

# Environmental Report 2025

Photo: Marigold Garden, Harima Chemicals, Inc.



**HARIMA CHEMICALS GROUP**

# Leading the Way with Pine Chemicals

Harima Chemicals Group is a chemical manufacturer built on products developed using pine chemical resources like rosin, fatty acids, turpentine and other materials all obtained from pine trees. We transform these key active ingredients into daily essentials.

Our products are used in a variety of fields, as resins for printing inks, paints and adhesives, emulsifiers for synthetic rubber, paper chemicals, solders used in electronic devices, and flavor and fragrance ingredients.

Indispensable everyday products derived in some way from pine trees are all around us:  
Printed items such as newspapers, books and catalogues  
Paints used to coat buildings and cars  
Adhesives used for glues and packing tapes  
Synthetic rubber used in car tires  
Paper goods including notebooks, books and cardboard  
Electronic devices such as computers and mobile phones  
Cosmetics and perfumes, etc.

And now with an international network of manufacturing bases in various countries, we meet the needs of our customers all over the world.

## Harima Chemicals Group Overview (as of March 31, 2025)

### Company Overview

Company name: Harima Chemicals Group, Inc.  
Founded: November 18, 1947  
Capital stock : 10,000 million yen  
Tokyo Head Office: 3-8-4 Nihonbashi, Chuo-ku, Tokyo  
Osaka Head Office: 4-4-7 Imabashi, Chuo-ku, Osaka  
Number of employees (consolidated) : 1,695  
Subsidiaries (consolidated) : 33

### Business Description

Manufacture and sale of products developed using pine chemical resources such as rosin, fatty acids and turpentine

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## Corporate Philosophy

Harima is a company which strives to cooperate with nature in the utilization of its blessings to enhance the quality of life.

Our mission is to help build a productive and humanistic society, with our goal being the creation of a truly global company which places a premium on its people and technology.

Our policy is to provide a cooperative atmosphere in which we seek mutual understanding and trust, and to intelligently and responsibly meet all challenges.

In the depth of our sincerity, we're number one.

### Report Overview

#### Editorial Policy

This report outlines Harima Chemicals Group's approach and initiatives regarding its impact on society, including customers, local communities, and employees, and on the environment and global environmental protection arising from its business activities. The Group recognizes environmental initiatives as a key corporate social responsibility and promotes activities from a global perspective.

#### Reporting Period

April 1, 2024 - March 31, 2025

\* Some information outside the reporting period is also included.

#### Reporting Scope

The report covers Harima Chemicals Group and its domestic and overseas consolidated subsidiaries. However, activity reports mainly focus on Harima Chemicals, Inc., the operating company following the transition to a holding company structure in October 2012. References to consolidated subsidiaries are noted where applicable. In this report, "Harima Chemicals Group" and "Harima Chemicals" are used according to the following definitions.

- Harima Chemicals Group : Same as the reporting scope above
- Harima Chemicals : Harima Chemicals Group
- Harima Chemicals Group (Japan Operations) : Harima Chemicals Group and Other domestic consolidated subsidiaries
- Harima Chemicals Group (overseas Operations) : overseas consolidated subsidiaries

\* Plasmine Technology, Inc., Portland plant was closed in July 2020.

\* Xinyi Nikka Resin Chemical Co., Ltd. ceased production in December 2020.

\* Harima Chemicals, Inc., Hokkaido Plant was closed in March 2022.

\* Harima do Brasil Indústria Química Ltda. was excluded from consolidation after its shares were transferred to Brazilian employees in June 2024.

#### (Note1)

● Harima Foods, Inc. became a consolidated subsidiary and has been included in the reporting scope since FY2023.

● An external company previously operated Sakushu Musashi Country Club and Hotel Sakushu Musashi, but since Harima Trading, Inc., the facility owner, began direct operation, the facilities have been consolidated subsidiaries and have been included in the reporting scope since FY2023.

#### (Note 2)

Environmental performance data do not include overseas consolidated subsidiaries.

The scope of aggregation is indicated for each item.

#### Referenced Guidelines

MOE, "Environmental Reporting Guidelines (2018 Edition)"

#### Next planned publication

December 2026

Guided by our corporate philosophy of “Utilizing the blessings of nature to enhance the quality of life,” we are working toward the realization of a sustainable society.

## Our Circular Business Model

Benefiting from the blessings of nature, such as sunlight and water, we engage in the pine chemical\* business using pine-derived materials that are regenerated for future generations, thereby operating an environmentally friendly, circular business.



## Eco-friendly Product Development

### Products Made with Plant-derived Raw Materials

We produce tall oil products derived from useful chemicals obtained from pine trees, the blessings of nature. We also develop products using these tall oil products, including coating, ink, and adhesive resins, with some products in our lineup containing 40–80% tall oil.

### People-friendly, Air-quality-improving Water-based Resins

We develop water-based resins with improved performance that use no organic solvents, aiming for safer manufacturing and reducing impacts on air pollution and global warming in coatings, inks, adhesives, and brazing materials.

### Addressing Marine Plastic Pollution

As part of efforts to address marine plastic pollution, food packaging films are being replaced with paper products.

We are developing coating agents that endow paper with film-like properties, including water and oil resistance, heat-sealability, and moisture resistance.

### Compliance with Global Food Safety Regulations

For papermaking chemicals used in food packaging paper, we are expanding our lineup of safe products compliant with global regulations for indirect food additives. Our sizing agents, which control paper absorbency, meet standards set by the U.S. Food and Drug Administration, German Federal Institute for Risk Assessment, and China’s GB9685 regulations. We have also developed new paper-strengthening agents certified by the FDA and BfR.

\* Pine chemicals: The field of chemistry dealing with useful substances from pine trees, such as rosin, fatty acids, and turpentine.

# Sustainability Management Initiatives

-Utilizing the blessings of nature with heart and technology to deliver a sustainable future worldwide-

## Toward the Development of a Sustainable Society

As part of efforts to strengthen governance and build a framework for sustainable management, we have established a Sustainability Committee and are advancing various initiatives across the Group.

### Sustainability in Harima Chemicals Group

Under our corporate philosophy, "Utilize the blessings of nature to enhance the quality of life," we aim to coexist with the global environment and grow together with society.

- ▶ Promote a business model that delivers value to society and the environment.
- ▶ Enhance stakeholder communication and reflect in business management.
- ▶ Promote a corporate governance and risk management framework that sustains business growth.

## Achieving GHG Reduction Targets Three Years Early

We aim to achieve the Japanese government's 46% GHG reduction target (vs. FY2013) three years early in 2027, reach a 50% reduction by 2030, and achieve carbon neutrality by 2050.

### Mid- to Long-term Targets Toward Achieving Carbon Neutrality by 2050 for Harima Chemicals Group (Japan Operations)

Greenhouse Gas (GHG) Reduction Roadmap (CO <sub>2</sub> Conversion)		Scope: Harima Chemicals Group (Domestic operations), Scope 1 and Scope 2
FY2050: Achievement of carbon neutrality (aiming for net-zero emissions)		<ul style="list-style-type: none"> <li>● Expanded use of biomass fuels</li> <li>● Expanded use of renewable energy</li> <li>● Improved energy efficiency</li> <li>● Introduction of innovative technologies</li> </ul>
FY2030: 50% reduction in GHG emissions (vs. FY2013)		
FY2027: 46% reduction in GHG emissions (vs. FY2013)		

## Engagement with International Agencies and Industry-Government-Academia Partnerships

We actively engage with international agencies and industry-government-academia while pursuing international sustainability certifications.

### Support for the Recommendations of the TCFD (Task Force on Climate-related Financial Disclosures)

In December 2021, we endorsed the recommendations of the TCFD, established by the Financial Stability Board. Beyond reducing the Group's own emissions, we are addressing environmental impacts across the entire supply chain, from raw materials to product disposal, while further strengthening the development and supply of products that contribute to decarbonization. We are currently assessing Scope 3\* GHG emissions in line with TCFD guidance and will continue striving to provide clear and accessible disclosure.



\* Scope 3: Indirect GHG emissions generated across the supply chain through activities such as raw material procurement, manufacturing, logistics, sales, and disposal.  
(Direct GHG emissions from a company's own operations are classed as Scope 1, while GHG emissions from purchased energy (mainly electricity) are classed as Scope 2.)

### Support for the GX League Basic Concept

In March 2022, we expressed support for the GX (Green Transformation) League Basic Concept announced by the Ministry of Economy, Trade and Industry (METI).

The GX League was established as a platform for companies proactively pursuing GX work to collaborate with government, academia, and financial agencies to discuss the transformation of the overall economic/social system and create new markets. Participating companies are expected not only to significantly reduce GHG emissions toward achieving carbon neutrality by 2050, but also to lead broader transformation across society and economy together with various stakeholders.



## Contributing to Solutions for Social Issues

Through our business activities, we contribute to the United Nations Sustainable Development Goals (SDGs) adopted at the 2015 UN Summit, and aim to achieve sustainable growth together with society.



