the end of the year.
The "R100 PET bottle" used for *Kirin Nama-cha Decaf* won the President of Japan Packaging Institute Award at the Japan Packaging Contest 2019, and the WorldStar Award in the beverages category at the 2020 WorldStar Packaging Awards Competition.

More information→P.140



Products using R100 PET bottles as of June 2022. From the left: *Kirin Nama-cha* and *Kirin Nama-cha Hoji Sencha* (600ml size for each), *Kirin Nama-cha Life Plus Immune System Assist*, and *Kirin Nama-cha Caffeine Zero*

* The information above is as of the end of June 2022. Product pictures may not necessarily be the pictures of the latest product because they include pictures of products at the time of the events described.

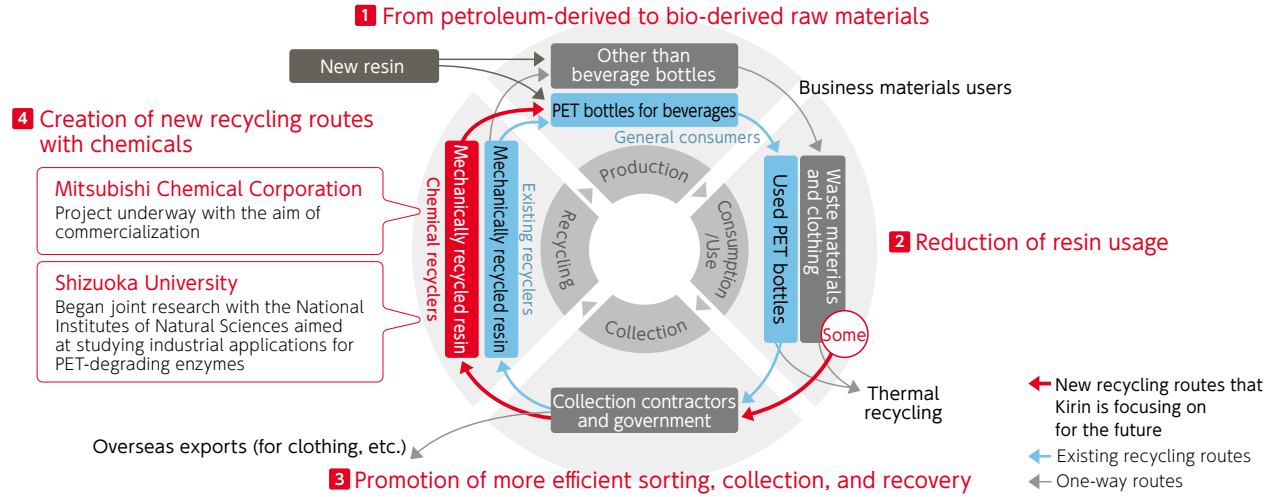
Creation of new recycling routes with chemical recycling

In December 2020, Kirin began technical studies and a joint project aimed at commercialization with Mitsubishi Chemical Corporation Corporation, focusing on recycling PET bottles using chemical recycling.
In the current mechanical recycling system, there are impurities that are difficult to remove from recycled resins, and it is said that the quality of resins deteriorates with repeated recycling. In chemical recycling, we sort, crush, and wash used PET bottles to remove dirt and contaminants, then we depolymerize them (chemical decomposition treatment), and break down and purify the PET into intermediate raw materials, which we then polymerize (synthesize) again into PET It is possible to recycle PET bottles to a state similar to new materials as many times as we want through decomposition down to the molecular level, and we can also recycle PET products other than used PET bottles into PET bottles. In addition to aiming to establish a circular economy for PET products, we will also build a system for collecting PET products other than PET bottles. Since 2022, we have been working with FANCL to promote the reuse of PET materials. In January 2022, Kirin Central Research Institute began joint research with Shizuoka University and the National Institutes of Natural Sciences (NINS) to establish enzymatic PET recycling technology. The Kirin Central Research Institute has been conducting research and development on PET2 - a thermostable PET-degrading enzyme - since 2019, aiming to use it as a base to establish a kind of PET recycling using the enzymatic degradation method. This came in the course of searching for chemical recycling technologies that utilize the fermentation technologies Kirin has cultivated to date.
In July 2021, Shizuoka University and NINS announced the results of a study in which modifications to a PET2 enzyme significantly improved its thermal stability and PET degradation ability. By combining their respective knowledge, Kirin, Shizuoka University, and NINS aim to accelerate research and development for the practical use of PET-degrading enzymes, thereby using their technical capabilities to create a positive impact in society.

Promotion of more efficient sorting, collection, and recovery

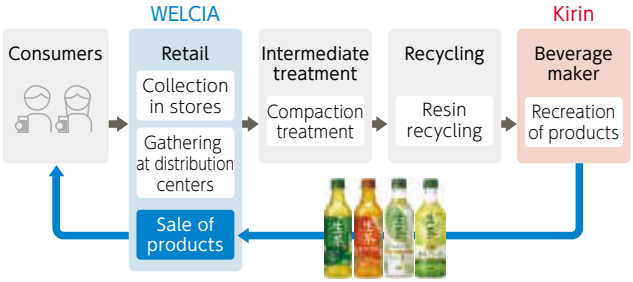
Aiming to create “a society that continuously recycles plastics,”

Society that continuously recycles plastics



in July 2021, we launched a demonstration trial to collect used PET bottle containers, in collaboration with Lawson, Inc. In June 2022, we also expanded the demonstration to Welcia Yakkyoku Co., Ltd.
In the Lawson demonstration trial, we installed “PET bottle compaction and collection machines,” developed within the Kirin Group, at several Lawson stores in Yokohama, to encourage consumers visiting the stores to collect PET bottles discarded at home. By using the vending machine operation routes of Kirin Beverage affiliates for collection, we are enhancing transportation efficiency before shipping the materials to recycling plants.
In the demonstration trial at WELCIA, we collect and sort used PET bottles in collection boxes installed at WELCIA stores,

Flow of recovery, recycling, and product creation



and after gathering these materials at a WELCIA distribution center, we transport them to Far Eastern Ishizuka Green PET Corporation, a recycler.
Subsequently, we recycle the PET bottles into the raw materials for PET bottles through processes such as grinding and washing at a plant that manufactures recycled PET raw materials. After verifying the results of the demonstration at approximately 190 WELCIA stores in Saitama Prefecture, we will expand the scope of our activities to include other drugstore chains in the same area, and in the future, we plan to expand the size of our activities outside of this industry, including other retail industries.

