Environment

In August 2021, the ULVAC Group revised its Environmental Philosophy, Environmental Policy, and Environmental Targets in order to further strengthen environmental initiatives.

Environmental Philosophy

The ULVAC Group understands that the conservation of the global environment is one of the most important issues facing humanity. While effectively utilizing resources in all aspects of our operations, we take into consideration biodiversity so as to contribute to bringing about a better living environment and a more prosperous society.

Environmental Policy

- Reducing greenhouse gas emissions
  We reduce greenhouse gas emissions, a main cause of climate change, through all of our activities.
  We are committed to developing products that conserve energy and reduce our environmental footprint.
- Preventing environmental contamination
  In conducting business, we comply with environmental laws and regulations.
  We manage hazardous chemical substances appropriately in our manufacturing processes to prevent environmental contamination and health hazards.
- Environmental targets and continuous improvement
  We establish environmental targets and strive to improve our environmental performance by reviewing these targets.
  In addition, we continuously improve our environmental management system through routine review.
- Environmental education and information disclosure
  Through environmental education, we raise the awareness of each individual and appropriately disclose environmental information.

Environmental Targets

❶ Greenhouse gas emission reduction targets

- Reduce greenhouse gas emissions in 2030 by 40% as compared with 2020
- Achieve net zero greenhouse gas emissions by 2050

❷ Eliminate environmental accidents

In FY 2021, as a Group-wide risk management initiative, we classified sites with high environmental impacts, such as those with wastewater treatment facilities or that handle chemical substances, as high-risk sites, and conducted audits from a comprehensive perspective in the presence of third-party experts. For FY 2022, we added a new environmental target, namely, to "eliminate environmental accidents." We will conduct audits sequentially at our overseas sites to prevent environmental accidents.

ULVAC Group Environmental Photo Contest

In line with the revision of our Environmental Philosophy and Environmental Policy last year, we held an environmental photo contest, inviting all Group employees and their families to submit photos they associate with the keywords of our Environmental Philosophy: "conservation of the global environment," "effective utilization of resources," "biodiversity," "better living environment," and "prosperous society." The Gold Award winning photo is used for the Environmental Philosophy poster distributed throughout the Group to inculcate environmental awareness among employees.

Environmental Philosophy Poster

Environmental Activities in FY 2021

Regarding the material balance, owing to vitalization of the market environment and other factors, the amount of activity increased, especially in regions where major manufacturing sites are located, and electricity consumption increased except in certain regions such as Southeast Asia.

Total waste emissions increased in line with the increase in the amount of activity but the final landfill disposal rate was virtually unchanged compared with the previous fiscal year. We aim to reduce our environmental impacts by reducing waste emissions and promoting recycling.

The Group's overall water consumption decreased as a result of efforts to save water and improve wastewater treatment at companies that use large amounts of water, such as those engaged in the deposition and coating business.

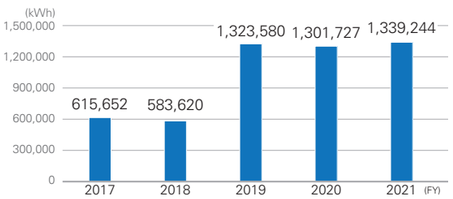
The amount of solar power generated increased as a result of the installation of solar power generation equipment by ULCOAT TAIWAN, Inc. in FY 2019. To reduce greenhouse gas emissions, while continuing energy-saving activities, we will actively consider introduction of renewable energy facilities and purchase of non-fossil certificates. We will continue to promote environmental activities throughout the Group.

Material balance (Source: Aggregate data for FY 2021)

INPUT	
Electricity consumption	168,152 thousand kWh
Gas consumption	LPG: 217 t LNG: 704 t City gas: 1,346 thousand m^3
Fuel consumption	Heavy oil: 11 kL Kerosene oil: 12 kL Diesel oil: 149 kL
Water consumption	1,435 thousand m^3
Packaging materials	823 t

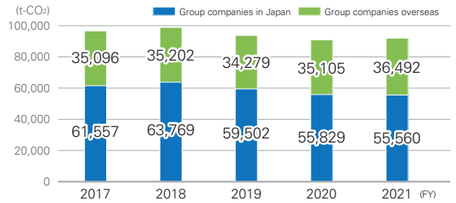
OUTPUT	
CO_2 emissions	92,052 t (Emissions due to consumption of electricity, gas, and fuels)
Total waste emissions	6,587 t Total amount of waste recycled: 4,426 t Amount of landfill 93.9 t
Final landfill disposal rate	1.4 %

Amount of solar power generated



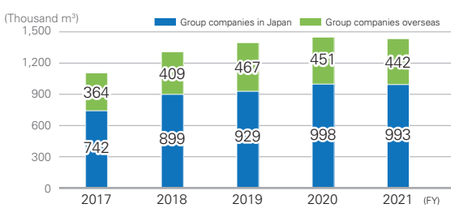
*Figures for FY 2019 onward have been restated to reflect the addition of the amount of solar power generated by ULCOAT TAIWAN, Inc.

