

Environmental Management

Basic approach

Since business activities are dependent on natural resources, tackling climate change and other environmental problems is an essential task for companies. The artience Group has recognized environmental conservation as an important issue from an early stage, and has been working to reduce its environmental impact by establishing its Basic Policy on Environment (revised in January 2024.) In the Group's environmental management system, our Basic Policy on Environment is regarded as our environmental policies under ISO 14001, and we will thoroughly inform all employees, set objectives and targets for each, and make efforts for their realization.



The Basic Policy on Environment is posted on our website under [Sustainability > Related Policies and Guidelines.]

Promotion system

The President and Representative Director (Group CEO) is the chief executive officer of the sustainability promotion system and the chief executive officer for environmental management, including the Group's response to climate change. Environmental management is supervised by the Board of Directors through the President and Representative Director (Group CEO,) and is promoted by the Chief Sustainability Officer (Chair of the Sustainability Committee) as the person in charge of practical matters.

The Sustainability Committee and its ESG Promotion Subcommittee formulate medium to long-term environmental plans and targets for the entire Group, check progress, carry out activities for each theme, and report to management at Sustainability Committee meetings and Sustainability Meetings (group-wide meetings.)

In terms of day-to-day activities toward achieving targets, the ESG Promotion Office of artience Co., Ltd. is a dedicated organization that supervises and manages activities for the entire Group, and works in cooperation with related departments to achieve the asv2050/2030 Sustainability Vision, looking ahead to 2050.



Page 12: Sustainability promotion system

Metrics and targets

January 2022, We has also established the Sustainability Vision "asv2050/2030," with long-term practical targets for its sustainability activities. We have established this vision with a view to 2050, in order to respond to recent global trends regarding climate change, carbon neutrality and initiatives for the achievement of the SDGs, as well as the current social situation which requires that companies fulfill increasing demands for sustainability.

asv2050/2030 consists of asv2050, which indicates a direction to reach our ideal vision with 2050 as the target year, and asv2030, which sets various interim targets by backcasting toward 2030 as a milestone. In February 2025, we established our Group Materiality 2025-2030, defining action items, KPIs, and measures for environmental themes (decarbonization, climate change, water management, waste and resource recycling, pollutants, and chemical substances.) The artience Group will strengthen its sustainability efforts, using the Group Materiality 2025-2030 after that as metrics for sustainability activities. The Group aims to achieve carbon neutrality by 2050.



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State of compliance with environmental laws and regulations

No environmental accidents requiring an emergency response occurred in FY2024 at any business location of the artience Group in Japan or overseas. The Group received no administrative directives in Japan or overseas in connection with environmental laws and regulations. We take appropriate response actions to redress deficiencies if we receive any instructions on them.



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Acquisition status of ISO 14001 certification

The Group is working to acquire ISO 14001 certification, an environmental management system certification, for its manufacturing sites both domestically and internationally. PT. Toyo Ink Indonesia has newly acquired ISO 14001 certification.

As of FY2024, 28 of our 38 manufacturing sites have now acquired ISO 14001 certification, achieving a certification rate of 74%.



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Environmental accounting

The Group calculates environmental conservation costs based on Japan's Ministry of the Environment (MOE) guidelines. By continuously tracking environmental conservation costs and effectiveness, we evaluate the efficiency of our environmental conservation activities.



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Environmentally Friendly Products / Utilization of Life Cycle Assessment

Basic approach

Based on the idea that reducing the environmental impact from products is important to environmental conservation, we formulated a Basic Environmental Policy (revised in January 2024.) We have long been striving to offer Environmentally Friendly Products* and services. To drive initiatives such as environmental conservation and sustainable procurement of raw materials, we utilize life cycle assessment (LCA) in manufacturing with a view to reducing our environmental impact throughout the product life cycle, including raw material procurement, production, use, disposal, and recycling of products.

* We redefined conventional Environmentally Friendly Products as Environmental Value (products) for creating a society in harmony with the environment and Lifestyle Value (products) for a comfortable, healthy, and safe society, we also define the Sustainability-enhancing Products.

 Page 13: Sustainability-enhancing Products

Metrics and targets

■ Relevant themes in Group Materiality 2025–2030

Theme: 1-1. Products & Services

Increase sales of Sustainability-enhancing Products, mainly in the strategic priority businesses

- Expanding the lineup of Sustainability-enhancing Products (environmental / lifestyle value products)

Theme: 1-2. Decarbonization

Promote GHG emissions reduction and decarbonization throughout the value chain

- Initiate and promote calculation of Scope 4 (contribution to reducing GHG emissions downstream in the supply chain)
- Established in-house carbon footprint (CFP) calculation system based on international rules and completed application to specific product categories
- Step up supplier engagement for the purpose of reducing Scope 3 emissions

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[Achievements in FY2024]

■ Achievements in Products & Services / Decarbonization

KPIs and measures	Achievements in FY2024
Expanding the lineup of Sustainability-enhancing Products (environmental value products)	· Developed and provided products that contribute to the recycling of plastic resources (peel-off recycling technology adopted for refill packs) · Contributed to improving plastic material recycling rates through deinking technology for UV curing inks
Established in-house carbon footprint (CFP) calculation system based on international rules and completed application to specific product categories	· One additional individual obtained SuMPO-certified LCA Expert qualification through our training program · Established a CFP initiative system for each product · Provided LCA assessment information for products to customers (1,600 cases) as part of efforts to utilize LCA in the supply chain



Examples of development and commercialization

- October 21, 2024 news release: TOYO INK's debonding and recycling technology is used in Lion Corporation's refill packs
- June 4, 2024 news release: Expanding UV curing ink deinking technology to include cosmetic clear packaging, contributing to an increase in the material recycling rate of plastics

Utilization of life cycle assessment

The Group is working to visualize environmental impact using Life Cycle Assessment (LCA), which is a method for quantitatively assessing the environmental impact of a product's life cycle, including raw material procurement, production, use, disposal, and recycling.

In response to growing calls for disclosure of greenhouse gas (GHG) emissions from Europe and other industries in recent years, and to provide the value of low-carbon and decarbonized products to solve climate change issues, we are working to establish a framework that includes the formulation of calculation rules and the development of systems for greenhouse gas emissions (carbon footprint, CFP) for each product.

Currently, we use average GHG emission factors that are publicly available, but will advance cooperation and collaboration with members of the supply chain to use actual emission factors, which will lead to the design, development, and provision of products with consideration for low carbon footprint.

TOPICS

ISCC PLUS Certification

The artience Group works to develop and launch products and services that meet societal demands and customer needs, striving to provide products and services that contribute to the creation of a sustainable society. Toyochem Co., Ltd.'s Kawagoe Factory has obtained ISCC PLUS certification*, an international certification system for sustainable products.

* ISCC PLUS certification: A certification system for sustainable products operated by International Sustainability and Carbon Certification (ISCC.) Products made from raw materials derived from renewable resources (such as biomass materials) or recycled resources (such as recycled resin) are assessed for compliance with traceability requirements throughout the supply chain.

Response to Climate Change

Basic approach

The artience Group understands that responding to climate change is a material management issue with a huge impact on business activities. In November 2020, we expressed support for the Task Force on Climate-related Financial Disclosures (TCFD.) Currently, we conduct activities for addressing climate change such as reducing CO₂ emissions towards carbon neutrality in 2050 in accordance with our Sustainability Vision asv2050/2030. We also disclose information in accordance with the TCFD recommendations.

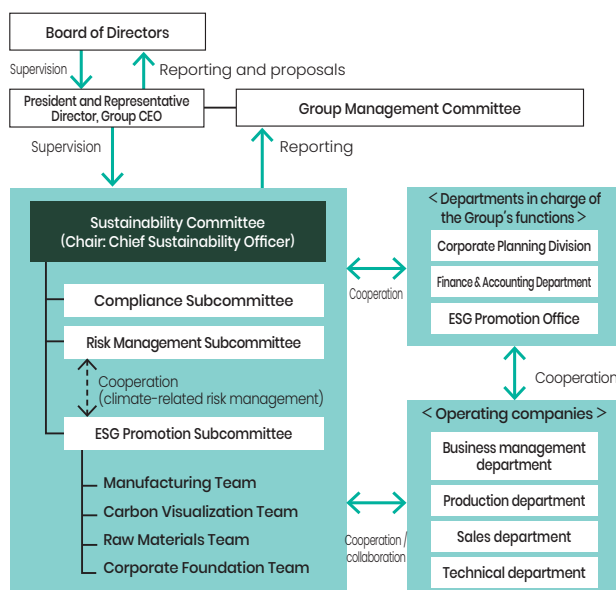
Governance

The Sustainability Committee, which oversees the sustainability activities of the entire artience Group — including climate change — and promotes them across the organization, is supervised by the Board of Directors via the President and Representative Director. Important issues are discussed and resolved by the Group Management Committee, and then reported to the Board of Directors for approval.

The President and Representative Director oversees the Sustainability Committee as the chief supervisor for the Group's response to climate change, taking ultimate responsibility for management decisions relating to the Group-wide sustainability activities, and appointing a Chief Sustainability Officer as the executive officer in charge of sustainability activities.

Subordinate to this committee, the ESG Promotion Subcommittee plans and implements specific activities relating to Group-wide sustainability, including the response to climate change. We are also enhancing the effectiveness of our climate change response activities by collaborating and cooperating with practical organizations such as the ESG Promotion Office, Group functional departments, and departments at each operating company.

System for addressing climate change (FY2025)



Report on climate change to management (Board of Directors and Group Management Committee)

	Contents of report
July 2024	Progress reports based on decarbonization roadmaps in Japan and overseas, proposals for establishing Scope 3 calculation systems and product CFP calculation systems (Sustainability Conference meetings.)
February 2025	Explanation of contents of new materiality (including detailed explanation of climate-related themes)
March 2025	Reports on activities in FY2024 and explanations on the activity policy for FY2025 at the Sustainability Committee meeting

Committees / organizations	Roles and activities
Board of Directors	Approves and supervises all initiatives relating to climate change that have been resolved by the Group Management Committee.
Group Management Committee	Discusses and resolves important issues relating to addressing climate change and reports to the Board of Directors.
Sustainability Committee	Responsible: Chief Sustainability Officer Discusses specific policies, plans and measures to tackle climate change and reports them to the Board of Directors and to the Group Management Committee.
ESG Promotion Subcommittee	Responsible: General Manager of ESG Promotion Office Drafts and formulates specific policies, plans and measures against climate change and carries out activities in collaboration with departments and subsidiaries. Holds regular monthly meetings.
Manufacturing Team	Support for implementing measures to reduce GHG emissions at each production site, aggregation and sharing of information, cross-organizational planning.
Carbon Visualization Team	Formulates rules, builds systems, and structures the organizational framework relating to visualization of CFP.
Raw Materials Team	Works to build a sustainable supply chain and transition to low-carbon raw materials to reduce Scope 3 emissions.
Corporate Foundation Team	Strategy development and disclosure practices for climate change information disclosure based on the TCFD recommendations.
Risk Management Subcommittee	Responsible: Executive Operating Officer, General Manager of General Affairs Department Identifies, analyzes, and evaluates climate-related risks in the same way as other corporate risks, in cooperation with the ESG Promotion Subcommittee. Meetings are held twice a year.
Departments in charge of the Group's functions	Carries out practical work, such as the incorporation of climate actions into management plans, earmarking of budgets for them, legal actions, strengthening of human capital, and the distribution of information to insiders and outsiders.
ESG Promotion Office	Incorporates climate actions more intensively into management and business plans, develops specific activities for climate goals and appropriates budgets to these activities in collaboration with the management layer, the group function division and corporate management divisions of operating companies.
Operating companies	In collaboration with the ESG Promotion Subcommittee and the business divisions (corporate management, production, technical and sales) separately work to incorporate climate-related actions into business plans, carry out the actions, collaborate with raw material suppliers, change the production process, conduct marketing and sales promotion of low-carbon products and undertake research and development efforts for technologies aimed at decarbonization.

Response to Climate Change

Risk management

[Risk / opportunity management process]

The Group has established a group-wide risk management system centered on the Risk Management Subcommittee. We recognize that climate-related risks, like other corporate risks, are factors that affect the sustainable growth of a Group, and that taking appropriate measures will lead not only to preventing the actualization of risks and the mitigation of their impact when they actualized, but also to opportunities such as increasing business earnings and improving the Group's reputation in the market. The ESG Promotion Subcommittee manages climate-related risks and opportunities in cooperation with the Risk Management Subcommittee, applying the same management process as for corporate risks in general.

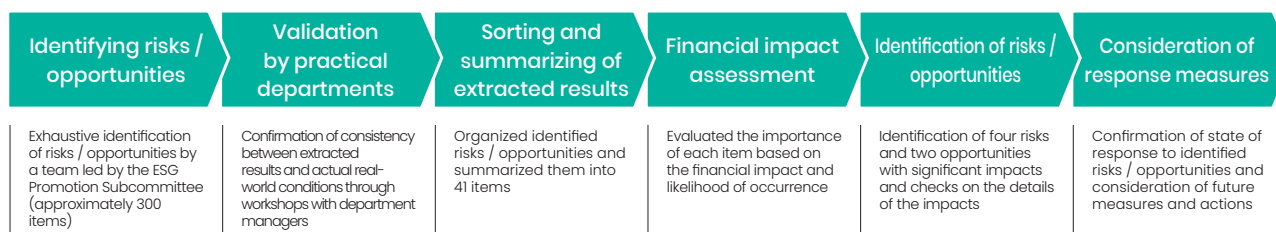
The ESG Promotion Subcommittee identifies and assesses climate-related risks and opportunities and reports them to the Group Management Committee and to the Board of Directors. It organizes a Sustainability Conference as a Group-wide meeting on an annual basis to provide not only the management layer and managers of divisions in group companies but also general employees with opportunities to hear discussions in a bid to share information and views in the Group. It also provides education and training related to climate change by means of e-learning to all employees to raise climate awareness, to update them with the latest information and to develop their

ability to perceive risks. Management layer and Group companies incorporate response measures and action plans based on these risks and opportunities into their management plans and business plans, and reflect them in specific measures.

[Process for identifying and assessing risks / opportunities] (conducted from December 2021 to May 2022)

Using a matrix of the categories of the risk and opportunity categories defined by the TCFD recommendations (Transition Risks: Policy and Legal, Technology, Markets, and Reputation; Physical Risks: Acute and Chronic; Opportunities: Resource Efficiency, Energy Sources, Products and Services, Markets, and Resilience) and the Group's value chain processes (procurement, production, logistics, sales, R&D, management, use, and disposal,) we exhaustively extracted risks and opportunities associated with climate change. The validity of the extracted results (i.e. whether or not they are matched with the practical work and the on-the-spot situation) was confirmed through a workshop for department managers at each Group company. We summarized the risks and opportunities, then, evaluated their impact on two axes: financial impact and likelihood of occurrence (scenario analysis.) In this way, we identified four key risks and two key opportunities based on the evaluation results.

■ Process for identifying and assessing risks / opportunities



■ Risks / opportunities organized and summarized in the process of identifying risks / opportunities (partial list)

Transition risks	Policy and legal	- Cost increases due to introduction of carbon taxes and soaring emissions trading prices - Toughening and/or changing of environmental regulations on GHG emissions, etc., and their impact on production facilities
	Technology	- Decline in the value of existing technologies accompanying the transition to a decarbonized society - Increasing costs of investment in equipment, human resources development and R&D accompanying the transition to low-emission products
	Market	- Decline in demand for packaging- and printing-related items, etc., accompanying the transition to a circular economy and decarbonization - Rise in raw material and energy prices due to the use of non-fossil and recycled raw materials and compliance with regulations
	Reputation	Declining preference due to inability to demands from customer for reducing GHG emissions
Physical risk	Acute	- Failure to fulfill supply responsibilities or loss of business opportunities due to supply chain disruptions as a result of climate-related disasters - Damage to equipment and facilities caused by climate-related disasters, increased recovery costs and loss of business opportunities due to infrastructure stoppages
	Chronic	Increase in measures and relocation costs for bases located in flood and drought risk areas
Opportunities		- Increase in sales due to growing customer demand for products that lead to energy conservation, reduction of GHG emissions and recycling of resources - Capture of business opportunities due to market creation and growth for new climate-related businesses (carbon-neutral materials and products for combating infectious diseases)

Response to Climate Change

Strategy

[Basic strategies]

The artience Group recognizes that the policies and measures taken by national and local governments in response to global climate change have a significant impact on market conditions, the procurement of raw materials and consumer preferences and may have a strong impact on business continuity and business performance in the future.