Efforts to solve the global plastic problem

In March 2021, the Kirin Group joined the Alliance To End Plastic Waste (AEPW), an international non-profit organization, in order to solve problems related to waste plastic in the world from a global perspective, together with other participating companies. In cooperation with global companies, organizations, and other entities involved in the plastic value chain that participate in AEPW, we are promoting projects in four strategic areas: “infrastructure creation and development,” “innovation,” “education and awareness-raising activities,” and “clean-up activities.”

Sustainable paper containers

Achieving 100% use of FSC-certified paper in all paper containers and packaging

At the end of November 2020, the Kirin Group achieved the 100% use of FSC-certified paper in all paper containers and packaging at Kirin Brewery, Kirin Beverage, and Mercian. The targeted paper containers are "6-can packs," "gift boxes," "drink boxes," and "cardboard cartons." This is the first declaration and achievement of that declaration by a Japanese manufacturer to cover all paper containers.
In 2022, we revised the "Action Plan for the Sustainable Use of Biological Resources," and expanded the scope of Group companies to include Kyowa Kirin, Kyowa Hakko Bio, Lion, and Koiwai Dairy Products. We also declared our intention to switch to sustainable paper, such as FSC-certified paper and wastepaper, by 2030, and began related initiatives.

* The Forest Stewardship Council (FSC) Forest Certification System is a system for the appropriate management of forests and the sustainable use and conservation of forest resources. The FSC label is a mark that protects forests.

FSC-certified paper targets and status of achievement

The status of achievement of targets as of the end of December 2021 is as follows.

Type	Target	Target Year	Rate of FSC-certified paper	Rate of FSC labeling
6-can packs for beer	100%	End of 2017	100%	about 93%
6-can packs for non-alcoholic beverages	100%	End of 2017	100%	about 78%
Gift boxes	100%	End of 2020	100%	100%
Drink boxes for non-alcoholic beverages	100%	End of 2020	100%	about 75%
Drink boxes for alcoholic beverages	100%	End of 2020	100%	about 9%
Cardboard cartons for non-alcoholic beverages	100%	End of 2020	100%	about 85%
Cardboard cartons for beer and RTD products*	100%	End of 2020	100%	100%
Cardboard cartons for wine and Shochu products	100%	End of 2020	100%	0%

* Excluding commercial use

For policies on biological resources→P.118~P.119

Initiatives for sustainable paper containers

In 2013, the Kirin Group developed the "Action Plan for the Sustainable Use of Biological Resources," and we have since been endeavoring toward the sustainable use of paper. In the same year, with the aim of creating a society where sustainable paper is available for use in day-to-day settings, five companies engaged in advanced initiatives related to the use of paper formed the "Consortium for Sustainable Paper Use" together with WWF Japan, and engaged in initiatives such as holding dialogues with suppliers with the aim of promoting the supply of certified paper. In 2017, we revised our Action Plan for the Sustainable Use of Biological Resources, and pledged a target of 100% FSC-certified paper for all paper containers. As of May 2016, before this declaration, we had adopted FSC-certified paper for all 250ml drink boxes for the Tropicana 100% series. By the end of March 2019, all Kirin Brewery paper containers were using 100% FSC-certified paper, and by the end of November 2019, all Kirin Beverage paper containers were using 100% FSC-certified paper. In November 2020, we achieved 100% use of FSC-certified paper for all Mercian paper containers.

FSC logo displayed on top of 6-can beer packs and cardboard cartons for products

The Kirin Group is pursuing the display of the FSC-certified label to give consumers a real sense of the importance of protecting the forests. In May 2017, we became the first brewery in Japan to sell 6-can packs of beer showing the FSC-certified label. Since October the same year, we have been progressively displaying the certified label on the underside of other 6-can packs and it now appears on the underside of almost all of our 6-can packs.
We have also started displaying the label on the spout and sides of drink boxes for non-alcoholic beverages, with the label already visible on most of these products. Starting with January 2019 shipments, we have begun showing the FSC logo on the top of 6-can packs and cardboard cartons for alcoholic beverages. Now consumers can see the logo on most of our products on store shelves.

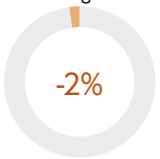
* The information above is as of the end of June 2022. Product pictures may not necessarily be the pictures of the latest product because they include pictures of products at the time of the events described.

Reduce

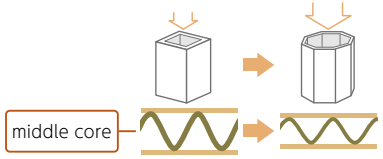
Corner-cut cartons

The Institute for Packaging Innovation developed "corner-cut cartons" and we introduced them to the market in 2004. The beveled corners have reduced the weight of the carton and, because the carton has eight sides, making it stronger, the cardboard thickness has been reduced, resulting in a 10.9% reduction in the weight of the carton compared to conventional cartons.

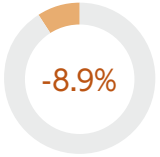
Quantity of paper saved by eliminating corners



Of the same thickness, more corners make the object more load-bearing.