### How Harima Chemicals Group's Business and Environmental Activities Relate to the SDGs

SDGs Target	Initiatives
 <p><b>3 GOOD HEALTH AND WELL-BEING</b> Ensure healthy lives and promote well-being for all at all ages</p>	<ul style="list-style-type: none"> <li>● To properly convey chemical safety information, we manage raw materials and products through a chemical substance management system.</li> <li>● We implement initiatives in accordance with the Pollutant Release and Transfer Register (PRTR) system.</li> <li>● We implement specific measures to prevent contamination by hazardous substances regulated by law.</li> <li>● We make efforts to prevent air pollution, noise, vibration, and odors.</li> </ul>
 <p><b>4 QUALITY EDUCATION</b> Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all</p>	<ul style="list-style-type: none"> <li>● We conduct internal environmental education and awareness activities, including climate change lectures by external experts and in-house study sessions.</li> <li>● Employees participate in e-learning</li> </ul>
 <p><b>6 CLEAN WATER AND SANITATION</b> Ensure availability and sustainable management of water and sanitation for all</p>	<ul style="list-style-type: none"> <li>● We regularly conduct wastewater monitoring, measurement, and inspection of treatment facilities to ensure proper management.</li> <li>● We promote the reuse and recycling of water resources.</li> </ul>
 <p><b>7 AFFORDABLE AND CLEAN ENERGY</b> Ensure access to affordable, reliable, sustainable and modern energy for all</p>	<ul style="list-style-type: none"> <li>● We use electricity and steam generated from biomass power facilities, and sell surplus electricity to power companies as renewable energy (Kakogawa Plant).</li> <li>● We generate solar power to support the spread and expansion of renewable energy (utilizing the Feed-in Tariff (FIT) system).</li> <li>● We monitor energy consumption and promote energy conservation in equipment and manufacturing processes.</li> </ul>
 <p><b>8 DECENT WORK AND ECONOMIC GROWTH</b> Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all</p>	<ul style="list-style-type: none"> <li>● We implement specific measures to prevent occupational accidents.</li> </ul>
 <p><b>9 INDUSTRY, INNOVATION AND INFRASTRUCTURE</b> Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation</p>	<ul style="list-style-type: none"> <li>● We actively implement advanced technologies and develop materials that promote resource conservation, energy savings, and harmony with the natural environment.</li> </ul>
 <p><b>11 SUSTAINABLE CITIES AND COMMUNITIES</b> Make cities and human settlements inclusive, safe, resilient and sustainable</p>	<ul style="list-style-type: none"> <li>● We engage in greening activities around our factories.</li> <li>● We consider townscapes and landscapes.</li> <li>● We communicate with local residents regarding CSR activities.</li> </ul>
 <p><b>12 RESPONSIBLE CONSUMPTION AND PRODUCTION</b> Ensure sustainable consumption and production patterns</p>	<ul style="list-style-type: none"> <li>● We effectively use plant-based resources by producing products from pine-derived substances and using by-products as biomass fuel for power generation.</li> <li>● We practice the 3Rs of waste management: Reduce, Reuse, and Recycle.</li> <li>● We actively use biomass raw materials that reduce CO<sub>2</sub> emissions and develop people- and eco-friendly products that support energy savings, waste reduction, and a recycling-oriented society.</li> </ul>
 <p><b>13 CLIMATE ACTION</b> Take urgent action to combat climate change and its impacts</p>	<ul style="list-style-type: none"> <li>● We are working to cut CO<sub>2</sub> emissions by 46% by 2027 and 50% by 2030 compared with FY2013 and achieve carbon neutrality by 2050.</li> </ul>
 <p><b>14 LIFE BELOW WATER</b> Conserve and sustainably use the oceans, seas and marine resources for sustainable development</p>	<ul style="list-style-type: none"> <li>● We participate in the Clean Ocean Material Alliance (CLOMA), a corporate collaboration initiative to address marine plastic waste issues. (CLOMA is a platform that strengthens cross-industry collaboration among a wide range of stakeholders and accelerates innovation to help solve the marine plastic waste issue.)</li> </ul>
 <p><b>16 PEACE, JUSTICE AND STRONG INSTITUTIONS</b> Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels</p>	<ul style="list-style-type: none"> <li>● We are committed to avoiding the use of conflict minerals that could fund armed groups.</li> </ul>
 <p><b>17 PARTNERSHIPS FOR THE GOALS</b> Strengthen the means of implementation and revitalize the Global Partnership for Sustainable Development</p>	<ul style="list-style-type: none"> <li>● We support the GX League Basic Concept and work with participating companies to promote social transformation and create new markets toward carbon neutrality.</li> <li>● We give presentations and proposals on eco-friendly product development at international conferences.</li> </ul>

\*The content is limited to what aligns with the editorial policy.

# Environmental Conservation Initiatives

In light of our corporate philosophy, "Utilizing nature's blessings to enhance the quality of life", we are committed to actively contributing to the realization of a circular society, through provision of indispensable pine chemical products developed using natural and renewable resources.

## For Environmental Conservation

### Basic Approach to the Environment

We are actively working to prevent environmental pollution and reduce environmental impact, and are promoting environmental management throughout the Company.

### Harima Chemicals Group Environmental Policy (Revised on September 4, 2017)

In light of our corporate philosophy "Utilizing the blessings of nature to enhance the quality of life", we urge our employees to actively and continuously promote environmental conservation according to the Environmental Policy./

1. With an awareness that the pine chemical business makes effective use of renewable natural resources, we strive to develop environmentally friendly products that take into account their life cycle from production to use and disposal.
2. We comply with related laws and regulations, agreements, and other requirements agreed by each Group company, relating to our business activities, products, and services and work to prevent environmental pollution and accidents.
3. We established environmental targets and aim to continuously improve our environmental performance and environmental management system.
  - ①Reduction of environmental impact (energy, waste, environmental pollution/air and water quality)
  - ②Appropriate management of hazardous chemicals
  - ③Conservation and management of greenery
4. Through environmental education and awareness-raising activities, we ensure that environmental management is thoroughly disseminated, and all of those who work at Harima Chemicals Group will act in an environmentally conscious manner both internally and externally.
5. Recognizing that biodiversity is an important foundation for a sustainable circular society, we conduct business activities in harmony with society and nature, taking into consideration natural ecosystems.
6. This environmental policy is disclosed to stakeholders including related companies and local residents, as well as to the general public.

## Environmental Management Structure

In order to promote environmental management and to thoroughly conduct environmental management activities, we established the Harima Chemicals Group Environmental Committee that oversees the entire Company and environmental committees at each site.

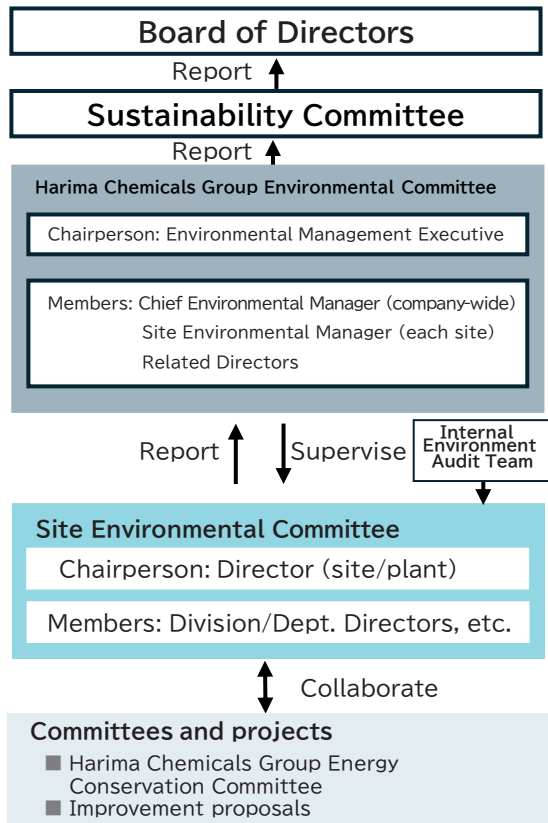
### ■ Sustainability Committee

The Sustainability Committee submits proposals and reports to the Board of Directors on key management issues related to sustainability promotion.

■ Harima Chemicals Group Environmental Committee: Deliberates on and determines the Company's environmental policy, targets and plans, and manages their progress.

■ Environmental Committee at Each Site: Based on the matters determined by the Harima Chemicals Group Environmental Committee, develops activities suited to the environment at each location.

## ■ Environmental Management System

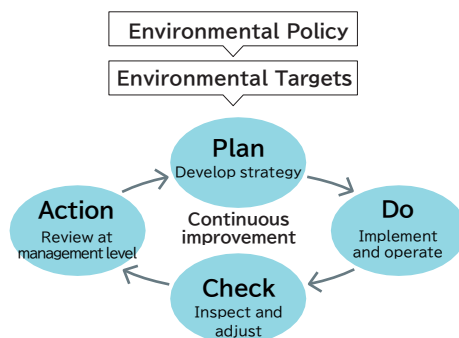


## Environmental Management System

In accordance with our Environmental Policy and ISO 14001, the international standard for environmental management systems, each division and department sets targets for the fiscal year and conducts activities that reduce environmental impact and preserve the environment.

### Operations

We strive to continuously improve the environmental management system and reduce environmental impact by implementing the PDCA cycle based on our Environmental Policy and Targets.








## Environmental Targets and Results

For each theme, we have established mid-term environmental targets (FY2030 targets) and promote initiatives by setting specific annual goals to achieve them.

Scope: Harima Chemicals group  
(Tokyo Head Office, Osaka Head Office)  
Harima Chemicals, Harima M.I.D.

