#### Environment

# Protect Beauty - Protect our living, Beauty of the earth

Shiseido looks to conserve the natural, sustainable beauty of the earth and its environment, together with the beauty of the people who live here.

### Our Environmental Approach

Shiseido's mission from its inception was to create social value. The company's name "Shiseido" comes from a phrase in a Chinese classic, I Ching, which says, "Praise the virtues of the Earth, which nurtures new life and brings forth significant values." This demonstrates our respect for the planet, the global environment, and society as a whole. Shiseido aims to contribute to a sustainable society across all value chains in all businesses.

- Environmental policy
- Environmental management

### **Primary Strategic Actions**

### Reducing Environmental Burden

From the perspective of craftsmanship, including the procurement of raw materials, we are promoting activities to reduce our environmental burden. In this way, we are working to fulfill our responsibilities as a global corporate citizen and contribute to society. We are stepping up efforts to reduce CO<sub>2</sub> emissions, a primary cause of climate change. We are also making progress on a global scale with regard to ethical procurement (palm oil, paper), which puts a halt to deforestation. At the same time, we are proceeding with water usage reduction and working to reduce and recycle waste in order to lessen the burden placed on the environment.

- CO2
- Deforestation(Palm oil, Paper)
- Water
- Waste
- Conservation of biodiversity

# Protecting Skin from UV Rays and Photoaging<sup>\*1</sup>

Due to the influence of the global environment, esp. through climate change<sup>\*2</sup>, total UV exposure of consumers are likely to increase in the next 100 years in certain areas<sup>\*3</sup>. Based on the results of our dermatological science research and development activities, which span over 100 years, we are moving forward with new research from the perspective of the relationship between environment and skin (including UV rays). Through this research, we are developing and providing innovative products and services (UV care, skin brightening, anti-aging care) that protect beautiful skin.

<sup>\*1</sup> Signs of aging caused by UV rays

<sup>\*2</sup> The fact that climate change influences on atmospheric circulation (Hadley circulation) and the total amount of UV ray exposure increase in the middle latitudes was indicated by the research result of JAMSTEC (Japan Agency for marine-earth science and technology)

<sup>\*3</sup> Most affected are the densely populated regions in the earth's middle latitudes where economic activity is booming.

- Products to protect and care for the skin from UV rays
- Support to patients suffering from Xeroderma Pigmentosum (XP), a UV-sensitive intractable disease
- Education for children about UV protection

# Developing Sustainable Packaging

Since the launch of our first refill products in 1926, we have developed various kinds of environmentally friendly packaging (e.g. biomass containers, recyclable PET bottles, low-temperature combustible materials), based on the philosophy that the earth creates all value. We are the first Japanese company to join SPICE<sup>\*</sup>. We have also been actively developing biodegradable packaging in addition to promoting the 3Rs (reduce, reuse, recycle) in order to utilize limited resources and resolve the issue of ocean pollution.

- \* SPICE (Sustainable Packaging Initiative for CosmEtics) : A collaborative initiative by global cosmetic companies to create a future with sustainable packaging
- Targets
- Product packaging
- Participation in SPICE and formation of rules regarding environmental impact assessment of product packaging

# Collaboration with Stakeholders and Evaluation from External Parties

- Agreements with external organizations
- Environmental education for local residents
- Awards won

# 2018 Performance

CO2

CO<sub>2</sub> emissions throughout the value chain (product life cycle) (Scope 1, Scope 2 and Scope 3) CO<sub>2</sub> emissions from cosmetics and personal care products (environmental footprint)

- Procurement of sustainable palm oil
- Water
- Waste
- Environmental Accounting
- Environmental Data

# **Our Environmental Approach**

Shiseido's mission from its inception was to create social value. The company's name "Shiseido" comes from a phrase in a Chinese classic, I Ching, which says, "Praise the virtues of the Earth, which nurtures new life and brings forth significant values." This demonstrates our respect for the planet, the global environment, and society as a whole. Shiseido aims to contribute to a sustainable society across all value chains in all businesses.

# **Environmental Policy**

The Shiseido Group contributes to the realization of a sustainable society, in line with the principle "With Society and the Earth" advocated in the Shiseido Group Standards of Business Conduct and Ethics. We are promoting eco-friendly product development and sales promotion material development in accordance with our voluntary environmental standards, the Production Eco Standards, and the Sales Promotion Tools Eco Standards.

### • Shiseido Group Standards of Business Conduct and Ethics "With Society and the Earth" (Excerpt)

We promote environmental initiatives in line with our own stringent standards, and consider biodiversity as we aim for a sustainable society in which humanity and the Earth coexist beautifully.

- 1. We strive to mitigate climate change through efforts such as reducing emissions of CO2 and other greenhouse gases (GHG). We also manage chemical substances properly to prevent air, water and soil pollution.
- 2. We strive to minimize waste in our business processes and in use by consumers, with emphasis on the 3Rs: reduce, reuse and recycle.
- 3. We work to develop new products and services that bring out the beauty of consumers and are also eco-friendly.
- 4. We proactively develop new technologies to balance environmental initiatives with our business activities.

For details, please refer to The Shiseido Group Standards of Business Conduct and Ethics.

# • Voluntary environmental standards: The Production Eco Standards and The Sales Promotion Tools Eco Standards

Item	Descriptions		
Design (Outer Packaging)	Select outer packaging and materials that have low environmental impacts. Reduce weight and volume		
Design (contents)	Formulation that does not harm environment. Formulation that takes packaging into consideration		
Purchasing	Purchasing of raw materials and ingredients		
Production	Reduce environmental impacts in the process of production		
Logistics	Reduce environmental impacts during the course of distribution and transport		
Use	Conserve energy and resources during consumer use. Reduction of emissions that have less environmental impacts at the use stage. Promotion of long-term use		
Disposal	Make recycling easier. Make disposal easier		

### The Production Eco Standards (formulated in 2010)

### The Sales Promotion Tools Eco Standards (formulated in 2010)

Item	Descriptions
Planning and design	Design that is easy to utilize in the store. Design that can support multiple sales floor sizes. Versatile, multi-deployable design. Select materials that have low environmental impact. Selection of materials for promotional materials. Selection of individual materials. Selection of materials for specific parts. Lightweight and simple design. Design based on standard size. Utilization of templates/models. Design suitable for delivery. Design for easy disposal. Design that is easy to separate. Display of material name
Proof and print	Resource-saving proofs (plate-making). Resource-saving printing plate. Printing method that does not generate waste liquid. Use of ink to save oil resources
Packing and delivery	Simplification of packing. Control of excessive packing

### **Environmental Management**

### System

In the Shiseido Group, we discuss and deliberate on a broad range of environmental issues in the Executive Committee, chaired by the CEO (Chief Executive Officer) and attended by management<sup>\*1</sup>, audit, and supervisory board members. Important matters are reported to the Board of Directors and approved and supervised by the Board of Directors. In order to promote environmental management throughout the Shiseido Group, the Sustainable Environment Department, the Social Value Creation Division of Shiseido Company, Limited, reports the progress of environmental data and potential future issues to our directors and corporate officers in charge of the environment and receives supervision on environmental management<sup>\*2</sup>.

- \*1 Chief Financial Officer, Chief Innovation Officer, Chief Strategy Officer, Chief People Officer, Chief Social Value Creation Officer, Chief Supply Network Officer, Chief Legal Officer
- \*2 Corporate Officers in charge supervise each relevant field.

### Social Value Creation management system (incl. Environment)



### Social Value Creation – Internal Collaboration



### • Promotional activities

The Shiseido Group's production facilities introduced the ISO 14001 environmental management system for the first time in 1997. All our production facilities worldwide have obtained ISO 14001 certification. We place an Environmental Management Representative in each production facility, set environmental policies and targets, promote environmental activities, confirm compliance with environmental regulations, properly manage chemical substances, educate employees on the environment, and conduct the PDCA cycle. By so doing, we improve the management system and reduce the environmental impact. The progress of these activities is validated through third-party audits.

Under this promotion system, the Shiseido Group had no major environmental incidents, violations of environmental laws or regulations, or lawsuits related to environmental issues in 2018. We will continue our endeavor to maintain appropriate environmental management.

### The Shiseido Group Environmental Management Status

Descriptions	Targets	2018 results
Maintain and expand environmental management system	Maintain ISO 14001 certification	Continued ISO 14001 certification (acquired ISO 14001 at all production facilities)

### Status of ISO14001 Certification

Production	Date of certification	
	Shiseido Kuki Factory	October 27, 1997
Shiseido Company, Limited	Shiseido Kakegawa Factory	October 5, 1998
	Shiseido Osaka Factory	March 24, 1999
Taiwan Shiseido Co., Ltd. Hsinchu Factory	August 31, 1999	
Shiseido America, Inc.	East Windsor Factory	March 31, 2000
Shiseido International France S.A.S.	Unité de Gien	August 8, 2000
Shiseido Liyuan Cosmetics Co., Ltd.	August 17, 2000	
Shiseido International France S.A.S.	Unité du Val de Loire	February 8, 2002
Shiseido Citic Cosmetics Co., Ltd.	November 9, 2004	
Shiseido Vietnam Inc.	_	December 15, 2011

### **Cooperating companies**

Production	Date of certification	
Shiseido Honeycake Industries Co., Ltd.*	_	September 29, 1999

\* Although Shiseido Honeycake Industries Co., Ltd. is not a consolidated subsidiary it obtained certification in 1999 in line with Shiseido policies.

### Primary Strategic Actions Reducing Environmental Burden

From the perspective of craftsmanship, including the procurement of raw materials, we are promoting activities to reduce our environmental burden. In this way, we are working to fulfill our responsibilities as a global corporate citizen and contribute to society. We are stepping up efforts to reduce CO<sub>2</sub> emissions, a primary cause of climate change. We are also making progress on a global scale with regard to ethical procurement (palm oil, paper), which puts a halt to deforestation. At the same time, we are proceeding with water usage reduction and working to reduce and recycle waste in order to lessen the burden placed on the environment.

# **CO**<sub>2</sub>

### CO<sub>2</sub> reduction initiatives

With regard to greenhouse gases (GHG), including CO<sub>2</sub>, which is one of the causes of climate change, we aim to reduce emissions at all production facilities and across all our businesses and strive to mitigate climate change.

### Support and active participation in TCFD

In April 2019, Shiseido has expressed its support and active participation in the Task Force on Climate-related Financial Disclosures (TCFD), which was established by the Financial Stability Board (FSB). From here on, we will actively promote disclosure of information concerning both business risks and opportunities caused by climate change from such perspec-

### **Production facilities**

In the Shiseido Group's production facilities, we are promoting the selection of appropriate equipment that takes into consideration energy saving performance as well as environmental measures based on the environmental management system ISO 14001.

