

## 【Environmental Efforts】

### <Piolax Global Environmental Policy>

The Piolax Group updates its Global Environmental Policy every three years to ensure that it reflects environmental trends. In January 2023, we created a new environmental policy, clarifying that our business activities contribute to natural capital and the SDGs.

Its Action Guidelines refer to risks and opportunities based on the TCFD Recommendations, which we support as a framework for ESG information disclosure, as well as our efforts for carbon neutrality. We will comply with environmental laws and regulations and work to minimize the impact of our corporate activities on the global environment.

#### **Basic Policy**

Recognizing that its business activities are based on natural capital, the Piolax Group will contribute to the Sustainable Development Goals (SDGs), which will be achieved through the balance of environment, society, and economy.

#### **Slogan**

We will grow in harmony with the environment.

#### **Action Guidelines**

The Piolax Group will work on climate change mitigation and adaptation, environmental protection, and pollution prevention in all its business areas and practice continuous improvement of its environmental performance and environmental management system.

#### **<Major Actions>**

- 1) Promote environmental improvement activities in line with the Piolax Business Policies.
- 2) Advance SDGs initiatives such as diversity, circular economy, social contribution, and biodiversity.
- 3) Disclose information in accordance with the TCFD Recommendations (regarding risks and opportunities of climate change and carbon neutrality).
- 4) Fully comply with environmental laws and regulations and customer requirements.

### <International Certification for Global Environmental Management>

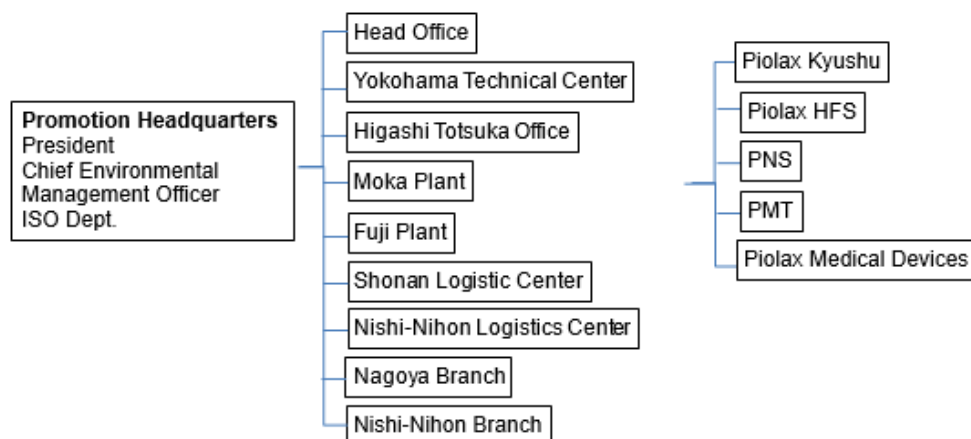
Piolax obtained the ISO14001 international certification in April 2002, and currently has ISO14001:2015 international certification at 17 locations in Japan and overseas. We will further expand our certification status.

Link (in this report): Organizations registered for international certifications

## <Environmental Promotion System>

Individual Piolax offices and domestic subsidiaries have a meeting structure led by a person responsible for environment and secretariat and operate an environmental management system in line with the ISO 14001:2015.

### Environmental system in Japan



## <Compliance with Environmental Laws and Regulations>

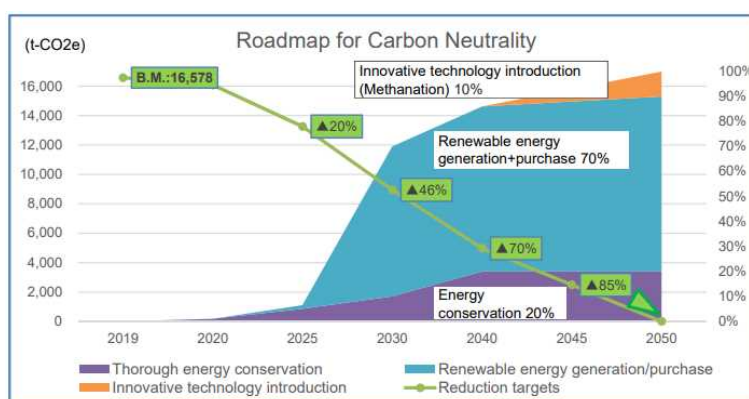
In an on-site inspection by the Dongguan Municipal Environmental Protection Bureau in May 2022, DONGGUAN PIOLAX CO., LTD. (China) was pointed out regarding notification of the disposal volume of metal containers and was fined 190,000 yuan in accordance with an administrative penalty notice. This issue was promptly remedied and is now being handled appropriately. Other than this, the Piolax Group did not cause any violations of laws or regulations, payments of fines or penalties, or leakages that may have a significant environmental impact in the past three years. There are also no legally filed environmental complaints. Asbestos (16 m<sup>3</sup>) used in part of the former head office building, which was demolished in 2022, was disposed of as specially controlled industrial waste in January 2023. We will continue to ensure compliance with environmental laws and regulations.

