

Sustainability

Teijin Group Global Environmental Charter

The Teijin Group defines its Global Environmental Charter in line with our corporate philosophy.

The Teijin Group Global Environmental Charter

To fulfill the Teijin Group's corporate philosophy "We place the highest priority on safety and the preservation of our natural environment" to ensure society's sustainable development, we will:

1. Strive to promote efficient use of resources and energy and reduction of environmental impact to preserve the global environment.
2. Provide products and services that reduce the environmental impact for society through progress in science and technology with a focus on global environmental consciousness.
3. Participate in social activities aiming at conserving the global environment through education and raising awareness for group employees, and cooperation with local communities involved in our business activities.

(Established in December 1992; revised in July 2007)

Measures to Address the Marine Plastic Waste Problem

Marine plastic waste has become a serious problem as a result of its negative impacts on life and ecosystems through marine pollution and food chains. This problem has become an increasingly urgent global concern.

In September 2018, the Teijin Group issued a "Declaration for Solving the Plastic Marine Waste Problem" to demonstrate its commitment to this problem.

Regulatory trends surrounding marine plastic waste could elevate the risk of a loss of existing business. However, the Teijin Group considers this as an opportunity to drive growth in the markets for recycling and alternative products. Based on this belief, the Teijin Group is advancing initiatives to reduce its environmental impact and provide environmental value solutions.

Declaration for Solving the plastic Marine Waste Problem

The Teijin Group will contribute to the reduction of plastic marine waste through our voluntary efforts of management / recycling promotion of plastic we produce and /or use, and material development.

September 1, 2018



 (Jun Suzuki)
 Representative Director and President & CEO,
 Teijin Ltd.

Helping to solve the marine plastic waste problem through the recycling of PET bottle

Teijin Frontier Co., Ltd. has been implementing a recycling project based on the concept of “local production for local consumption” in various parts of Japan. In this project, Teijin Frontier collects waste generated at the venues of outdoor events and recycles this waste into resources. In July 2018, Teijin Frontier collected PET bottles at a beach cleanup event at Katsuura Beach and recycled the PET bottles into original straps. In September 2018, “Munakata Fes,” an outdoor music festival, was held in the city of Fukutsu in Fukuoka Prefecture. At the event, Teijin Frontier handed out the original straps made from recycled PET bottles to participants in the cleanup activities and volunteers at the venue of the music festival. Teijin Frontier also collected PET bottles on the days of the “Munakata Fes” for recycling and recycled them into official merchandise for the 2019 music festival.



Cleanup activities at Munakata Fes

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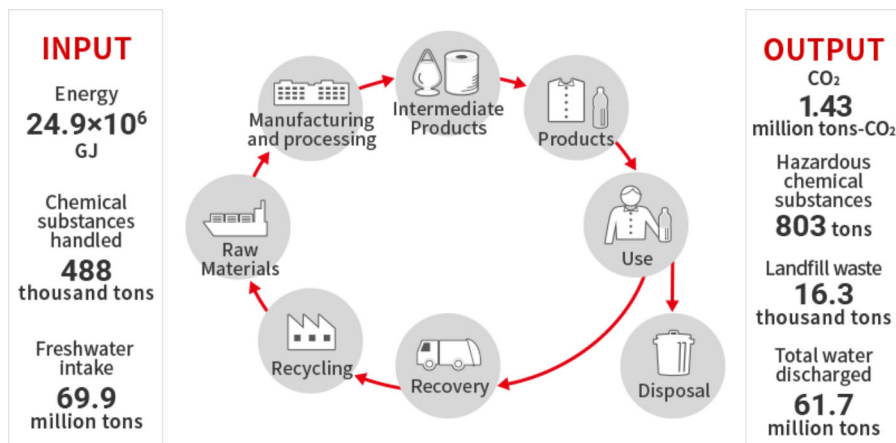
Business Activities and Environmental Impact

We strive to reduce environmental impact over the entire life cycle of products, including all processes from material procurement through to production, use, and disposal.

Teijin Group Environmental Input / Output in FY2019

We believe that environmental management refers to the management for reducing the biodiversity and environmental impact over the entire life cycle of products, including all processes from material procurement through to production, use, and disposal.

Not only do we adhere to laws and regulations and agreements with local governments, we also focus on ascertaining the biodiversity and environmental impact over the entire product life cycle, reducing CO₂ emissions, minimizing emissions of chemical substances, and managing and reducing waste materials.



* Energy is calculated according to the calorific values per unit as specified in the Act on the Rational Use of Energy. We deduct the amount of energy sold to other companies and the corresponding CO₂ emissions.

* Scope 1 emissions of FY2019 were 683 thousand tons of CO₂ ★, and Scope 2 emissions were 747 thousand tons of CO₂ ★ です。

* The boundary of data aggregation from FY2018 on includes CSP (Continental Structural Plastics).

Teijin Group environmental input / output (trends in the past five years)

INPUT

		FY2015	FY2016	FY2017	FY2018	FY2019
Energy ★	(GJ)	28.3 × 10 ⁶	23.9 × 10 ⁶	23.2 × 10 ⁶	25.3 × 10 ⁶	24.9 × 10 ⁶
Chemical substances handled ★	(thousand tons)	654	435	477	475	488
Freshwater intake ★	(million tons)	83.5	76.9	73.4	69.4	69.9

OUTPUT

		FY2015	FY2016	FY2017	FY2018	FY2019
CO ₂ ★	(million tons-CO ₂)	1.80	1.52	1.41	1.48	1.43
Hazardous chemical substances	(thousand tons)	1051	590	736	903	803 ★
Landfill waste	(thousand tons)				17.4	16.3 ★
Water discharged ★	(thousand tons)	111	90	68	66	62

Status of acquisition of environmental management system certifications

As a mechanism to minimize its impact on the environment, the Teijin Group encourages its business sites and plants to obtain the ISO 14001 certification, an international standard related to environmental management, as well as the Eco Action 21 recommended by Japan's Ministry of the Environment.

