



TATSUTA Electric Wire & Cable Group's Approach to Environmental Issues

Environmental Vision Help conserve the global environment by practicing sustainable manufacturing and providing eco-conscious products and services

To make the Environmental Vision a reality, the TATSUTA Group has established the Quality and Environment Policy. Guided by the policy, we seek to achieve carbon neutrality by the fiscal year ending March 31, 2026, reducing the environmental impact of products and services, and promoting recycling and energy saving, among other initiatives.

- Quality and Environment Policy**
- In order to ensure that the Corporate Principles are upheld and in line with our Corporate Code of Conduct, we will implement initiatives that continuously and appropriately improve the business process, improve products and services, and promote environmental preservation.
 - Based on the requirements for the ISO standards, we will build quality and environment management systems and by implementing these systems, comply with applicable laws and customer requirements.
 - TATSUTA will identify risks which must be addressed and by responding to them, take up initiatives that will improve quality, prevent pollution, and preserve the environment.
 - TATSUTA will maintain its quality and environment management systems and continuously work to improve performance through the PDCA (Plan-Do-Check-Action) cycle.

Environmental Conservation Frameworks

Environmental management structures

At the TATSUTA Group, we have established the structures described below to work on environmental issues across the entire group. The Top Management Committee, chaired by the President of Tatsuta Electric Wire & Cable, meets twice a year to check the status of operation of the environmental management system and to formulate and review environmental policies. Environmental conservation activities are driven mainly by the Environmental Management Promotion Committee under the supervision of the personnel responsible for environmental management, and activities are carried out at each operational site in accordance with the environmental targets and policies.

Organization, etc.	Members	Main roles
Top Management Committee	President of TATSUTA Electric Wire & Cable Presidents of Group companies in Japan General Managers, etc. Environmental Management Administrator	<ul style="list-style-type: none"> Determine basic EMS matters Check and review EMS operating status Establish and review Environment Policy and approve environmental targets
Environmental Management Promotion Committee	Personnel responsible for environmental management Personnel responsible for environmental management promotion	<ul style="list-style-type: none"> Maintain EMS and assess the status of operation Establish, review, and manage environmental targets
Districts, offices, etc.	Personnel responsible for environmental management promotion	<ul style="list-style-type: none"> Establish and implement action plans for each division to reduce environmental impact

Environmental education for employees

TATSUTA implements environmental education for all its employees about environmental risks, compliance with environmental laws and regulations, and other topics. Our environmental education programs are described below.

Program name, etc.	Description	Target group
New employee training	New recruits receive introductory training on the Quality and Environment Policy, environmental conservation initiatives, and rules such as energy conservation and waste reduction.	New employees
Specialist education	We provide specialist education such as a skill training course for organic solvents operations supervisors.	Employees engaging in specific operations
Education for internal audit personnel	Internal audit personnel are educated through external and internal training. Audit personnel who have acquired internal qualifications are given hands-on training through participation in actual internal audits with the aim of enhancing their abilities as audit personnel. In the fiscal year ended March 31, 2023, we increased the number of audit personnel qualified for auditing environmental management systems.	Internal audit personnel
Participation in external seminars on the environment, etc.	Employees participate in external lectures and seminars in order to collect information on environmental conservation such as laws, regulations, and technologies.	Members of Environment & Safety Administration Department
General education and awareness programs	An e-learning environmental education program (basics of waste) for all employees was launched last fiscal year (977 participants). This fiscal year, we provided training on the topic of practical waste management to employees in the Osaka area (444 participants). Moreover, during Japan's Environment Month in June each year, we invite employees to submit suggestions for an energy-saving awareness slogan and energy-saving proposals.	All employees


Reducing the Environmental Impact of Products and Services

Electric wire and cable business

To reduce the environmental impact of our products, we develop products with attention to safety, flame-resistance and low-fuming, as well as environmental compatibility such as recyclability. In the electric wire and cable business, we observe the following guidelines.

