

### 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 KITZ Group has designated “Group-wide promotion of environmentally conscious management” as one measure for strengthening our business foundation to realize our slogan “Evolution to become a fully global company,” which is articulated in the KITZ Global Vision 2020, a Long-term Management Plan. Based on this, we have set two targets of “Enhancement of Environmental Management System” and “Reduction in Environmental Impact and Compliance with Environment-Related Laws and Regulations.”

### ● 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.

### ● 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.

The KITZ Group will work in unison to undertake environment-responsive management to attain these two targets based on its policy of achieving a balance between risk prevention and cost reduction.

### Targets of Environmental Issues in Long-Range Management Projections

#### 1. Enhancement of Environmental Management System

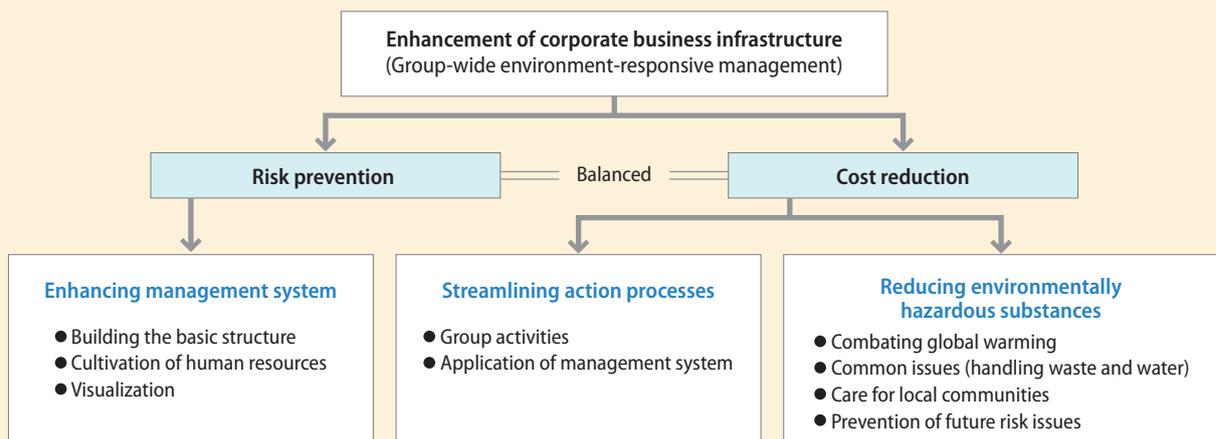
- ISO 14001 certification for overseas manufacturing operations
- Construction of a management system for data related to the environment

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

Items to control:

- CO<sub>2</sub> emissions  
Reduce CO<sub>2</sub> 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)