Quantity of paper saved by making cardboard core thinner



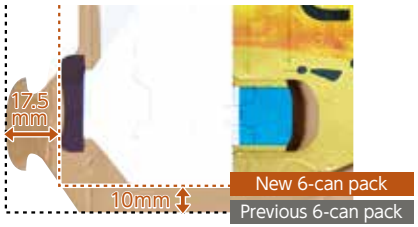
Smart-cut cartons

The smart-cut carton, which we introduced in 2015, is based on the corner-cut carton technology. In addition to the reduction in weight, the corners of the long edges at the top of the carton have been cut to fit the space created by the lids of the 204-diameter can, which are smaller than the rest of the can. This has resulted in a 16% weight reduction compared to the corner-cut carton.
The Institute for Packaging Innovation developed the smart-cut carton in conjunction with a container and packaging manufacturer, and obtained a joint design registration.

6-can pack

We have incorporated innovations into various parts of the 6-can pack to make it more lightweight, as well as achieving ease of carrying and removing from the shelf. For example, we have included a new cut-out section at the sides of the pack to match the can edge (Kirin patent), and use a "can bottom lock structure" to stabilize the bottoms of the can with paper. These innovations have resulted in a reduction in packaging material of 4 grams, or 8%, per 500 ml 6-can pack, while also improving the pack's can-holding power.

Layered for comparison



Reducing the weight of paper containers for wine

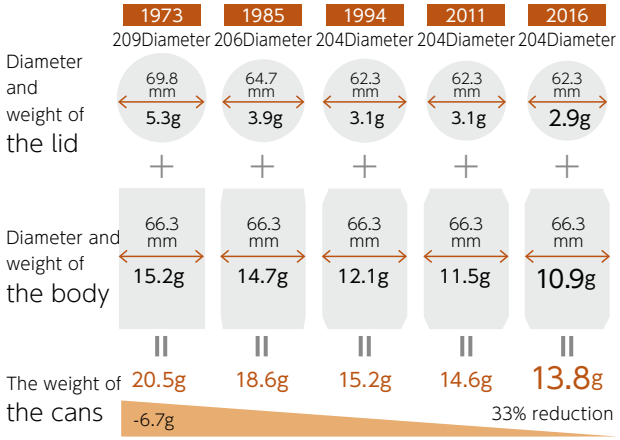
Since March 2022, Mercian has also reduced the weight of containers for wine that it sells. Mercian uses bag-in-box packaging with an inner bag inside an outer box for a total of five types of wine, namely *FRANZIA* (red, white, dark red) bag-in-box and *FRONTERA* (Cabernet Sauvignon and Chardonnay) wine-fresh servers. By reducing the weight of the outer box by approximately 25%, from 190g to 143g, we are able to reduce our use of paper resources by around 31t per year.

Lightweight bag-in-box packaging

Reducing the weight of aluminum cans

At Kirin Brewery, by reducing the diameter of the can ends and narrowing the top and bottom edges of the can body to reduce the weight of the can, as well as thinning out the walls of the can body, for our 350-ml aluminum cans, we have achieved a weight reduction of approximately 29% for our 204-diameter can end compared with the 209-diameter can end in 2011.
Working with can manufacturers, we developed Japan's lightest aluminum can with thinner can ends and bodies in 2016. We have reduced the overall weight of the can by approximately 5% (0.8 grams) from 14.6 grams to 13.8 grams. This represents a weight reduction of 33% (6.7 grams) from the 209-diameter can end.
Weight reduction is necessary for both steel and aluminum cans, but aluminum in particular may require a large amount of electricity for smelting, so weight reduction contributes significantly to the reduction of Scope 3 GHG emissions.

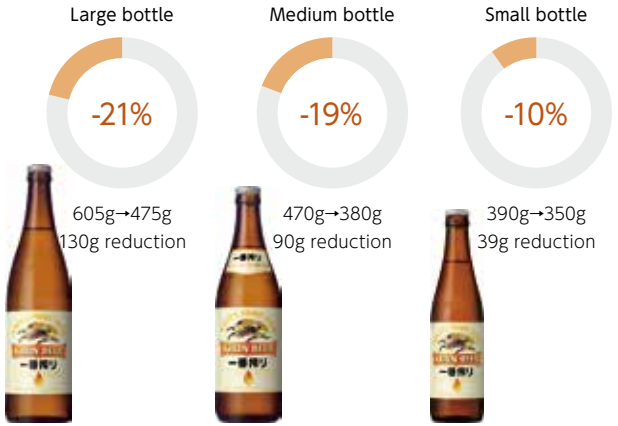
Transitioning weight of the 350ml aluminum cans



* The information above is as of the end of June 2022. Product pictures may not necessarily be the pictures of the latest product because they include pictures of products at the time of the events described.

Lighter returnable glass bottles

The lightest weight returnable bottle produced in Japan in all sizes (large, medium, and small). As well as being light in weight, returnable glass bottles need to be durable enough to maintain their returnable functionality and strong enough to ensure consumer safety and peace of mind.
To meet this challenge, the Institute for Packaging Innovation made excellent use of innovations such as a ceramic coating that forms a thin film on the bottle's outside surface, an impact-resistant shape design, and a bottle mouth design that meets the conflicting requirements of being easy to open and able to be sealed tightly and that is also strong enough not to chip.

