

KITZ Group Principle of Environmental Activities

KITZ Group companies aspire to become operations worthy of society's confidence through the supply of environmentally friendly products and services and promotion of environment-responsive corporate activities.

KITZ Group Companies: Environmental Action Policy

KITZ Group companies shall recognize environmental issues as an essential perspective of corporate management and every employee shall positively participate in the following activities.

1. Development and supply of environmentally friendly products and services
2. Effective use of resources
3. Promotion of reduction, reuse and recycle of waste
4. Prevention of environmental contamination

We aim to promote environment-responsive business operations across our entire group while simultaneously pursuing risk prevention and cost reduction

The Group's Target

1. Enhancement of Environmental Management System

We have completed certification for ISO 14001 at all our production plants (seven locations) in Japan and will now expand efforts for obtaining ISO 14001 certification to our overseas bases. We will strive to complete the acquisition of ISO 14001 certification in the near future at all overseas manufacturing bases with the aim of building an environment management system as a truly global company.

- ISO 14001 certification for overseas manufacturing operations
- Construction of a management system for data related to the environment

2. Reduction in Environmental Impact and Compliance with Environment-Related Laws and Regulations

Besides complying with various environment-related laws and regulations for addressing environmental problems amid a tightening of restrictions worldwide, including in Japan, Europe, Asia and the United States, we also engage in activities to eliminate all environmental risk associated with our business activities.

We are reducing consumption of energy and water used for our business activities and reducing the discharge of carbon dioxide, industrial waste and chemical pollutants from our business operations. We will effectively use finite resources while extensively eliminating waste to reduce environmental impacts in terms of total volume and basic units.

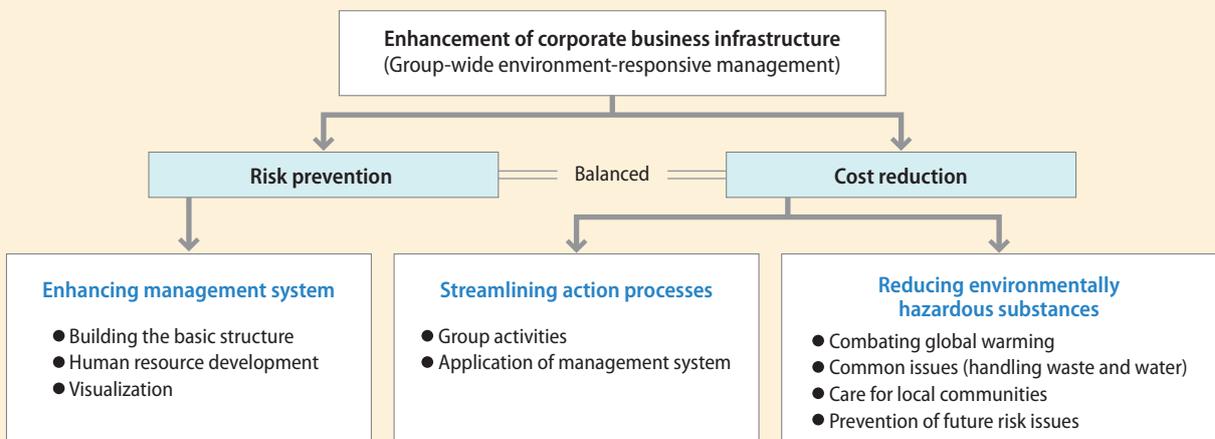
Items to control:

- CO₂ emissions
Reduce CO₂ emission volume per unit of production (t/100 million yen) by 10% in 2020 from the figure in 2013. (Emission volume per unit of production: 58.81 in 2013 -> 52.71 in 2020)



Concept and Initiatives for Environmental Management

In order to achieve the above target, KITZ will work on the basis of the concept of compatibility between "risk prevention" and "cost reduction". The concept of "compatibility" here is based on the idea that an organization can reduce its future costs by proactively engaging in environmental activities now to prevent soil contamination and other damage; and that they can drastically reduce costs by minimizing their business-related waste. These will also result in widely giving back to society.



