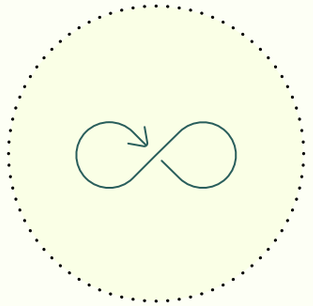
Zero Waste

GRI 306-1, 306-2

In line with one of the basic policies of the Mid-term Plan K27, “to become an essential company in a sustainable world,” we are aiming to achieve zero waste by reducing the amount of plastic used and increasing plastic recycling by 2040, and to build a resource-circulating society.



Risks

- Increased costs due to stricter regulations on plastic packaging containers and industrial waste, or rising prices of recycled plastic
- Decline in competitiveness due to delays in technology development related to packaging recycling and waste reduction
- Decline in reputation and corporate value if actions taken for plastic and waste issues are insufficient

Opportunities

- Cost reduction by reducing the amount of plastic used and the amount of waste generated
- Greater competitiveness and increase in sales by providing products that use less plastic and utilize recycled plastic
- Increase in sales due to consumers being aware of recycling initiatives such as community collection initiatives and recyclable designs
- Increase in revenue from a licensing business that utilizes plastic reduction and recycling technology

Strategy

Overall	(1) Achieving zero waste by 2040 and negative waste by 2050
Packaging	(2) Reducing waste and promoting resource recycling by designing products with the packaging 4Rs and the entire lifecycle in mind
Sites	(3) Promoting waste reduction at sites
Products	(4) Promoting product waste reduction
External collaboration	(5) Contributing to a circular society by raising stakeholder awareness and collaborating with external parties

Metrics, targets and results

Metrics	Targets	2025 results
Quantity of fossil-based plastic in packaging (1) (2)	Will peak and begin to decline in 2030	76 thousand tons
Annual quantity of innovative packaging used (Kao + external companies) (1) (2)	0.3 billion in 2030	0.11 billion items
Recycling rate of plastics involving Kao (1) (2)	50% in 2030	22%
% of recycled plastic used in PET containers (Japan) (1) (2)	100% in 2025	91%
% of waste generated at Kao’s sites* that is not recycled (3) * Beginning with production sites	Zero in 2030 (Less than 1%)	2.5%
% reduction of discarded products and discarded promotional materials (4)	95% in 2030	59%

Initiatives

- Increase the use of recycled plastic (1) (2)
- Expansion of sales of positive recycled products (1)
- Reducing plastic consumption (1) (2)
- Increased amount of plastic collected and used by society (1) (5)
- Promotion of reduce innovation and recycle innovation (technology development) (2)
- Reduction of waste generation (3)
- Promotion of recycling of generated waste (3)
- Initiatives for improving the return rate (4)
- Awareness-raising through products (Popularization of refillable containers such as *eco-Peko bottles*) (5)
- Awareness raising activities at the Kao Eco-Lab Museum (5)
- RecyCreation activities (5)
- Trial for a resource circulating model aimed at horizontal recycling (5)
- Recycling of marine plastic (5)
- Participation in external organizations related to plastic issues organized by the government or NGOs (5)

Financial impact

- Reduction in the burden of complying with plastic regulations
- Reduction in waste disposal costs through waste recycling at sites

Environmental and social impact

- Efficient use of resources and realization of a circular society through the promotion of recycling
- Increase in employment opportunities through the creation of recycling businesses in local communities
- Reducing the negative impact of waste, such as marine plastics, on ecosystems

* The numbers at the end of the metrics, targets, and initiatives indicate the strategy identifiers.

Strategy

To reduce risks and create opportunities for zero waste, we are promoting strategies based on Kao's business characteristics and technological foundations, aiming to achieve both business growth and solutions to social issues.

Social issues

For Kao to remain a sustainable and competitive company, it is essential to have an accurate understanding of social issues. This will not only mitigate business risks for Kao, but will also be an important starting point for identifying new business opportunities that will drive growth. Kao recognizes the following social issues related to this theme.

- Transition to a resource-circulating society
- Marine litter problems caused by the release of plastic into the environment

Risks and opportunities

Kao is facing various risks in this business environment, which includes these social issues, but it is also identifying new business opportunities. Identifying risks and opportunities is an important process in formulating corporate strategies and initiatives. The main risks and opportunities identified by Kao in this theme are as follows.

Risks

- Increased costs due to stricter regulations on plastic packaging containers and industrial waste, or rising prices of recycled plastic
- Decline in competitiveness due to delays in technology development related to packaging recycling and waste reduction
- Decline in reputation and corporate value if actions taken for plastic and waste issues are insufficient

Opportunities

- Cost reduction by reducing the amount of plastic used and the amount of waste generated
- Greater competitiveness and increase in sales by providing products that use less plastic and utilize recycled plastic
- Increase in sales due to consumers being aware of recycling initiatives such as the collection of resources from the community and recyclable designs
- Increase in revenue from a licensing business that utilizes plastic reduction and recycling technology

Strategy

Kao has formulated the following strategies to address the identified risks and opportunities.