Solar power generation: East Windsor Factory, Shiseido America, Inc. (New Jersey, USA) introduced the fixed-tilt solar power system in 2007 and the solar-tracking solar power system in 2010. With an annual power generation of approximately 2.3 million kWh, more than 70% of the factory's annual power consumption is covered by solar power. This initiative contributes to the reduction of 1,200 tons of CO<sub>2</sub> annually. In 2010, the factory won the 2010 New Jersey Governor's Environmental Excellence Award. By selling polystyrene foam, a packaging material used to deliver materials, to a recycling company from 2012, the factory reduces waste by 7.5 tons and CO<sub>2</sub> emissions by 0.8 tons annually.

Renewable energy: Since 2018, Kakegawa Factory, Kuki Factory and Osaka Factory of Shiseido Company, Limited have adopted renewable energy<sup>\*</sup>. About 38% of the electricity used in these three plants is sourced from hydroelectric power, which contributes to a reduction in CO<sub>2</sub>.



Solar power generation equipment



"Aqua Premium" by TEPCO Energy Partner, Incorporated

\* Adopted "Aqua Premium" by TEPCO Energy Partner, Incorporated

### Logistics

Improving delivery efficiency with 10-sided cardboard boxes: Since 2008, the Kuki Factory of Shiseido Company, Limited has adopted 10-sided cardboard boxes for the logistics of our products\*. Arranging 10 sides for the cardboard boxes maintains the durability and thins the cardboard paper, which enables the packing of shampoo refills (and refill products) produced in the factory to be done without gaps. By reducing the amount of cardboard materials and improving delivery efficiency, we have saved resources and reduced CO<sub>2</sub> emissions by 800 tons.



10-sided cardboard boxes

\* Adopted for TSUBAKI, SUPER MiLD, AQUAIR, and SEA BREEZE brands produced at the factory.

### Product development

We provide eco-friendly products and services to reduce CO<sub>2</sub> emissions. We are also working on product environmental impact assessments and information disclosure (Product Life Cycle Assessment: LCA).

# Deforestation(Palm oil, Paper)

The raw materials of the Shiseido Group's products are mostly plant-derived. To promote environmental protection while developing together with society, we dedicate ourselves to sustainable procurement across all our business activities, including the procurement of raw materials. We are strengthening our response to sustainable protection of the environment, in particular, with regard to palm oil, a raw material used in surfactants, and paper, used for the packaging of goods, because both can be a direct cause of deforestation.

### • Procurement of sustainable palm oil

Palm oil, a raw material for cosmetics, is mainly produced from oil palms in Southeast Asia. Environmental protection in palm oil production areas and consideration of human rights of people working on plantations are essential to build an ethical supply chain. Shiseido joined RSPO (Roundtable on Sustainable Palm Oil) and formulated PDFShiseido Group Sustainable Raw Materials Procurement Guidelines in order to procure palm oil and palm kernel oil that is environmentally and socially friendly. In addition, we are making progress toward obtaining RSPO supply chain certification<sup>\*1</sup> at the Shisei-do Group factories. Through these efforts, we are shifting toward sustainable palm oil procurement. Please check the details in 2018 Performance - Procurement of sustainable palm oil.

- \*1 RSPO: Roundtable on Sustainable Palm Oil
- \*2 RSPO Supply Chain Certification: Certification to ensure logistically reliable delivery of RSPO RSPO-certified raw materials.

### Procurement of sustainable paper

We are promoting the procurement of recycled paper, non-wood paper, and (third-party) certified paper, in consideration of the environment at the place of origin.

Target: Switch 100% of the paper used for Shiseido products to recycled paper, non-wood paper or (third-party) certified paper by 2023 (set in 2019)

For other sustainable raw material procurements, please check Responsible Procurement.

# Water

We aim for the sustainable use of water while respecting water circulation in water systems, as well as the water utilization by local communities. To that end, we will first identify the actual situation regarding the use of water resources through the various value chains in our business activities. Based on this, with the aim of the sustainable use of water, we strive to reduce the impact of our business activities on water circulation and water utilization.

### • Water-saving initiatives

Product development	We develop water-saving products that can reduce water consumption when used by our customers to contribute to the conservation of water resources. Reducing water use by developing a facial wash that rinses off well: Japan's skincare brand, Senka, developed a foamy cleanser that can be rinsed off quickly with less water and launched it in 2016. This facial wash helps reduce the amount of water necessary to rinse the foam off by about 35%*2 (1080 liters per year) compared to conventional facial wash*1. *1 Conventional facial wash: Cream type (in tube) *2 Confirmed by Shiseido
Production facilities	The long-term consequences of climate change imply an increase in drought risk in Europe. Therefore, Unité de Gien Factory and Val de Loire Factory, based in France, set water consump- tion per production volume of contents as their KPI. They are working to reduce water consump- tion from the viewpoint of long-term risk management. Please check the details in 2018 Performance.

# Waste

With the aim of realizing a recycling-oriented society, the Shiseido Group is working on the reduction of waste in the processes of all business activities, keeping 3Rs (Reduce, Reuse, Recycle) and biodegradable packaging utilization in mind. We also strive to properly manage industrial waste.

### Waste recycling

We are working on the recycling of waste generated by activities at our facilities. Our 2018 recycling rate was 89%.

### • Proper disposal of industrial waste

We hold workshops on industrial waste (lecture-style workshops, on-site confirmation workshops at intermediate processing companies) twice yearly to manager-level position holders, to those in charge of industrial waste handling across all domestic departments, and to each Shiseido Group company with the aim of understanding laws and legal compliance and sharing key points of compliance. As a result of these activities, we had no accidents or legal violations related to waste in 2018.



Industrial waste workshop

# **Biodiversity Conservation**

The business activities of the Shiseido Group have a considerable impact on biodiversity, from procurement of raw materials to sales and disposal. We recognize that we are performing actions in the course of our business which can have an impact on the bounty of the Earth and we have set out the following ideas on biodiversity to maintain our business in the future. These apply to the entire value chain.

### Biodiversity conservation activities

### Raw material procurement and products

Environmental protection is taken into consideration when procuring palm oil and paper used for cosmetics packages. Please check the details in Responsible Procurement.

Afforestation at raw material production sites for the hair care brand "TSUBAKI": Since 2011, Shiseido promotes camellia planting and conservation activities at the abandoned farmlands of the Goto Islands in Nagasaki Prefecture, the production site of raw material for the hair care brand "TSUBAKI." Due to the aging of the population in this area, abandoned farmlands are becoming a social issue. As Shiseido aims at sustainable and socially responsible raw material procurement, we achieve this through protecting and growing camellias in collaboration with the local residents. In 2018, 32 employees participated and planted Yabutsubaki seedlings for 75 trees (0.18 hectares) in Shin-kamigoto Town, Minamimatsura-gun, Nagasaki Prefecture. It is an activity that contributes to Goals 15 (Sustainable management of forests), a part of the Sustainable Development Goals (SDGs) established by the United Nations.

Protection of the environment at the raw material production site of the Chou-mei-sou brands: Since 2013, a portion of our profit from beauty drink, Chou-mei-sou brands, has been donated to environmental protection on Yonaguni Island, Okinawa which is the raw material production site. The island is rich in nature and is home to both endangered and endemic species of flora and fauna. In 2013, we created the Yonakama Picture Book, which introduces 137 kinds of flora and fauna inhabiting the island and distributed it to the island's children and all 800 households. In 2014, we removed about 100 tons of exotic water plant, hyacinth, that had overgrown the rivers on the island.



### Facilities

Honey bee protection in production facilities in France: Many crops rely on bees to be pollinated, but in Europe, there are concerns about the decline of bees. Therefore, at the Val de Loire Factory and Unité de Gien Factory at Shiseido International France S.A.S., we have included the conservation of bees and the ecosystem of the local community in our sustainability plan. Along with setting up beehives, we have banned the use of agrochemicals on the factory premises. About 400 kg of honey was produced in a year from the beehives installed.

Afforestation activities in Shiseido Thailand Co., Ltd.: Since 2008, we have planted mangrove trees in various parts of Thailand. In 2018, 52 employees participated and planted 500 trees in a mangrove forest in Samut Prakan Province.

Rooftop greening in the Head Office's Ginza Office: When rebuilding the Ginza Office (Chuo-ku, Tokyo) in 2013, we investigated the natural environment in the surrounding area and built a roof "Shisei Garden" that contributes to maintaining the diversity of ecosystems. Based on survey results, we selected trees in the garden and cultivated plants that become raw materials for cosmetics. The garden is a relay point for animals that are connected to nearby natural parks and is also used for the environmental education for employees.





### **Biodiversity assessment**

When rebuilding the Ginza Office (Chuo-ku, Tokyo) in 2013, we investigated the natural environment and animals in the surrounding area and utilized the results to design our roof garden. The investigation results showed that the Ginza district had a small animal population with a small number of types of animals. On the other hand, it was confirmed that in the neighboring large greens such as Hibiya Park and Hamarikyu, there was a large animal population and they are breeding and foraging. From these results, we found that if we had green space on the rooftop of the new headquarters building, that could be a stopping point for birds and insects, thus we could contribute to the biodiversity-friendly community development.

# Shiseido Group Sustainable Raw Materials Procurement Guidelines

For palm-derived raw materials, known for their increasing problems involving the environment and human rights at the countries of origin, Shiseido Group Sustainable Raw Materials Procurement Guidelines have been established for the promotion of sustainable procurement as specified in the Shiseido Group Global Procurement Policy.

### • Palm oil

For palm-derived raw materials for use in Shiseido products, we will promote the procurement with due consideration of environmental conservation at the place of origin, as well as the respect for human rights.

Target: By the year 2020, for all palm-derived raw materials for use in Shiseido products, we will accomplish procurement with due consideration of environmental conservation at the place of origin, as well as the respect for human rights, by procurement of RSPOcertified materials. In addition, the Shiseido Group factories will acquire RSPO's supply chain certification.

## Primary Strategic Actions Protecting Skin from UV Rays and Photoaging<sup>\*1</sup>

Due to the influence of the global environment, esp. through climate change\*2, total UV exposure of consumers are likely to increase in the next 100 years in certain areas\*3. Based on the results of our dermatological science research and development activities, which span over 100 years, we are moving forward with new research from the perspective of the relationship between environment and skin (including UV rays). Through this research, we are developing and providing innovative products and services (UV care, skin brightening, anti-aging care) that protect beautiful skin.

\*1 Signs of aging caused by UV rays

\*2 The fact that climate change influences on atmospheric circulation (Hadley circulation) and the total amount of UV ray exposure increase in the middle latitudes was indicated by the research result of JAMSTEC (Japan Agency for marine-earth science and technology).

