

Kao's approach

We are working to reduce the waste generated at our plants and offices, increase recycling and reduce the amount of waste requiring final disposal. We are also striving to reduce the amount of product packaging, diapers and other waste thrown away after consumers use our products. To verify that the waste generated at our plants and offices is properly disposed of, we visit waste treatment service providers and conduct site audits.

Kao's creating value to address social issues

The increasing amount of generated waste is becoming a global issue. In addition, in areas where the infrastructure for waste treatment systems is not sufficiently developed, there are cases of waste causing damage to human health and environmental pollution due to being dumped or insufficiently treated at disposal facilities.

We not only produce waste at our plants and offices, we also offer products that become waste after consumers use them. We therefore have a responsibility to address social issues relating to waste.

We believe that reducing the waste come as a consequences is the highest priority. This is because doing so also facilitates conserving energy and resources that are used in product manufacturing, reducing CO₂ emissions from energy consumption, and biodiversity conservation from reducing use of biomass raw materials. We are working to develop technologies aimed at resolving this issue of reducing waste. For example, by reducing the weight of packaging and developing the technologies required for refill packs, we are contributing to reducing waste from households.

By making the waste produced at households possible to be recycled to a maximum extent, we are contributing to the creation of a society conserving natural resources and cyclic society. Recycling requires the cooperation of the wider society. Waste produced by households is collected, treated and recycled by public agencies and other external groups. In Japan and Taiwan, we recycle packaging by contracting outside vendors based on packaging recycling laws.

In recent years, various impacts caused by waste in the ocean attract more attentions. It is considered that improperly dumped waste flows out to the ocean and become ocean waste. To resolve this problem, we must as a society build waste collection and recycling systems and reduce packaging from product suppliers. We are contributing to resolving problems in cooperation with the wider society by working to reduce packaging, through efforts such as increasing the use of refill packs.

Contributions to the SDGs



Policies

Reducing waste from business activities

We are reducing the amount of waste generated at our plants and offices, and we are reusing and recycling waste and other materials inside and outside the company. We have set reduction targets for how much waste we generate and are working group-wide to achieve them.

In our plants, we are reducing loss of raw materials and product. For example, for liquid products, wastewater sludge is produced from cleaning the mixing and storage tanks at the production facility when the product produced is switched. For sheet-type products, a portion of the sheet material is left unused when the material is switched out. We study ways to reduce loss on an ongoing basis, according to the type of loss that occurs. We then implement improvements to reduce waste.

We ensure that generated waste is thoroughly separated so that it can be recycled, and, in cooperation with contracted waste treatment providers, we select the most appropriate recycling method. We monitor the amount of waste recycled and sent for final disposal along with the amount of waste generated to improve how waste is treated overall.

Reducing the volume of packaging

To reduce the amount of packaging used, we are reducing the amount of resin used in packaging and making packaging more compact, for example by

making contents more concentrated, and offering refill products. These activities are in accordance with the ISO 18600 series standards for packaging and the environment.



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Reducing the amount of product materials used

We offer products such as diapers and cleaning sheets that themselves become waste after consumer use. While ensuring product performance, we develop technologies to reduce the amount of materials used and contribute to reducing waste.

Preventing illegal dumping of waste

When contracting waste treatment service providers to dispose of waste generated at our plants and offices, there is a risk of illegal dumping. To reduce this risk, we regularly visit the service providers to verify that the contracted waste is being disposed appropriately.

The Kao Group in Japan has created a database containing information including the contracts with waste treatment service providers and the results obtained in surveys of appropriate waste treatment to verify prevention of illegal dumping. This system is also connected to the Electronic Manifest System for preventing illegal dumping, which together ensure prevention of illegal dumping.

Kao's approach

Our initiatives

Proper storage and treatment of PCB waste

Polychlorinated biphenyls (PCBs) were formerly used in insulating oil, such as in transformers and ballasts, but they have low degradability and therefore pose a risk to human health and to creating hazards in living environments. We appropriately store and treat PCB-containing waste according to the Waste Management and Public Cleansing Law and the Act on Special Measures concerning Promotion of Proper Treatment of PCB Wastes, until its disposal is contracted to a service provider.

Framework

Activities related to waste issues are managed under our Responsible Care (RC) promotion system. The SCM Division holds the Environment Working Group Meeting with environmental staff at all plants, manages progress relating to activities regarding waste at plants, and internally develops Best Practices.

Site inspections of waste treatment service providers are conducted systematically in cooperation with the SCM Division, Procurement Division, Logistics Division, Information Technology Division, Sales Division and related companies.

Data reliability is ensured by using a database that centrally manages environmental data, and work tasks are standardized and made more efficient to adequately conduct activities with targeted outcomes.