## <Major Environmental Issues>

“Energy, emissions to the atmosphere, and waste,” mentioned in the materiality analysis, are major environmental issues of the Piolax Group. We will work on 3Rs (Reduce, Reuse, and Recycle) in our business activities and make efforts to reduce greenhouse gas (GHG) and waste in our supply chain, mitigate and adapt to climate change, and use water and other resources efficiently.

In March 2021, we disclosed a roadmap toward achieving carbon neutrality by 2050 in the domestic business domain.

Link (in this report): For greenhouse gas data, see environmental performance data.



## <Risks and Opportunities by Multiple Scenarios based on TCFD Recommendations on Climate Change>

PIOLAX has revised its scenario analysis based on the recommendations of Task Force on Climate-related Financial Disclosures (TCFD) and added analysis for North America (including Mexico) and China to the existing analysis for Japan to assume scenarios for future climate change and develop business strategies. There are uncertainties in every scenario due to changes in various factors, but we believe that sustainable corporate management can be realized by identifying risks and opportunities in the scenarios. We clearly define strategies for the electrification of vehicles, develop infrastructure to reinforce resilience for fewer risks and more opportunities, and expand a lineup of products. The following tables show our initiatives in the production domain in Japan, North America and China to address risks and opportunities. For details, please refer to our website\*.

\* [https://www.piolax.co.jp/resources/pdf/csr/PIOLAX\\_TCFD\\_2023.pdf](https://www.piolax.co.jp/resources/pdf/csr/PIOLAX_TCFD_2023.pdf)



Procurement	Impact/ Time frame	Manufacturing and Logistics	Impact/ Time frame	Development and Sales	Impact/ Time frame
<ul style="list-style-type: none"> <li>Higher raw materials and transport prices with carbon tax and energy transition at suppliers</li> <li>Loss of market due to non-eco raw materials</li> <li>Drop in demand for materials for existing products with increased electrification, rise in material cost and difficulty in procurement</li> </ul>	1.5°C Large Medium to long term (China: short to medium)	<ul style="list-style-type: none"> <li>Rise in capital investment and improvement cost related to manufacturing process decarbonization</li> <li>Rise in energy cost with review of heat sources for manufacturing process decarbonization and use of green electricity</li> <li>Rise in costs of waste water/waste treatment with stricter environment-related regulations</li> <li>(U.S., China) Increased response costs due to strengthened or changed government environmental policies</li> <li>Delayed response to increased transport process disruptions</li> </ul>	1.5°C Medium to large Short to medium Large Medium to long 4°C Medium (U.S.: large) Short to medium	<ul style="list-style-type: none"> <li>Review of product development and sales strategies in response to rapid electrification</li> <li>Drop in orders for existing products with increased electrification</li> <li>Rise in new product development cost/capital investment to address CASE</li> <li>Drop in sales with reduced new car sales due to domestic population decrease and spread of MaaS</li> <li>Reduced market size and orders due to restrictions by new pandemic, etc.</li> </ul>	1.5°C Large Medium to long (China: short to medium) Large (China: medium) Medium to long 4°C Medium Medium to long

	Procurement	Manufacturing and Logistics	Development and Sales
Opportunity	<ul style="list-style-type: none"> <li>Review raw materials (conversion to eco-friendly or recycled ones), suppliers, product designs, etc. to promote actions for decarbonization and resource recirculation, and differentiate us from competitors.</li> <li>(U.S., China)</li> <li>Increase local procurement of raw materials to strengthen competitiveness. (Realize cost reduction and stable procurement.)</li> </ul>	<ul style="list-style-type: none"> <li>Accelerate efforts to improve productivity through factory automation and decarbonize domestic facilities.</li> </ul>	<ul style="list-style-type: none"> <li>Promote and accelerate co-creation activities with customers to increase sales of products for CASE.</li> <li>(U.S., China)</li> <li>Strengthen sales expansion to non-Japanese OEMs and increase market share focusing on fastener parts, etc., which are less affected by electrification</li> </ul>
Measure	<ul style="list-style-type: none"> <li>Resin material: Use of bioplastics</li> <li>Metal material: Replacement with low-CO2 materials</li> <li>Cost reduction through procurement of locally produced goods</li> <li>Reduction of energy used for transport</li> <li>Purchase of decarbonized energy sources</li> </ul>	<ul style="list-style-type: none"> <li>Moka Plant renewal to improve productivity</li> <li>Thorough energy conservation</li> <li>Reduction of energy consumption by replacing utility system</li> <li>Improvement of thermal efficiency of injection molding machine</li> <li>Gas replacement in heat treatment furnace (LPG → LNG)</li> <li>[Reference]</li> <li>P16: Moka Plant renewal plan</li> <li>P20: Roadmap for carbon neutrality by 2050</li> </ul>	<ul style="list-style-type: none"> <li>Development and sales of new products for CASE</li> <li>Increase of existing market share mainly in fuel and drive system components (Short-term response to demand for ICE vehicles)</li> <li>[Reference]</li> <li>P15: Actions for CASE</li> </ul>