\*3 Most affected are the densely populated regions in the earth's middle latitudes where economic activity is booming.

### • Products to protect and care for the skin from UV rays

Sunscreen brands ANESSA Sunscreen brands Shiseido SUNCARE

### Support to Patients suffering from Xeroderma Pigmentosum (XP), a UV-sensitive intractable disease

In order to support children suffering from Xeroderma Pigmentosum (XP), a UV-sensitive intractable disease that renders the sufferer unable to stand UV radiation, Shiseido Group (Japan) donates sunscreen products to the XP Patient Association. As part of social contribution activities by employees, we have been providing support since 2000, such as offering financial aid for patient exchange meetings using donations by employees (Shiseido Hanatsubaki Fund) and sending employee volunteers as lecturers to teach how to use sunscreen at those meetings.

Please check the details in Empower Beauty: Support for Patients with Xeroderma Pigmentosum (XP), a UV-Sensitive Intractable Disease.

### • Education for children about UV protection

In Japan, Shiseido Japan Co., Ltd. plays a central role in providing easy-to-understand beauty lifestyle information materials, such as for sun protection, to help children keep their skin healthy on their own. Please check the details in Social contribution activities: Activities for Children.

#### Primary Strategic Actions

# **Developing Sustainable Packaging**

Since the launch of our first refill products in 1926, we have developed various kinds of environmentally friendly packaging (e.g. biomass containers, recyclable PET bottles, low-temperature combustible materials), based on the philosophy that the earth creates all value. We are the first Japanese company to join SPICE<sup>\*1</sup>. We have also been actively developing biodegradable packaging<sup>\*2</sup> in addition to promoting the 3Rs (reduce, reuse, recycle) in order to utilize limited resources and resolve the issue of ocean pollution.

- \*1 SPICE (Sustainable Packaging Initiative for CosmEtics) : A collaborative initiative by global cosmetic companies to create a future with sustainable packaging
- \*2 At our company, cosmetics packaging that is reduced, reused, recycled and biodegradable is defined as "Sustainable Packages."

# Targets

### Adopt sustainable packaging

- 1. Promote the provision of refills and reduce CO<sub>2</sub> and waste.
- 2. By 2030, we will replace 100% of the resin we are currently using for containers and packaging to sustainable plastic. (Set in 2017)
- 3. We will switch 100% of the paper used for Shiseido products to recycled paper, non-wood paper or (third-party) certified paper by 2023 (Set in 2019)

# Product packaging

Our approach is based on the four viewpoints: Reduce, Reuse, Recycle, and Biodegradability.

### Reduce/Reuse

We sell refill products for approximately 700 items in Japan so that we can reuse containers in the cosmetics business. We are reducing the resources used for containers by providing refill products in various categories, such as shampoos, lotions, emulsions, and foundations. We also try to reuse resources by making containers lighter and easier to separate after use.

#### Resource reduction by refill products

HAKU: We have been offering refill products for skin brightening serum, HAKU melanofocus, since 2011. By using a refill container, we reduced the number of plastics used by 60% (approx. 19 tons within a year after launch) compared with the amount used for the original product container.



Original product container and refill

### • Providing easy-to-separate packages

Brand SHISEIDO: In order to make it easy to recycle used containers, we are working to provide packages that can be easily separated for products that combine different materials such as plastic and metal.



### • Weight reduction of eco-friendly product packages and containers

Clé de Peau Beauté: In 2014, we changed the material used for the container of the essence, Concentré Illuminateur, from glass to plastic. A three-dimensional pouch shaped like a diamond has a design that delivers both luxury feel and eco-friendliness. The weight of the container has been reduced by 90% (60% reduction in CO2 emissions per product).

The Collagen: For beauty drinks, The Collagen, and Pure White, we reduced the weight of the glass bottles by 10% through efforts we have been making since 2011.

Chou-mei-sou brands: In 2013, we changed the container for the beauty drinks, Chou-mei-sou brands, from aluminum cans to paper containers. We use a paper beverage container called Cartocan. A portion of the profit is donated to the Midori no Bokin (Green Fund) to contribute to forestation maintenance.



### • Utilization of biomass resources

Since 2009, we have been switching the material of the cartons for our skin care products (single-unit cases), such as lotion and emulsion from plastic to paper. With regard to paper materials, we actively promote adopting the paper such as recycled paper, bagasse paper<sup>\*1</sup>, and FSC-certified paper<sup>\*2</sup> based on the Shiseido Production Eco Standards.

Sugarcane-derived polyethylene<sup>\*3</sup> has been adopted as the material of packaging for the domestic hair care brand SUPER MiLD since 2011, and reduced CO<sub>2</sub> emissions by more than 70% throughout the life cycle.

<sup>\*1</sup> Bagasse paper: Non-wood paper made from fibers taken from sugar cane

<sup>\*2</sup> FSC-certified paper: What is certified as "Paper product produced from an appropriately managed forest" from the Forest Stewardship Council (FSC) in order to make supply chain related to forest resources.

<sup>\*3</sup> Sugarcane-derived polyethylene: The CO<sub>2</sub> generated when sugarcane-derived polyethylene is incinerated is equivalent to the CO<sub>2</sub> absorbed as the sugarcane grow. In addition, the energy consumption in the manufacturing process is less than that of petroleum-derived polyethylene due to the lower temperature in the process and the electricity consumed by the raw material production being generated from the incineration of sugarcane fiber (See Fig. 1). Sugarcane-derived polyethylene can reduce the CO<sub>2</sub> emissions by over 70% throughout the life cycle compared to petroleum-derived polyethylene (See Fig. 2).





### Fig. 2 CO<sub>2</sub> emission reduction effect



- \* On the premise that no additive/comonomer is included.
- \*\* Country of polyethylene production (Brazil) Japan (port of Yokohama).
- \*\*\* Ethanol plant Polyethylene plant

[Kikuchi, Hirao, et al. (Source: The 6th Meeting of the Institute of Life Cycle Assessment, Japan)]

### Material of the single-unit case for skin care products in Japan

The below shows the share (ratio by procured quantity) by material of a single-unit case procured in Japan.



### • Recycling

Mechanical recycling<sup>\*</sup> adoption of PET resin: We have been using the recycled PET resin that has been reproduced from post-consumer packaging waste since 2015 for the bottle material of SEA BREEZE Super Cool Body Shampoo.

\* Mechanical recycling: A technology for efficiently producing high-quality recycled PET resin from PET bottles for beverages. Compared to using petroleum-derived PET resin, CO2 emissions could be reduced by 39 tons in 2018.



### Mechanism of mechanical recycling

### • Biodegradable packaging

Shiseido initiated a joint development with KANEKA CORPORATION in April 2019, aiming to utilize Kaneka Biodegradable Polymer® PHBH®, a proprietary material with high biodegradability in seawater for cosmetics containers, tools, packaging materials, fixtures, etc. We aim to minimize the environmental impact by combining KANEKA's proprietary technology on material development with Shiseido's knowledge we accumulated for many years in container development for cosmetics.

# Participation in SPICE and formation of the rules regarding environmental impact assessment of product packaging

From2018, Shiseido become the first Japanese company to join SPICE (target\_blank), a Sustainable Packaging Initiative for CosmEtics. By collaborating with global cosmetics companies, we aim to develop a new scheme which will accelerate the use of sustainable packaging and increase awareness in the beauty industry by establishing the standardized methodology of packaging lifecycle assessment.

# **Collaboration with Stakeholders and Evaluation from External Parties**

### Agreements with external organizations

2017	In Japan, Shiseido updated the content of our declaration on environmental protection, the Promise of eco-first and certified as an "Eco-First Company" by the Minister of the Environment. (Re-certified in 2012 and 2017, respectively)
2009	In Japan, Shiseido became the first company in the cosmetics industry to receive the "Eco-First Compa- ny" certification from the Ministry of the Environment thanks to our declaration on environmental protection, the "Promise of eco-first."
2008	We agreed with the United Nations Global Compact's Climate Change Initiative on Caring for the Climate.

### • The Promise of Eco-first

- 1. We actively promote environmental measures in relation to our products, such as the use of the 3 Rs (Reduce, Reuse, Recycle) for containers and packaging.
- 2. We will actively work on the conservation of the bounty of the Earth, which is the source of value creation.
- 3. We will engage in environmental education and develop our staff to contribute to the conservation of the bounty of the Earth.
- 4. We will actively promote initiatives to prevent global warming.



### • Environmental study with local residents

### Environmental study with children

The Shiseido Kakegawa Factory (Kakegawa City, Shizuoka Prefecture) holds environmental learning sessions for local elementary school students every year. In 2019, 20 children from Kakegawa participated in the sessions. We introduced eco-friendly packages and waste reduction initiatives and learned about the problem of ocean plastics. Everyone checked small pieces of plastic collected from the beach by employees and made kaleidoscopes. The Shiseido Kakegawa Factory continues to provide environmental education in cooperation with the community.





### Environmental study in the roof garden at the Ginza Office

The Ginza Office (Chuo-ku, Tokyo) has a rooftop "Shisei Garden" created with biodiversity conservation in mind. We hold environmental learning sessions for local residents in the garden. In October 2016, we invited 29 children to take part in a workshop in which they observed the plants in the roof garden and squeezed oil from Camellia, a cosmetics ingredient.



### • Awards won

Month/Year	Award	Organizer	Reason for award
August 2017	Technical Packaging Award of The Japan Packaging Contest 2017	Japan Packaging Institute	sing mechanically recycled PET: SEA BREEZE Body Shampoo A Cool & Deodorant, SEA BREEZE Super Cool Body Shampoo S
August 2016	Accessible Design Packaging Award of the Japan Packaging Contest 2016	Japan Packaging Institute	Development of new refill replacement mechanism for Clé de Peau Beauté LA CRÉME n

# 2018 Performance

### • CO<sub>2</sub>

Transition of CO<sub>2</sub> emissions reduction target and CO<sub>2</sub> emissions amount<sup>\*1</sup> (Scope 1 and Scope 2)

		Results				Targets	
Scope*2		2014	2015	2016	2017	2018	2020
Shiseido Group	Production facilities	2% Reduction	13% Reduction	20% Reduction	5% Reduction	7% Reduction	20% reduction compared to fiscal year 2009 (absolute amount)
(Japan)	Non-Production facilities	11% Reduction	16% Reduction	19% Reduction	22% Reduction	23% Reduction	14% reduction compared to fiscal year 2009 (absolute amount)
Shiseido Group	Production facilities	38% Reduction	33% Reduction	37% Reduction	43% Reduction	57% Reduction	23% reduction (compared to BAU) *3
(Overseas)	Non-Production facilities	28% Reduction	23% Reduction	22% Reduction	13% Reduction	17% Reduction	11% reduction compared to fiscal year 2009 (absolute amount)

\*1 Gases subject to tabulation: Greenhouse gases (GHG) include seven gases: CO<sub>2</sub>, CH4, N<sub>2</sub>O, HFC, PFC, SF6, and NF3. Unless otherwise stated, these greenhouse gases are described as CO<sub>2</sub>. Since the calculation method was changed from location-based to market-based from the 2018 results, all of the performance data in this table was re-calculated based on the market-based method.

