

Environment

032 Environmental Management

032 Management Structure

033 Environmental Risks and Opportunities

035 Environmental Management System

038 Environmentally Conscious Design

039 Response to Climate Change

039 Reduction during Development, Manufacturing and Transportation

041 Reducing Energy Consumption during Product Use

047 Promoting the Use of Heat Pump Space and Water Heaters

049 Reducing the Impact of Refrigerants and Building a Refrigerant Eco-cycle

055 Initiatives for a Carbon Neutral Society

056 Contribution through Fluorochemical Products and Oil Hydraulic Products

058 Sustainable Use of Resources

060 Protecting Biodiversity

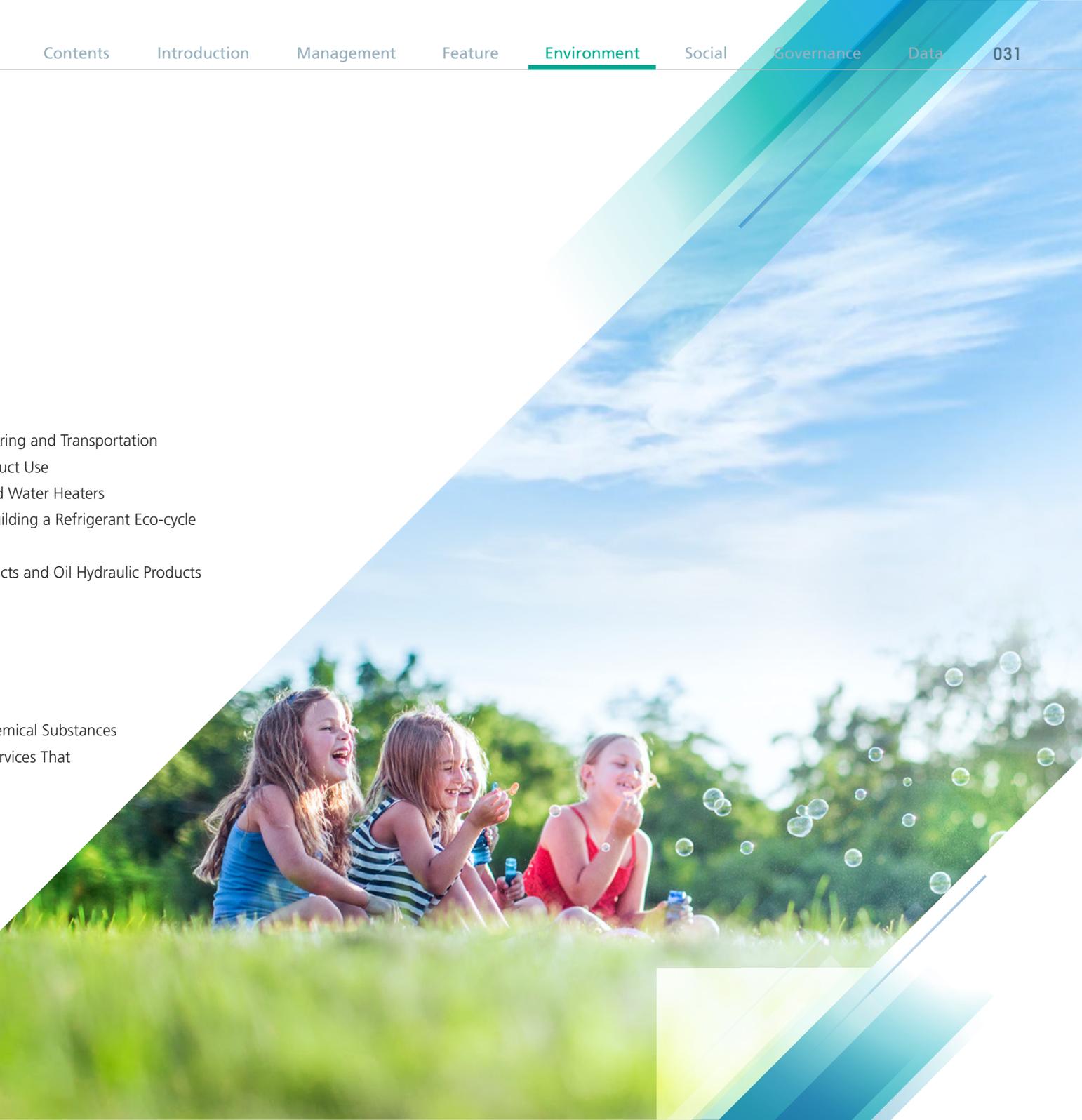
062 Environmental Impacts in Business Activities

062 Overview of Environmental Impacts

063 Water Resource Conservation

064 Managing and Reducing Emissions and Chemical Substances

066 Developing and Promoting Products and Services That Reduce Environmental Impact



Environmental Management

Management Structure

Basic Policy on Environmental Management and Structure

Following the Basic Environmental Policy of the Daikin Group, to promote environmental management throughout the Group, Daikin manages environmental issues related to climate change, water, and waste in each of the five regions including Japan, Europe, the U.S., China, and Asia/Oceania through regional environmental meetings and product environmental meetings.

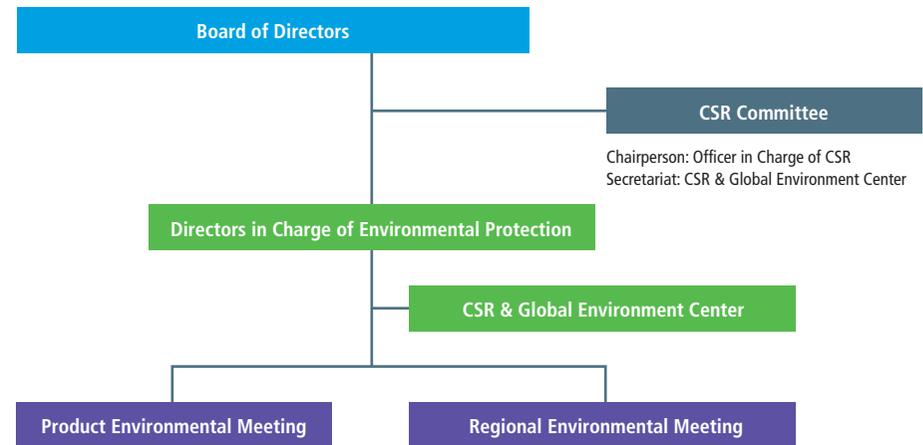
Regional environmental meetings are held in each region annually and attended by environmental managers from each base. Efforts aimed at environmental burden reduction and biodiversity preservation are implemented at manufacturing bases.

In addition, product environmental meetings are held every year and attended by promotional managers of each region in developing products with reduced environmental impact, such as air conditioners. Policies and implementation of development and promotion of environmentally conscious products are discussed, such as products that utilize refrigerants with lower global warming potential and energy efficient inverter technology.

Important themes are then deliberated on by the CSR Committee, and reported to the Board of Directors after being proposed to the CEO.

 174 [Data Policies, Regulations and Guidelines Basic Environmental Policy](#)

Structure Driving Environmental Management



Environmental Management

Environmental Risks and Opportunities

Daikin's Environmental Risks and Opportunities

In 2018, we identified environment-related risks and opportunities pertinent to our company, including climate-related risks. The process involved taking in feedback and opinion from experts within and outside of the company, based on prediction of the society in year 2050.

The identified environment-related risks and opportunities are evaluated, organized, and analyzed from the two viewpoints of degree of impact on business and likelihood of occurrence. Based on this, environmental issues that our group company must pay attention to for year 2030 have been drawn.

Among the identified environment-related risks and opportunities, Daikin takes measures in accordance with TCFD recommendations and discloses information in dealing with climate change because it considers this to be the issue with the greatest impact on its management.

 [018 Management Information Disclosure Based on the TCFD Framework](#)

Identification, Evaluation and Management Process of Environment-Related Risks and Opportunities

We gather information on environment-related risks and opportunities, including those related to the climate, from business bases of each region around the world. Information gathered is then evaluated, organized and analyzed for their degree of impact on business and likelihood of occurrence, and used for identifying environmental-related risks and opportunities of important relevant to our Group. The program policy and measure to address these risks and opportunities are then developed and deliberated by the CSR Committee, followed by proposal to the President and CEO and report to the Board of Directors.

Program policy and measures are reflected in the mid-term management plan, and carried out at each business division.

Environment-related risks and opportunities and potential impact

Category		Impact on Daikin's business	Probability of occurrence	Potential financial impact
Climate related				
Risks	Transition	Stricter regulations on refrigerants If regulations on refrigerants become too strict, existing air conditioners will no longer be compliant with these regulations and become obsolete	High	Large
		Tight supply and demand for electricity The spread of air conditioners in emerging countries will increase electricity usage and make it difficult to increase sales of air conditioners due to electricity shortages	High	Large
	Physical	Production delays due to water shortage or major disasters Manufacturing bases located in areas of high water stress or susceptible to major disasters caused by extreme weather face the risk of disruptions in production due to the shortage of water	Medium	Medium
Opportunities	Transition	Stricter regulations on refrigerants Companies without technologies compliant with regulations on refrigerants will be weeded out, resulting in increased sales of air conditioners using refrigerants with lower global warming potential, which is our strength	High	Large
		Stricter regulations on energy efficiency Companies without technologies compliant with stricter regulations on energy efficiency will be weeded out, resulting in increased sales of air conditioners with high energy efficiency, which is our strength	High	Large
		Stricter regulations on the use of fossil fuels Regulations on the use of fossil fuels continue to become stricter, and since gas-combustion heating will be subject to them, there will be an increase in sales on growing demand for heat pump heating, which is our strength	High	Large
Environment-related other than climate-related				
Risks		Enhanced regulation on the use of plastics Demand (regulation) created for reducing plastics usage as the demand for sustainable use of plastics increases	High	Medium
		Depletion of raw material resources Resources for raw material deplete, affecting business operation	High	Large
		Environmental pollution from manufacturing bases Chemical substance management at manufacturing bases not functioning, and harmful substances released causing regional environmental pollution	Medium	Medium
		Conservation of ecosystem Response demanded as a member of the society to address the losing balance of the ecosystem	Medium	Small
Opportunities		Increased awareness toward air quality As air pollution becomes more serious, the needs for quality air increases	High	Large

Environmental Management

Environmental Management System

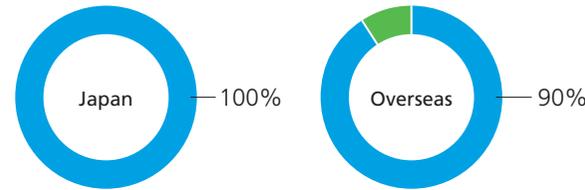
Basic Policy

Building a Group-Wide Environmental Management Promotion System

Daikin has built and operates an environmental management system (EMS) in accordance with ISO 14001. This EMS is shown in the diagram below.

The creation of environmental management systems is proceeding at companies that are new to the Daikin Group as we work toward certification for ISO 14001 at all bases. To ensure the reliability of data and improve our mechanisms for environmental management, we have data on emissions of greenhouse gases, water, waste, and chemicals verified by a third party.

Ratio of Employees Belonging to Facilities with ISO 14001 Certification (FY2022)



Daikin Bases Certified for ISO 14001
<https://www.daikin.com/-/media/Project/Daikin/daikin.com/csr/new/pdf/environment/certified-pdf>

Promoting Environmental Management Globally

Finalized Action Plan to Achieve Environmental Vision 2050

To ensure the continuous improvement of the entire Daikin Group's environmental management, environmental meetings are held once a year in four regions (Europe, the U.S., China, and Asia/Oceania). In addition, once every two years Global Environmental Meetings are held.* At the meetings, local base presidents, environmental heads, and environmental managers in each division, along with the environmental managers in each division in Japan, share Group policy and medium- and long-term targets.

In 2019, at the 4th Global Environmental Meeting, we officially kicked off the Environmental Vision 2050 formulated in fiscal 2018. In aiming to achieve net zero greenhouse gas emissions by 2050, we agreed to further reduce waste, ensure thorough horizontal implementation based on examples of improvement, develop energy saving technology, and proceed with energy conversion.

In fiscal 2022, at environmental meetings held in each region, we discussed the direction of our initiatives to achieve net-zero greenhouse gas emissions. With the goal of helping achieve the targets of the Paris Agreement, we are stepping up energy-efficiency efforts at our worldwide bases.

* The event was postponed since fiscal 2021 due to the COVID-19 pandemic.

Environmental Management System



Indicators and Results at Manufacturing Bases

We have established targets and indicators at our manufacturing sites targeting fiscal 2025 under the Fusion 25 Strategic Management Plan. We are committed to reducing environmental impacts from production activities in an effort to balance sustainable business growth and environmental conservation.

Indicators and Results at Manufacturing Sites

Main initiatives	Management items	Fiscal 2025	Fiscal 2022		
		Targets	Targets	Results	Self-assessment
a) Greenhouse Gas	Reduce greenhouse gas emissions (fluorocarbons and energy)	1.10 million tons-CO ₂ (40% reduction compared to fiscal 2015)	1.17 million tons-CO ₂ (36% reduction compared to fiscal 2015)	1.03 million tons-CO ₂ (43% reduction compared to fiscal 2015)	
b) Emissions	Reduce waste generated	Unit reduction in emissions of 10% against standard value*	Unit reduction in emissions of 10% against standard value*	13% reduction	
c) Water	Reduce water usage	Unit reduction in water intake of 10% against standard value*	Unit reduction in water intake of 10% against standard value*	26% reduction	
d) Chemicals	Reduce VOC emissions	Unit reduction in chemical emissions of 10% against standard value*	Unit reduction in chemical emissions of 10% against standard value*	51% reduction	

* Average for fiscal 2013–2015. Most recent figures are used for manufacturing bases that newly joined the Group.