	Chronic Risk	Impact/ Time frame		Acute Risk	Impact/ Time frame		
Physical risk	<ul style="list-style-type: none"><li>• Rise in air conditioning cost with temperature rise and health hazards to employees</li></ul>	4 °C	Medium (China: medium to large)	Long	4 °C	Medium (U.S.: large)	Medium
	Medium (Mexico: large)						
			<ul style="list-style-type: none"><li>• Degradation of raw material and product quality with temperature and humidity rise</li></ul>	<ul style="list-style-type: none"><li>• Impact on plant operations due to supply chain disruptions caused by increased natural disasters</li></ul>		<ul style="list-style-type: none"><li>• Decrease in orders due to delay in responding to changes in performance requirements from automakers as a result of rising temperatures</li></ul>	
	<ul style="list-style-type: none"><li>• Shutdown of operations and vessels due to inundation of coastal sites by rising sea levels</li></ul>		<ul style="list-style-type: none"><li>• Suspension of operations due to decrease in available water resources caused by rapid drop (or depletion) of groundwater level</li></ul>	<ul style="list-style-type: none"><li>• Delay in reviewing procured materials in response to performance requirements from automakers due to rising temperatures</li></ul>		<ul style="list-style-type: none"><li>• Increased procurement/logistics costs due to increased natural disasters</li></ul>	<ul style="list-style-type: none"><li>• Shutdown of plant and warehouse due to abnormal weather and increase in repair cost</li></ul>
Measure	<ul style="list-style-type: none"><li>• Infrastructure development to strengthen plant and warehouse resilience</li><li>• Improvement of work and material storage environment through thermal management (room temperature and humidity)</li><li>• Introduction of water circulation system through water management</li><li>• Review of risk assessment with BCP database including supply chain</li></ul>				<ul style="list-style-type: none"><li>• Reduction of inventory cost through increased use of locally produced goods</li><li>• Stable procurement through supply chain diversification and raw material standardization</li><li>• Infrastructure development to strengthen plant and warehouse resilience (U.S., China)</li><li>• Promote local production and consumption, and enhance cooperation with business partners in view of geopolitical risks.</li></ul>		

#### Risk impact level

Large: A failure to respond has a great impact on the survival and growth of the company and its businesses.

Medium: A failure to respond poses a limited impact and does not affect the survival and growth of the company and its businesses.

#### Time frame

Short-term: 2024 (3 years from 2022)

Mid-term: 2030 (Achievement of the SDGs)

Long-term: 2050 (Target to limit the increase in global average temperature to 1.5°C)

## <Promotion of Energy Saving>

Piolax and its subsidiaries in Japan and overseas are working on energy saving in their plants and logistics centers, introducing LED lighting and high-efficiency motors and inverter controls.



