Environmental Report 2025

Aiming to coexist in harmony with the natural environment

Amano Enzyme Inc.

※This is a machine translation of
the Japanese environmental report.

Index

About the Environmental Report 2025

Editorial Policy

This report presents a compilation of data on the environmental protection activities undertaken by Amano Enzyme Ltd on a company-wide basis.

Target Period

The period covered by this report is 1 April 2024 - 31 March 2025.

Target Organization

The organizations covered by this report are Nagoya Plant, Yoro Plant, Shiga Plant, Innovation Centre and Head Office.

Upper left: Nagoya Plant
Upper right: Yoro Plant
Left: Shiga Plant

About Us

Company Name	Amano Enzyme Inc.
Established	August 26, 1948
Found	1899
Representative	President and CEO Motoyuki Amano
Business Activities	1. Manufacture and sale of enzyme agents for the pharmaceutical, food, and manufacturing industries, and for diagnostic reagents 2. Manufacture and sale of pharmaceuticals, veterinary medicines, and feed additives
Capital	¥390 million
Employees	440
Locations	2-7, 1-Chome, Nishiki, Naka-ku, Nagoya 460-8630 Japan
Phone	81-(0)52-211-3032
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環境方針

Coexist with nature / reduce environmental impact and continuously protect a prosperous future

Amano Enzyme, based on our corporate philosophy of " Coexistence" is committed to business activities aimed at sustainable growth and development of society.
As a leading company in the enzyme industry, we accurately assess our impact in development, procurement, manufacturing, distribution, and services, and strive to realize a sustainable recycling-oriented society.

1. We will comply with environmental laws, regulations, and local agreements.
2. We aim to establish a production system adapted to a recycling-oriented society through new and proprietary technologies.
   (1) Reduction of greenhouse gas emissions throughout the product lifecycle
   (2) Reduction of energy consumption and promotion of renewable energy use
   (3) Reduction of waste and recycling to reduce consumption of natural resources
3. We will promote planned and continuous environmental conservation activities through communication of our environmental policy and operation of an environmental management system.
4. We will build continuous partnerships with customers, business partners, and local communities to promote environmental conservation activities.
5. We will strive to maintain the latest information and prevent environmental risks before they occur.

April 1, 2024
Motoyuki Amano, Amano Enzyme Inc.

Status of acquisition of environmental management systems

Amano Enzyme acquired ISO 14001 certification in January 2000 as a mechanism for promoting environmental improvements at its production sites (Nagoya, Yoro and Shiga Plants), R&D site (Innovation Centre) and head office, and is promoting continuous environmental protection activities.

Training of environmental management organisations and environmental auditors

To ensure the effective operation of the environmental management system, the EMS Committee and the Environmental Committee have been established as operating organisations, and their responsibilities, authorities, roles and functions are clearly defined and addressed in their activities. In addition, to ensure the continuous implementation of the environmental management system, training and education of personnel involved in environmental matters is carried out as required.

2024 Environmental targets and results

Amano Enzyme continuously implements initiatives to reduce the environmental impact of its corporate activities and to protect the global environment. The company carries out detailed environmental conservation and management activities by setting medium-term environmental targets and implementation plans with three years as a unit, and formulating targets and plans for implementing these targets and plans for each single year.