Environmental Target and Results

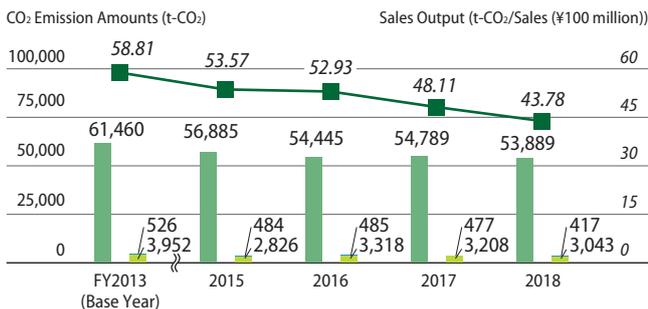
Focused subject	Actions planned	Results in FY2018
Enhancement of Environmental Management System	1. Strengthening environmental management system	
	Building the basic structure for group-wide environmental management system	1. Obtained the 2015 ISO14001 group-wide certification at seven locations in Japan and eight locations overseas 2. Conducted intra-departmental internal audit of the group's status regarding health and safety and the environment
Reduction in Environmental Impact	2. Prevent global warming	
	Reducing CO ₂ emission	Sales consumption units Target: 47.63t-CO ₂ /¥100 million Actual: 43.78t-CO ₂ /¥100 million
Compliance with Environment-Related Laws and Regulations	3. Visualization of environmental risk and responses	
	Legal compliance	1. Implemented measures to respond to the Soil Contamination Countermeasures Act (Amended) 2. Audited overseas bases to visually grasp their status (risk assessment; performance management) 3. Established an information gathering system regarding the environmental laws and regulations in each country

Environmental Data

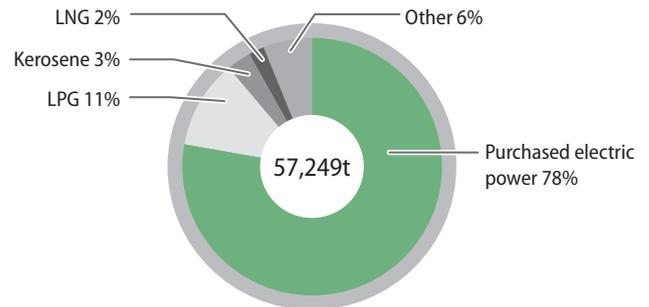
■ Manufacturers (except for sales offices)
■ Sales offices of manufacturers

■ Service companies
■ Consumption units at manufacturers and service companies (except for sales offices)

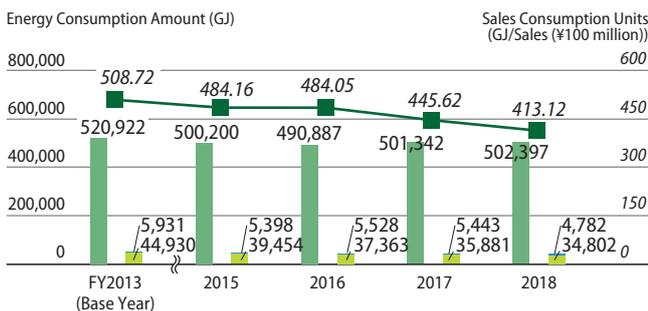
CO₂ Emission (ton-CO₂)