LED lighting in the premises



High-efficiency motor, inverter control compressor, and chiller

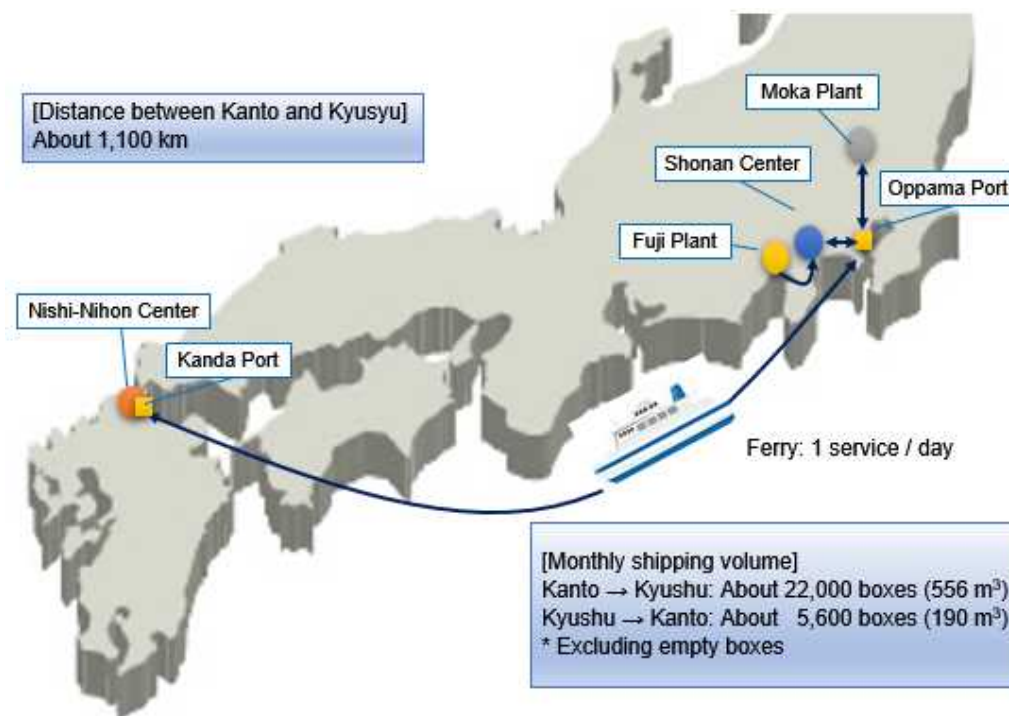


Energy saving of injection molding machine heating cylinder  
(Left: Close-up of injection molding machine)

## <Efforts in Logistics Division>

As an effort to reduce greenhouse gas emissions generated during transporting our products, modal shift transportation by ferry is introduced from our plants in the Honshu region to our customers in the Chugoku and Kyushu regions. In FY2022, this reduced 398 tons of CO2 emissions.

In addition, we make devise to increase the number of products put in one packing box and one container and use high cube containers for export to reduce the total number of containers (transportation frequency).



## <Conservation of Water Resources and Improvement of Drainage>

The Piolax Group recognizes that its corporate activities may affect water resources. All production bases in Japan and overseas monitor water intake and comply with environmental assessment laws and regulations in each country, including treatment and discharge of wastewater.

At Moka Plant, in response to the environmental standard for nitrate nitrogen contained in wastewater from heat treatment, the conventional acid-alkali wastewater treatment was replaced by biological denitrification treatment, in which nitrogen compounds are removed by the action of microorganisms. This saves approximately 170 m³/day of water and contributes to environmental protection and biodiversity in the plant's watershed (Kinugawa River system).



Moka Plant: biological denitrification wastewater treatment

Link (in this report): For water intake data, see the environmental performance data.

## <Biodiversity>

The Piolax Group thinks that minimizing environmental impacts of its products and corporate activities is the greatest contribution to biodiversity conservation and has set “contribution to the Sustainable Development Goals (SDGs)” as one of the key themes of the Piolax Global Environmental Policy.

To address greenhouse gas emissions and pollutants, which are major causes of biodiversity loss, and to support a recycling-based society, we are committed to economic use of energy, sustainable and effective use of resources, and 3Rs (Reduce, Reuse, Recycle), believing that waste and use of land and water also impact biodiversity.

For environmental impacts of our production bases in Japan and overseas on plants and animals in terms of biodiversity, we started a survey in FY2021 using the Integrated Biodiversity Assessment Tool (IBAT) and continued the assessment in FY2022. We also consider it important to know environmental impacts in areas around our production bases referring to the Red List species designated by the International Union for Conservation of Nature and Natural Resources (IUCN).

## <Disaster Risk Preparedness>

Moka Plant, Fuji Plant, Shonan Logistics Center, and Piolax Medical Devices (PMD) have installed generators in accordance with the continuity plan to maintain their basic functions in case of a prolonged power outage caused by natural disasters and climate change. They would mitigate the risk of power outage supplying power to heat treatment lines and water supply/drainage system (Moka Plant), plant office and some production shops (Fuji Plant), ordering system (Shonan Logistics Center), and sterilization rooms (PMD).

In response to the increasing flood risk in recent years, we try to identify potential flood risk at our business bases and surrounding areas referring to hazard maps. As a measure against river flooding, Moka and Fuji Plants have installed regulating reservoirs.



Generators



Regulating reservoir

## 【Environmental Performance Data】

### <Greenhouse Gases from Corporate Activities>

The Piolax Group collects data on greenhouse gases generated by its corporate activities in the following categories: total emissions in the supply chain, direct emissions (Scope 1), indirect emissions of grid electricity (Scope 2), and other indirect emissions (Scope 3). For direct emissions (Scope 1), non-energy source emission data is added from FY2022.

