

Environmental Management



Basic environmental policy

◆ Slogan

**Protect the Green Earth and
Create Products Gentle to the Environment**

◆ Basic Environmental Policies

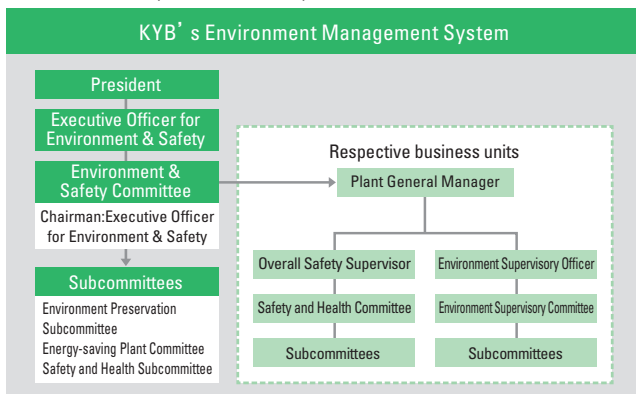
The KYB Group creates products gentle to both people and the earth. We are dedicated to the promotion of environmental activities as an important tool for evaluating management.

1. Coordinates and builds up productive and corporate activities based on the recycling to reduce impacts on the environment.
2. Strive to ensure long-term and sustainable operations throughout the entire KYB Group.
3. Work to promote harmony with society and contribute to the global community as a good corporate citizen.
4. Clarify every employee's role so that all employees can participate fully.

◆ Environment & Safety Management system

The "Environment & Safety Committee" was organized with directors responsible for environment & safety as leaders to harmonize our intentions regarding environment and safety related approaches.

KYB has implemented the system shown below.



◆ Mid-term policy

Mid-term policy regarding the environment and safety

We have been formulating Phase 2 of our mid-term policy since fiscal year 2014.

We have started safety activities.

Environmental/Safety Mid-term Policy (2014 to 2016) Abstract below

1. Creation of factories aiming to minimize the energy consumption and waste

Reduce energy consumption per unit by 1% per year relative to 2013 levels, and reduce amounts of industrial waste per unit by 3% per year relative to 2013 levels.

2. Creation and expansion of industrial accident free production bases

The employees' awareness about the safety will be improved and critical hazards eliminated.

As of fiscal year 2017, the mid-term policy phase 3 will be developed, and we have started environment and safety activities based on the new mid-term policy formulated under the keywords: compliance with the rules, speed, and challenge.

Summary of the Environmental/Safety Mid-term Policy (2017 to 2019)

1. Creation of plants aiming to minimize energy consumption and waste

Environment development for partial supply of energy
Promotion of measures through energy visualization
Promotion of waste volume reduction and recycling

2. Creation and expansion of industrial and fire accident-free production bases

Risk assessment and promotion of measures for industrial accidents
Fire accident-free

Message from Director in Charge

Aiming to be a corporation that can contribute to achieving a sustainable society

We detected residual contamination caused by a previous leak on the site of our plant at a level that exceeded environment quality standards. We sincerely apologize to our customers, neighbors, and concerned parties for any concern and inconvenience caused by this incident. As a result of our investigation, we found no discharge off the site of the plant. However, any delay in reporting to the local government is a problem of great significance, and we intend to ensure compliance with the agreements and environmental laws and regulations and will continue to clean up and monitor contaminants. Our goals were not achieved for energy reduction and industrial waste reduction through the activities in connection with monozukuri. In fiscal year 2017, we will enhance energy visualization and waste volume reduction and recycling based on the reflection in fiscal year 2016 and will promote further loss elicitation and corrective actions.

In conclusion, I would like to express my gratitude to you for your interest in this report. We are committed to further expanding and improving the content, and hope to receive your continuing support and guidance in our efforts.



Kazuhiro Ogata
Managing Executive Officer

Environmental conservation objectives

An Environment Management Activities Plan was made at each production site according to corporate environmental policies for different activities aiming to achieve the goals, but we failed to achieve the goals compared to the benchmarks of fiscal year 2013 because of the start of operations of the Developmental Experiment Center, contaminant discharge, and other factors. We will promote further reductions in energy consumption, productivity improvement, and recycling in fiscal year 2017.