In particular, the reduction of plastic packaging is an important initiative, and these strategies will have a significant impact on the "Build Global Sharp Top businesses" and "Build businesses through co-creation with partners" sections of the K27 Mid-term Plan. We will work to build a resource-circulating society through innovative technology development and collaboration with stakeholders.

(1) Achieving zero waste by 2040 and negative waste by 2050

By 2040, we will achieve zero waste, where the amount of plastic packaging we use is equivalent to the amount of plastic recycled through initiatives involving Kao. By 2050, Kao will achieve negative waste, where the amount of plastic recycled through initiatives involving Kao exceeds the amount of plastic packaging used by Kao. We aim to achieve zero waste through the cultivation of technology by the Matrix Research System and the Packaging Technology Research, and through collaboration with stakeholders.

Related initiative: P166 Development of asphalt modifier using waste PET materials

(2) Reducing waste and promoting resource recycling by designing products with the packaging 4Rs and the entire lifecycle in mind

We aim to reduce waste from the product design and development stages, and promote the construction of a resource-circulating system. In the packaging field, we will carry out technological development with the 4Rs (Reduce, Replace, Reuse, Recycle) in mind to develop products with less environmental impact.

For "Reduce," we will promote cutting back on plastic by reducing bottle weight, for example by thinning the walls, while maintaining usability and durability through innovative packaging design.

For "Replace," we will overcome technological challenges to transition from fossil-based plastics to more sustainable raw materials, such as low-carbon, renewable plant-derived alternatives.

For “Reuse,” we will actively develop refillable and replaceable products so that original containers, including bottles and pumps, can be used repeatedly.

For “Recycle,” we will actively incorporate recycled plastic into plastic packaging, and will develop recycling technology for multi-layered refill packs composed of diverse materials in our efforts to promote resource circulation for plastic packaging.

Related initiatives: P167 Initiatives for recycling packaging, P168 Initiatives adopted at our business sites

(3) Promoting waste reduction at sites

We further strengthen waste reduction at our sites, building on the TCR activities* we have been working on for many years.

* TCR: Total Cost Reduction. Kao’s company-wide activities to improve and reform operations.

Related initiatives: P168 Initiatives adopted at our business sites

(4) Promoting product waste reduction

We intend to reduce returns by improving demand forecasting accuracy. In addition, we promote the reduction of waste through sales methods that utilize our own platform, My Kao.

Related initiatives: P168 Initiatives adopted at our business sites

(5) Contributing to a circular society by raising stakeholder awareness and collaborating with external parties

By sharing information and carrying out awareness-raising activities through our products, we aim to help realize a resource-circulating society by encouraging changes in consumer awareness and the behavior of stakeholders. In addition, through initiatives such as our “RecyCreation activities,” which involve consumers, local governments, recyclers, and competitors, we collaborate with a wide range of stakeholders to drive transformation throughout society

Related initiatives: P169 Collaboration with stakeholders based on “eco together”

Impact generated by implementing the strategies

We believe that the aforementioned strategies will have the following financial, environmental, and social impacts.

Financial impact

- Reduction in the burden of complying with plastic regulations
- Reduction in waste disposal costs through waste recycling at sites

Environmental and social impact

- Efficient use of resources and realization of a circular society through the promotion of recycling
- Increase in employment opportunities through the creation of recycling businesses in local communities
- Reducing the negative impact of waste, such as marine plastics, on ecosystems

Strategic resilience

Kao is implementing comprehensive measures aimed at reducing waste and building a resource-circulating society. By setting innovative targets such as waste reduction, zero waste, and negative waste, and taking specific measures for waste from our sites and products, we are building a system that can flexibly respond to stricter regulations and market changes. In addition, through awareness-raising activities and external collaboration, we are driving change throughout society and securing the foundations for achieving sustainable growth.

Metrics and targets

To improve the effectiveness of our strategies, we have established performance metrics related to risks and opportunities, and we regularly monitor our progress. We have set targets for the metrics related to particularly important risks and opportunities, and we are steadily promoting initiatives by repeatedly making improvements through the PDCA cycle to check progress toward these targets.