### FY2024 Results and Mid-Term Environmental Targets (FY2030 Environmental Targets)

Evaluation Criteria: ○ Achieved / × Not Achieved

Themes and Related SDGs	FY2024 Targets	FY2024 Results	Evaluation	FY2030 Targets
<b>Climate Change Mitigation</b> 	1% reduction in electricity consumption intensity YoY	Intensity increased by 4%	×	Reduce energy intensity by 1% annually
	5% reduction in fuel consumption intensity YoY	Intensity increased by 1%	×	
	9% reduction in CO <sub>2</sub> emissions YoY	CO <sub>2</sub> emissions reduced by 8%	×	
<b>Effective use of resources</b> 	1% reduction in waste generation intensity YoY	Intensity reduced by 0.2%	×	Continue achieving zero final landfill waste disposal
	Continued zero emissions (0%)	Continued zero emissions (0%)	○	
<b>Chemical substance management</b> 	Compliance with environmental regulations in Japan and overseas	Implementation of Small Quantity New Chemical Substance Notifications and REACH registrations	○	・Compliance with domestic and overseas registration requirements ・Centralized management through a chemical substance management system (including management of the latest SDS versions for raw materials and products)
	Proper management of PRTR-designated substances	Air emissions reduced by 20%	○	
	Establishment of systems to ensure reliable compliance with legal revisions	Appointed responsible managers for chemical substances and protective equipment use in line with revisions to the Industrial Safety and Health Act, and revised SDS documents	○	
<b>Crisis management</b> 	Strengthened pollution prevention monitoring (Environmental complaints: zero)	Environmental complaints: zero (down 4 cases YoY)	○	Strengthening disaster prevention systems through risk management
	Development of emergency response manuals	Reviewed manuals and conducted training at each site	○	
<b>Other initiatives</b> 	Development of eco-friendly products	Advanced development of water-based resins, asphalt recycling additives, high-concentration paper strengthening agents, water-based products for brazing materials, and bioprocess technologies	○	Expand sales of sustainable products (that reduce environmental impact and help address social issues such as those targeted by the SDGs)
	Improvement of environmental awareness and knowledge	Conducted environmental education activities, including environmental lectures on sustainability topics and study sessions on chemical substance management and conflict minerals	○	Improve environmental awareness through education

\* The targets for the “Global Warming Prevention” category (electricity and fuel consumption intensity and CO<sub>2</sub> emissions) were not achieved because reduced biomass fuel use led to greater purchased electricity and increased heavy oil consumption in boilers outside biomass power generation facilities.

\* The target for the “Effective use of resources” category (waste generation intensity) was not achieved because waste generation increased following the start of operations at new facilities.

## Internal Environment Audit

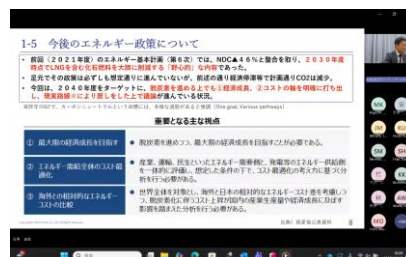
Inspection is conducted with a focus on whether the measures to achieve targets and plans are clearly defined and verified, whether risk identification and compliance assessments/procedures of relevant laws and regulations are appropriate, and whether action has been taken to improve issues pointed out at previous internal and external audits, if any.

to report environmental impact at each site, as well as workshops and study sessions for energy conservation and recycling.

## Environmental Education

In order to improve environmental awareness in the workplace, we conduct workshops and lectures.

In FY2024, we invited outside speakers to present such issues as tackling climate change as a company, with a focus on global trends in energy policies and information disclosure. We also hold periodic meetings



▲Online Lecture by an External Speaker

# Environmental Conservation Initiatives

## ISO 14001 Certification (as of Mar 31, 2025)

We encourage all sites to commit to ISO 14001 as part of our continuous effort for environmental conservation. Acquisition status at our sites in and outside Japan is as follows:

### ■ Sites in Japan

Company		Date	Certification Body
Harima Chemicals	Kakogawa Plant	Jun 2000	JCQA
	Fuji Plant/Sales Office	Mar 2002	JCQA
	Tokyo Plant	Jun 2004	JCQA
	Ibaraki Plant	Jun 2006	JCQA
	Sendai Plant/Sales Office	Dec 2014	JCQA
	Shikoku Plant	Dec 2014	JCQA
Harima M.I.D., Inc.		Jun 2000	JCQA
Nippon Filler Metals, Ltd.		Jul 2005	LIACA

### ■ Sites outside Japan

Company		Date	Certification Body
Harimatec Hangzhou Co., Ltd.		Oct 2004	CQM
Hangzhou Hanghua Harima Chemicals Co., Ltd.		Nov 2007	CQM
Dongguan Hanghua Harima Paper Chemicals Co., Ltd.		Nov 2016	CQM
Shandong Hanghua Harima Chemicals Co., Ltd.		Dec 2019	LYEC
Harimatec Inc.		Feb 2007	UL
Harimatec Czech, s.r.o.		May 2013	CERT
Harimatec Malaysia Sdn. Bhd.		Oct 2023	UKAS
LAWTER - Kallo		Oct 2014	DNV-GL
LAWTER - Maastricht		Jan 2001	DNV
LAWTER - Mt. Maunganui		Apr 1999	TELARC
LAWTER - Nanning		Jul 2010	CNAS

## ISO 50001 Certification for Energy Management Systems

**Belgium** LAWTER - Kallo

LAWTER - Kallo has obtained the ISO 50001 certification, an international standard for energy management systems, and plans to reduce 30% of CO<sub>2</sub> emissions by 2030, in comparison to FY2013, and further employ measures for energy conservation and promote eco-friendly operations.

## Acquired ISCC Certification

The company acquired ISCC PLUS and ISCC EU certifications in January 2025.

ISCC - International Sustainability and Carbon Certification, is a certification system for the implementation of sustainable and traceable supply chains, free from deforestation. It can be applied globally in all markets including industrial, chemical, energy, and animal feed.

Harima uses crude tall oil (CTO), a byproduct obtained during the manufacturing of pulp from pine trees, and distills it to extract rosin, fatty acids, and turpentine, the core raw materials of our products. ISCC attests that the CTO we procure and the related products are thoroughly managed throughout the supply chain. This reaffirms the sustainability and traceability of our biomass-based products, thus creating new business opportunities.

## Acquired EcoVadis Certification

**LAWTER**

Our principal subsidiary, LAWTER was granted an EcoVadis gold medal in May 2024. This is its second gold medal, following acquisition in 2018.



EcoVadis is the world's most trusted business sustainability rating provider. Since its founding in 2007, the France-headquartered organization has evaluated more than 130,000 companies from over 200 industries and 180 countries, as of 2024.

LAWTER was highly evaluated on the criteria of environmental protection, ethics, labor and human rights, and sustainable procurement, and the current gold rating places it in the top 5% companies assessed by the platform.

## Acquired a B- score in CDP 2024 for "Climate Change" and "Water Security"

Our domestic sites acquired a B-score in CDP 2024 for "Climate Change" and "Water Security."



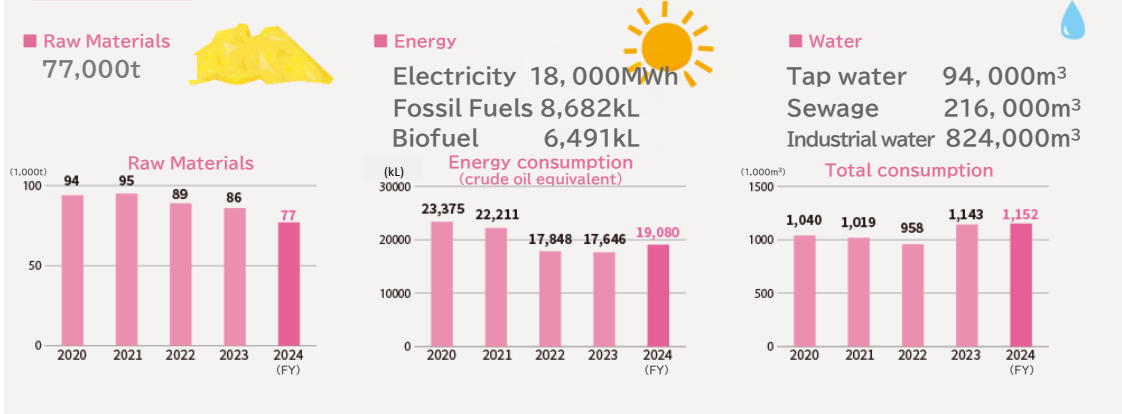
CDP is an international environmental non-governmental organization that evaluates and discloses strategies and initiatives of companies and municipalities regarding climate change. It collects and analyzes information disclosed by companies and municipalities worldwide, assessing their efforts on an eight-level scale (A, A-, B, B-, C, C-, D, D-). CDP is widely recognized as a global standard for corporate environmental disclosure. In CDP 2024, more than 24,800 companies worldwide responded, and over 2,100 Japanese companies—including more than 70% of those listed on the Prime Market—disclosed information through CDP. The B-score achieved this time indicates a management-level evaluation, meaning the company is "aware of its environmental risks and impacts and is taking action."

We will continue to provide transparent disclosures on climate change and natural capital, aiming to contribute to the realization of a sustainable society, while also enhancing corporate value and further advancing our sustainability initiatives.

# Environmental Flowchart

We strive to accurately understand the environmental impact of our business activities, from material procurement and production to disposal and recycling.

