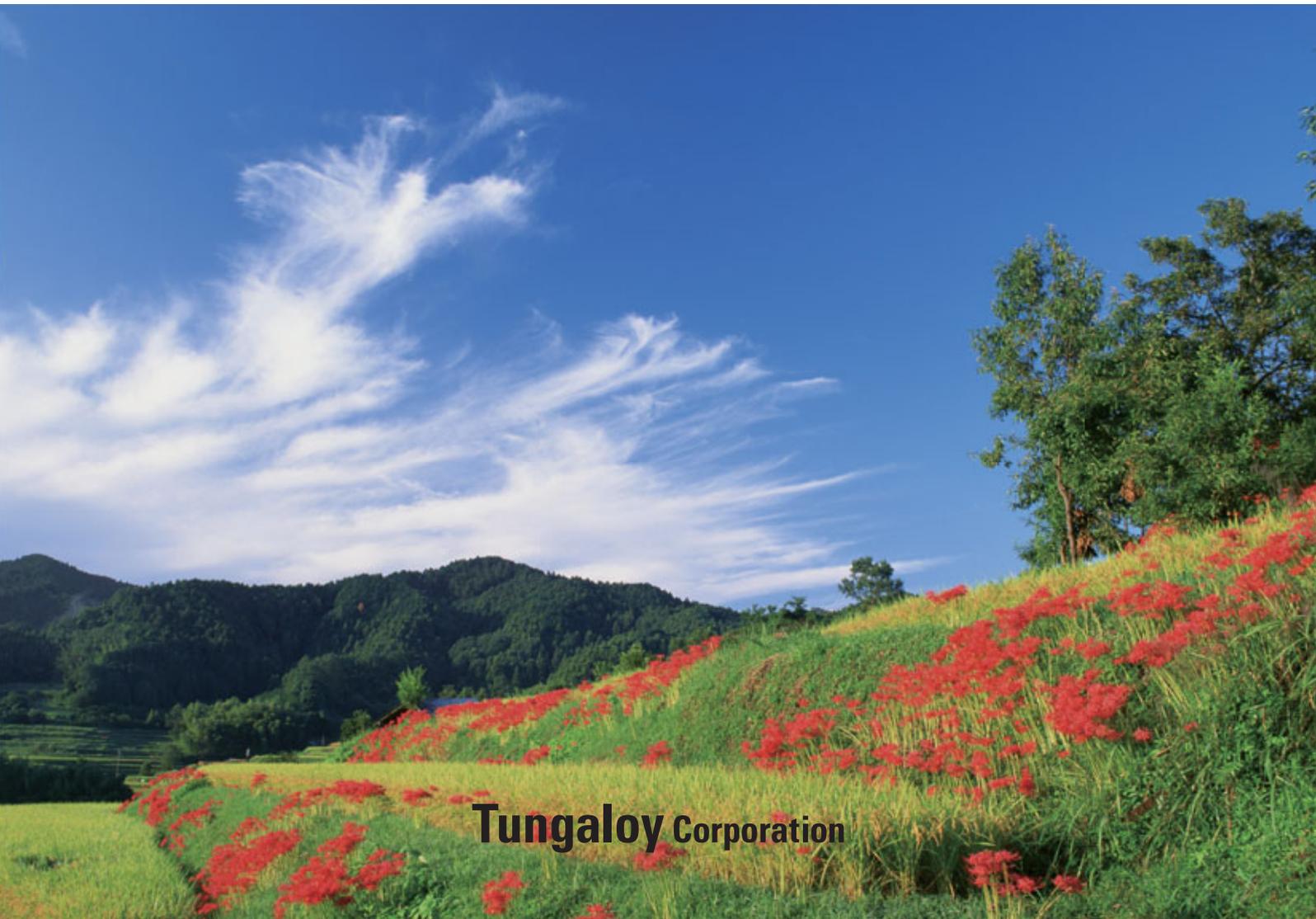




# Tungaloy Environmental Report 2018



**Tungaloy Corporation**

# Message

In 2017, seasonal rain fronts, typhoons, earthquakes measuring 5-upper or greater on the seismic intensity scale and other disasters occurred in various places in Japan. Also in other countries, avalanches, heavy rain, landslides, hurricanes and other disasters which took lives of over 100 people occurred. We send our condolences to people who lost necessities of life and bereaved families by the disasters and pray for them to recover peaceful days without a moment's delay.