Targets and progress

Strategy	Metrics	Results					Mid- to long-term targets	
		2021	2022	2023	2024	2025	Target value	Year
(1) (2)	Quantity of fossil-based plastic in packaging	91 thousand tons	88 thousand tons	79 thousand tons	77 thousand tons*1	76 thousand tons	Will peak and begin to decline	2030
(1) (2)	Annual quantity of innovative packaging used (Kao + external companies)	0.011 billion items	0.013 billion items	0.046 billion items	0.10 billion items	0.11 billion items	0.3 billion items	2030
(1) (2)	Recycling rate of plastics involving Kao	15%*2 (1%)*3	16%*2 (3%)*3	19%*2 (6%)*3	22%*2 (8%)*3	22%*2	50%	2030
(1) (2)	% of recycled plastic used in PET containers (Japan)	19%	69%	81%	90%	91%	100%	2025
(3)	% of waste generated at Kao's sites*4 that is not recycled	9.1%	4.2%	4.3%	4.6%	2.5%	0 (Less than 1%)	2030
(4)	% reduction of discarded products and discarded promotional materials (Base year: 2020)	14%	20%	43%	35%	59%	95%	2030

*1 Results revised (recalculated by removing duplicate data)
*2 Recalculated based on the revised calculation scope (see below for details)
*3 Value before revision to scope of calculation
*4 Beginning with production sites

Use of recycled plastic in PET containers

In Japan, the percentage of recycled plastic used in PET containers reached 91% in 2025 against the target of 100% by 2025, driven by initiatives promoted across brands such as *Attack*, *CuCute*, *Bioré*, and *Essential*. The use of recycled plastic has steadily progressed. On the other hand, there are still products for which the adoption of recycled plastic has been postponed due to challenges such as ensuring product quality so that customers can use the products with confidence, as well as constraints related to container manufacturing facilities. Going forward, while advancing initiatives toward achieving Kao's target of a 50% plastic recycling rate involving Kao, Kao will continue to collaborate with stakeholders to address these challenges and further expand the use of recycled plastic.

Revision to the calculation scope for the recycling rate of plastics involving Kao*

To help realize a circular society, Kao has long promoted resource circulation not only within its own operations but also in collaboration with society and stakeholders. In recent years, the environment surrounding resource circulation has continued to evolve, driven by growing societal expectations, international discussions including those on Extended Producer Responsibility (EPR), and increasing recognition of the importance of not only horizontal recycling but also cascade use across society. Against this backdrop, Kao has continuously reviewed the methodology for the recycling rate of plastics involving Kao, with the aim of ensuring that the indicator appropriately reflects its resource circulation initiatives and underlying approach. As a result of this review, Kao has revised the calculation scope of the indicator. Previously, the recycling rate was calculated primarily based on the use of recycled plastic in plastic packaging. To more appropriately evaluate Kao's contribution to resource circulation across the value chain, the calculation scope has been expanded to include the quantity of recycled plastic used in products as part of Kao's positive recycling initiatives, as well as the quantity of material recycled in society based on EPR. With regard to EPR, the calculation covers quantities that underwent material recycling in Japan under the Containers and Packaging Recycling Law. As a result of this revision, the recycling rate for 2025 was 22%, compared with 8% under the previous calculation method. The EPR-related recycling quantity used in this calculation is an estimated value allocated to Kao based on material recycling performance data under Japan's Containers and Packaging Recycling Law (information published on the website of the Japan Containers and Packaging Recycling Association). While this estimate is not based on individual traceability, it is intended to evaluate Kao's contribution to resource circulation through the recycling system. Going forward, Kao will continue to review and refine both the calculation scope and target levels, taking into account international discussions and societal developments, so that the indicator can more appropriately reflect effective contributions to resource circulation.

* This indicator is a proprietary metric that emphasizes the circularity of plastic resources across society and evaluates both collection/recycling and the use of recycled materials, which are generally treated as separate metrics.

For details of the calculation formula, see: P317 Kirei Lifestyle Plan KPI definitions > Zero Waste

Metrics and results

Strategy	Metrics	Results		
		2023	2024	2025
(1) (2)	Quantity of plastic used for packaging*5	85 thousand tons	84 thousand tons*6	83 thousand tons
(1) (2)	Quantity of recycled plastic used	5.2 thousand tons	6.4 thousand tons	6.7 thousand tons
(3)	The amount of waste generated at sites*7	196 thousand tons*8	196 thousand tons*8	192 thousand tons ☑
(3)	The amount of recycled waste and other materials*7	176 thousand tons	178 thousand tons	175 thousand tons ☑
(3)	Recycling rate of waste and other materials*7	90%*8	91%*8	91%
–	Amount of food waste generated*9	714 tons	1,642 tons*11	–*12
–	Amount of food waste utilized effectively*9 *10	1 ton	4 tons*11	–*12
–	In-house disposal of food waste*9	712 tons	1,638 tons*11	–*12