Energy-derived CO_2 emissions

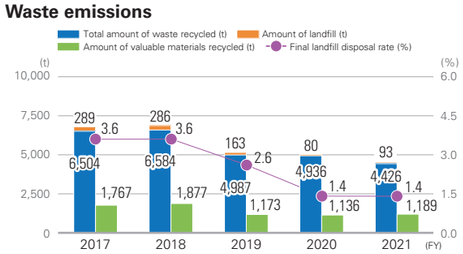


*The emission factors use the Emissions Factors 2021 edition published by the International Energy Agency (IEA).

Water consumption



Waste emissions



Environment

"ULVAC Green Products" Certification Program for Environmentally Friendly Products

In accordance with our goal for 2050, we are promoting various environmental activities such as reforestation and biotope conservation, aiming to contribute to creation of an environmentally friendly and sustainable society. In addition, in recent years, there has been a growing trend toward business activities geared to creation of environmentally friendly products. Equipment capable of manufacturing devices in ways that have less impact on the global environment is preferable provided product performance is not compromised.

We established the Environmentally Friendly Products Subcommittee consisting of business divisions and research divisions in FY 2021 and have launched a program to certify products that satisfy our own standards as "ULVAC Green Products." We will continue refining the framework for creation of environmentally friendly products.

Evaluation Items

Environmental friendliness elements		Items
Resource conservation and recycling	REDUCE	Reduced parts count
		Space-saving, compact, lightweight, and simplified
		Selection of environmentally friendly materials
		Easy-to-assemble, easy-to-disassemble structure
		Reduced maintenance frequency
		Reduced packaging materials
		Reduced consumption of water resources, such as industrial water
		Longer service life
	REUSE	Active use of reused and recycled items
	RECYCLE	Design for recycling
		No use of hazardous chemicals
Climate action	Reduction of electricity consumption	Reduced electricity consumption
	Reduced consumption of energy other than electricity	Reduced consumption of cooling water, nitrogen, etc.
		Use of alternatives to greenhouse gases used in the process and reduced use of greenhouse gases
Other		Reduced noise

"ULVAC Green Products" Certification Process

Example of Green Products

Multi-chamber Sputtering System ENTRON™-EX W300

Relevant items
- ✓ Reduced parts count
- ✓ Space-saving, compact, lightweight, and simplified

In addition to equipment performance and cost competitiveness, environmental friendliness is also an important value criterion, especially in the semiconductor industry. To meet these needs, for the ENTRON™-EX W300 multi-chamber sputtering system, ULVAC reconfigured the main body of the system and surrounding control racks to achieve a smaller footprint (area of the system) and reduce the number of cables used.

The smaller footprint corresponds to the environmental friendliness element of "space-saving, compact, lightweight, and simplified." A 40% reduction in the space required for the racks was achieved by reducing the number of racks through the use of common parts and reduction of the sizes of parts mounted on multiple racks. At the same time, as a result of a review and reconfiguration of the power supply system, the number of cables was reduced by 40%. This corresponds to the environmental friendliness element of "reduced parts count." These improvements will lead to resource saving, reduced CO_2 emissions during manufacturing, and reduced assembly man-hours.

ENTRON™-EX W300

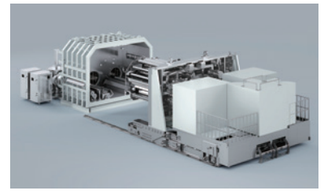
Initiatives at Plants

Analysis of power consumption of large evaporation roll coaters

We are stepping up our efforts to reduce greenhouse gas emissions and working to reduce not only ULVAC's but also our customers' power consumption through the use of ULVAC equipment.

In particular, since large evaporation roll coaters use a lot of electricity, using energy efficiently is a priority. By installing measuring instruments, detailed power consumption of each process is determined in order to maximize overall efficiency of energy use.