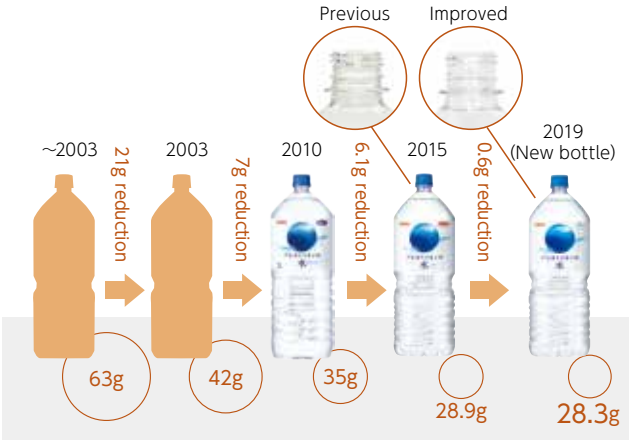


No label

Since March 2021, we have been selling *Kirin Nama-cha No Label 6-Pack* and *Kirin Nama-cha Hoji Sencha No Label 6-Pack* at general merchandise stores nationwide, as well as Kirin Nama-cha No Label and *Kirin Nama-cha Hoji Sencha No Label* exclusively online. In May 2022, we expanded our range of no label products with the launch of *Kirin Gogo-no-Kocha Oishii Muto (sugar-free) No Label* and *Kirin FIRE ONE DAY Black No Label* exclusively online. Eliminating labels makes sorting waste easier for customers and thereby promotes recycling. It also reduces the use of resin derived from petroleum and thus reduces GHG emissions during production.
In June 2022, we will begin test sales of *Kirin Nama-cha No Label* with Paper Sticker at some general merchandise stores in the Tokyo metropolitan area. By attaching small paper stickers that provide the required information, we are able to sell individual products at the store without conventional labels.

Lightest PET bottles for water produced in Japan

The Institute for Packaging Innovation has developed and put into practical use the lightest 2L PET bottle for water produced in Japan, at 28.3g.
We reduced the weight of the 2L PET bottle for Kirin Alkali Ion Water from 63g prior to June 2003 to 28.9g in 2015, and further reduced the weight in April 2019 by improving the bottle's screw top, including making the screw threads narrower and the screw portion shorter, thereby making achieving the lightest such PET bottle produced in Japan and putting it into practical use. These efforts will result in annual reductions of PET resin use of approximately 107 tonnes and GHG emissions of approximately 375 tonnes.
For some 2L and 1.5L large PET bottle products, such as *Kirin Gogo-no-Kocha* and *Kirin Nama-cha*, we reduced the weight by approximately 16%, from 38.2g to 32.2g, by improving the molds of preforms used to make the PET bottles. We have been gradually introducing these bottles starting from products manufactured in December 2020. These efforts will result in annual reductions of PET resin use of approximately 439 tonnes and GHG emissions of approximately 1,515 tonnes.



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PET bottles for wine

In 2022, the Institute for Packaging Innovation developed a 720ml PET bottle for wine that is the lightest in Mercian's history. We reduced the weight by 5g, from 34g to 29g. We expect the use of this bottle for all 720ml PET bottle products produced and sold by Mercian to reduce PET resin use by approximately 83 tonnes per year and GHG emissions by approximately 286 tonnes.
The lightweight PET bottle received the "46th Kinoshita Award for Packaging Technology." This bottle won the award partly because we reduced resin use by approximately 15% while maintaining the "Bordeaux shoulder shape" and a "clean body shape," as well as the fact that the Kirin Group's gas barrier coating technology, which uses DLC* film, can keep wine fresh for a long period of time.

* An abbreviation for Diamond-Like Carbon (* Patent No. 4050648, etc.). A technology in which a thin film of carbon is formed inside a PET bottle, which suppresses the permeation of oxygen, water vapor, carbon dioxide, etc.

Use of roll labels for vending machine products

Since September 2020, Kirin Beverage has used "roll labels" on some PET bottle products for sale in vending machines.
There are two main types of label for PET bottled soft drinks: shrink labels and roll labels. We place shrink labels over bottles with a labeler in the filling plant, then apply heat to shrink the label. This means a certain thickness is required to prevent the label from bending. We do not use heat to shrink roll labels, instead attaching them by wrapping them around the PET bottle, which enables us to make the label thinner. Customers can easily remove the label by simply pulling the edge of the label, making it easier to sort trash, and thereby promoting recycling.
We are introducing roll labels for certain products exclusive to vending machines, such as *Kirin Nama-cha* and *Kirin Gogo-no-Kocha Oishii Muto (sugar-free)*.

Shortening of labels and packaging materials

We have shortened the label on packaging for the 600ml *Kirin Nama-cha* and *Kirin Nama-cha Hoji Sencha* that we released in 2022. In addition to reducing the size of the label and making it thinner by switching to roll labels, this will result in annual reductions of resin use by approximately 180 tonnes and GHG emissions of approximately 400 tonnes.
We have made the paper packaging materials for the 525ml and 600ml products in the six-bottle packs of no label products shorter than those of the products we launched in 2021, thereby reducing paper consumption. We also use FSC-certified paper for packaging materials, and display a label of our certification.