Environmental policy	2024 Environmental goals and results	
	Target	Track record
Compliance with regulations, etc.	■ Clarify applicable environmental laws, regional agreements, etc. at each site and regularly evaluate them to ensure compliance with legal and agreed values. ■ At sites with wastewater treatment facilities, comply with legal limits and voluntary control limits (additional limits) based on the Water Pollution Prevention Act by ensuring operation and management. ■ Comply with legal limits for odour, noise, vibration, etc. and avoid generating environmental complaints.	■ Inspections and notifications based on applicable laws, regulations and agreements were reliably carried out as planned, and compliance with laws and regulations was regularly assessed. The target was achieved with zero cases of non-compliance with laws and regulations. ■ In waters that have become eutrophic due to increases in nitrogen, phosphorus, etc., the biota that make up the ecosystem change, and the direction of change is towards a decrease in biodiversity. In wastewater treatment, our company has worked to reduce the environmental burden by complying with legal limits based on the Water Pollution Prevention Act. Exceeding legal limits: 0 cases ■ Zero odour and noise complaint each due to equipment problems.
Conservation of the natural environment and protection of natural resources	■ Improve energy consumption per unit of production by at least 3% by the end of FY2025 compared to the actual value for FY2022 ■ Reduce CO2 emissions per unit of production by at least 50% by the end of FY2031 compared to the actual value for FY2019 ■ Improve water consumption per unit of production by at least 3% by the end of FY2025 compared to the actual value for FY2022 ■ Prevent the leakage of CFCs from CFC equipment and reduce the use of CFC (CFC, HCFC) equipment to zero ■ Reduce the amount of industrial waste to the same level or less than the actual amount of industrial waste per unit in FY2023	■ Energy consumption per unit production98% compared to FY2022 ■ CO2 emissions per unit production89% compared to FY2019 ■ Water consumption per unit production108% compared to FY2022 ■ Fluorocarbon emissions: 41.8t-CO2/year ■ The amount of industrial waste generated per unit of production is 88% of the 2023 level.
Continuous improvement	■ We will work to improve operational efficiency and reduce our environmental impact. ■ We will actively promote improvement activities that lead to energy conservation, with a focus on the summer months (July and August) when electricity demand is high. ■ In research and development, we will promote themes for product and application development that can contribute to reducing our customers' environmental impact.	■ Continue to improve operational efficiency through Kaizen proposal activities, small group activities, etc. ■ Continue to implement proposal activities Introduce high-efficiency equipment such as boilers, air conditioners, and refrigerators, and improve the thermal efficiency of existing equipment, etc. ■ Continuing to search for enzymes that contribute to environmental impact reduction from the company's microbial strain collection
Communication	■ Ensure communication with the local community (sharing information about odours, noise, construction, etc.) to maintain a relationship of trust ■ As part of our contribution to the local community, we will cooperate in activities to beautify the environment around our offices and in resource recovery, etc.	■ Monthly transmission of information on predicted odour emissions to local residents (Nagoya Plant) ■ Implementation of beautification activities around business sites (all business sites)

Achievements of activities inside and outside the establishments

The table below shows Amano Enzyme's EMS activities both inside and outside its sites and its performance in complying with various laws, regulations and ordinances in FY2024.

2024	Apr.	■2024: Submit and pay the pollution load levy (Nagoya, Yoro, Shiga Factories) ■2024: Submit a report on private industrial water supply (Nagoya Factory) ■Submit a report on changes regarding the use of sewage treatment facilities (Innovation Centre)
	May	■Submitted energy consumption statistics survey (Nagoya, Yoro, Shiga factories) ■Submitted a report on the implementation of measures to combat global warming and a survey on the sludge load of specified discharge water (Nagoya Plant) ■Submitted a business operator action plan and report under the Shiga Prefecture Ordinance on the Promotion of the Creation of a Low-Carbon Society (Shiga Plant) ■Submitted a general waste reduction plan and a report on the results of the waste reduction plan (Yoro Plant) ■Submitted a business waste reduction plan (Head Office)
	Jun.	■Submitted industrial waste disposal plan, implementation status report, and industrial waste management table delivery status report (Nagoya, Yoro, and Shiga plants) ■Submitted a report on the status of the issuance of industrial waste management tables, etc. (Innovation Centre) ■Submitted a report on the status of the transport of industrial waste from outside the prefecture (Nagoya, Yoro, Shiga Factories and Innovation Centre) ■Submitted a survey form on the amount of waste generated (Yoro Factory and Innovation Centre)
	Jul.	■Submitted greenhouse gas emission reduction plan and reduction plan performance report (Nagoya, Yoro, Shiga Plants) ■Submitted air pollutant load survey form (Nagoya Plant) ■Submitted medium- to long-term plan and regular report based on the Act on the Rational Use of Energy (Nagoya, Yoro, Shiga Plants) ■Submitted Konan City Environmental Conservation Agreement water quality results report (Shiga Plant)
	Aug.	(Activity performance report N/A)
	Sep.	(Activity performance report N/A)
	Oct.	■ISO14001 Surveillance Audit
	Nov.	■Comprehensive survey sheet on air pollutant emissions submitted (Shiga Plant).
	Dec.	■Submit change reports on the use of sewage treatment facilities (Innovation Centre).
2025年	Jan.	(Activity performance report N/A)
	Feb.	■Notification of out-of-prefecture industrial waste delivery submitted (Nagoya Plant, Yoro Plant, Shiga Plant, Innovation Centre).
	Mar.	(Activity performance report N/A)