#### Scopes 1 and 2

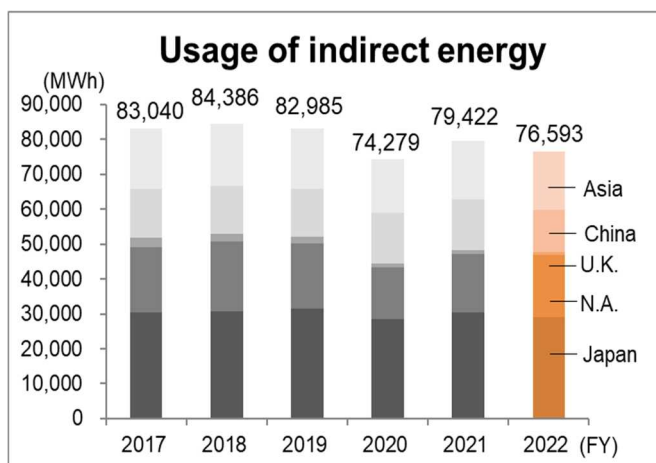
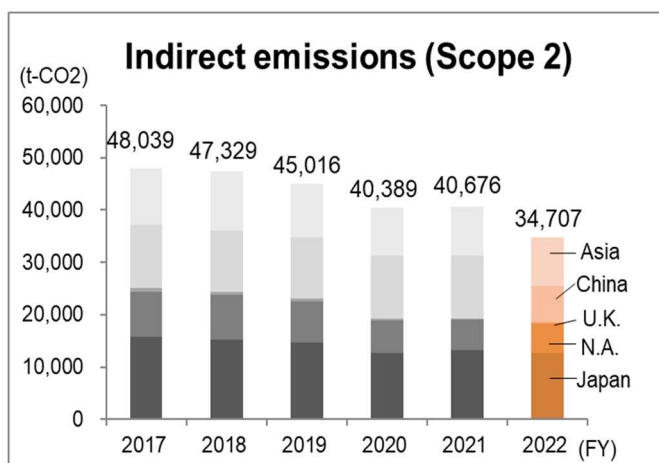
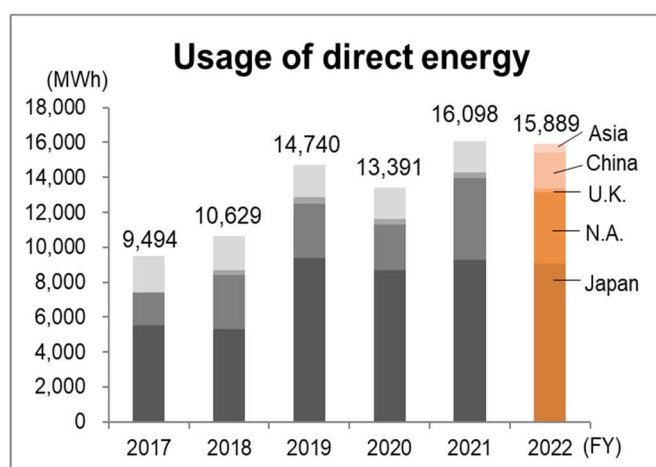
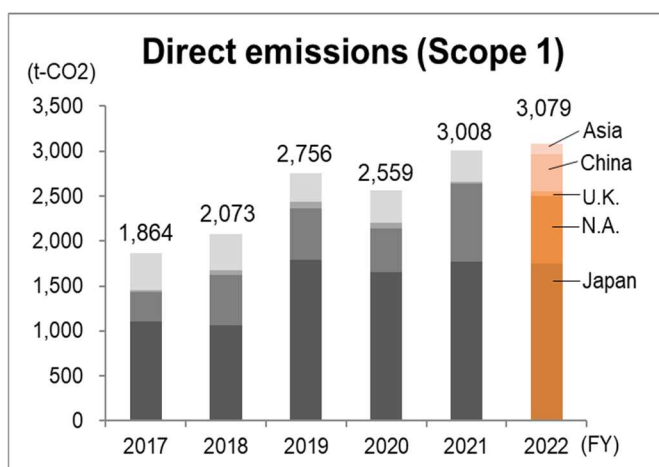
(Unit: t-CO<sub>2</sub> (t-CO<sub>2</sub>e))

Classification		FY2017	FY2018	FY2019	FY2020	FY2021	FY2022
Total emissions in the supply chain	Scopes 1+2	49,903	49,402	47,772	42,948	43,684	37,786
Direct emissions (fuel combustion)	Scope 1	1,864	2,073	2,756	2,559	3,008	3,064
Direct emissions (non-energy source)	Scope 1	-	-	-	-	-	15
Indirect emissions (grid electricity)	Scope 2	48,039	47,329	45,016	40,389	40,676	34,707

Scope 1: Emission factors are calculated based on the Greenhouse Gas Emissions Calculation and Reporting Manual (Ver. 4.9) and the Law Concerning the Rational Use of Energy.

\* Breakdown of non-energy source emissions - CO<sub>2</sub> put in EOG gas cylinder: 5 (t-CO<sub>2</sub>); HFC gas R-134a: 10 (t-CO<sub>2</sub>e)

Scope 2: Domestic and international emission factors are calculated based on location reference values.  
Domestic: National average factor = a value of general transmission and distribution companies other than Okinawa  
Overseas: IGES. Carbon footprint. Climate transparency. UK Government GHG conversion factors. Government information publication on environment and climate [2023] No.43 of Ministry of Ecology and Environment of the People's Republic of China. Thailand Greenhouse Gas Management Organization Emission Factor.