### Environmental Management Agenda Needed to Accomplish Targets



## Environmental Target and Results in FY2016

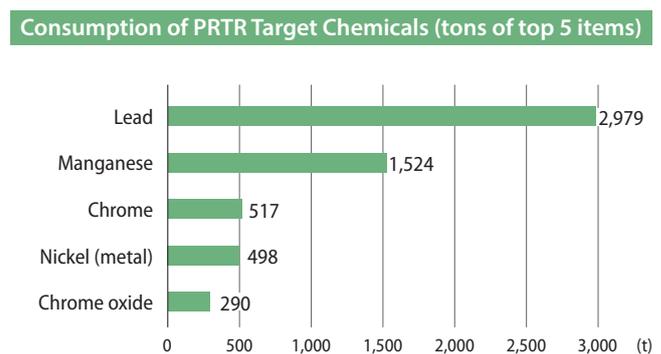
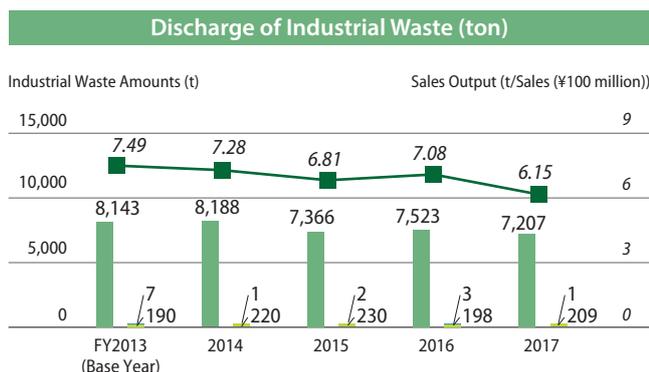
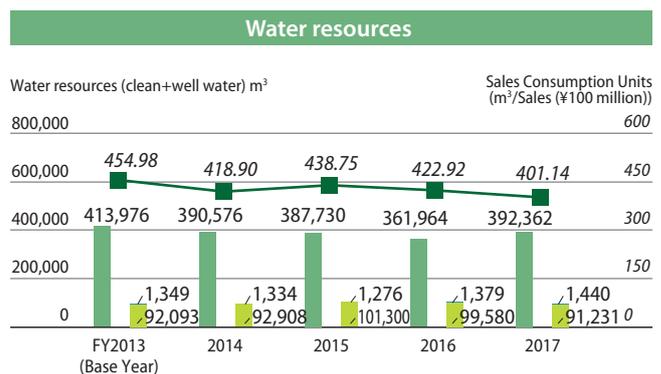
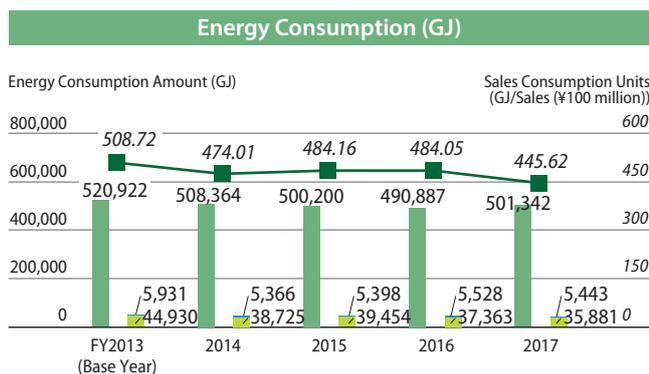
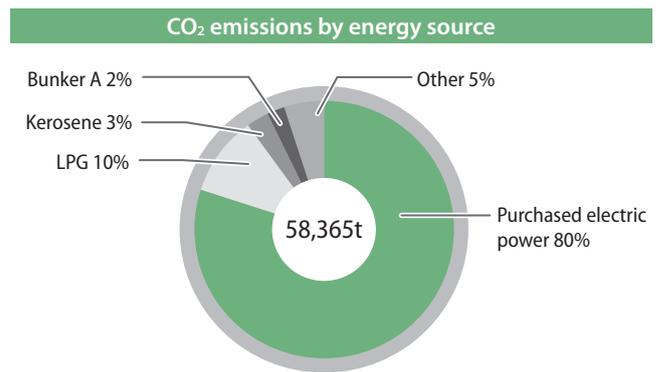
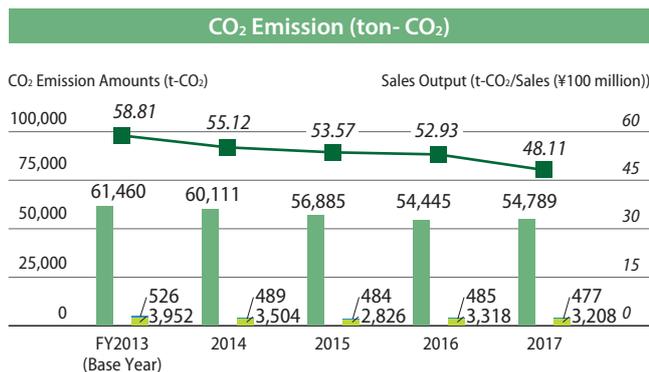
Environmental activities are progressing with “Group-wide environment-responsive management” promoted in the Third Mid-term Management Plan (FY2016 – FY2018)

Forcused subject	Actions planned	Target for FY2017	Results in FY2017
<b>1. Strengthening environmental management system</b>			
Enhancement of Environmental Management System	(1) Building the basic structure for group-wide environmental management system	(1) Passed the renewal audit for ISO14001:2015 integrated certification (7 domestic locations) (2) Implement environmental results management at overseas production bases (energy, waste materials, others).	(1) Successfully underwent the ISO14001:2015 surveillance audit for the group in October 2017 (2) Conducted an environmental audit for KITZ (Thailand) Ltd.
<b>2. Prevent global warming</b>			
Reduction in Environmental Impact	(1) Reducing CO <sub>2</sub> emission	Sales consumption units 52.40t-CO <sub>2</sub> /¥100 million	48.11t-CO <sub>2</sub> /¥100 million
<b>3. Visualization of environmental risk and responses</b>			
Compliance with Environment-Related Laws and Regulations	(1) Legal compliance	(1) Enhanced structure for gathering information about law revisions and made responses.	Implemented measures to respond to the Soil Contamination Countermeasures Act (Amended)
	(2) PCB	(2) Disposal of PCB waste materials at the KITZ Group in Japan	High-concentration PCBs: Completed disposal of all units in fiscal 2016 Low-concentration PCBs: Disposed of 33 units