Going forward, we will analyze the trend of power consumption of each process by comparing the collected data with the log data of the equipment with a view to further improving the equipment.



Large evaporation roll coater

Change of the temperature setting of the cold/hot water heat source equipment to save energy

The cold/hot water heat source equipment at ULVAC's Fuji Susono Plant is a source of cold water for cooling manufacturing equipment as well as cold water and hot water used by the clean room's air-conditioning systems.

From the viewpoint of reducing greenhouse gas emissions, temperature settings for cold water and hot water were adjusted corresponding to the cycle of the seasons. As a result, the Fuji Susono Plant reduced its annual greenhouse gas emissions by 47.65 tons.

The Fuji Susono Plant will continue endeavoring to further reduce greenhouse gas emissions within the range of temperature control values for production activities and the clean room.

Cold/hot water heat source equipment

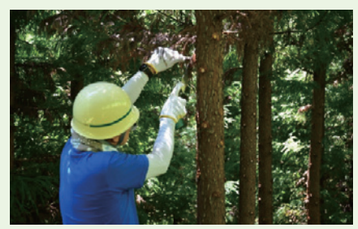
Participation in the Reforestation Partner System

Certification of the calculated amount of CO_2 absorbed by forests

In Kanagawa Prefecture, where ULVAC Head Office/Plant is located, forests cover 39% of the prefecture's land area, a very low figure compared to the national average of 66%. Stewardship activities are being undertaken so as to bequeath flourishing forests, which serve as water sources, to the next generation. In support of this initiative, we have joined the "Reforestation Partner" system promoted by Kanagawa Prefecture. In June 2022, we conducted the first reforestation activity in the 21st Century Forest in Minami-Ashigara City. 53 ULVAC employees, including those from Group companies, and their families participated in the event. In addition to thinning the underbrush, they tried their hand at woodcraft using the wood derived from thinning.

The amount of CO_2 absorbed through forest stewardship under this program is calculated to be 247 tons over five years.

We will continue engaging in various environmental activities to realize our goal for 2050, which is to contribute to creation of an environmentally friendly and sustainable society.



Environment

Initiatives to Address Climate Change

Under the Environmental Policy, we offer products that enable our customers to contribute to environmental protection. Initiatives of the ULVAC Group are described below.

Addressing Climate Change

In the context of the growing international awareness of climate change, as evidenced by the widespread pursuit of SDGs and the adoption of the Paris Agreement, efforts to address climate change have become one of ULVAC's key management issues. In order to actively engage with this issue as a responsible member of society, the ULVAC Group has set medium- to long-term greenhouse gas emission targets for its business activities, namely, a 40% reduction in 2030 (compared with 2020) and effectively zero in 2050. We will take action to mitigate climate change by endeavoring to curb greenhouse gas emissions throughout our activities, such as by doing our utmost to conserve energy in Japan and overseas, introducing renewable energy with low greenhouse gas emissions, and developing environmentally friendly products.

Initiatives for the Task Force on Climate-related Financial Disclosures (TCFD) Recommendations

In June 2022, we expressed our support for the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD). We will continue to enrich disclosure in line with the TCFD recommendations and promote dialogue with stakeholders. In addition, we will clarify the impact of climate change-related issues on our operations and implement measures to ensure sustainable growth of our business.

TCFD TASK FORCE ON CLIMATE-RELATED FINANCIAL DISCLOSURES

ULVAC has been responding to a survey conducted by CDP*, an international NGO, since FY 2020.

*CDP: A non-governmental organization (NGO) managed by a British charity. CDP sends questionnaires on climate change and other issues to companies and local governments and assesses and discloses the impact of their activities on the environment. When deciding which companies to invest in, CDP scores are considered important criteria.

Governance

Under the supervision of the Board of Directors, the Executive Officers in charge of sustainability and environment monitor progress toward targets.

- Meetings of the Sustainability Promotion Committee attended by the internal directors are held twice each year to acknowledge social trends and the Company's current condition, and discuss measures to address any issues. If significant issues related to management arise, the Board of Executive Officers and the Board of Directors deliberate and make management decisions as needed.
- Meetings of the Global Environmental Management Committee chaired by the Executive Officer in charge of the environment and attended by environmental managers of Group companies are held twice each year. The committee monitors the setting of targets of each Group company and the progress, checks the status of the initiatives for achievement of the targets, discusses measures corresponding to the issues, and reports to the Board of Executive Officers.