Safety	Containing no halogens such as chlorine, the materials in our products emit no dioxins or toxic gases when burned.
Fire-resistant and low-fuming	These materials are not only fire-resistant, but also emit little smoke when burned, ensuring safety in the case of fire.
Recyclable	These products can be recycled through material recycling or thermal recycling.
Chemical-resistant	The use of polyethylene-based insulators provides outstanding chemical-resistant properties.

Eco-friendly electric wire and cable




かるまげ™ (Karu Mage) (KM-CC) 600V fire-resistant flexible crosslinked polyethylene eco-friendly cable

Eco-friendly electric wires and cables use highly-recyclable coatings and sheathings containing no halogen, lead, or other heavy metals while boasting the same level of fire resistance as conventional vinyl chloride-coated products.

These eco-friendly electric wires and cables have the properties of being halogen-free and with a smoke density of 150 or less. They include no substances under RoHS (10 substances).

Note: かるまげ "Karu Mage" is a trademark of TATSUTA Electric Wire & Cable Co., Ltd., registered in Japan.

Electric wires and cables that contribute to reducing environmental impact



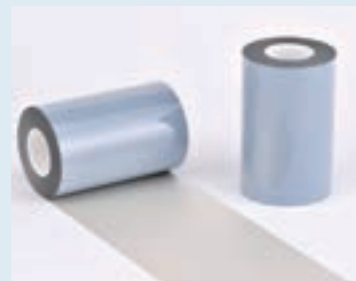
High-strength Ethernet cable with outstanding flex-durability

Cables using conductors made from our unique high-strength copper alloy have a longer life and reduce total costs, as well as reduce environmental impact by saving materials, contributing also to the SDGs.

Electronic materials business

In the electronic materials business, we develop products with attention to environmental compatibility from the design stage, including compliance with standards such as halogen-free, Restriction of the Use of Certain Hazardous Substances (RoHS), UL, etc.

Halogen-free	Containing no halogens such as chlorine, the materials in our products emit no dioxins or toxic gases when burned.
RoHS-compliant	Containing no lead, cadmium, mercury, hexavalent chromium, the designated bromine-based flame retardants polybrominated biphenyls (PBB) and polybrominated diphenyl ethers (PBDE), or four phthalates, which are designated hazardous substances that have a negative impact on the environment and human body. Our products are also compatible with reflow processing using lead-free solder.
Meeting UL standards	UL94 is a United States flammability testing standard. VTM-0 tests the vertical flammability of thin plastics, and V-0 tests vertical flammability. TATSUTA has developed products that have attained UL94 flammability class VTM-0, to provide products featuring outstanding safety and flame-resistance.



Highly heat-resistant shielding film for automobile applications (WILMINA™ SF-HR8600-C)

This shielding film is suitable for automotive sensor applications requiring high performance in high frequency ranges and high heat resistance. For automotive applications, durability at high temperatures (2,000 hours at 125°C) is especially important. Now manufacturers are considering in earnest adopting the film in electric vehicles with lower environmental impact, which incorporate many sensors. It has attained UL94 flammability class VTM-0. It is also halogen-free and complies with RoHS.

Note: "WILMINA" is a trademark of TATSUTA Electric Wire & Cable Co., Ltd., registered in Japan and other countries.



Thin copper foil shielding film for high-frequency range applications (WILMINA™ SF-HF3900R2-C)

This product is a thin copper foil shielding film using rolled copper foil with high shielding characteristics, suitable for high-frequency range applications. With a thinner film than the conventional WILMINA™ SF-PC™ 3300-C, it is an environmentally friendly product made from less materials. The use of a low-moisture-absorbing material shortens the baking time before mounting components. It has attained UL94 flammability class VTM-0. It is also halogen-free and complies with RoHS.



MP series and copper foil bond

Via filling paste (metalizing type) (MPA500)

The via filling paste is used as an interlayer connection material for printed circuit boards. It is usable in dry processes and cures at temperatures as low as 180°C or below. Having a connection reliability equivalent or superior to solder, it is now drawing attention also as an alternative to solder. One of our users commented that it has reduced CO₂ emissions in the printed circuit board manufacturing process by 40% compared to the conventional plating process.