Status of ISO 14001 certification

Japan (16 companies, 27 factories)	Teijin (Iwakuni, Matsuyama, Chiba, Teijin Composites Innovation Center, Mishima, Ibigawa) Hiroshima Plastic Teiyo Toho Chemical Engineering & Construction (Mishima, Tokushima) Toho Machinery Teijin Frontier (Head office, Ibigawa factory) Teijin Modern Yarn (Komatsu, Kaga) Frontier Tex Teijin Tedy Teijin Cordley (Shimane) Teijin Pharma (Tokyo Research Center, Iwakuni) Unisel Infocom (head office, Kansai, Yokohama) Infocom West Japan (Matsuyama) Teijin Eco-Science (Matsuyama) Teijin Kosan (Ehime)
Overseas (17 companies, 29 factories)	The Netherlands: Teijin Aramid (Delfzijl, Arnhem, Emmen) China: Nantong Teijin, Nantong Teijin Automotive Fabrics Finishing, Teijin Chemicals Plastic Compounds Shanghai, Teijin Polycarbonate China Thailand: Teijin Polyester (Thailand), Teijin (Thailand), Thai Namsiri Intertex (Weaving, Dyeing), Teijin Cord (Thailand), Teijin Corporation (Thailand) Germany: Teijin Carbon Europe, Ziegler USA: Teijin Carbon America, Continental Structural Plastics (Conneaut, Serepta, North Baltimore, Van Wert, Carey, Grabill, Huntington, Lenoir, Salisbury) Mexico: Continental Structural Plastics (Saltillo, Tijuana) Portugal: Inapal (Leça do Balio, Palmela) Czech Republic: Benet (Čejetice, Čejetičky, Milovice) South Korea: TEIJIN LIELSORT KOREA

Status of Eco-Action 21 certification

Japan (1 company, 1 factory)	Teisan Pharmaceuticals
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Climate Change Initiatives

The Teijin Group has announced its support for the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD). Toward climate change mitigation and adaptation, we will contribute to the transition to a carbon-free society by utilizing our technologies for reducing weight and increasing efficiency and make efforts to reduce greenhouse-gas emissions in our business activities.

Governance

Under our corporate governance system, policies and plans relating to the Teijin Group's initiatives to tackle climate change are deliberated and reported in the Board of Directors, and the Board of Directors monitor progress. In the Medium-Term Management Plan 2020–22, we view “climate change mitigation and adaptation” as one of material issues for us, and it has been adopted as such by the Board of Directors. Executive functions on climate change are under the control of the Chief Social Responsibility Officer (CSRO), and the direction, planning, and progress of relevant efforts are deliberated by the organizations mentioned on the right. The Board of Directors provides instruction on these efforts.

- Deliberations on basic plans and reports of their progress take place at the Total Risk Management (TRM) Committee. The details of these discussions are then reported to the Board of Directors (twice a year).
- Reports on executive functions are provided to the Board of Directors by the CSRO (once a year).

[Corporate Governance](#) >

Strategy

Risks and opportunities related to climate change

Toward the realization of a sustainable society, the Teijin Group is striving to contribute to climate change mitigation through the supply of “Environmental value solutions” utilizing our technologies for reducing weight and increasing efficiency that we have fostered so far and to climate change adaptation through the supply of “Safety, security, and disaster mitigation solutions” that will be useful in reducing and promptly restoring from the damage by natural disasters.

In addition, since the Teijin Group engages in wide-ranging business globally, we recognize that our business activities do place a considerable burden on the global environment. Premising our approach on the ensuring of safety, we endeavor to reduce this environmental load with the aim of achieving the sustainable growth of both society and the company.

During the formulation of the Medium-Term Management Plan 2020–22, we analyzed the opportunities and risks relating to the Sustainable Development Goals (SDGs) backcasting from the desired image in 2030. We analyzed the impact of climate change risks on our business from the following three perspectives. We also identified the opportunities of climate change for each of our businesses and incorporated them into business strategies. Accordingly, the Medium-Term Management Plan 2020-22 sets the distribution of resources (capital investment, investments and loans) to “Environmental value solutions” and “Safety, security, and disaster mitigation solutions” with the aim of expanding the business. It also sets long-term environmental targets as we tackle the reduction of CO₂ emissions. We are considering the introduction of internal carbon pricing to achieve this goal.

Risks	<ul style="list-style-type: none"> ▪ Physical risks (typhoons, floods, etc.) ▪ Transitional risks (carbon tax, EU emissions trading system, etc.) ▪ Group CO₂ emissions
Opportunities	<ul style="list-style-type: none"> ▪ Providing solutions that contribute to “climate change mitigation and adaptation”

Materiality and KPIs >

Scenario analysis related to climate-change

Regarding trends in the aviation industry and the automobile industry, which are the customers of our carbon fiber and composites businesses and could be significantly impacted by climate change, we carried out an analysis of the 2°C and 4°C scenarios in FY2019. The results of the analysis showed that in the 2°C scenario, although there was a drop in demand compared with the 4°C scenario in the aviation industry, the impact on business strategy and earnings was slight since the use of lightweight materials can be assumed to be increased. Also, in the automobile industry, in the 2°C scenario, while the demand for electric vehicles and the need for lighter weight increased, the rising trend of car sharing limited the increase in car sales. In the 4°C scenario, while there was a rise in the number of car sales, the need for lighter weight was limited, and the positive and negative impacts on demand cancelled each other out. In both scenarios, it was confirmed that the impact of the difference on demand was either slight or fifty-fifty, so there would be no serious impact on business strategy or earnings. We will keep a close eye on trends and consider the appropriate timing of investments and resource distribution.