Under asv2050 / 2030, we have set achieving carbon neutrality in the Group's production activities as our long-term goal asv2050, our desired state for 2050. As our interim goal asv2030, and also as goals (KPIs/measures) for Group Materiality 2025-2030, we have set the goals of reducing global Scope 1 and Scope 2 emissions by 26% compared to FY2020 by 2030, achieving an 80% ratio of sales from sustainability-enhancing products, and expanding our lineup of products that contribute to reducing CO₂ emissions from a lifecycle perspective.

To strategically advance toward achieving our goals from various perspectives, the production division is making environmentally focused capital investments, such as electrifying production equipment (including switching to LED lighting) and installing solar power generation equipment.

In development and marketing, we are engaged in efforts that span the entire supply chain. These include developing and providing products that contribute to reducing CO₂ emissions, and building resource circulation systems through collaboration with our customers.



The Policy on Climate Change is posted on our website under [Sustainability > Related Policies and Guidelines.]

[Scenario-based analysis]

The purpose of scenario-based analysis is to grasp and understand risks and opportunities that will arise from anticipated climate change and what kind of impact they will have on the Group, confirm the resilience of the Group's sustainable growth strategy in the expected future, and consider the need for further measures.

We conducted a scenario analysis on four risks and two opportunities identified by the Group, referring to two climate change scenarios (1.5°C and 4°C) proposed by the International Energy Agency (IEA) and the Intergovernmental Panel on Climate Change (IPCC.)

■ Results of scenario-based analysis

Categories	Risks / opportunities	1.5° C scenario		4° C scenario		Periods of increased impact	Countermeasures / actions
		Financial impact	Expressivity	Financial impact	Expressivity		
Transition risks: Policy and legal, Market	Rising raw material and energy prices	3	3	2	3	Medium	- Reduction of high-cost raw materials by reviewing formulations and changing product lineups - Stable procurement of raw materials through review of contracts with suppliers - Reduction of energy consumption by shortening transportation distances, by promoting local production for local consumption
Transition risks: Technology, Market, Reputation	Decline in demand for packaging- and printing-related items	3	3	2	2	Short	- Review of the business portfolio - Enhancing superiority by increasing environmental performance and low-emission characteristics of products - Appealing to customers regarding value-added products through CFP labeling - Rollout of products that support use of low-carbon packaging materials
Transition risks: Policy and legal	Increased impact of carbon prices on costs	3	3	2	3	Short	- Transferring increases in raw material prices due to carbon taxes to product prices - Reduction and elimination of high-carbon raw materials through product formulation reforms - Active shift toward electricity derived from renewable energy - Avoiding the purchase of emissions credits by rigorous reduction of direct emissions
Physical risks: Acute	Loss of business opportunities due to the intensification of climate-related disasters	2	2	3	3	Long	- Enhancing disaster readiness through BCM - Construction of a complementary domestic and overseas production network that includes other companies in the same industry - Diversification of sources of raw materials and modes of transport
Opportunities: Energy source, Products and services	Increased sales of low-emission products	3	3	2	3	Short	- Prioritizing selection and securing supplies of low-emission raw materials - Reducing CO₂ emissions from production activities - Expanding lineup of products that consider low emissions from a life cycle assessment (LCA) perspective (e.g., heating/pretreatment at the time of use not necessary, easy to recycle) - Pursuing R&D and commercialization of carbon-negative materials
Opportunities: Products and services, Market	Acquisition of business opportunities such as materials for combating extreme heat and infectious diseases	2	3	3	3	Long	- Pursuing R&D and commercialization of materials to combat deterioration of living conditions (hot weather) due to climate change - Pursuing R&D and commercialization of medical-related materials (e.g., drug discovery, medication, medical devices and prevention of infections)

Financial impact: 3=impact of several billion JPY or higher; 2=impact of around one billion JPY; 1=impact of less than one billion JPY

Likelihood of occurrence: 3=already occurring at the present time, or almost certain to occur in the future; 2=relatively high likelihood of occurrence; 1=low likelihood of occurrence
Period of increase in impact: Short-term = around 1 year (period of annual plan,) Medium-term = around 3 years (period of medium-term management plan,) Long-term= around 10 years (interim target year of asv2050/2030 = period up to FY2030)

For our 1.5° C scenario, we refer to the IEA World Energy Outlook: Net Zero Emission by 2050 Scenario and IPCC: SSP1-1.9 scenario.

For our 4° C scenario, we refer to IEA World Energy Outlook: Stated Policy Scenario and IPCC: SSP5-8.5 scenario.

Scope of analysis: Existing businesses of the entire Group and new businesses anticipated at this time

Response to Climate Change

[Quantitative analysis ①: Amount of impact from carbon taxes]

As a Group whose main business is chemical manufacturing, and which has a large amount of CO₂ emissions from its production activities, we recognize that the introduction of carbon taxes in the regions where we operate both in Japan and overseas will have a strong impact on the Group's finances.

The Group has therefore quantitatively analyzed the

extent to which the interim targets of the asv2050/2030 sustainability vision — CO₂ emissions: 35% reduction in Japan (from the FY2020 level,) 35% reduction in other countries (compared to the FY2030 BAU) — will reduce the financial impact of carbon taxes. For both scenarios used in the analysis, we confirmed that achieving the asv2030 targets would reduce the impact by approximately 38%.

■ Amount of impact from carbon taxes

		1.5°C scenario	4°C scenario
Carbon tax per ton of emissions *1 (2030)		14,950 JPY/t-CO ₂ 7,475 JPY/t-CO ₂	7,475 JPY/t-CO ₂
FY2030BAU *2	CO ₂ emissions	Japan: 88,400 t-CO ₂ Overseas: 146,000 t-CO ₂	
	Impact from carbon tax	3.51 billion JPY	1.74 billion JPY
When asv2030 targets are achieved	CO ₂ emissions	Japan: 50,000t-CO ₂ Overseas: 95,000t-CO ₂	
	Impact from carbon tax	2.17 billion JPY	1.08 billion JPY
Difference		-1.34 billion JPY	-0.66 billion JPY

*1 For a carbon tax per ton of emissions, we referred to the IEA World Energy Outlook 2021. The 1.5°C scenario quotes the carbon tax price for developed countries given by the Net Zero Emission by 2050 Scenario, while the 4°C scenario quotes the EU carbon tax price given by the Stated Policy Scenario.

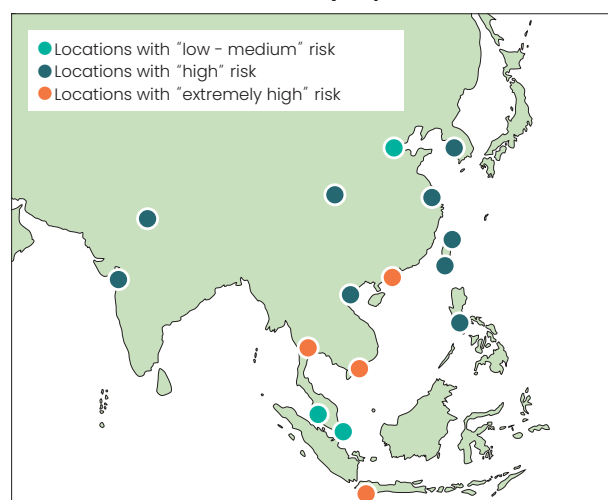
*2 The FY2030 BAU assumes that domestic and overseas activity (net sales) will increase by 15% and 23%, respectively, in comparison with FY2020, and that emissions intensity will remain unchanged from FY2020.

[Quantitative analysis ②: Amount of damage in the event of flooding in areas with high water risk]

The Group uses the World Resources Institute (WRI) water risk assessment tool Aqueduct 4.0 to assess physical risks (quantitative and qualitative,) water stress, flood risk, and regulatory and reputational risks on a river basin level. As a result, more than half of our overseas offices in Asia (Southeast Asia, India, China, Taiwan, and South Korea) have been assessed as having some kind of water risk (high to significantly high.) In particular, the risk of flooding is significantly high in China (South China,) Vietnam, and Indonesia.

This time, we estimated the amount of damage caused by flooding at three business sites located in areas indicated as having a high flood risk. At business sites located in such high-risk areas, we are working to reduce risks by deploying countermeasures implemented by Toyo Ink (Thailand) Co., Ltd. (Thailand) — which has experienced large-scale flood damage in the past — across the board.

■ Assessment of flood risk by Aqueduct



■ Amount of damage in the event of flooding*1 at business sites in areas with high flood risk (estimated)

Category	Specific damage	Number of locations	Amount of damage (estimated)
Direct damage*2	Damage to buildings (offices, factories, warehouses, etc.)	3	2,429 million JPY
	Damage to equipment (production equipment, vehicles, office equipment, etc.)	3	6,618 million JPY
	Damage to inventory (products, work in process, raw materials, etc.)	3	6,816 million JPY
Indirect damage*3	Opportunity losses due to shutdowns	3	7,326 million JPY
Other damages		—	—
Total			23,189 million JPY

*1 Under the climate scenario of a 4°C rise at the end of the 21st century, we assumed that floods would occur on a scale of about once every 100 years.

*2 We set damage ratios for each depth of inundation (flooding,) and estimated the amount of damage to buildings, equipment, and inventory at each business site.

*3 We set an average number of shutdown days for each depth of inundation, estimated the number of days of shutdown for each affected site, and estimated the amount of opportunity losses.

Response to Climate Change

Metrics and targets

[Scope 1 + 2 emissions] (indicator for risk)

Under asv2050/2030, we have set achieving carbon neutrality in the Group's production activities as our long-term goal asv2050, our desired state for 2050. As our interim goal asv2030 and also as a target (KPI/measure) for Group Materiality 2025-2030, we have set the goal of reducing global Scope 1 and Scope 2 emissions by 26% compared to FY2020 levels by 2030.

Our measures to achieve these targets can be classified into three aspects: reducing energy consumption, shifting to low-carbon energy, and shifting to low-carbon power. In Japan, co-generation systems are in operation at many production bases. Our efforts will center on shifting to low-carbon energy, such as changing fuels for system into lower-carbon fuels and electrification of production facilities. Overseas, the electrification of production equipment is advancing. We will continue to drive the electrification of production equipment (such as switching to LED lighting) and focus our efforts on decarbonizing our power supply (including installing solar power generation equipment and sourcing purchased electricity from renewable energy sources.)

■ Relevant themes in Group Materiality 2025-2030

Theme: 1-2. Decarbonization

Promote GHG emissions reduction and decarbonization throughout the value chain

- Initiate and promote calculation of Scope 4 (contribution to reducing GHG emissions downstream in the supply chain)
- Established in-house carbon footprint (CFP) calculation system based on international rules and completed application to specific product categories
- Step up supplier engagement for the purpose of reducing Scope 3 emissions

Theme: 2-1. Climate Change

Tackle to reduce GHG emissions taking every possible measures and contribute to mitigating climate change

- Scope 1 and 2 emissions (global): 26% reduction from FY2020 level

[CO₂ emissions: 35% reduction in Japan from the FY2020 level, 35% reduction overseas compared to the FY2030 BAU]

- Carry out initiatives to reduce Scope 3 emissions

[link](#) Page 10 to 11: Group Materiality 2025-2030

■ Direction and major measures towards reducing CO₂ emissions

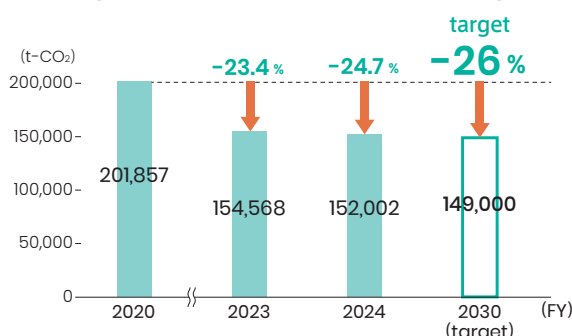
Direction of measures	Major reduction measures
Reduction of energy consumption	· Energy conservation (eliminating energy loss in processes) · Production process reform from an energy-saving perspective
Low carbonization of energy	· Electrification of production equipment (reducing direct emissions) · Preparation and research for the use of LNG alternative fuels
Low carbonization of electric power	· Introducing low-carbon power (reducing indirect emissions) · Introducing renewable energy equipment

[Achievements in FY2024]

Scope 1 + 2 emissions

In FY2024, the Group's overall Scope 1 and 2 emissions were 152,002 tons (a 1.7% decrease year on year.) Emissions in Japan increased due to changes in emission factors, while overseas emissions decreased due to changes in emission factors and the introduction of solar power equipment.

■ Changes in Scope 1 + 2 emissions and targets



* For details about the method and scope of calculation, see pages 42 to 43 in the Environmental Data.

■ Breakdown of Scope 1 and Scope 2 emissions (FY2024)

(Unit: t-CO₂)

	Japan	Overseas	Group total
Scope 1	44,939	22,072	67,012
Scope 2	22,790	62,200	84,990
Total	67,729	84,272	152,002

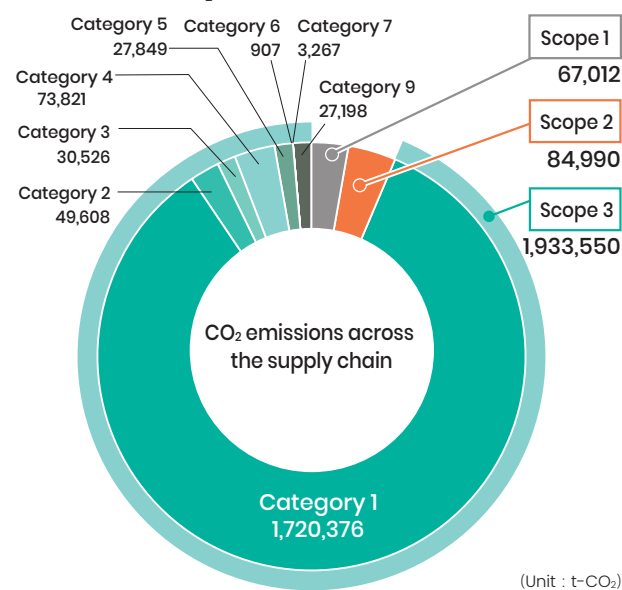
Response to Climate Change

CO₂ emissions across the supply chain

We calculated CO₂ emissions associated with our business activities from the upstream to the downstream of our supply chain, in accordance with the Basic Guidelines on Accounting for Greenhouse Gas Emissions Throughout the Supply Chain.

Regarding emissions in the upstream and downstream of our supply chain (Scope 3,) 12 out of 15 categories shown in the Basic Guidelines were calculated. However, calculations of processing, use, and disposal of products sold (Categories 10, 11, and 12) were not made over the entire scope of calculations because the products are diverse and therefore it is difficult to identify the scenarios for such processing, use, and disposal of products sold. In FY2024, we expanded the scope of our emissions calculations with the addition of one overseas site. In the future, we will work to heighten the accuracy of calculation and seek collaboration with suppliers in CO₂ reduction, mainly through dialogues with them.

Breakdown of CO₂ emissions across the supply chain (FY2024)

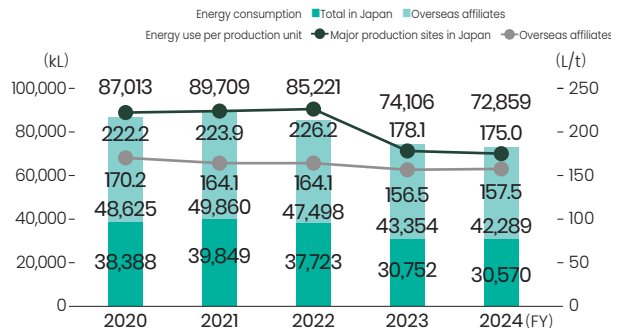


* For details about the method and scope of calculation, see pages 42 to 43 in the Environmental Data.

[Energy consumption]

For FY2024, energy consumption in the whole artience Group reached 72,859 kL, down 1.7% year on year. Although our production volume increased, energy consumption decreased due to factors such as energy conservation and product mix. Meanwhile, energy use per production unit (energy consumed for producing one ton of product) was flat, due to a decline in operation rate.