\*2 Scope: Production facilities of the Shiseido Group (Japan) are Kuki Factory, Kakegawa Factory, and Osaka Factory. Production facilities of the Shiseido Group (Overseas) are eight production facilities including Shiseido America, Inc., Val de Loire Factory (VDL) and Unité de Gien Factory (Gien) of Shiseido International France S.A.S., Shiseido Liyuan Cosmetics Co., Ltd. (SLC), Shiseido Citic Cosmetics Co., Ltd. (SZC), Taiwan Shiseido Hsinchu Factory, Shiseido Vietnam Inc. (SVI), Shanghai Huani Transparent Beauty Soap Co., Ltd. (Shanghai HN). Non-Production facilities of the Shiseido Group (Overseas) are the primary 12 facilities.

\*3 BAU (Business As Usual) ratio: A comparison of the actual CO<sub>2</sub> emissions and the CO<sub>2</sub> emissions that would be expected if any reduction measures were not implemented.

### 2018 Results: Scope 1, Scope 2 and Scope 3

Approximately 49,000 tons of CO<sub>2</sub>, was reduced thanks to the sale of refill products.

Each stage of the value chain	CO2 reduction amount (Unit: 1,000 ton)
Procurement of raw materials	5.4
Stage of product usage	40
Disposal stage	4.4
Total	49

Target period: From January 1 to December 31, 2018

Scope: 113 facilities including the Shiseido Group's Headquarters and sales facilities, R&D facilities, production facilities, and major subsidiaries

Please check the details in Environmental Data.

### CO<sub>2</sub> emissions amount across the value chain (product life cycle) (Scope 1, Scope 2 and Scope 3)

The Shiseido Group is pursuing CO<sub>2</sub> reduction by accounting the CO<sub>2</sub> emissions through the value chain based on the "GHG Protocol Scope 3 Standard." Looking at each stage of the Shiseido Group's value chain, we identified that the largest CO<sub>2</sub> emissions is in the use stage due to the heating water for rinsing off the products such as shampoo, facial wash, etc. We promote reducing CO<sub>2</sub> emissions in this stage.

### CO<sub>2</sub> emissions amount across the value chain (2018)



### **Third-Party Certification**

The data marked with 🗆 in the above figure has been third-party certified. For the CO2 emissions amount in the Shiseido Group Scope 3, a Third-Party Certification is undertaken for highly contributing categories 1, 4, 5, 11, and 12 by SGS Japan Inc.

Target period: From January 1 to December 31, 2018 Scope: 113 facilities including the Shiseido Group's Headquarters and sales facilities, R&D facilities, production facilities, and major subsidiaries

Calculation criteria: Shiseido Environmental Footprint Assessment Guidelines

- \*1 Including CO2 emissions due to the consumption of electricity and fuel at the Headquarters, Shiseido Global Innovation Center and affiliated companies (corresponding to Scope 1 and Scope 2), construction of capital goods (Category 2), CO2 emissions on a business trip (Category 6), commuting (Category 7).
- \*2 Including CO2 emissions due to the production of procured raw materials (Category 1), procurement logistics (Category 4).
- \*3 Including CO<sub>2</sub> emissions due to consumption of electricity and fuel at production facilities (Scope 1 and Scope 2), production of fuel consumed at facilities (category 3).
- \*4 Including CO<sub>2</sub> emissions due to shipping logistics (Category 4).
- \*5 Including CO<sub>2</sub> emissions due to the consumption of electricity and fuel at production facilities (relevant to Scope 1 and Scope 2) and advertising and promotions (Category 1), treatment of waste derived from returns (Category 5).
- \*6 Including CO2 emissions related to Wastewater due to the consumption of water and fuel in usage occasions of the products sold (Category 11).
- \*7 CO2 emissions due to treatment and decomposition of waste derived from products sold (Category 12).
- \*8 The following production facilities achieved zero emissions (with a recycling rate of 99.5% or higher). Domestic: Osaka Factory, Kakegawa Factory, Kuki Factory Overseas: Val de Loire Factory and Unité de Gien Factory of Shiseido International France S.A.S., Shiseido Citic Cosmetics Co., Ltd., Shiseido Vietnam Inc.
- \*9 Including CO<sub>2</sub> emissions due to treatment and decomposition of waste derived from businesses (Category 5) and transportation of waste sold as valuables (Category 4).

#### Independent Assurance Statement for Environmental Data



# ASSURANCE STATEMENT

# SGS Japan's Report on Sustainability Activities in the Shiseido Group's Sustainability website.

#### NATURE AND SCOPE OF THE ASSURANCE

SGS Japan Inc. was commissioned by Shiseido Company, Limited (hereinafter referred to as "the Organization") to conduct an independent assurance of its Sustainability web site (hereinafter referred to as "the Report"). The scope of the assurance, based on the SGS Sustainability Report Assurance methodology, includes the stakeholder management process, data on greenhouse gas(GHG) emissions (Scope 1, 2, and category 1,4,5,11 and 12 of Scope 3), energy consumption, amount of water intake and drainage, BOD/COD, waste (generation and discharge) and the management systems supporting the reporting process.

The information contained in the Report and its presentation are the responsibility of the governing body and the management of the Organization. SGS Japan Inc. has not been involved in the preparation of any of the material included in the Report.

Our responsibility is to express an opinion on the text, data and statements within the scope of assurance with the intention to inform all the Organization's stakeholders.

The SGS protocols are based upon internationally recognized guidance, including the Principles contained within the Global Reporting Initiative (GRI) Sustainability Reporting Guidelines for accuracy and reliability and the guidance on levels of assurance contained within the AA1000 series of standards and guidance for Assurance Providers.

This report has been assured at a moderate level of scrutiny using our protocols for:

- Evaluation of content veracity;
- AA1000 Assurance Standard (2008) Type 2 evaluation of the report content and supporting management systems against the AA1000 Accountability Principles (2008);
- Evaluation against the ISO14064-3(2006);

The assurance comprised a combination of pre-assurance research, interviews with the management, the division of responsible for CSR and the person in charge of producing the report at the head office, onsite visits to the Kuki Plant and Kakegawa Plant, verification and confirmation of vouchers, and review of related materials and records.

Financial data drawn directly from independently audited financial accounts has not been checked back to source as part of this assurance process.

#### STATEMENT OF INDEPENDENCE AND COMPETENCE

The SGS Group of companies is the world leader in inspection, testing and verification, operating in more than 140 countries and providing services including management systems and service certification; quality, environmental, social and ethical auditing and training; and environmental, social and sustainability report assurance. SGS Japan Inc. affirms our independence from the Organization, being free from bias and conflicts of interest with the Organization, its subsidiaries and stakeholders.

The assurance team was assembled based on the knowledge, experience and qualifications of the each of the team members for this assignment, and comprised auditors registered with lead auditors of ISO9001, ISO14001, ISO45001 and lead verifiers of greenhouse gas emissions.

#### ASSURANCE OPINION

Within the scope of the assurance activities employing the methodologies described above, nothing has come to our attention that caused us to believe that the information and data contained within the Report does not provide a fair and balanced description of the Organization's sustainability activities from 1<sup>st</sup> January, 2018 to 31<sup>st</sup> December, 2018.

The assurance team is of the opinion that the Report can be used by the Reporting Organization's Stakeholders. We believe that the Organization has chosen an appropriate level of assurance for this stage in their reporting.

#### AA1000 ACCOUNTABILITY PRINCIPLES (2008) CONCLUSIONS, FINDINGS AND RECOMMENDATIONS

#### Inclusivity

The Organization recognizes the importance of the multi-stakeholders (consumers, suppliers, business partners, employees, local communities and shareholders/investors), and perceives the needs and expectations through various stakeholder engagements. The Organization conducts business activities to achieve a sustainable society with the mission "BEAUTY INNOVATIONS FOR A BETTER WORLD". The Organization, assessing the relevance of the mission and business activities to issues from stakeholders and SDGs, practices sustainability management by reflecting the results in the business strategy.

The series of processes is available in the Report. SGS Japan Inc. confirmed the above processes through the assurance.

#### Materiality

The material issues identified by the Organization are determined with consideration of business activities including the value chain and the expectations from society, and the Organization addresses the issues in the entire Organization and the relevant divisions through the business activities. The relevant actions addressing the issues are defined as "the three key activity themes", and their detailed activities are available in the Report. SGS Japan Inc. confirmed the above processes through the assurance.

#### Responsiveness

The Organization addresses the identified issues in the relevant divisions through the business activities. The Organization communicates with the stakeholders by various measures including direct dialogue. The correspondence to stakeholders is also disclosed in the report along with its direction and specific cases in point demonstrating such measures.

SGS Japan Inc. confirmed the above processes through the assurance.

#### For and on behalf of SGS Japan Inc.

Senior Executive & Business Manager Certification and Business Enhancement

18 June, 2019 Signed:



AA1000 Licensed Assurance Provider

# Shiseido's Guidance for Product and Organizational Environmental Footprint Assessment (ver. 1.02)

29<sup>th</sup>, June, 2018

This guide provides principles, requirements and guidelines related to the environmental footprint (EF) of products and organizational activities, as defined by the life cycle assessment (LCA) outlined in ISO 14040<sup>1</sup>, 14044<sup>2</sup>) and "Corporate Value Chain (Scope 3) Standard<sup>3</sup>)" of GHG protocol.

The objective of this guide is to promote eco design and minimize environmental impact by providing appropriate methodology to evaluate our efforts on product development or economic activities from a life cycle perspective while preventing greenwash due to the overestimation of avoided effect. If necessary, when evaluating the tradeoff or synergistic effect, system boundaries and impact categories should be expanded. In interpreting and communicating the results of EF evaluation, uncertainties due to the limits of LCA shall be carefully considered, including data quality among secondary databases or differences in the available range of primary data collection between suppliers,.

### 1. Terms and Definitions

1-1 Greenhouse gas (GHG):

The gas in the atmosphere that can absorb and release infrared radiation emitted from the surface of the earth, atmosphere and clouds. In this guide, GHG includes  $CO_2$ , methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF<sub>6</sub>).