Environmental impact of business activities

At Amano Enzyme, the Nagoya, Yoro, Shiga and Innovation Centres, as well as the head office, we are engaged in a comprehensive range of activities, from research and development to production and administrative activities. Each and every employee is aware of the inputs and outputs of environmental impact generated by these activities, and strives to reduce environmental impact by taking concrete action.

INPUT

【 Energy 】

・ Electricity ： 37,548 MWh
(crude oil equivalent
: 8,383kL)

・ town gas ： 3,763 kNm^3
(crude oil equivalent
: 4,442 kL)

・LNG : 1,653 t
(crude oil equivalent
: 2,323 kL)

【Water】

・ waterworks
: 103,434 m^3

・ industrial water
: 290,537 m^3

・ underground water
: 1,148,230 m^3

【 Raw materials 】
・ Raw materials of natural origin, etc.

【 Others】
・Raw packaging materials
・Plastics
・Copy paper, etc.

business activities

Research ・ Development

Production

Business

OUTPUT

【Emissions to the atmosphere】

・CO_2 : 28,465 t-CO_2
(Scope 1 : 12,674 t-CO_2
Scope 2 : 15,791 t-CO_2)

【 Discharge to water systems 】

・ River discharge
: 928,767 m^3

・Drainage system
: 180,740 m^3

・BOD : 17.0 t

・ Nitrogen : 12.4 t

・ Phosphorus : 1.3 t

【 Waste 】

・ Volume of industrial waste
: 268 t

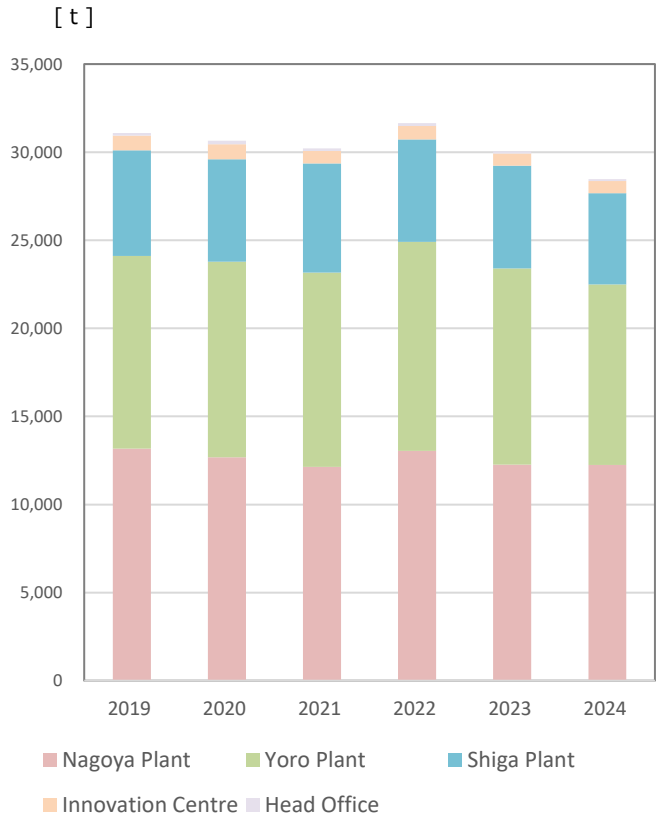
Research ・ Development

Production

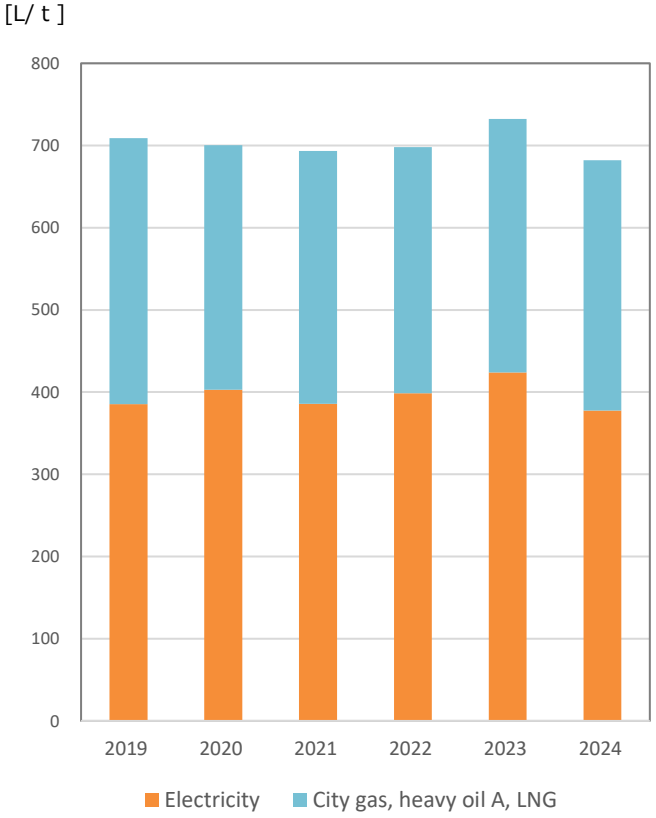
Business

Prevention of global warming and rationalization of energy use

■ Greenhouse gas (CO2) emissions



■ Changes in energy intensity



Greenhouse gas emissions in FY2024 were 2% lower than the previous year.

【Nagoya Plant Initiatives】

Replaced an existing steam boiler with a high-efficiency boiler (1 unit). (14.9t-CO2 reduction per year)

【Initiatives at the Yoro Plant】

Reduced steam consumption by changing the cleaning conditions for culture tanks.(67.2t-CO2 reduction per year)