Topic | Digging more into the world of functional pastes [Realizing more environmentally friendly manufacturing methods]

In the electronics field, we propose environmentally friendly manufacturing methods utilizing our strengths in polymer compounding and fine particle dispersion technologies.

Based on the EU WEEE and RoHS Directives, lead-free packaging has become a common practice. While leaded solder was replaced by alternative lead-free solder, technological innovations are creating demands for finer-pitch packaging, low-temperature packaging and heat-resistant packaging. High expectations are placed on conductive adhesive technology as an environmentally friendly technology to enable lead-free, low-temperature processing using no flux. In manufacturing electronic circuits and devices in printed electronics, vacuum processes such as sputtering and wet processes such as etching and plating have been commonly used. However, the use of plating, for example, has a high environmental impact including CO₂ emissions from consuming a large amount of electricity, chemicals, and a large volume of water. Thus, replacing these wet methods with dry printing methods is expected to further improve productivity while saving energy and resources.

Our functional paste lineup, consisting primarily of conductive pastes, includes a wide variety of products which are used in many applications such as the high-density packaging, build-up, and high-reliability of PCBs. We are also strengthening our collaboration with startup companies and entering technology areas that use nano-sized particles. The Radio Frequency Identification (RFID)* market is our target area. RFID products are made by processing aluminum foil using steps from exposure to etching, which cause a large environmental impact, using PET as a base material. Making these with ordinary paper, such as copy paper, will reduce both environmental impact and costs. Since paper is a naturally derived material unlike PET, which is a chemical product, this can further reduce environmental impact.

TATSUTA supports the evolution of electronics and contributes to reducing the environmental impact of its customers' manufacturing processes.

*RFID is an automatic identification technology that uses radio waves to read and write information on IC tags without contact.

Other businesses

The TATSUTA Group contributes to environmental conservation at customers' sites and workplaces drawing on its product lineup based on its unique technologies as well as the wealth of its experience.



Liquid leakage detection sensor (AD-BFL)

This liquid leakage detection sensor has high fire resistance and high chemical fluid resistance. Combined with a leakage position detector, it can detect the position of leakage and contribute to environmental conservation by protecting assets at data centers and chemical plants and enabling effective use of water resources through early restoration. Also, after detecting a leak, the system can be restored by simply wiping the liquid off, which also saves resources. It also complies with RoHS.



Tatsuta Environmental Analysis Center's environmental analysis business

TATSUTA Electric Wire & Cable established its environmental analysis business in response to the emergence of pollution problems in the 1970s. Tatsuta Environmental Analysis Center engages in the environmental analysis business with the vision of an "Ecological & Socially Positive Company." It represents a corporate approach of contributing to the improvement of the global environment and work environments through business activities. It contributes to solving various environmental problems not only through measurements and analyses of air and water quality, but also through environmental assessments and soil contamination investigations.

Wide range of analysis services

- Dioxins analysis
- Water quality analysis and drinking water testing
- Industrial waste analysis
- Working environment measurement
- Air/air pollutants/odor analysis
- PCB analysis
- Soil and groundwater investigation
- Asbestos analysis
- Analysis of products and materials

Promoting Recycling

The TATSUTA Group engages in recycling with the goal of achieving a circular society, targeting a recycling rate of 95% or more. In the electric wire and cable business, we collect gold, silver, and copper, which we use as raw materials for electric wires and cables, and convert mixed waste of metal and plastic to valuable materials. In the electronic materials business, we convert film scraps and material packaging scraps into valuable materials. In the fiscal year ended March 31, 2023, we achieved a recycling rate of 98.3% as the TATSUTA Group (in Japan).

$$\text{Recycling rate (\%)} = \frac{(\text{Valuable materials} + \text{industrial waste} + \text{general waste}) - \text{final disposal volume}}{(\text{Valuable materials} + \text{industrial waste} + \text{general waste})}$$