Shortening of labels

Product released in 2021　　Product released in 2022

Shortening of paper packaging materials for six-bottle packs

Product released in 2021　　Product released in 2022

Reduction of glass bottles with prefilled syringe preparations

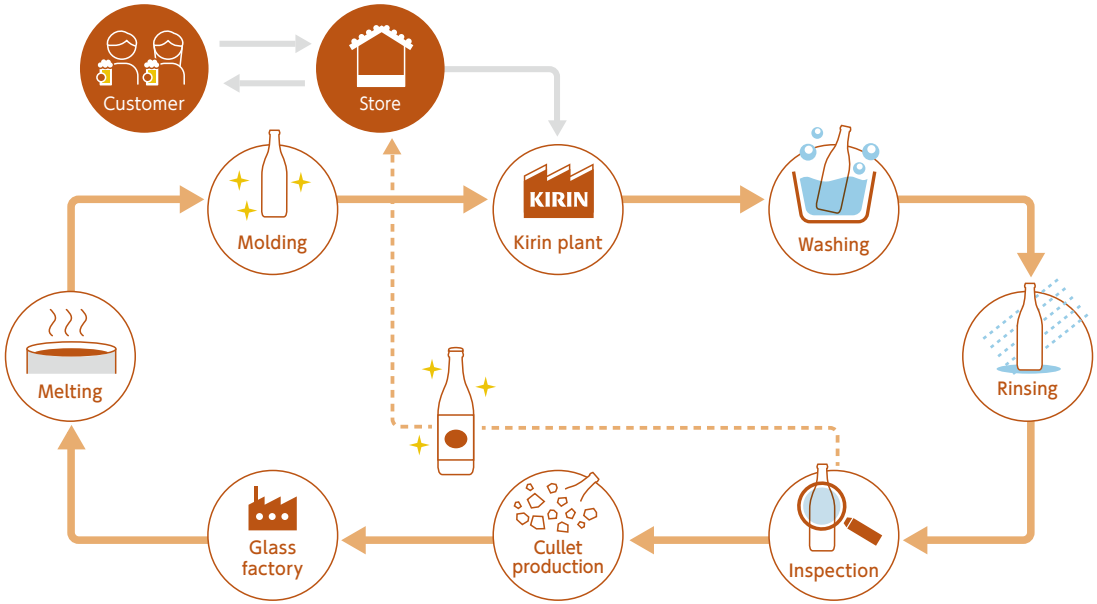
Kyowa Kirin sells plastic prefilled syringe preparations, which eliminate the need for the glass bottles containing the injection solution that are normally required, thus reducing glass usage.
With prefilled syringe preparations, the solution is already in the syringe, meaning there is no need to draw the solution from the glass bottle into the syringe. Therefore, in addition to excellent qualities such as convenience, safety, and sterility, we are able to reduce the use of glass resources and the amount of medical waste.

* The information above is as of the end of June 2022. Product pictures may not necessarily be the pictures of the latest product because they include pictures of products at the time of the events described.

Reuse

Re-use of glass bottles

In Japan, people have collected and re-used glass bottles over and over since the Meiji Era (1868-1912), long before the word “3R” was coined.
We wash returnable glass bottles that come back to the plant thoroughly inside and out to make them as clean as a new bottle. After stringently checking the bottles for scratches and cracks with an empty bottle inspection machine, we put them back into product service and fill them with beer. When handled carefully, returnable glass bottles last for an average of about eight years. This means they are used around 24 times.
When bottles have small scratches or fine cracks or are too old to be of service any longer, we crush them and turn them into a material called cullet, which we use as the raw material to make new bottles.



Recycle

Recycling of PET bottles

The Kirin Group promotes the recycling of PET bottles as a member of the Council for PET Bottle Recycling. Under the Council's Fourth Voluntary Action Plan (FY2021-FY2025), we are working toward a target recycling rate of at least 85% (base year: FY2004).
The recycling rate in 2020 was 88.5% (up 2.6 percentage points from the previous year), achieving the target.
In July 2021, we began testing the collection of used PET bottles at convenience stores, and in June 2022, at drugstores.

More information on collection at stores→P.47

Recycling of glass bottles

We turn old returnable glass beer bottles that can no longer be re-used and one-way bottles which are used only once into cullet, for use primarily as the raw material for making new glass bottles.
We are pursuing uses for cullet made from colored glass, which cannot easily be re-used for glass bottles. We are expanding potential ways to recycle this material for other applications, including in building materials such as tiles and blocks and road paving materials.

Recycling of cans

The Kirin Group is pursuing the adoption of aluminum cans that use a high rate of recycled metal. We have also joined the Japan Aluminum Can Recycling Association, and we are providing assistance for the collection of used aluminum cans as a way to promote their recycling. Can manufacturers recycle aluminum cans discarded at breweries and use them as 100% aluminum cans for beer.

Collection of used containers at vending machines

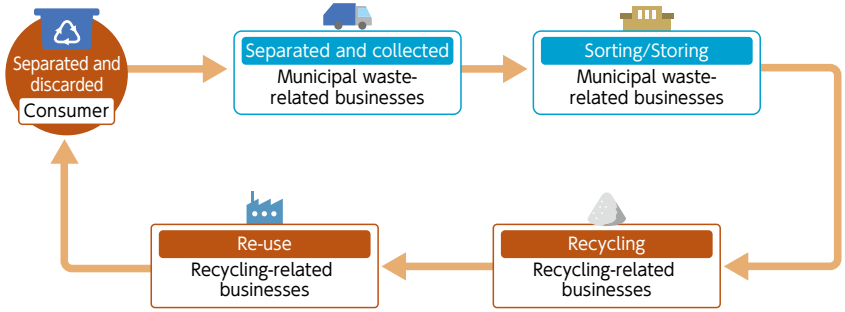
For vending machines installed by Kirin Beverage, the company conducts a comprehensive operation, from proposal and refilling of merchandise to service and repair of the vending machines.
In addition, as an environmental initiative, we collect the empty containers and even clean the area around the vending machines.

Voluntary collection of aluminum cans

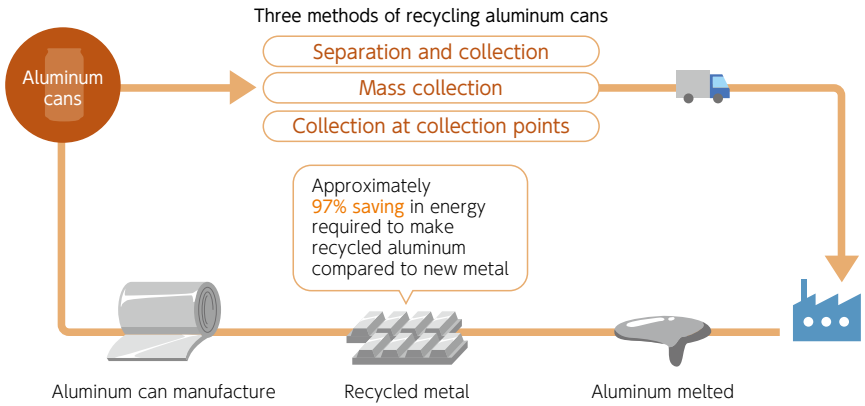
The Kirin Group supports the collection of used aluminum cans by can manufacturers. Can manufacturers collect more than 40,000 tonnes of aluminum cans via these activities, all of which are recycled back into new cans, which Kirin uses for its products.