Changes in energy consumption and specific energy consumption



Scope of calculation: Major factories and plants in Japan, affiliates in Japan and major overseas affiliates engaging in manufacturing; For details about the organizations in the scope, see page 39.



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Status of introduction of renewable energy (FY2024)

	Japan	Overseas
Power selling	3,340 thousand kWh 1,568t-CO ₂	—
Self-consumption	703 thousand kWh 327t-CO ₂	6,730 thousand kWh 5,263t-CO ₂

Initiatives

[Introduction of cogeneration system]

In the artience Group, the Fuji Factory of Toyocolor Co., Ltd., the Kawagoe Factory of Toyochem Co., Ltd., and the Moriama Factory of Toyo Visual Solutions Co., Ltd. introduced cogeneration systems with electricity generation capacity of 5,750 kW, 5,700 kW, and 400 kW, respectively. These systems enabled the factories to achieve efficient use of electric power and heat.

[Air leak reduction activities]

We are conducting air leak reduction activities to check whether air leaks are occurring in our production sites and factories using dedicated equipment to detect air leaks. By eliminating air leaks, it is possible to reduce wasted power generated by air compressors, etc., which leads to energy savings and reductions in CO₂ emissions.



An employee checking for air leaks

Response to Climate Change

[Renewable energy initiatives]

The artience Group has set achieving carbon neutrality in its production activities as its vision for 2050 under asv2050. As an interim target for asv2030, and also as a goal (KPI / measure) under Group Materiality 2025–2030, we have set the target of reducing global Scope 1 and 2 emissions by 26% compared to FY2020 levels by 2030. To achieve these goals, we are driving the decarbonization of electric power as one of three key initiatives.

State of introduction of renewable energy facilities

A solar power generation system with a capacity of 425 kW was introduced at the Moriyama Factory in December 2014, a 1,358 kW system was introduced at the Okayama Factory in January 2015, and a 1,000 kW system was introduced at the Tsukuba area in April 2016 for the purposes of reducing CO₂ emissions, increasing the energy self-efficiency rate, reinforcing the infrastructure, and other purposes. With these systems, we launched electric power selling business under the feed-in tariff (FIT).

We also installed small, 50kW class power generation systems in four locations — Saitama Factory, Kawagoe Factory, Fuji Factory, and Kawaguchi Center — in January 2015. Since then, we have continued to increase our facilities through new and additional installations. The power generated from these systems is used at each location, which reduces the amount of power purchased at each and lessens peak power consumption in summer.

We have introduced solar power generation facilities to multiple overseas bases. In January 2021, Toyo Ink India Pvt. Ltd. introduced solar power generation facilities supplying around 20% of the power consumed at the Gujarat Plant in order to transform it into a green factory with lower CO₂ emissions.

■ Introduction of renewable energy power generation facilities

Japan	• Solar power generation facilities (introduction of electricity sales business): Moriyama Factory, Okayama Plant, Tsukuba area
	• Solar power generation facilities: Saitama Factory, Kawagoe Factory, Fuji Factory, Kawaguchi Center, Matsui Chemical Co., Ltd.
	• PPA solar power generation facilities: Moriyama Factory, Fuji Factory
	• On-site PPA model solar panels: The new Technical Administration building at Kawagoe Factory
Overseas	• Solar power generation facilities: Toyo Ink India Pvt. Ltd. (India), Delhi Factory of Toyo Ink India Pvt. Ltd. (India), Sam Young Ink & Paint Mfg. Co., Ltd. (South Korea), Zhuhai Toyocolor Co., Ltd. (China), Toyo Ink Europe N.V. (Belgium)

Shift to renewable energy

The artience Group is changing the power used in areas used as offices and the power used at production bases to renewable energy. In December 2021, Toyo Ink Co., Ltd. changed the power used at its Kansai Branch Office (Daibiru Honkan Bldg.) to renewable energy.

In 2022, the head office of artience Co., Ltd. (Kyobashi Edogrand Bldg.), Moriyama Factory of Toyo Visual Solutions Co., Ltd., Saitama Plant of Toyo-Morton, Ltd. also switched the electric power to renewable energy. Overseas, Toyo Ink Europe N.V. (Belgium) has switched all of its purchased electric power to renewable energy.

Reduction of CO₂ emissions through the purchase of certificates

Toyo Ink Brasil Ltda. (Brazil) has continued its efforts to reduce CO₂ emissions through the purchase of certificates (129.2 t-CO₂ reduction) following on from its efforts last year.

TOPICS

Energy Conservation Grand Prize

The artience Group was awarded the Energy Conservation Center Chairman's Award in the Energy Conservation Case Study category of the Energy Conservation Grand Prize* 2024, in recognition of its "thorough energy conservation activities at the mother factory through group-wide collaboration" at Saitama Factory of Toyo Ink Co., Ltd.

At Saitama Factory, we used business intelligence (BI) tools to utilize buried data and established energy-saving activities through the participation of all employees. As a result of energy-saving activities, overall energy consumption at the Saitama Factory was reduced by 1,982 kL (crude oil equivalent) compared to FY2020, while CO₂ emissions were reduced by 3,484 t-CO₂, and energy intensity improved by 13.4%.

These efforts and energy-saving results were recognized with a joint award, shared by artience Co., Ltd., Saitama Factory of Toyo Ink Co., Ltd., and Kawagoe Factory of Toyochem Co., Ltd.

* The Energy Conservation GJ Center, Japan (ECCJ), honors the outstanding energy conservation activities of business operators and workplaces that set the examples to be followed by others and the products and business models that demonstrate excellent energy conservation.



Response to Climate Change

[Climate change initiatives]

As a group, we believe it is important to contribute to the realization of a sustainable society through our business activities, and to collaborate not only internally but also with various international organizations, government agencies, companies, and industry associations. We participate in initiatives aimed at mitigating climate change, and engage in various activities.

Participation in the Japan Climate Initiative

In March 2023, the artience Group joined the Japan Climate Initiative (JCI) in support of its activities for alleviating climate change. The JCI is a network that was established for activating information delivery and exchanging opinions among companies, local governments, non-governmental organizations (NGOs) and other entities actively tackling climate change. It currently has around 830 corporates, local governments and other members in Japan.



Participated in the GX League

In April 2024, artience Co., Ltd. joined the GX League, which was established based on the GX League Basic Concept announced by the Ministry of Economy, Trade and Industry. GX League: an organization established as a forum for companies that aim to achieve sustainable growth in the present and future society to collaborate with companies, governments and academic organizations that are implementing similar initiatives taking on the challenge of GX with a view to becoming carbon neutral and enabling social change by 2050.



Third-party verification of CO₂ emissions data

artience Co., Ltd. has undergone third-party verification of its Scope 1 and 2 greenhouse gas (CO₂) emissions of the artience Group (boundary 70%)*.

* Details of target organizations are listed on page 42.



Page 42 to 44: Environmental Data > Response to Climate Change

Water Resource Management

Basic approach

Based on our recognition that water resources constitute an important natural resource, we at the artience Group are striving to reduce water consumption and the amount of wastewater, alleviate the impact of wastewater on the environment and living organisms, and identify and reduce water-related risks that will affect our business continuity.

In addition to asv2050 / 2030, we have formulated Group Materiality 2025-2030 (formulated in February 2025) and established medium- and long-term goals, KPIs, and measures for water management. To achieve the target, we will reduce water consumption by fully leveraging circulation cooling, reusing and recycling used water, and developing production processes that do not require water.



Page 10 to 11: Group Materiality 2025-2030

Risk Management

To understand risks related to water use and address them, the artience Group assesses quantitative risk, qualitative risk, regulatory risk, and reputation risk at the basin level using Aqueduct Water Risk Atlas 4.0, an assessment tool of the World Resources Institute.

The Group will continue to take steps to use water effectively and reduce water consumption to mitigate water stress risk and water demand risk, which are expected to worsen in the future as indicated in the assessment results.

[Assessment of water risk and countermeasures]

In the assessment results of Aqueduct, no business sites in Japan have been assessed as having a high overall water risk or an extremely high overall water risk. However, seven business sites have been assessed as having a high quantitative risk. In Asian region other than Japan (Southeast Asia, India, China, Taiwan, and South Korea,) more than half of the business sites have been assessed as having a high or extremely high overall water risk, qualitative risk and quantitative risk. The assessment shows that water stress risk is extremely high in Thailand and India, river flooding risk is extremely high in Vietnam and Indonesia, and coastal flooding risk is extremely high in South China. Qualitative risk is extremely high in Southeast Asia and India.

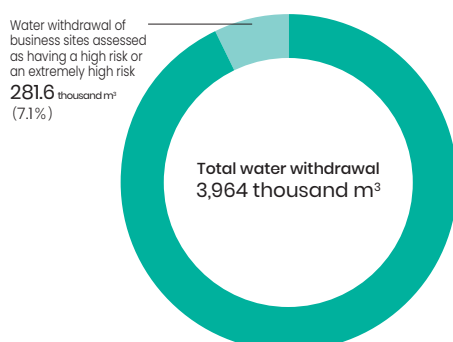
The forecast for 2030 in the Aqueduct BAU (business as usual) scenario shows that water stress risk will worsen at 17 business sites and water demand risk will worsen at 24 business sites. In particular, water stress is evaluated as "predicted to worsen significantly" in Thailand and India.

Based on the assessment results, at business sites that have a high flood risk, to prepare for the future floods, the Group takes the flood control measures (relocating electric equipment, using sandbags, clarifying procedures for cutting off power, etc.) which are taken at Toyo Ink (Thailand) Co., Ltd., which has experienced massive flooding.

Water risk assessment for each business site (Number of business sites assessed as having a high risk or an extremely high risk)

Area	Number of locations	Overall water risk	Quantitative risk	Water stress	Water depletion	Seasonal fluctuations	Groundwater level decline	River flood risk	Coastal flood risk	Drought risk	Qualitative risk	Untreated wastewater	Regulatory and reputational risk
Japan	13	0	7	0	0	0	0	0	0	0	0	0	0
Asia (excluding Japan)	21	12	14	9	4	1	2	7	5	2	12	15	4
Europe	4	1	3	3	1	0	0	0	0	0	0	0	0
Americas	5	0	3	2	0	0	0	0	0	0	0	0	0
Total	43	13	27	14	5	1	2	7	5	2	12	15	4

Ratio to total water withdrawal of business sites assessed as having a high risk or an extremely high risk (FY2024)



Water Resource Management

Metrics and targets

■ Relevant themes in Group Materiality 2025-2030

Theme 2-2. Water Management

Improve water use at production sites and contribute to preserving the natural and living environment

- Carry out water resources conservation activities at sites located in water-risk areas (droughts, floods, lacking purified water)
- Promote water recycling activities and calculate the recycling ratio



Page 10 to 11: Group Materiality 2025-2030

[Achievements in FY2024]

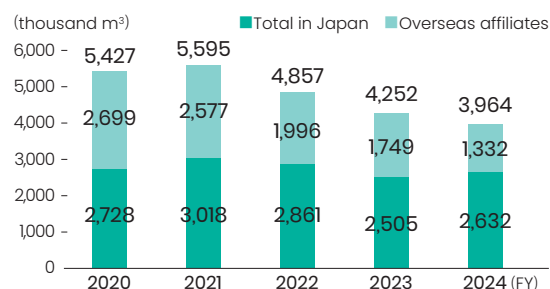
■ Achievements in Water Management

KPIs and measures	Achievements in FY2024
Carry out water re-sources conservation activities at sites located in water-risk areas (droughts, floods, lacking purified water)	· Conducted greening activities on premises and continued to participate in environmental beautification activities on July 1 (Lake Biwa Day) (Moriyama Factory of Toyo Visual Solutions Co., Ltd.) · Conducted environmental development activities on premises on World Environment Day (June 5) (Toyo Ink India Pvt. Ltd.) · Participated in boat cleanup activities along the Saen Saep Canal (Toyo Ink (Thailand) Co., Ltd.)

[Water consumption]

In FY2024, total water consumption at the artience Group's production sites in Japan was 2,632 thousand m³ (increased by 5.1% YoY) and 94.0% of the water was groundwater. Water consumption of our overseas affiliates was 1,332 thousand m³, and decrease from the previous fiscal year.

■ Changes in water consumption



Scope of calculation: Major factories and plants in Japan, affiliates in Japan and major overseas affiliates engaging in manufacturing; For details about the organizations in the scope, see page 39.

* Figures have been corrected due to an error in the FY2023 tally for overseas subsidiaries.



Page 44: Environmental Data > Water Resource Management

Initiatives

[Water recycling and efficient water use]

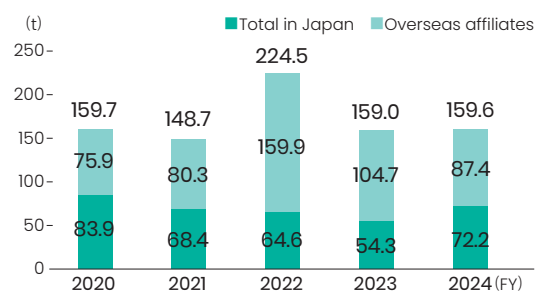
At the artience Group, we have been striving to reduce water consumption through measures such as circulation cooling and reusing groundwater as process water (for reaction and washing) after using it as cooling water.

[Prevention of water pollution]

To measure indicators in wastewater that cause water pollution, TOC meters, COD meters, turbidity meters, and pH meters are placed appropriately in the wastewater paths of factories, and monitored remotely. For factories with a large COD burden, we have established voluntary standards that are stricter than the national and prefectural standards, and have notified the government and complied with them.

In FY2024, COD emissions in Japan were 72.2 t (up 33.0% YoY) and 87.4 t overseas (down 16.5% YoY).

■ Changes in COD emissions



Scope of calculation: Major factories and plants in Japan, affiliates in Japan and major overseas affiliates engaging in manufacturing; For details about the organizations in the scope, see page 39.

Resource Circulation

Basic approach

The artience Group has included the 3R promotion* and initiatives to recycle plastic resources and reduce plastic waste in the KPIs and measures of the Group Materiality 2025-2030, and is working to reduce its environmental impact in manufacturing and recycle resources in the value chain. In this way, we aim to contribute to a sustainable society through our business.

To create a resource-recycling society that effectively utilizes limited resources and minimizes environmental impact, it is essential for society as a whole to work together, transcending industry boundaries. The Group is working to recycle plastics through the establishment of a recycling system in collaboration with partners in various ways, not only alone but also in conjunction with other industries.

* 3R promotion refers to promoting the Three Rs (3Rs): Reduce, Reuse, and Recycle.