Risk Management

Groupwide management methods for climate change risks

The Teijin Group has in place a Total Risk Management (TRM) system targeting both strategic and operational risks, as a preventative measure against the uncertainty that the Company may face.

Physical risks and transitional risks due to climate change are managed within our TRM framework and analyzed along with other risks through TRM risk assessment. In this way, we identify important risks. In addition to formulating BCPs to respond to physical risks, we are monitoring the status of CO₂ emissions both in Japan and overseas, including at affiliated companies.

Risk management structure

1. Each business implements risk management in accordance with the frontline operations.
2. CSRO confirms and makes instructions on the risk management status of each business at the CSR Committee and the CSRO review.
3. CSRO reports and makes proposals related to Groupwide risk management at the TRM Committee, followed by discussions and instructions.
4. CSRO reports the contents of discussions at the TRM Committee to the Board of Directors. The Board of Directors deliberates on basic TRM plans.

Risk Management >

Indicators

Avoided CO₂ emissions

The Teijin Group aims to reduce CO₂ emissions throughout the entire supply chain by using its long-cultivated technologies for reducing weight and increasing efficiency. Also, we calculate the impact of using our products on reducing CO₂ emissions in the downstream supply chain as “avoided emissions.” By fiscal 2030, we aim to make the amount of our avoided emissions larger than our total emissions, which comprise our Groupwide CO₂ emissions and CO₂ emissions from the upstream supply chain (Scopes 1 and 2 and upstream Scope 3).

The Group’s targets

Achieve goal of making the amount of avoided CO₂ emissions larger than total CO₂ emissions by fiscal 2030



Group CO₂ emissions

In FY2019 we updated our target for the reduction of emissions, which until then was a target for FY2020. In the new target, we aim to reduce our greenhouse gas emissions by 20% compared to the FY2018 level by FY2030 and to achieve net zero emissions by FY2050.

The Group’s targets (KPI)

FY2030: 20% reduction (vs. 1.48 million tons-CO₂ in FY2018)
 FY2050: Net zero emissions

Efforts to Reduce CO₂ Emissions

Avoided CO₂ emissions

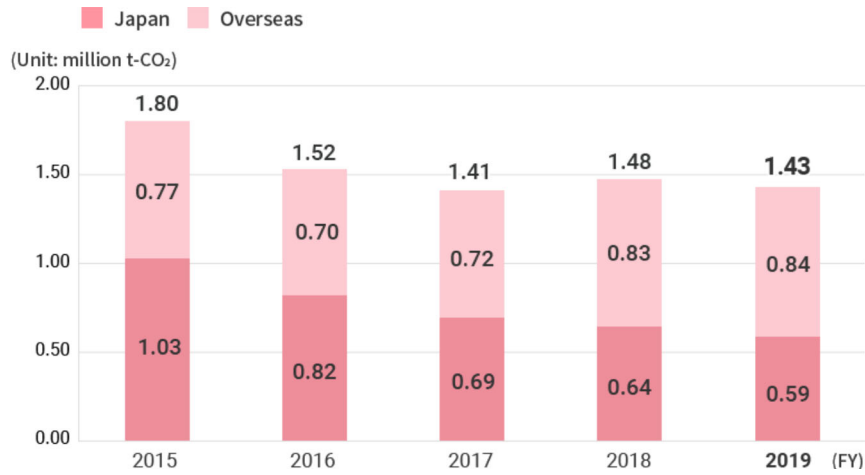
We are contributing to the realization of a carbon-free society by utilizing our technologies for reducing weight and increasing efficiency, and so on that we have fostered so far. In FY2019 our avoided emissions amounted to 3.3 million t-CO₂ against total CO₂ emissions of 4.4 million t-CO₂.

Group CO₂ emissions

Due to the transfer of the film business, the CO₂ emissions of the Teijin Group in FY2019 amounted to 1.43 million t-CO₂★, a decline of 3% from FY2018.

Emissions in Japan are down by 77% from the FY1990 level, so we have achieved our target of achieving a decline of 20% or more (compared with the FY1990 level) by FY2020. The average annual rate of decline in the Group from the base year of FY2011 is 4.6%, so we have also achieved our target of making an annual improvement of 1% or more (compared with the base year of FY2011) by FY2020.

Toward the realization of a carbon-free society, we are working to abolish all in-house power facilities that use coal-fired thermal power as early as possible and gradually replace our current source of electricity with renewable energy sources. By doing so, we are working to decouple our business growth with greenhouse gas emissions.

Trends in Group CO₂ Emissions ★

* Includes CO₂, methane, and N₂O. CO₂ emissions are calculated according to the coefficients specified in the Law Concerning the Promotion of the Measures to Cope with Global Warming. (Adjusted emissions coefficients of individual electric power companies are used for power purchased in Japan, and the latest available IEA country-specific emissions coefficients are used for power purchased in other countries.) However, for power purchased overseas, where known, power company-specific emissions coefficients are used for the calculations. We deduct an amount of CO₂ emissions equivalent to the amount of energy sold to other companies.