Self-assessment: Shows level of achievement of targets in three designations:

-  : Succeeded
-  : Will soon succeed
-  : Doing all we can

Environmental Audits

Audit by Internal Auditors and Certification Bodies

At Daikin, based on ISO 14001, inspections by certification bodies are conducted and internal audits are implemented annually. Internal audits focus on conformity with standards and confirmation of legal compliance.

Internal audits conducted on Daikin Group companies in Japan in fiscal 2022 focused on the legal compliance structure and operations. No major nonconformities were found in these audits.

At each Daikin manufacturing site and manufacturing subsidiary, systems are in place to minimize environmental damage in the unlikely event that accidents or disasters should occur. Also, we seek closer interactions with nearby residents' associations and conduct factory tours among other daily efforts to maintain an emergency contact system coordinated with local communities.

See below for findings from our environmental audits

 [145 Data ESG Data Environment](#)

Internal Auditor Training

As of the end of fiscal 2022, there are currently 85 internal auditors undergoing training and skills improvement at the Daikin Group in Japan. Newly appointed and experienced auditors work in pairs so as to pass on skills from one generation to the next and 14 newly appointed auditors work as assistant auditors. Internal auditors also take annual training to improve their skills and ensure standards are being thoroughly met.

In fiscal 2022, we conducted online training covering key points of legal compliance audits.

Going forward, we will focus on enhancing the skills of newly appointed auditors with an eye toward the generation change taking place among auditors.

Green Heart Factories and Offices

Green Heart Factories

Since fiscal 2005, Daikin has utilized in-house standards for evaluating and certifying environmentally conscious plants for their environmental and social performance. Certification is conducted once every two years. In 2021, we reviewed assessment criteria and visualized environmental initiatives such as reduction of CO₂ emissions and water usage, along with the progress of SDG achievement at our plants involving social issues. In turn, we certified the actions of each business site into the four stages of platinum, gold, silver, and bronze. In the 2022 assessment, two plants were certified gold, 17 as silver, and 10 as bronze.

Green Heart Offices

Daikin Industries began the "Green Heart Office" initiative in fiscal 2011 to promote environmental activities at non-manufacturing bases such as offices. In fiscal 2014, we created a three-stage ranking comprising gold, silver and bronze to evaluate the level of initiatives being undertaken by each base based on "reduce resource usage" and "awareness and contribution."

In fiscal 2021, all nine of our offices received Gold Class certification. In fiscal 2022, we continued strengthening these initiatives, and as a result, all offices received the same certification.

In fiscal 2022, we conducted a survey following the video we streamed on our sustainability initiatives to check the comprehension of employees.

Environmental Management

Environmentally Conscious Design

Environmentally Conscious Air Conditioners

Commercialize Only Products that Meet 13 Assessment Criteria

Besides factors like performance and usability, Daikin stresses environmental performance in product development, and incorporates product assessment in the planning and design stages for new products. Product assessment consists of 13 assessment items that we strictly adhere to in developing products.

We also assess global warming impact of air conditioners using the life cycle assessment (LCA) method, which allows us to determine the environmental impact at each stage of a product's life cycle. Products only make it to market after we have assessed them against their predecessor products to confirm they exert less environmental impact.

Product Assessment Items

- | | |
|---|--|
| 1. Weight reduction of products | 8. Raise possibility of reuse of resources |
| 2. Use of recycled materials and parts | 9. Ease of disassembly and separation of materials by hand |
| 3. Packaging | 10. Ease of shredding/classifying for recycling |
| 4. Reduction in environmental impact during the manufacturing process | 11. Environmental conservation capabilities |
| 5. Energy and resource conservation in use | 12. Disclosure of information |
| 6. Product life extension | 13. LCA |
| 7. Ease of delivery/collecting/transporting | |

See below for our full text on product assessment evaluation items

[179 Data Policies, Regulations and Guidelines Product Assessment Items](#)

Environmentally Conscious Fluorochemical Products

Fluorine Materials Help to Mitigate Environmental Impacts in a Range of Areas

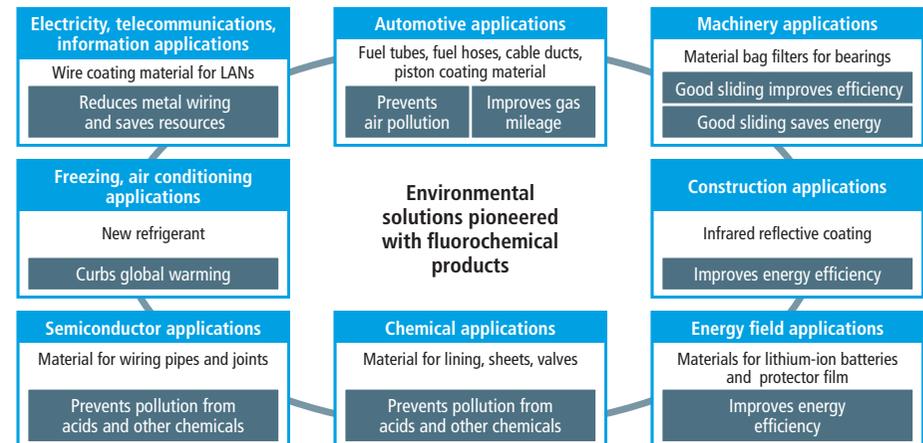
Fluorine mainly bonds with carbon atoms to form compounds that are highly stable with the ability to resist heat and repel chemicals and that offer unique qualities such as smoothness and electrical characteristics.

Capitalizing on these characteristics, Daikin is working to research and develop as well as supply fluorine products that help to conserve the environment or mitigate environmental impacts in a range of fields, including semiconductors, next-generation vehicles, telecommunications, and energy. For example, fluorine is used in electrode binders since it can increase the capacity of lithium-ion batteries. It is also used in turbo hoses and sealants because its high heat resistance helps to increase fuel economy and prevent air pollution by improving the functioning of automobile turbocharger systems. Going forward, we intend to expand the possibilities of fluorine to a variety of applications that benefit the environment, including renewable energy, new energy, and energy conservation.

Energy solutions

<https://www.daikinchemicals.com/solutions/industries/energy-solutions.html>

Environmental Solutions Pioneered with Fluorochemical Products



Response to Climate Change

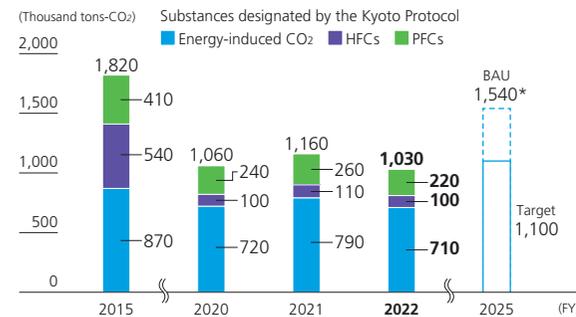
Reduction during Development, Manufacturing and Transportation

Reducing Greenhouse Gas Emissions during Development and Production

Daikin emits two kinds of greenhouse gases* during development and production processes: CO₂ from energy use, and fluorocarbons. We have set a goal for reducing greenhouse gas emissions during the product development and production processes in fiscal 2025 by 1.1 million tons-CO₂ (40% reduction in comparison to fiscal 2015). In fiscal 2022, our greenhouse gas emissions totaled 1.03 million tons-CO₂ (43% reduction in comparison to fiscal 2015) after we expanded purchasing of renewable energy. As for fluorocarbons, we have improved the results of PFC recovery measures at the chemical divisions in Japan and the United States.

* CO₂, CH₄, N₂O, and four fluorinated gases (HFCs, PFCs, SF₆, and NF₃), which are considered the main causes of global warming, are subject to regulation based on the United Nations Framework Convention on Climate Change.

Greenhouse Gas Emissions (during development and production)



* Predicted values for fiscal 2021 and onward assuming no measures are taken

Reducing Energy-Induced CO₂

The Daikin Group as a whole is taking a systematic approach to reduce energy-induced CO₂ emissions by improving energy efficiency during development and production processes. We have continued to visualize energy usage, install solar panels, and expand purchasing of green electricity at each of our bases around the world. As a result, in fiscal 2022, CO₂ emissions totaled 710,000 tons-CO₂.

See below for method of calculating greenhouse gas emissions data and greenhouse gas emissions related data

[144 Data](#)

Using Renewable Energy

Daikin is working to expand the use of renewable energy such as solar, wind, and hydro powers with the target of increasing the rate of global renewable energy usage to 10% out of all energy consumption at Daikin's manufacturing bases in 2025.

Daikin's development and manufacturing bases in Japan and overseas, including at the Technology and Innovation Center (TIC), generated 15,400 MWh in fiscal 2022, which is equivalent to CO₂ emission reductions of 7,400 tons-CO₂ (estimated by Daikin). In fiscal 2022, we launched a plan to introduce solar power generation to all of our plants in China by 2025.

Moreover, we have been encouraging the use of renewable energy at our bases. For instance, renewable energy is already in use to power 100% of our operations at Daikin Europe N.V. and Daikin Applied Europe. In fiscal 2022, the rate of renewable energy use was increased to 50% at Daikin Comfort Technologies North America, Inc.

In Japan, the energy used at our distribution center in Soka City, Saitama Prefecture is 100% renewable energy.

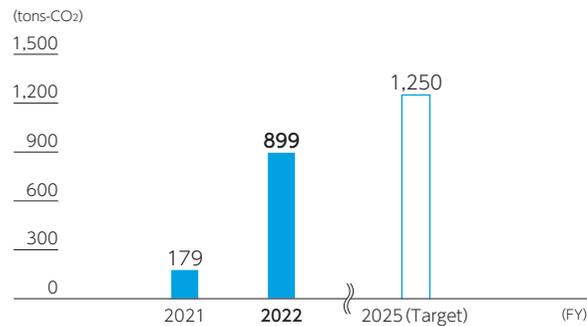


Solar power generation system has panels that move to track the sun's position (at TIC)

Reducing CO₂ Emissions in Logistics Processes

We have set a goal to reduce CO₂ emissions in logistics processes (transportation, packaging and warehousing) to 1,250 tons-CO₂ by 2025. In fiscal 2022, these emissions totaled 899 tons-CO₂. We are now promoting expanded modal shift, switching transport methods from trucks to freight trains and ferries, and introduction of more energy efficient trucks. In fiscal 2022, our modal shift transition rate stood at 21%.

CO₂ Emissions Reduction in Logistics Process



Reducing Other Environmental Impact in Logistics

- At manufacturing bases in Japan and overseas, we are promoting the replacement of engine-powered forklifts with electric models.
- We practice start-stop for all vehicles on the premises including vehicles of our transport partners.
- We are engaged in reducing CO₂ emissions through improved transportation efficiency and decreased packaging volume, and reducing electricity consumption through shorter working hours.
- We are working with overseas development bases on promoting material-saving packaging designs to reduce packaging volume.
- We are expanding the use of renewable energy at our in-house delivery centers.

Response to Climate Change

Reducing Energy Consumption during Product Use

Increasing Air Conditioner Efficiency

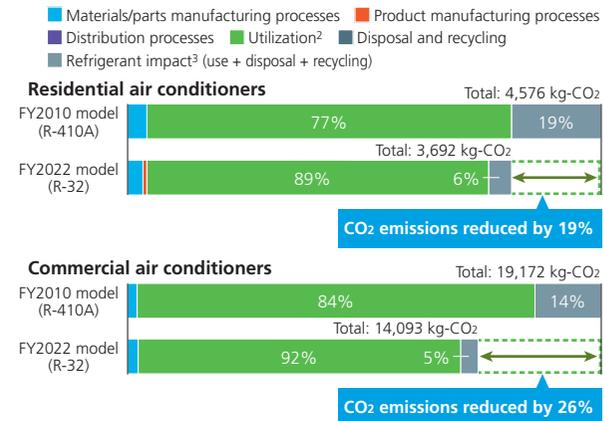
As a manufacturer of air conditioners doing business globally, Daikin makes it its mission to reduce energy consumption in order to provide people with safe and comfortable air and contribute to reducing global warming. To this end, we conduct quantitative environmental assessments for each product life cycle in order to develop products and services that use minimal electricity and to combine these in order to optimize the overall energy consumption of buildings.

Life Cycle Assessment

We assess global warming impact of air conditioners using the life cycle assessment (LCA) method, which allows us to determine the environmental impact at each stage of a product's life cycle.

In the life cycle of an air conditioner, the majority of the greenhouse gas that is emitted occurs from consumption of electricity during the product use stage, and refrigerants also represent a substantial impact. That is why we focus on reducing the impact of these two. In addition to incorporating inverter technology to reduce power consumption, we employ R-32, a refrigerant with low global warming potential, to achieve greater energy efficiency. In fiscal 2022, we reduced CO₂ emissions from residential air conditioners by 19% and from commercial air conditioners by 26% compared to life cycle CO₂ emissions of fiscal 2010.

Example of LCA: Comparison of CO₂ Emissions over Product Lifecycle¹



¹ Based on Daikin standards for 2.8-kW class residential air conditioners and 14-kW class commercial air conditioners.
² The seasonal power consumption is calculated in accordance with the standard of the Japanese Industrial Standards (JIS) for residential air conditioners and the Japan Refrigeration and Air Conditioning Industries Association for commercial air conditioners.
³ Refrigerant impact is calculated by obtaining the global warming potential per unit of weight, while factoring in the average leakage rate during the product use, disposal, and recycling stages.