### Scope 3

(Unit: t-CO2)

Category	Contents	FY2022	Remarks
1	Purchased products and services	62,708	Materials procured: Piolax Group Others: Excluding overseas bases
2	Capital goods	14,552	Equipment and mold investment: Piolax Group
3	Activities related to fuel and energy not included in Scope 1 or 2	94	Electricity, gas, and 00000kerosene: Piolax Group
4	Transportation and delivery (Upstream)	1,049	(Ton-kilometer method): excluding overseas bases
5	Waste from business activities	234	Industrial and general waste: excluding overseas bases
6	Business trips	136	Excluding overseas bases
7	Employee commuting	443	Excluding overseas bases
8	Lease assets (Upstream)	865	Contract warehouses for production plants in Japan
9	Transportation and delivery (Downstream)	2,249	(Ton-kilometer method): excluding overseas bases
10	Processing of products sold	NA	Related but not calculated
11	Use of products sold	NA	Related but not calculated
12	Disposal of products sold	NA	Related but not calculated
13	Lease assets (Downstream)	19	1F of the Head Office
14	Franchise	NA	Not applicable
15	investment	NA	NA
Total		82,350	

Scope 3: The basic guidelines for calculating greenhouse gas emissions through the supply chain (ver. 2.5) are referred to. For emission factors in Japan, the emissions basic unit database (ver. 3.3) provided by the Ministry of the Environment for calculating an organization's greenhouse gas emissions through the supply chain is referred to. See Emission Intensity Database (Ver. 3.3).

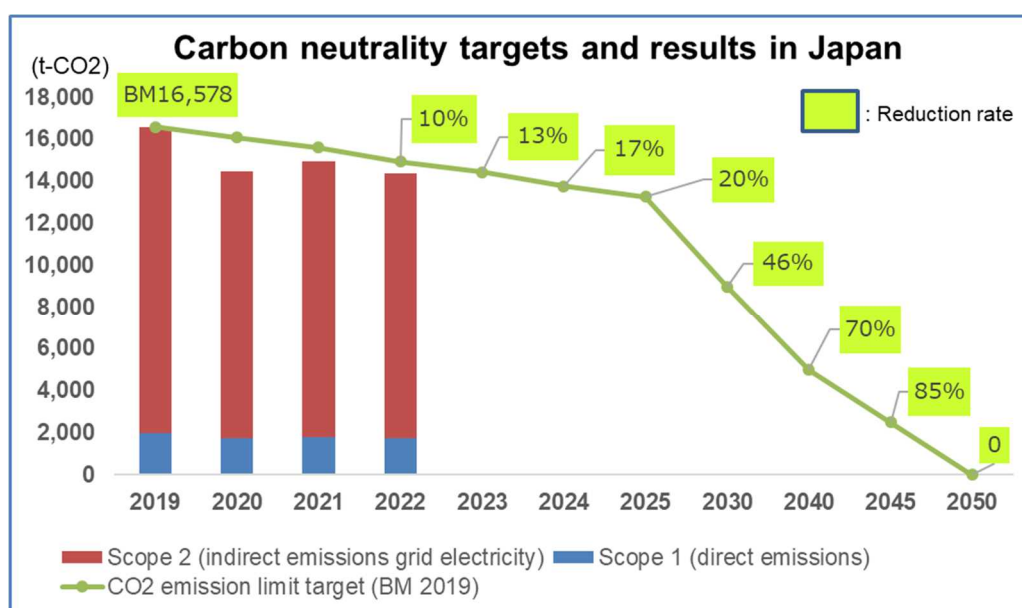
LCI database IDEAv2 (for calculating greenhouse gas emissions from the supply chain).

\* Decimal point omitted.

### <Carbon Neutrality Targets and Results of Piolax and its Domestic Subsidiaries>

Our medium-term goal is to reduce Scope 1 and 2 emissions from our domestic business areas by 46% by FY2030, using FY 2019 as a benchmark. FY2022 result was -13% from FY2019, achieving the target.

In FY2023, power used at Moka Plant, Fuji Plant, Nishi-Nihon Logistics Center, and Piolax Medical Devices was switched to CO2-free electricity. We will continue to promote initiatives to surely meet the reduction targets.