Note: Final disposal volume = general waste landfill + industrial waste landfill

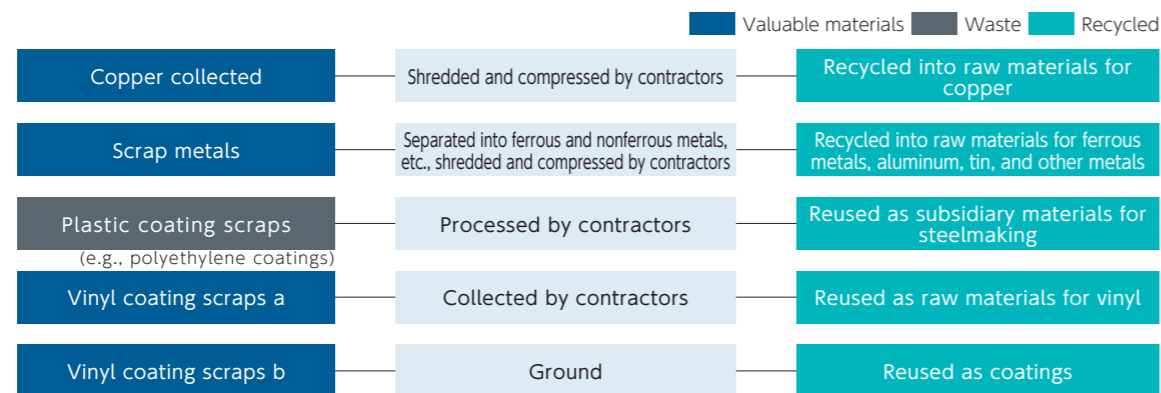
District	Fiscal year ended March 31, 2020	Fiscal year ended March 31, 2021	Fiscal year ended March 31, 2022	Fiscal year ended March 31, 2023
Head Office and Osaka Works	98.6%	99.0%	99.5%	99.5%
Kyoto Works	99.1%	98.3%	99.7%	99.7%
TATSUTA Technical Center	95.1%	95.7%	92.2%	97.0%
Sendai Works	98.1%	98.3%	97.8%	97.9%
Chugoku Electric Wire & Cable Co., Ltd.	—	—	—	82.2%
Tatsuta Tachii Electric Cable Co., Ltd.	—	—	—	98.8%
Total	98.5%	98.8%	99.2%	98.3%

Note: The figures from the fiscal year ended March 31, 2020 to the fiscal year ended March 31, 2022 are for TATSUTA Electric Wire & Cable on a non-consolidated basis.

Wire & Cable Group

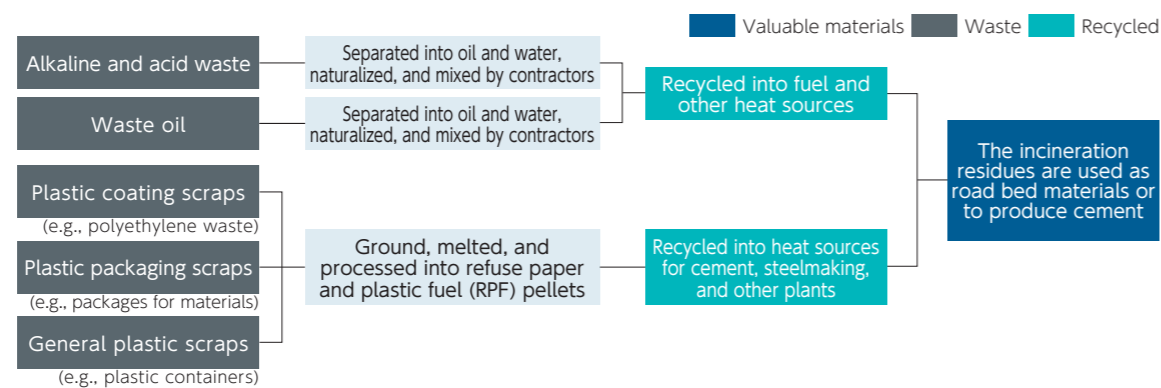
Material recycling

We separate copper, vinyl, and other waste materials generated from the manufacturing processes of wires and cables, and recover and process them through contractors to recycle them into raw materials and foaming inhibitors.