Improving Annual Performance Factor (APF) and Integrated Part Load Value (IPLV)

In the life cycle of an air conditioner, the majority of the CO₂ that is emitted occurs during product use. Daikin has set strict criteria for energy efficiency in the product use stage in order to improve the energy efficiency of products.

Daikin is working to increase annual performance factor (APF)⁴ and integrated part load value (IPLV),⁵ which are used as indicators of energy efficiency. Among our top models in fiscal 2022, residential air conditioner 6.8 and commercial air conditioner 6.0 saw their APF increase.

⁴ Annual performance factor (APF): The APF represents heating and cooling capacity per kWh over one year of use of an air conditioner under specific conditions. The higher the APF, the better an air conditioner's energy efficiency.
⁵ Integrated part load value (IPLV): The IPLV is an energy efficiency indicator obtained by calculating the weighted average of cooling COPs at four different capacities of machine operation. It corresponds to the APF of a packaged air conditioner. The higher the value, the better the actual energy efficiency of a product.

Promoting the Use of Inverter Products

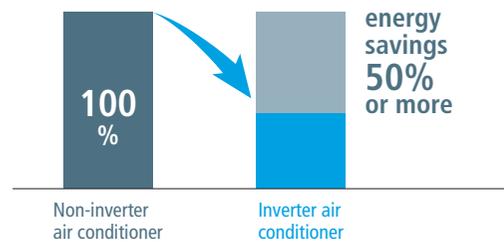
To reduce global warming worldwide, it is crucial to spread the use of highly energy efficient products, such as inverter air conditioners, to all countries. Daikin aims to reduce CO₂ emissions from the use of air conditioners through its initiatives to promote the spread of these products.

Explanation of Terms

Inverter Technology

Inverters are frequency conversion devices that control electrical voltage, current, and frequency. Inverters precisely control the compressor motor, the heart of an air conditioner. Furthermore, in addition to having modified conventional motors and heat exchangers, inverter air conditioners reduce by 50% or more less energy usage than non-inverter models.*

Comparison of energy consumption (example)



*Calculated based on Daikin's demonstration testing.

Spreading the Use of Inverter Products Worldwide

To promote the spread of inverter products in homes, Daikin has been supplying high efficiency and low cost inverter products through a partnership with China's largest air conditioner manufacturer since 2008. In fiscal 2014, we developed an inverter air conditioner at a relatively low price especially for the Asian cooling-only air conditioner market.

We have also worked to develop a mechanism for evaluating the energy efficiency performance of inverter products. To ensure this performance is measured properly, we worked alongside Japan's air conditioning industry to propose the adoption of seasonal energy efficiency ratio (SEER) as an indicator. This approach has been used in ISO standards since 2013. In emerging countries, the use of SEER is starting to spread. Daikin is also working with governments and industry groups in Latin America, the Middle East and other areas to introduce indicators and standards as well as create energy labelling systems as part of support for creating evaluation standards.

Inverter Products as Percentage of All Residential Air Conditioners Worldwide (FY2022)

Market	Inverter percentage
Japan	100%
EU	100%
Australia	100%
China	97%
India	70%
Brazil	55%
Saudi Arabia	37%

Source: BSRIA World Air Conditioning Overview 2023

Feature of Fiscal 2018: Environment—Promoting the Spread of Energy Efficient Technology through Dialogue and Collaboration with Governments and International Agencies

https://www.daikin.com/-/media/Project/Daikin/daikin_com/csr/new/pdf/feature2018/env-pdf

Environment: Creating Standards for a Decarbonized Society Alongside Stakeholders

https://www.daikin.com/-/media/Project/Daikin/daikin_com/csr/new/pdf/feature2020/env-pdf

Providing Solutions

Driven by its core inverter and refrigerant technologies, Daikin's air conditioners help control environmental impact, and not just through individual air conditioners but also via building-wide energy solutions. Through optimal energy management and demand response measures, we are contributing to solving energy problems. In addition, through the creation of cyclical systems and new energy sources, we are also contributing to the creation of sustainable cities.

Proposing Net Zero Energy Buildings (ZEBs)

Daikin is providing building-wide energy solutions that use the company's technologies to solve energy problems. One way we are doing this is by promoting the spread of net zero energy buildings (ZEBs).

A ZEB is a building that achieves dramatic energy savings (at least 50% greater than standards) while maintaining a comfortable air environment. There are three categories: ZEB, Nearly ZEB, and ZEB Ready¹ depending on the energy efficiency rate. Normally, ZEB requires improving the performance of a building's outer layer, using passive energy, incorporating high-efficiency equipment such as air conditioners, ventilation, lighting, and elevators, and using advanced control. Daikin has accumulated knowledge and advanced technology on LED lighting control as well as air conditioners and ventilation systems and their controls. It is possible to achieve ZEB using our unique system that is versatile and popular for application in existing small- and medium-sized buildings with high energy-saving potential as well as new buildings.

Daikin Industries, Ltd. registered as a ZEB planner in response to call for applications by the Sustainable open Innovation Initiative in 2017 and based on its track record of making its own facilities into ZEBs. Going forward, we are focusing on making proposals with ZEB, as well as collaborating on projects with general contractors advanced in making ZEBs in Japan and overseas. In fiscal 2022, all 10 companies in the Daikin HVAC Solution Group which has a network of domestic sales offices, registered as a ZEB planner.

Results of ZEB related activities by Daikin

Activities		Third-party evaluation and recognition
Time	Details	
2015	<ul style="list-style-type: none"> Achieved ZEB for new, large-scale building at our Technology Innovation Center (TIC) 	<ul style="list-style-type: none"> ZEB LEED® Platinum certification (July 2016) CASBEE certification in the S class (evaluation agency: Institute for Building Environment and Energy Conservation [IBEC]) ASHRAE Honors and Awards (October 2017)
2017	<ul style="list-style-type: none"> Received ZEB Ready Distinction in the renovation of Daikin Industries, Co., Ltd. Fukuoka Building Transforming 20-year old small- and medium-sized buildings (constructed in 1996) with high-efficiency air conditioner and ventilation system and control system for AC and LED lighting. Daikin Industries, Ltd. registered as a ZEB planner 	<ul style="list-style-type: none"> ZEB Ready Director-General Prize of Agency for Natural Resources and Energy in the energy conservation best practices category at the fiscal 2018 Energy Conservation Grand Prize, Energy Conservation Category
2019	<ul style="list-style-type: none"> Received ZEB Ready Distinction for a building owned by Anabuki Kosan Inc. Daikin provided energy-saving consulting and ZEB support. First tenant building in Japan to achieve the distinction with over 30-years of age. 	<ul style="list-style-type: none"> ZEB Ready Chairman Prize of Energy Conservation Center, Japan, at the fiscal 2020 Energy Conservation Grand Prize, Energy Conservation Case Category
2020	<ul style="list-style-type: none"> Esaka Building owned by Daikin Industries, Ltd. received ZEB Ready Distinction A 67% reduction in annual energy consumption compared to the standard value.² Received both ZEB and CASBEE Wellness Office certification for energy conservation as well as taking workers health into consideration in the refurbishing of the small- and medium-sized building. 	<ul style="list-style-type: none"> ZEB Ready Received certification of CASBEE Wellness Office A class (evaluation agency: Institute for Building Environment and Energy Conservation [IBEC])
June 2022	<ul style="list-style-type: none"> Daikin HVAC Solution Co., Ltd. (all 10 companies in the Group), which has a network of domestic sales offices, registered as a ZEB planner 	
July 2022	<ul style="list-style-type: none"> The Omiya Office of Daikin HVAC Solution Tokyo Co., Ltd. was recognized as ZEB Ready Achieved ZEB Ready by renovating air conditioning, ventilation, and lighting equipment without renovating the frame in a 24-year-old building. 	<ul style="list-style-type: none"> ZEB Ready

¹ ZEB Ready: A building that consumes at least 50% less energy compared to normal building energy standards.

² Standard value: Energy consumption value of common buildings of the same size (reference building).

Optimal Energy Management at Plants and Factories

The Sakai Plant's Rinkai No. 1 Factory, which commenced operations in June 2018, has been able to reduce electricity consumption during the first year after it began operating by 74.9% compared to the use of a factory-wide air conditioning system. We introduced a task and ambient system that incorporates the optimum air conditioning system for each line. This system also utilizes outdoor air treatment units. Analysis of data from air conditioning monitor system D-BIPS is used to speed up energy efficiency improvements and for optimum controls.

Daikin is now using the knowledge gained from Sakai Plant's Rinkai No. 1 Factory at other plants and factories. In fiscal 2022, we moved ahead with energy efficiency improvements using data analysis at Sakai Plant's Kanaoka Factory and Shiga Plant.

Green Building Certification

Daikin has been busy working toward green building certification at its worldwide bases with facilities whose design, construction, and operation are in harmony with the environment and society. In fiscal 2016, the Technology and Innovation Center earned LEED® Platinum certification. It has also earned the highest certification (S class) in Comprehensive Assessment System for Built Environment Efficiency (CASBEE).

Developing Energy-Efficient Products

Urusara X (R Series) Energy Efficient Residential Air Conditioners

The Urusara X (R Series) of energy efficient residential air conditioners released in October 2021 are residential air conditioners capable of heating and cooling while ventilating. In addition to the existing function of providing air supply, ventilation is added as a new feature that can be switched on according to need. For example, when the indoor temperature is higher than the outdoor temperature in summer, exhaust ventilation is performed, and after the hot air is exhausted, it automatically switches to air supply ventilation. Moreover, we have further enhanced energy saving and comfort with additional features such as the new high-efficiency dehumidifier that applies fine control of the dehumidification level, and Power Select limiting the maximum current.

These products have been awarded the Chairman Prize of Energy Conservation Center, Japan, in the products and business model category of the fiscal 2021 Energy Conservation Grand Prize.



Urusara X

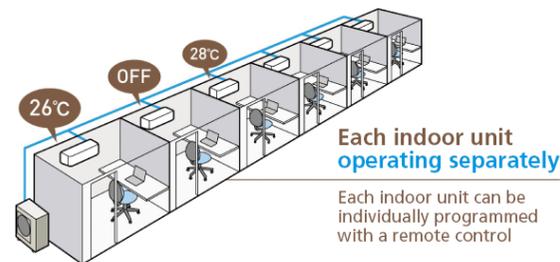
The machi Multi Commercial Multi-Split Type Air Conditioner for Private or Small Rooms

The machi Multi is a commercial multi-split type of air conditioner ideal for private or small rooms in offices or stores launched in October 2021. The machi Multi's outdoor unit and 1.6 kW indoor unit with operating controls suited to small rooms reduce electricity consumption by around 50%¹ compared to conventional models. System settings can also be set individually for each small room.

In fiscal 2022, we released machi Multi for cold regions that delivers stable heating performance even when the outdoor temperature is minus 25°C.

¹ Assumed load conditions: 1 small room of 10 m², cooling according to JIS standard conditions, and temperature set to 25°C.

Individual operation image of machi Multi



SkyAir Series of Air Conditioners for Shops and Offices

The SkyAir series of air conditioners for shops and offices uses R-32 refrigerant with low global warming potential and reduces energy consumption during operation.

In fiscal 2022, we added a new function known as Daikin Smart AI. This function is able to control energy efficiency and electricity conservation of the air conditioner automatically in response to growing demand for greater energy efficiency performance around the world amid surging energy prices.

VRV Series of Multi-Split Type Air Conditioners for Commercial Buildings with Industry-Leading Energy Efficiency Performance

The new VRV6, a multi-split type air conditioner for commercial buildings, uses a complete microchannel heat exchanger to achieve high energy efficiency performance. The GREEN Multi-Split released in 2018, is the first air conditioner for commercial buildings in the industry to adopt R-32 refrigerant with a low global warming potential. This product's global warming potential (GWP) multiplied by refrigerant quantity makes it possible to meet the Kigali Amendment target for 2029. The new model of VRV X released in 2020 is at the top of the industry in the field of multi-split type air conditioners for commercial buildings in terms of energy saving performance.²

In fiscal 2022, we added a new and improved compressor and now the VRV X series ranks at the top of the industry³ in terms of APF. At the same time, we released a high COP type model in the VRV X series that optimizes air conditioning design to achieve ZEB status.

Furthermore, our multi-split type air conditioner for commercial buildings offering substantial energy efficiency performance through linkages with ventilation received the Chairman Prize of Energy Conservation Center, Japan in the product and business category at the fiscal 2022 Energy Conservation Grand Prize, having been recognized for its active Te control introduced in fiscal 2021.

² Daikin research as of December 2019.

³ As of July 19, 2022, based on research by Daikin (in multi-split type air conditioners for buildings).



Retrofit Maintenance Plan: Maintenance Service Makes Existing VRV Multi-Split Type Air Conditioners for Commercial Buildings More Energy Efficient

The Retrofit Maintenance Plan that Daikin has come up with is a service that reduces energy consumption from existing multi-split air conditioners for commercial buildings. The Retrofit System entails replacing parts in the control panel, the air conditioner's brain, and the compressor, the machine's heart, and reducing power consumption by around 13% a year. The replacement parts used with the system weigh less than one-third those normally used in upgrading VRV multi-split type air conditioners for commercial buildings, thereby it also contributes to saving resources.

Since the start of the service, we have been expanding the service application to include more models.

Ene Focus α , Automatic Operating Control Service Provides Continuous Support for Energy Conservation through Remote Monitoring

Released in December 2020, Ene Focus α , is a remote online monitoring service for air conditioners that enables customers to continuously achieve energy conservation in their air conditioner use through automation of an energy-saving operation schedule that suits each user and regular suggestions made to improve operations based on the remote monitoring data. The controller and software needed for energy-saving operation are provided as a subscription service, which eliminates the initial start-up cost and installation cost, while continuously achieving energy savings in air conditioner use.