Activity results of 2016

○: Goal attained ×: Goal not attained

Theme		Target values	Results of 2016	Evaluation	Publication page
Prevention of global warming	CO ₂ emission volume	90,823 t-CO ₂ or less	96,546 t-CO ₂	×	P31
Energy saving	Energy usage volume basic unit	0.64 kl/million yen or less	0.71 kl/million yen	×	
Improvement of resource recovery and recycling rate	Recycle rate	90.6% or higher	90.1%	×	
	Zero emission	3.5% or less	4.7%	×	
Reduction of waste	General waste	519 t or less	504 t	○	
	General waste per unit	2.95 kg/million yen or less	2.09 kg/million yen	○	
	Metal scraps	18,356 t or less	17,931 t	○	
	Metal waste per unit	243.08 kg/million yen or less	251.8 kg/million yen	×	
	Industrial waste	3,393 t or less	3,469 t	×	
	Industrial waste per unit	28.36 kg/million yen or less	28.5 kg/million yen	×	

Overview of major approaches in the fiscal year of 2017

Global warming prevention
Replacement to LED, LVD, or other high-efficiency lighting and reductions in air consumption in plants and the air conditioning load.

Waste material reduction
Paint gas volume reduction through biological treatment, introduction of waste treatment systems, and turning sludge and white gasoline into valuable products.

(Note) Basic units are calculated on the basis of marginal profit.

For energy, crude oil equivalent is calculated for electricity and fuel and the total value is displayed as total energy consumption.

CO₂ emissions and energy consumption are calculated using methods determined by KYB.

Chemical substance management

Support for environmental controls on products

For protection of the environment, the REACH Regulations, other ELV and RoHS directives, and various laws and regulations are established under which stricter regulations are implemented. In order to address the stricter REACH and other regulations, we built a database of chemical substances subject to the regulations after conducting an investigation of the chemical substances contained in our products to accumulate the data. We can use this database to provide a rapid response to whether or not prohibited and restricted substances are used at the request of our customers and to respond to inquiries about highly concerned substances additionally registered to prohibited and restricted substances since the implementation of the REACH Regulations.

We will continue with activities that enable us to provide products that conform to the needs of our customers and of the market.

Risk assessment of chemical substances

In fiscal year 2015, we assessed the health risks of chemical substances at all of the production sites in Japan. In fiscal year 2016, we assessed the explosion and fire risk from chemical substances at the Gifu South Plant and Gifu East Plant. For the assessment, we submitted an explanation to all departments that handle chemical substances about the three elements for combustion (i.e., combustibles, oxygen, and ignition

sources), flashpoint, and ignition temperature, which are the basic factors in explosion and fire phenomena. Chemical substances handled by the plants include invisible gaseous substances and those with a flashpoint below room temperature. We strive to provide useful information to those who handle chemical substances so that they understand through risk assessments the importance of eliminating ignition sources to prevent explosions and fires caused by chemical substances.

Response to PCB disposal

Transformers and other electrical equipment containing PCBs are stored securely at each business establishment. We concluded a disposal contract with a company specializing in detoxification processes and started disposal since fiscal year 2012. So far, we have completed the disposal of transformers stored at KYB-YS Co., Ltd., its Casting Center, and the KSM Mie Plant. We will proceed with disposal under the plan for each fiscal year.



PCB waste removed from KSM

Initiatives to Reduce Environmental Burden

Activities at plants

◆ Alteration of the reduction neutralization treatment to an aboveground and automated process

At the Gifu North Plant, the reduction neutralization treatment* is conducted for the hexavalent chromium in the waste fluid from the aged plating fluid regeneration unit and the plating water washing unit in the wastewater treatment facility. The old reduction neutralization treatment required manual batch processing in the underground pit. Recently, the equipment has been



Installed Treatment Unit

changed to an aboveground unit and automated after installation of a new reduction neutralization unit. As well as providing a preventive measure for underground contamination, the new unit reduced consumption of chemical agents by 12% and reduced man-hours by 65% for the reduction neutralization process.

*Reduction neutralization process for hexavalent chromium: Detoxifying treatment of hexavalent chromium including trivalent chromium

◆ Energy Saving Exhibition (joint event with Chubu Electric Power Co., Inc.)

At the Gifu South Plant on September 7, 2016, the Energy Saving Exhibition, a joint event with Chubu Electric Power Co., Inc., was held with the goal of enhancing the awareness of energy saving by the worksites.