Reducing CO₂ emissions associated with use of company vehicles

In Japan, the Teijin Group set independent numerical reduction targets by business site for CO₂ emissions associated with the use of company vehicles. Common measures include updating vehicles used for sales activities to eco-cars and recommending fuel-efficient driving. These measures have achieved a reduction in CO₂ emissions per distance traveled.

As a result, total CO₂ emissions related to the use of company vehicles in FY2019 were 6,408 tons ★ (5% reduction compared to FY2018).

Reducing CO₂ emissions in logistics

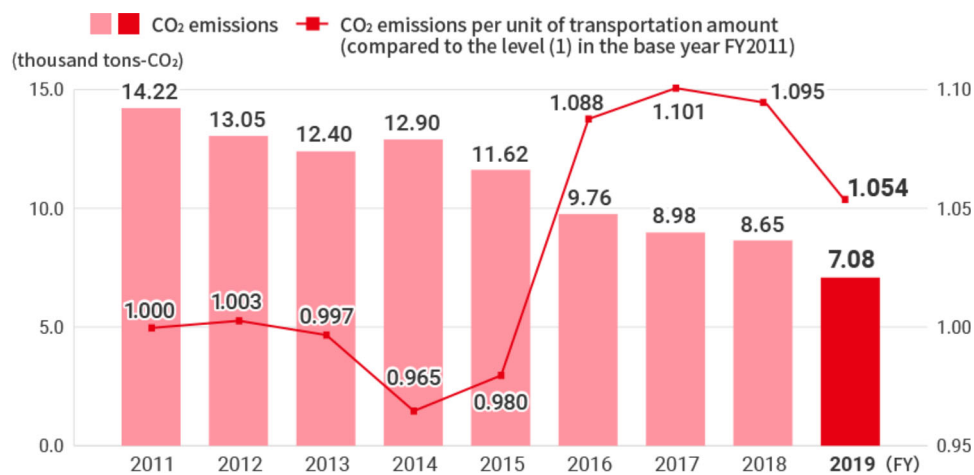
In FY2019 CO₂ emissions in logistics amounted to 7,079 tons, down 1,568 tons from FY2018.

Against the backdrop of decreased demand for industrial materials and automobiles in FY2019, the overall volume of freight transportation declined (down by 274,000 t-km/year). The main reasons were a fall in demand for resin, high-performance fiber, etc. and, as part of our portfolio transformation, the transfer of our film business subsidiary to Toyobo Co., Ltd. in October 2019.

As an ongoing measure to reduce the environmental load, in FY2019 we also improved our truck loading rate and implemented a modal shift (utilizing Japan Railway transportation and shipping). For example, the Carbon Fiber Business Unit for the first time shifted from trucks to rail transportation (Mishima Station – Matsuyama Station), and, in the Fibers & Products Converting Business Group, we attempted to improve loading rates by means of combined transportation.

As a result of the implementation of these measures and business reforms, CO₂ emissions have decreased. In the entire Group's logistics, CO₂ emissions per unit of transportation dropped by 3.8% compared with FY2018. The standard basic unit per 1,000 t-km (tons-CO₂/1,000 t-km) was 1.054 (against 1 in FY2011).

In FY2020 we will continue our efforts to lower emissions per unit by increasing vehicle size (expanding bulk transportation), improving the truck loading rate, and promoting a modal shift.



* Until FY2013, the scope for calculating CO₂ emitted by logistics comprised Teijin Limited (excluding the aramid fiber business), Teijin Film Solutions Ltd., and the former Teijin Fiber Co., Ltd.'s apparel business that was consolidated with Teijin Frontier Co., Ltd.

* From FY2014, Teijin Limited's aramid fiber business, Teijin Pharma Limited, and Toho Tenax Co., Ltd. were added to the scope.

* From FY2015, Teijin Cordley Limited has been included in the scope, with the further addition of Teijin Engineering Ltd. in FY2017 and Teijin Limited's healthcare new business division in FY2018.

* Also, in FY2017, the manufacturing division of former Teijin Fiber was transferred and integrated into Teijin Frontier. In FY2018, the former Toho Tenax was transferred and integrated into Teijin Limited.

* The maximum load and fuel consumption per ton-kilometer of certain vehicles were revised in FY2014.

* The FY2019 record of Teijin Film Solutions Ltd. reflects its performance until September 2019.

Efforts to reduce CO₂ emissions from offices

We are taking measures to improve the efficiency of energy use at Teijin Limited, group company head offices, sales branches and other business sites. A particular measure in summer/winter, besides encouraging suitable operation of office air-conditioning, is the Teijin Cool Biz/Warm Biz initiative, which encourages clothing appropriate for the season (dress code) to facilitate less power consumption and comfortable office environments.

In FY2019, the total CO₂ emitted was 5,459 tons ★ (a 2% reduction compared to FY2018) due to energy-saving measures implemented at our business sites.

Sustainability

Resources Recycling Initiatives

We promote resources recycling initiatives with a focus on reducing the amount of landfill waste.

Reduction of Landfill waste

So far, the Teijin Group has been engaged in reduction of waste material with the goal of achieving its targets by FY2020. In FY2019, the Group set new targets for FY2030 and launched initiatives for achieving them.