## INPUT

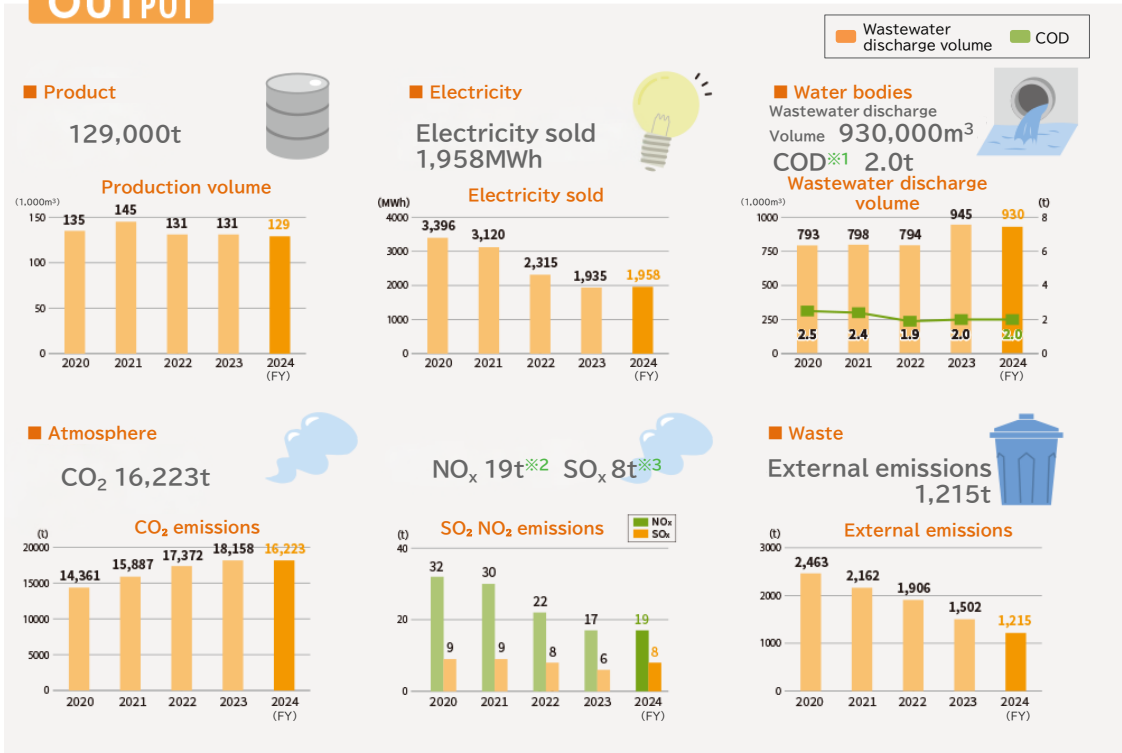


## Harima Chemicals Group (Japan) Business Activities

Environmental data for Sakushu Musashi Country Club and Hotel Sakushu Musashi, operated directly by Harima Foods and Harima Trading, have been included in aggregated data since FY2023. Past data have not been revised retroactively.

Scope: Harima Chemicals group (Tokyo Head Office, Osaka Head Office), Harima Chemicals, Harima M.I.D., Harima Trading, Seven Rivers, Nippon Filler Metals, Harima Foods

## OUTPUT



※1 COD: The amount of oxygen required to oxidize and stabilize pollutants in water chemically. Higher values indicate greater water pollution.

※2 NO<sub>x</sub>: Nitrogen oxides contained in combustion exhaust gases from boilers and incinerators. They initiate photochemical reactions under ultraviolet light and generate photochemical oxidants.

※3 SO<sub>x</sub>: Sulfur oxides contained in combustion exhaust gases from boilers and incinerators. They are also a cause of acid rain.



# Environmental Conservation Initiatives

## Reduction of Environmentally Hazardous Substances

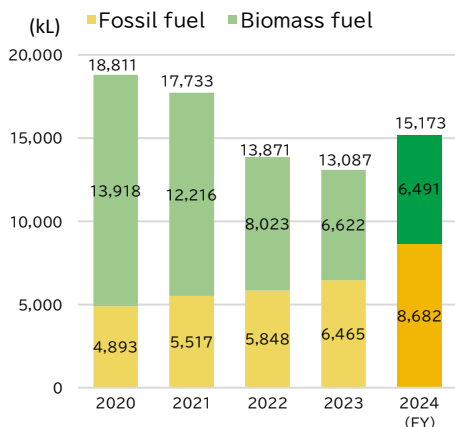
### Fuel Consumption

We use by-products from crude tall oil<sup>※1</sup> refining as biomass<sup>※2</sup> fuel. Since launching biomass power generation at the Kakogawa Plant in FY2005, biomass fuel has accounted for over 60% of total energy consumption from FY2009.

In recent years, biomass fuel use has declined due to supply shortages caused by the COVID-19 pandemic and rising demand. Fossil fuel consumption also increased from FY2023 following the inclusion of Harima Foods, Sakushu Musashi Country Club, and Hotel Sakushu Musashi as consolidated subsidiaries.

In FY2024, biomass fuel usage declined further, while heavy oil consumption increased in non-biomass boilers. We will continue reducing environmental impact through conversion to natural gas and renewable energy, together with thorough energy-saving efforts.

### Fuel Consumption Trends



Scope: Harima Chemicals (Tokyo Head Office, Osaka Head Office), Harima M.I.D., Seven Rivers, Harima Trading, Nippon Filler Metals, Harima Foods

## Initiatives for Climate Action

### Basic Approach to Climate Action

While energy use is now an indispensable part of everyday life, we continue to explore energy sources that can successfully replace fossil fuels such as oil, coal and natural gas. Renewable energy<sup>※3</sup> is instrumental in achieving this goal, as it derives from natural sources that are constantly replenished and can be used stably and sustainably. Having worked closely with nature ever since our founding, we are committed to making efficient use of renewable resources and reducing environmental impact.

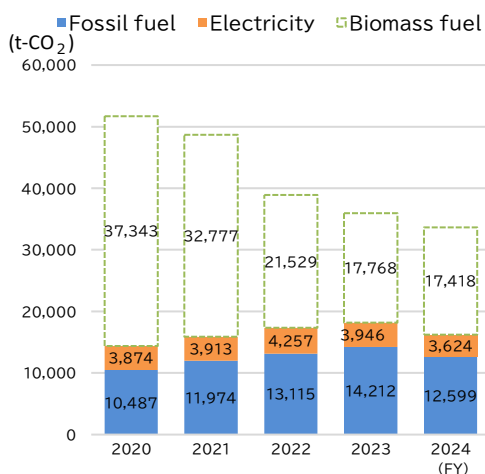
## CO<sub>2</sub> Emissions

Our use of biomass fuel has contributed significantly to reducing CO<sub>2</sub> emissions. In 2005, we opened a biomass power plant at Kakogawa Site with the capacity to fulfill all steam and power needs of the site, and any surplus power is supplied to local electricity companies as green energy.

In FY2024, despite lower biomass fuel usage, we reduced CO<sub>2</sub> emissions year-on-year through energy-saving efforts and the use of renewable energy programs and J-Credits. We will continue advancing CO<sub>2</sub> reduction measures.

### Greenhouse Gas Emissions

We are reducing CO<sub>2</sub> emissions by using biomass fuel.



Scope: Harima Chemicals (Tokyo Head Office, Osaka Head Office), Harima M.I.D., Seven Rivers, Harima Trading, Nippon Filler Metals, Harima Foods



▲Biomass power plant at Kakogawa Site

※1 **crude tall oil**: Plant-derived oil (mainly composed of rosin and fatty acids) obtained by acid decomposition of black liquor, a by-product generated during pulp production for the paper industry.

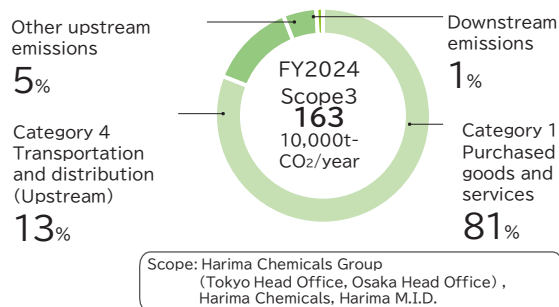
※2 **Biomass**: Biomass is a concept representing the quantity (mass) of biological resources (bio), generally referring to renewable, biologically derived organic resources excluding fossil resources.

※3 **Renewable energy**: energy derived from naturally occurring and continuously replenished sources, such as sunlight and wind, unlike finite fossil fuels such as oil and coal.

# Environmental Conservation Initiatives

## ■ GHG Emissions in the Supply Chain

In FY2025, we continued calculating FY2024 CO<sub>2</sub> emissions for our Tokyo and Osaka Head Offices, Harima Chemicals, and Harima MID. The results are undergoing limited assurance verification under ISO14064-3:2019 by SOCOTEC Certification Japan. As in the previous year, Scope 3 emissions accounted for over 90% of total emissions across Scope 1, 2, and 3, with Category 1 (purchased goods and services) accounting for the largest share. We will continue to improve calculation accuracy and implement effective measures to reduce GHG emissions throughout the supply chain.