Thermal recycling

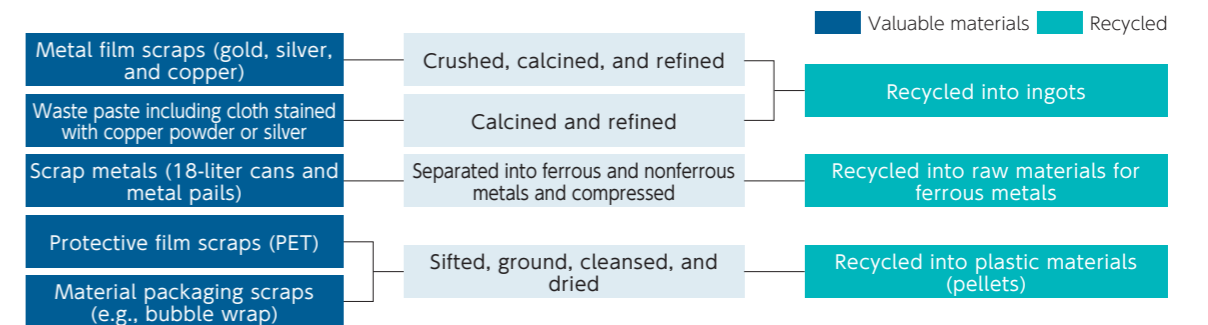
We separate polyethylene scraps generated from the manufacturing processes of wires and cables, and recover and process them through contractors to recycle them as fuels and other heat sources.



Electronic Materials & System Equipment Group

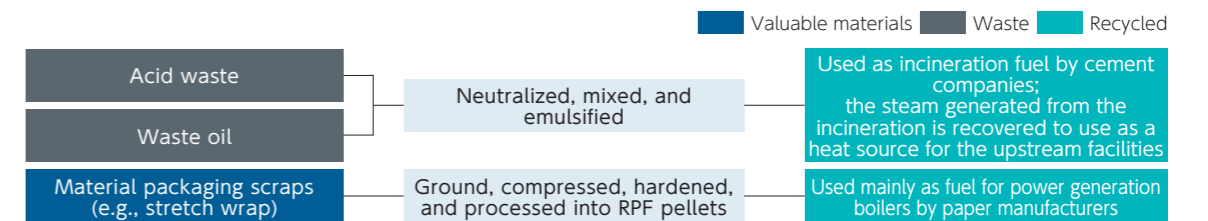
Material recycling

We separate gold, silver, copper, PET and other waste materials generated from the manufacturing processes of functional films, and recover and process them through contractors to recycle them into raw materials.



Thermal recycling

We separate acid waste, waste oil, and material packaging scraps generated from the manufacturing processes of functional films, and recover and process them through contractors to recycle them into fuels and other heat sources.



Promoting Energy Saving

We are improving the efficiency of production equipment and investing in energy saving, proactively introducing equipment with high energy-saving performance. In the fiscal year ended March 31, 2023, we focused on the following.

Promoting investment to conserve resources and energy

At the Osaka Works, we installed energy-saving motors when renewing drive control devices, contributing to an approximate annual power savings of 26,000kWh. At the Kyoto Works, automating air conditioning systems and reusing waste heat from deodorization equipment (in air conditioner reheaters) achieved an approximate annual power savings of 289,000kWh. At the Sendai Works, using automatic lighting reduced annual power consumption by 11,000kWh.



Installed take-up inverter motor

Reducing expected effect of rationalization of energy use by 1% or more

We have added "expected effect of rationalization of energy use" as a new indicator to measure the effect of our energy-saving measures and activities at our sites and workplaces since December 2022. The expected effect of rationalization of energy use is the expected effect of energy savings achieved by introducing renewable energy, renewal to energy-saving equipment, and other measures, calculated as a reduction in crude oil equivalent from the previous year. The expected effect of rationalization of energy use in the fiscal year ended March 31, 2023 was a reduction of 2.2%.