The Group's targets (KPIs) for FY2030

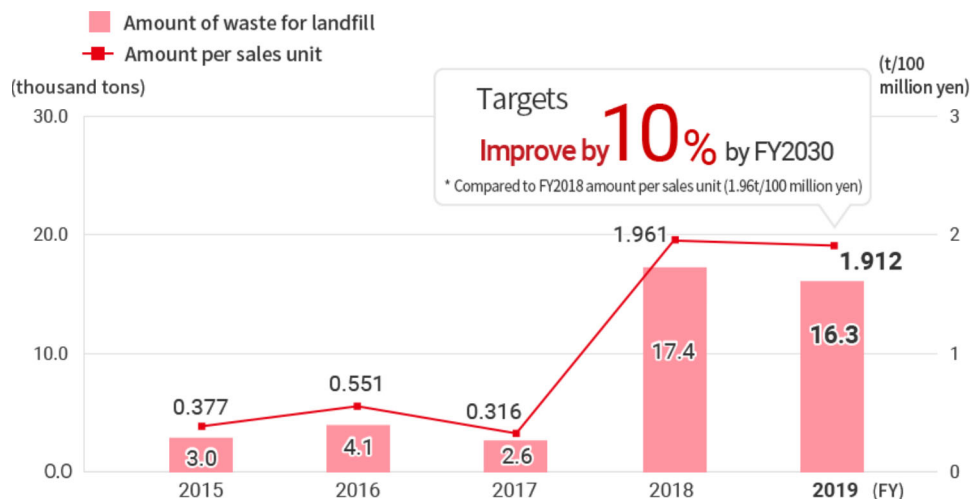
By FY2030, improve the landfill waste volume per sales unit by 10% compared to FY2018

In FY2019, the landfill waste volume was 16.3 thousand tons ★ (down 6% from the previous fiscal year) compared to total emissions of 83.8 thousand tons ★, and the landfill waste volume per sales unit was 1.91t/100 million yen (down 2% from the previous fiscal year).

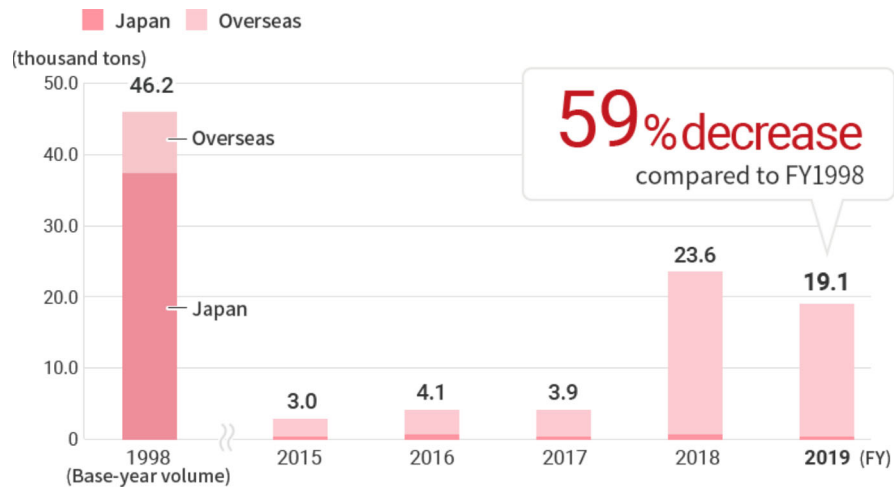
Further, with regard to reduction of waste with no effective use for which the target was to reduce by 85% or more compared to the FY1998 level by FY2020, the amount was 19.1 thousand tons ★ for FY2019 (percentage of total amount of waste discharged was 22.8%). The reduction rate compared to FY1998 was 59% and the target could not be achieved.

In FY2018, Continental Structural Plastics (CSP) was included in the scope of aggregation so the amount of waste increased significantly. However, the Teijin Group is committed to reducing the amount of waste it generates in order to achieve our FY2030 targets, and is working on reducing landfill waste by promoting a shift to reuse and recycling based on material, chemical or thermal processing among other things.

Trends in landfill waste volume and volume per sales unit ★



Trends in “waste with no effective use” ★



Zero emissions

The Teijin Group has defined zero emissions as reducing the ratio of “waste with no effective use” to 1% or less of the total waste generated.

In Japan, all factories that produce 500 tons or more of waste per year achieved zero emissions by FY2011.

Sustainability

Reducing Hazardous Substance Emissions

We are working to systematically reduce emissions of hazardous chemical substances associated with our business activities and commit to preventing environmental pollution.

Reducing Emissions of Hazardous Chemical Substances^{*1}

So far, the Teijin Group has been engaged in the reduction of hazardous chemical substances with the goal of achieving its targets by FY2020. In FY2019, the Group set new targets for FY2030 and launched initiatives for achieving them.

The Group's targets (KPIs) for FY2030

By 2030, improve the hazardous chemical substances emissions per sales unit by 20% compared to FY2018

Emissions of hazardous chemical substances in FY2019 decreased by 11% from FY2018 due to the strengthening of measures, and the per sales unit improved by 7% compared to FY2018.

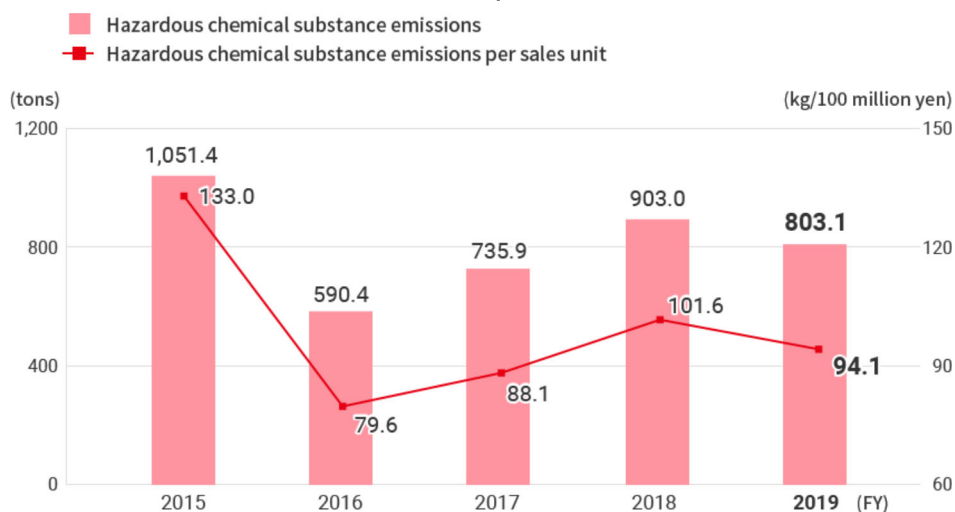
By FY2020, with regard to emissions of chemical substances into the environment^{*2}, for which the target was to reduce by 80% or more by FY2020 compared to FY1998, the amount was 1.75 thousand tons ★. The reduction rate compared to FY1998 became 81%, and the target was achieved.