According to the report by the Japan Meteorological Agency, the annual number of occurrences of very heavy rain with the hourly precipitation of 50mm or higher in the past 10 years in Japan has increased to 1.3 times as large as the average in 10 years since records began (in 1976), and the annual number of occurrences of torrential rain with the hourly precipitation of 80mm or higher has increased to 1.7 times. There are no disaster-free years recently, and what is worse, it seems that the climate conditions have becoming extreme and that the global warming is advancing in a steady manner. In the COP 23 held in Bonn, Germany, in November 2017, establishing of operation rules has been gradually advanced towards the effectuation of the Paris Agreement in 2020.

2017 marked the 30th anniversary since the adoption of the Montreal Protocol on the substances that deplete the ozone layer. Although ozone holes are still generated every year, there was a positive announcement that a sign of improvement in the ozone concentration was seen. In addition to the specified CFCs, measures to control emissions of HFCs (alternative CFCs) with a high global warming potential are currently required. Also, in addition to the global warming countermeasures, many countries in the world have stipulated the policy to promote complete abolition of gasoline vehicles and diesel vehicles by shifting to EVs from a standpoint of the air quality improvement. Even though the U.S. declared its withdrawal from the Paris Agreement, it seems

that the earnest expectation and the current of the times toward global environment protection and environment improvements have been getting great and steady.

In September 2015, an international standard on environmental management system, the ISO 14001 was revised, and the revised ISO 14001 has required environmental conservation activities to be more feasible and more integrated with the business activities. Our company acquired the ISO 14001 in 1997, an industry first for the cemented carbide tool manufacturing industry in Japan, and this year marks the 21st anniversary. Also, our company completed the shift to the new standard in October 2016. As a company existing on this planet and playing a part in the manufacturing industry, and in order for always being Tungaloy brand which can respond to customer's expectations and safety, we will continue and promote our environmental conservation activities within the Tungaloy group including domestic offices, sales offices and affiliated companies in overseas.

This report outlines the environmental conservation activities carried out by the Tungaloy group in 2017. Your kind understanding and honest opinion would be very much appreciated.

April 2018  
President & CEO  
**Tungaloy Corporation**  
**Satoshi Kinoshita**



## Tungaloy's Policy (Quality / Environment)

Tungaloy is an international company that contributes to the development of industry, local communities and society by producing cemented carbide tools as well as by providing technical service based on excellent material technology.

Tungaloy reviews the needs and expectations from customers and stakeholders, develops new state-of-the-art products and technology with consideration for environment and provides a high quality product with short delivery time in order to contribute to the manufacturing of customers.

Tungaloy operates business activities based on law-abiding spirit and preservation of global environment and aims for enhancing the company's value while continued growth.

Tungaloy regards the workplace as a place for personal growth and each employee strives for self-sustaining growth with pride and responsibility.

Tungaloy will fully stand behind its commitments in the communication between Tungaloy and customers.

Tungaloy is committed to continually improve the effectiveness of both the quality control system and the environmental control system according to AS 9100, ISO 9001 and ISO 14001, while upholding all international standards, laws, regulations and agreements regarding quality control & environmental control subjects.

Tungaloy views product quality and environmental protection as important as ensuring company's success and profit.

Tungaloy will convey the policy to the employees and to the relevant factors.

Tungaloy will address the following in order to realize the policy:

- Educating and qualifying employees as necessary to meet product quality standards and environmental standards.
- Supervising inspection method, production method and control method in all stages of processes in order to continue the improvement.
- Not only trying our best to improve business activities that affect environment but also preventing an accident and contamination for a new change, aiming to improve our environmental performance.
- In addition to working on energy and resource saving, promoting Reduce, Reuse and Recycle to create recycling society and continuing zero-emission, aiming to utilize sustainable resources.
- For substances that burden environment, applying alternate technology and switching to alternative substance as much as possible. Thoroughly controlling substances that cannot be switched to alternative substance for its use.
- Creating among employees a strong sense of recognition that each employee is responsible for the process/product he/she is in charge of as well as Tungaloy owes preservation of global environment as corporate responsibility.
- Tungaloy's management will provide the necessary human resources and equipment and will make them available.
- Tungaloy's management will place objectives in areas of quality and environmental control accompanied by measurable criteria, will monitor them to evaluate their level of success and will audit/evaluate regularly.

# Introduction of Environment-conscious Products

Tungaloy develops and releases many new products every year. We implement evaluation based on the industry standard, “the Japan Cutting & Wear-resistant Tool Association Standard for Environment-Conscious Products” for all of our products and we well the products that comply with the standard.