### 1-2 Product:

Consumer goods provided by Shiseido. Unless otherwise noted, product shall fall under the definition of cosmetics or quasi-drugs provided by *the Japanese Pharmaceuticals and Medical Devices Law*.

1-3 Raw material:

Ingredients or packaging material used in or for the product.

1-4 Packaging material:

Material in whole or in part constituting the bottle, cap, pump, accessory, etc. of a product

### 1-5 Auxiliary material:

What is consumed only at a specific stage and does not constitute part of the product or accessories. For example, lubricants used at the production stage,

transportation materials used at the distribution stages, etc.

1-6 Preparation stage for recycling:

A process to prepare for recycling after a thing has been divided into its separate parts.

1–7 Equipment to be used repeatedly:

Tools designed for repeated use, such as pallets and plastic containers.

1-8 Primary data:

The data that is collected directly, such as electricity consumption on a production site.

1-9 Secondary data:

The data that is compiled from static data such as national economic input / output database, agricultural statistics, industrial statistics, etc.

### 2. Scope

- 2-1 Component to be targeted by this guide
  - (1) Contents and ingredients
  - (2) Packaging materials
    - Containers (e.g. bottle, stopper, pump, pouch, etc.)
    - Secondary packaging (e.g. carton, blister case, etc.)
  - (3) Accessories (e.g. manual, brush, etc.)
- 2-2 Non-target component
  - (1) Promotional materials attached for a limited time
  - (2) Equipment to be used repeatedly
- 2-3 Functional unit

In principle, EF is evaluated based on sales units.

In cases in which the product has a corresponding refill, the weighted EF average between these products, calculated using the content weight and the sales quantity or the planned sales quantity, may be adopted as the product's EF value.

Product	Regular product	Refill product	Weighted average
			EF=(10*40*100 + 2*40*300)/ (40*100 + 40*300)
Weight of content	40 g	40 g	- 4
Sales quantity	100 p	300 p	
EF	10	2	4

### <Example>

### 2-4 Life cycle perspective

The EF of a product considers all stages of the product life cycle as follows:

- · Raw material procurement stage
- · Manufacturing stage
- · Distribution stage
- · Use & maintenance stage
- $\cdot$  End-of-life stage

The recycling and selling process are excluded from the system boundary.

### 2-5 Inventory analysis and database

Environmental inventory analysis shall be carried out based on primary data and some appropriate secondary data. The following databases are recommended for EF inventory analysis.

- IDEA<sup>4)</sup>
- Ecoinvent<sup>5)</sup>
- Japanese public database for the CFP program<sup>6)</sup>
- The basic unit database for the evaluation of organizational greenhouse gas emissions throughout the value chain<sup>7</sup>)
- WaterStat<sup>8)</sup>
- Water Footprint Inventory Database<sup>9)</sup>
- Electric power consumption rate, provided by power companies
- 2-6 Environmental impact categories and models on impact assessment

The table below shows default impact categories with respective indicators and impact assessment models.

Impact category	Indicators	LCIA model
Climate change	kg-CO <sub>2</sub> equivalent	Bern model –
		Global Warming Potentials
		(GWP) over a 100 year time
		horizon <sup>10)</sup>
Water resource	m <sup>3</sup> -H <sub>2</sub> O equivalent	(1) AWARE <sup>11)</sup>
consumption		(2) Water Unavailability
		Factor <sup>12)</sup>
Water pollution	ThOD ( $\approx$ COD)	
(Aquatic	Fresh water: kg-P equivalent	
eutrophication)	Marine: kg-N equivalent	

### 3. Methodological framework

- 3-1 Common application to all stages
- 3-1-1 Data collection
  - Primary data shall be collected on unit processes that have a large effect on the whole product life cycle.
  - Secondary data is permitted for unit processes with less influence.
  - The activities of indirect departments such as the headquarters and research departments are not included in the evaluation. If it is difficult to extract the activities of indirect departments from the whole, indirect departments may be included.
  - Capital goods such as facilities for producing products are not subject to evaluation.
  - Items that are used repeatedly are not subject to evaluation.
  - Regional differences should be taken into consideration based on primary data on each area.

### 3-1-2 Period of data collection

- The actual measurement data should be the average value of one year.
- The influence of seasonal fluctuations is eliminated by collecting annual data.
- When the annual average value is not adopted, the data validity and the reliability of the evaluation shall be verified and accounted for.

- In cases in which data has large annual variations such as the amount of agricultural harvesting, average values over several years should be used in accordance with the objective.
- 3-1-3 Allocation
  - If it is difficult to collect data for each product or unit process respectively, the data collected or the calculation result based on that data may be allocated according to the physical quantity such as weight ratio, volume ratio and number ratio.
  - In case another approach is taken for allocation, the validity of this approach shall be explained.
- 3-1-4 Transportation
  - All inter-site transport (one way transport) shall be accounted for.
  - Primary data should be collected as much as possible and should be calculated based on the following method:
    - ✓ Fuel consumption method
    - ✓ Fuel efficiency method
    - ✓ Ton-kilometer method
  - The details of each method can be found in Annex B.
- 3-1-5 Evaluation on waste treatment
  - For waste discharged at each stage, the EF associated with waste treatment and transportation from the source to the final disposal site shall be calculated at each stage.
  - The waste shall be treated according to the scenario detailed in Annex E, based on material type.
  - In case the evaluation is based on climate change, CO<sub>2</sub> emissions released from the carbon in material molecules shall be included. However, CO<sub>2</sub> generated from biomass-derived materials should not be considered (=carbon neutral).
  - For waste materials to be recycled, the EF related to transportation to the treatment site and the preparation process for recycling shall be calculated.
  - The reduction effect on EF due to recycling shall not be included in the End-of-life stage.
  - If waste is sold as a valuable material, it is excluded from evaluation.

### 3-1-6 Cut-off

- In principle, cut-off shall not be permitted for each process of the manufacturing stage and the use & maintenance stage.
- The EF of materials and processes which contribute less to the entire EF can be cut off\* with specification.
- The total cut off EF shall be less than 5% of the total EF.
- The calculated EF shall be rebated by the ratio to the entire EF.
- 3-2 Raw material procurement stage
- 3-2-1 Scope

The manufacturing stage covers processes included in the following items:

- Resource mining, cultivation, and breeding processes related to raw material production
- Procurement transportation to the manufacturing stage
- Treatment of waste and wastewater generated from the raw material procurement stage
- If there are processes other than the above, the process should be also included in the data collection scope.
- 3-2-2 Data collection

In the raw material procurement stage, data items to be collected are shown in the table below.

Itoms		Primary	Either will	Secondary
ne	1115	data	do	data
1.	Procurement volume such as weight,			
	quantity, and cost of raw materials for	*./	*./	
	each supplier input to product			
	manufacturing			
2.	EF related to the production of			
	ingredients		v	
3.	EF related to the production of			
	packaging materials		v	
4.	EF related to the production of			
	accessories (manuals, utensils, etc.)		<b>v</b>	

5.	EF related to fuel consumption in		
	procurement transportation to the	$\checkmark$	
	production site		
6.	EF related to consumption of		
	transportation materials in procurement	$\checkmark$	
	transportation to the production site		
7.	EF related to waste generation in		
	procurement transportation to the	$\checkmark$	
	production site		
8.	EF related to waste treatment in		
	procurement transportation to the	$\checkmark$	
	production site		
9.	Amount of agricultural products and		
	other biomass-derived materials put	$\checkmark$	
	into products		
10	Amount of fresh water resource to be		
	used for cultivation	v	
11	.Water consumption for cultivating		
	agricultural products and		
	biomass-derived materials used for	v	
	product from each water source		
12	. EF related to the fuel and energy supply		
	which is procured through a public		$\checkmark$
	service		
13	. EF related to the fuel and energy supply		
	which is generated on-site or is not		
	prepared in 2-6 databases (e.g. green	•	
	power, etc.)		

3-2-3 Method and conditions of primary data collection

- When procuring recycled materials or reused materials, EF associated with the process after the preparation stage of recycling or reuse shall be included.
- In cases where the same raw materials are procured by multiple suppliers, it is desirable to collect primary data for all suppliers. If it is impossible to collect data from all suppliers, primary data shall be collected for the top 50% of the total procurement amount.

- For procurement sources that cannot collect data, the weighted average value based on the procurement amount of the supplier which provided information may be used as secondary data.
- In cases where the suppliers are different for each production site, the primary data on the production site producing the target product shall be collected.
- The primary data measurement method for the raw material manufacturing process should be selected from the following four methods.
  - (A) Method of totalizing the input/output amount of items for each operation unit (unit operating time, one lot, etc.) of facilities required for executing the process

*e.g.* (Equipment operation time) \* (Power consumption rate of equipment) = (Power consumption)

- (B) Method of allocating actual values for a certain period of time at production sites among products
  - e.g. Total fuel input per year allocated among products
- (C) Combined use of (A) and (B)
- Procurement volume may be substituted for input quantity.
- On the evaluation of GHG emissions, if it is difficult to obtain primary data and to find appropriate secondary data, a value of 5.0 kg-CO2e/kg shall be applied in order to avoid underestimation due to missing data.
- The EF related to packaging material (EF<sub>pm</sub>) in the procurement stage should be calculated based on the weight preferentially with the following equation:

 $\mathsf{EF}_{\mathsf{pm}} = \Sigma \; (\mathsf{W} \, * \, (\mathsf{G}_{\mathsf{m}} \, + \, \mathsf{G}_{\mathsf{p}} \, + \, \mathsf{G}_{\mathsf{t}} \, * \, \mathsf{D}_{\mathsf{t}} \, * \mathsf{10^{-3}}))$ 

W: Weight of the parts [kg]

- G<sub>m</sub>: Unit EF corresponding to the material of the parts
- G<sub>p</sub>: Unit EF corresponding to the process such as molding, printing, etc.
- Gt: Unit EF corresponding to the transportation method
- Dt: Transportation distance [km]
- In case of product EF evaluation, primary data related to the procurement volume shall be used. In the evaluation of organizational EF, if it is difficult to identify the weight of packaging materials, the average value of the same kind of packaging materials may be adopted.
- In the evaluation of auxiliary materials, the calculation based on the payment amount may be adopted.

3-2-4 Scenario on procurement transportation

- For transportation and transportation materials used in the transportation process, it is desirable to collect primary data.
- If it is difficult to collect primary data, the scenario in Annex C may be used.
- 3-2-5 Classification on evaluation of Scope 3 GHG emissions
  - GHG emissions related to cradle-to-gate such as sourcing, material production, cultivation, purification, etc. shall be classified as category 1.
  - GHG emissions related to procurement logistics shall be classified as category
     4.