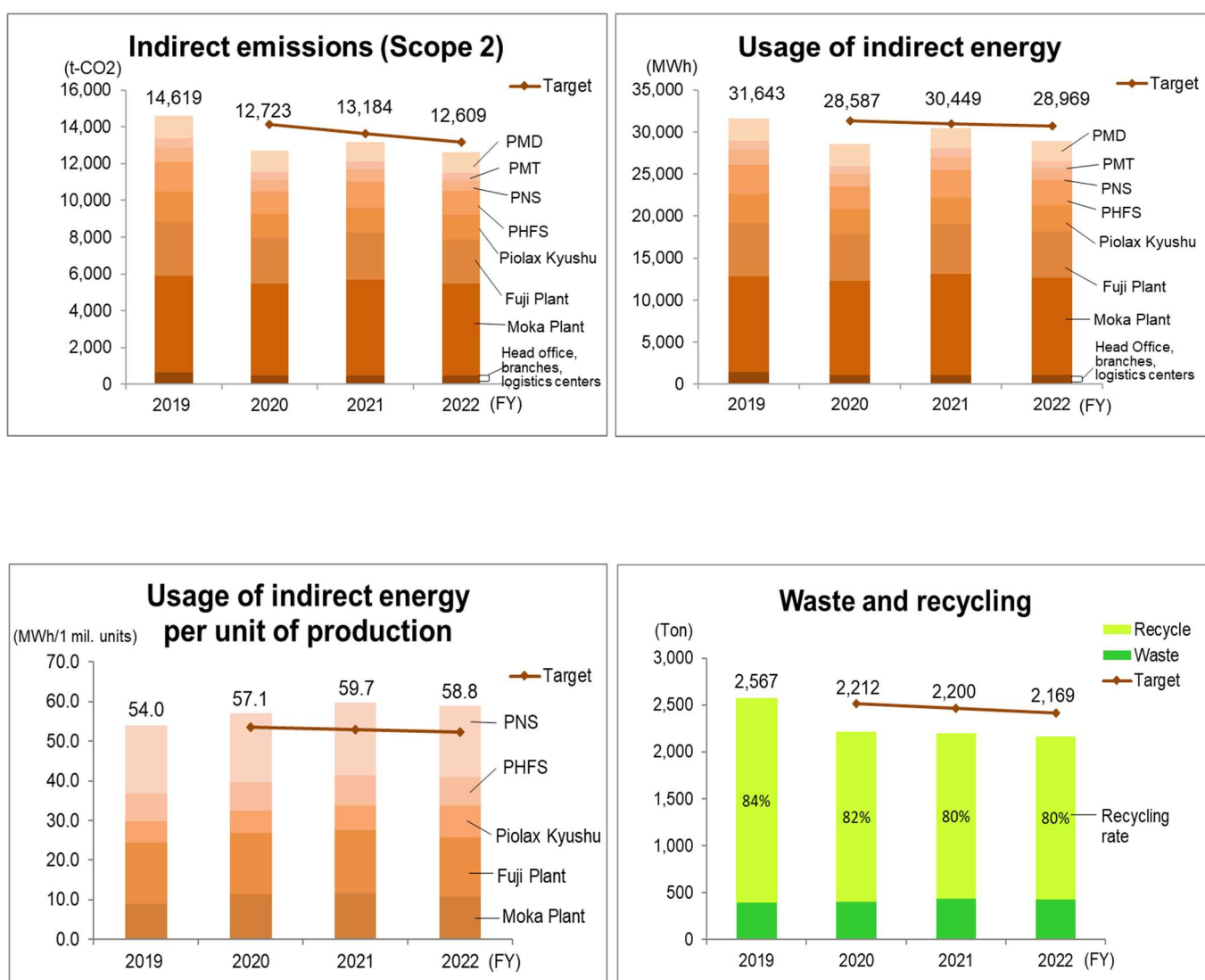
## <Medium-Term Environmental Targets and Results>

Piolax and its domestic subsidiaries worked on environmental activities based on the 7th environmental medium-term target, a three-year plan through FY2022 setting FY 2019 as a benchmark, and achieved all the targets except for usage of indirect energy per unit of production. Starting in FY2023, we are working based on the 8th environmental medium-term target.

### Medium-term targets and results (Benchmark: FY 2019)

	Target by FY2022	FY2020 result	FY2021 result	FY2022 result
Indirect emissions (Scope 2)	-10%	-13%	-10%	-13.7%
Usage of indirect energy	-3%	-10%	-4%	-8%
Usage of indirect energy per unit of production*	-3%	+6%	+11%	+9%
Total waste (including recycling)	-6%	-14%	-14%	-15.5%

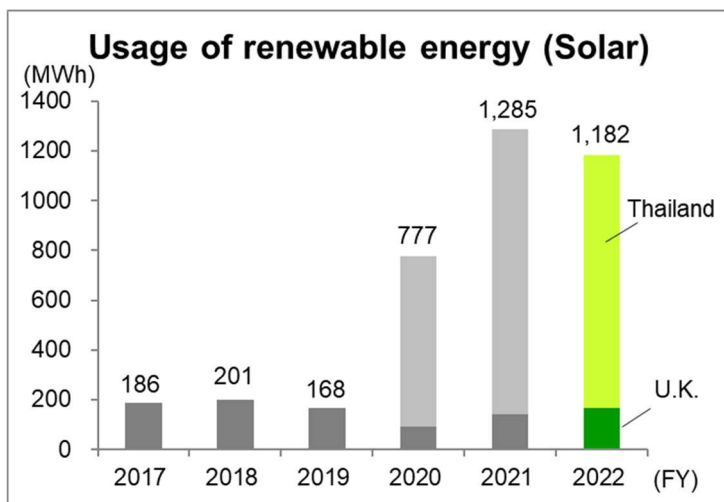
\* Used per 1 million units used at production plants excluding Piolax Medical Devices and PMT.