*5 Total quantity of fossil-based plastic, recycled plastic, and bio-based plastic
*6 Results revised (recalculated by removing duplicate data)
*7 Boundary: All production sites of the Kao Group, non-production sites in Japan, and selected non-production sites overseas
*8 Results revised (Due to a review of the calculation scope, waste generation data from Inogami Co., Ltd., a Kao Group company (approximately 2 thousand tons/year), have been reflected in the calculation, and historical data have been revised accordingly. The impact of this revision on the recycling rate is approximately 1% and does not materially affect the overall trend.)
*9 Boundary: Kao's food businesses
*10 Contracted disposal: Contracted disposal includes methane fermentation or composting, and also effective utilization of packaging (such as cans or cartons).
*11 The disposal volume of residual inventory and related items significantly increased due to the transfer of *Healthya*, a functional tea-catechin beverage brand on August 1, 2024.
*12 No food waste was generated from *Healthya* following its transfer (August 1, 2024). Accordingly, this item will be omitted from future reports.

Governance

Under the supervision of the Board of Directors, risk management in relation to zero waste issues is carried out by the Internal Control Committee and the ESG Managing Committee. Opportunity management is carried out by the ESG Managing Committee. These committees are both headed by the President & CEO.

Furthermore, the Plastic Packaging Steering Committee, which is headed by the executive officer, discusses issues such as the guidelines for environmentally conscious design of plastic packaging and the progress of the 2030 targets, and promotes their steady and swift implementation.

We have created an e-learning program containing the knowledge needed to implement the Kirei Lifestyle Plan in both English and Japanese, and we deliver zero-waste-themed content to employees both within and outside Japan.

P62 Our ESG Vision and Strategy > Governance

Responsible Care (RC) activities
https://www.kao.com/content/dam/sites/kao/www-kao-com/global/en/sustainability/pdf/our_foudations2025-e-02.pdf

Risk and opportunity management

Policies

In implementing its zero waste, Kao has established the following policies as guidelines for its daily operations and decision-making. For details, please see the website.

- Basic Principle and Basic Policies on Environment and Safety
  https://www.kao.com/global/en/sustainability/klp/policy/environment-safety-policy/
- Kao Group Responsible Care Policy
  https://www.kao.com/global/en/sustainability/klp/policy/responsible-care-policy/
- Kao Environmental Statement
  https://www.kao.com/global/en/sustainability/klp/policy/environmental-statement/
- Kao Sustainable Product Development Policy
  https://www.kao.com/global/en/sustainability/klp/policy/product-development-policy/
- Our Philosophy & Action on Plastic Packaging
  https://www.kao.com/global/en/sustainability/planet/zero-waste/eco-friendly-products-plastic-packaging/

Management process

The status of our initiatives to address the risks and opportunities associated with zero waste is managed through the following processes—planning, implementation, evaluation of results, and corrective action—and we are working to make steady improvements.

<Zero-Waste Management Process: Plastic Packaging>

P (Planning)
Design of activities for the following year (November–December) and approval of targets (February)

D (Implementation)
Improvement and promotion activities (from February)

C (Evaluation of results)
Reporting results at the Steering Committee (April)

A (Corrective action)
Reflection and identification of areas for improvement (October)

<Zero-Waste Management Process: Sites>

P (Planning)
Design of activities for the following year (November–December) and approval of targets (February)

D (Implementation)
Improvement and promotion activities (from February)

C (Evaluation of results)
Reporting results in the Sustainability Report (June)

A (Corrective action)
Reflection and identification of areas for improvement (October)

Initiatives

Kao is engaged in a variety of initiatives to achieve zero waste. These initiatives are based on the aforementioned strategies and are being promoted together to achieve our targets. Here, we will introduce some of the important initiatives from among the many we are engaged in.

Strategy		Initiatives			
Overall	(1) Achieving zero waste by 2040 and negative waste by 2050	Increase the use of recycled plastic	Expansion of sales of positive recycled products	Increased amount of plastic collected and used by society	Reducing plastic consumption
Packaging	(2) Reducing waste and promoting resource recycling by designing products with the packaging 4Rs and the entire lifecycle in mind	Promotion of reduce innovation	Promotion of recycle innovation	Expansion of refill and replacement products	Shift to paper and plant-based plastics
Sites	(3) Promoting waste reduction at sites	Reduction of waste generation	Promotion of recycling of generated waste		
Products	(4) Promoting product waste reduction	Initiatives for improving the return rate			
External collaboration	(5) Contributing to a circular society by raising stakeholder awareness and collaborating with external parties	Awareness-raising through products (Popularization of refillable containers such as *eco-Peko bottles*)	Awareness-raising activities at the Kao Eco-Lab Museum	RecyCreation activities	Trial for a resource-circulating model aimed at horizontal recycling
		Recycling of marine plastic	Participation in external organizations related to plastic issues organized by the government or NGOs		

Development of asphalt modifier using waste PET materials

Region: Global
Corresponding strategy: (1)