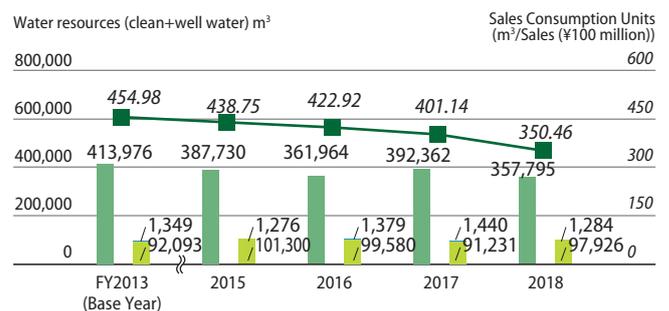
CO₂ emissions by energy source



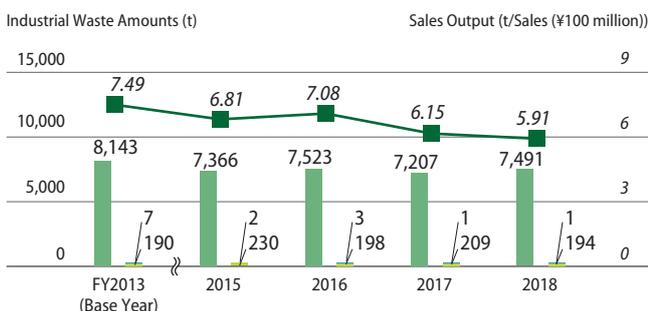
Energy Consumption (GJ)



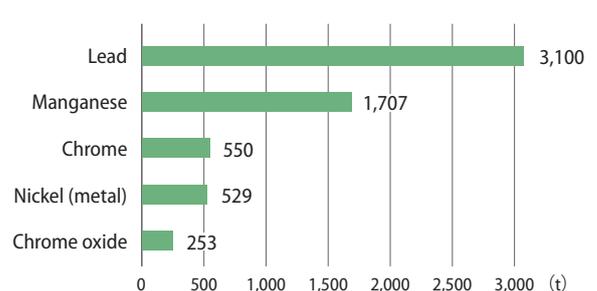
Water resources



Discharge of Industrial Waste (ton)