Metrics and targets

Relevant themes in Group Materiality 2025-2030

Theme: 2-3. Wastes / Resource Circulation

Reduce waste from production sites and offices and encourage resource circulation in the value chain

- Carry out initiatives for plastic resource circulation and plastic waste reduction

[link](#) Page 10 to 11: Group Materiality 2025-2030

[Achievements in FY2024]

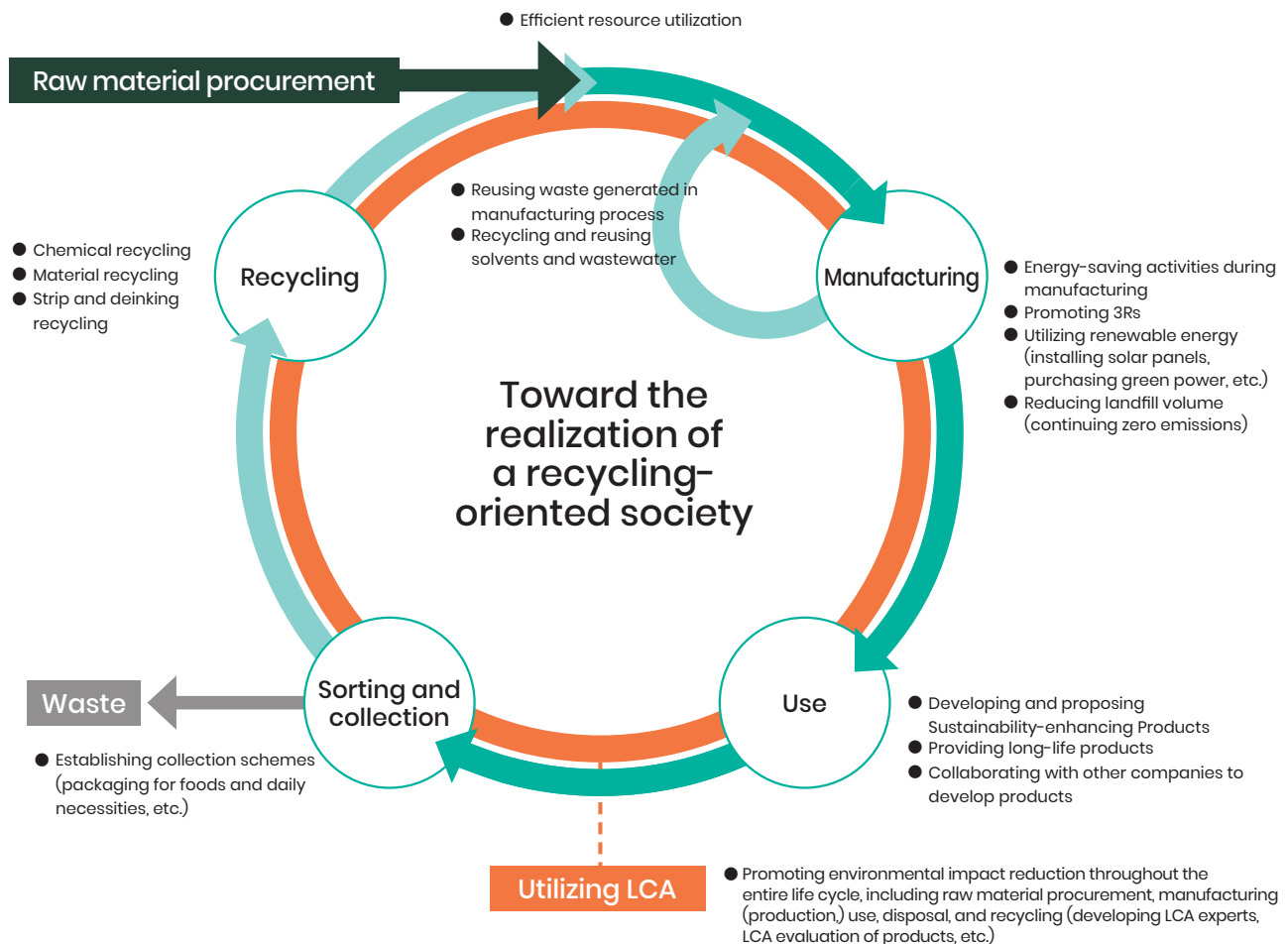
Achievements in Wastes / Resource Circulation

KPIs and measures	Achievements in FY2024
Carry out initiatives for plastic resource circulation and plastic waste reduction	- Development and commercialization of multilayer monomaterial packaging, etc. - Activities to reduce waste at production sites and offices

Examples of development and commercialization

- October 23, 2024 news release: Successful demonstration test of horizontal recycling of multi-layer mono-material packaging into film
- October 21, 2024 news release: TOYO INK's debonding and recycling technology is used in Lion Corporation's refill packs
- January 25, 2024 news release: Joint development of conductive sheet that can recycle plastic base materials by deinking conductive ink

Initiatives for product's life cycle and resource recycling



Resource Circulation

Initiatives

[Peeling and deinking recycling technologies and practical applications]

As concerns about marine plastic waste and global warming continue to grow, interest in reducing plastic use and recycling resources is increasing. Reducing the thickness of packaging films and converting laminated films to mono-material films are considered important in achieving this, and we have developed and are proposing functional coating agents that complement the gas barrier and heat-resistance functions of traditional laminated films. We are working to improve the quality of recycled plastic materials, such as by developing deinking coatings that effectively remove printing ink and laminated films, as well as peelable laminating adhesives. We are also building recycling systems that incorporate deinking and peeling processes. This has enabled the collection of near-transparent recycled plastics by type, leading to a significant expansion in the applications of recycled plastic materials.

In November 2024, this initiative was adopted by a major daily consumables manufacturer, and pouch products using peelable adhesives were launched. We are continuing development efforts with the aim of horizontal recycling, whereby factory scraps generated during pouch production are stripped and recycled into plastic materials that are then reused as raw materials for pouch products. We are already working with many companies, and have attracted a high level of interest at trade shows.

[Initiatives at business sites and manufacturing facilities]

Reduction of waste solvents by introducing a solvent recycling system

In June 2023, Toyo-Morton, Ltd. introduced a cleaning solvent recycling system at its Saitama Plant, reducing the amount of waste solvent generated in cleaning processes at its production facilities by 70% (in comparison with FY2022.)



Page 32: Waste Management

Introduction of recycled toilet paper made from office waste paper

At Toyo Ink Co., Ltd.'s Saitama Factory and Jujo Center, we have introduced 100% recycled paper toilet paper made from office waste paper. At Saitama Factory, we also recycle unneeded paper as a raw material for toilet paper, contributing to the reduction of waste and the establishment of a resource circulation system.

Collection and recycling of used clear folders

The artience Group (Saitama Factory of Toyo Ink Co., Ltd., Kyobashi Head Office, and Jujo Center) joined the ASKUL Resource Circulation Platform* in FY2022 for the purpose of cutting plastic waste and making circular use of plastic resources. It then embarked on activities of collecting and recycling used clear folders. In FY2024, we collected 19.0 kg of clear folders at Saitama Factory, and 66.58kg at Kyobashi Head Office and Jujo Center (total 85.58 kg.)

* ASKUL resource circulation platform (Japanese)
<https://www.askul.co.jp/kaisya/shigen/>

[Participating in initiatives]

Participating in the Saitama Prefectural Platform for Fostering Sustainable Use of Plastic Resources*

The Saitama Factory of Toyo Ink Co., Ltd. joined the Saitama Prefectural Platform for Fostering Sustainable Use of Plastic Resources in May 2023 in support of its activities for cutting plastic waste emissions and for encouraging circular use of plastic resources. This platform will organize lectures, workshops and exchange meetings on the circular use of plastic resources. A working group established by volunteer members will explore construction of a model for sustainable use of plastic waste.

* Established by the Saitama prefectural Government, the platform consists of business operators, municipal governments, consumer groups and other parties addressing circular use and the reduction of plastic resources for the purpose of controlling plastic waste emissions and fostering the circular use of plastic resources.

Solving the marine plastic litter issue participation in the Japan Clean Ocean Material Alliance

The Japan Clean Ocean Material Alliance was established in January 2019 under the leadership of the Ministry of Economy, Trade and Industry. The alliance is a public-private partnership for accelerating innovations to solve the marine plastic litter issue. artience Co., Ltd., representing our Group, participates in the alliance, identifying the latest technological trends, sharing information, and cooperating with other companies.

Participation in CEFLEX, which provides an international framework for solutions to the plastic waste issues

The artience Group participates in CEFLEX (Circular Economy for Flexible Packaging,) established in 2017 as a consortium that works to create a circular economy in the field of flexible packaging in Europe. In its roadmap to creating a circular economy in the field of flexible packaging in Europe, CEFLEX aims to build an infrastructure by 2025 to collect, sort, and recycle used flexible packaging.



Recycling used plastics into new resources capital participation in R Plus Japan, Ltd.

To contribute to solving plastic issues to create a sustainable society, we have taken a stake in R Plus Japan, Ltd., a joint venture that started business in June 2020 and has been engaging in recycling used plastics.

Waste Management

Basic approach

The artience Group is a manufacturing company. We cannot avoid generating waste in our production activities. We take steps to minimize the amount of waste treated offsite through initiatives such as the development of production processes which are unlikely to generate waste, considering methods for treating waste, promoting the reuse and recycling of resources, and globally sharing knowledge about how to reduce waste. Additionally, while waste oil, waste plastics, and wastewater account for approximately 80% of external waste emissions in Japan*, we strive to minimize landfill volumes by effectively utilizing contaminated waste plastics, which are difficult to recycle, through methods such as thermal recovery.

* Amount of waste treated off-site: The amount of waste sold as valuables and the amount of waste that was generated at our business locations and discharged from the premises without being recycled or transferred outside our business locations to outsource its disposal to waste disposers.

Metrics and targets

Relevant themes in Group Materiality 2025–2030

Theme: 2–3. Wastes / Resource Circulation

Reduce waste from production sites and offices and encourage resource circulation in the value chain

- Achieved zero emissions (final waste disposal rate of 1% or less for total production sites) by promoting 3Rs (reduce-reuse-recycle) throughout production activities
- Carry out initiatives for plastic resource circulation and plastic waste reduction



Page 10 to 11: Group Materiality 2025–2030

[Achievements in FY2024]

We define the final disposal volume as the volume of waste prior to volume reduction, such as the incineration of waste for final disposal. We define zero emissions as the state in which the ratio of the final disposal volume to waste emissions, or the final disposal ratio, is 1% or less.

For the artience Group's operations in Japan as a whole, the final disposal ratio to the total volume of waste emissions was 0.1%, and zero emissions was achieved at all business locations. We will work to maintain zero emissions overseas going forward.

Zero emissions achievement status

FY2022	FY2023	FY2024	FY2030 (target)
Japan: achieved	Japan: achieved	Japan: achieved	Achieved zero emissions (1% or less of the waste from all Group sites sent to final disposal, i.e., landfill sites) by conducting reduce, reuse, and recycle (the so-called "three Rs") initiatives throughout all production activities

Trends in final disposal rate of waste (non-recycling rate)

(Unit: %)

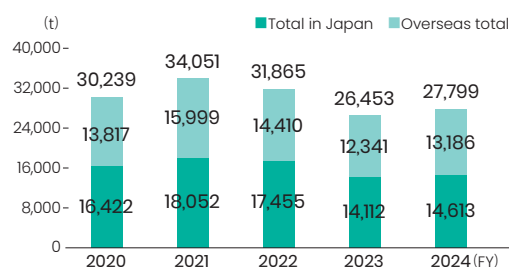
	FY2020	FY2021	FY2022	FY2023	FY2024
Japan	0.0	0.0	0.0	0.2	0.1
Group (Japan & overseas)	—	—	—	—	1.6

[Volume of waste emissions]

In FY2024, the amount of waste generated was 14,613 t in Japan (up 3.6% YoY) and 13,186 t overseas (up 6.8% YoY).

The artience Group counts the volume of industrial waste, which is treated by contracted operators in Japan, valuables, and waste prior to intermediate treatment for internal reuse and other purposes as the volume of waste emissions in accordance with the Manual for Formulation of Industrial Waste Treatment Plans by Business with High-Level Emissions published by the Ministry of the Environment.

Changes in volume of waste emissions



Scope of calculation: Major factories and plants in Japan, affiliates in Japan and major overseas affiliates engaging in manufacturing; For details about the organizations in the scope, see page 39.

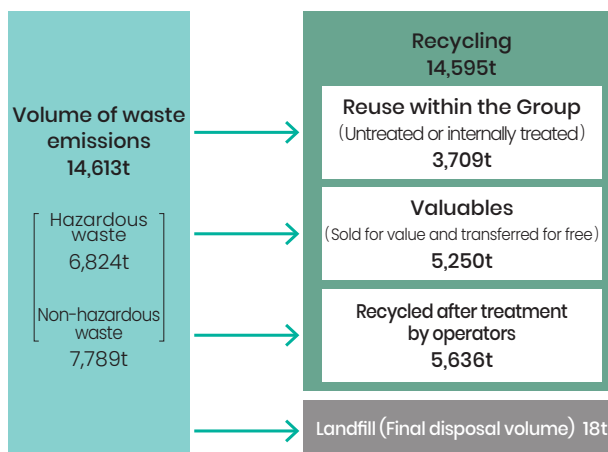
* The data on affiliates in Japan for FY2022 include figures of the Kansai Branch Office (Neyagawa,) the Kansai Branch Office (Toyama,) the Chubu Branch Office (Kasugai,) Toyo Ink Hokkaido Co., Ltd., Toyo Ink Chushikoku Co., Ltd. (Okayama,) Toyo Ink Chushikoku Co., Ltd. (Takamatsu) and Toyo Ink Kyushu Co., Ltd. (Fukuoka.)

* In FY2023, Toyo Ink Co., Ltd. was consolidated and abolished as an organization, but the scope of aggregation remains unchanged from FY2022.



Page 46: Environmental Data > Waste Management

Overview of waste in Japan (FY2024)



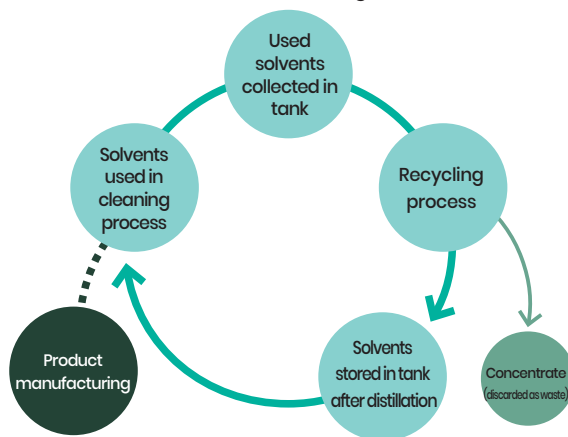
Scope of calculation: Major factories and plants in Japan and affiliates in Japan; For details about the organizations in the scope, see page 39.

Waste Management

Initiatives

[Reduction of waste solvents by introducing a solvent recycling system]

In June 2023, Toyo-Morton, Ltd. introduced a cleaning solvent recycling system at its Saitama Plant, reducing the amount of waste solvent generated in cleaning processes at its production facilities by 70% (in comparison with FY2022.) At the Toyo-Morton Saitama Plant, it was necessary to clean production equipment with solvents when switching between products, and the environmental impact of solvent waste after cleaning was an issue. The newly introduced cleaning solvent recycling system reduces waste by distilling and concentrating the used solvent, making it possible to reuse the solvent for cleaning after distillation.



[Education on the proper management of waste]

The artience Group gives training on proper management of waste as part of the compliance training. In addition, we share information about waste treatment via our in-house system and clarified the criteria for selecting new industrial waste disposers to which we outsource the treatment in our efforts to reinforce our management system to avoid being involved in improper treatment.

We also hold regular waste management briefings for operators at each domestic site to ensure awareness of waste management procedures and internal rules.

TOPICS

Initiatives to reduce industrial waste ~ Succeeded in making sludge valuable by introducing sludge volume reduction equipment ~

Toyo FPP Co., Ltd. (Kawaguchi) is engaged in a business focused on the manufacture of cylinder plates and flexographic plates, and wastewater treatment is essential to the plate-making process. Sludge is generated in the wastewater treatment process at the site, but until now it had been necessary to treat it as industrial waste, and reducing costs was an issue.

Meanwhile, asv2050/2030 Sustainability Vision aims to achieve zero emissions as the Group as a whole, increase the resource conservation and recycling, and promote resource recycling.

As part of our activities to achieve this target, we considered reducing the volume of sludge generated by approximately 45 t per year. The introduction of a thermal storage drying system made it possible to reduce the total amount of industrial waste generated by Toyo FPP Co., Ltd. by approximately 20%. In addition to reducing transportation costs, it is also possible to recycle the metal components contained in the sludge as valuable materials by finding an appropriate material recycling destination.

As a result, the amount of industrial sludge generated in the wastewater treatment process is now virtually zero.



May 16, 2023: Consideration of optimization conditions after introduction

Pollution Prevention

Basic approach

The artience Group's business activities depend on the earth's resources. The Group considers addressing environmental issues, such as air pollution and soil contamination, to be important issues. To create a sustainable, circular society, we will take steps to reduce environmental impacts in manufacturing and strive to reduce emissions of pollutants.

Promotion system

The ESG Promotion Office of artience Co., Ltd. takes the lead in reducing the environmental impact on the atmosphere and addressing soil and groundwater contamination, primarily at production bases but also at business sites in Japan and overseas, including those of affiliates.