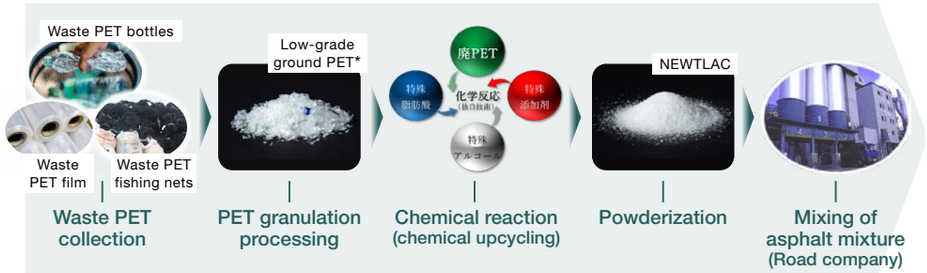
With the aim of achieving plastic packaging net zero waste by 2040, we are pursuing initiatives to recycle plastic waste discharged into society as Kao products and services. We transform discarded PET materials into valuable resources and use them in our *NEWTLAC* series of asphalt modifiers. By converting discarded PET materials into modifiers with our proprietary technology, it is possible to increase the durability of asphalt pavement by up to five times.

Asphalt pavement, which accounts for over 90% of roads in Japan, is prone to ruts (depressions in wheel paths) in areas with heavy traffic. These ruts cause issues such as CO_2 emissions from resurfacing work and traffic congestion. However, by making asphalt pavement more durable, it is possible to reduce damage to the road surface and limit the CO_2 emissions associated with repairs. To date, we have achieved coverage of over 500,000 m^2 in factory premises, parking lots, and public roads.

In addition, we contribute to local communities through various initiatives. For example, we collaborate with Iwata City to recycle PET bottles for use in asphalt modifiers, and provide environmental education by paving the courtyards of elementary schools. In 2023, we carried out regional collaboration projects such as the construction of prefectural roads using used PET fishing nets in Miyagi Prefecture and the paving of bus rotaries using marine plastic waste in Wakayama City. Furthermore, in 2025, *NEWTLAC 5500FN* was adopted for some of the pavement work in the venue for EXPO 2025, Osaka, Kansai, Japan. The adoption of this technology for the infrastructure of an international event demonstrates the recognition of our efforts in effectively utilizing waste plastic and creating highly durable pavements, marking significant progress for us. Building on the expanding adoption, we are also working to broaden the range of applicable environments by launching products for cold regions and expanding outside Japan.

Kao will continue to work with consumers, recyclers, road companies, local governments, and businesses to promote green pavements.

Manufacturing process for *NEWTLAC* eco-friendly asphalt modifier



* Low-grade materials that are difficult to recycle horizontally from bottle to bottle

Initiatives for recycling packaging

Region: Japan

Corresponding strategies: (1) (2) (5)

RecyCreation activities aimed at creating a new resource cycle

Kao proposes the concept of RecyCreation—the creation of new value by adding technology and the wisdom and ideas of various people to used products—and is working towards building a resource-circulating society. In this activity, we collaborate with local governments and NPOs such as Kitami City, Onagawa Town, Ishinomaki City, Kamakura City, Kamikatsu Town, Odawara City, Wakayama City, and Sakata City to collect used packaging. In addition, we are carrying out in-store collection in collaboration with companies such as Lion Corporation, Ito-Yokado Co., Ltd., WELCIA YAKKYOKU CO., LTD., and HAMAKYOREX CO., LTD., and promoting collection from employees within Kao Corporation. Furthermore, we have also been participating in the Kobe Plastic Next: Joining Forces to Recycle Refill Packs*1 project since 2021. The total amount of refill packs collected through these initiatives in 2025 (January to December) reached Approx. 12 tons.

*1 Kobe Plastic Next: Joining Forces to Recycle Refill Packs: A project in which Kobe City, retailers, daily goods manufacturers, and recyclers work together to promote resource recycling.

The “RecyCreation” Initiative
https://www.kao.com/global/en/sustainability/nature/environment/waste-disposal/recycreation/

Promotion of a resource-circulation model demonstration project

Kao has been participating in the Kobe Plastic Next: Joining Forces to Recycle Refill Packs project since October 2021. This project collects used refill packs for detergents, shampoos, etc., from citizens using collection boxes installed at 74 retail stores and Econoba (recycling stations) in Kobe City. The packs are collected by coordinating with return delivery services of retail stores and existing waste collection companies, thereby increasing transportation efficiency while decreasing environmental impact.

The collected refill packs are recycled by recyclers and manufacturers into useful products for everyday life, and we are also aiming for horizontal recycling to reuse the film packaging. We will continue to work with a diverse range of stakeholders and expand our activities from Kobe to the whole country.