Powerful high-feed milling cutters with improved metal removal rate

## MILLQ<sup>UAD</sup>FEED



MillQuadFeed allows highly-efficient machining with a large depth of cut up to 2.5 mm and with a high feed rate up to 2.0 mm/t. As the design of insert constraining section and cutting edge prevents lifting of the insert and fracture of cutting edge, a higher stability in machining and fracture resistance have been realized.

<https://www.tungaloy.com/jp/product/millquadfeed/>

Indexable endmills for highly-efficient milling

## DOT<sup>WIST</sup>BALL



By adopting a unique twisted-shape insert, a strong and rigid clamping structure has been realized. A stable and long life is ensured in rough machining. Also, the combination of three types of holders and an insert of radius type or of high-feed type allows different use according to the purpose of use.

<https://www.tungaloy.com/product/dotwistball/>

Shoulder milling cutters

## TUNG<sup>TRI</sup>SHRED



TungTriShred insert has two cutting edge varieties: serrated edges for roughing and straight lines for finishing. The unique pocket positioning ensures the cutting edge with a low cutting force and fewer gaps. TungTriShred provides high efficiency in roughing operation and good machining surfaces in finishing operation.

<https://www.tungaloy.com/product/tungtri-shred/>

Multi-function and highly-rigid face milling cutters

## DO<sup>TRIPLE</sup>MILL



This face milling cutter has square, octagonal, and round inserts that can be fit in the same cutter body. The improved clamping structure reduces lifting of inserts and stress applied on the screws during heavy cutting.

<https://www.tungaloy.com/product/dotriple-mill/>

Holders for high-precision profile milling

## DO<sup>MINI</sup>MILL



This is a cutter for semi-finishing or finishing operation with profile milling or plunging. By using the double-sided inserts with a positive clearance angle, both the cutting edge strength and the sharpness have been realized. DoMiniMill endures high-feed milling, and the feed speed can be significantly increased by the combination with the multi-flute body.

<https://www.tungaloy.com/product/domini-mill/>

New PVD grade for heat-resistant alloy turning

## AH<sup>8000</sup> SERIES



The multi-layered coating with high Al content provided by the new PVD coating technology has ensured strong wear resistance. The new series cover a wider application range in heat-resistant alloy turning from finishing to medium cutting, providing stability and longer tool life.

<https://www.tungaloy.com/product/iso-turning/>

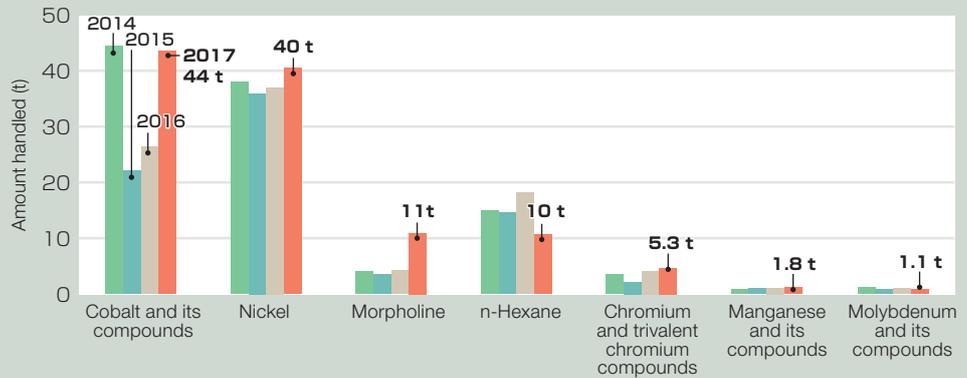
# Environmental Conservation Activities by Tungaloy

## Management of Chemical Substances

Chemical substances may cause harmful effects on the ecosystem and the human race. To prevent the leakage of these chemical substances to the environment, we aim to totally abolish the use of the harmful substances or replace them with alternatives, while implementing thorough management of the specified harmful substances.