This service received the Agency for Natural Resources and Energy Commissioner's Award in the products and business model category of the fiscal 2021 Energy Conservation Grand Prize.

 Daikin energy management system Ene Focus α
(available in Japanese only)

https://www.daikincc.com/fcs/service/ene_focus_a/

Industrial Chillers with Low GWP Refrigerants

In February 2021, Daikin became the first in Japan to adopt low global warming potential (GWP) R-32 refrigerant in its 8 to 30 horsepower class air-cooled small- to mid-sized chillers. At the same time, the all-aluminum micro channel heat exchanger significantly reduces the refrigerant charge amount. As a result, it offers best-in class environmental and energy efficiency performance. In fiscal 2022, we adopted R-32 for our 5-horsepower model as well.

In addition, in fiscal 2022, we released an industrial water chiller that adopts R-513A with low GWP.



Air cooled heat pump chiller 10 horsepower (left), 30 horsepower (right)

HEXAGON Force 32 Module Chiller with Expanded Applications for Industrial Processes

In fiscal 2022, Daikin changed the design specifications of its HEXAGON Force 32 high efficiency module chiller, expanding its conventional application from general air conditioning to industrial processes at factories. We are proposing high energy efficiency modular chillers with the aim of helping plants and factories achieve carbon neutrality.

Response to Climate Change

Promoting the Use of Heat Pump Space and Water Heaters

Promoting the Use of Heat Pump Space and Water Heaters

In recent years, growing environmental awareness has led to the spread of highly energy-efficient space and water heaters. In Europe in particular, which has a relatively cold climate, space and water heaters account for more than 80% of household energy consumption, thus there is an ongoing shift from conventional combustion-heat source equipment to heat pump heating that emits less CO₂.

Daikin is engaged in the development and promotion of water heaters and space heaters using highly energy-efficient heat pump technology while striving to increase comfort and reduce CO₂ emissions.

Bringing More CO₂-Reducing Heat Pump Space and Water Heaters to the European Market

Daikin is engaged in the development and promotion of water heaters and space heaters using energy-efficient heat pump technology.

Policies on the use of renewable energy have been promoted in Europe since the late 1990s. In January 2009, the heat pump was recognized in the EU as technology that captures renewable energy and heat pump heaters are being recommended as part of this target. In Europe, which uses a particularly large amount of heating, decarbonization efforts are accelerating with the European Green Deal of 2019. A number of subsidy programs and tax refunds have been announced, leading to the rapid growth of the heat pump market there.

Daikin released Daikin Altherma, a heat pump space and water heater, in Europe in 2006. Since then, we have steadily expanded the product lineup based on the climate and needs of every European country. Furthermore, sales of Altherma are increasing sharply thanks to our fine-tuned services including installation and maintenance.

Product Lineup of Heat Pump Space and Water Heaters in Europe

Time	Details and results of activities
2006	Launch of Daikin Altherma heat pump space and water heater in the European market
2013	Began technical examination at Daikin Asahikawa Laboratory (Asahikawa, Hokkaido) to develop a system adaptable to cold climates worldwide
2014	Sales of hybrid products combining heat pumps and boilers for extremely cold regions
2018	First in the industry to release models using R-32, a refrigerant with low global warming impact
2019	Development of an R-32 geothermal heat source type suited to cold regions
2020	Expansion of models that enable easy plumbing work on site Introduction of R-32 in the large capacity class of Monoblock which requires no refrigerant piping connection process
2020	Released Daikin Altherma 3H HT, an R-32 high temperature discharge type that can replace oil-fired boilers in existing building markets
2021	Released Water Plumbing Kit, which simplifies on-site plumbing construction



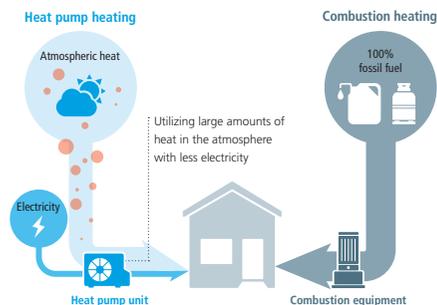
Daikin Altherma heat pump space and water heater for the European market

Explanation of Terms

Heat Pump Technology

The heat pump system is a technology that cools the air and heats water by extracting the heat stored in the air. Compared to carrying out space and water heating using methods in which fossil fuels such as gas, oil, and coal are directly burned, heat pump systems greatly reduces CO₂ emissions.

Heat Pump Heating and Combustion Heating Mechanisms



Increase Proposals of Heat Pump Space and Water Heaters in the North American Market

In North America, mainstream air conditioners are the ducted type, which has ducts that run through the ceilings and sends air to an entire building from an indoor unit. The majority use gas combustion as the heat source, while the ratio of heat pumps in the market is about 30%. Amidst this background, in 2021, the US government announced an environmental policy that aims to achieve net-zero greenhouse gas emissions. The momentum for energy conservation is anticipated to rise even in the market of space and hot water heating.

To meet this demand, Daikin will focus its efforts on proposing and promoting products using heat pumps. We have initiated activities to promote understanding of heat pumps on the West Coast and in Northeastern states that are environmentally advanced.



The Daikin FIT Heat Pump, a residential heat pump for the unitary market sold in North America

 Heat Pump (available only in Japanese)

<https://www.daikin.co.jp/air/technology/our-technology/heatpump>

Promoting Residential Water Heaters and Floor Heaters in Japan

In Japan, water heaters account for 25% of all residential electricity consumption, thus there is a need to switch over to systems with minimal environmental impact to control global warming.

Daikin's heat pump technology is incorporated into ECOCUTE heat pump water heaters and Hot Eco-Floor heat pump hot-water floor heaters. We have continued to update models to improve energy savings, such as by incorporating the ability to communicate with a home energy management system (HEMS), and promoting the use of renewable energy. On the other hand, we have commercialized heat source units for replacement use that can improve energy savings on existing units through partial upgrades.

In fiscal 2021, we increased the capacity of the heat exchanger on the outdoor units of household ECOCUTE models, which improved the annual performance factor (APF) by 0.2 to 0.3 points compared to conventional models. Moreover, in December 2021, we launched the industry's first household heat pump water heater that boils water during daytime* using excess solar power. On occasion of the 2022 model changeover, we added a UVC-LED disinfection function and weather forecast-linked self-run function as new features given the rising demand for disinfection resulting from the COVID-19 pandemic and trend toward carbon neutrality.

* The ECOCUTE model automatically boils water daily to be stored in the water tank.

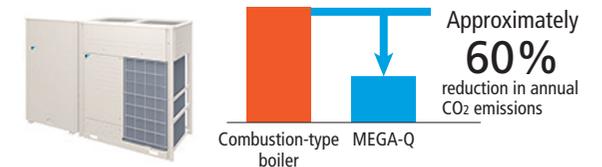
Promoting Highly Energy-efficient Products Including MEGA-Q Large-Scale Heat Pump Hot Water Supply System in the Japanese Commercial Market

In Japan, we are marketing space and water heaters for the commercial market as well using highly energy efficient heat pump technology.

For example, we began selling a new model of the commercial heat pump water heating system (MEGA-Q) for large-scale facilities such as hotels and welfare facilities. Compared to gas-combustion types the updated model in 2012 releases about 60% less CO₂ emissions and is able to reduce running cost by about 60%. Facilities like hospitals and golf courses require changing volumes of hot water daily, and Daikin meets this challenge with a hybrid hot water supply system that provides hot water during base periods with MEGA-Q and that switches to boiler operation during peak periods.

In addition to commercial applications such as these, we will come out with products for processes in factories that must urgently respond to environmental requirements.

Comparison of Annual CO₂ Emissions: MEGA-Q Large-Scale Commercial Heat Pump Hot Water Supply System versus Combustion-Type Boiler



 [025 Feature Environment Contributing to a Carbon-Neutral Society by Promoting Heat Pump Heating](#)

Response to Climate Change

Reducing the Impact of Refrigerants and Building a Refrigerant Eco-cycle

Reducing the Impact of Refrigerants

Working Toward Practical Application of Diversity of Next-Generation Refrigerants

The refrigerant conveys the heat between the indoor unit and the outdoor unit of air conditioners. Although HFC, the most widely used refrigerant in developed countries, has zero ozone depletion potential, it contributes to global warming if released into the atmosphere.

Daikin is accelerating the practical use of air conditioners that use refrigerants with as little impact as possible on global warming. In the selection of refrigerants, we focus not only on their direct effect on global warming but also on their effects throughout the life cycle, including energy efficiency during air conditioner use. We make decisions based on all contributing factors: besides the environmental impact of the refrigerant itself, we look at safety factors such as flammability and toxicity, the cost and availability of the refrigerant, and the expense of producing air conditioners that use the refrigerant.

Daikin's View: Evaluation Index of Refrigerant Selection (common for all applications)



Choosing the Best Balanced Refrigerant for Each Application to Mitigate Environmental Impact

Different characteristics are required of refrigerants, depending on whether they are used in, for example, residential or commercial air conditioners, water and space heaters, or refrigeration equipment. That is why we have spent years conducting research that will enable the selection of refrigerant that is ideal for each application. We have so far conducted research on all types of next-generation refrigerants such as natural refrigerants and HFC refrigerants, and have considered their application in products.

Using the knowledge we have built up, we are providing information worldwide at events such as international conferences, academic conferences, and exhibitions, as well as through research paper presentations, on the global warming impact of refrigerants and measures against it.

Daikin's Refrigerant Direction

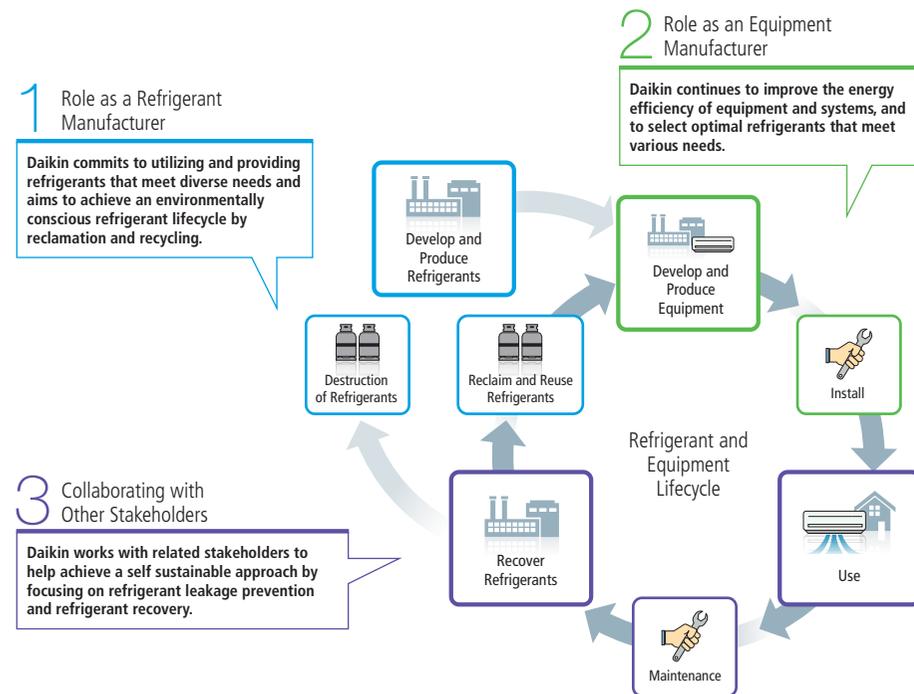
Residential	Commercial, Industrial	
Residential Air Conditioners and Heat Pumps R-32	VRF Systems R-32	Refrigeration Systems R-32, R-407H, HFOs, HFO blends, CO ₂ , Hydrocarbon, etc.
Residential Hot Water Supply Systems R-32, CO ₂	Commercial Air Conditioners and Heat Pumps R-32	Chillers and Heat Pumps R-32, R-1234ze(E), R-1233zd(E), Other HFOs, HFO blends

Initiatives for Protecting the Ozone Layer and Mitigating Global Warming

Focusing on Converting to Alternative Refrigerants and Recovering Fluorocarbons

HCFCs used to be the most commonly used refrigerant, but in the 1980s experts suspected it was depleting the ozone layer, so under the Montreal Protocol developed nations agreed to phase out its production in developed countries by 2020. Daikin has for years worked to mitigate ozone layer destruction by developing alternative refrigerants. In 1991, we began the first mass-production of HFC in Japan, a refrigerant with zero ozone depletion potential. We developed and began selling air conditioners that use HFC as the refrigerant in 1995.

Daikin's Action on Refrigerant and Goals



Kigali Amendment

In 2016, at the 28th Meeting of the Parties to the Montreal Protocol, members voted to phase down the CO₂ equivalent total of HFCs, which have a high global warming potential (GWP). This decision is called the Kigali Amendment, named after the city of Kigali where the conference was held. The Amendment came into effect on January 1, 2019.

A major point of the Kigali Amendment is that it is not meant to phase out HCFCs based on their ozone depletion potential (ODP) but rather phase down the production and consumption of HFCs based on their GWP value. The amount of HFC will not be restricted but rather reduced in terms of total GWP of CO₂ equivalent (weight of HFC in Kg x GWP value). By using lower GWP HFCs, it is possible to maintain or increase the use amount of HFC itself while reducing the overall global warming impact. In enacting the Kigali Amendment, developed countries are implementing reductions based on the common phase-down schedule starting in 2019. The Amendment divides developing countries into two groups, which plan to implement reductions individually.