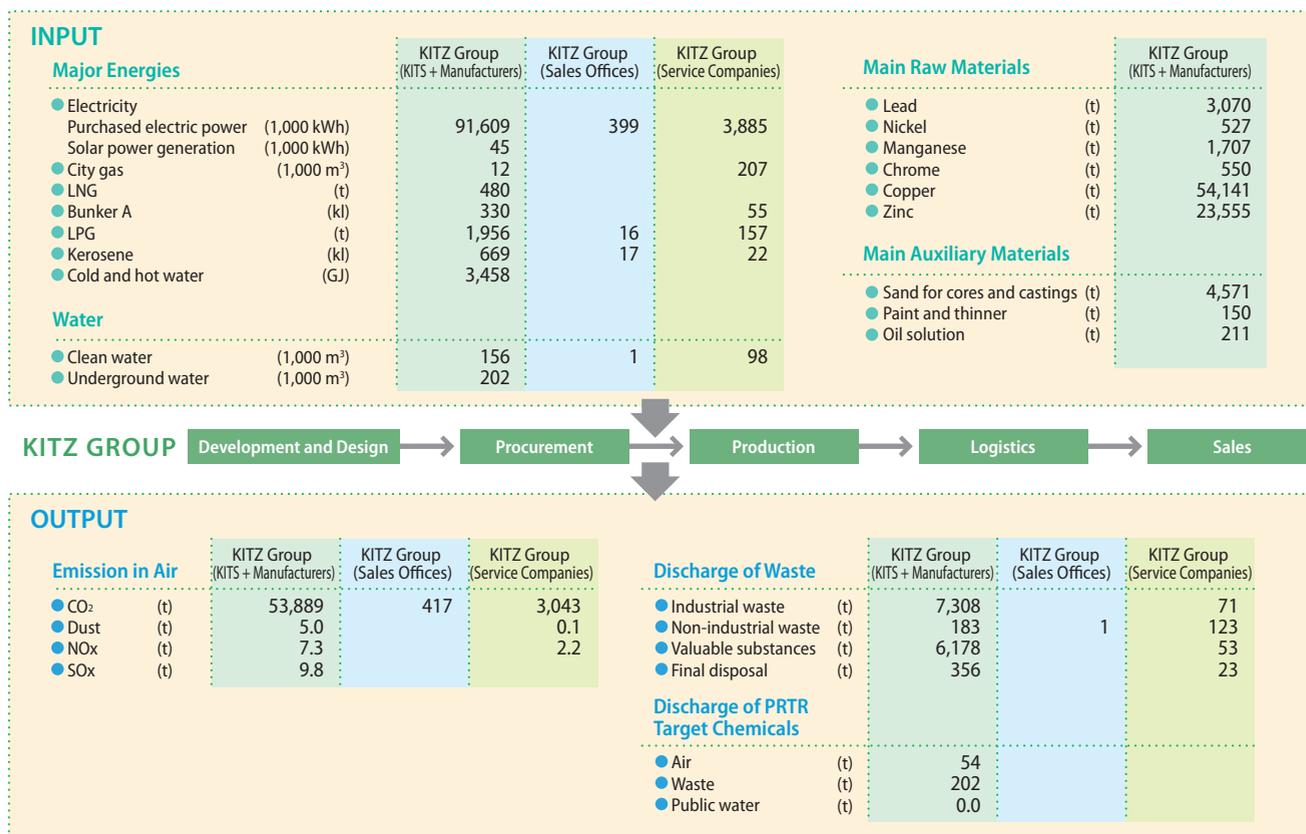


Consumption of PRTR Target Chemicals (tons of top 5 items)



* PRTR target substances, for which annual handling amounts are less than 1t and content is less than 1%, are also compiled.

Overall Image of Environmental Impact



Environmental Accounting

Environmental Conservation Costs

(Thousand of yen)

Category		Main actions	Capital investment	Expenditures
Cost for premises			410,582	620,171
Breakdown	Pollution control	Introduction, purchasing and maintenance of facilities	155,298	203,969
	Global environment protection	Introduction of facilities and equipment	249,724	225,006
	Resource circulation	Reduction, recycling and outsourced disposal of waste	5,560	191,196
Product recycling		Collection and recycling of used goods	0	10,367
Administrative duties		ISO-related works, environmental measurement and disclosure of environmental information	4,300	80,911
Research and development		Development of lead-free and other environmentally friendly products	0	68,341
Social activities		Promotion of greening activities	0	561
Damaged environment recovery		Purification of underground water	0	1,200
Other costs			0	0
Total			414,882	781,551

Total costs	Costs for environmental conservation	Total operation costs (A)
Total capital investment	6.7% against total operation cost (A)	6,216,705
Total R&D expenditures	2.5% against total operation cost (A)	2,775,499

Environmental Conservation Effects

Category	Numerical targets (Unit)	Results in FY2017	Results in FY2018	FY2018 less FY2017
Effects related with input resources	Consumed total energies (GJ)	537,223	537,199	(24)
	Consumed PRTR materials (ton)	5,843	6,195	352
	Consumed clean water (m ³)	242,577	253,822	11,246
	Consumed underground water (m ³)	241,016	201,899	(39,117)
Effects related with output waste and pollutants	Greenhouse gas emission (ton-CO ₂)	57,997	56,931	(1,066)
	Discharged or displaced chemicals (ton)	277	256	(20)
	Discharged total waste (ton)	7,416	7,685	269

Economic Effects of Environmental Conservation Activities

(Net financial gain)

(Thousands of yen)

Details of effects		Amount
Profits	Earned from recycling waste and used products	442,741
Saved expenditures	Saved by energy saving activities	(129,238)
	Reduced recycling expenditures	201,529
	Saved by waste reduction	5,532
Total		520,564

Scope of compilation is KITZ Corporation (Head Office, Nagasaki, Ina, Chino), KITZ Metal Works Corporation, KITZ Micro Filter Corporation, KITZ SCT Corporation, Shimizu Alloy Mfg. Co., Ltd., KITZ Engineering Service Co., Ltd. and Hotel Beniya

Strengthening Overseas Environmental Management

The KITZ Group formulated its “KITZ Global Vision 2020,” a Long-term Management Plan, and places promotion of environment-responsive business operations as a major item for strengthening its business foundations. In the Environmental Mid-term Plan, we set out a target for all production bases in Japan and overseas to acquire ISO 14001 certification. We will continue to make efforts toward the establishment of global environmental management.