Emissions of hazardous chemical substances in FY2017 and FY2018 increased including due to business expansion, but in FY2019 we actively ensured compliance with various regulations and worked to improve the yield in processes using hazardous chemical substances.

^{*1} Among the class 1 designated chemical substances under the Law Concerning Reporting, etc. of Releases to the Environment of Specific Chemical Substances and Promoting Improvements in Their Management and chemical substances indicated by the Japan Chemical Industry Association, chemical substances harmful to aquatic environments and the ozone layer are subject to the calculation of atmospheric, water, and soil emissions.

^{*2} The total amount of emissions into the atmosphere, water, soil, and landfill for a total of 567 chemical substances including Class I chemical substances listed in the Chemical Substances Management Law (462 substances: revised April 2010) and chemical substances (105 substances) voluntarily assessed by the Japan Chemical Industry Association (JCIA).

Trends in emissions of hazardous chemical substances and emissions per sales unit

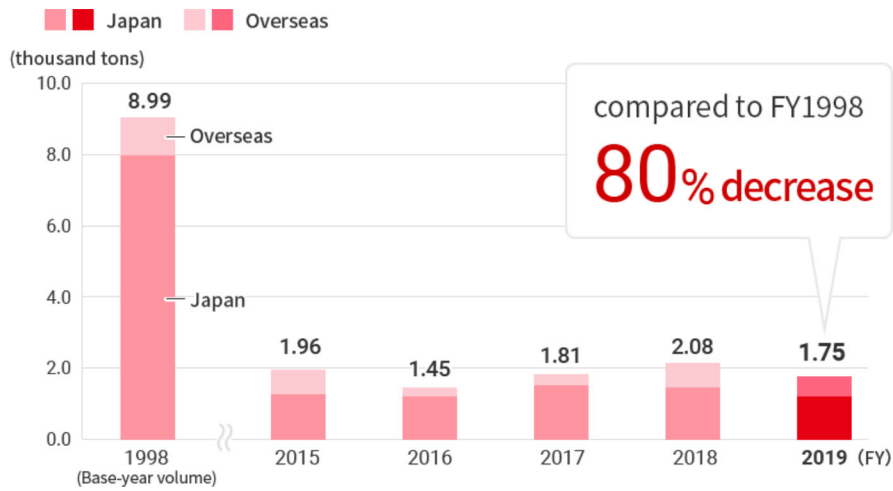


* Among the class 1 designated chemical substances under the Law Concerning Reporting, etc. of Releases to the Environment of Specific Chemical Substances and Promoting Improvements in Their Management and chemical substances indicated by the Japan Chemical Industry Association, chemical substances harmful to aquatic environments and the ozone layer are subject to the calculation of atmospheric, water, and soil emissions.

The breakdown of emissions of chemical substances into the environment in FY2019 was 98.5% for emissions into the atmosphere, and 1.5% for emissions into water, and there were no emissions for soil or landfills.

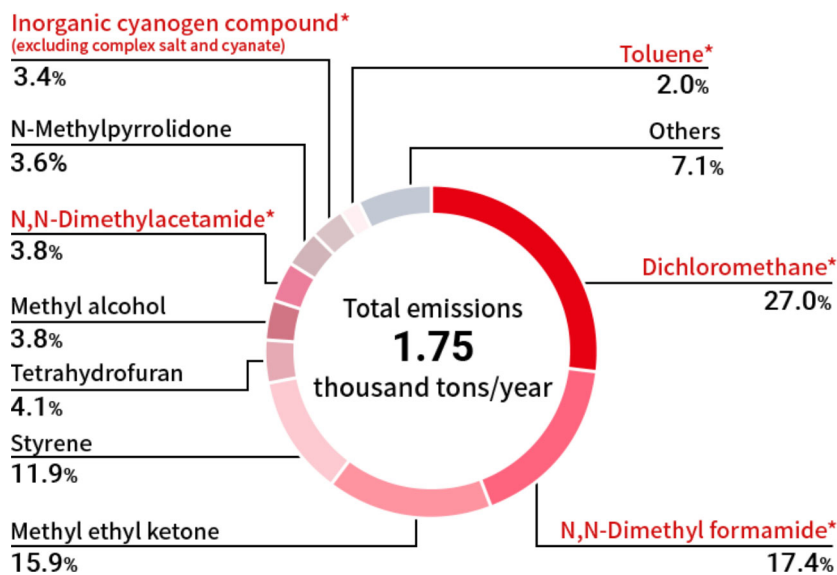
Further, emissions of volatile organic compounds (VOC) decreased by 16% from FY2018 to 1.66 thousand tons due to decreased production volume.