Mid- to long-term targets and performance

Mid- to long-term targets

In 2013, we set the 2020 reduction targets for waste and other unwanted materials generated at all Kao Group sites and have aimed to achieve a standard reduction of 0.5% each year. The target percentage of final disposal at all Kao Group sites in Japan has been increased in phases. We began with the target of 0.5% or lower in 2004, then 0.2% or lower in 2007 and 0.1% or lower since 2010.

Waste-related targets

Index	Scope	2017 targets	2018 targets	2020 targets
Generated waste and other unwanted materials* ¹	All Kao Group sites	31% reduction	32% reduction	33% reduction
Final disposal ratio* ²	All Kao Group sites in Japan	0.1% or lower	0.1% or lower	0.1% or lower

*1 Per unit of sales (2005 baseline).

*2 Ratio destined for final landfill disposal to the amount of generated waste.

Performance in 2017

1. Amount of generated waste and other unwanted materials

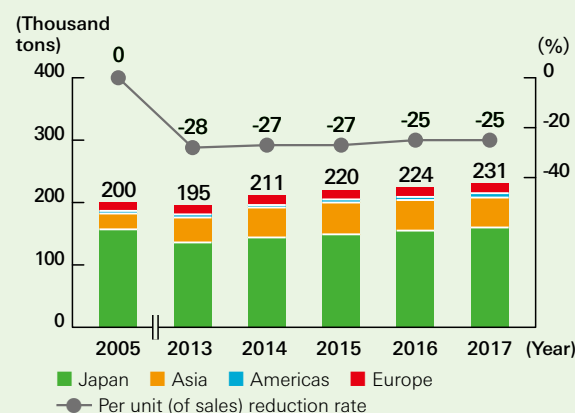
Due to increased production volumes and added production lines in 2017, the amount of generated waste and other unwanted materials increased by 7 thousand tons compared to the previous year, with the same reduction rate of 25% as the previous year (per unit of sales), which underreached our target of a 31% reduction. We will continue to strengthen our activities to reduce generated waste and other unwanted materials.

Of the generated waste, 19 thousand tons was hazardous waste. No hazardous waste was transported internationally under the Basel Convention. Waste reused or recycled* came to 214 thousand tons ☒, a recycling rate of 92%.

We maintained our target of a 0.1% or lower final disposal ratio for waste. We have achieved our target of zero emissions for the 13th consecutive year since the target was set (final disposal ratio to generated waste for all Kao Group worksites in Japan).

*Includes thermal recycling (heat recovery)

Amount of generated waste and other unwanted materials ☒ (all sites)



*Boundary: Through 2014, all Kao Group production sites, as well as non-production sites in Japan. From 2015 onwards, also includes some non-production sites outside Japan.

*Assurance provided for amount of generated waste and other unwanted materials.

*Per unit of sales is calculated based on Japanese standards up to fiscal 2015, and on International Financial Reporting Standards (IFRS) from fiscal 2016.

In 2017, while we saw an improving trend in the amount of generated waste, reducing the gap with our 2020 target is a challenge and we will continue conducting activities to reduce waste.

2. Inspection of waste treatment facilities

In 2017, we conducted inspections of 212 waste treatment sites with the cooperation of 170 waste treatment companies (Japan). As a result, no waste treatment companies were found to be in non-compliance with our evaluation standards.

3. Proper storage and treatment of PCBs

In 2017, we treated 42 waste items containing high levels of PCBs and one waste item containing low levels of PCBs. We are currently storing PCBs at Wakayama, Kawasaki, Odawara and KCMK Kumamoto (Japan).

Waste

Collaboration with stakeholders

Introducing cases at seminars and lectures on waste

In Japan, there have been reported that many incidents occur at waste treatment companies, which are caused by not providing sufficient information on the chemical substances to the contractor when contracting the waste treatment.

Therefore, we present cases at various seminars regarding waste with the aims of spreading our knowledge about past successful cases of improving communication with waste treatment companies, and identifying points of improvement in how we communicate information.

We cooperate with local governments' waste services. In 2017, our company activities were introduced as a model case at a seminar for worksite waste managers held in Sumida Ward, Tokyo. We are contributing to improving regional waste treatment activities through activities with local governments.

Thanks to these activities, there were again no incidents involving waste contracted for disposal from Kao in 2017.

Stakeholder Cooperation in the Hair Salon Business

In the Hair Salon Business, we have developed dispenser-type hair color products, which reduce chemical waste materials by approximately 25% compared with tube-type hair color products.