Business Offices That Have Acquired Integrated ISO 14001 Certification

Name of business office	
KITZ Corporation Nagasaka Plant	KITZ Micro Filter Corporation (Head office plant and second plant)
KITZ Corporation Ina Plant	KITZ SCT Corporation
KITZ Corporation Chino Plant	Shimizu Alloy Mfg. Co., Ltd.
KITZ Metal Works Corporation	Toyo Valve Co., Ltd. Koshin Sales Office

Status of Acquisition of ISO 14001 Certification (Overseas)

Name of business office	Date of acquisition
(1) KITZ Corporation of Taiwan	November 2000
(2) KITZ (Thailand) Ltd. Bangplee Plant	December 2010
(3) KITZ Corporation of Kunshan	December 2010
(4) KITZ Corporation of Jiangsu Kunshan	April 2011
(5) KITZ (Thailand) Ltd. Amatanakorn Plant	February 2012
(6) KITZ Corporation of Europe, S.A.	May 2012
(7) Cephas Pipelines Corp.	May 2003
(8) Filcore Co., Ltd.	August 2014

Calculation Standards (Results in FY2018)

Environmental performance index	Unit	Calculation method											
INPUT	Total energy input amount	GJ	Energy amount consumed in business activities (GJ) : $\Sigma[\text{Each energy annual use amount} \times \text{each unit calorific value}] \times 10^{-3}$ * Source: Energy supply and demand results in 2017 (final) (published on April 12, 2019) Resources and Energy Agency										
		GJ	Amount of cold and hot water, the heat source, accepted from local cooling and heating system for ventilation use at KITZ Head Office Building (Makuhari New City, Chiba)										
	Raw materials input amount	Ton	Annual use amount of raw materials directly used for manufacturing of products (t)										
	Use amount of water	m ³	Annual use amount of clean water and underground water (m ³)										
OUTPUT	Carbon dioxide (CO ₂) emission amounts	Business activities	Ton	CO ₂ emitted from the energy used in business activities (t) * List of calculation method and emission coefficients in the calculation, report and publication system under the Law to Promote Global Warming Countermeasures									
			kg-CO ₂ /kWh	Electric power	<table border="1"> <tr> <td>Tokyo Electric Power Company, Incorporated: 0.475</td> <td>Kansai Electric Power Company Co., Ltd.: 0.435</td> <td>Chubu Electric Power Co., Inc.: 0.476</td> <td>Hokkaido Electric Power Co., Inc.: 0.666</td> </tr> <tr> <td>Tohoku Electric Power Co., Inc.: 0.521</td> <td>Hokuriku Electric Power Company, Incorporated: 0.593</td> <td>Chugoku Electric Power Co., Inc.: 0.669</td> <td>Kyushu Electric Power Co., Inc.: 0.428</td> </tr> </table>	Tokyo Electric Power Company, Incorporated: 0.475	Kansai Electric Power Company Co., Ltd.: 0.435	Chubu Electric Power Co., Inc.: 0.476	Hokkaido Electric Power Co., Inc.: 0.666	Tohoku Electric Power Co., Inc.: 0.521	Hokuriku Electric Power Company, Incorporated: 0.593	Chugoku Electric Power Co., Inc.: 0.669	Kyushu Electric Power Co., Inc.: 0.428
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			kg-CO ₂ /ℓ	Bunker A: 2.70 kg-CO ₂ /ℓ	Kerosene: 2.48 kg-CO ₂ /ℓ	Light Oil: 2.61 kg-CO ₂ /ℓ							
			kg-CO ₂ /kg	LPG: 2.96 kg-CO ₂ /kg	City Gas: 2.06 kg-CO ₂ /m ³	Tokyo Gas: 2.19 kg-CO ₂ /m ³ Osaka/Kita Gas: 2.29 kg-CO ₂ /m ³							
			kg-CO ₂ /MJ	Cold/Hot Water: 0.057 kg-CO ₂ /MJ	Gasoline: 2.24 kg-CO ₂ /ℓ	LNG: 2.70 kg-CO ₂ /kg							
			t	Dust amount (t) = dust density (g/m ³ N) x dry exhaust gas amount per unit hour (m ³ N/h) x annual operation hours (h/year) x 10 ⁻⁶									
	t	SOx (t) = sulfur oxide density (ppm) x dry exhaust gas amount per unit hour (m ³ N/h) x annual operation hours (h/year) x 64/22.4 x 10 ⁻⁹											
	t	NOx (t) = nitrogen oxide density (ppm) x dry exhaust gas amount per unit hour (m ³ N/h) x annual operation hours (h/year) x 46/22.4 x 10 ⁻⁹											
	Final disposed amount: consigned waste amount (t) x final disposal rate *(%) * General Waste: 9.5% quoted from the Ministry of the Environment, “Status of Discharge and Disposal of General Waste, etc. (Results in fiscal 2017)” Industrial Waste: figures obtained from intermediate waste disposal service responses												
Waste volume													