Reduced electricity consumption by upgrading to high-efficiency air conditioning and refrigeration equipment. (16.4t-CO2 reduction per year)

【Initiatives at the Shiga Plant】

Upgraded transformers in the No. 2 substation to high-efficiency models.(8.2t-CO2 reduction per year)

【Other initiatives】

・Improving productivity

・Introducing energy-saving equipment and devices

・Promoting energy-saving activities through energy-saving proposals (183 proposals)

In order to continue to improve our energy consumption rate in FY2025, we will continue to work to reduce our energy consumption rate by improving the operation of existing equipment and actively introducing high-efficiency and energy-saving equipment.

※What is Amano Enzyme's basic unit?
Specific unit = Crude oil equivalent of electricity or city gas, heavy oil A or LNG [L] / volume of oil to be prepared [t].
The value is calculated as follows.

High-efficiency transformer upgrade

High-efficiency eco-compressor upgrade

High-efficiency boiler upgrade

Energy conservation initiatives

●The Nagoya plant is working to improve the operation of biogas recovery through anaerobic treatment of wastewater (using biogas as fuel), which started in 2018, to increase the amount of gas recovered.A 34% increase has been achieved compared to the year of introduction (2018).

●The Yoro Plant conducted an energy-saving assessment to calculate the potential for CO2 emission reduction, and created a roadmap to achieve the CO2 reduction target (46% reduction in CO2 emissions by FY2030 compared to FY2020).

●The Shiga Plant installed a flow straightening device in the air conditioner of the automated low-temperature warehouse (reducing 2.9t-CO2/year). In addition, regular inspections are carried out to eliminate energy wastage, such as defective steam traps and heat dissipation losses.