### 3-3 Manufacturing stage

3-3-1 Scope

The manufacturing stage covers the processes included in the following items:

- Product manufacturing
- Production and transportation of auxiliary materials to be put into the manufacturing stage
- Treatment of waste and wastewater generated from the manufacturing stage
- If there are processes other than the above, the process should be also included in the data collection scope.

### 3-3-2 Data collection

In the manufacturing stage, the data items to be collected are shown in the table below.

lte	ms	Primary data	Either will do	Secondary data
1.	Input of water			
	*Water which is part of the content shall	1		
	be treated as an ingredient in the raw	v		
	material production stage.			
2.	Input of fuel and electric power	~		
3.	Input of auxiliary materials	~		
4.	The volume or amount of production	~		
5.	Waste and wastewater generation	$\checkmark$		
6.	Intermediate transport between sites	$\checkmark$		

7. EF related to water supply	$\checkmark$	
8. EF related to the production of auxiliary		
materials	•	
9. EF related to the process of waste and		
wastewater treatment from the	$\checkmark$	
manufacturing stage		
14. EF related to the fuel and energy supply		
which is procured by a public service	•	
15. EF related to the fuel and energy supply		
which is generated on-site or is not		
prepared in 2–6 databases (e.g. green		•
power, etc.)		

3-3-3 Method and condition of primary data collection

- For products produced at multiple sites, primary data shall be collected for all sites, and a weighted average according to the quantity at each site shall be applied.
- The primary data measurement method for the manufacturing process should be selected from the following four methods:
  - (A) Method of totalizing the input/output amount of items for each operation unit (unit operating time, one lot, etc.) of facilities required for executing the process

*e.g.* (Equipment operation time) \* (Power consumption rate of equipment) = (Power consumption)

- (B) Method of allocating actual value for a certain period of time at production site among products
  - e.g. Total fuel input per year allocated among products
- (C) Combined use of (A) and (B)
- When measurement method (A) is adopted, the EF shall be appropriately allocated according to the method of (3-1-3).
- When measurement method (C) is adopted, missing records or double accounting shall be prevented in the evaluation of each process.
- The primary data on GHG emissions related to waste from the manufacturing stage shall be evaluated according to the following two methods:
  - (A) GHG emissions are calculated from the stoichiometric relationship, assuming that all carbon atoms constituting the components are

discharged as CO<sub>2</sub> by incineration or wastewater treatment.

- (B) Evaluate GHG emissions of products by measuring CO<sub>2</sub> emissions with a burning test for each raw material.
- When the molecule contains biomass-derived carbon, CO<sub>2</sub> generated from the biomass carbon should not be counted (carbon neutral).
- For evaluations on waste treatment or wastewater treatment from the manufacturing stage, EF related to the operation of waste treatment or wastewater treatment shall be included in the manufacturing stage.
- 3-3-4 Scenario on intermediate transportation
  - For transportation and transportation materials used in the intermediate transportation process, it is desirable to collect primary data.
  - If it is difficult to collect primary data, the scenario in Annex C may be used.

3-3-5 Classification on evaluation of Scope 3 GHG emissions

- GHG emissions associated with the combustion of fuel consumed in the site should be classified as Scope 1.
- GHG emissions related to the production of electric power consumed in the site, supplied by others, shall be classified as Scope 2.
- GHG emissions related to the production of fuel consumed in the site shall be classified as category 3.
- GHG emissions related to the offsite treatment of waste and wastewater discharged from the manufacturing stage shall be classified as category 5.

### 3-4 Distribution stage

3-4-1 Scope

The distribution stage covers the processes included in the following items:

- Shipping logistics
- Production and transportation of auxiliary materials to be put into the distribution stage
- Treatment of waste and wastewater generated from the distribution stage
- If there are processes other than the above, the process should be also included in the data collection scope.

### 3-4-2 Data collection

In the distribution stage, the data items to be collected are shown in the table below.

Itoms	Primary	Either will	Secondary
liems	data	do	data
1. Product weight	$\checkmark$		
2. Transportation quantity of products		✓	
3. Transport distance		✓	
4. Usage of transport materials		$\checkmark$	
5. EF on production and transportation of			
transportation materials		v	
6. Amount of waste generated in the			
distribution stage		•	
7. EF related to the fuel and energy supply			
which is procured by a public service		•	
8. EF related to the fuel and energy supply			
which is generated on-site or is not			1
prepared in 2–6 databases. (e.g. green			•
power, etc.)			
Fuel consumption method			1
9. Fuel consumption	$\checkmark$		
10. EF for each fuel type			$\checkmark$
Fuel efficiency method			
11. Fuel efficiency	$\checkmark$		
12.EF for each fuel type			$\checkmark$
Ton-kilometer method			
13. Transportation method		$\checkmark$	
14. Loading rate		✓	
15.EF related to loading rate and			
transportation means			v

### 3-4-3 Method and condition of primary data collection

- The data collection method is not specified.
- 3-4-4 Scenario on procurement transportation
  - If it is difficult to collect primary data, the scenario in Annex C may be used.

### 3-4-5 Classification on evaluation of scope 3 GHG emissions

- GHG emissions related to the distribution shall be classified as category 4.
- 3-5 Use & maintenance stage

### 3-5-1 Scope

The use & maintenance stage covers all processes associated with use or maintenance of the product by the consumer. The concrete processes are as follows:

- Water supply for product use
- Energy or fuel consumption for product use
- Manufacturing of expendables for product use
- Treatment of waste, except for the product contents, generated from the use & maintenance stage
- Treatment of wastewater generated from the use & maintenance stage
- GHG emissions from the use of aerosol products
- If there are processes other than the above, the process should be also included in the data collection scope.

### 3-5-2 Data collection

In the use & maintenance stage, the data items to be collected are shown in the table below.

ltems		Primary	Either will	Secondary
		data	do	data
1.	Content volume, weight, amount	$\checkmark$		
2.	Content usage per 1 use		~	
3.	Power consumption per 1 use		$\checkmark$	
4.	Fuel consumption per 1 use		$\checkmark$	
5.	Water consumption per 1 use		$\checkmark$	
6.	Expendable consumption per 1 use		$\checkmark$	
7.	Amount of waste, except for the			
	materials the product consists of,			
	generated in the use & maintenance		v	
	stage			

8. Amount of wastewater generated in the			
use & maintenance stage (= water			
consumption in the use & maintenance		•	
stage)			
9. Amount of propellant released from the			
use of a aerosol product	•		
10. Gas composition of a propellant		$\checkmark$	
11.EF related to the production of			
expendables		•	
12. EF related to the water supply for			
product use			v
13. EF related to wastewater treatment from			
the use & maintenance stage		v	
14.EF related to the fuel and energy supply			
which is procured by a public service			¥
15. Indirect global warming potential of LPG			<b>√</b> 10)

3-5-3 Method and condition of primary data collection

- EF of products that do not involve any consumption of power, fuel, water and expendables shall be evaluated as no impact.
- Usage times should be calculated according to the following formula:
   (Usage times) = (Product content weight) / (Usage weight per 1 use)
- Primary data shall be collected based on the scenario in Annex D.
- For aerosol products that emit GHG as a propellant, GWP shall be included in the scope.
- For aerosol products that emit LPG as a propellant, indirect GWP of LPG<sup>10)</sup> shall be included in the scope.
- The processes on treatment of waste containers and waste accessories, consisting the product, are excluded from the data collection items at the use & maintenance stage so as to be grasped at the end-of-life stage.

3-5-4 Scenario on product use

- Usage scenarios for each product category are listed in Annex D.
- 3-5-5 Classification on evaluation of scope 3 GHG emissions

- GHG emissions related to the production of consumables, electric power, fuel, and tap water consumed with product use shall be classified as category 11.
- GHG emissions related to the combustion of fuel consumed with product use shall be classified as category 11.
- GHG emissions related to the treatment process of wastes and waste water, which do not constitute the product, generated from the use stage shall be classified as category 11.

### 3-6 End-of-life stage

### 3-6-1 Scope

The End-of-life stage covers the processes included in the following items:

- Degradation of content
- Collection and transport of waste derived from product packaging and accessories
- Incineration and landfill treatment of waste derived from product packaging and accessories
- Pre-recycling process (up to the preparation stage for recycling)
- If there are processes other than the above, the process is also included in the calculation scope.

### 3-6-2 Data collection

In the end-of-life stage, the data items to be collected are shown in the table below.

Itoms		Primary	Either will	Secondary
ne	1115	data	do	data
1.	GHG emissions due to degradation of			
	content, packaging, accessories	•		
2.	Amount of ThOD due to degradation of			
	content	v		
3.	Amount of N due to degradation of			
	content	v		
4.	Amount of P due to degradation of			
	content	v		
5.	Amount of waste packaging, waste			
	accessories, waste transport materials	•		

6. Transportation method to treatment	✓
7. Transport distance to treatment facility	✓
8. EF related to transportation to treatment	
facilities	¥
9. Amount of waste to be incinerated	$\checkmark$
10. Amount of waste to be landfilled	$\checkmark$
11.EF related to waste treatment	$\checkmark$
12. EF related to recycling pretreatment (e.g.	
washing, making bale, etc.)	•

3-6-3 Method and condition of primary data collection

- The primary data on GHG emissions related to degradation of content shall be evaluated according to the following two methods:
  - (A) GHG emissions are calculated from the stoichiometric relationship, assuming that all carbon atoms of the components are discharged as CO<sub>2</sub> by incineration or wastewater treatment.
  - (B) GHG emissions of products are evaluated by measuring CO<sub>2</sub> emissions from burnings tests for each raw material.
- When the molecule contains biomass-derived carbon, carbon derived from the biomass should not be counted (carbon neutral).

3-6-4 Scenario on transportation and waste treatment

- For transportation to treatment facilities, the scenario in Annex C shall be applied uniformly.
- For waste treatment at treatment facilities, the scenario in Annex F shall be applied uniformly.
- The released amount of ThOD, N and P may be calculated with the following equation:

(Released amount) = (Actual amount) \* (1 - (Penetration rate of the sewage treatment plant in the area where the product is used))

3-6-5 Classification on the evaluation of scope 3 GHG emissions

- GHG emissions related to the treatment process of waste from the product shall be classified as category 11.
- GHG emissions such as CO2 and CH4 emitted from the carbon molecules of the

product's materials by microbial degradation or combustion shall be classified as category 12.