Metrics and targets

■ Relevant themes in Group Materiality 2025–2030

Theme: 2–4. Pollution Prevention / Chemical Substances

Prevent air, water and soil pollution and aim for production activities with zero-environmental pollution
 · Number of violations of laws and regulations related to pollution prevention: Zero cases continued

[link](#) Page 10 to 11: Group Materiality 2025–2030

[Achievements in FY2024]

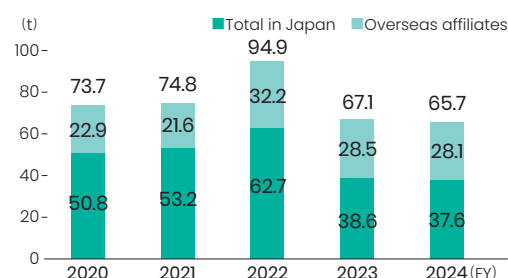
The Group complies with environmental laws and regulations, conducts business activities based on its basic policies and rules regarding the environment, and works to reduce its environmental impact. There were no violations of pollution prevention-related laws and regulations in FY2024.

[link](#) Page 17: State of compliance with environmental laws and regulations

[Pollution prevention]

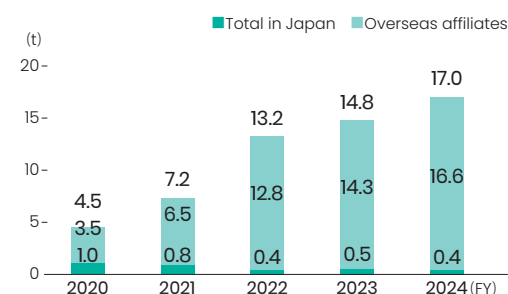
In Japan, the artience Group has been working on fuel conversion, introduction of cogeneration systems, appropriate management of fuel combustion conditions, and other measures to reduce air pollutants generated from boilers and other combustion equipment, such as nitrogen oxide (NO_x), sulfur oxide (SO_x) and particulates. Emissions of SO_x and particulates in Japan have been leveling off in recent years. Overseas affiliates saw a decrease in NO_x emissions, but a slight increase in SO_x and particulates compared to the previous year. Going forward, we will continue working to reduce emissions.

■ Changes in NO_x emissions



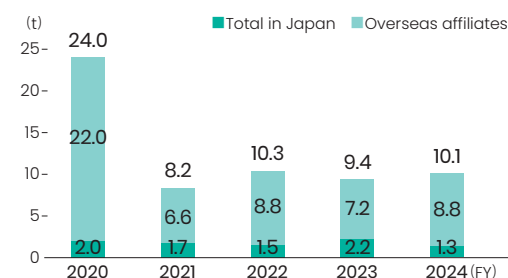
Scope of calculation: Major factories and plants in Japan, affiliates in Japan and major overseas affiliates engaging in manufacturing; For details about the organizations in the scope, see page 39.

■ Changes in SO_x emissions



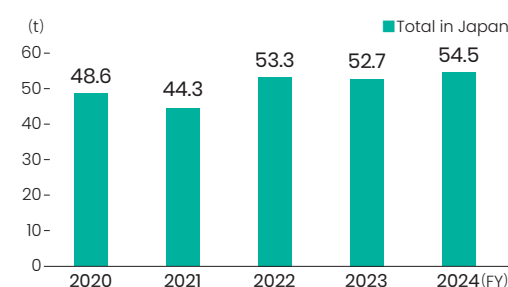
Scope of calculation: Major factories and plants in Japan, affiliates in Japan and major overseas affiliates engaging in manufacturing; For details about the organizations in the scope, see page 39.

■ Changes in particulate emissions



Scope of calculation: Major factories and plants in Japan, affiliates in Japan and major overseas affiliates engaging in manufacturing; For details about the organizations in the scope, see page 39.

■ Changes in VOC emissions



Scope of calculation: Major factories and plants in Japan and affiliates in Japan; For details about the organizations in the scope, see page 39.

[link](#) Page 47 to 48: Environmental Data > Pollution Prevention

Pollution Prevention

Initiatives

[Countermeasures against soil and groundwater contamination]

The Advanced Materials Research Laboratory of former Toyo Ink SC Holdings Co. Ltd. (in Tsukuba-shi, Ibaraki Prefecture) was designated as standing in an Area for which Changes in Form or Nature Require Notification on September 12, 2022 as a result of the investigation pursuant to the Soil Contamination Countermeasures Act. In response, it excavated and removed contaminated soil. On December 22, 2022, the designation was lifted.

Toyo Ink (Thailand) Co., Ltd. falls under industries specified in a ministerial ordinance regarding soil and groundwater pollution within factory grounds, which was issued by Thailand's Ministry of Industry in October 2016. This required the company to implement regular monitoring of soil and groundwater on its premises. The company consistently analyzes the groundwater and soil and reports the result.

In China, the Law on Prevention and Control of Soil Pollution, which is a national law that sets forth regulations concerning prevention of soil pollution, came into effect in January 2019. In the artience Group, two Group companies — Tianjin Toyo Ink Co., Ltd. and Shanghai Toyo Ink Mfg. Co., Ltd. — were designated as "enterprises subject to intensive supervision and management related to soil contamination." In response, the companies are advancing initiatives including identification and control of soil contamination risks.



Excavation and removal of contaminated soil (former Advanced Materials Research Laboratory of Toyo Ink SC Holdings Co., Ltd.)

[Management of hazardous substances]

The artience Group holds polychlorinated biphenyl (PCB) waste from transformers, capacitors, fluorescent ballasts, and other devices for a long time at 12 business establishments in Japan, and notifies the government every year in accordance with the Act on Special Measures concerning Promotion of Proper Treatment of PCB Wastes. We have carried out appropriate treatment of PCB waste, and completed the treatment at 11 business locations.

For the high concentration PCB waste (fluorescent ballasts) stored at the remaining 1 business location, we have drawn up a plan and take a series of steps accordingly. Its treatment has finished in March 2024.

Regarding PCB waste in storage, we locked the depository, performed regular inspections and otherwise implemented stringent management. There was no loss, wrong disposal, leakage, or similar incident.

[Compliance with the Law for Controlling Fluorocarbon Emissions]

Pursuant to the Act for Rationalized Use and Proper Management of Fluorocarbons, the artience Group has selected managers and identified applicable equipment for each company. We conduct simplified inspections of the equipment and have them examined by vendors periodically in accordance with the law.

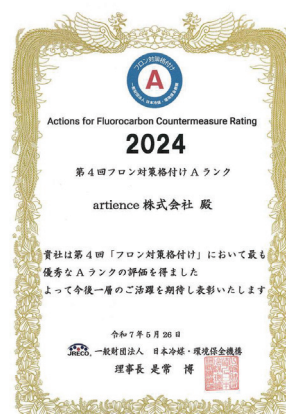
Fluorocarbons that leaked from the artience Group sites in Japan amounted to 74.5 kg in FY2024 (down approx. 18% YoY,) and there was no business establishment of the artience Group where the calculated leakage of fluorocarbons exceeded 1,000 t-CO₂, the amount that must be reported.

TOPICS

Received an A rank rating in the JRECO Fluorocarbon Countermeasures Rating for the second consecutive year

The artience Group has received an A rank rating for the second consecutive year in the 4th JRECO Fluorocarbon Countermeasures Rating, which evaluates efforts under the Fluorocarbon Emission Control Act conducted by the Japan Refrigerants and Environment Conservation Organization (JRECO,) a general incorporated foundation that promotes and advances the proper management of fluorocarbons together with the Ministry of Economy, Trade and Industry (METI) and the Ministry of the Environment (MOE.)

The Group has continuously implemented measures based on the Fluorocarbon Emission Control Act enacted in 2015. This includes establishing management systems at each site, monitoring the use of fluorocarbons in equipment, calculating the amount of fluorocarbons leaked, conducting simple and periodic inspections, and disclosing information via our website and reports. This second consecutive year of receiving the A rank is a comprehensive recognition of these efforts.



Chemical Substance Management

Basic approach

In its Basic Policy on Environment (revised in January 2024) and Basic Policy on the Management of Chemical Substances (revised in May 2024), the artience Group states that, "In the development and provision of products and services, the Group aims to reduce environmental impact throughout the entire product / service life cycle, from raw material procurement to production, distribution, use, disposal, and recycling, and works to protect and restore the environment and give consideration to people's health and safety."

To comply with these basic policies, we control chemical substances appropriately in each stage of the process, including product design, the purchase (and import) of raw materials, production, storage, transport, and disposal and make efforts to replace or reduce highly hazardous substances.



The Basic Policy on Environment and the Basic Policy on the Management of Chemical Substances are posted on our website under [Sustainability > Related Policies and Guidelines.]

Promotion system

The Production Planning Office and the ESG Promotion Office of artience Co., Ltd. supervises and manages the environment, chemical substance management, and trade management for the entire Group. It also undertakes initiatives in compliance with laws and regulations and practices in each individual country.

Risk Management

[Response to chemical substance management regulations]

The artience Group developed the Chemical Substance Management Rules, under which it advocates the appropriate management of chemical substances contained in raw materials and products in accordance with their management standards. We continue to reduce risks from chemical substances in accordance with the New Material Screening Regulations, which are screening criteria for newly adopted materials, and the Chemical Substance Risk Management Regulations.

The Chemical Substance Risk Management Regulations define chemical substances with a significant impact on humans and the environment, the manufacturing and use of which are prohibited or restricted by international treaties, laws and regulations in Japan and overseas as "artience Group (arg) Prohibited Chemical Substances." Accordingly, we monitor and control the inclusion of any such chemical substances in products. In addition, we assess the risks of chemical substances from the perspective of workers' exposure to them, hazards and other factors to determine chemical substances whose use should be reduced or replaced is encouraged as "arg Restricted Chemical Substances." We have harmonized the standards for the control of chemical substances used in products from design to completion throughout the artience Group.

[Risk assessment of chemical substances]

The artience Group implements risk assessment of chemical substances at all company locations in Japan where chemical substances are handled, including manufacturing facilities and R&D divisions, in accordance with the Occupational Safety and Health Act.

We implement and manage risk assessment under a system that facilitates risk assessment. The sys-

tem was organized by assigning chemical substance managers in addition to the existing health and safety managers.

From 2021, certain substances are being added to the substances for which labeling and notification are required under the Industrial Safety and Health Act. As a result, we are required to conduct risk assessment for additional chemical substances. We will be conducting risk assessment for those substances one by one and will take safety and health measures as needed.

Metrics and targets

■ Relevant themes in Group Materiality 2025-2030

Theme: 2-4. Pollution Prevention / Chemical Substances

Prevent air, water and soil pollution and aim for production activities with zero-environmental pollution
 · Harmful chemical substance emissions (Global): 30% reduction (from the FY2020 level)

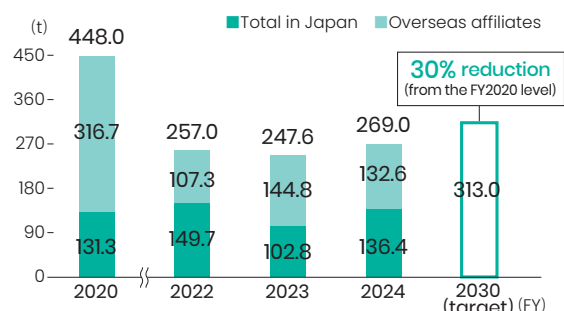


Page 10 to 11: Group Materiality 2025-2030

[Achievements in FY2024]

We calculated the emissions in FY2024 of chemical substances designated as Class I and listed under the Act on Confirmation, etc. of Release Amounts of Specific Chemical Substances in the Environment and Promotion of Improvements to the Management Thereof (PRTR Act) and of substances designated by the Japan Chemical Industry Association. The amount of emissions was 136.4 t from the affiliates in Japan (up 32.7% YoY.) and 132.6 t from overseas affiliates (down 8.4% YoY.)

■ Changes in chemical substance emissions



Scope of calculation: Major factories and plants in Japan, affiliates in Japan and major overseas affiliates engaging in manufacturing; For details about the organizations in the scope, see page 39.

* Past figures have been recalculated retrospectively due to the revision of the operation method of the aggregation system and a review of substances covered by PRTR in FY2023.



Page 48 to 50: Environmental Data > Chemical Substance Management

Initiatives

[Personnel development through in-house training courses]

The artience Group provides in-house seminars and distributes educational videos as part of in-house education for legal compliance and the provision of information to customers. The seminars and videos are about outlines and revisions of laws and regulations and safety and health measures that are related to participants' work. In FY2024, a total of 948 employees took these courses.

Biodiversity

Basic approach

The business activities of the artience Group depend on and are sustained by many natural capital resources, including various raw materials of natural origin and water resources. Recognizing the importance of biodiversity at an early stage, we established our Policy on Biodiversity (established in May 2009, revised in January 2024,) and have engaged in nature conservation activities, including biodiversity conservation, as well as tree-planting initiatives in local communities and cleanup activities for rivers and lakes.

To understand and mitigate the impact our business activities have on biodiversity, we are working to conserve biodiversity through the sustainable use of resources, reduction of chemical emissions, and the provision of sustainability-enhancing products.



The Policy on Biodiversity is posted on our website under [Sustainability > Related Policies and Guidelines.]

Promotion system

We are engaged in various initiatives within the environmental management system.



Page 17: Environmental Management

LEAP approach based on the TNFD framework

In our biodiversity conservation activities, we have implemented the LEAP approach outlined in the TNFD framework to understand the Group's dependence on natural capital, its impact, and its risks and opportunities, and to formulate strategies. This time we evaluated the scope of direct operations, covering all of the Group's businesses.

[Understanding our dependence and impact on nature]

With the use of the biodiversity management and evaluation tool, called Exploring Natural Capital Opportunities, Risks and Exposure (ENCORE,) we evaluated the artience Group's dependency and impacts on nature in the industrial subgroups of general chemistry and special chemicals. The evaluation has revealed that, while its dependency on natural assets is low overall, its use of water, its use of land eco-systems, its GHG emissions, non-GHG air pollutants, water contaminants, soil pollutants and solid waste have significant impacts on nature.

Results of evaluation with ENCORE (Factors impacting nature and levels of impacts)

Factors impacting nature	Sector: Materials Industrial Subgroup: General Chemistry	Sector: Materials Industrial Subgroup: Special Chemicals
Use of water	Very high	High
Use of land eco-systems	High	High
GHG emissions	N/A	High
Non-GHG air pollutants	Medium	High
Water contaminants	High	High
Soil pollutants	High	High
Solid waste	N/A	High

[Risks and Opportunities]

The artience Group has identified points of contact with (input from and output into) nature in the business process from procurement of raw materials to disposal and recycling and the effects of the contact on biodiversity, including habitat deterioration, raw materials from forests and mountains near human habitats, invasion of native habitats by non-native species, exposure to chemical substances, and global warming and climate change, and has thereby identified clear risks to biodiversity.

Our analysis of the relationship between our business activities and biodiversity (risks and opportunities) indicates that risks such as land use, emissions to air, discharges to water, and waste output have various impacts on biodiversity.



The relationship between our business activities and biodiversity (risks and opportunities) is detailed on pages 29 to 30 of our Sustainability Data Book 2023.

In terms of opportunities, the asv2050/2030 sets the goals of increasing the net sales ratio of Sustainability-enhancing Products to 80% by 2030, reducing CO₂ emissions from a life cycle perspective, and making all products Sustainability-enhancing Products by 2050. We are expanding the range of products for which demand is expected to increase in the future.

Additionally, since natural environments vary greatly between locations and cannot be measured by a single indicator, TNFD recommends information disclosure with an emphasis on regional characteristics. The Group assessed 44 business sites in Japan and overseas, and identified priority regions. Going forward, we will engage in risk management tailored to each region.

Biodiversity

Biodiversity risk assessment items for business sites

Assessment items	Assessment tools	Indicators
Importance of biodiversity	WWF Biodiversity Risk Filter	Scape Physical Risk
Water stress	Aqueduct Water Risk Atlas 4.0	Baseline water stress
Significant potential dependencies and impacts	ENCORE Hotspots Terrestrial	Combined hotspots of natural capital depletion

Number of business sites rated as high or extremely high risk by region

	Importance of biodiversity		Water stress		Significant potential dependencies and impacts	
	High	Extremely high	High	Extremely high	High	Extremely high
Japan	0	0	0	0	0	0
Asia (excluding Japan)	5	0	4	5	3	0
Europe	0	0	1	2	0	0
Americas	0	0	2	0	0	0

[Strategy]

With regard to water environments in particular, one site in China and two sites in Thailand, India, and Europe have been assessed as being at extremely high risk. Therefore, we regard water risks as the significant risks, and will work to address water risks at these sites.