### Status of handling of PRTR Law-related substances

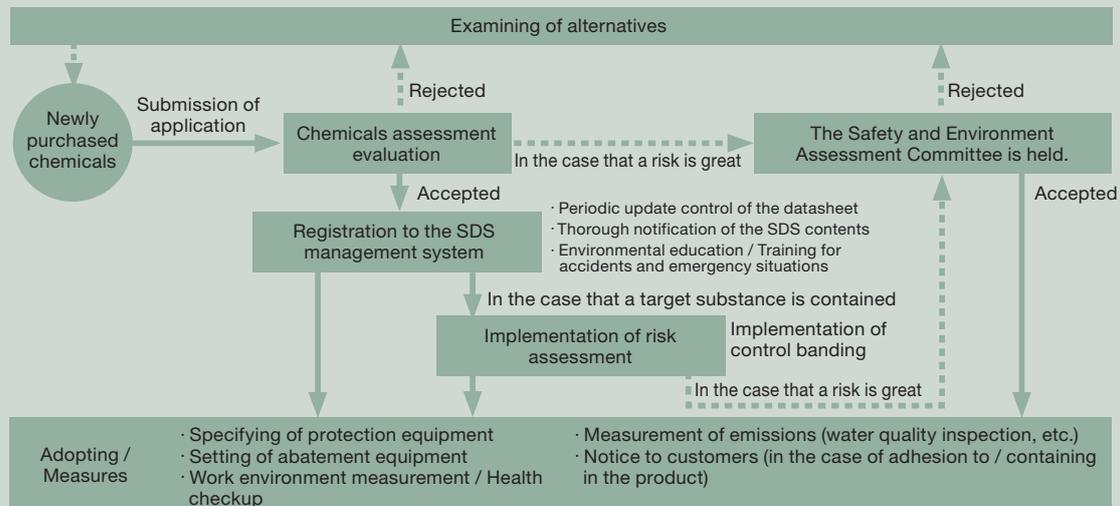
In 2017, we handled 9 substances more than 0.1 t in the year, among the 462 substances specified by the PRTR Law. Substance more than 1 t is the seven substances shown in the graph. n-Hexane and morpholine are solvent and others are raw materials.



### Assessment

We have been continually performing assessments for new buildings, facilities, and chemical substances prior to the implementation to avoid risks. As for newly purchased chemicals, we implement measures

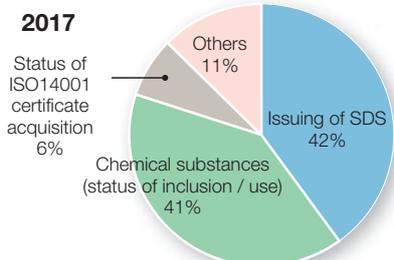
and call attentions as needed in addition to the periodic collection of datasheets after assessment evaluations. We reject the adoption according to the risk level and the difficulty of the measure and examine alternatives in some cases.



## External Communication

To enhance mutual understanding with stakeholders surrounding Tungaloy (local residents, employees, customers, suppliers, stock-holders, etc.), we are carrying out the activities to coexist with local communities.

### Inquiries from stakeholders



**Iwaki Headquarters**  
We weeded and cleaned the riverbank of the Yoshima river in Iwaki city with the local people.



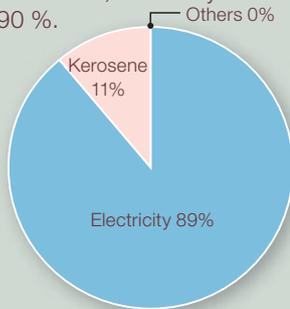
**Nagoya Campus**  
We participated in the exhibition at the Nisshin Wai-Wai Festival held by Nisshin city.

## Energy Conservation Activities

Energy used by Tungaloy consists of electricity (about 90 %), kerosene (about 10 %).

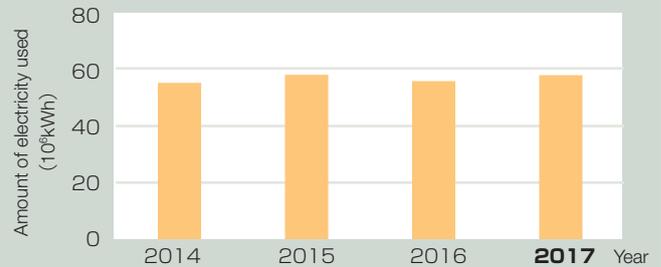
### Ratio of energy used

When energy used is compared by the type by converting the amount into crude oil, electricity accounts for approximately 90 %.



### Amount of electricity used (at plants)

Compared with 2016, it increased about 1 %.



### Amount of kerosene used

Compared with 2016, it decreased about 18% due to the review on the setting of air conditioners.



### Wind power generation

As a part of environmental awareness raising activities for employees, wind power generation facilities were installed in Iwaki Headquarters.