Target Period: Target period was FY2018 (April 1, 2018 ~ March 31, 2019) and the results for the period are reported.

Scope of Reporting: KITZ Corporation and six group companies in Japan (see website).

Policy and Standards for Collection and Reporting of Environmental Performance Information:

In compliance with environment-related laws and regulations, the report is published in accordance with the “KITZ Group Environmental Philosophy,” the “KITZ Group Environmental Action Guidelines,” the “KITZ Group Environment, Safety and

Health Performance Data Calculation Guidelines” and other environment-related internal regulations.

Referenced Guidelines:

The Ministry of the Environment, *Environmental Report Guidelines (2012 Edition)*
The Ministry of the Environment, *Environmental Accounting Guidebook (2005 Edition)*

Published: September 2019

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KITZ Group Safety and Health Fundamental Philosophy

KITZ places the highest priority on safety and health in all of its activities based on the principle of showing respect for people. Group companies conduct extensive safety and health programs with the goal of zero accident.

KITZ Group Safety and Health Fundamental Policies

1. KITZ maintains stimulating and pleasant workplaces that contribute to the mental and physical wellbeing of all employees.
2. KITZ is dedicated to ensuring safety and health for all employees by complying with Japan's Industrial Safety and Health Act and other associated laws and regulations as well as by adhering to internal rules and standards.
3. KITZ improves safety and health management by educating and training all employees with regard to the knowledge and skills needed for safety and health programs.
4. KITZ is dedicated to ensuring the safety of its machinery and equipment so that employees can do their jobs without concern.
5. KITZ reduces exposure to risk factors with the goal of eliminating potential sources of danger and harm to employees in workplaces.

Take Preventive Steps and Improve Safety Awareness Through Group-wide Safety and Health Programs

The company will address safety from two directions: "Enhancement of safety activities and systematic incorporation of prevention measures into production lines" and "Promotion of volunteer activities at workplaces (bottom-up approach via small group activities)". Through this two-pronged approach, the company will encourage a change in every employee's mindset and increase employees' awareness with regard to safety, thereby reforming the corporate culture.

KITZ has formulated the following key actions as measures for employee safety and health with the aims of taking preventive steps for safety and improving safety awareness.

- Develop a management system (comply with safety and health related laws and regulations)
- Implement safety measures for machines, equipment and people (prevent similar accidents)
- Create workplace culture (promote zero accidents)