## <Approaches to Renewable Energy>

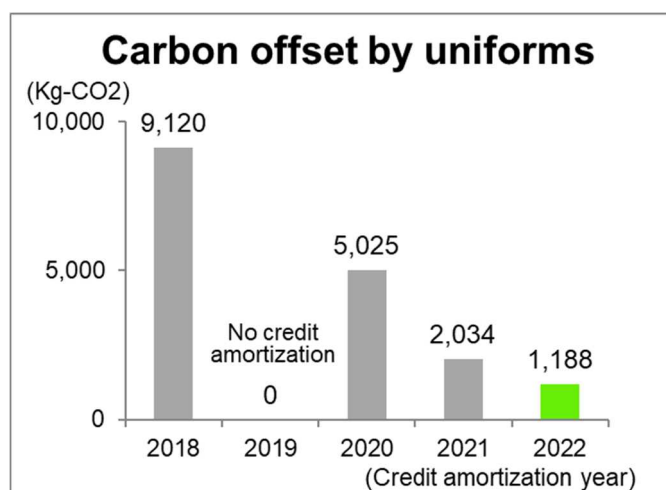
PIOLAX LTD. in the U.K. has started to use renewable energy self-supplied by solar panels since 2017, followed by PIOLAX (THAILAND) LTD. since 2020, and the UK base installed additional solar panels in September 2022.

Greenhouse gas emissions reduced in FY2022 through self-supplied renewable energy was 544 (t-CO<sub>2</sub>) compared to the market standard. We plan to introduce solar panels at our main plants in Japan.



## <Approaches to Carbon Offset>

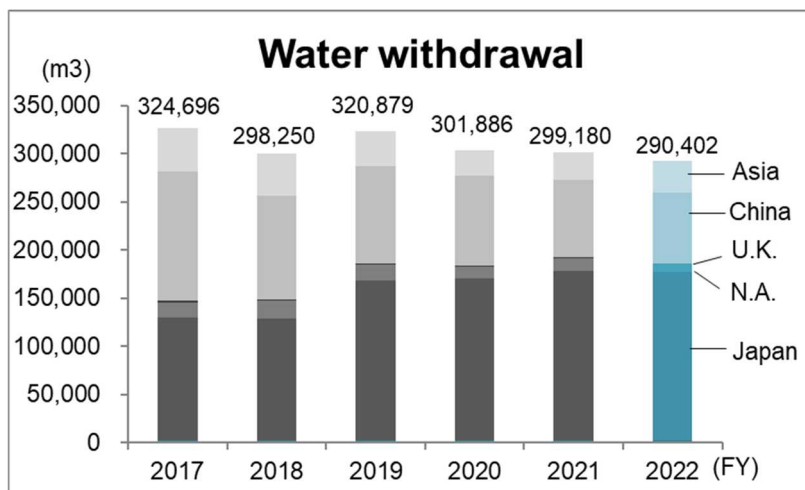
Piolarx purchases carbon-offset uniforms. Carbon credits for FY2022 purchases are generated by the Green Linkage Club's fuel cell project, which is commissioned by the Ministry of Economy, Trade and Industry. Each uniform contributes to reducing greenhouse gas emissions by approximately 3 kg.



## <Water withdrawal data>

The Piolax Group monitors water withdrawal data for water management. In FY2022, it was -3% compared to the previous year. Water withdrawal sources are third-party sources and renewable groundwater, with a ratio of approximately 50% each.

To minimize water withdrawal, we are promoting water conservation and other initiatives at each production site. Water risks at all Piolax bases are verified using the Aqueduct Water Risk Atlas, a map that shows water risks around the world. Water withdrawal from extremely high water stress areas in terms of physical risk quantity was 1,600 m<sup>3</sup> for Piolax India Private Limited (India) and 1,542 m<sup>3</sup> for Piolax Mexicana S.A. de C.V. (Mexico), accounting for 1.1% of the Piolax Group's total water withdrawal.



Piolax India Private Limited (India) monitors water consumption based on the amount of withdrawal and discharge.

Piolax Mexicana S.A. de C.V. (Mexico) has introduced a water recycling system in which drain water from its plant's air conditioning is stored and reused as water for daily use, saving an average of 12 m<sup>3</sup> of water per month. As a further water-saving measure, use of rainwater is considered.