### 3-7 Other activities

3-7-1 Scope

Evaluation of other activities is for organizational LCA or the evaluation of scope 3 GHG emissions. Other activities cover the processes included in the following items:

- Investment for capital goods
- Business travel
- Commuting

### 3-7-2 Data collection

In the end-of-life stage, the data items to be collected are shown in the table below.

ltems	Primary data	Either will do	Secondary data
Scope 3, Category 2: Investment for capit	al goods	•	
1. Capital investment in innovation center	ers 🗸		
<ol> <li>Types and amount of materials used f</li> </ol>	or ✓		
<ol> <li>If it is difficult to obtain data for 2., the results will be gotten from CASBEE</li> </ol>	ie 🗸		
4. Total floor area and useful lifetime	✓		
5. EF related to the production of capital goods such as productive facilities an buildings	d	~	
Scope 3, Category 6: Business travel		•	
6. Expenditure on business travel	✓		
7. Destinations of business trips	✓		
8. Number of business trips for each destination	~		
9. Means of transportation on business	$\checkmark$		

10.EF related to transportation		$\checkmark$	
Scope 3, Category 7: Commuting			
11. Expenditure on commuting	$\checkmark$		
12. Means of transportation for commuting	$\checkmark$		
13.EF related to transportation		$\checkmark$	

3-7-3 Classification on evaluation of scope 3 GHG emissions

- GHG emissions related to investment for capital goods shall be classified as category 2.
- GHG emissions related to business travel shall be classified as category 6.
- GHG emissions related to commuting shall be classified as category 7.

### 4. References

- 1) ISO 14040 (2006) Environmental Management Lifecycle Assessment Principles and Framework
- 2) ISO 14044 (2006) Environmental Management Lifecycle Assessment -Requirements and Guidelines
- 3) The Corporate Value Chain (Scope 3) Accounting and Reporting Standard (2010):

http://www.ghgprotocol.org/sites/default/files/ghgp/standards/Corporat e-Value-Chain-Accounting-Reporing-Standard\_041613\_2.pdf

- 4) Inventory Database for Environmental Analysis (IDEA): <u>http://idea-lca.com/</u>
- 5) Ecoinvent: <u>http://www.ecoinvent.org/</u>
- 6) Japanese public database for CFP program: https://cfp-japan.jp/calculate/verify/data2010.html
- 7) Ministry of the Environment, government of Japan, The basic unit database for evaluation of organizational greenhouse gas emissions throughout value chain:

http://www.env.go.jp/earth/ondanka/supply\_chain/gvc/files/tools/DB\_v2 .3\_r.pdf

8) WaterStat:

http://waterfootprint.org/en/resources/water-footprint-statistics/

- 9) Y. Ono, K. Horiguchi and N. Itsubo (2013) Development of Water Footprint Inventory Database Using Input-Output Analysis in Japan, The Institute of Lifecycle Assessment, Japan, 9(2), 108-115
- 10) IPCC Fourth Assessment Report: Climate Change 2007

- Boulay, A.-M., J. Bare, L. Benini, M. Berger, M. J. Lathuillière, A. Manzardo, M. Margni, M. Motoshita, M. Núñez, A. V. Pastor, B. Ridoutt, T. Oki, S. Worbe and S. Pfister (2017) The WULCA consensus characterization model for water scarcity footprints: assessing impacts of water consumption based on available water remaining (AWARE), *The International Journal of Life Cycle Assessment*. 1–11.
- S. Yano, N. Hanasaki, N. Itsubo and T. Oki (2015) Water Scarcity Footprints by Considering the Differences in Water Sources, *Sustainability*. 7(8), 9753-9772
- 13) Product category rules of carbon footprint communication program for glass containers (PA-BE-03): https://www.cfp-japan.jp/common/pdf\_authorize/000184/PA-BE-03.pdf
- 14) Product category rules of carbon footprint communication program for plastic containers (PA-BC-02): <a href="https://www.cfp-japan.jp/common/pdf\_authorize/000058/PA-BC-02.pdf">https://www.cfp-japan.jp/common/pdf\_authorize/000058/PA-BC-02.pdf</a>
- 15) Ministry of the Environment, Japan (2006) Survey on actual waste disposal business in Japan: http://www.env.go.jp/recycle/waste\_tech/ippan/index.html
- 16) Product category rules of carbon footprint communication program for paper containers (PA-BB-01): <a href="https://www.cfp-japan.jp/common/pdf\_authorize/000028/PA-BB-01.pdf">https://www.cfp-japan.jp/common/pdf\_authorize/000028/PA-BB-01.pdf</a>

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Annex A: Life cycle flow diagram



Annex B: Method of evaluating EF due to fuel consumption during transportation

### B-1 Fuel consumption method

(1) Collect the amount of fuel used for each transportation means.

(2) EF is calculated by multiplying the amount of fuel and the EF factor related to supply and use of the fuel (secondary data).

### B-2 Fuel efficiency method

(1) Calculate the average fuel efficiency by fuel consumption and transport distance within the specified period.

(2) EF is calculated by multiplying the fuel efficiency, the transport distance related to product distribution and the EF factor related to supply and use of the fuel (secondary data).

### B-3 Ton-kilometer method

(1) Collect the loading rate [%] for each means of transportation and the transport load (transport ton-kilometer) [t  $\cdot$  km].

(2) EF is calculated by multiplying product weight, transport distance and the EF factor according to the transport load of each transport means (secondary data).

### Annex C: Scenario for transportation

Transport scenarios for each stage in cases where primary data can not be collected are shown below. They apply to each transportation process for the raw material procurement stage, the manufacturing stage, the distribution stage and the end-of-life stage.

### C-1 Transport distance

This guide uses a longer transport distance than average in order to raise the incentive for primary data collection.

<Examples>

- (1) Transportation within the prefecture: 100 km
- (2) Inter-prefecture transportation: 1.5 times of the actual inter prefecture distance
- (3) Transportation of procurement (from supplier to production site) : 500 km
- (4) Shipment logistics for domestic market in U.S. and China: 2,000 km
- (5) Shipment logistics for domestic market, when the consumption area is not limited to a specific area: 1,000 km
- (6) International transportation:
  - (7-1) Land transportation
- If the departure country and arrival country are connected by land, the land transport distance is shorter than the distance by ship, and the land transport distance is 2000 km or less, land transportation will be selected.
- Transportation in departure country: 1,000 km
- Transportation in arrival country: refer to (1) (5)
- (7-2) Marine transportation
- Transportation from the production site to the port of the producing country: 10 km
- Transportation from the port of the producing country to the port of arrival country (= consuming country): refer to the "Inter-country/Region Distance Database"
- Transportation in arrival country: refer to (1) (5)
- (7) Transportation of waste collection: 100 km (one way transport)

### C-2 Transport method

In principle, truck transport is adopted as the basic transport method in order to raise the incentive for primary data collection and reduction of  $CO_2$  emissions by modal shift.

<Examples>

- (1) Transportation by logistics operator: 10 ton trucks
- (2) Transportation by other businesses (producers, etc.): 2 ton trucks
- (3) International shipment: Container ships (less than 4000 TEU)
- (4) Transportation of waste collection: 2 ton trucks

### C-3 Loading factor

A scenario with a lower loading rate than average was adopted in order to raise the incentive for primary data collection.

<Example>

50 %

### C-4 Transport materials

A scenario with more transportation materials than average was adopted in order to raise the incentive for primary data collection.

<Example>

- (1) Transportation for raw material procurement: 71.3 g/kg of tinplate and 33.5 g/kg of cardboard
- (2) Transportation for packaging material procurement: 0.5 g/g of cardboard and 0.01 g/g of polyethylene sheets
- (3) Intermediate transportation in the manufacturing stage: 71.3 g/kg of tinplate and 33.5 g/kg of cardboard
- (4) Transportation for shipping: Using cardboard with weight of 50% of product weight

### Annex D: Scenario for use conditions

Use conditions per 1 use of product which requires the consumption of energy, fuel, water and expendables are described below:

### (1) Skincare lotion

Scenario	Use 1 sheet of cotton (=0.74 g) per 1 use.			
Content usage	2.0 mL Room temperature - °C			
Expendables	Cotton sheet	Amount of exp.	0.72 g	

### (2) Skincare emulsion

Scenario	Use 1 sheet of cotton (=0.74 g) per 1 use.			
Content usage	1.5 mL Room temperature - °C			
Expendables	Cotton sheet Amount of exp. 0.72 g			

### (3) Makeup cleansing oil

Scenario	After use, rinse off with 4.5 L of water or hot water. In			
	calculating the EF	related to water	consumption, the	
	temperature is set a	at 33.1 °C according	to the results of an	
	internet survey on consumer behaviors*.			
Content usage	3.0 mL	Room temperature 17 °C		
Water consumption	4.5 L	Water temperature 33.1 °C		
Electricity	0.00030 kWh	City gas	0.0067 Nm <sup>3</sup>	

\*The survey results showed that the respondents rinsed 7 times with hot water and 3 times with lukewarm water.

(4) Face wash

Scenario	After use, rinse off with 4.5 L of water or hot water. In			
	calculating the EF	related to water	consumption, the	
	temperature is set at 33.1 $^\circ C$ according to the results of an			
	internet survey on consumer behaviors.			
Content usage	1 g	Room temperature 17 °C		
Water consumption	4.5 L	Water temperature 33.1 °C		
Electricity	0.00030 kWh	City gas 0.0067 Nm		

### (5) Face wash (Foaming type)

Scenario	After use, rinse of	f with 4.5 L of wat	er or hot water. In	
	calculating the EF	related to water	consumption, the	
	temperature is set a	at 33.1 °C according	to the results of an	
	internet survey on consumer's behavior.			
Content usage	2.5 mL	Room temperature 17 °C		
Water consumption	4.5 L	Water temperature 33.1 °C		
Electricity	0.00030 kWh	City gas 0.0067 Nm		

# (6) Face wash (Easy rinse-off type)

Scenario	After use, rinse of	f with 4.5 L of wat	er or hot water. In	
	calculating the EF	related to water	consumption, the	
	temperature is set a	at 33.1 °C according	to the results of an	
	internet survey on consumer's behavior.			
Content usage	2.5 mL	Room temperature 17 °C		
Water consumption	2.7 L	Water temperature 33.1 °C		
Electricity	0.00030 kWh	City gas	0.0067 Nm <sup>3</sup>	

### (7) Soap

Scenario	This scenario assumes hand washing. 10 L of tap water is				
	consumed for rinsing off per 1 use (30 seconds).				
Content usage	0.7 g Room temperature 17 °C				
Water consumption	10 L	10 L Water temperature 17 °C			
Electricity	– kWh	City gas	– Nm <sup>3</sup>		

# (8) Soap as a hotel amenity

Scenario	It is assumed that 10 $\%$ of the contents are used for washing				
	the hands and body, and 90 % remains. The remaining soap is				
	discarded (Shiseido survey). 100 L of 40 $^\circ$ C water is consumed				
	for washing on an overnight stay.				
Content usage	Whole amountRoom temperature17 °C				
Water consumption	100 L Water temperature 40 °C				
Electricity	0.13 kWh	City gas	0.30 Nm <sup>3</sup>		

### (9) Eco-soap as a hotel amenity

Scenario	It is assumed that 10 $\%$ of the contents are used for washing				
	the hands and body, and 90 % remains. The remaining soap is				
	discarded (Shiseido survey). 100 L of 40 $^\circ C$ water is consumed				
	for washing on an overnight stay.				
Content usage	Whole amount Room temperature 17 °C				
Water consumption	100 L Water temperature 40 °C				
Electricity	0.13 kWh	City gas	0.30 Nm <sup>3</sup>		

### (10) Shampoo, Hair conditioner and Body shampoo

Scenario	After use, rinse off with 15 L of 40 $^\circ C$ water.			
Content usage	6.0 mL Room temperature 17 °C			
Water consumption	15 L	15 L Water temperature		
Electricity	0.0020 kWh	City gas	0.44 <sup>3</sup>	

### (11) Bathwater additive

Scenario	Add specified amount to hot water in bathtub.			
Content usage	25 mL Room temperature 17 °C			
Water consumption	200 L	Water temperature	40 °C	
Electricity	0.027 kWh	City gas	0.59 Nm <sup>3</sup>	

### Annex E: Scenario for waste treatment

The following scenario should be adopted for the method of waste treatment (waste containers, waste accessories, waste transport materials, etc.) sent to the processing facility, depending on the type of waste materials. In the case where it is difficult to specify the type and composition ratio of waste materials, the scenario "E.6 Other Waste" may be adopted.