- ※1 FY2023: data received ISO14064-3:2019 limited assurance from SOCOTEC Certification Japan. FY2024 data are currently being verified.
- ※2 FY2022: Calculated using the MOE's "Emission Factor Database for Calculating Greenhouse Gas Emissions Throughout the Supply Chain Ver.3.3" and the National Institute of Advanced Industrial Science and Technology's "AIST-IDEA Ver.3.3."
- ※3 FY2023: Calculated using the MOE's "Emission Factor Database for Calculating Greenhouse Gas Emissions Throughout the Supply Chain Ver.3.4," the National Institute for Environmental Studies' "3EID Environmental Load Unit Database Based on Input-Output Tables," and "AIST-IDEA Ver.3.4."
- ※4 FY2024: Calculated using the MOE's "Emission Factor Database for Calculating Greenhouse Gas Emissions Throughout the Supply Chain Ver.3.5," the National Institute for Environmental Studies' "3EID Environmental Load Unit Database Based on Input-Output Tables," and "AIST-IDEA Ver.3.5.1"

## <CO<sub>2</sub> emissions >

		FY2022		FY2023 <sup>※1</sup>		FY2024 <sup>※1</sup>	
		Emissions (t)	%	Emissions (t)	%	Emissions (t)	%
Scope 1	Direct emissions from fuel combustion	12,992	6.6	12,932	6.8	11,521	6.6
Scope 2	Indirect emissions from purchased power	4,038	2.1	2,155	1.1	1,839	1.0
Scope 3	Indirect emissions not included in Scope1 and 2	178,858	91.3	175,236	92.1	163,036	92.4
Total		195,888	100.0	190,323	100.0	176,396	100.0

## <Scope 3 CO<sub>2</sub> Emissions Breakdown >

Category		FY2022 <sup>※2</sup>		FY2023 <sup>※1※3</sup>		FY2024 <sup>※1※4</sup>	
		Emissions (t)	%	Emissions (t)	%	Emissions (t)	%
1	Purchased goods and services	143,463	80.2	141,909	81.0	131,440	80.6
2	Capital goods	2,445	1.4	3,880	2.2	3,115	1.9
3	Fuel- and energy-related activities (not included in scope 1 or scope 2)	3,520	2.0	3,784	2.2	3,807	2.3
4	Upstream transportation and distribution	25,781	14.4	22,849	13.0	22,143	13.6
5	Waste generated in operations	1,277	0.7	973	0.6	973	0.6
6	Business travel	434	0.2	80	0.0	80	0.1
7	Employee Commuting	622	0.3	283	0.2	283	0.2
8	Upstream leased assets	-	-	-	-	-	-
9	Downstream transportation and distribution	-	-	-	-	-	-
10	Processing of sold products	-	-	-	-	-	-
11	Use of sold products	-	-	-	-	-	-
12	End-of-life treatment of sold products	1,316	0.7	1,478	0.8	1,195	0.7
13	Downstream leased assets	-	-	-	-	-	-
14	Franchises	-	-	-	-	-	-
15	Investments	-	-	-	-	-	-
Total		178,858	100.0	175,236	100.0	163,036	100.0

## ■CO<sub>2</sub> Emissions Reduction(Manufacturing operations)

### Transition to Greener Energy Sources

As municipal gas and liquefied natural gas (LNG) emit significantly less CO<sub>2</sub> than heavy oil and kerosene, we are actively involved in converting to these cleaner fuels in our operations.

### Saving Energy Through Visualization

We have implemented a monitoring system that helps visualize energy consumption at our production sites, to detect energy loss and optimize manufacturing processes. Visualization also raises awareness among employees and encourages improvements in the workplace.

## ■CO<sub>2</sub> Emissions Reduction (Distribution operations)

As a specified consignor under the Act on the Rational Use of Energy and the Transition to Non-Fossil Energy, we monitor transportation energy use and develop energy-saving plans to improve logistics efficiency. We work with logistics companies to reduce transportation energy consumption and have partially implemented modal shifts<sup>※5</sup> to rail and marine transport, which generate lower CO<sub>2</sub> emissions than trucking. In FY2024, energy intensity worsened by 4% YoY due to increased transportation distances, particularly product transport between plants.

Scope: Harima Chemicals, Harima M.I.D

	Unit	FY2020	FY2021	FY2022	FY2023	FY2024
energy intensity <sup>※6</sup>	kL / 10,000 ton-km	68.5	69.3	66.6	67.1	69.6
CO <sub>2</sub> emissions	t-CO <sub>2</sub>	2,860	2,983	2,564	2,595	2,633

※5 modal shift : shifting transportation from automobiles and aircraft to lower-impact modes such as rail and shipping.

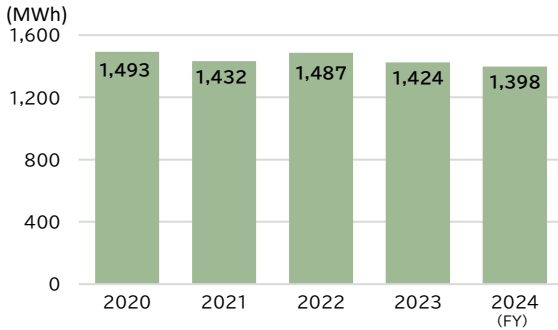
※6 energy intensity : crude oil equivalent, kL per 10,000 tons of transportation volume

# Environmental Conservation Initiatives

## Solar Power Plant at Iho Site

In Dec 2014, we opened a solar power plant with a capacity of 1,129kW at the Iho Site in Japan. Through the "FIT※1" policy that guarantees a fixed price for electricity sale, all generated power is distributed to local electricity companies. By utilizing our facility to generate solar power, we contribute to the promotion of green energy and reduction of CO<sub>2</sub> emissions, also in light of the latest related initiatives promoted by the Japanese government.

Solar Power Generation at the Ibo Plant (Takasago City)



This project is partially funded by the Ministry of the Environment, Japan (MOEJ) through an emission mitigation grant program, and in Apr 2023, was acclaimed as a model case for solar power facilities implemented in innovative locations such as farmland, reservoirs and waste treatment plants. It is featured on the MOEJ website, recognized for its significant contributions to the environment and the community, as well as disaster resilience through the distribution of electricity for everyday and emergency use.



▲Aerial view of the site



▲Solar panels at the Iho Site, Japan



▲Floating solar panel arrangement

## Floating Solar-Power Generation Business

In Mar 2023, Harima started its first floating solar-power generation business on a reservoir located in the vicinity of the Kakogawa Plant. Our approx. 1,700 solar panels installed on structures on the surface of the reservoir generate an annual 1 million kWh, representing enough power to supply the electricity needs of 250 homes, also reducing carbon dioxide emissions by about 380 tons.

By generating solar power, a renewable energy source, we contribute to expanding natural energy and to reducing CO<sub>2</sub> emissions, as promoted by the government. As a company growing together with society and local communities, we will continue advancing sustainability management and addressing environmental and social challenges through our business activities.

## Harima Trading Introduces Solar-Power System

The Kakogawa office of Harima Trading introduced a solar-power system in December 2023. The office runs warehouse management operations that cater to customers from a variety of industries, assisting them in the distribution of goods in a timely and efficient manner. The introduction of a solar-power system means that a portion of the power used at the facility will be replaced with green electricity, as part of a larger plan to strengthen environmental preservation activities. The office also intends to replace all its electricity with eco alternatives in the near future.

## Achieving Zero Emissions from Electricity Use

Kakogawa Plant introduced the EnneGreen Plan in April 2023, which has resulted in eliminating carbon dioxide emissions from electricity use. Provided by Japan-based Ennet, the plan successfully pairs utilization of electricity with a non-fossil fuel energy certificate which serves as proof that electricity originates from renewable energy sources.

In addition, we introduced the Green Basic Plan at our Ibaraki, Tokyo and Fuji Plants in Japan, which partly replaces purchased electricity with renewable energy. Provided by Japan-based TEPCO Energy Partner, the plan successfully combines FIT\* and non-FIT non-fossil fuel energy certificates.

## Solar Power Generation for On-Site Use

**Argentina** LAWTER - Concordia

In an effort to reduce CO2 emissions, LAWTER - Concordia has implemented a solar power system on its premises. The power is generated for on-site use, contributing to the further promotion of renewable energy.



## Selected as a Kakogawa Zero Carbon Partner

We have been selected as a “Zero Carbon Partner,” working with Kakogawa City — the birthplace of our company — to achieve net-zero CO<sub>2</sub> emissions by 2050.

Under this program, businesses supporting Kakogawa City’s 2022 Zero Carbon City Declaration collaborate to promote decarbonization initiatives. Through the city’s energy-saving diagnostic program, we are also strengthening environmental initiatives such as reducing utility costs and introducing renewable energy.

At our Kakogawa Works, we actively promote GHG reduction through biomass power generation facilities (maximum output: 4,000 kW) operating since 2005, a floating solar power business launched in March 2023, and the introduction of the renewable energy support program “Ene Green Plan.”

“Kakogawa Zero Carbon” logo designed by Juri Ueno, Tourism Ambassador for Kakogawa

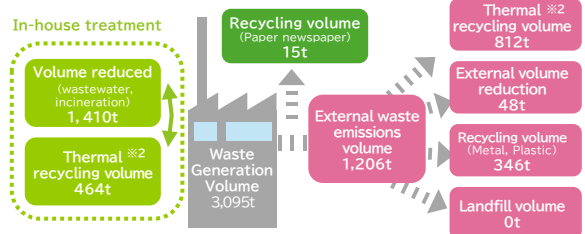


## Initiatives for Waste Reduction

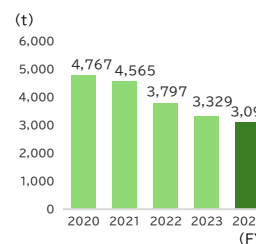
We stay true to our circular business model by strictly managing waste, in addition to reducing waste generation and encouraging recycling.