As we work toward achieving the asv2050/2030 goals of an 80% sales ratio for sustainability-enhancing products by 2030 and expanding products that contribute to reducing CO₂ emissions from a lifecycle perspective, we will continue to provide products and services that contribute to solving global environmental issues.

[link](#) Page 27: Water Resource Management

[Metrics and targets]

Based on the concept behind the core indicators in the Guidelines for Planning and Monitoring Corporate Biodiversity Performance by the International Union for Conservation of Nature (IUCN) and on the Relations between Business Activities and Biodiversity (Risks and Opportunities,) we have tracked and managed progress in targets and KPIs for our past activities for cutting environmental impacts and others as biodiversity management indicators.

Biodiversity indicators and their changes

Biodiversity indicator	FY2022	FY2023	FY2024	Reference pages
Water consumption (thousand m ³)	4,857	4,252	3,964	28. 44
Scope 1+2 (global) (t-CO ₂)	—	154,568	152,002	23. 42
Specific energy consumption (overseas) (L/t)	164.1	156.5	157.5	24. 44
VOC emissions (Japan) (t)	53.3	52.7	54.5	33. 48
NOx emissions (t)	94.9	67.1	65.7	33. 47
SOx emissions (t)	13.2	14.8	17.0	33. 47
Particulate emissions (t)	10.3	9.4	10.1	33. 47
COD emissions (t)	224.5	159.0	159.6	28. 45

Participation in biodiversity organizations

The artience Group has endorsed the purposes of the Keidanren (Japan Business Federation) Declaration for Biodiversity and Guideline (revised in December 2023,) and has participated in the Keidanren Initiative for Biodiversity Conservation. Additionally, our Group is also a participant in the Clean Ocean Material Alliance (CLOMA,) which was established in January 2019 to address the marine plastic litter problem.

When the 30by30 Roadmap was formulated in April 2022, companies, municipalities, and other organizations voluntarily formed the 30by30 Alliance for Biodiversity. The Group declared its support for the Alliance in June 2022.



The logo of the 30by30 Alliance for Biodiversity

[Demonstrative test of simple monitoring]

In cooperation with the Natural Harmony Site initiative being advanced under Japan's 30by30 Roadmap, on August 8 and 9, 2023, we conducted a two-day demonstrative test of simplified monitoring focused on common insect species in the company-owned forest of Toyochem Co., Ltd.'s Kawagoe Factory. The survey, conducted by an external research organization, accompanied by officials from the Ministry of the Environment, confirmed the presence of numerous insects. These included beetles such as the earth-boring dung beetle (*Phelotrupes laevistriatus*), the giant flat-backed carrion beetle (*Necrophila japonica*), and the darkling beetle (*Plesiophthalmus nigrocyaneus*), as well as cicadas like the robust/large-brown cicada (*Hyalessa maculaticollis*) and the kempfer cicada (*Platypleura kaempferi*), the oriental long-headed grasshopper (*Acrida cinerea*), and the Japanese oakblue butterfly (*Narathura japonica*), all of which are included in the list of insects found in favorable environments in urban green spaces, as selected by the Ministry of the Environment.



A visual survey in progress



Installing a trap on the forest floor

Biodiversity

Initiatives

[Ecosystem research and the preservation of valuable species in a company-owned forest]

There is a strip of woodland running from the northeast to the southwest near the Kawagoe Factory, of Toyochem Co., Ltd. The woodland is a part of the Santome-shinden area, which was developed in the Genroku era of the Edo period (late 17th century.) The area has housing land, arable land, and a mixed forest. On the southwestern part of the site of the Kawagoe Factory, there is woodland (company-owned forest.) On the southwestern part of the site of the Kawagoe Factory, there is woodland (company-owned forest.) These woodlands are connected to woodlands around them and may play an important role in terms of biodiversity conservation in the area.

To learn about wildlife in the company-owned forest, we conducted two surveys primarily of plants and birds in December 2016 and June 2017. In the surveys, we have found 169 species of 68 families of plants, 24 species of 16 families of birds, and 3 species of 3 families of animals. Those species include the Riverstream orchid, a threatened species to be protected listed in Saitama Prefecture Red Data Book 2011 (plants,) and the Japanese green woodpecker and the bunting, threatened species listed in Saitama Prefecture Red Data Book 2018 (animals.) Based on the finding, the Kawagoe Factory strives to protect the Riverstream orchid and conserve the ecosystem in the company-owned forest.



Birds survey



Cymbidium goeringii
(Riverstream orchid)

[Environmental beautification activities on Lake Biwa Day (Moriyama Factory, Toyo Visual Solutions Co., Ltd.)]

In Shiga Prefecture, July 1st is designed as "Lake Biwa Day" under the Shiga Prefecture Basic Environmental Ordinance. It is a symbolic day when environmental protection activities, including cleanups of lakeside and riverside areas and roads across the prefecture, take place with a shared attachment to the lake. The Moriyama Factory of Toyo Visual Solutions Co., Ltd., which is located near Lake Biwa, has consistently taken part in environmental cleanup activities on Lake Biwa Day.

[Awarded Kinki Bureau of Economy, Trade and Industry Director's Commendation Award at the National Award for Greenery Factory]

Toyo Visual Solutions Co., Ltd.'s Moriyama Factory has received the Kinki Bureau of Economy, Trade and Industry Director's Commendation Award for FY2024, as part of the National Award for Greenery Factory*. This follows on from its receipt of the Japan Greenery Research and Development Center Chairman's Commendation Award in FY2022.

Due to its location, adjacent to rice paddies and farmland, Moriyama Factory has worked to develop green spaces considering the landscape along its property boundaries and improving the green visibility ratio in line with the surrounding fields. Tree selection focuses on enhancing the perimeter landscape, featuring species such as Somei-Yoshino cherry trees, inspired by the cherry tree-lined banks of the nearby Shin-Moriyama River, camphor trees (the city tree of Moriyama,) American tulip trees, and Himalayan cedars. Following the award in FY2022, the factory's efforts — including greening the factory grounds, constructing a solar power plant on newly acquired expansion land, and increasing overlapping green spaces — were recognized, leading to the receipt of the Kinki Bureau of Economy, Trade and Industry Director's Commendation Award.

* The National Awards for Greenery Factory are presented annually by the Japan Greenery Research and Development Center to factories and other facilities that have made outstanding contributions to factory greening, with the aim of encouraging and raising awareness of such initiatives.

TOPICS

"Living Tales" Biodiversity Event

We held the biodiversity event "Living Tales," inviting all artience Group employees in Japan to observe and report on living creatures in their local areas. The event period was set for August-September 2024, to enable participation by children and families during summer vacation. Participants collected photos and habitat information of creatures (including fish, amphibians, reptiles, birds, mammals, insects, other arthropods, and mollusks) found near their homes or while traveling, with 60 reports received in total. While no endangered or rare species were identified among the reports, the event provided an opportunity to raise awareness of biodiversity in familiar local environments.



Pictures of reported creatures

Environmental Data

Scope of collection of environmental data

The organizations specified below are subject to collection of different data.

[Major factories and plants in Japan]

- Toyocolor Co., Ltd. Fuji Factory, Okayama Plant
- Toyochem Co., Ltd. Kawagoe Factory, Kobe Plant (formerly Seishin Plant,) Amagasaki Plant, Chitose Plant and Chiba Plant
- Toyo Ink Co., Ltd. Saitama Factory
- Toyo Visual Solutions Co., Ltd. Moriyama Factory

* In FY2024, there were four factories and five plants mentioned above.

* In FY2023, there were four factories and six plants (Mobara Plant was closed down on July 1, 2023 as a result of production integration, so after the shutdown, there are four factories and five plants.)

* Data for FY2021 to FY2022 cover the four factories and the six plants (six plants: Okayama Plant, formerly Seishin Plant, Amagasaki Plant, Mobara Plant, Chitose Plant and Chiba Plant.)

* Data for FY2018 to FY2020 cover four factories and four plants (four plants: Okayama Plant, formerly Seishin Plant, Amagasaki Plant and Mobara Plant.) Chitose Plant and Chiba Plant are not included.

* As of April 1, 2024, the name of Seishin Plant has been changed to Kobe Plant.

[Affiliates in Japan]

- Toyo-Morton, Ltd., Toyo FPP Co., Ltd., and Matsui Chemical, Co., Ltd.

* The data for FY2021 to FY2024 cover the three companies mentioned above. They were major production affiliates in Japan.

* The data for FY2018 to FY2020 cover Toyo-Morton, Ltd., Toyo ADL Corp., and Matsui Chemical, Co., Ltd. They were major production affiliates in Japan.

[All business bases in Japan]

All bases in Japan, where the holding company and consolidated subsidiaries (a total of 17 companies) and one equity-method affiliate (Logi Co-Net Corp.) are located.

[Principal overseas production affiliates]

Sixteen factories and seven plants certified with the ISO 14001 among the overseas affiliates (i.e. PT. Toyo Ink Indonesia, Toyo Ink India Pvt. Ltd., Toyo Ink America, LLC, Hanil TOYO Co., Ltd., Toyo Ink Brasil Ltda., Chengdu Toyo Ink Co., Ltd., Sichuan Toyo Ink Mfg. Co., Ltd. and Toyo Ink Europe N.V.)

* For the business sites certified with ISO 14001, see the list on the right.

Of 38 manufacturing locations, ISO 14001 certification has been achieved at 28 (74%) locations. In Japan, the certification has been achieved at 92% of manufacturing locations.
Of 38 manufacturing locations, ISO 9001 certification has been achieved at 33 (87%) locations. In Japan, the certification has been achieved at 79% of manufacturing locations.

Environmental Management

■ Acquisition status of ISO certification (As of December 31, 2024)

Japan	ISO 14001	ISO 9001
[Toyocolor Co., Ltd.]		
● Fuji Factory	○	○
● Okayama Plant	○	○
● Kawagoe Branch Office	○	○
[Toyochem Co., Ltd.]		
● Kawagoe Factory	○	○
● Kobe Plant	○	○
● Amagasaki Plant*1	○	
● Chiba Plant	○	○
[Toyo Ink Co., Ltd.]		
● Saitama Factory	○	○
[Affiliates companies]		
● Toyo FPP Co., Ltd.	○	○
● Toyo Visual Solutions Co., Ltd.	○	○
● Toyo-Morton, Ltd.	○	○
● Matsui Chemical Co., Ltd.	○	○

Overseas	ISO 14001	ISO 9001
● TIPPS Pte. Ltd. <Singapore>	○	○
● Toyochem Specialty Chemical Sdn. Bhd. <Malaysia>*2	○	○
● Toyo Ink (Thailand) Co., Ltd. <Thailand>	○	○
● Toyo Ink (Philippines) Co., Inc. <Philippines>	○	○
● PT. Toyo Ink Indonesia <Indonesia>	○	○
● Toyo Ink Vietnam Co., Ltd. <Vietnam>	○	○
● Toyo Ink Compounds Vietnam Co., Ltd. <Vietnam>	○	○
● Toyo Ink India Pvt. Ltd. <India>		○
● Tianjin Toyo Ink Co., Ltd. <China>	○	○
● Shanghai Toyo Ink Mfg. Co., Ltd. <China>	○	○
● Jiangmen Toyo Ink Co., Ltd. <China>	○	○
● Zhuhai Toyocolor Co., Ltd. <China>	○	○
● Chengdu Toyo Ink Co., Ltd. <China>		○
● Toyo Advanced Science Taiwan Co., Ltd. <Taiwan>	○	○
● Hanil TOYO Co., Ltd. <South Korea>		○
● Sam Young Ink & Paint Mfg. Co., Ltd. <South Korea>*3	○	○
● Toyo Ink Europe N.V. <Belgium>		○
● Toyo Ink Europe Specialty Chemicals S.A.S. <France>	○	○
● Toyo Matbaa Mürekkepleri Sanayi ve Ticaret A.Ş. <Turkey>	○	○
● Toyo Ink Hungary Kft. <Hungary>		*4
● Toyo Ink America, LLC <USA>		○*5
● LioChem, Inc. <USA>	○	○
● Toyo Ink Mexico, S.A. de C.V. <Mexico>		○

● : Manufacturing ○ : Certification has been achieved.

*1 Amagasaki Plant has obtained GMP (Good Manufacturing Practice) certification for manufacturing control and quality control for drugs and quasi-drugs.

*2 Has obtained ISO 45001 certification.

*3 Has obtained KOSHA-MS2025 certification.

*4 Has obtained IATF 16949 certification.

*5 Only the Texas Plant has achieved ISO 9001 certification.

Environmental Data

Material balance

By grasping the overall picture of material balance and clarifying the effectiveness of our environmental conservation activities, we will further reduce the environmental impact.

INPUT

		FY2022	FY2023	FY2024
Raw materials	Solvents, resins, pigments, etc. (t)	161,313	150,701	154,789
	Chemical substances* ¹ amount handled (t)	44,468	54,101	52,224
Supplementary materials	Drums, five-gallon drums, etc. (t)	7,502	7,244	7,558
Energy	Electricity (million kWh)	4,895	4,312	4,257
	Heavy fuel oil A (kL)	330.2	306.3	289.9
	LPG (t)	26.8	29.5	23.3
	Municipal gas (thousand m ³)	18,844	18,179	17,848
Water	Water supplied (thousand m ³)	140	140	121
	Industrial-use water (thousand m ³)	0	0	6
	Groundwater (thousand m ³)	2,680	2,320	2,470
	Total (thousand m ³)	2,830	2,470	2,596

OUTPUT

		FY2022	FY2023	FY2024
Volume of products (t)		153,953	158,626	159,886
CO ₂ (t-CO ₂)		66,030	53,241	54,331
Chemical substances (t)		149.3	100.7	128.9
Wastewater (thousand m ³)		2,235	2,018	2,298
Environmental pollutant	SOx(t)	0.4	0.5	0.4
	NOx(t)	62.6	38.4	37.6
	Particulates (t)	1.5	2.2	1.3
	COD(t)	64.6	54.3	72.2
Waste	Volume of emissions (t)	15,408	11,918	12,345
	Final disposal volume (t)	0	0	3.6

Scope of calculation: Major factories and plants in Japan; For details about the organizations in the scope, see page 39.

* Past figures for chemical substances have been recalculated retrospectively due to the revision of the operation method of the aggregation system and a review of substances covered by PRTR in FY2023.

* The major factories and plants are responsible for approx. 92% of energy consumption of all our production bases in Japan.

*¹ The chemicals described here refer to Class I designated chemical substances listed under the PRTR Act and substances designated by the Japan Chemical Industry Association.

Environmental Data

Environmental accounting

The artience Group began to calculate its environmental costs based on guidelines from the Environmental Agency (Ministry of the Environment) in FY1999, which it positions as the first year of environmental accounting. Since then, we have been evaluating our environmental activities by continuing to check required costs for these activities and their effects.

Environmental cost

(Unit: million JPY)

Category	Main measures implemented	FY2023		FY2024	
		Investments	Costs	Investments	Costs
Business area costs		241	1,207	275	1,260
Pollution prevention	Pollution prevention related investment and maintenance and management expenses	85	567	172	579
Global environment protection	Global environment protection related investment and maintenance and management expenses	103	217	91	258
Resource recycling	Waste processing and recycling related investment and maintenance and management expenses	53	423	12	424
Upstream and downstream costs	Product recycling and product container recycling expenses	0	227	0	220
Management activity costs	Environmental management expenses, and environmental advertising, environmental education and other activity expenses	8	431	0	411
R&D costs		1,697	5,194	596	3,574
Product development	Environmentally friendly product development related personnel costs, maintenance costs and investment in experimental equipment	1,584	3,851	577	2,994
Technology development	Environmentally friendly technology development related personnel costs, maintenance costs and investment in experimental equipment	113	1,343	19	580
Social activity costs	Support for global environment activities and donations to environmental organizations	0	309	0	1
Environmental damage response	Soil pollution remediation	0	19	0	8
Total		1,946	7,387	872	5,475

Period covered by the data: January 1, 2024 – December 31, 2024

Scope of calculation: Major factories and plants in Japan and affiliates in Japan; For details about the organizations in the scope, see page 39.