Upon the introduction of new refrigerants, the Amendment requires an increase in efficiency of air conditioners in addition to a phasing down of HFCs in terms of total GWP.

Daikin is pursuing the following measures in response to the Kigali Amendment.

1. Daikin welcomes the Kigali Agreement for an HFC phase down in CO₂ equivalent under the Montreal Protocol.
2. The main tenet of Daikin's policy is "diversity of refrigerants." And there is no ideal "one-size-fits-all" refrigerant solution for all applications. In the selection of refrigerants, we need to evaluate global warming impacts of refrigerants for each equipment comprehensively such as not only the ODP and GWP value but also safety, energy efficiency, cost-effectiveness, environmental impact, recyclability, and recoverability.
3. Daikin has identified R-32 as a very beneficial refrigerant for single and multi-split air conditioners, packaged air conditioners and heat pumps. Daikin believes that the transition to R-32 will help to meet both the HFC phase down schedule and the HCFC phase out schedule. Daikin is now in the process of evaluating and identifying suitable refrigerants for other applications.
4. To mitigate future global climate change, it is important to take a "Sooner the Better" approach. Early implementation is a key to the further reduction of future impact. As soon as the most balanced and feasible solution for an application is found, Daikin will commercialize and disseminate the technology to contribute to the efforts to mitigate global climate change.
5. Also, while taking a "Sooner the Better" approach, as a refrigerant manufacturer, Daikin will continue to seek the "optimal refrigerant" for every type of application for further mitigation of global climate change.

Mitigate the Global Warming Impact

Promoting the Use of R-32, a Refrigerant with Lower Global Warming Potential

In November 2012, Daikin became the first company in the world to launch residential air conditioners using R-32 (HFC) for the Japanese market; R-32 has just one-third the global warming potential of conventional R-410A (HFC) refrigerant. Since then, we have been expanding these R-32 air conditioners in other countries.

To encourage the adoption of R-32 globally and to help mitigate global warming, Daikin began offering patents related to the manufacture and sales of air conditioners that use R-32 free of charge to companies worldwide.

In addition, Daikin provides technical support in emerging countries by cooperating with governments and international organizations. We provide information and technical support on the impact and countermeasures in relation to refrigerants and global warming. For example, in India, Thailand, and Malaysia, we held seminars for government officials and local industry associations to promote understanding of R-32, and training for local air-conditioning installation and service technicians on the appropriate handling of R-32. In Mexico and Brazil, Daikin was commissioned by the Japan International Cooperation Agency (JICA) to implement projects to spread the use of air conditioners with R-32 refrigerant.

As a result, Daikin has sold more than 42 million R-32 air conditioners in over 130 countries. It is estimated that, including the products of other companies, the worldwide R-32 air conditioner market exceeds 230 million units, whose contribution to CO₂ emissions reduction is estimated at 370 million tons (calculated by Daikin as of December 2022).

Cumulative Total of R-32 Air Conditioners Sold by Daikin (As of December 2022)

Over **42** million air conditioners sold in more than **130** countries worldwide
(Approx. 16 million in Japan and 26 million overseas)



As of December 2022

Refrigeration Products using Natural Refrigerants

In the refrigeration divisions, Daikin supplies specialized air conditioners that can control temperature according to highly detailed requirements, such as for marine containers, production lines at food factories, cold storage warehouses, and display cases for retail stores. Refrigeration products that support the global cold chain from production area to consumer area require the right refrigerant for the right product because of the wide range of applications and temperature ranges.

Daikin began selling a freezing display case that uses R-290 with a global warming potential of 3 in 2019. Since 2020, we have been promoting the use of natural refrigerants mainly in Europe, symbolized by the adoption of CO₂ with a global warming potential of 1 in the Conveni-Pack, an integrated system that performs refrigeration, air conditioning, and heating all in a single unit.

Recovery, Reclamation and Destruction of Refrigerants

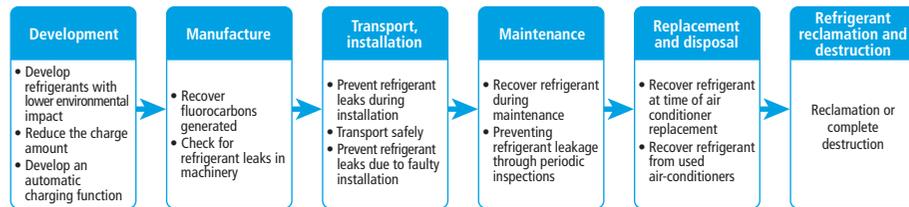
Reducing the Impact of Refrigerants throughout the Entire Life Cycle

The fluorocarbons used as refrigerants in air conditioners have a global warming impact that is several hundred to several thousand times greater than that of CO₂.

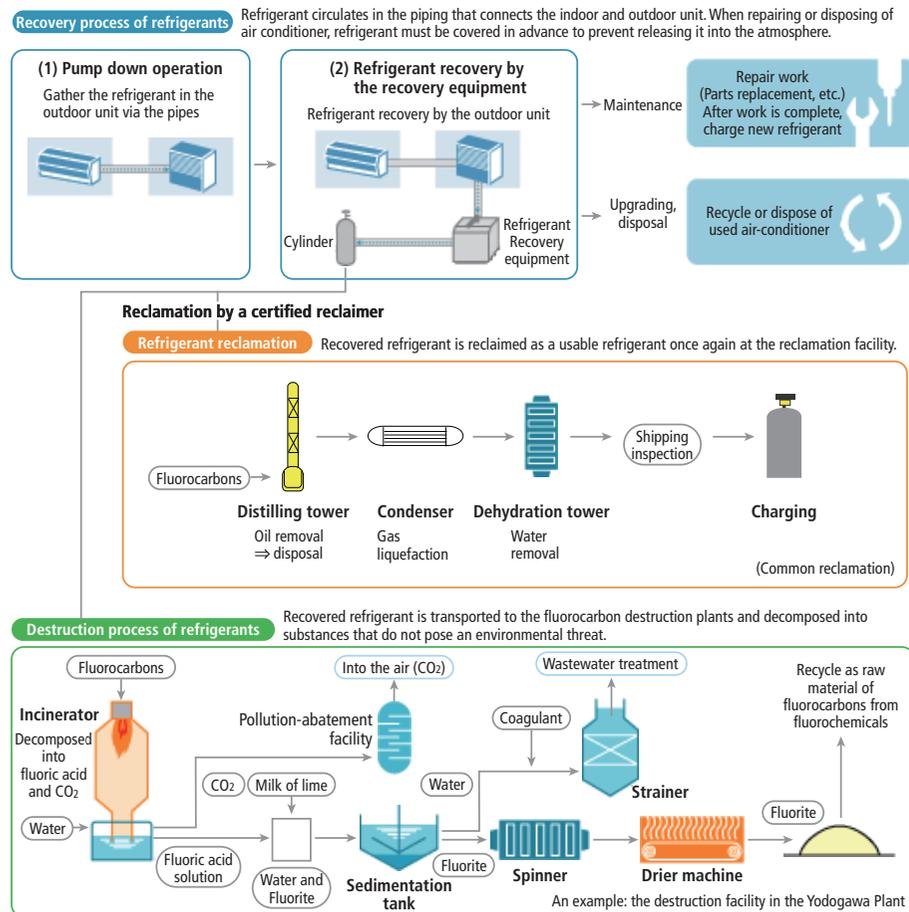
Daikin is the only comprehensive air conditioner manufacturer developing both of refrigerants and air conditioners and engaging in the recovery, reclamation and destruction of refrigerants. In addition to disseminating lower-global-warming-impact refrigerants worldwide, we strictly manage refrigerants during production and after-sales, and we recover, reclaim, and destroy refrigerants at the end of air conditioner life so that we can mitigate environmental impacts throughout the entire life cycle.

At all worldwide manufacturing bases, we recover and destroy refrigerants placed in air conditioners during testing and other processes. We ensure thorough recovery of refrigerants by making sure to recover the refrigerant before conducting any service work at the time of air conditioner repair and replacement, as well as strive to improve our technique in air conditioner installation to prevent refrigerant leakage during product use.

Efforts to Prevent Environmental Impact of Fluorocarbon Emissions



Recovery, Reclamation, and Destruction of Refrigerants



Refrigerant Related Initiatives during Production

Fluorocarbon Recovery Equipment Ensures Proper Destruction of Refrigerants

The fluorocarbons emitted in the production processes of the chemicals divisions are raw materials and by-products in the production of fluorochemical products. We have been installing recovery equipment on production lines and properly destroying the fluorocarbon gases recovered. We also take the fluorite generated during the destruction process and reuse it as raw material for the production of fluorochemical products.

In Japan, in fiscal 2022, we began full-scale operation of a new incinerator at the Kashima Plant, increasing our fluorocarbon destruction capacity by around 20,000 tons-CO₂ compared to the previous fiscal year. Our overseas plants are also working to increase the recovery of PFC-C318, which we recover and destroy using the equipment in each plant or at a contractor.

Ensuring Refrigerant Leakage Prevention when Charging it into Air Conditioners

During the air conditioner manufacturing process at our worldwide manufacturing bases, we do everything possible to prevent refrigerants leakage during charging. Based on the work manual, certified workers thoroughly inspect for refrigerant leaks three times in the process. We also provide training for workers every year. Additionally, we take measures against leakage from equipment such as refrigerating machines used for research and development.

Main Initiatives for Reducing Emissions

- We inspect all pipes for leakage before charging refrigerants and make improvements to pipe couplers (joints).
- If operation inspections show that a product must be fixed, we do so after recovering all the refrigerant from it.
- We take every precaution possible during refrigerant charging to prevent refrigerant from being released into the atmosphere.
- We are converting to lower global warming potential refrigerants.
- We introduced charging machines that largely control emissions during charging.



Recovering refrigerant

Efforts during Installation, Use and Repair

Helping Customers Prevent Refrigerant Leakage

Since April 2015, Japan has strict, mandatory guidelines on managing refrigerant leakages in place for users and managers of commercial air conditioners under the Act on Rational Use and Proper Management of Fluorocarbons. In response, in October 2015, we began offering the free smartphone app “Daikin Fluorocarbon Check Tool (Dfct)” that can easily manage fluorocarbons.

Moreover, in fiscal 2018, we launched the Assisnet Service for use on IoT terminals during inspections. We have made refrigerant leak detection function a standard feature in the VRV6 series of multi-split type air conditioners for commercial buildings released in October 2021, with the email notification feature via Assisnet Service enabled in case of a refrigerant leak. This detection function was recognized as one method for simple statutory inspections in fiscal 2022.

Daikin Industries, Ltd. has operated and managed all equipment in-house using Dfct since fiscal 2018. Moreover, incidents of refrigerant leakage are shared and inspections implemented in striving to prevent future leakage incidents.

 Daikin Fluorocarbon Check Tool (Dfct) (available only in Japanese)

<https://dfct.daikinaircon.com/>

Reliable Repair Work Starting with Refrigerant Recovery

To prevent refrigerant from being released into the atmosphere when repairing air conditioning equipment, the Daikin Group in Japan has deployed refrigerant recovery devices at repair bases nationwide. Repair work is carried out after recovering the refrigerant inside the equipment.

Establish an Eco-Cycle of Refrigerants (Recovery, Reclamation, and Destruction)

System for Recovery, Reclamation and Destruction of Refrigerants in Europe

In Europe, where people are advocating for a circular economy, there is growing demand for the recovery and reclamation of refrigerants from used air conditioners, from the standpoint of the importance of resource recycling and stable supply of refrigerants. Daikin has established a system for recovering, reclaiming and reusing refrigerants from used air conditioners in the European market.

Daikin has established three routes based on the quality condition of the recovered refrigerant, simple reclaiming that removes impurities such as oil and water, full-scale reclaiming that breaks the refrigerant down by component and then readjusts components at a plant to reclaim the quality as good as that of virgin refrigerant, and destruction for refrigerant that cannot be reclaimed. In the process of establishing these routes, we cooperated with A-Gas, a company based in the U.K. that recovers and reclaims refrigerant, and released simple reclaiming equipment under the Daikin brand in fiscal 2019. Daikin Refrigerants Europe GmbH owns a destruction plant in Germany and began operating a reclamation plant there, too. By utilizing this scheme, in fiscal 2019, we commenced sales of VRV L∞P by Daikin air conditioners that use reclaimed refrigerant.

Supporting the Recovery, Reclamation and Destruction of Refrigerants in Emerging Countries

In emerging countries, Daikin cooperates with the Japanese government, national governments and other stakeholders to create refrigerant recovery, reclamation and destruction schemes. In fiscal 2020, a recovery and reclamation system was established in Singapore. Since 2021, Daikin has been considering a recovery system in Thailand and Vietnam.

 Environment: Launched New Refrigerant Service in Europe Contributing to a Circular Economy

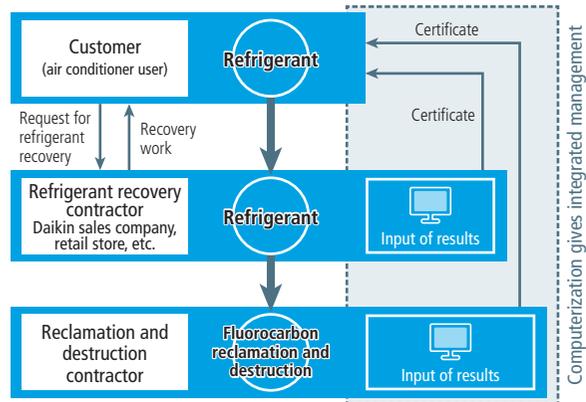
https://www.daikin.com/-/media/Project/Daikin/daikin_com/csr/new/pdf/feature2019/env-pdf

Fluorocarbon Recovery Network System in Japan

In Japan, we are thorough in our recovery of fluorocarbons (refrigerants) from commercial refrigeration and air conditioning equipment. We have created a network system for the integrated management of all information from recovery to reclamation and destruction of refrigerants, including the amount of refrigerant recovered and the amount reclaimed and destroyed by contractors. We are also contributing to the increased efficiency of statutory administrative work conducted by charging, recovery, reclamation and destruction providers to ensure complete compliance with the Act on Rational Use and Proper Management of Fluorocarbons.