### Breakdown and Trends in Waste Generation Volume

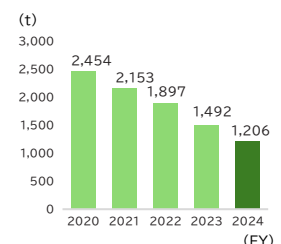
■FY2024 Waste Flow and Results



#### Waste Generation Trends



#### Off-site Waste Generation Trends



Scope: Harima Chemicals Group (Tokyo Head Office, Osaka Head Office), Harima Chemicals, Harima M.I.D.

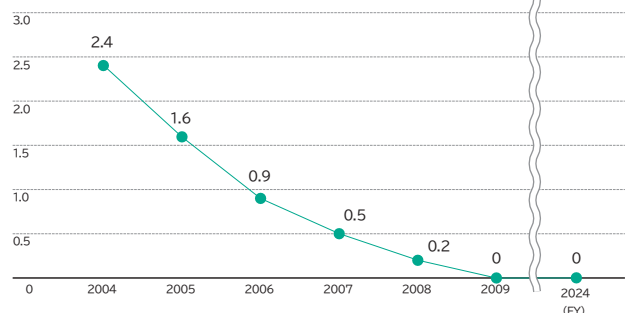
※2 Thermal recycling: Recovering and utilizing heat energy generated during waste incineration instead of simply burning waste for disposal.

## Zero-Emissions<sup>※3</sup>

### Maintaining Zero-Emission Operations

Landfill use is a less-visible aspect of emission that only occurs at the very end of a product’s life cycle. In the past, landfill disposal rates were over 2%, mostly composed of residue Biomass fuel incineration ash<sup>※4</sup> that could not be processed any further. In FY2005, we discovered a way to recycle the residue by using it for cement, gradually shifting landfill use to less than 1%. The rate was further reduced to zero in FY2011 when we established means to recycle waste glass, accomplishing the zero-emission level we maintain today.

#### Final Landfill Use



※3 Zero emissions: A concept proposed by the United Nations University that promotes a recycling-oriented society by utilizing waste from one industry as resources for other industries and ultimately eliminates waste. We aim to keep landfill waste to 1% or less of total general and industrial waste generated at our sites.

※4 Biomass fuel incineration ash: Tall oil by-products used as biomass boiler fuel contain high levels of sodium sulfate (about 1% ash content) due to the decomposition of soap acids. As a result, the ash cannot be recycled into cement and is disposed of in landfills.

# Environmental Conservation Initiatives

## Emissions of PRTR ※1 -regulated substances

We use the PRTR system not only to fulfill government reporting obligations for regulated substances, but also to collect accurate data and promote emission reductions. There are no soil emissions.

### PRTR-Regulated Substance Emissions and Transfers

Unit: kg (However, dioxins are expressed in mg-TEQ)

Reference Number	Chemical Substance Name	FY2022		FY2023		FY2024	
		Air Emissions	Transfer Volume	Air Emissions	Transfer Volume	Air Emissions	Transfer Volume
2	Acrylamide	3.5	3.6	5.8	1.2	5.6	1.2
3	Ethyl acrylate	24.1	0.0	24.9	0.0	48.6	0.0
4	Acrylic acid	4.5	0.0	3.6	0.0	3.5	0.0
7	n-Butyl acrylate	27.7	0.0	21.0	0.0	19.1	0.0
9	Acrylonitrile	25.0	0.0	24.2	0.0	23.9	0.0
53	Ethylbenzene	1,736.7	20,010.0	1,627.4	19,953.8	1,395.5	21,802.6
59	Ethylenediamine	1.9	0.0	1.8	0.0	1.9	0.0
65	Epichlorohydrin	0.5	0.0	0.3	0.0	0.3	0.0
74	p-Octylphenol	2.7	12.3	3.1	61.6	2.9	3.0
80	Xylene	1,646.5	20,010.0	1,570.2	19,953.8	1,383.1	21,802.6
83	Cumene	3.7	0.0	4.4	0.0	4.0	0.0
134	Vinyl acetate	3.3	0.0	4.0	0.0	4.0	0.0
240	Styrene	74.2	0.0	73.6	0.0	74.7	0.0
274	tert-Dodecanethiol	0.2	0.0	0.0	0.0	0.0	0.0
277	Triethylamine	5.6	0.0	6.0	0.0	4.3	0.0
296	1,2,4-Trimethylbenzene	310.1	0.0	0.0	0.0	0.0	0.0
297	1,3,5-Trimethylbenzene	79.5	0.0	0.0	0.0	0.0	0.0
300	Toluene	1,740.0	9,310.0	2,156.5	6,881.1	1,218.4	9,326.7
304	Lead and its compounds	0.0	7.8	0.0	0.0	0.0	0.0
320	Nonylphenol	0.6	7.7	0.5	12.6	0.5	0.0
368	4-tert-Butylphenol	27.1	4.8	0.0	0.0	0.0	0.0
395	Water-soluble salts of peroxodisulfuric acid			0.0	0.1	0.0	0.0
411	Formaldehyde	69.1	8.3	0.0	0.1	0.1	0.0
413	Phthalic anhydride	1.2	0.0	0.9	0.0	1.4	0.0
415	Methacrylic acid	0.2	0.0	0.2	0.0	0.3	0.0
416	2-Ethylhexyl methacrylate	0.1	0.0	0.0	0.0	0.0	0.0
418	2-Dimethylaminoethyl methacrylate	19.4	0.0	4.3	0.0	3.7	0.0
419	n-Butyl methacrylate	0.8	0.0	0.0	0.0	0.0	0.0
420	Methyl methacrylate	121.1	0.0	104.7	0.0	124.5	0.0
438	Methylnaphthalene	1.0	0.0	0.0	0.0	0.0	0.0
564	2-Ethylhexyl acrylate			2.9	0.0	2.4	0.0
568	Acetylacetone					1.5	0.0
594	Ethylene glycol monobutyl ether (Butyl Cellosolve)			4.8	0.0	4.7	0.0
601	Octamethylcyclotetrasiloxane			0.2	0.0	0.2	0.0
691	Trimethylbenzene			256.1	0.0	358.3	0.0
697	Lead and its compounds			0.0	16.6	0.0	16.9
699	Paraformaldehyde			50.4	0.0	45.0	0.0
712	tert-Butyl peroxy-2-ethylhexanoate					0.1	0.0
720	Ethylene glycol mono-tert-butyl ether			1.4	0.0	1.2	0.0
737	Methyl isobutyl ketone			12.2	1,230.0	27.7	2,040.0
Total		5,930.3	49,374.5	5,965.4	48,110.9	4,761.3	54,993.0
243	Dioxins	0.0	0.0	0.0	0.0	0.0	0.0

※FY2024 air emissions decreased 20% YoY, mainly due to reduced use of xylene and ethylbenzene following changes in plant operations.

## Environmental Accounting ※2

We use environmental accounting to support effective environmental management by identifying and analyzing the environmental conservation costs and benefits associated with business activities.

### Environmental Conservation Costs

million yen

Category	Key Initiatives	FY2022		FY2023		FY2024		
		Investment Amount	Expense Amount	Investment Amount	Expense Amount	Investment Amount	Expense Amount	
1. Business area costs		228	415	92	405	211	552	
Breakdown	(1) Pollution prevention costs		9	75	6	71	12	80
	(2) Global environmental conservation costs		218	243	86	205	198	341
	(3) Resource recycling costs		1	97	0	129	1	131
2. Upstream and downstream costs	Reduction of labels, packaging materials, etc.		0	1	0	3	1	3
3. Management activity costs	Maintenance of ISO 14001, environmental monitoring, etc.		8	38	4	47	27	51
4. Research and development costs	Research and development of eco-friendly products, etc.		51	1,080	13	1,064	15	1,075
5. Social activity costs	Donations to environmental organizations, support for community activities, etc.		0	1	0	1	0	1
6. Environmental damage costs	None in particular		0	0	0	0	0	0
Total			287	1,535	109	1,520	254	1,682

### Environmental Conservation Effects (Physical Effects)

Description of Effects	Indicators	Unit	FY2022	FY2023	FY2024
Effects related to resource inputs in business activities	Energy consumption (crude oil equivalent)	kL	17,638	16,180	17,791
	Water consumption	1,000m <sup>3</sup>	953	1,030	1,090
	CO <sub>2</sub> emissions volume	t	17,030	15,087	13,360
Effects related to environmental loads and waste generated from business activities	SO <sub>x</sub> emissions volume	t	7.6	6.5	8.2
	NO <sub>x</sub> emissions volume	t	22.3	17.5	18.9
	Air emissions of PRTR-designated substances	kg	5,930	5,965	4,761
	Wastewater discharge volume	1,000m <sup>3</sup>	790	832	869
	COD emissions volume	t	1.9	2.0	2.0
	Waste generation volume	t	1,901	1,496	1,210
	Waste landfill volume	t	0	0	0

### Economic Effects of Environmental Conservation Activities (Actual Effects)

million yen

Economic Benefit Items	FY2022	FY2023	FY2024
Revenue from recycling	12	39	35
Cost reductions through energy savings	15	20	19
Cost reductions through waste reduction	20	4	7

Scope: Harima Chemicals group (Tokyo Head Office, Osaka Head Office), Harima Chemicals, Harima M.I.D.