* The total amount of R&D expenditure during this period (consolidated) : 10,109 million JPY

Direct quantitative effects of environmental preservation (within business area)

Description	Index indicating the effect of environmental protection			
	Category	FY2023	FY2024	Effect*
Effects related to resources used in operations	Total energy used (crude-oil equivalent: thousand kl)	30.8	30.6	0.8
	Volume of water resources used (thousand m ³)	2,505	2,625	-7.6
	Volume of PRTR- and JCIA-designated chemicals handled (thousand t)	64.9	63.1	3.0
Effects related to environmental burden and waste from business activity emissions	CO ₂ emissions (thousand t-CO ₂)	57.0	58.7	-0.7
	Emissions of PRTR- and JCIA-designated substances (t)	100.7	136.4	-34.0
	Volume of wastewater (thousand m ³)	2,049	2,330	-24.5
	Volume of waste emissions (thousand t)	14.1	14.6	-0.3
	Final disposal volume (t)	21.2	18.6	3.0
	SOx emissions (t)	0.5	0.4	0.1
	NOx emissions (t)	38.6	37.6	1.7
	Particulates emissions (t)	2.2	1.3	1.0
	COD emissions (t)	54.3	72.2	-17.0

Scope of calculation: Major factories and plants in Japan and affiliates in Japan; For details about the organizations in the scope, see page 39.

* Direct quantitative effects of environmental protection activities are calculated by comparing data for the year with data for the previous fiscal year, with adjustments for productions quantity.

* Effect = Environmental burden for previous fiscal period × (Production quantity for current fiscal period / Production quantity for previous fiscal period) – Environmental burden for current fiscal period.

Economic effects

(Unit: million JPY)

Category	Data aggregation definitions and scope, etc. for each item	FY2023	FY2024
1 Sales of valuable resources	Revenue from sale of used containers, etc.	13	18
2 Energy conservation	Monetary value of the effects from energy saving activities at individual business locations	52	41
3 Resource conservation	Effects derived from the reduction in raw materials used due to higher recovery rates, etc.	223	183
4 Recycling of containers, etc.	Effects derived from product container reuse and adoption of reusable tanks	51	42
5 Reduction waste disposal costs	Reduced expenditure due to reduction in the amount of waste generated	5	53
Total		345	337
Environmental business	Total earnings from products registered as "environmentally friendly products" *1	1,242*2	1,813*2

Scope of calculation: Major factories and plants in Japan and affiliates in Japan; For details about the organizations in the scope, see page 39.

*1 Sales of environmentally friendly products multiplied by the operating margin.

*2 The sale of electricity from in-house solar power generation equipment is included.

Environmental Data

Response to Climate Change

Scope 1 to 3 emissions

(Unit: t-CO₂)

Item	FY2022	FY2023	FY2024
Scope 1 (direct emissions)	51,027	63,619	67,012
Heavy fuel oil A	994	958	894
Municipal gas	43,574	55,175	57,875
LPG	99	356	420
Scope 2 (indirect emissions from energy sources)	27,934	90,949	84,990
Scope 3 (other indirect emissions)	868,211	1,608,468	1,933,550
Category 1: Purchased goods and services	766,535	1,421,382	1,720,376
Category 2: Capital goods	21,823	43,392	49,608
Category 3: Fuel and energy related activities not included in Scope 1 or 2	16,507	29,729	30,526
Category 4: Transportation and delivery (upstream)	36,454	60,878	73,821
Category 5: Waste generated in operations	16,458	27,389	27,849
Category 6: Business travel	552	936	907
Category 7: Employee commuting	1,565	3,018	3,267
Category 8: Leased assets (upstream)	160	0	0
Category 9: Transportation and delivery (downstream)	8,157	21,745	27,198
Category 10: Processing of sold products	—	—	—
Category 11: Use of sold products	—	—	—
Category 12: End-of-life treatment of sold products	—	—	—
Category 13: Leased assets (downstream)	0	0	0
Category 14: Franchise	0	0	0
Category 15: Investments	0	0	0
Total	947,172	1,763,036	2,085,551
Scope 1 + Scope 2	78,961	154,568	152,002

Scope of calculation: In FY2024, we expanded the scope of calculation by adding 1 overseas base to the FY2023 scope of calculation (Scope 1 and 2 cover approx. 85% of the artience Group's net sales base, and Scope 3 covers approx. 95%.) For details of the method of calculation and the increase portion, see page 43.

* In FY2022, the scope of calculation was expanded by adding non-production bases to major domestic factories, plants, and offices or core operating companies (Scope 1 and 2 for all sites in Japan, and Scope 3 for Category 3, Category 6, and Category 7 for all sites in Japan.) As a result, figures for FY2022 are massively higher than figures for previous fiscal years (increase: 268,290t-CO₂.) Details are provided on pages 76 and 77 of the Sustainability Data Book 2023.

* In FY2023, we expanded the scope of calculation by adding overseas bases to the FY2022 scope of calculation (Scope 1 and 2 cover 90% of the artience Group's net sales base, and Scope 3 covers 70%.)

Third-party verification of CO₂ emissions data

artience Co., Ltd. (boundary 70%) has undergone third-party verification of its Scope 1 and 2 greenhouse gas (CO₂) emissions.

Targets of verification	Scope of verification	Verification figures
1 Scope 1	Greenhouse gas emissions for the FY2024* period in as a result of the business operations of the following companies. Japan: Core operating companies (Toyocolor Co., Ltd., Toyochem Co., Ltd., Toyo Ink Co., Ltd.,) Toyo-Morton Co., Ltd.	67,011t-CO ₂
2 Scope 2	Overseas: Toyochem Specialty Chemical Sdn. Bhd., Toyo Ink (Thailand) Co., Ltd., PT. Toyo Ink Indonesia, Toyo Ink India Pvt. Ltd., Tianjin Toyo Ink Co., Ltd., Shanghai Toyo Ink Mfg. Co., Ltd., Jiangmen Toyo Ink Co., Ltd., Zhuhai Toyocolor Co., Ltd.	84,989t-CO ₂ * ²

*1 The period from January 1, 2024 through December 31, 2024.

*2 Market standard

Environmental Data

■ Scopes 1, 2 and 3 emissions calculation method

Item		Calculation method	Applicable to more organizations from 2024 onwards	Emissions increase due to the expansion of the scope of calculation [t-CO ₂]
Scope 1 (direct emissions)		Calculated direct emissions from stationary combustion of fuels (heavy fuel oil A, municipal gas, LPG, etc.) in business activities. The emissions unit value set out in Basic Guidelines on Accounting for Greenhouse Gas Emissions Throughout the Supply Chain of the Ministry of the Environment were used.	—	—
Scope 2 (indirect emissions from energy sources)		Calculated indirect emissions originating from electricity purchased in business activities. The latest emission factors for each electric power company published under the Act on Promotion of Global Warming Countermeasures were used.	—	—
Scope 3 (other indirect emissions)	Category 1: Purchased goods and services	Calculated emissions by multiplying the cost of raw materials purchased, the cost of merchandise purchased, supplies expense, and the cost of auxiliary materials purchased by the emissions intensity for each item. For items related to consumables and services, the applicable emission factor on the value basis was used for calculation. * Emissions intensity used: IDEAS3.3, the input-output table, and global environmental impact intensity	1 overseas site	25,515
	Category 2: Capital goods	Calculated emissions by multiplying capital expenditure (excluding environmental costs) by an emissions intensity (273 t-CO ₂ e/million JPY.)	1 overseas site	96
	Category 3: Fuel and energy related activities not included in Scope 1 or 2	Calculated emissions by multiplying electricity consumption and heat consumption by the emissions intensity. (Emissions intensity used: The Database of Emissions Unit Values for Calculation of Greenhouse Gas Emissions, etc., by Organizations throughout the Supply Chain (Ver. 3.4))	1 overseas site	320
	Category 4: Transportation and delivery (upstream)	Calculated emissions using the volumes of raw materials purchased, merchandise purchased, and auxiliary materials and a transportation scenario: a transport of 500 km using a tanker truck or 10-ton truck (a loading ratio of 50%) * Emissions intensity used: IDEAS3.3. Calculated CO ₂ emissions associated with the transportation and distribution of our products and merchandise based on regular reports from specified consignors under the Act on Rationalizing Energy Use. Emissions in the scope of specified consignors not subject to reporting were calculated from the value concerning emissions understood by the company's system with the use of the emission intensity and in consideration of the period of storage in external warehouses. Emissions intensity used: Fuel method, improved ton-kilometer method, conventional ton-kilometer method and the input-output table	1 overseas site	1,019
	Category 5: Waste generated in operations	Classified industrial waste by type of waste and by stage of the disposal process (transportation, incineration, and landfill) and calculated emissions by multiplying the amount of industrial waste in each classification by the emissions intensity for each stage. Emissions from sewerage were calculated from the value for the volume of use. * Emissions intensity used: IDEAS3.3 and the input-output table	1 overseas site	46
	Category 6: Business travel	Calculated emissions by multiplying the number of employees by the emissions intensity (0.130 t-CO ₂ per person per year.)	1 overseas site	36
	Category 7: Employee commuting	Classified employees by type of workplace and by location of workplace and calculated emissions by multiplying the number of employees in each classification by the number of business days and by the emissions intensity for each classification. * Emissions intensity used: emissions intensities per employee per business day by type of workplace and by location of workplace set out in the Database of Emissions Unit Values for Calculation of Greenhouse Gas Emissions, etc., by Organizations throughout the Supply Chain (Ver. 3.4)	1 overseas site	124
	Category 8: Leased assets (upstream)	Emissions are deemed to be zero because emissions are included in emissions at our business sites (Scopes 1 and 2.)	—	—
	Category 9: Transportation and delivery (downstream)	Assumed transportation from a processing company to a retailer and calculated emissions using a transportation scenario: a transport of 100 km using a 4-ton truck (average loading ratio.) * Emissions intensity used: IDEAS3.3	—	—
	Category 10: Processing of sold products	Do not calculate emissions because there are a wide variety of products and it is difficult to create a scenario about the processing of sold products.	—	—
	Category 11: Use of sold products	Do not calculate emissions because there are a wide variety of products and it is difficult to create a scenario about the use of sold products.	—	—
	Category 12: End-of-life treatment of sold products	Do not calculate emissions because there are a wide variety of products and it is difficult to create a scenario about the end-of-life treatment of sold products.	—	—
	Category 13: Leased assets (downstream)	Emissions are deemed to be zero because we have no applicable leased assets.	—	—
	Category 14: Franchise	Emissions are deemed to be zero because we have no franchises.	—	—
	Category 15: Investments	Emissions are deemed to be zero because we do not engage in investment business activities directly.	—	—

* For the scope of calculation, see page 42.

Environmental Data

CO₂ emissions / CO₂ emissions per unit of sales

		FY2020	FY2021	FY2022	FY2023	FY2024
CO ₂ emissions (t-CO ₂)	Total in Japan	76,843	79,380	73,404	59,669	67,729
	Overseas total	118,786	120,893	112,023	99,903	84,272
	Asia, China and Eastern Asia	102,134	101,970	94,850	83,431	71,986
	Europe	8,793	9,753	7,308	6,148	5,053
	Americas	7,859	9,169	9,865	10,324	7,234
	Group total	195,629	200,273	185,427	159,571	152,002
CO ₂ emissions per unit of sales (t-CO ₂ /million JPY)		0.76	0.70	0.58	0.50	0.43

Scope of calculation: All bases in Japan and major overseas affiliates engaging in manufacturing; For details about the organizations in the scope, see page 39.

* For the electricity emission factor in Japan, we use the emission factor for each electric power company that is announced every year.

* Overseas electricity emissions factors have been calculated using the emissions factors of individual countries from the Inventory Database for Environmental Analysis (IDEA.)

Energy consumption / energy use per production unit

		FY2020	FY2021	FY2022	FY2023	FY2024
Energy consumption (kl)	Total in Japan	38,388	39,849	37,723	30,752	30,570
	Major factories and plants in Japan	35,023	37,056	34,830	28,258	27,979
	Affiliates in Japan	3,365	2,793	2,893	2,494	2,591
	Overseas affiliates	48,625	49,860	47,498	43,354	42,289
	Group total	87,013	89,709	85,221	74,106	72,859
Energy use per production unit (L/t)	Major factories and plants in Japan	222.2	223.9	226.2	178.1	175.0
	Overseas affiliates	170.2	164.1	164.1	156.5	157.5

Scope of calculation: Major factories and plants in Japan, affiliates in Japan and major overseas affiliates engaging in manufacturing; For details about the organizations in the scope, see page 39.

Water Resource Management

Water consumption

(Unit: thousand m³)

		FY2020	FY2021	FY2022	FY2023	FY2024
Total in Japan		2,728	3,018	2,861	2,505	2,632
	Major factories and plants in Japan	2,689	2,986	2,831	2,470	2,596
	Affiliates in Japan	39	32	30	35	35
Overseas affiliates		2,699	2,577	1,996	1,749	1,332
Group total		5,427	5,595	4,857	4,252	3,964

Scope of calculation: Major factories and plants in Japan, affiliates in Japan and major overseas affiliates engaging in manufacturing; For details about the organizations in the scope, see page 39.

* Figures for FY2023 for overseas affiliates have been corrected due to errors in aggregation.

Water withdrawal by source

(Unit: thousand m³)

		FY2020	FY2021	FY2022	FY2023	FY2024
Japan	Water supplied	174	185	172	173	153
	Industrial-use water	7	5	4	4	6
	Groundwater	2,547	2,827	2,685	2,326	2,473
	Other (rainwater, seawater, river and others)	0	0	0	0	0
	Total	2,728	3,018	2,861	2,503	2,632
Overseas	Water supplied	1,311	635	1,188	1,281	853
	Industrial-use water	810	1,278	116	29	39
	Groundwater	578	664	692	437	441
	Other (rainwater, seawater, river and others)	0	0	0	0	0
	Total	2,699	2,577	1,996	1,749	1,332
Group total		5,427	5,595	4,857	4,252	3,964

Scope of calculation: Major factories and plants in Japan, affiliates in Japan and major overseas affiliates engaging in manufacturing; For details about the organizations in the scope, see page 39.

* Figures for FY2023 for overseas affiliates have been corrected due to errors in aggregation.

Environmental Data

Amount of wastewater

(Unit: thousand m³)

		FY2020	FY2021	FY2022	FY2023	FY2024
Total in Japan		2,727	2,319	2,261	2,049	2,330
	Major factories and plants in Japan	2,702	2,302	2,235	2,018	2,298
	Affiliates in Japan	25	17	26	31	32
Overseas affiliates		1,472	1,704	1,606	1,769	1,590
Group total		4,199	4,023	3,867	3,818	3,920

Scope of calculation: Major factories and plants in Japan, affiliates in Japan and major overseas affiliates engaging in manufacturing; For details about the organizations in the scope, see page 39.

Breakdown of volume of wastewater by destination

(Unit: thousand m³)

		FY2022	FY2023	FY2024
Japan	Sewerage networks	1,706	1,568	1,801
	River	550	476	529
	Sea	5	4	0
	Groundwater	0	0	0
	Total	2,261	2,048	2,330
Overseas	Sewerage networks	1,605	1,287	1,156
	River	1	482	434
	Sea	0	0	0
	Groundwater	0	0	0
	Total	1,606	1,769	1,590
Group total		3,867	3,817	3,920

Scope of calculation: Major factories and plants in Japan, affiliates in Japan and major overseas affiliates engaging in manufacturing; For details about the organizations in the scope, see page 39.

Water intake and consumption in regions with water stress

Category	FY2023	FY2024
Water withdrawal (thousand m ³)	351.0	281.6
Ratio to total water intake / consumption (%)	7.3	7.1
Amount of wastewater (thousand m ³)	218.3	114.5
Ratio to total amount of wastewater (%)	5.7	2.9

Scope of aggregation: Bases in the Asian region (excluding Japan) that were rated as having high or extremely high water risk, among 43 business sites surveyed in Japan and overseas using Aqueduct 4.0 (Details shown on page 27.)

* Figures for FY2023 have been corrected due to errors in aggregation.

COD emissions

(Unit: t)

		FY2020	FY2021	FY2022	FY2023	FY2024
Total in Japan		83.9	68.4	64.6	54.3	72.2
	Major factories and plants in Japan	83.9	68.4	64.6	54.3	72.2
	Affiliates in Japan	0.0	0.0	0.0	0.0	0.0
Overseas affiliates		75.9	80.3	159.9	104.7	87.4
Group total		159.7	148.7	224.5	159.0	159.6

Scope of calculation: Major factories and plants in Japan, affiliates in Japan and major overseas affiliates engaging in manufacturing; For details about the organizations in the scope, see page 39.