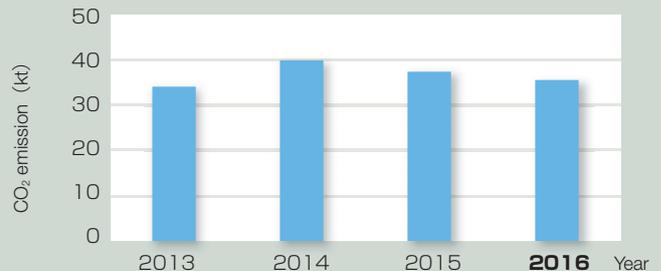


## Global Warming Prevention

Tungaloy too aims to prevent the global warming by reducing CO<sub>2</sub> emissions through energy-saving activity.

### CO<sub>2</sub> emission

Compared with 2015, it decreased about 4 %.



### Kyushu Campus

We participated in a local summer festival and interacted with local people.



### Materials & Components Division

We provide plant tours for local schools.



## Formulating of the T-BCP

The Great East Japan Earthquake in 2011, the heavy rain disaster in northern Kyushu in 2012, heavy snow in 2014 and other disasters occasionally caused damage to Tungaloy offices. Our business activities have recovered and significantly exceeded the former business activity scale; however, we hope that we will protect the employment and trust from our customers and contribute to the reconstruction and development in the region

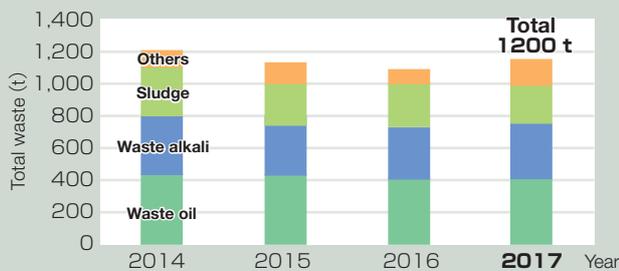
by protecting the lives and good health of employees and their families and by continuing our business, even in a future disaster. In 2016, we have launched the Tungaloy Business Continuity Plan; T-BCP. To be able to continue our business in an emergency, we have been implementing measures for further promotion of disaster prevention, disaster mitigation, evacuation and preparation for recovery after disaster.

## Waste and Recycling

We promote proper segregation of waste and recycling. Since 2004, we have been keeping “the ratio of landfill disposal rate to the total waste less than 1 % (Zero Emission)”.

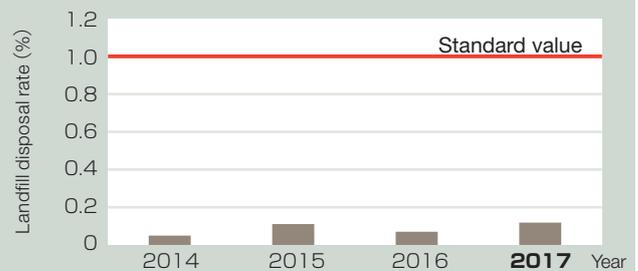
### Total waste

Compared with 2016, total waste increased about 3 % due to the increase in production.



### Landfill disposal rate

It was 0.1 % in 2017.



### Visit to our waste disposal contractor

We visit our waste disposal contractor on a regular basis to check the disposal status and ensure the compliance.



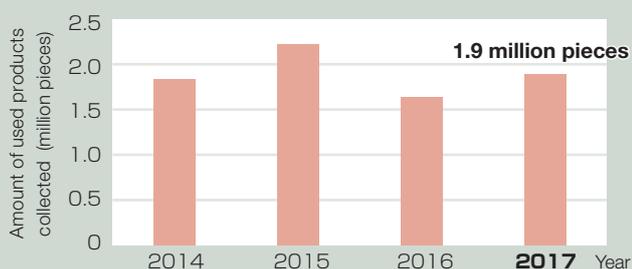
### Collection of used products

Measures have been taken for collecting and recycling of used products (The collecting service of the used products is available only in Japan.)



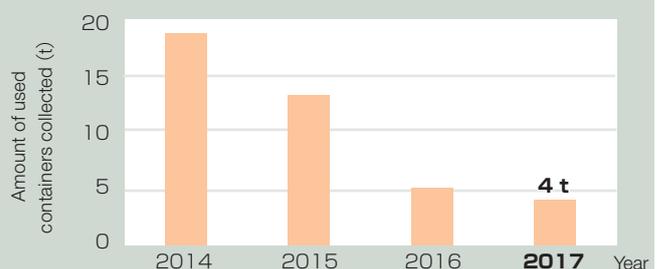
### Recycling of used products

Compared with 2016, the amount of used products collected increased about 12 %.