Bags for recycling
provided by Kirin Brewery

Flow of recycling of PET bottles



CAN-to-CAN flow



Promotion of recycling in Australia and New Zealand

Lion has established the “Sustainable Packaging Strategy” to promote recycling. “Lion's Sustainable Packaging Project Steering Group,” which Lion established to promote this strategy, has set the following targets.

- Increasing recycled content to at least 50% by 2025.
- 100% of Lions packaging material to be reusable, recyclable, or compostable by 2025.
- A commitment to zero avoidable waste to landfill by 2025.

As glass accounts for the highest proportion of Lion's material inputs, Lion is working closely with its supplier to increase the recycled content of bottles.
Lion will promote activities to achieve these targets, which are aligned with those of the Australian Packaging Covenant Organisation (APCO).

Lion’s role in Container Deposit Schemes

Australia has Container Deposit Schemes in six of its eight states, and both remaining states have announced that they will implement this system in the future. Victoria and Tasmania are expected to commence schemes in 2023.
Lion plays an important role in Australia's Container Deposit Schemes. For example, in South Australia and the Northern Territory, Lion holds a majority of the shares of Marine Stores, a collection coordinator that aggregates collected materials for reuse and recycling. Lion also participates in Exchange for Change (EfC), a joint venture that coordinates the New South Wales and the Australian Capital Territory Container Deposit Schemes.
In Queensland and Western Australia, Lion participates in the administration and operation of Container Deposit Schemes as a member of the Container Exchange (QLD) Limited (CoEx) and WA Return Recycle Renew Limited (WARRRL), which were established and appointed as Producer Responsibility Organizations. Lion is a member of the nonprofit entities VicRecycle and TasRecycle, which intend to submit proposals to act as the coordinators of the Container Deposit Schemes in Victoria and Tasmania.
In New South Wales almost nine billion bottles and cans have been returned in less than four years of the scheme being in place, and there are currently 621 return points operating. The Queensland Container Deposit Scheme has been operating less than three years with nearly 5.4 billion containers returned and 341 return points in operation. The Western Australian Container Deposit Scheme commenced on October 1, 2020, and almost one billion containers have been returned. The South Australian scheme has been operating for over 40 years and recent reports stated the return rate of beverage containers sold is approximately 76.9%. In 2022, the South Australian government is considering improvements to modernize the scheme and further increase the rate of return. Lion is working with the state government to support the development and implementation of improvements. In the Australian Capital Territory, more than 270 million containers have been returned and recycled since the scheme began operating in December 2017. The Northern Territory scheme had a total return rate of 72% of containers sold.
New Zealand is also currently holding public consultations in relation to the implementation of a Container Deposit Scheme, which is expected to commence in 2025.

Together with society

Plastic resource circulation efforts in the soft drink industry

The Japan Soft Drink Association, of which Kirin Beverages is a member, issued a Plastic Resource Reclamation Declaration in November 2018.
As one of the initiatives under this declaration, from May 2019, the Association rolled out a campaign to attach 500,000 stickers to the empty container recycling boxes placed next to vending machine, to make consumers aware that these boxes are solely for the collection of empty containers for recycling purposes. The soft drinks industry aims to reduce any contaminants from the PET bottle recycling chain to ensure that 100% of the bottles can be used effectively.
In April 2021, the Japan Soft Drink Association made a "declaration of 50% bottle-to-bottle ratio by 2030" for PET bottles. This declaration is based on current technology and economic efficiency. In future, we will aim for a higher "bottle-to-bottle recycling ratio" through "advances in material recycling technology" and the "establishment of chemical recycling." With advances in the development of "PET materials derived from plants and organisms," we are also promoting reductions in the use of new fossil-derived resources.

Easily separated containers and packaging

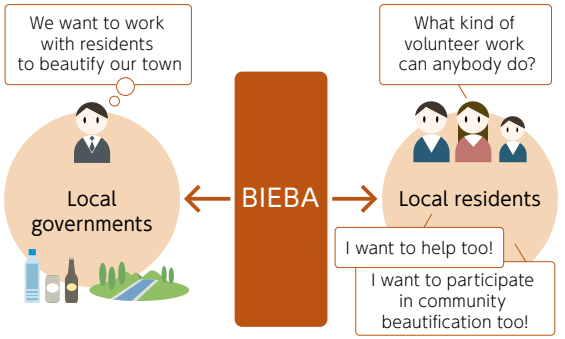
In consideration of ease of trash separation, we endeavor as far as possible to use single materials in our containers and packaging or make it easier to separate them into single materials. To raise awareness about the recycling of containers and packaging, we provide containers and packaging that are easy to separate.
Since September 2020, Kirin Beverage has gradually begun selling products with "roll labels," which can be easily peeled off by simply pulling the edge of the label.

Consumer awareness activities

We are engaged in awareness-raising activities on the internet, such as the KIRIN KIDS website to raise awareness of the 3Rs among children. We also deal with the theme of 3R for containers and packaging at our Kirin School Challenge workshops for junior and senior high school students.
We also use Eco Panda, an environmental-awareness mascot character that made its first appearance to coincide with the launch of the "pecology bottle," an environmentally-friendly, resource-conserving, easily crushable container, to conduct awareness-raising activities aimed at junior and senior high school students.
We have also conducted awareness-raising activities at a variety of events, including exhibiting our R100 PET Bottle for the *Kirin Namacha Decaf*, which uses 100% recycled PET resin, and Japan's lightest 2L PET bottle used for Kirin Alkali Ion Water, at the G20 Innovation Exhibition and PR for the International Media Center (IMC) during the G20 Osaka Summit in 2019.