Beginning Briefing

Chubu Electric Power is deploying a solution service that provides advice to companies in the region. Chubu Electric Power advises on energy saving activities based on the energy technologies cultivated through power supplying businesses. The exhibition was one of those services in which a demonstration machine (comparison of power consumption between LED lights and mercury lamps, air demonstration units, etc.) owned by the Solution Laboratory (SOLAB) of Chubu Electric Power was brought to the Gifu South Plant demonstrated. Furthermore, as the opening to the Energy Saving Exhibition, an explanation was made by Chubu Electric



A view of the Energy Saving Exhibition



A view of the Energy Saving Exhibition

Power regarding the significance of saving energy and the exhibited unit. In addition, the presentation of an energy saving activity report was given by the energy saving subcommittee of KYB Gifu South Area, and about 100 employees recognized the importance of energy-saving activities.

◆ Reduction of CO₂ Emissions Achieved by the Heat Shield Coating on the Roof of Building No. 1

The Kumagaya Plant installed a heat shield coating on the roof of building No. 1 in July 2016. The reduction of CO₂ emissions is mandatory in Saitama Prefecture, which operates a carbon emission trading program for emitted CO₂ gas. In addition, the number of extremely hot days in summer averages 26 days in the most recent five years in Kumagaya City of Saitama Prefecture, which has a negative influence on the working environment in the plant. After installation of the heat shield coating, the air-conditioning load was decreased and resulted in approximately a 7% per year reduction in CO₂ emissions. In addition, the indoor temperature was decreased by 2 degrees C from the average per year. Actually, the employees felt the decrease in the indoor temperature. Because the Kumagaya Plant had concerns about roof leaks because of the decrepit state of the buildings, the heat shield coating is expected to prevent leaks as well.



Roof after Implementation of Heat Shield Coating

◆ Plant Air and Noise Abatement Measures TAC (USA)

As one of the work environment improvement activities, an investigation of the noise levels was conducted at 26 points in the plant, and noise control measures were implemented for cutting equipment and the material barrel polisher, which exceeded the criteria. Low noise air blow nozzles were installed for the cutting equipment, and soundproof sheets were attached to the material barrel polisher. These improvements reduced noise by 14% to 23%, and adoption of low noise air blow nozzles reduced air consumption by a maximum of 80% per nozzle. A lateral spread will be continuously promoted to other processing areas for improvement of the work environment.



Low Noise Air Nozzles



Material Barrel Polisher with Soundproof Sheets

◆◆ Reuse of Waste White Gasoline

For the trend requiring reduced emissions of waste fluid, industrial waste, the recycling of an average of 4.3 tons per month of waste white gasoline is promoted as valuable that had been treated as industrial waste. Industrial waste and treatment costs have been reduced by the acceptance of thermal recycling as fuel for boilers by Joumyaku Sangyo Co., Ltd.



Primary Storage of White Gasoline

◆◆ Replacement to Gas Burning Absorption Type Water Heater/Cooler for Air Conditioner

There are three office buildings—Bldg. A, Bldg. B, and Bldg. C—at the Gifu North Plant. An absorption type water heater and cooler with a "burning heavy oil" heat source had been being used in "Bldg. A" for air conditioning from the time of construction in 1991, but the frequent stoppage and degraded air conditioning efficiency became noticeable with the aging of the equipment. Using the replacement of the equipment as an opportunity, the heat source was changed from "heavy oil burning" to "gas burning" to save energy. The stability of air conditioner operation is advantageous to improve the work environment.



Gifu North Plant Bldg. A: Gas Burning Absorption Type Water Heater and Cooler for Air Conditioning

◆◆ Introduction of Amorphous Transformer

The transformers work 24/7 without a shutdown and continuously lose electricity little by little. Even a tiny loss accumulates and results in an enormous loss of energy. This loss is classified as load loss caused by the loading of the transformer while electricity is used; *no-load loss* (standby energy) occurs regardless of whether a load is present or absent. The "no-load loss" has been reduced by approximately 40% by the introduction of amorphous transformers at the Gifu North Plant.



Amorphous Transformers

◆◆ Improvement of Environment by Reduced Industrial Wastes KMSB (Malaysia)

A large part of industrial waste by KMSB was generated from grinding, coating, and plating. The burning treatment emitted substantial amounts of CO₂. For improvement of the environment, ground sludge was dewatered to cut down waste emissions. Furthermore, treatment was changed from incineration to thermal cracking, and the metal powders of ground sludge as buffing waste could be reused. This achieved a reduction of 40% in CO₂ emissions required for industrial waste treatment. The environment friendly activities will continue in a proactive manner in the future.