Trends in chemical substance emissions ★



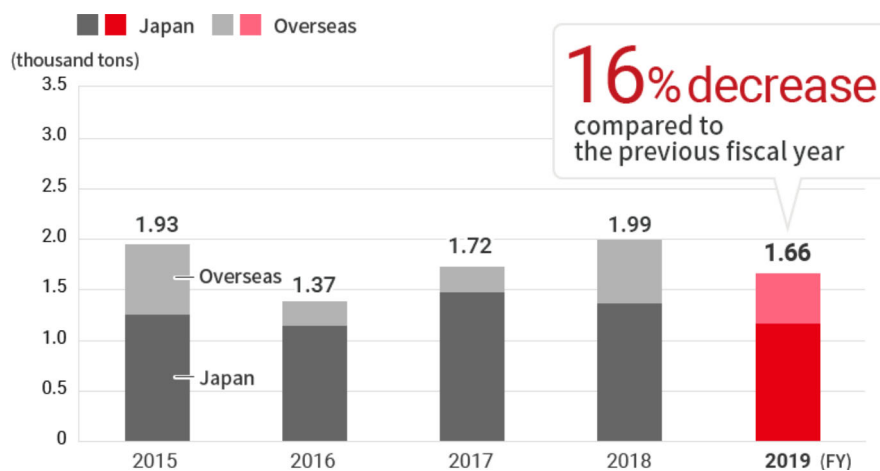
■ For emissions of Class 1 chemical substances listed in the Chemical Substances Management Law and chemical substances designated by the Japan Chemical Industry Association, the figures shown are the total of emissions into the atmosphere, soil, and water, and landfill amounts within business sites.

Top 10 chemical substance emissions ★



* Red text denotes chemical substances specified as Class 1 in the Chemical Substances Management Law.

Trends in VOC emissions ★

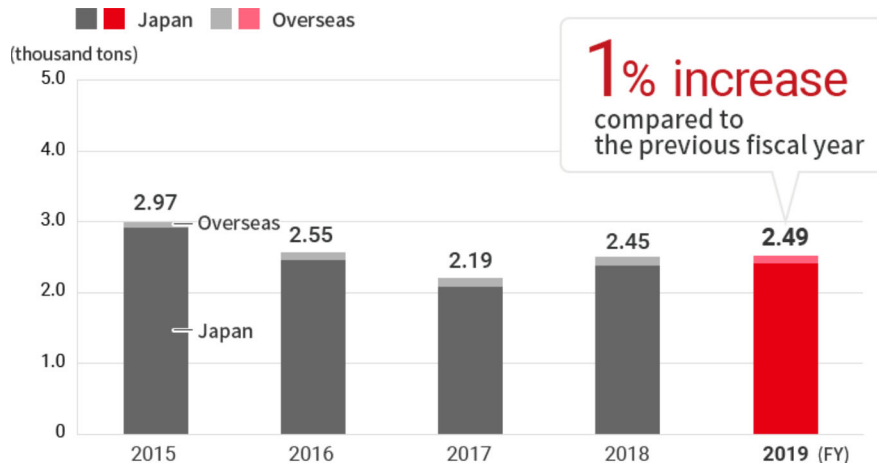


* Figures from FY2016 have independent assurance

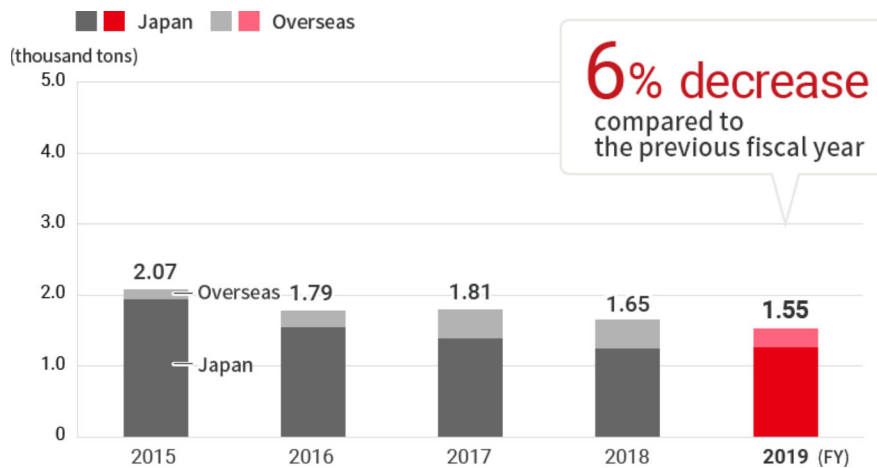
Impact on Atmosphere

SOx emissions resulting from fuel use were 2.5 thousand tons (a 1% increase from FY2018). NOx emissions generated in the same manner were 1.5 thousand tons (a 6% decrease from FY2018).

Trends in SOx emissions ★



Trends in NOx emissions ★



* Figures from FY2016 have independent assurance

Preventing Soil / Groundwater Pollution

In addition to conforming to each country's and territory's legislation relating to the prevention of soil pollution, the Teijin Group formulated guidelines for preventing soil and groundwater pollution. Under these guidelines, we are striving to prevent soil and groundwater pollution resulting from our business operations.

Sustainability

Management of Water Resources

While promoting the efficient use of water resources, the Teijin Group is endeavoring to reduce water consumption at business sites bearing in mind water-related risks.

Management of Water Resources

In response to water shortages and water pollution, which are becoming increasingly serious worldwide, the Teijin Group in FY2019 stipulated a target relating to water resources up to FY2030 and began moves toward its achievement.