Challenge of recycling marine plastic waste

It is said that about 65% (by number of pieces of waste) of the waste that washes up on Japanese shores is plastic. Kao is not only working to reduce the amount of plastic it uses, but is also actively working to make effective use of marine plastic waste. In collaboration with Wakayama City, Kao has been collecting marine plastic waste on Tomogashima Island, where the problem of large amounts of washed-up trash has become a serious issue, and has been developing products that reuse it using its own technology. One such product is an asphalt modifier made from waste plastic (PET). In December 2023, paving work using this product was carried out at the bus terminal in front of Wakayama City Station.

Development of film packaging recycling technology

Refill packs use significantly less plastic than the main containers, but because they are made up of multiple layers of composite materials, they become heterogeneous plastic made up of many different components when recycled. This makes it generally difficult to recycle these packs back into film packaging. Kao introduced a pilot plant for recycling film packaging at Wakayama Research Laboratories in June 2021, and is currently developing and verifying recycling technologies for film packaging. Furthermore, we focus on effective sorting and collection processes for consumers and recyclable packaging design, in order to improve the recycling rate and achieve horizontal recycling. As a result, we have commercialized refill packs that use some horizontally recycled materials in collaboration with Lion Corporation, and have released

them in limited quantities at some stores*2. We continue to sell them at select stores, while advancing our initiative to implement and expand horizontal recycling of film packaging.

*2 Kao and Lion products at certain Ito-Yokado stores and Welcia Yakkyoku stores; Kao products only at certain AEON stores.

Kao Group's initiative to utilize recycled plastic

Region: Global

Corresponding strategies: (1) (2)

Kao Taiwan utilizes recycled plastic in packaging for over 100 products across its major brands. Since 2016, the cumulative total of recycled plastic used in Taiwan has exceeded 1,400 tons. One example is *Attack*, whose main bottle is made of 100% recycled high-density polyethylene (HDPE) from PCR (Post-Consumer Recycled) material.

・花王（台灣）力行源頭減塑 達成再生塑料使用25%目標！
https://www.kao.com/tw/news/2025/20250813-001/

・一匙靈制菌/亮彩/淨柔
https://web.kao.com/tw/attack/basic/

In Europe and the United States, we are promoting the use of recycled plastic to drive resource circulation and reduce environmental impact. For example, *Bioré UV Aqua Rich* has newly adopted recycled plastic for its cap, and the *Jergens* baby care series has also started using recycled plastic in its packaging. We will continue expanding its adoption across countries and regions, while meeting local regulatory and market needs.

Initiatives adopted at our business sites

Region: Global

Corresponding strategies: (3)

Reducing the amount of waste produced

Kao handles many liquid products and sludge is generated as a result of treating concentrated wastewater generated during tank cleaning when switching products. Kao is working on various initiatives at its sites within and outside Japan to reduce the sludge.

Kao Industrial (Thailand) has introduced a system in which wastewater is treated in individual treatment facilities according to the concentration of COD in the wastewater, and this has greatly reduced the amount of sludge generated at the wastewater treatment plant. In addition, Fatty Chemical (Malaysia) has introduced sludge dewatering equipment, which has enabled it to reduce the amount of waste it generates. We are also working to reduce the amount of waste generated by retailers. With the understanding and cooperation of retailers, we are working to reduce the amount of boxes used to deliver products and reduce waste throughout the supply chain.

In FY2025, the amount of hazardous waste generated was 28 thousand tons. In addition, there were no international shipments of hazardous waste subject to control under the Basel Convention.

Enhancing waste recycling

Kao is promoting an initiative to recycle the waste generated in the manufacturing process of diapers and sanitary products into plastic pallets. This initiative has been implemented since 2016 at Kao plants and was made possible by the cooperation of related divisions, including research laboratories, and by leveraging the strengths of Kao's matrix management organization.

Reduction of waste plastic products

Kao is committed to reducing the amount of waste plastic discharged. In 2025, the only Kao Group company in Japan that generated 250 tons or more of waste plastic (including in-house treatment, excluding valuable resources) was Kao Corporation, and the total

amount of waste discharged was 4,660 tons, achieving the target of keeping emissions below the 2024 level (5,208 tons). The total amount of waste discharged by the Kao Group in Japan was 5,223 tons, less than the previous year's amount (5,706 tons).

Collaboration with stakeholders based on "eco together"

Region: Global
Corresponding strategies: (1) (2) (5)

"eco together" with consumers/customers

Kao is conducting awareness-raising activities to promote refillable and replaceable products that can significantly reduce plastic use through the Kao Eco-Lab Museum, which shares information on the global environment and Kao's eco-technologies, and an exhibition of environmentally friendly products and services, so that more consumers can adopt environmentally friendly consumption behavior.