Total nitrogen emissions

(Unit: t)

		FY2022	FY2023	FY2024
Total in Japan		0.7	0.1	0.8
	Major factories and plants in Japan	0.7	0.1	0.8
	Affiliates in Japan	0.0	0.0	0.0
Overseas affiliates		22.0	12.4	9.6
Group total		22.7	12.5	10.3

Scope of calculation: Major factories and plants in Japan (100% coverage), affiliates in Japan (100% coverage) and major overseas affiliates engaging in manufacturing (91% coverage); For details about the organizations in the scope, see page 39.

Environmental Data

Total phosphorous emissions

(Unit: t)

	FY2022	FY2023	FY2024
Total in Japan	0.1	0.1	0.1
Major factories and plants in Japan	0.1	0.1	0.1
Affiliates in Japan	0.0	0.0	0.0
Overseas affiliates	0.2	0.2	0.2
Group total	0.3	0.3	0.3

Scope of calculation: Major factories and plants in Japan (100% coverage), affiliates in Japan (100% coverage) and major overseas affiliates engaging in manufacturing (91% coverage); For details about the organizations in the scope, see page 39.

State of compliance with water-related laws and regulations

(Unit: case)

	FY2020	FY2021	FY2022	FY2023	FY2024
Number of violations of water-related standards and laws and regulations	0	0	0	0	0

Scope of calculation: Global (consolidated)

Waste Management

Volume of waste emissions / volume of industrial waste emissions / amount of waste treated off-site / final disposal volume

(Unit: t)

		FY2020	FY2021	FY2022	FY2023	FY2024
Volume of waste emissions	Total in Japan	16,422	18,052	17,455	14,112	14,613
	Major factories and plants in Japan	14,597	15,984	15,408	11,918	12,345
	Affiliates in Japan	1,825	2,068	2,047	2,194	2,269
	Overseas affiliates	13,817	15,999	14,410	12,341	13,186
	Group total	30,239	34,051	31,865	26,453	27,799
Volume of industrial waste emissions	Total in Japan	7,572	8,956	7,865	5,869	5,403
	Major factories and plants in Japan	6,763	8,337	7,345	5,231	4,664
	Affiliates in Japan	809	619	520	639	739
Amount of waste treated off-site	Total in Japan	12,890	14,110	13,466	10,625	10,904
	Major factories and plants in Japan	11,065	12,154	11,641	8,745	8,961
	Affiliates in Japan	1,825	1,956	1,825	1,880	1,943
Final disposal volume (Non-recycled amount)	Total in Japan	6.5	3.1	3.1	21.2	18.6
	Major factories and plants in Japan	0.1	0	0	0	3.6
	Affiliates in Japan	6.4	3.1	3.1	21.2	15.0
	Overseas affiliates	—	—	—	—	424.0
	Group total	—	—	—	—	442.6
Final waste disposal rate	Japan	0.0	0.0	0.0	0.2	0.1
Non-recycled rate (%)	Group (Japan & overseas)	—	—	—	—	1.6
Recycling	Total in Japan	16,416	18,049	17,452	14,091	14,595
Recycling rate (%)	Total in Japan	100.0	100.0	100.0	99.8	99.9

Scope of calculation: Major factories and plants in Japan (100% coverage), affiliates in Japan (100% coverage) and major overseas affiliates engaging in manufacturing (approx. 91% coverage); For details about the organizations in the scope, see page 39.

* The data on affiliates in Japan for FY2022 include figures of the Kansai Branch Office (Neyagawa), the Kansai Branch Office (Toyama), the Chubu Branch Office (Kasugai), Toyo Ink Hokkaido Co., Ltd., Toyo Ink Chushikoku Co., Ltd. (Okayama), Toyo Ink Chushikoku Co., Ltd. (Takamatsu) and Toyo Ink Kyushu Co., Ltd. (Fukuoka.)

* In FY2023, Toyo Ink Co., Ltd. was consolidated and abolished as an organization, but the scope of aggregation remains unchanged from FY2022.

* Past figures have been recalculated retrospectively, given that overseas affiliates adopted a new calculation method in FY2020.

Environmental Data

■ Volume of hazardous / non-hazardous waste emissions (Japan)

(Unit: t)

		FY2020	FY2021	FY2022	FY2023	FY2024
Hazardous waste	Subtotal	7,433	7,892	7,928	6,816	6,821
	Valuables	1,187	996	1,118	1,186	1,249
	Reuse within the Group	3,532	3,940	3,983	3,487	3,653
	Recycling at recyclers	2,714	2,957	2,826	2,143	1,919
	Landfill	0	0	0	0	3
	Total	7,433	7,892	7,928	6,816	6,824
Non-hazardous waste	Subtotal	8,983	10,157	9,525	7,275	7,774
	Valuables	2,963	3,695	3,901	3,227	4,001
	Reuse within the Group	0	4	6	0	56
	Recycling at recyclers	6,021	6,458	5,618	4,048	3,717
	Landfill	6	3	0	21	15
	Total	8,990	10,161	9,525	7,296	7,789

Scope of calculation: Major factories and plants in Japan (100% coverage) and affiliates in Japan (100% coverage); For details about the organizations in the scope, see page 39.

* The data on affiliates in Japan for FY2022 include figures of the Kansai Branch Office (Neyagawa,) the Kansai Branch Office (Toyama,) the Chubu Branch Office (Kasugai,) Toyo Ink Hokkaido Co., Ltd., Toyo Ink Chushikoku Co., Ltd. (Okayama,) Toyo Ink Chushikoku Co., Ltd. (Takamatsu) and Toyo Ink Kyushu Co., Ltd. (Fukuoka.)

* In FY2023, Toyo Ink Co., Ltd. was consolidated and abolished as an organization, but the scope of aggregation remains unchanged from FY2022.

* Hazardous waste: specially controlled industrial waste (waste oil, PCB, waste acid, waste alkali)

Pollution Prevention

■ NOx emissions

(Unit: t)

		FY2020	FY2021	FY2022	FY2023	FY2024
Total in Japan		50.8	53.2	62.7	38.6	37.6
	Major factories and plants in Japan	49.9	53.1	62.6	38.4	37.6
	Affiliates in Japan	0.9	0.2	0.2	0.2	0.0
Overseas affiliates		22.9	21.6	32.2	28.5	28.1
Group total		73.7	74.8	94.9	67.1	65.7

Scope of calculation: Major factories and plants in Japan (100% coverage), affiliates in Japan (100% coverage) and major overseas affiliates engaging in manufacturing (approx. 91% coverage); For details about the organizations in the scope, see page 39.

■ SOx emissions

(Unit: t)

		FY2020	FY2021	FY2022	FY2023	FY2024
Total in Japan		1.0	0.8	0.4	0.5	0.4
	Major factories and plants in Japan	1.0	0.8	0.4	0.5	0.4
	Affiliates in Japan	0	0	0	0	0.0
Overseas affiliates		3.5	6.5	12.8	14.3	16.6
Group total		4.5	7.2	13.2	14.8	17.0

Scope of calculation: Major factories and plants in Japan, affiliates in Japan and major overseas affiliates engaging in manufacturing; For details about the organizations in the scope, see page 39.

■ Particulate emissions

(Unit: t)

		FY2020	FY2021	FY2022	FY2023	FY2024
Total in Japan		2.0	1.7	1.5	2.2	1.3
	Major factories and plants in Japan	1.9	1.7	1.5	2.2	1.3
	Affiliates in Japan	0.1	0.0	0.0	0.0	0.0
Overseas affiliates		22.0	6.6	8.8	7.2	8.8
Group total		24.0	8.2	10.3	9.4	10.1

Scope of calculation: Major factories and plants in Japan, affiliates in Japan and major overseas affiliates engaging in manufacturing; For details about the organizations in the scope, see page 39.

Environmental Data

VOC emissions

(Unit: t)

		FY2020	FY2021	FY2022	FY2023	FY2024
Total in Japan		48.6	44.3	53.3	52.7	54.5
	Major factories and plants in Japan	47.9	44.0	53.2	52.4	48.8
	Affiliates in Japan	0.6	0.4	0.1	0.3	5.7

Scope of calculation: Major factories and plants in Japan and affiliates in Japan; For details about the organizations in the scope, see page 39.

Chemical Substance Management

Changes in chemical substance emissions

(Unit: t)

		FY2020	FY2021	FY2022	FY2023	FY2024
Total in Japan		131.3	118.4	149.7	102.8	136.4
	Major factories and plants in Japan	129.5	117.2	149.3	100.7	128.9
	Affiliates in Japan	1.8	1.1	0.4	2.1	7.6
Overseas affiliates		316.7	213.3	107.3	144.8	132.6
Group total		448.0	331.7	257.0	247.6	269.0

Scope of calculation: Major factories and plants in Japan, affiliates in Japan and major overseas affiliates engaging in manufacturing; For details about the organizations in the scope, see page 39.

* Past figures have been recalculated retrospectively due to the revision of the operation method of the aggregation system and a review of substances covered by PRTR in FY2023.

Environmental Data

■ Emissions and transfers of PRTR-designated chemicals (FY2024)

(Unit: kg)

PRTR substance name	Ordinance designation number*	Amount emitted			Amount transferred	
		Atmosphere	Public waters	Soil	Sewerage	Waste materials
acrylamide	2	0	0	0	0	0
ethyl acrylate	3	0	0	0	0	0
acrylic acid and its water-soluble salts	4	0	0	0	0	0
butyl acrylate	7	10	0	0	0	0
methyl acrylate	8	0	0	0	0	0
2-aminoethanol	20	0	0	0	0	0
antimony and its compounds	31	0	0	0	0	219
3-isocyanatomethyl-3,5,5-trimethylcyclohexyl isocyanate	34	0	0	0	0	0
4,4'-isopropylidenediphenol (synonym: Bisphenol A)	37	0	0	0	0	0
ethylbenzene	53	14,400	0	0	0	11,000
ethylene glycol monoethyl ether	57	67	0	0	0	540
p-alkylphenol (limited to those where the alkyl group has 8 carbon atoms)	74	0	0	0	0	0
xylene	80	17,330	0	0	0	35,100
silver and its water-soluble compounds	82	0	0	0	0	0
cumene	83	0	0	0	0	1,600
cresol	86	0	0	0	0	85
chromium and chromium(III) compounds	87	0	0	0	0	1,060
chromium(VI) compounds	88	0	0	0	0	0
cobalt and its compounds	132	0	0	0	0	244
2-ethoxyethyl acetate (synonym: Ethylene glycol monoethyl ether acetate)	133	520	0	0	0	4,200
vinyl acetate	134	64	0	0	0	0
2,6-di-tert-butyl-4-cresol	207	0	0	0	0	1,270
N,N-dimethylformamide	232	0	0	0	0	29
styrene	240	0	0	0	0	0
terephthalic acid	270	0	0	0	0	0
dimethyl terephthalate	271	0	0	0	0	0
water-soluble copper salts (except for complex salts)	272	0	0	0	0	0
tolyene diisocyanate	298	0	0	0	0	1
toluidine	299	0	0	0	0	0
toluene	300	16,040	0	0	0	59,600
naphthalene	302	96	0	0	0	0
nickel compounds	309	0	0	0	0	49
phenol	349	0	0	0	0	0
bis(2-ethylhexyl) phthalate	355	0	0	0	0	42
hexamethylene diisocyanate	391	0	0	0	0	0
hexane	392	228	0	0	0	1,720
water-soluble salts of peroxodisulfuric acid	395	0	0	0	0	0
1,2,4-benzenetricarboxylic 1,2-anhydride	401	0	0	0	0	0
Poly(oxyethylene) alkyl ether (limited to those where the alkyl group has 12 to 15 carbon atoms and mixtures of those)	407	0	0	0	0	80
sodium poly(oxyethylene) dodecyl ether sulfate	409	0	0	0	0	110
poly(oxyethylene) alkylphenyl ether (limited to those where the alkyl group has 9 carbon atoms)	410	0	0	0	0	130
formaldehyde	411	6	0	0	0	0
manganese and its compounds	412	0	0	0	0	22
phthalic anhydride	413	0	0	0	0	0
methacrylic acid	415	0	0	0	0	0
methyl methacrylate	420	10	0	0	0	41
methylenebis(4,1-phenylene) diisocyanate	448	0	0	0	0	0
tributyl phosphate	462	0	0	0	0	17
2-ethylhexyl acrylate	564	1	0	0	0	0
di-2-ethylhexyl adipate	567	36	0	0	0	21
acetylacetone	568	106	0	0	0	530

Environmental Data

■ Emissions and transfers of PRTR-designated chemicals (FY2024)

(Unit: kg)

PRTR substance name	Ordinance designation number*	Amount emitted			Amount transferred	
		Atmosphere	Public waters	Soil	Sewerage	Waste materials
alkan-1-amine (limited to those where the alkane is a linear chain with 8,10,12,14,16 or 18 carbon atoms and mixtures of those,) (Z)-octadec-9-en-1-amine, (9Z,12Z)-octadeca-9,12-dien-1-amine and mixtures of those	576	0	0	0	0	0
mixtures of polyaddition products of oxirane to alkan-1-amine (limited to those where the alkane is a linear chain with 8,10,12,14,16 or 18 carbon atoms and mixtures of those,) polyaddition products of oxirane to (Z)-octadec-9-en-1-amine and polyaddition products of oxirane to (9Z,12Z)-octadeca-9,12-dien-1-amine	577	0	0	0	0	344
alpha-alkyl-omega-hydroxypoly(oxyethane-1,2-diyl) (limited to those where the alkyl group has 16 to 18 carbon atoms and mixtures of those, and the number average molecular weight is less than 1,000,) alpha-alkenyl-omega-hydroxypoly(oxyethane-1,2-diyl) (limited to those where the alkenyl group has 16 to 18 carbon atoms and mixtures of those, and the number average molecular weight is less than 1,000,) and mixtures of those	578	0	0	0	0	0
salt of alkyl(benzyl)(dimethyl)ammonium (limited to those where the alkyl group has 12 to 16 carbon atoms and mixtures of those)	581	0	0	0	0	45
alpha-(isocyanatobenzyl)-omega-(isocyanatophenyl) poly[(isocyanatophenylene)methylene]	585	0	0	0	0	0
ethylcyclohexane	591	7	0	0	0	33
ethylene glycol monobutyl ether (synonym: Butyl cellosolve)	594	2,946	0	0	0	23,770
diethanolamine	626	0	0	0	0	22
diethylene glycol monobutyl ether	627	0	0	0	0	8,800
cyclohexane	629	114	0	0	0	176
organic tin compounds (except for Bis(tributyltin) oxide)	664	0	0	0	0	0
tetrahydrofuran	674	2	0	0	0	150
trimethylbenzene	691	1,106	0	0	0	8,726
trimethoxy-[3-(oxiran-2-ylmethoxy)propyl]silane	693	30	0	0	0	110
Paraformaldehyde	699	0	0	0	0	0
bis(2-ethylhexyl) (Z)-but-2-enedioate	702	17	0	0	0	80
bis(2,2,6,6-tetramethyl-4-piperidyl) sebacate	705	0	0	0	0	150
N,N-Bis(2-hydroxyethyl)alkanamide (limited to those where the alkane is a linear chain with 8, 10, 12, 14, 16 or 18 carbon atoms and mixtures of those,) (Z)-N,N-bis(2-hydroxyethyl) octadec-9-enamide and (9Z,12Z)-N,N-bis(2-hydroxyethyl) octadeca-9,12-dienamide and mixtures of those	707	0	0	0	0	0
tert-butyl 2-ethylperoxyhexanoate	712	0	0	0	0	0
2-tert-butoxyethanol	720	1,900	0	0	0	15,000
hexanedihydrazide	727	0	0	0	0	60
heptane	731	62	0	0	0	23
acetic anhydride	736	0	0	0	0	0
methyl isobutyl ketone	737	1,267	0	0	0	11,300
N-methyl-2-pyrrolidone	746	1	0	0	0	42,059

Scope of calculation: Major factories and plants in Japan; For details about the organizations in the scope, see page 39.

* The control number of Class I Designated Chemical Substances