Initiatives to reduce the environmental impact of hazardous substances

■ Prevention of ozone layer depletion by CFC gases.

The use of CFC gas, which causes ozone depletion and global warming, is reduced by introducing CFC or non-CFC equipment and equipment as required, for example by replacing cooling equipment that used CFC gas as a refrigerant with equipment that uses alternative CFC gas, and regular inspections are carried out to prevent leakages.

■ Preventing mercury pollution of water and soil

LED lighting fixtures have been installed in line with activities to eliminate fluorescent and mercury lamps that use mercury, which is harmful to the human body. This eliminates the risk of mercury pollution of water and soil and saves energy.

Pollution prevention initiatives

■ Prevention of water pollution and odours

Proper operation of wastewater treatment plants

Each plant and innovation centre is equipped with wastewater treatment facilities to treat wastewater discharged from plants and other facilities. In addition to the Water Pollution Prevention Act and local government bylaws, the company also complies with its own voluntary water quality standards in an effort to prevent water pollution.

In addition, as a measure to prevent odour pollution to the neighbouring areas of the plant, the plant ensures that treatment processes appropriate for the wastewater of each production item are carried out, and also strives to prevent odour pollution by strengthening the sealing of the liquid waste storage tank to reduce odour leakage and by spraying deodorising agents to reduce odours.






Promoting industrial waste reduction and recycling

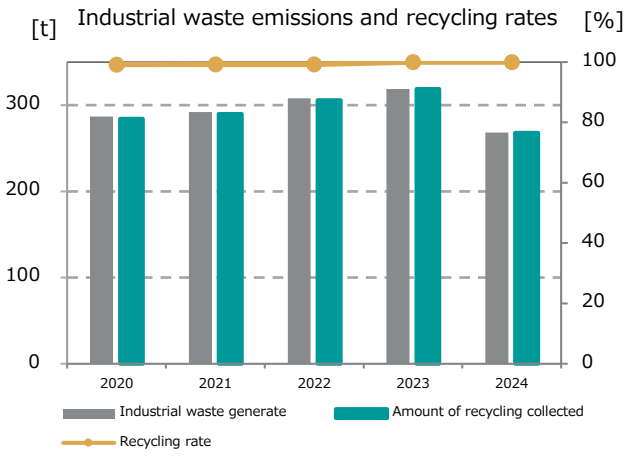
Industrial waste generated

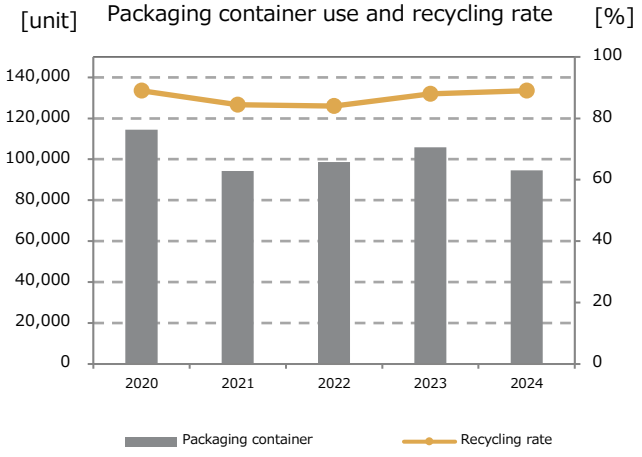
Industrial waste emissions at all sites decreased by approximately 16% compared to the previous year. The main reason for this is that Schutz containers were disposed of at the Yoro Plant in FY2023, but no such disposal occurred in FY2024.

Recycling activities

As part of its efforts to reduce industrial waste, the Nagoya Plant is switching to packaging containers that are easier to recycle. The Shiga Plant is also working on the reuse of used container containers.