※2 Environmental Accounting: Environmental accounting is a system for promoting environmental conservation activities by identifying related costs and benefits and measuring and communicating them quantitatively in monetary or physical terms. Calculation Method: The calculation standards are based on the "Environmental Accounting Guidelines (2005)" issued by the Ministry of the Environment and the "Environmental Accounting Guidelines for Chemical Companies" published by the Japan Chemical Industry Association.

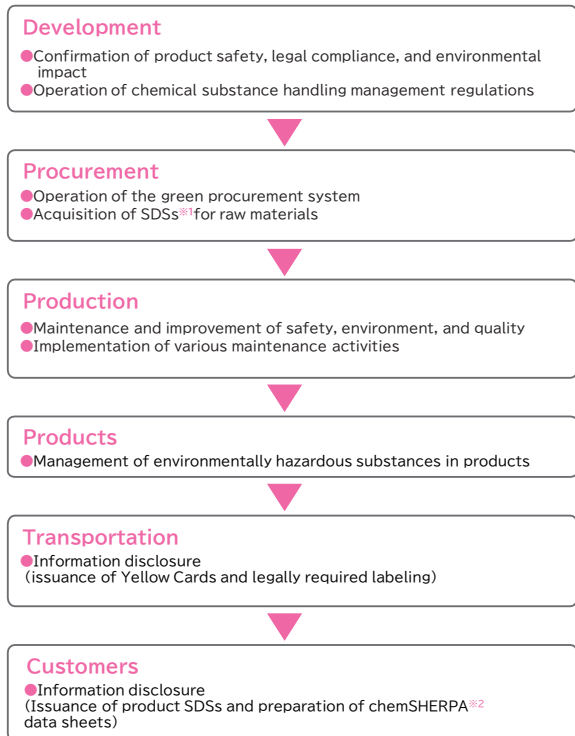
# Safety Initiatives for Chemicals and Products

Proper management of chemical substances, prevention of environmental pollution, and reduction of environmental impact are part of our corporate social responsibility. We are working to comply with regulations in Japan and overseas.

## Chemical Substance Management Initiatives

To properly manage chemical substances, we strictly check and control not only products but also raw materials, by-products, and waste for their effects on human health and the environment.

### Chemical Substance Management System



## Regulation Compliance

### Green Procurement

Harima has established the "Green Procurement Standards", working together with suppliers to enhance product eco-friendliness and protect the environment.

### Chemical Substance Management System

Our "Chemical Substance Management System" comprehensively organizes information on product composition, safety and regulations. The data is used to respond to customer inquiries, check for restricted substances and prepare Safety Data Sheets in compliance with the "Globally Harmonized System of Classification and Labelling of Chemicals" (GHS\*3).

### Compliance with International Laws and Regulations

We ensure adherence to increasingly complex regulations, such as the EU's "Registration, Evaluation, Authorization and Restriction of Chemicals" (REACH\*4) and "Classification, Labelling and Packaging of Substances and Mixtures" (CLP\*6), as well as China's "Measures for the Environmental Management Registration of New Chemical Substances" (MEE\*5), by accurately monitoring information and strengthening cooperation with each country.

### Export Control

Advanced products and technologies are constantly at risk of being misused by individuals and organizations that threaten the safety of the global community. To combat this issue, Japanese regulations require companies to surveil the destinations and intended uses of their export products.

As an enterprise that exports chemical substances, we have established the "Harima Export Control Committee", an internal organization that ensures compliance with said regulations. In addition, we offer in-house seminars and study sessions where employees can familiarize themselves with existing protocols.

### Voluntary Internal Rules for Export Control

We have established internal rules for export control (CP) and submitted them to the Ministry of Economy, Trade and Industry (METI). The CP defines procedures for exports and technology provision to ensure legal compliance and prevent violations. The Harima Chemicals Group has developed a voluntary security export control system, and its name is published on the METI website.

### Measures Against Conflict Minerals

Conflict minerals such as tantalum, tin, gold and tungsten, which can be found in such products as electronics, have long fueled armed conflicts in the Democratic Republic of Congo and neighboring countries, causing mass destruction of people and the environment. Harima Chemicals Group is strongly against these inhumane acts and has confirmed in investigations to date, that we do not use minerals mined in the region. We have confirmed, through our investigations to date, that no minerals sourced from the specified region are used in our raw materials. Going forward, we will continue to conduct surveys and confirmations when adopting new raw materials and further strengthen our initiatives.

\*1 SDS (Safety Data Sheet): 「Called a "Safety Data Sheet (SDS)," it contains information necessary for the safe handling of chemical substances.

\*2 chemSHERPA: A new scheme for communicating information on chemical substances in products throughout the supply chain, developed under METI leadership, using a common format across manufacturing industries to simplify information sharing.

\*3 GHS (Globally Harmonized System of Classification and Labelling of Chemicals): A system for classifying chemical hazards according to standardized criteria and communicating them through pictograms and labeling, with results reflected in product labels and SDSs to help prevent accidents and protect human health and the environment.

\*4 REACH (Registration, Evaluation, Authorization and Restriction of Chemicals): A regulation of the European Parliament and Council governing chemical substances and their use to protect human health and the environment in the EU.

\*5 Measures for the Environmental Management Registration of New Chemical Substances: A law governing the management of new chemical substances manufactured or imported in China.

\*6 CLP (Classification, Labelling and Packaging of substances and mixtures): A regulation of the European Parliament and Council on the classification, labeling, and packaging of substances and mixtures.

# Site Report

Japan		Kakogawa Plant, Harima Chemicals, Inc. Harima M.I.D., Inc.				
	UNIT	FY2020	FY2021	FY2022	FY2023	FY2024
Energy consumption (crude oil equivalent)	kL	2,392	2,992	3,794	5,922	5,857
CO <sub>2</sub> emissions	t-CO <sub>2</sub>	5,196	6,614	8,680	7,458	7,155

Japan		Nippon Filler Metals, Ltd.				
	UNIT	FY2020	FY2021	FY2022	FY2023	FY2024
Energy consumption (crude oil equivalent)	kL	79	78	75	68	67
CO <sub>2</sub> emissions	t-CO <sub>2</sub>	167	161	158	146	151

Japan		Fuji Plant, Harima Chemicals, Inc.				
	UNIT	FY2020	FY2021	FY2022	FY2023	FY2024
Energy consumption (crude oil equivalent)	kL	2,550	2,808	2,823	2,812	2,601
CO <sub>2</sub> emissions	t-CO <sub>2</sub>	4,844	5,304	5,363	4,958	4,046

Japan		Harima Foods, Inc.				
	UNIT	FY2020	FY2021	FY2022	FY2023	FY2024
Energy consumption (crude oil equivalent)	kL	-	-	-	379	382
CO <sub>2</sub> emissions	t-CO <sub>2</sub>	-	-	-	729	701

Japan		Tokyo Plant, Harima Chemicals, Inc.				
	UNIT	FY2020	FY2021	FY2022	FY2023	FY2024
Energy consumption (crude oil equivalent)	kL	878	764	618	1,020	1,027
CO <sub>2</sub> emissions	t-CO <sub>2</sub>	1,663	1,438	1,168	1,018	675

Czech Rep.		Harimatec Czech, s.r.o.				
	UNIT	FY2020	FY2021	FY2022	FY2023	FY2024
Energy consumption (crude oil equivalent)	kL	47	40	36	28	41
CO <sub>2</sub> emissions	t-CO <sub>2</sub>	90	76	66	58	79

Japan		Ibaraki Plant, Harima Chemicals, Inc.				
	UNIT	FY2020	FY2021	FY2022	FY2023	FY2024
Energy consumption (crude oil equivalent)	kL	486	505	474	476	378
CO <sub>2</sub> emissions	t-CO <sub>2</sub>	1,111	1,104	1,040	860	678

Belgium		LAWTER - Kallo				
	UNIT	FY2020	FY2021	FY2022	FY2023	FY2024
Energy consumption (crude oil equivalent)	kL	2,901	2,813	2,786	2,352	2,462
CO <sub>2</sub> emissions	t-CO <sub>2</sub>	4,925	4,495	4,335	3,787	3,987

Japan		Hokkaido Plant, Harima Chemicals, Inc.				
	UNIT	FY2020	FY2021	FY2022	FY2023	FY2024
Energy consumption (crude oil equivalent)	kL	127	59	1	Closed in Mar 2022	
CO <sub>2</sub> emissions	t-CO <sub>2</sub>	318	142	2	Closed in Mar 2022	

The Netherlands		LAWTER - Maastricht				
	UNIT	FY2020	FY2021	FY2022	FY2023	FY2024
Energy consumption (crude oil equivalent)	kL	2,438	2,501	2,486	2,196	2,161
CO <sub>2</sub> emissions	t-CO <sub>2</sub>	4,392	4,612	4,491	4,085	4,012

Japan		Sendai Plant, Harima Chemicals, Inc.				
	UNIT	FY2020	FY2021	FY2022	FY2023	FY2024
Energy consumption (crude oil equivalent)	kL	190	198	192	196	200
CO <sub>2</sub> emissions	t-CO <sub>2</sub>	414	426	403	434	434

China		Harimatec Hangzhou Co., Ltd.				
	UNIT	FY2020	FY2021	FY2022	FY2023	FY2024
Energy consumption (crude oil equivalent)	kL	15	15	16	20	25
CO <sub>2</sub> emissions	t-CO <sub>2</sub>	28	27	28	38	47