Daikin aims to improve the refrigerant recovery rate in Japan by establishing an integrated management structure for the chemical and air conditioning divisions in FY2021 to commercialize the recovery and reclamation of refrigerants.

Fluorocarbon Recovery Network System



See below for the amount of fluorocarbons recovered during maintenance, amount destroyed in fluorocarbon recovery and destruction at time of repair and at time of disposal

[145 Data ESG Data Environment](#)

Fluorocarbon Recovery and Destruction Business on Consignment

We take requests from dealers and other businesses for the proper recovery and destruction of refrigerants. The Daikin Contact Center receives calls all day, every day. Recovered refrigerants are taken to one of the contracted destruction facilities around Japan where they are properly destroyed or handed over to reclaimers authorized under the Act on Rational Use and Proper Management of Fluorocarbons.

Training Technicians for Refrigerant Recovery and Installation

Daikin provides training to its employees and business partners that covers the specialist knowledge and techniques required for recovering refrigerants.

In Japan, we hold training and workshops to educate employees to obtain certifications related to the Act on Rational Use and Proper Management of Fluorocarbons, as well as organize seminars to promote understanding among business partners. Overseas, for example, we conduct certification courses in France and Italy for employees to acquire national qualifications for handling fluorocarbons. In Singapore, we also hold R-32 air conditioner installation and refrigerant recovery technician workshops.

Examples of Training Related to Refrigerant Recovery and Installation (in Japan)

Name of training	Fiscal 2022 results
Refrigerant Recovery Technician preparatory workshop	Target: all employees in Japan handling refrigerants Number of participants: 2,367
First and Second Grade Refrigerant Fluorocarbons Handling Technician preparatory workshop	Target: all employees in Japan handling refrigerants Number of participants: 5,348

Response to Climate Change

Initiatives for a Carbon Neutral Society

Tackling the Challenges of New Environmental Businesses

City-Wide Optimal Energy Management

Daikin is using its technologies in air conditioning, heating and hot water supply to provide energy saving solutions for entire communities in order to resolve energy issues and contribute to sustainable urban development.

Since first participating in the Smart Communities Project in Greater Manchester, UK, in fiscal 2014, we have gone to be involved with a decarbonization verification projects for home heating in Lisbon, Portugal and Brussels, Belgium, along with the Innovation Ecosystem project for the redevelopment of the former site of Expo Milano in Italy. Since fiscal 2020, we have been building a district-level centralized cooling system to optimize control for the entire Tengah Town being developed by the Government of Singapore.



Conceptual image of Tengah Town, a smart city in Singapore (planned completion in 2024)

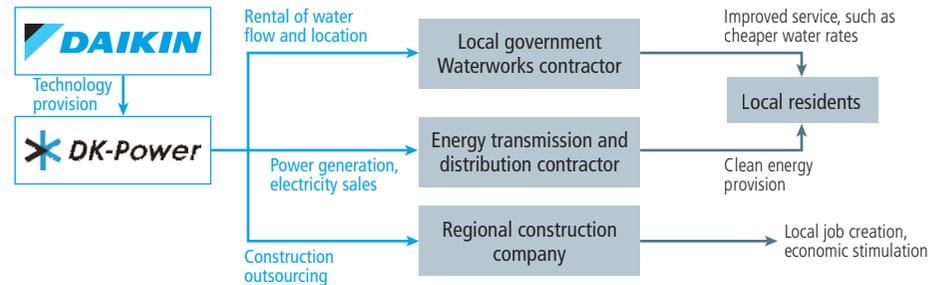
Creating Energy with Micro-hydroelectric Power Generation

Daikin proposes micro-hydroelectric power generation systems using its air conditioning and hydraulic machinery technologies.

Micro-hydroelectric power, which utilizes the energy of water flows that occur in rivers or waterways, can be installed not only in mountainous regions, but also in a number of different locations closer to communities as long as there is a flow of water. This energy source has garnered high expectations as the water wheel of the future. Nevertheless, micro-hydroelectric power has yet to spread because of the high cost versus actual generation and the size of equipment.

Daikin successfully developed a compact, low-cost pipeline-type micro-hydroelectric power generation system. The technology to convert water flows to electricity makes it possible to create energy without ever producing CO₂ during the power generation process. We commercialized this technology following three years of demonstration testing after government funding was approved in 2013 under the Low Carbon Technology, Research, Development and Demonstration Program of Japan's Ministry of the Environment (MOE). In June 2017, Daikin Industries, Ltd. established DK-Power, Ltd., a subsidiary engaged in the power generation business using micro-hydroelectric power generation systems. DK-Power installs micro-hydroelectric power generation systems at facilities owned by local governments and then manages and operates them while selling the electricity generated. Going forward, DK-Power will continue to engage in the renewable energy power generation business together with the cooperation of various water service providers of local governments along with construction companies and electricity transmission providers in the local community.

Business Model Using DK-Power's Micro-hydroelectric Power Generation System



DK-Power, Ltd. (available in Japanese only)

<http://www.dk-power.co.jp/>

Response to Climate Change

Contribution through Fluorochemical Products and Oil Hydraulic Products

Fluorochemical Products

Fluorine Characteristics Help Improve the Performance of Lithium-Ion Batteries

As the promotion of renewable energy is seen in policies of each country and region globally, lithium-ion batteries as power storage system that are indispensable have attracted attention.

We offer gasket and binder materials that utilize the characteristics of fluorine for use in lithium-ion batteries. In addition, we are also undertaking development of binders that do not rely on solvents as a next-generation material.

Apart from in-house development, we also emphasize developing and expanding applications for fluorine materials through collaboration with other businesses. As part of this, we have been investing in other companies, including start-up businesses. In fiscal 2021, we invested in OCSiAl S.A., a Luxemburg-based single wall carbon nanotube manufacturer. In fiscal 2022, we purchased shares of TeraWatt Technology Inc. based in the United States in July through third-party allotment. The company is a start-up business involved in research and development of next-generation high energy density lithium-ion batteries.

Development of Next-Generation Refrigerants for Electric Vehicles (EV)

Daikin has been developing next generation refrigerants for automobile air conditioning systems.

Heat pumps are gradually being used in battery-powered electric vehicles (BEV) since it is difficult to utilize waste heat from air conditioners. However, the existing R-1234yf refrigerant has a limited heating performance when the outside temperature is low, and must be used in conjunction with an electric heater, which results in loss of driving range. The new refrigerants under development are capable of heating when outside temperature is low, thereby reducing the burden on the electric heater,

which can dramatically extend the driving range of BEV. It also features a small global warming potential at under 10. Going forward, we will continue to evaluate its performance with the aim to eventually introduce it to vehicles.

Refrigeration Equipment Lineup with Lower Global Warming Potential Refrigerants

Daikin is gradually expanding product lineup of refrigerants with a lower global warming potential (GWP) than the R-404A refrigerants used in most conventional refrigeration equipment.

In addition to our R-407H refrigerant developed in-house, we also released the R-448A product manufactured by Honeywell International Inc. in Japan in 2020. We are also conducting in-house development of next generation refrigerants with zero GWP for air conditioners use.

NEOFLON ETFE EP-Series

<https://www.daikinchemicals.com/solutions/products/fluoropolymers/neoflon-etfe.html>

Oil Hydraulic Equipment

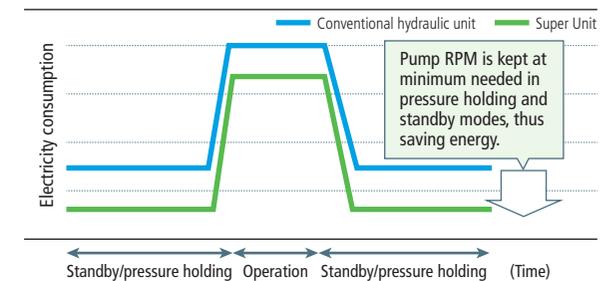
Energy-Efficient Hybrid Hydraulic Super Unit

Daikin also continuously pursues greater energy efficiency for hydraulic units for factory production lines.

The energy-efficient hybrid hydraulic Super Unit employs the same motor inverter technology that is used in Daikin's energy-efficient air conditioners. The Super Unit determines the load on the machine, depending on whether it is in standby, operation, or pressure holding mode, and automatically controls the pump at the necessary RPM. The result is energy savings of more than 50% in pressure holding mode (compared to Daikin piston pumps). For use on presses, vulcanizers, casting machines, and a wide range of other industrial equipment, it contributes to dramatic energy savings and lower CO₂ emissions. We introduced new models and expanded the lineup in 2014. In 2017, we launched two 37-kW-models compatible with large machines.

The Super Unit is widely used on industrial equipment around the world and has been highly rated for its superior precision and energy efficiency.

Electricity Consumption of Super Unit and Conventional Hydraulic Unit



EcoRich Energy-Efficient Hydraulic Unit

EcoRich was developed in 1999 and was the world's first product to combine hydraulics technology and air conditioner motor inverter technology. It achieved approximately 50% lower energy consumption compared to Daikin's piston pump.

In 2016, this product underwent a model change with the incorporation of a high-efficiency IPM motor. Among its many features were a 30% decrease in energy consumption over the previous model. In addition, we have also been selling 400 V transformerless models capable of direct power connection since 2018.

Oil Cooling Units

In machine tools, Daikin's Oil Cooling Unit makes possible detailed temperature control of the lubricating and cooling oil, which has a major effect on the precision of the work. Daikin's 9 Series Oil Cooling Unit allows temperature adjustment to $\pm 0.1^{\circ}\text{C}$. In addition, with inverter control and the most advanced compressor, it offers 45% greater energy efficiency than conventional on/off controllers. In fiscal 2020, we left the 9 Series as is with its high energy efficiency, and released the 10 Series, a compact, light-weight, transformerless 400 V model, and expanded our product lineup in fiscal 2021.

At the same time, we are also developing some models in the oil cooling unit lineup in a water-cooling type. This style of product eliminates heat outside of the factory using cooling water in order to eliminate waste heat from general air-cooling-type Oil Cooling Units inside a factory. We released some models in fiscal 2018, and have been gradually expanding on the model lineup.



Transformerless 400 V Oil Cooling Unit

 Daikin's Hydraulic Equipment

<https://www.hyd.daikin.com/>

Sustainable Use of Resources

Resource Recycling

Basic Policy

Contributing to a circular economy requires the effective utilization of resources during product design and production processes. Daikin is working to reduce its use of resources, recycle, and increase the recyclability of its products. Our priority is to establish a recovery and reclaiming system of refrigerants that are essential to our mainstay products of air conditioners.

See below for our water resource conservation and reduction of waste emissions

[063 Environment Environmental Impacts in Business Activities Water Resource Conservation](#)

[064 Environment Environmental Impacts in Business Activities Managing and Reducing Emissions and Chemical Substances](#)

Recovery and Recycling of Resources

Establishing an Eco-cycle of Refrigerants (Recovery, Reclamation, and Destruction)

The recovery and reclamation of used air conditioner refrigerants from the market not only contributes to reduced emissions of greenhouse gas, but is also important in terms of resource recycling and stable supply of refrigerants. As part of our social responsibility as an air conditioner manufacturer, Daikin promotes the establishment of a refrigerant recovery and reclamation system.

See below for our efforts to reduce the impacts of refrigerants and build a system for the eco-cycle of refrigerants

[049 Environment Response to Climate Change Reducing the Impact of Refrigerants and Building a Refrigerant Eco-cycle](#)

Reducing the Amount of Resources Used

Repair System Aimed at Increasing Product Longevity

Making products that last longer means that fewer resources are used. To this end, Daikin is strengthening its repair system by establishing service outlets around the world to address customer repair requests and questions and enquiries regarding products.

In Japan, the Daikin Contact Center is open 24 hours a day, every day of the year to take inquiries and receive requests for repairs. We strive for even greater customer satisfaction by improving the technical expertise and etiquette of our service engineers through an engineer certification system. Also, to make repair requests more accessible, the telephone Contact Center staff follows a support system that promptly asks for necessary information on the phone and provides adequate directions, and we offer more ways of reaching us other than by telephone, such as through the Internet.

We are also working to strengthen our service network in each country. By introducing service management systems, we are making workflow more efficient and providing more high-quality and transparent service in every phase of customer interaction including through our service engineers and our partner companies.

Making Smaller and Lighter Products

Making products smaller and lighter is effective for reducing the amount of resources used. When making air conditioners, for each product we set weight reduction targets for both the entire product and its components.

However, if making it smaller and lighter means compromised energy efficiency, then the product's environmental performance throughout the entire lifecycle has not yet been improved. When Daikin develops products, we establish weight reduction targets for each product on the condition that the annual performance factor (APF) does not decrease.

Reducing Packaging Materials

Daikin has established a target to reduce CO₂ emissions related to packaging design by 600 tons-CO₂ compared to fiscal 2020 in fiscal 2025 by developing environmentally conscious packaging. In fiscal 2022, we established a target of 240 tons-CO₂ and achieved positive results in reducing our use of polystyrene foam. We will continue working toward adopting alternative materials to eventually eliminate our use of polystyrene foam to rein in any increases in our total use of packaging materials.