## Environmental Data

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

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



\* 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

INPUT in FY2016		KITZ Group (KITS + Manufacturers)	KITZ Group (Sales Offices)	KITZ Group (Service Companies)	Main Raw Materials		KITZ Group (KITS + Manufacturers)
<b>Major Energies</b>					● Lead	(t)	2,980
● Electricity					● Nickel	(t)	497
Purchased electric power	(1,000 kWh)	91,420	421	4,126	● Manganese	(t)	1,525
Solar power generation	(1,000 kWh)	45			● Chrome	(t)	517
● City gas	(1,000 m <sup>3</sup> )	9		213	● Copper	(t)	52,032
● LNG	(t)	450			● Zinc	(t)	22,812
● Bunker A	(kl)	471		58	<b>Main Auxiliary Materials</b>		
● LPG	(t)	1,855	19	151	● Sand for cores and castings	(t)	4,777
● Kerosene	(kl)	686	21	28	● Paint and thinner	(t)	152
● Cold and hot water	(GJ)	3,539			● Oil solution	(t)	197
<b>Water</b>							
● Clean water	(1,000 m <sup>3</sup> )	151	1	91			
● Underground water	(1,000 m <sup>3</sup> )	241					

<b>KITZ GROUP</b>	Development and Design	Procurement	Production	Logistics	Sales
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OUTPUT in FY2016		KITZ Group (KITS + Manufacturers)	KITZ Group (Sales Offices)	KITZ Group (Service Companies)	Discharge of Waste		KITZ Group (KITS + Manufacturers)	KITZ Group (Sales Offices)	KITZ Group (Service Companies)
<b>Emission in Air</b>					● Industrial waste	(t)	7,037		76
● CO <sub>2</sub>	(t)	54,789	477	3,208	● Non-industrial waste	(t)	170	1	132
● Dust	(t)	5.5		0.0	● Valuable substances	(t)	6,427		47
● NO <sub>x</sub>	(t)	8.3		1.2	● Final disposal	(t)	381		25
● SO <sub>x</sub>	(t)	11.0			<b>Discharge of PRTR Target Chemicals</b>				
					● Air	(t)	60		
					● Waste	(t)	217		
					● Public water	(t)	0.0		

## Environmental Accounting in FY2017

## Environmental Conservation Costs

(Thousand of yen)

Category		Main actions	Capital investment	Expenditures
Cost for premises			360,591	542,089
Breakdown	Pollution control	Introduction, purchasing and maintenance of facilities	206,889	172,923
	Global environment protection	Introduction of facilities and equipment	148,382	182,807
	Resource circulation	Reduction, recycling and outsourced disposal of waste	5,320	186,359
Product recycling		Collection and recycling of used goods	0	8,268
Administrative duties		ISO-related works, environmental measurement and disclosure of environmental information	4,160	65,461
Research and development		Development of lead-free and other environmentally friendly products	0	55,828
Social activities		Promotion of greening activities	0	451
Damaged environment recovery		Purification of underground water	0	1,200
Other costs			0	0
Total			364,751	673,297

Total costs	Costs for environmental conservation	Total operation costs (A)
Total capital investment	4.4% against total operation cost (A)	8,308,595
Total R&D expenditures	2.5% against total operation cost (A)	2,211,368

## Environmental Conservation Effects

Category	Numerical targets (Unit)	Results in FY2016	Results in FY2017	FY2015 less FY2015
Effects related with input resources	Consumed total energies (GJ)	528,250	537,223	8,973
	Consumed PRTR materials (ton)	5,261	5,843	582
	Consumed clean water (m <sup>3</sup> )	236,182	242,577	6,395
	Consumed underground water (m <sup>3</sup> )	225,362	241,016	15,655
Effects related with output waste and pollutants	Greenhouse gas emission (ton-CO <sub>2</sub> )	57,762	57,997	235
	Discharged or displaced chemicals (ton)	292	277	(15)
	Discharged total waste (ton)	7,721	7,416	(305)