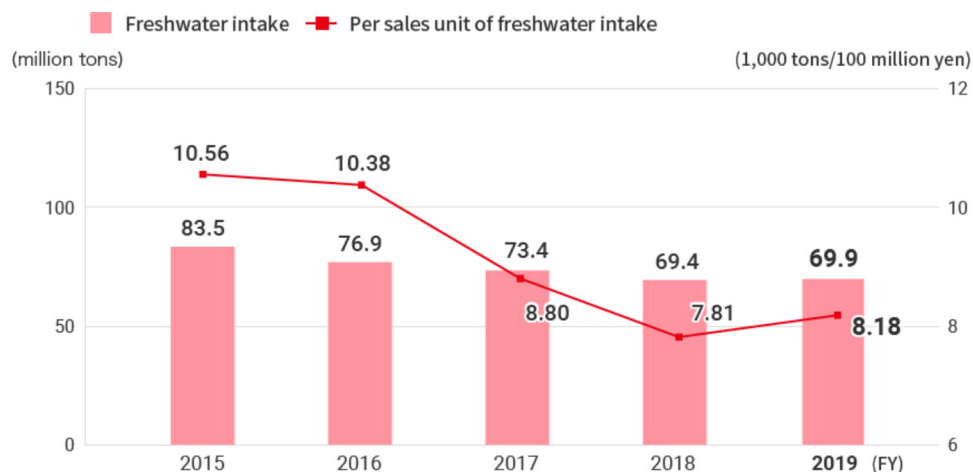
The Group's targets (KPIs) for FY2030

By FY2030 improve the freshwater intake volume per sales unit by 30% compared with FY2018.

Although the freshwater intake volume in FY2019 was 69.9 million tons ★, about the same level as in FY2018, the volume per sales unit rose 5% over FY2018. The wastewater volume was 61.7 million tons ★, down 6% from FY2018.

Toward the achievement of our target, we are expanding the number of products that use less water during the production process and making efficient use of water in our businesses activities.

Trends in freshwater intake volume and volume per sales unit



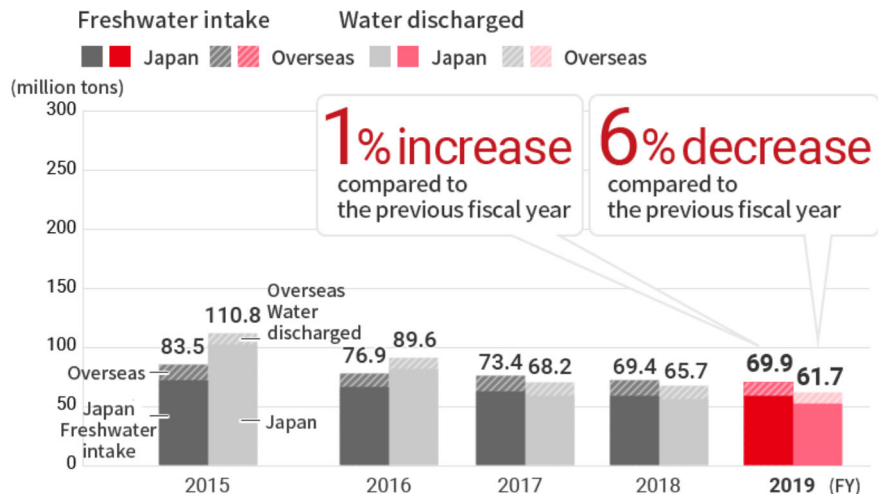
Environmental Load due to Wastewater

In FY2019 the load due to wastewater (calculated from chemical oxygen demand [COD] and biochemical oxygen demand [BOD]) was 464 tons ★ (up 19% over FY2018).

Water Risk Measures

The Teijin Group uses the Aqueduct water risk assessment tool of the World Resources Institute to analyze risks at manufacturing sites. At the present point in time, there are no sites harboring serious risks, but at sites in regions where there are concerns that water usage might be limited, we are promoting measures toward the reduction of water usage.

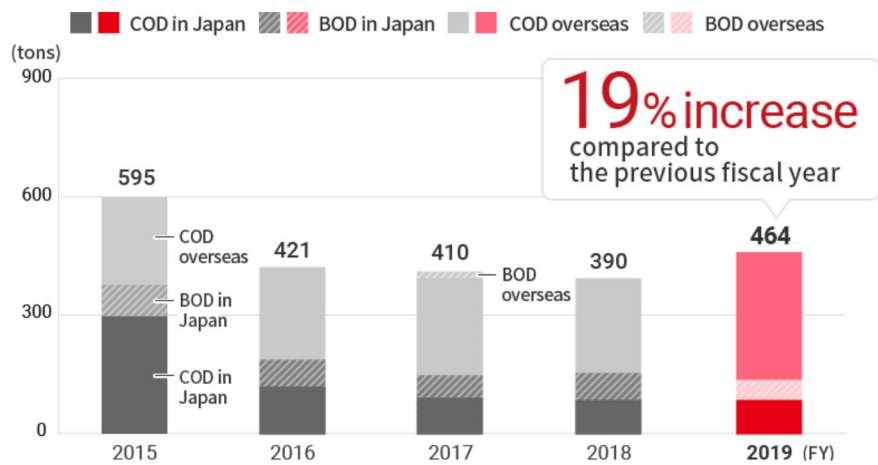
Trends in freshwater intake and water discharged ★



* The amount of freshwater intake is the total of industrial water, groundwater, and tap water.

* The amount of water discharged includes seawater used for cooling (until FY2016).

Trends in COD and BOD loads ★



* The tally covers wastewater discharged in rivers, sea areas, and lakes.

* At sites measuring both COD and BOD, the COD value is used if data exists.