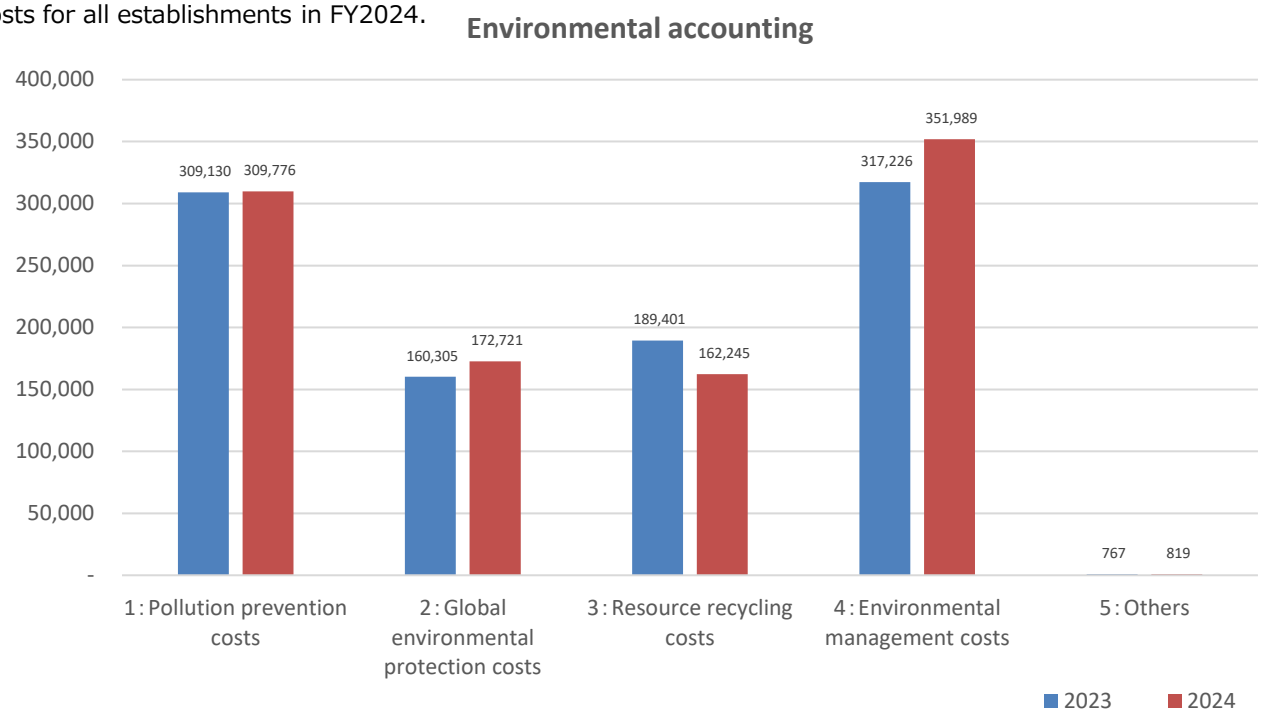
We will continue our efforts to reduce the amount of industrial waste generated and maintain the recycling rate.





2023 Environmental accounting

The following table shows the amount of investment in environmental measures and environmental protection costs for all establishments in FY2024.



【Unit : Thousand yen】

Classification	Main contents	2023	2024
1 : Pollution prevention costs	Wastewater treatment plant maintenance / Compressor renewal and maintenance / Maintenance of power receiving and transforming equipment	309,130	309,776
2 : Global environmental protection costs	Refrigeration unit renewal and maintenance / Air conditioning renewal and maintenance	160,305	172,721
3 : Resource recycling costs	Industrial waste recycling	189,401	162,245
4 : Environmental management costs	Green space management in factories / Environmental impact monitoring / EMS activity related	317,226	351,989
5 : Others	Support for community activities / Environmental protection activities	767	819
Total	-	976,829	997,550

Social activities and community communication report

・As part of local environmental beautification activities, we regularly clean the roads and ditches around our business sites every month (all business sites)

・We cooperate with the collection of waste paper by the neighbourhood community development council (Yoro Plant)

・We held factory briefing sessions for local residents (May 18: Futamata Community, June 15: Yamamura Community) ・We participated in the "Lake Biwa Beautification Campaign" organized by the prefecture and carried out litter picking. (Shiga Plant)