Adopt Program (community beautification)

The Adopt Program is a method of community beautification in which residents "adopt" a section of a neighborhood and participate in cleanup activities. The Beverage Industry Environment Beautification Association (BIEBA) brings together six beverage producer bodies to conduct promotions and activities aimed at the beautification of communities. Kirin Brewery and Kirin Beverage participate in BIEBA as members of their respective industry bodies, the Brewers Association of Japan and the Japan Soft Drink Association, providing support for activities in this Program.



Main activities of the Beverage Industry Environment Beautification Association

Support for education
BIEBA grants awards to schools that are actively engaged in the education and practice of community beautification. It also produces and supplies community beautification education guides for teachers.

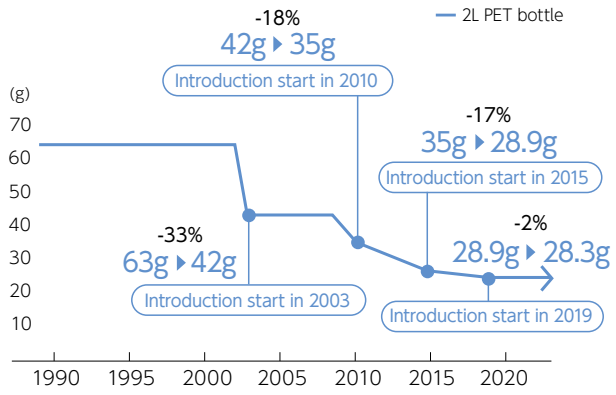
Littering prevention campaign
BIEBA places "No Littering" stickers on roadside signs and vending machines to call for the prevention of littering.

* The information above is as of the end of June 2022. Product pictures may not necessarily be the pictures of the latest product because they include pictures of products at the time of the events described.

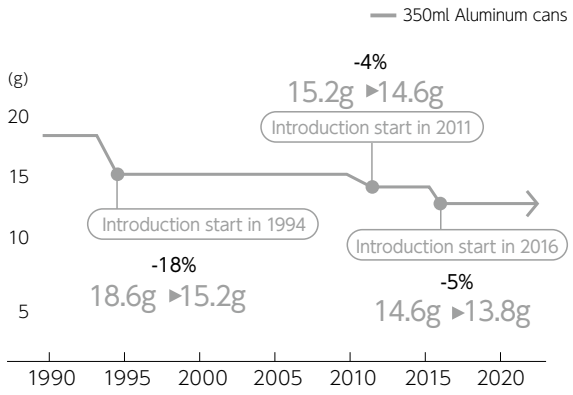
Key data related to Containers and Packaging

Related Information→P.126～P.127

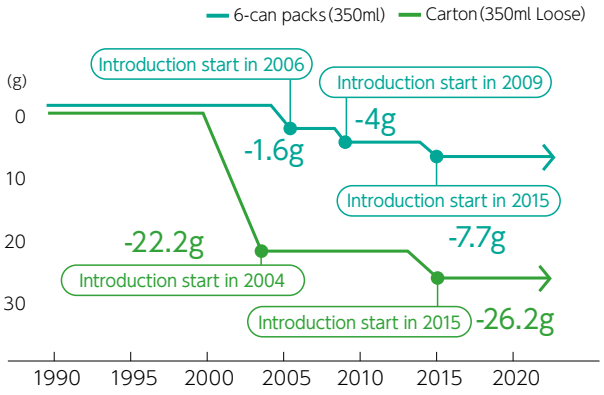
Change in weight of PET bottles (*Kirin Alkali Ion Water* 2L PET bottle)



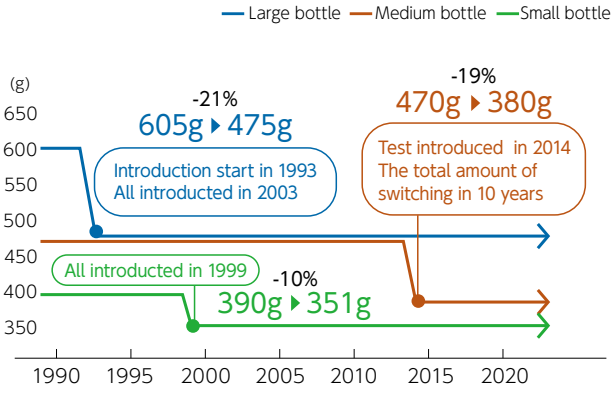
Can lighter transition



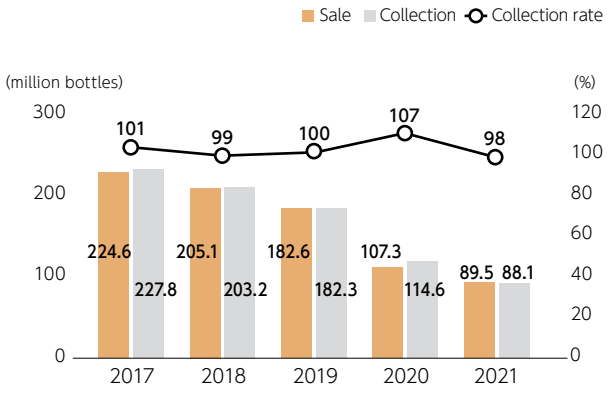
Trends in weight reduction of cartons and 6-can packs