"eco together" with business partners

We recognize that collaborating with material manufacturers, recycled resin manufacturers, and packaging manufacturers is essential for the development and market launch of packaging, and we are promoting extensive joint development.

"eco together" with society

Kao is participating in the Japan Clean Ocean Material Alliance, which aims to solve the problem of marine plastic waste on a global scale. A special advisor to Kao Corporation serves as chairperson, leading the activities of Japanese companies to solve the problem of marine plastic waste.

Participation in the Japan Partnership for Circular Economy (J4CE)

Kao is participating in the Japan Partnership for Circular Economy, which was established by the Ministry of the Environment, the Ministry of Economy, Trade and Industry, and the Japan Business Federation, with the aim of strengthening public-private partnerships to promote further understanding and action on circular economy among a wide range of stakeholders, including domestic companies, as the global trend towards creating a circular economy accelerates. The 2024 collection of case studies featured our initiative to collect and horizontally recycle refill packs, and highlighted that we had been certified as a manufacturer and retailer that voluntarily collects plastic packaging from consumers in March 2024. Kao introduced these initiatives through presentations and exhibits at the ceremony held in February 2025. In addition, at the deep-dive workshop in July 2025, Kao took the stage as one of the consumer goods companies and promoted collaboration among industry players.

Collection of refill packs and film-to-film recycling
https://j4ce.env.go.jp/en/casestudy/226

Participation in Circular Partners (CPs)

Kao is participating in Circular Partners, a partnership established by the Ministry of Economy, Trade and Industry that brings together industry, government, and academia to work ambitiously at the forefront to achieve a circular economy, and to consider policies. In addition to participating in discussions on policies by experts and examining visions and roadmaps, we are also sharing knowledge on asphalt modifiers made from waste plastic as part of efforts to strengthen collaboration.

Packaging collection initiatives

Together with external organizations, Kao is involved in recovering packaging and other waste that have been discharged into the natural environment. In October 2020, Kao concluded a cooperation agreement with Wakayama City, and conducted surveys and collected marine plastic waste at Tomogashima, Kataonami, and Hamanomiya beaches. The plastic collected is being researched with the aim of reusing it as desks, chairs, etc., used at seaside facilities and high-strength materials for roads. Kao is also independently carrying out its own collection activities for marine, river, and urban litter.

Introducing cases at seminars on waste

In Japan, many incidents have been reported at waste treatment companies, which are caused by not providing sufficient information on the chemical substances to the contractor when contracting waste treatment. Therefore, we present cases at various seminars regarding waste with the aim of spreading our knowledge about past successful cases of improving communication with waste treatment companies, and work to raise awareness throughout society while identifying areas for improvement at Kao itself. Thanks to these activities, we continue to have no incidents involving waste contracted for disposal in 2025.

Speaking at a panel discussion at EXPO 2025 Osaka, Kansai, Japan

In September 2025, Kao participated in a joint panel discussion with Mercari and Unicharm at a venue at EXPO 2025 Osaka, Kansai, Japan, where we discussed how changes in purchasing behavior influence the future of circular consumption. The session was open to the general public and covered topics related to eco-conscious products and reused products, including obstacles to building a circular economy and initiatives co-created with consumers. Kao introduced its resource circulation initiatives, including the horizontal recycling of refill packs.

Receiving the Special Award at the European Responsible Care® Awards 2025

Kao received a commendation at the European Responsible Care® Awards 2025, organized by the European Chemical Industry Council (Cefic). The award recognizes initiatives that promote Responsible Care (safety, environmental protection, and responsible chemical management) in the chemical industry, and Kao was selected for its ongoing efforts to reduce plastic use and its pioneering innovations that contribute to a resource-circulating society.

Kao Selected for a Commendation in Cefic's European Responsible Care® Awards 2025
https://www.kao.com/global/en/newsroom/news/release/2025/20251210-001/

Kao certified under the Guideline for Design of Plastic-Containing Products

In February 2026, 11 items from three of our product lines—the laundry detergents *Attack ZERO* and *EMAL,* and *Bioré u Foaming Hand Wash*—were certified under the Guideline for Design of Plastic-Containing Products in line with the Act on Promotion of Resource Circulation for Plastics (Plastic Resource Circulation Act). This makes Kao one of the first companies certified under this program, which is operated by the Ministry of Economy, Trade and Industry together with other government organizations.

Kao Becomes One of the First Companies to Receive Certification Under the "Guideline for Design of Plastic-Containing Products" Design Certification System Based on the Plastic Resource Circulation Act for Three of Its Products Including *Attack ZERO*
https://www.kao.com/global/en/newsroom/news/release/2026/20260227-001/

Employees' opinions

Recycling used disposable diapers

Keisuke Nagashima
Principal Research Scientist,
Sanitary Research Laboratories
(Lab 3rd)

Since joining Kao, I have been involved in the development of hygiene product materials and feminine care products. I currently lead the development of a recycling system for used disposable diapers.