CO₂ Emissions Reduction Achieved with Packaging Improvements* (Air Conditioners)



* Reduced usage of packaging materials and promotion of returnable packaging.

Switching to Materials with Relatively Smaller Environmental Impact

The main materials used in air conditioners are metals such as iron, copper, and aluminum. Of these, copper faces the issue of over mining which leads to lower ore grade, while its demand is expected to increase as society strives to decarbonize. Daikin is working to reduce the amount of copper it uses through the establishment of replacement technologies.

In addition, the circular use of plastic resources is also another major challenge. Daikin is making efforts to use recycled materials and alternative materials in its products as well as reduce the amount of plastic-derived packaging materials it uses.

Promoting Recycling

Product Design That Enables Easy Sorting and Recycling

We consider a product's recyclability from its design phase. We adopt the use of resins that are easily recyclable and structures that can easily be dismantled, and promote the labeling of materials for sorting and recycling. In addition, Daikin also strives to reduce parts and develop structures with improved recyclability.

See below for our environmentally conscious design

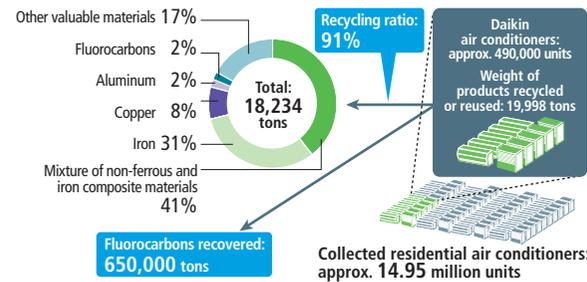
[038 Environment Environmental Management Environmentally Conscious Design](#)

Home Appliance Recycling

Japan's Home Appliance Recycling Law obligates manufacturers to recycle at least 80% of the material from their own residential air conditioners as well as recover and then reuse or destroy refrigerants.

In fiscal 2022, we recovered about 490,000 units totaling 19,998 tons. The recycling ratio was 91% and the amount of fluorocarbons recovered was 650,000 tons- CO_2 .

Recycling of Residential Air Conditioners in FY2022 (Japan)



See below for our home appliance recycling results

<https://www.daikin.com/csr/environment/resource/data>

Main Results in Fiscal 2022

The main results of development and other initiatives in fiscal 2022 related to resource conservation and resource recycling are presented below.

Small capacity ZEAS

- Reduced weight by adding aluminum finned coil heat exchanger unit
- Switched heat exchanger tubes from copper to aluminum and improved recyclability by using fully aluminum heat exchangers
- Changed four-way valve from brass to stainless steel

VRV

- Added scroll compressor and reduced weight
- Changed some piping from copper to stainless steel
- Changed fan motor coil from copper to aluminum

Reduction of packaging materials

- Reduced the amount of packaging material for ducted air conditioning units manufactured in Thailand for the United States market by 37% by changing the orientation during transport from horizontal to vertical. Realizing improved container load efficiency.
- Adopted returnable packaging for part of the VRV series

Topics

Received Packaging Technology Award at the Fiscal 2022 Japan Packaging Contest

The EcoCute packaging design developed by Daikin Industries, Ltd., Rengo Co., Ltd., and Showa Marutsutsu Company Ltd. received the Packaging Technology Award at the 2022 Japan Packaging Contest organized by the Japan Packaging Institute.

During development, the team sought the cooperation of a logistics provider to investigate loading work using the actual load-carrying tray for the EcoCute W-angled type tank. The team identified areas where the product needed to be protected and quantitatively analyzed the appropriate buffer distance. In addition, the material and size

of the packaging material were improved. The design philosophy was also changed to protect the product by the buffer distance rather than the strength of the containerboard.

As a result, the design reduces the amount of containerboard used and the total usage of packaging materials, which in turn reduces annual CO_2 emissions by an equivalent of 260 tons.



Packaging used for EcoCute W-angled type tank after modification

Protecting Biodiversity

Protecting Biodiversity

Basic Policy

Protect and Rejuvenate the Gifts of Nature

Our society today is made possible in many ways by the riches of nature. The lifeblood of nature is biodiversity. Daikin promotes a balance between irreplaceable nature and ecosystems around the world and makes efforts to restore nature's riches and vibrancy.

Greenhouse gas emissions that occur during the course of our business activities have a major impact on biodiversity. We strive to reduce these emissions through the entire lifecycle of our products and minimize how our business activities affect biodiversity.

At our business locations and in local communities, our employees actively work with governments, local community members, and NPOs or NGOs on initiatives to preserve and restore nature. We are also committed to forest conservation around the world as part of our environmental and social contribution activities. Forests provide us with oxygen through photosynthesis, they act as natural air conditioners by giving off water vapor that keeps atmospheric temperature from rising, and they act as air purifiers by removing pollutants from the atmosphere. As a company whose job is to provide comfortable air environments, Daikin focuses on protecting and fostering the natural riches of forests, which we call "nature's air conditioners."

The ideas stated here form our Basic Philosophy on Protecting Biodiversity, which we established in September 2010.

 [176 Data Policies, Regulations and Guidelines Basic Policy of Protecting Biodiversity](#)

Efforts at Bases

Shiga Plant Rejuvenates a Community Forest for Coexistence Between People and Nature

In 2012, the Shiga Plant began developing a biotope on its premises called the Daikin Shiga Forest in an effort to reproduce the satoyama once found in this area. Satoyama is a Japanese term that refers to the area between arable land and mountain forests. To create a forest habitat for native fireflies, employees are working to remove non-native species, tend to the forest, raise and release local firefly larvae, conduct surveys of their population and host firefly viewing events.

In fiscal 2020, employees planted 50 water iris seedlings grown locally to commemorate the Shiga Plant's 50th anniversary. By replacing the yellow iris, a non-native species that had propagated in the plant's pond, with water iris,¹ employees are helping to restore the rich waterscapes once found there. In fiscal 2021, employees successfully began breeding frogbit,² a freshwater herb, collected from Yabase Kihan Island in Shiga Prefecture.

The plant is also committed to environmental education. For example, it uses the Daikin Shiga Forest as a venue for nature viewing events for employees' families and students from nearby elementary schools.

1. A naturalized native plant from Western Asia to Europe designated as an invasive alien species for priority removal in the Ministry of the Environment's list of alien species.
2. A floating native plant distributed throughout Japan except Hokkaido. Due to environmental changes in rivers and lakes, it has declined rapidly and was listed as a near-threatened species in the Ministry of the Environment's Red List in 2020.



Daikin Shiga Forest



Firefly viewing event



Employee-led forest stewardship activities

Nature Forest at Yodogawa Plant

The Nature Forest at Yodogawa Plant was developed in conjunction with the opening of the Technology and Innovation Center (TIC) as a place for engineers to relax, unwind, and shift their thinking in fiscal 2015. Natural tree species and shapes are planted here to recreate the original landscape of the satoyama in Hokusetsu. Instead of leaving the forest up to natural selection, our employee volunteers have been working steadily to prune and thin out plants. As a result, the forest has evolved into a place where a variety of species live and visit, including Peregrine falcon, musk swallowtail, Calopteryx atrata, and raccoon dog. We aim to create a forest of fireflies, a symbol of the plant's safety, reliability and cleanliness that also serves as a place for employees to increase their environmental awareness and interact with the local community.



Riverbed cleaning



Stag beetle



Musk swallowtail

Creating Habitats for Living Things with the Biotope at the Sakai Plant

A biotope was set up at the Sakai Plant in 2012 to establish a habitat for living things found in Sakai City. Since then, greening activities have been conducted around the biotope involving employees and their families through company functions and events.

Currently there are many aquatic lifeforms in the biotope at Kanaoka Factory, which is surrounded by residential areas, including fish such as *Oryzias* and *Pseudorasbora parva*, and others like giant dragonfly larva and *Bellamyia quadrata histrica*. Also, birds such as spot-billed ducks and wagtails have come to visit. Going forward, we will further promote our activities with a

medium- to long-term vision to host living things using rare butterfly species, such as chestnut tiger and musk swallowtail, as indicators, while obtaining advice from experts.



Biotope at Kanaoka Factory



Ecological survey



Oryzias and Pseudorasbora parva

Daikin Ales Aoya Training Center Works to Protect and Rejuvenate Natural Forests on Coastal Dunes and Beaches

Daikin Ales Aoya in Tottori Prefecture, Japan is a center for the training of employees who will be active on the world stage.

The facility is located at Idegahama, a beach known for its “whistling sand.” The area is home to a typical coastal vegetation ecosystem: starting from the beach gradually giving way to taller trees. However, this coastal vegetation has been rapidly disappearing in the last decade or two.

When Daikin Industries, Ltd. began to not just protect these rare beaches and dunes, but also bring back the nature that had been lost so that this coastal ecosystem could once again return to its natural state, we began by surveying the region’s vegetation, based on which we made a proposal to plant vegetation. After implementation, we had advice from experts in the monitoring and fostering of the vegetation.

These activities were recognized with Excellent Stage 3 certification, which is the second highest level on the 5-step evaluation of the SEGES social/environmental contribution greenery evaluation system run by the Organization for Landscape and Urban Green Infrastructure.



Daikin Ales Aoya (overview)



Mark of certification for the SEGES (Social and Environmental Green Evaluation System)

Projects in Surrounding Neighborhoods

Rejuvenating Community Forests in Osaka Prefecture

Daikin has been involved in Satoyama restoration in Harashiroyama forest in Takatsuki City, Osaka Prefecture since fiscal 2012 and in Izuhara in Ibaraki City since fiscal 2016. Both of these efforts are part of the Prefecture of Osaka’s “Adopt a Forest” project, in which the prefecture mediates companies’ purchases from private landowners so that forest land is preserved.

At Harashiroyama forest, which was traditionally used to harvest bamboo, and to obtain wood for firewood and making charcoal, Daikin is working with local residents to thin out and rejuvenate this local forest in order to restore productivity of the bamboo forests that have fallen into disrepair due to overgrowth. In fiscal 2022, we held six forest development activities, with 35 employees participating at Harashiroyama and 77 at Izuhara.

Initiatives around the World

Biodiversity Conservation Activities at Overseas Bases

Daikin is working at its worldwide business locations to conserve biodiversity through activities such as tree-planting, and protection of nearby oceans and rivers.



Daikin Airconditioning (Singapore) Pte. Ltd. Tree-planting activity in the community



Daikin Compressor Industries Ltd. Tree-planting volunteers at a local forest

[123 Social Communities Protecting the Environment](#)

“Forests for the Air” Project Helps Preserve Irreplaceable Resources—The World’s Valuable Forests

In 2014, Daikin launched its “Forests for the Air” project aimed at preserving valuable forests in seven locations around the world. The goal for the project’s 10-year period is to conserve forests covering some 11 million hectares and in the process contribute to reducing over 7 million tons of CO₂ emissions.

[“Forests for the Air” Project](https://www.daikin.com/csr/forests)
<https://www.daikin.com/csr/forests>

Environmental Impacts in Business Activities—Production

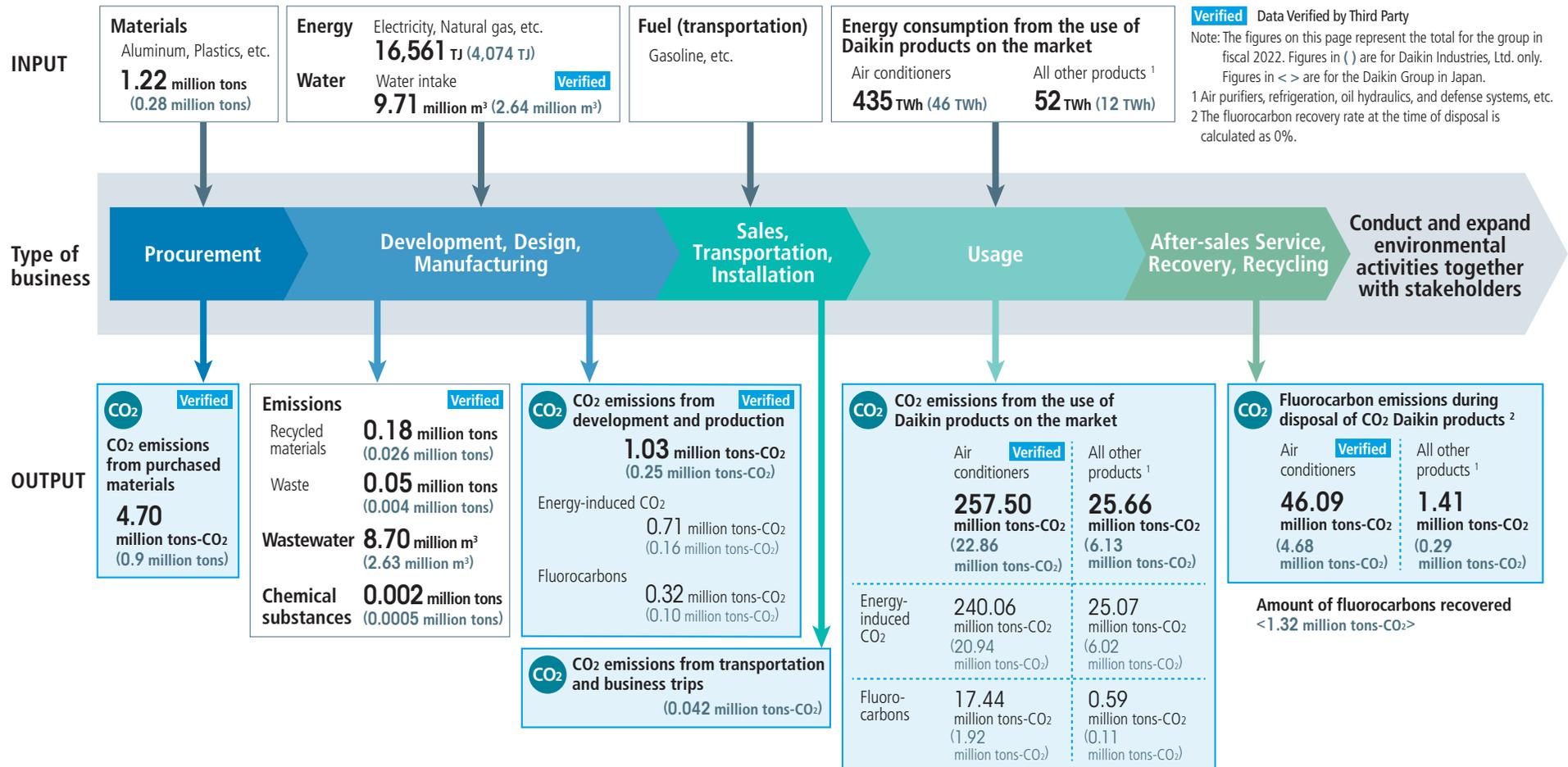
Overview of Environmental Impacts

Updated in Nov. 2023

The Daikin Group measures the impact that its business activities have on the environment throughout the value chain: in materials procurement, development, production, transportation, installation, product use, recovery, and recycling. Air conditioners are products that consume large amounts of electricity, and within their product lifecycle, the energy consumed during product use makes a particularly large contribution to climate change.