### E-1 Glass

The glass waste treatment scenario, taken from PCR (PA-BE-03)<sup>13)</sup> of the carbon footprint program for glass container packaging in Japan, is shown below.

- 53.1 % is recycled as cullet.
- 13.4 % is recycled as a raw material for other uses.
- 15.3 % undergoes intermediate treatment and is landfilled.
- 18.2 % is directly landfilled.

### E-2 Plastic

The plastic waste treatment scenario, taken from PCR (PA-BC-02)<sup>14)</sup> of the carbon footprint program for plastic container packaging in Japan, is shown below.

- 62 % is incinerated.
- 16 % is landfilled directly.
- 22 % is recycled.

\*GHG emissions from the plastics of sold products and disposal treatment of them were calculated under the following scenario until FY2017, on Scope 3 evaluation.

- 92 % is incinerated.
- 3 % is landfilled directly.
- 5 % is recycled.

### E-3 Paper

The paper waste treatment scenario, taken from PCR (PA-BB-01)<sup>16)</sup> of the carbon footprint program for paper container packaging in Japan, is shown below.

- 96 % is incinerated.
- 4 % is recycled.

 $CO_2$  from the release of carbon-constituting paper molecules is not counted, because paper is considered to be a 100 % biomass-derived material (carbon neutral).

### E-4 Cardboard

The cardboard waste treatment scenario, taken from PCR (PA-BB-01)<sup>16</sup>) of the carbon footprint program for paper container packaging in Japan, is shown below.

- 4 % is incinerated.
- 96 % is recycled.

### E-5 Metal

- 100 % is landfilled.

### E-6 Other waste

The other waste treatment scenario, taken from the report "Survey on actual waste disposal business in Japan (2006, Ministry of the Environment, Japan)"<sup>15)</sup>, is shown below.

- 92 % is incinerated.
- 3 % is landfilled directly.
- 5 % is recycled.

### Product life cycle assessment\*

Shiseido strives to improve resource efficiency by providing refill products in various product fields in our cosmetics business. In Japan and EMEA, life cycle assessments are conducted to understand the environmental impacts of the products and to identify the rooms for improvement in the reduction of those impacts. The pie charts shown below are the results of the carbon footprint analysis of cosmetics which is a part of LCA focusing on the aspect of climate change.

\* Product life cycle assessment (Life Cycle Assessment: LCA): This method quantitatively evaluates the environmental impact of products through the entire product life cycle (raw material procurement, manufacturing, distribution, usage, and disposal/recycling) using numerical values. It is standardized in ISO 14040 and 14044.

### CO2 emissions from cosmetics and personal care products (environmental footprint)

Based on the Shiseido Environmental Footprint Assessment Guidelines, we assess the environmental footprint including CO<sub>2</sub> emissions regarding cosmetics and personal care products.

### Legend





Calculation criteria: Shiseido Environmental Footprint Assessment Guidelines

Usage scenario: The calculation of the usage phase was evaluated by setting the following usage scenarios.

\* The calculation of usage phase was evaluated by setting the following usage scenarios.

Туре	Usage scenario
Facial wash	Rinse the face with 4.11L of hot water at 40°C
Makeup remover	Rinse the face with 4.5L of hot water at 33°C
Lotion, emulsion	Use a cotton pad and apply all over the face
Shampoo, conditioner	Rinse the face with 15L of hot water at 40°C

### • Procurement of sustainable palm oil

In order to procure sustainable palm oil, we joined RSPO<sup>\*1</sup> (Roundtable on Sustainable Palm Oil) in 2010 and have reduced risks since then by procuring RSPO-certified raw materials, which take into consideration environmental protection and human rights during production in the places of origin. In 2018, we worked on the following:

- We formulated the Shiseido Group Sustainable Raw Materials Procurement Guidelines for sustainable procurement of palm oil and palm kernel oil and disclosed targets up to 2020.
- In order to support the sustainable production of palm oil, we purchased certificates (credits) equivalent to 100% palm oil and palm-derived materials (achieved targets up to 2020).
- We had a dialogue with palm oil producers in Indonesia
- We obtained RSPO supply chain certification<sup>\*2</sup> for the Shiseido Kuki factory and also for Shiseido Vietnam Inc. (As of June 2019, 7 factories have obtained the certification.)

In addition, changes in palm oil consumption were as follows.

### **Changes in Palm Oil Consumption**

	2016	2017	2018
Total (t) of palm oil, palm kernel oil consumption amount	6,788	8,024	9,750
Book & Claim system <sup>*3</sup>	50	75	9,750
Book & Claim System Coverage Ratio (%)	1	1	100

\*1 RSPO: Roundtable on Sustainable Palm Oil

\*2 RSPO Supply Chain Certification: Certification to ensure logistically reliable delivery of RSPO-certified raw materials.

\*3 Book & Claim system: A system of trading the production of palm oil and palm kernel oil produced on RSPO-certified farms as certified credits. As in Energy Green, purchasing a credit is considered equivalent to purchasing RSPO-certified oil.

Please check the details in Responsible procurement - Procurement of sustainable raw materials (palm oil/mica).

### Water

### Water saving at production facilities in France

The long-term consequences of climate change imply an increase in drought risk in Europe. Therefore, Unité de Gien Factory and Val de Loire Factory in France set water consumption per production volume of contents as KPI and are working to reduce water consumption from the viewpoint of long-term risk management. At the Unité de Gien Factory, we replaced the water-cooling vacuum pump with air cooling type, and water cleansing with alcohol cleansing at the fragrance production facility, thereby dramatically improved water usage efficiency. The alcohol used to clean the equipment is recycled and reused. At the Val de Loire Factory, we improved the water usage efficiency by introducing new cleaning equipment, such as reprocessing and reusing water used to clean the equipment. At both production facilities, we are raising the awareness of employees on water conservation and working to reduce water consumption continuously.

### Water saving targets and results at production facilities in France

		Results			Target
		2016	2017	2018	2030
Unité de Gien Factory	Basic unit of water consumption <sup>*1</sup> (L/kg)	4.9	4.4	2.9	
	Reduction rate <sup>*2</sup> (%)	61	65	77	30% reduction compared to 2009
Val de Loire Factory	Basic unit of water consumption <sup>*1</sup> (L/kg)	19	14	11	
	Reduction rate <sup>*2</sup> (%)	29	50	59	

%1 Water consumption amount per production volume of the contents%2 Reduction rate against the 2009 results

### Waste

Item	Initiatives/Targets	2018 results
Waste recycling	We will promote waste recycling at our production facilities.	The following production facilities achieved zero emissions (with a recycling rate of 99.5% or higher). Domestic: Osaka Factory, Kakegawa Factory, Kuki Factory Overseas: Val de Loire Factory and Unité de Gien Factory of Shiseido International France S.A.S., Shiseido Citic Cosmet- ics Co., Ltd., Shiseido Vietnam Inc.
Proper disposal of industrial waste	We hold workshops on industrial waste (lecture-style workshops, on-site confirmation workshops at intermediate processing companies) twice yearly to Manager Position holders and those in charge of industrial waste handling across all domestic departments and each Shiseido Group company. We had no accidents or legal violations related to waste.	Attended by a total of 46 employees (39 for lecture-style workshops, 7 for on-site confirmation) from 24 departments and companies from all domestic departments and the Shiseido Group companies that generate industrial waste. There were no legal violations of industrial waste disposal requested by the Shiseido Group (Japan).

Please see below for other environmental data.

# **Environmental Accounting**

In Japan, we use the Environmental Accounting Guidelines 2005 edition issued by the Ministry of the Environment to understand and announce environmental conservation costs.

Target period: From January 1 to December 31, 2018

Scope: Domestic facilities (production facilities, research institutes, departments in the Headquarters), overseas facilities (production facilities)

### 1. Environmental Conservation Costs (Unit: 1 million yen)

Category		Main Initiatives	Investment	Expenses
(1) Costs breakdown by operation			154	478
Breakdown	(1)-1 Pollution prevention costs	revention Water contamination, atmospheric pollution, etc.		228
	(1)-2 Global environmental conservation costs	Promotion of energy conservation, measures to protect the ozone layer, etc.	73	9
	(1)-3 Resources recycling costs	Waste processing, recycling, Wastewater re-use, reducing materials, etc.	69	241
(2) Upstream/downstream costs		Costs associated with Recycling of Containers and Packaging Recycling Law, green procurement, product recycling, etc.	-	180
(3) Administrative costs		Personnel expenses (excluding R&D), environmental management costs	_	320
(4) Research and Development costs		R&D for environmentally friendly products, etc. (including personnel expenses)	-	-
(5) Social contribution costs		Support of environmental groups, disclosure of environmental information, environmental advertising, etc.	-	59
(6) Environmental remediation costs		Environmental remediation costs, etc.	-	0
(7) Other costs			-	-
Total			154	1,037

# 2. Environmental Conservation Outcomes (Unit: 1 million yen)

Outcomes		
Earnings	Revenue from the recycling of waste generated in main business activities and the recycling of used products, etc.	58
Cost savings	From energy conservation	
	Waste-related	18
	From resource conservation	77
	Other	1
Total		214