	Fiscal year ended March 31, 2021	Fiscal year ended March 31, 2022	Fiscal year ended March 31, 2023
Energy usage (kl crude oil equivalent): A	11,692	11,482	10,921
Expected effect of rationalization of energy use (kl crude oil equivalent): B	132.5	47.2	255.3
B as % of A in the previous year	1.08	0.40	2.22

Note: Results of TATSUTA Electric Wire & Cable on a non-consolidated basis (excluding Chugoku Electric Wire & Cable and Tatsuta Tachii Electric Cable).

Reducing energy consumption by product intensity: 1% or more

In the fiscal year ended March 31, 2023, energy consumption by product intensity increased by 8.9% (TATSUTA Electric Wire & Cable on a non-consolidated basis).

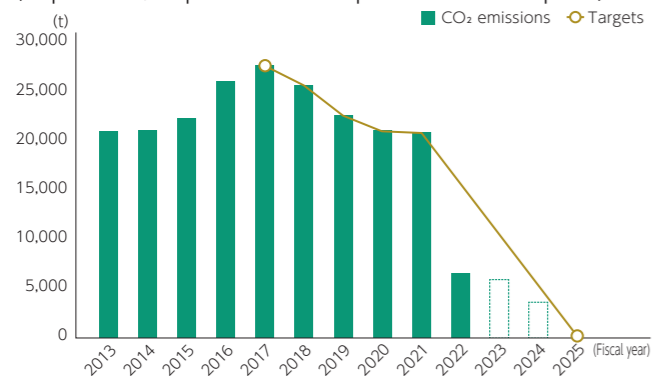
Pursuing Carbon Neutrality

The TATSUTA Group aims to achieve carbon neutrality by the fiscal year ending March 31, 2026. The Carbon Neutrality Pursuit Subcommittee, headed by the Executive Officer responsible for facilities engineering, drives and oversees efforts toward the goal. As a means of reducing CO₂ emissions, we are working to save energy, to generate energy, and to introduce CO₂-free energy.

We will work to reduce our overall energy usage by promoting energy-saving efforts. We will proceed with installing solar power generation systems to generate renewable energy.

The TATSUTA Group in Japan will shift to electrical power sourced from renewable energy for the electricity it uses in stages over a four-year period from FY2022 to FY2025, and will also shift to carbon-neutral LNG in principle in transition away from city gas. By combining these with the use of CO₂ credits, we plan to achieve carbon neutrality (Scope 1 and 2) by the fiscal year ending March 31, 2026. As a result of these efforts, we reduced our CO₂ emissions to 6,365 tons (down 68% YoY) in the fiscal year ended March 31, 2023.

Group CO₂ emissions reduction targets and emissions (results and forecasts) (Scope 1 and 2, at operational sites in Japan and affiliated companies)



CO₂ emissions (tons)

District	Fiscal year ended March 31, 2020	Fiscal year ended March 31, 2021	Fiscal year ended March 31, 2022	Fiscal year ended March 31, 2023
Head Office and Osaka Works	11,604	10,579	10,443	5,430
Kyoto Works	1,745	1,839	1,986	305
TATSUTA Technical Center	1,476	1,444	1,525	624
Sendai Works	4,474	4,341	3,800	0
Chugoku Electric Wire & Cable Co., Ltd.	1,258	1,033	1,000	2
Tatsuta Tachii Electric Cable Co., Ltd.	1,272	1,061	1,365	4
Total	21,829	20,297	20,119	6,365

Achieving carbon neutrality in the functional films business

In the functional films business where customer demand has been particularly high, we have been carbon neutral (Scope 1 and 2) since April 2022.

We have also worked proactively on energy generation, adding solar power generation equipment at the TATSUTA Technical Center and installing new equipment at the Sendai Works and Kyoto Works. This resulted in an annual reduction in CO₂ emissions of 87t at the TATSUTA Technical Center and 337t at the Sendai Works. The equipment at the Kyoto Works completed installation in March 2023 and started operating in April. [Power generation capacity of solar power generation systems installed in the fiscal year ended March 31, 2023 (total of 3 sites): 1,342kW]

TATSUTA Technical Center



Kyoto Works



Biodiversity Conservation Activities

The TATSUTA Group avoids using chemicals that are harmful to living organisms, wherever possible. We pursue biodiversity conservation activities tailored to the uniqueness of each region in which we operate. In the fiscal year ended March 31, 2023, we focused on the following.