 Economic Effects of Environmental Conservation Activities  
 (Net financial gain)

(Thousands of yen)

Details of effects		Amount
Profits	Earned from recycling waste and used products	476,690
Saved expenditures	Saved by energy saving activities	173,487
	Reduced recycling expenditures	204,379
	Saved by waste reduction	19,458
Total		874,014

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) Cephass Pipelines Corp.	May 2003
(8) Filcore Co., Ltd.	August 2014

## Calculation Standards (Results in FY2017)

Environmental performance index	Unit	Calculation method	
INPUT	Total energy input amount	Energy amount consumed in business activities (GJ) $\Sigma$ [Each energy annual use amount x each unit calorific value] x 10 <sup>-3</sup> * Source: Energy supply and demand results in 2016 (final) (published on April 24, 2018) Resources and Energy Agency	
		Electricity: 3.6 MJ/kWh    Bunker A: 38.9 MJ/ℓ    Kerosene: 36.5 MJ/ℓ    Light Oil: 38.0 MJ/ℓ LPG: 50.1 MJ/kg    City Gas: 41.3 MJ/m <sup>3</sup> Gasoline: 33.4 MJ/ℓ    LNG: 54.5 MJ/kg	
	Raw materials input amount	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)	
	Use amount of water	Annual use amount of raw materials directly used for manufacturing of products (t)	
OUTPUT	Carbon dioxide (CO <sub>2</sub> ) emission amounts	Business activities	
		Waste volume	
		CO <sub>2</sub> 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	
		Electric power (kg-CO <sub>2</sub> /kWh)	Tokyo Electric Power Company, Incorporated: 0.486    Kansai Electric Power Company Co., Ltd.: 0.509    Chubu Electric Power Co., Inc.: 0.485    Hokkaido Electric Power Co., Inc.: 0.632 Tohoku Electric Power Co., Inc.: 0.545    Hokuriku Electric Power Company, Incorporated: 0.640    Chugoku Electric Power Co., Inc.: 0.691    Kyushu Electric Power Co., Inc.: 0.462
		Bunker A: 2.70 kg-CO <sub>2</sub> /ℓ    Kerosene: 2.48 kg-CO <sub>2</sub> /ℓ    Light Oil: 2.61 kg-CO <sub>2</sub> /ℓ	
		LPG: 2.96 kg-CO <sub>2</sub> /kg    City Gas: 2.06 kg-CO <sub>2</sub> /m <sup>3</sup> Tokyo Gas: 2.19 kg-CO <sub>2</sub> /m <sup>3</sup> Osaka/Kita Gas: 2.29 kg-CO <sub>2</sub> /m <sup>3</sup>	
		Cold/Hot Water: 0.057 kg-CO <sub>2</sub> /MJ    Gasoline: 2.24 kg-CO <sub>2</sub> /ℓ    LNG: 2.70 kg-CO <sub>2</sub> /kg	
		Dust amount (t) = dust density (g/m <sup>3</sup> N) x dry exhaust gas amount per unit hour (m <sup>3</sup> N/h) x annual operation hours (h/year) x 10 <sup>-6</sup>	
		SOx (t) = sulfur oxide density (ppm) x dry exhaust gas amount per unit hour (m <sup>3</sup> N/h) x annual operation hours (h/year) x 64/22.4 x 10 <sup>-9</sup>	
NOx (t) = nitrogen oxide density (ppm) x dry exhaust gas amount per unit hour (m <sup>3</sup> N/h) x annual operation hours (h/year) x 46/22.4 x 10 <sup>-9</sup>			
Final disposed amount: consigned waste amount (t) x final disposal rate *(%) * General Waste: 9.7% quoted from the Ministry of the Environment, “Status of Discharge and Disposal of General Waste, etc. (Results in fiscal 2016)” Industrial Waste: figures obtained from intermediate waste disposal service responses			

**Target Period:** Target period was FY2017 (April 1, 2017 ~ March 31, 2018) 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:** July 2018

**Next publication:** July 2019 (to be issued every year)

## 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)