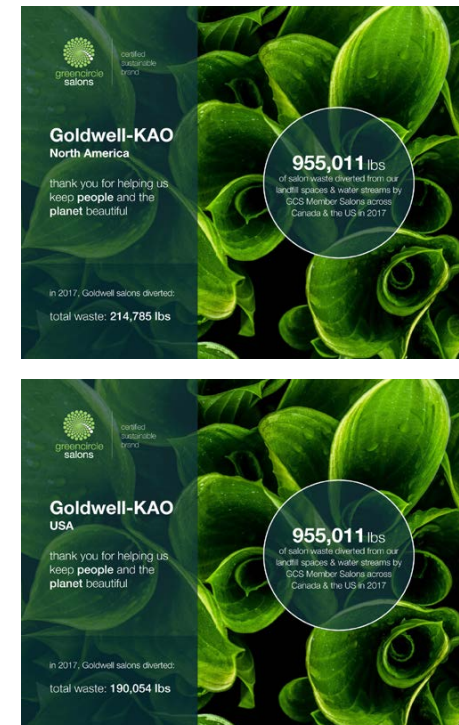
In addition, we have been partnering with Green Circle Salons, Inc.* since 2012 in Canada and since 2016 in the United States to take back and recycle containers, paper, and chemical waste materials including coloring agents.

These recycling activities have succeeded in reducing waste generated after using Kao's products from affiliated salons in the North American region by 184 tons in 2017 compared with the previous year.

*Green Circle Salons, Inc.
<https://www.greencirclesalons.ca/>

Kao's approach

Our initiatives



Certified waste reduction by Green Circle Salons, Inc.

Conservation

Community

Corporate Culture

Governance

Our initiatives

Promoting efforts to reduce waste (reducing the amount generated and promoting reuse and recycling)

Efforts in raw materials procurement

We use recycled materials in some products to contribute to reducing waste. We use recycled polyethylene terephthalate (PET) resin in *Quickle Wiper* floor cleaning sheets, recycled polypropylene (PP) resin in the measuring spoon for *Attack* powder-type laundry detergent, and recycled PET resin in shampoo and other containers sold in Taiwan.

To reduce waste generated at Kao plants, we are adjusting the volume and frequency of raw materials deliveries from external suppliers.

Efforts in development, manufacturing and sales

Enhancing recycling

In 2017, Kao USA established and begun operations a new sorting facility for recycling. There is an area set aside for storing separated waste, and a berth (space) for loading dedicated trucks. This enables a higher level of recycling activities.

In addition, Kao USA created the Kao Zero Team, which encourages waste reduction company-wide. The team's activities help increase awareness among employees and include sorting waste at offices and eliminating use of paper cups.

Reducing wastewater sludge

We handle a large number of liquid products, and reducing the sludge produced from treating concentrated wastewater generated in the process of cleaning tanks is a major issue.

Kao Industrial (Thailand) treats wastewater using separate wastewater treatment facilities according to the COD concentration of the wastewater, which has successfully reduced the amount of sludge produced and contributes to reducing waste.

Recycling sanitary product materials

We have sanitary product plants in various countries. Materials that cannot ultimately be turned into products are generated in production, and we are recycling these leftover materials at plants.

One example of this is recycling the ends of diaper and feminine product materials to be turned into plastic pallets. We began test operation of this system at Kao plants in 2016, with cooperation from research laboratories and related divisions using the strengths of our matrix management. We are verifying the strength and other properties of the pallets aiming for future practical use.

Reducing the amount of boxes used

To contribute to reducing the volume of generated waste at retailers, we are working with the understanding and cooperation of retailers to reduce the amount of boxes used in the delivery of products.

Efforts in use

Efforts in the Consumer Products Business

We continue to reduce the raw materials used in packaging that becomes waste after product use by customers.



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We actively support awareness-raising activities by introducing successful cases at Kao of implementing the 3R's in packaging to packaging manufacturers and other companies in the same business fields through the Japan Soap and Detergent Association, the Plastic Packaging Recycling Council and the Paper Packaging Recycling Council.

Efforts in the Chemical Business

Combining molded pulp-shaping technology and high-temperature materials technology, our paper-based runner channel for casting uses recycled paper as its raw material. This reduces the volume of raw materials used to one-tenth and post-use waste to one-sixteenth of comparable products.

In recognition of contributions to chemicals that are gentle to people and the environment and support the development of a sustainable society, we received the Minister of Economy, Trade and Industry Award in the 16th Green Sustainable Chemistry (GSC) Awards.



→ News release

Kao's "Lightweight, Fire-resistant Paper Runner Channel for Use in Casting Manufacture" has received the Minister of Economy, Trade and Industry Award in the 16th Green Sustainable Chemistry (GSC) Awards

<http://www.kao.com/jp/corporate/news/2017/20170628-001/> (Japanese)

Kao's approach

Our initiatives



Kao Industrial (Thailand) receives commendation for its waste treatment activities

Kao Industrial (Thailand) was certified as Platinum, the highest level in the Best Waste Management Award, by the Industrial Estate Authority of Thailand. This award is based on the auditing results of the Industrial Estate Authority of Thailand in recognition of excellent treatment methods and activities that results in waste reduction and resource reuse and recycling.



Kao Industrial (Thailand) receiving an audit



Awards ceremony