See below for our method of calculating greenhouse gas emissions data, ESG data: GHG emissions in the value chain (Scope 1, 2, 3)

[166 Data Third-Party Verification Method of Calculating Greenhouse Gas Emissions Data](#)



Environmental Impacts in Business Activities—Production

Water Resource Conservation

Risks and Opportunities Related to Water Resources

Daikin is improving its management of water use at its manufacturing bases around the world.

Recognizing that impacts on operations caused by water shortages pose a risk, we assess water stress levels—more specifically, supply-demand conditions—in regions around the world where we operate manufacturing bases. We also conduct the same assessment on our major business partners and have established water conservation items within the Green Procurement Guidelines. Furthermore, the chemicals divisions, which use large amounts of water, have located manufacturing bases in major river basins with direct access to water resources.

On the other hand, we also recognize that reducing water usage represents an opportunity to lower production costs. We are working to reduce water intake volume, having defined the difference between water intake and water discharge volumes as water consumption volume. All water that is used is treated and purified so it can be returned to water intake sources. For water purification, Daikin has set its own voluntary standards that are even stricter than legal requirements, which it always strictly adheres to.

Addressing Water Risks

Daikin has investigated areas of water stress since 2014 using the water risk map of the World Resources Institute (WRI) called Aqeduct and the Global Water Tool of the World Business Council for Sustainable Development (WBCSD). As a result, we have identified Daikin Device (Xi'an) Co., Ltd. and Daikin Airconditioning India Pvt. Ltd. as located in areas of high water stress. Both companies have since added rainwater storage pits and taken other countermeasures, along with formulating a business continuity plan (BCP) in case water shortages impact operations.

Amount of Water Intake and Wastewater in Water-stressed Regions (India, China)

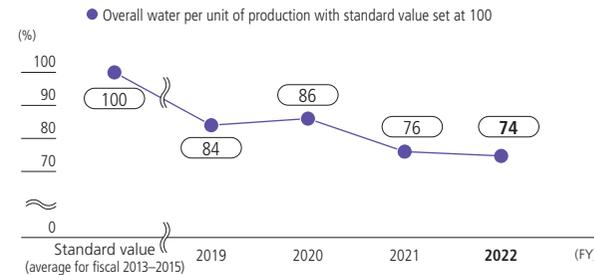
		2018	2019	2020	2021	2022
		(thousand m ³)				
India	Water intake	59	58	50	57	53
	Wastewater	59	43	37	48	42
China	Water intake	26	25	26	22	23
	Wastewater	21	20	21	17	19

Water Intake Reduction

Reducing Water Intake per Unit of Production

Daikin has established a goal of reducing water intake per unit of production by 10% in fiscal 2025 compared to a baseline comprising the average water intake between fiscal 2013 and fiscal 2015. For example, we reduced water intake volumes by reusing water used for cleaning and other processes after purifying it with reverse osmosis membranes and activated carbon.

Water Intake per Unit of Production



See below for our water intake and wastewater trends, Chemical Oxygen Demand (COD) emissions [145 Data ESG Data Environment](#)

Engagement with Stakeholders

Daikin uses water at each of its manufacturing bases during the cleaning and painting processes for air conditioner parts. This water is released after being treated. At our plants in Japan, we regularly hold discussions with local residents once every year where we share information about such initiatives concerning water.

Environmental Impacts in Business Activities—Production

Managing and Reducing Emissions and Chemical Substances

Reducing Emissions

Basic Policy and Initiatives in the Production Process

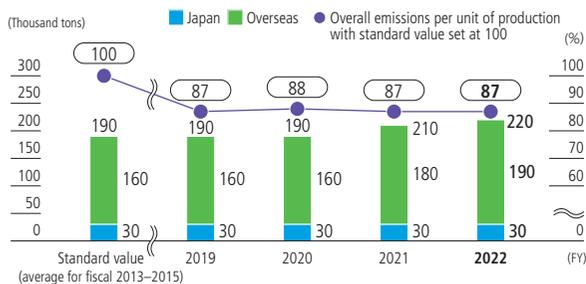
Daikin is working not only to recycle waste generated during its production processes, but is also to reduce the amount of waste it generates.

Waste Reduction in Production Processes

Daikin is working to reduce waste emissions from production processes, including hazardous waste, as well as endeavoring to reuse or recycle waste emissions. With the average for fiscal 2013 to 2015 as our standard value, we have set a target of reducing fiscal 2025 emissions per unit of production across the entire Group by 10%. In order to reach this target, we are committed to reviewing the production process and reducing deficiencies through equipment renewal.

In fiscal 2022, we achieved a 13% reduction in emissions per production unit against the standard value.

Emissions/Emissions per Unit of Production



Management and Reduction of Chemical Substances

Basic Policy

Daikin makes efforts to prevent pollution caused by products and prevent pollution from plant operations. We request that materials suppliers thoroughly prevent the inclusion of prohibited chemical substances from entering our products in accordance with legal regulations. In addition, we manage and reduce emissions of chemical substances handled in the manufacturing process, as well as monitor voluntary standards for hazardous substance emissions in the air and water.

Compliance with Restrictions on Hazardous Chemicals

Management of Chemical Substances Contained in Products

Daikin has a list of designated control substances that are restricted under the RoHS Directive,¹ the REACH Regulation,² and other laws. These are stated in our Green Procurement Guidelines and we work to prevent the presence of these chemicals in our products.

1. The RoHS Directive (Restriction of Hazardous Substances Directive) 2011/65/EU is a regulation in the EU prohibiting the use of certain hazardous substances in electrical and electronic equipment.
2. The REACH Regulation 1907/2006/EC on chemical substances went into effect in Europe in June 2007. REACH obligates companies manufacturing or importing at least 1 ton of chemical substances a year in the EU to register with EU authorities. REACH covers almost all chemicals on the market in the EU.

Green Procurement Guidelines

https://www.daikin.com/csr/social/green_gl

Compliance with J-Moss

<https://www.daikin.com/csr/environment/j-moss>

Products that Help Prevent Air Pollution

Fluorine Materials for Automobiles that Suppress VOC Leakage

The automotive industry strictly regulates the transpiration of volatile organic compounds (VOCs), which contribute to air pollution. Daikin supplies fluorine materials that contribute to the prevention of air pollution.

NEOFLON CPT is a material for automobile fuel tubes and hoses that prevents permeation and leakage of VOCs in the hot engine surroundings. It reduces permeation to just one-fifth of Daikin's previous product, NEOFLON ETFE. The DACS VOC processing device is a system that purifies air by breaking down, condensing, and oxidizing harmful substances in exhaust gases, such as VOCs and odors.

Automobile Fuel Hose Made of Fluororesin



Laminated hose made of general purpose rubber

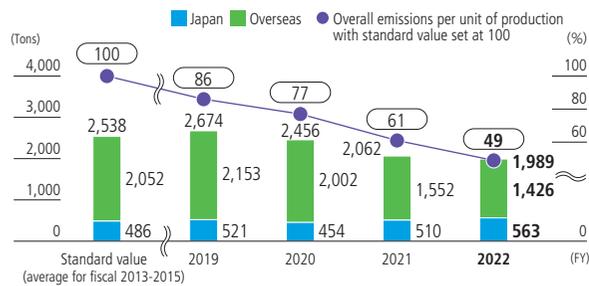
Management and Reduction of Chemical Substances during Production

Establishing Reduction Targets for PRTR-regulated Substances and VOC

Each Daikin business base in Japan and overseas takes initiative in reducing a variety of chemical substances.

We are working toward a target of reducing emissions per unit of production (total of PRTR substances and VOCs) in fiscal 2025 by 10% against the standard value (average for fiscal 2013–2015). In fiscal 2022, we achieved a 51% reduction against the standard value.

Chemical Emissions / per Unit of Production (total of PRTR substances and VOCs)



See below for our compilation of PRTR substances

[145 Data ESG Data Environment](#)

Daikin’s approach to PFOA

Daikin Industries, Ltd. and its all affiliates has ceased the manufacture and use of perfluorooctanoic acid (PFOA) and related substances as of the end of calendar year 2015. Our Yodogawa Plant (Settsu City, Osaka Prefecture, Japan) has voluntarily implemented measures such as pumping and cleaning up of groundwater to date in response to the detection of PFOA in the groundwater around the plant. As the company that manufactured and used PFOA in the past, we will continue to monitor trends relevant to PFOA and to take action in consultation with the local authorities.

Initiatives for PFOA

https://www.daikinchemicals.com/company/sustainability/pfoa_top.html

Storage and Treatment of PCBs

Daikin abides by national laws in properly managing equipment containing PCBs (polychlorinated biphenyls). Treatment of all waste containing high PCB concentrations was completed. Waste with low PCB concentrations is being disposed of based on a Daikin disposal plan.

Preventing Pollution

Minimizing Environmental Damage in Case of Accident or Disaster

Daikin has systems in place that allow it to minimize environmental damage if there should be an accident or calamity at Daikin manufacturing bases around the world. Our Disaster Prevention Manual details how to deal with emergencies like chemical and oil leaks, spills, and earthquakes. The manual is the basis for regular emergency drills. For example, evacuation training is held based on the scenario of plant accident and tsunami caused by an earthquake, while disaster prevention training is held twice a year based on the scenario of a fire occurring as a secondary disaster at Kashima Plant where Daikin Chemicals is located. In addition, other training was held twice at Shiga Plant and four times at Sakai Plant in fiscal 2022.

Monitoring of Pollutants

Daikin controls air and water pollution using voluntary standards that are stricter than national emission standards and local government by-laws. We regularly measure our various environmental impacts and work to either prevent or decrease them.

Environmental Impacts in Business Activities—Production

Developing and Promoting Products and Services That Reduce Environmental Impact

Daikin is working in numerous areas to reduce environmental impact, such as by developing and promoting products including high energy efficiency inverter units, refrigerants that have a lower global warming potential, and heat pump heaters that offer better control of CO₂ emissions than combustion heaters.

Furthermore, by promoting these products and services, we will contribute to solving global environmental and energy problems while providing a healthy and comfortable air environment, as well as contribute to achieving a carbon neutral society.

Environmentally Conscious Product Sales Unit Ratio

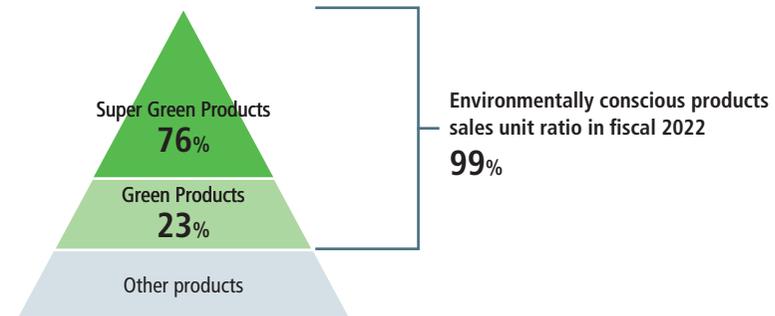
In order to mitigate the global warming impact of its air conditioners, Daikin defines its environmentally conscious products* as Super Green Products and Green Products, developing and spreading the use of these products.

In fiscal 2022, environmentally conscious products accounted for 99% of residential air conditioner units sold.

* Environmentally conscious products: A generic term that refers to Super Green Products and Green Products. Air conditioners that meet all of the following conditions are considered Super Green Products, and air conditioners that meet at least one of the following conditions are considered Green Products.

- Consume at least 30% less electricity than conventional products, e.g., air conditioners equipped with inverters
- Use refrigerants with at least two-thirds less global warming potential than conventional refrigerants, e.g., air conditioners using R-32, a refrigerant with low global warming potential

Environmentally Conscious Products as Percentage of Units Sold (residential air conditioners)



	2018	2019	2020	2021	2022
Environmentally Conscious Products	93	97	98	99	99
Super Green Products	51	60	69	71	76
Green Products	42	36	29	28	23
Other products	7	3	2	1	1

(%)