Initiative	Details
Forest conservation	TATSUTA participates in the IKOMA no MORI Forest Consortium, which engages in forest conservation activities through cooperation between companies, universities, NPOs, administrative bodies, and other organizations. The Consortium carries out the periodic thinning and maintenance of forests. In the fiscal year ended March 31, 2023, activities were canceled due to the COVID-19 pandemic.
Site greening initiative	The Sendai Works engages in vegetable gardening as part of its site greening initiative. The harvested vegetables are distributed to employees. The activities were canceled in the fiscal year ended March 31, 2023, but have resumed in the fiscal year ending March 31, 2024.

Environmental Data (fiscal year ended March 31, 2023)

Head Office and Osaka Works

1. Atmospheric and water-related

	Facility name	Item	Unit	Regulation level	Measured value (maximum)
Atmospheric	Natural gas boiler	NOx concentration	ppm	150 or lower	41
		NOx emissions	kg	—	996.5
		Particulate matter	g/Nm ³	0.05 or lower	0.03
Water ¹	Sewage	pH ²	—	More than 5.7 and less than 8.7	7.1~8.6
		BOD	mg/L	Less than 300	260
		n-hexane extraction (mineral oils)	mg/L	5 or lower	5

2. Results of PRTR investigation (chemical substances for which the amount handled by the business operator exceeded 1 ton)

No. (PRTR Law)	Substance name	Amount emitted (tons)	Amount transported (tons)
Class I - 31	Antimony and its compounds	0	0.79
Class I - 239	Organic tin compounds	0	0
Class I - 305	Lead compounds	0	0.14
Class I - 330	Dicumyl peroxide	0	0.32
Class I - 355	Bis (2-ethylhexyl) phthalate	0	14

Kyoto Works

1. Atmospheric and water-related

	Facility name	Item	Unit	Regulation level	Measured value (maximum)
Water	Sewage	pH ²	—	More than 5.7 and less than 8.6	6.8
		BOD	mg/L	Less than 300	17
		n-hexane extraction (mineral oils)	mg/L	5 or lower	Less than 1

2. Results of PRTR investigation (chemical substances for which the amount handled by the business operator exceeded 1 ton)

No. (PRTR Law)	Substance name	Amount emitted (tons)	Amount transported (tons)
Class I - 82	Silver and its water-soluble compounds	0	0
Class I - 300	Toluene	0.6	1.2

TATSUTA Technical Center

1. Atmospheric and water-related

	Facility name	Item	Unit	Regulation level	Measured value (maximum)
Water	Sewage	pH ²	—	More than 5 and less than 9	8.2~8.5
		BOD	mg/L	Less than 3,000	360
		n-hexane extraction (mineral oils)	mg/L	5 or lower	Less than 1

2. Results of PRTR investigation (chemical substances for which the amount handled by the business operator exceeded 1 ton)

No. (PRTR Law)	Substance name	Amount emitted (tons)	Amount transported (tons)
Class I - 82	Silver and its water-soluble compounds	0	0
Class I - 300	Toluene	0	2.5

Sendai Works

1. Atmospheric and water-related

	Facility name	Item	Unit	Regulation level	Measured value (maximum)
Atmospheric	Natural gas boiler	NOx concentration	ppm	150 or lower	54
		NOx emissions	kg	—	845.3
		Particulate matter	g/Nm ³	0.05 or lower	Less than 0.02
Water	Sewage	pH ²	—	More than 5 and less than 9	8.8
		BOD	mg/L	Less than 600	68
		n-hexane extraction (mineral oils)	mg/L	5 or lower	Less than 1

2. Results of PRTR investigation (chemical substances for which the amount handled by the business operator exceeded 1 ton)

No. (PRTR Law)	Substance name	Amount emitted (tons)	Amount transported (tons)
Class I - 82	Silver and its water-soluble compounds	0	0
Class I - 300	Toluene	0	20

¹ The Regulation level for water is in accordance with the Higashiosaka City sewage ordinance.

² pH indicates a range.