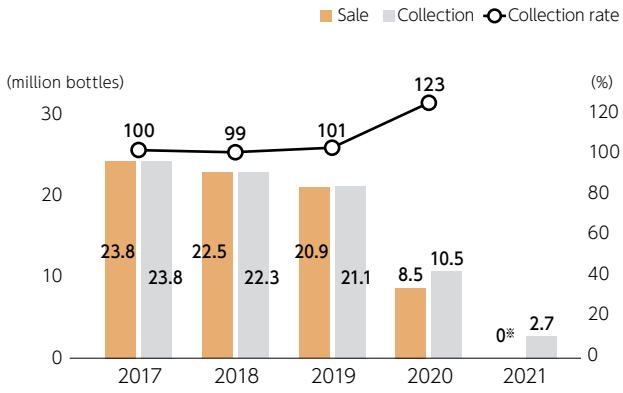
Returnable beer bottles lighter transition



Kirin Brewery trends in sale and collection of returnable glass bottles

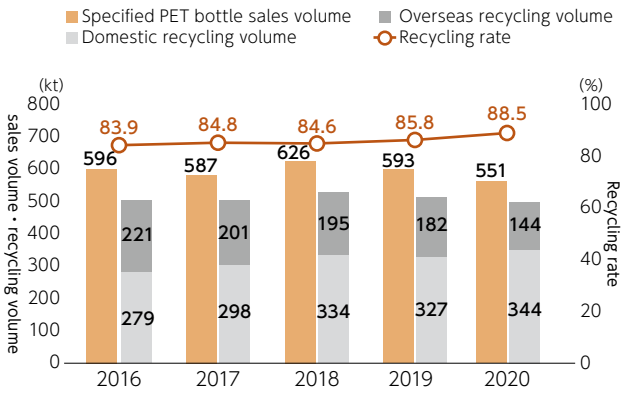


Kirin Beverage trends in sale and collection of returnable glass bottles



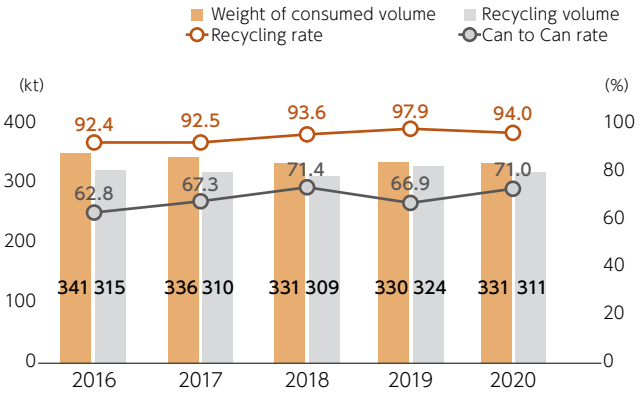
*Kirin Beverage bottle product sales ended at the end of 2020

Rate of PET bottle recycling in Japan



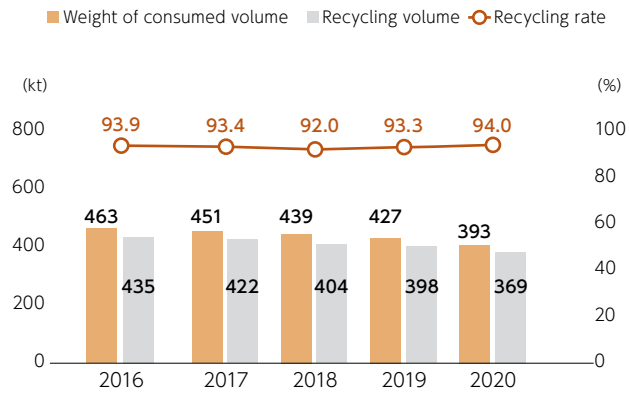
Source: The Council for PET Bottle Recycling

Rate of aluminum can recycling in Japan



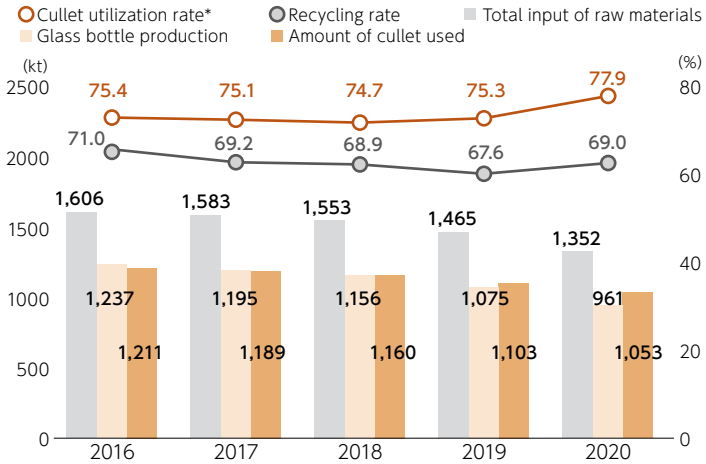
Source: Japan Aluminum Can Recycling Association

Rate of steel can recycling in Japan



Source: Japan Steel Can Recycling Association

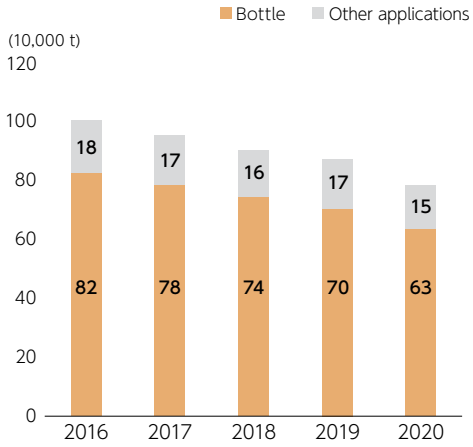
Glass bottle production and cullet utilization rate



* Cullet utilization rate = amount of cullet used / total input of raw materials

Source: Glass Bottle 3R Promotion Association

Cullet applications



Source: Glass Bottle 3R Promotion Association