Strategy

Under the scenarios announced by the Intergovernmental Panel on Climate Change (IPCC), the International Energy Agency (IEA), and others, that "the global average temperature will rise by 4°C or more" and "the global average temperature rise will be kept below 2°C (partly up to 1.5°C) as agreed by the Paris Agreement," we identified business risks and opportunities in the medium to long term that will be brought about by climate change. Of these, in FY 2021, we analyzed risks and opportunities with respect to "carbon pricing," "business continuity risk due to the occurrence of disasters caused by typhoons, torrential rain, and other extreme weather events," and "expansion of market opportunities for power devices" and evaluated quantitative impacts on our business. Going forward, we will expand the scope of quantification of impacts on business and further consider specific measures.

Major risks

Category	Elements	Measures
Market	Increase in business costs due to changes in customer behavior	Introduction of renewable energy and ensuring the implementation of energy-saving measures in business activities
Policies and legal regulations	Carbon pricing	
Engineering	Replacement of existing products and services with those with lower emissions	Research and development of products and services such as manufacturing equipment that contributes to technological innovation in various fields, and promotion of low-power consumption of products
Acute/chronic	Business continuity risk due to extreme weather events such as typhoons and torrential rain	Formulation of business continuity plan for natural disasters and implementation of countermeasures

Major opportunities

Category	Elements	Measures
Products and services	Heightened expectations for equipment and technology contributing to low-power-consumption devices, power devices and lithium-ion batteries, and increased needs for low-power-consumption products	Research and development of products and services such as manufacturing equipment that contributes to technological innovation in various fields, and promotion of low power consumption of products

Risk Management

- The Risk Management Committee, chaired by the president and composed mainly of supervisory divisions, meets regularly, determines company-wide basic policies, monitors and improves the state of management and administration, and applies these policies at the facility and division levels of affiliated companies. Judgment is made at meetings of the Board of Executive Officers as to which risks may have significant financial or strategic impacts on the business.
- Regarding ULVAC's strategies for environmental targets, major action plans, risk management policies, annual budgets, and deliberation and guidance on business plans, as well as the implementation of these targets and monitoring of performance, the Global Environmental Management Committee, chaired by the Executive Officer in charge of the environment, manages and oversees progress.
- We have major development and manufacturing sites in Japan, which account for 64% of the Group's total GHG emissions in Scope 1 and 2. In addition, sites in South Korea account for 15% of the Group's total GHG emissions in Scope 1 and 2, making that country second only to Japan, and they are key sites for the Group's semiconductor business to which great importance is attached from the viewpoint of management strategy. Therefore, future introduction of carbon taxes and tightening of emissions trading regulations in Japan and South Korea would have significant impacts on costs. Thus, based on the ULVAC Group's GHG emissions in Japan and South Korea in FY 2020, we estimated and confirmed the amounts of impacts in 2030 under the Announced Pledges Scenario (APS), which is one of the scenarios presented in the IEA's World Energy Outlook 2021 and is a scenario that reflects volunteer countries' ambitious pledges. Reductions of GHG emissions at these sites are important for achieving the Group's goal of carbon neutrality. Therefore, a committee headed by the Executive Officer in charge of the environment and related divisions will monitor the risk of energy cost increases and continue to assess this and other risks, for which purpose it will monitor trends. In addition, we will promote initiatives for further energy saving and introduction of renewable energy.
- For Scope 3, environmental impacts in the value chain are significant upstream in procurement from suppliers and downstream in the use of products by customers. Therefore, mindful of the importance of providing environmentally friendly products, we are promoting initiatives to reflect environmental considerations from the development stage onward.
- In formulating a business continuity plan, we assumed the occurrence of disasters caused by typhoons, torrential rain, and other extreme weather events, and are implementing measures to ensure continuing operation of our business.

Indicators and Targets

We revised our environmental targets in FY 2020 to further strengthen our initiatives to address climate change. We will embody our Sustainability Policy, which states "ULVAC strives to create economic, social, and environmental value by comprehensively utilizing its vacuum and peripheral technologies," by supporting the development of a digital society and a carbon-free society through vacuum equipment and vacuum application business as well as through our initiatives aimed at achieving new targets.

Reduce greenhouse gas emissions in **2030** by **40%** as compared with 2020

Achieve **net zero** greenhouse gas emissions by **2050**