Japan		Shikoku Plant, Harima Chemicals, Inc.				
	UNIT	FY2020	FY2021	FY2022	FY2023	FY2024
Energy consumption (crude oil equivalent)	kL	120	125	98	100	99
CO <sub>2</sub> emissions	t-CO <sub>2</sub>	234	282	216	219	219

China		Hangzhou Hanghua Harima Chemicals Co., Ltd.				
	UNIT	FY2020	FY2021	FY2022	FY2023	FY2024
Energy consumption (crude oil equivalent)	kL	1,012	1,028	1,071	1,151	1,127
CO <sub>2</sub> emissions	t-CO <sub>2</sub>	2,055	2,070	2,152	2,263	2,314

Japan		Harima Chemicals Group, Inc. Offices, Harima Chemicals, Inc.				
	UNIT	FY2020	FY2021	FY2022	FY2023	FY2024
Energy consumption (crude oil equivalent)	kL	125	121	94	96	105
CO <sub>2</sub> emissions	t-CO <sub>2</sub>	216	205	157	141	153

China		Dongguan Hanghua Harima Paper Chemicals Co., Ltd.				
	UNIT	FY2020	FY2021	FY2022	FY2023	FY2024
Energy consumption (crude oil equivalent)	kL	464	444	562	485	505
CO <sub>2</sub> emissions	t-CO <sub>2</sub>	882	829	1,037	1,030	979

Japan		Kakogawa Sales Office, Harima Trading, Inc.				
	UNIT	FY2020	FY2021	FY2022	FY2023	FY2024
Energy consumption (crude oil equivalent)	kL	41	40	40	35	35
CO <sub>2</sub> emissions	t-CO <sub>2</sub>	54	56	49	69	65

China		Shandong Hanghua Harima Chemicals Co., Ltd				
	UNIT	FY2020	FY2021	FY2022	FY2023	FY2024
Energy consumption (crude oil equivalent)	kL	404	511	564	462	480
CO <sub>2</sub> emissions	t-CO <sub>2</sub>	762	944	1,037	964	873

Japan		Hotel Sakushu-Musashi /Sakushu-Musashi Country Club Harima Trading, Inc.				
	UNIT	FY2020	FY2021	FY2022	FY2023	FY2024
Energy consumption (crude oil equivalent)	kL				753	705
CO <sub>2</sub> emissions	t-CO <sub>2</sub>				1,889	1,728

China		Harima Chemicals (Shanghai) Co., Ltd.				
	UNIT	FY2020	FY2021	FY2022	FY2023	FY2024
Energy consumption (crude oil equivalent)	kL					4
CO <sub>2</sub> emissions	t-CO <sub>2</sub>					10

Japan		Seven Rivers, Inc.				
	UNIT	FY2020	FY2021	FY2022	FY2023	FY2024
Energy consumption (crude oil equivalent)	kL	99	101	98	106	104
CO <sub>2</sub> emissions	t-CO <sub>2</sub>	146	155	136	237	218

China		LAWTER - Nanping				
	UNIT	FY2020	FY2021	FY2022	FY2023	FY2024
Energy consumption (crude oil equivalent)	kL	1,752	1,870	1,605	1,734	1,546
CO <sub>2</sub> emissions	t-CO <sub>2</sub>	3,737	3,990	3,410	2,461	2,170

China		LAWTER - Fengkai				
	UNIT	FY2020	FY2021	FY2022	FY2023	FY2024
Energy consumption (crude oil equivalent)	kL	329	312	405	406	509
CO <sub>2</sub> emissions	t-CO <sub>2</sub>	873	753	871	595	718

U.S.A.		Harimatec Inc. Harima USA, Inc.				
	UNIT	FY2020	FY2021	FY2022	FY2023	FY2024
Energy consumption (crude oil equivalent)	kL	23	27	29	26	30
CO <sub>2</sub> emissions	t-CO <sub>2</sub>	43	49	51	51	56

China		LAWTER - Nanning				
	UNIT	FY2020	FY2021	FY2022	FY2023	FY2024
Energy consumption (crude oil equivalent)	kL	830	716	566	698	721
CO <sub>2</sub> emissions	t-CO <sub>2</sub>	1,714	1,327	1,048	961	1,018

U.S.A.		LAWTER - Elgin, IL				
	UNIT	FY2020	FY2021	FY2022	FY2023	FY2024
Energy consumption (crude oil equivalent)	kL	168	161	163	151	142
CO <sub>2</sub> emissions	t-CO <sub>2</sub>	316	295	298	269	260

Korea		LAWTER - Gunsan				
	UNIT	FY2020	FY2021	FY2022	FY2023	FY2024
Energy consumption (crude oil equivalent)	kL	351	326	210	277	334
CO <sub>2</sub> emissions	t-CO <sub>2</sub>	622	606	387	326	401

U.S.A.		LAWTER - Baxley, GA				
	UNIT	FY2020	FY2021	FY2022	FY2023	FY2024
Energy consumption (crude oil equivalent)	kL	6,309	6,788	6,618	5,466	5,803
CO <sub>2</sub> emissions	t-CO <sub>2</sub>	10,508	11,741	11,537	10,385	10,859

Malaysia		Harimatec Malaysia Sdn. Bhd.				
	UNIT	FY2020	FY2021	FY2022	FY2023	FY2024
Energy consumption (crude oil equivalent)	kL	22	24	151	216	329
CO <sub>2</sub> emissions	t-CO <sub>2</sub>	40	43	263	424	637

Brazil		Head Office / Parana Plant / Sao Paulo Office Harima do Brasil Industria Quimica Ltda.				
	UNIT	FY2020	FY2021	FY2022	FY2023	FY2024
Energy consumption (crude oil equivalent)	kL	393	418	500	457	Share transfer
CO <sub>2</sub> emissions	t-CO <sub>2</sub>	809	849	1,007	980	Share transfer

New Zealand		LAWTER - Mt. Maunganui				
	UNIT	FY2020	FY2021	FY2022	FY2023	FY2024
Energy consumption (crude oil equivalent)	kL	3,202	3,059	3,131	4,846	4,759
CO <sub>2</sub> emissions	t-CO <sub>2</sub>	4,156	3,760	3,813	3,757	3,537

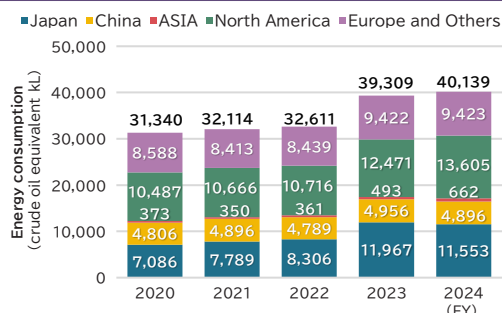
Argentina		LAWTER - Concordia				
	UNIT	FY2020	FY2021	FY2022	FY2023	FY2024
Energy consumption (crude oil equivalent)	kL	1,024	1,226	1,092	4,218	5,023
CO <sub>2</sub> emissions	t-CO <sub>2</sub>	2,804	3,418	2,975	2,937	2,457

U.S.A.		Head Office / Bay Minette Plant Plasmine Technology, Inc.				
	UNIT	FY2020	FY2021	FY2022	FY2023	FY2024
Energy consumption (crude oil equivalent)	kL	2,390	2,046	2,314	2,153	2,589
CO <sub>2</sub> emissions	t-CO <sub>2</sub>	4,565	3,865	4,346	4,710	5,063

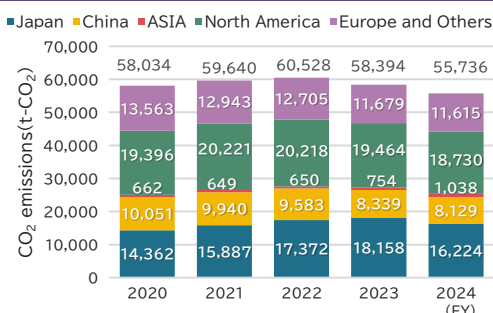
Argentina		LAWTER - Buenos Aires				
	UNIT	FY2020	FY2021	FY2022	FY2023	FY2024
Energy consumption (crude oil equivalent)	kL					3
CO <sub>2</sub> emissions	t-CO <sub>2</sub>					7

U.S.A.		Portland Plant, Plasmine Technology, Inc.				
	UNIT	FY2020	FY2021	FY2022	FY2023	FY2024
Energy consumption (crude oil equivalent)	kL	180	Closed in Jul 2020			
CO <sub>2</sub> emissions	t-CO <sub>2</sub>	346	Closed in Jul 2020			

**Energy consumption**  
(crude oil equivalent)



**CO<sub>2</sub> emissions**



Calculation of energy consumption (crude oil equivalent, kL) for overseas consolidated subsidiaries  
 Calculated based on the Act on the Rational Use of Energy and the Transition to Non-Fossil Energy (Energy Conservation Act).

Calculation of CO<sub>2</sub> emissions for LAWTER  
 Calculated based on the GHG Protocol, the international standard for greenhouse gas emissions accounting and reporting.

Calculation of CO<sub>2</sub> emissions for overseas consolidated subsidiaries

**Electricity:** Calculated using the latest substitute emission factors specified under Japan's greenhouse gas emissions accounting, reporting, and disclosure system (applied when it is difficult to use actual utility-specific or measured emission factors).

**Fuel:** Calculated using factors specified in the Greenhouse Gas Emissions Accounting and Reporting Manual under the Act on Promotion of Global Warming Countermeasures.



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