In Japan, used disposable diapers that have absorbed bodily waste have traditionally been incinerated. The increased volume of waste has become a significant social issue, placing a growing burden on local governments and waste-generating businesses. We reframe such waste as “reusable resources” and are addressing this challenge from the perspectives of both recycling technology and operational models.

We are currently working to establish a locally-based resource circulation model, which would allow people to recycle used disposable diapers and utilize the generated materials within their communities. Kao’s ability to engage in the entire lifecycle from materials and products to after-use treatment greatly supports these efforts.

Kao has a culture of embracing bold initiatives. This mindset motivates me, and it’s a value I will continue to uphold. Solving social issues is not something you can do on your own. By cooperating with like-minded colleagues, I would like to create frameworks that will improve people’s lives.

I will continue tackling challenges to ensure that Kao’s proposed recycling systems take root in communities and help create a society where everyone, from children to seniors, can live with peace of mind.

Stakeholder engagement

Taking on the challenge of zero waste and future expectations

Masanobu Ishikawa
Vice President / Dean of the Department of Social System Design / Specially Appointed Professor
Eikei University of Hiroshima

By 2040, Kao aims to achieve “zero waste,” meaning the amount of plastic packaging it produces equals the amount recycled, and by 2050, “negative waste,” where the amount recycled exceeds the amount produced. In FY2025, the company made steady progress toward these ambitious goals, with its achievements gaining broad recognition in society.
Highlights

1. Selected for a commendation in Cefic’s European Responsible Care® Awards 2025
2. Received the Cabinet Office Minister of State for Special Missions Award in the 2024 Commendation in the Good Practices of Consumer-Oriented Management Awards
3. Featured in “Initiatives for environmentally friendly designs based on the Act on Promotion of Resource Circulation for Plastics” (Ministry of the Environment)
4. Featured in “Comprehensive Knowledge Application Case Studies Vol. 3” (Cabinet Office)
5. Recycled non-food PET through cross-industry collaboration and chemical recycling
6. Enhanced RecyCreation and other initiatives to collect and horizontally recycle refill packs
7. Provided the *NEWTLAC 5000* series, a durable asphalt modifier produced by using waste PET

Kao has been highly praised domestically and internationally for its outstanding contributions, including: (1) significantly reducing plastic consumption by creating and normalizing the innovative concept of refillable packaging; (2) successfully reducing plastic consumption by reducing product bottle weight and collecting and horizontally recycling refillable packaging; and (3) developing and distributing additives made from waste PET that extend the lifespan of asphalt pavement by up to five times.

Being selected for a commendation in Cefic’s European Responsible Care® Awards 2025 is significant in that the refillable packaging system developed by Kao and standardized in Japan has earned recognition in Europe as well.

While the horizontal recycling of PET containers has been achieved for beverage bottles, cosmetics containers are more difficult to process with this system due to their limited quantity, greater variety, and hygiene concerns, among other factors. Kao has played a significant role in tackling this challenge by building a system for cross-industry chemical recycling of industrial films, cosmetics bottles, product samples for vending machines, etc.

Regarding the collection and horizontal recycling of refill packs, some stores are already supplying recycled products. In the KOBE PLASTIC NEXT project, participants have produced samples of horizontally recycled products, and several companies are exploring the potential of such products. The challenge lies in increasing collection volume while reducing associated costs.

The asphalt modifiers have been adopted for a total area of 500,000 m^2 in Japan, with the initiative expanding in Europe, the U.S., Thailand, and Taiwan. In addition to using recycled waste PET, the modifiers offer various other benefits, including reducing lifecycle costs by extending asphalt lifespan, reducing dust generated from asphalt by approximately 85%, and enhancing safety by improving the visibility of road markings. Given these benefits, we hope to see even wider adoption.

Kao’s response to the views expressed last year

In the last fiscal year, we received multifaceted suggestions on how to take Kao’s activities to the next level, including horizontal recycling of refill packs, defining the boundaries between co-creation and competition, and trying diverse collection models. In particular, we were greatly encouraged by the recognition of our process—from collaboratively collecting used refill packs to producing new ones—as an innovative achievement contributing to a circular economy. We also recognize that the suggestion to batch-process used packages and products from other industries to expand economies of scope and enhance recycling productivity is a crucial perspective for enhancing effectiveness. As a step in line with these views, we advanced a cross-industry initiative to chemically recycle used beverage bottles, industrial films used for non-food applications, cosmetics bottles, and product samples for vending machines, and to use the resulting raw materials for cosmetics bottles. We will continue our steady efforts to refine the collection and recycling processes and expand the scope for horizontal recycling.