### Recycling of used containers

Compared with 2016, it decreased about 23 %. As common plastic or corrugated containers are used, it seems that recycling by customers has become a main stream. Furthermore, material recycling of waste plastics has been difficult due to tightening of regulations in China from October 2017.



## Environmental Education

Environmental education and training for accidents and emergency situations are provided to all employees to continuously improve the environmental conservation activities.



Environmental education is provided to have each and every employee become aware of what influence is caused on the environment by Tungaloy's businesses and the employee's work, or of how the environmental change affects our business or work including the good and bad aspects.



Periodic education is provided to the Internal Environmental Auditor.



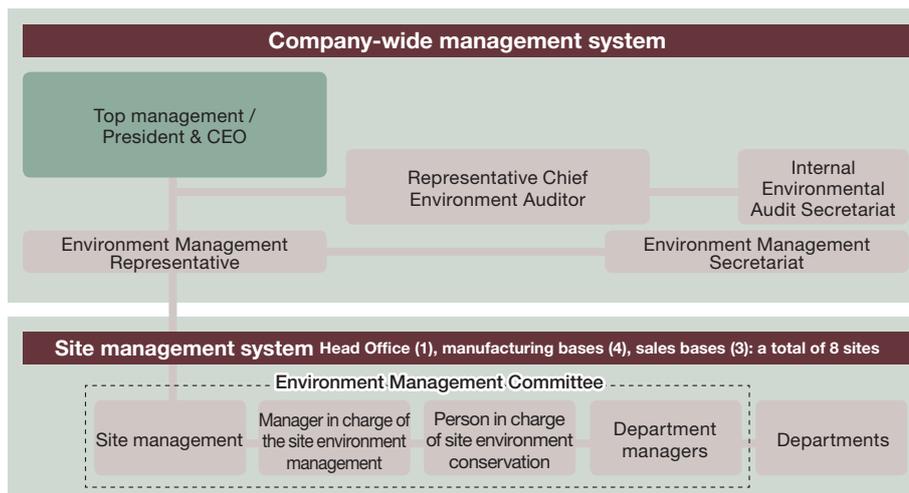
Trainings are held by setting accidents assumed for each facility and equipment owned. The procedures for handling are read through in advance to confirm that nothing is missed and what is the meaning of the action.



We also used actual measurement instruments and materials for collecting leaked substance as much as possible. After training, we discuss whether it was easy to take out, use, etc.

## Environment Conservation System

Tungaloy has been promoting the management system for systematically improving and understanding the influence of our corporate activities and products on the environment.



**Acquired the revised standard certification**

Tungaloy Corporation

EC97J1123

ISO 14001:2015 · JIS Q 14001:2015

Site information	Business operations				Acquisition of ISO14001
	Headquarters function	Production control / Purchasing	Development / Design	Production Marketing / Sales	
<b>Headquarters</b> 11-1 Yoshima-Kogyodanchi, Iwaki, Fukushima	●		●		Moved to Iwaki in Mar. 2010
<b>Manufacturing bases</b>	<b>Iwaki Campus</b> 11-1 Yoshima-Kogyodanchi, Iwaki, Fukushima		●	●	1997.11
	<b>Materials &amp; Components Division</b> 114 Kamijo-Higashiwari, Okusa-machi, Nirasaki, Yamanashi		●	●	1998.12
	<b>Nagoya Campus</b> 77-1 Chaen, Asada-cho, Nisshin, Aichi		●	●	1999.12
	<b>Kyushu Campus</b> 3-7-57 Miyanojin, Kurume, Fukuoka			●	1999.12
<b>Sales bases</b>	<b>Shin-Yokohama Office (Tokyo Regional Branch)</b> Yusen Shin-Yokohama 1Chome Bldg., 1-7-9 Shin-Yokohama, Kohoku-ku, Yokohama, Kanagawa (Sales offices: Tokyo, Nagano, Niigata, Fuji, Takasaki, Iwaki, Tohoku)			●	1999.12
	<b>Nagoya Regional Branch</b> 77-1 Chaen, Asada-cho, Nisshin, Aichi (Sales offices: Nagoya, Mikawa, Hamamatsu, Kanazawa, Toyota)			●	1999.12
	<b>Osaka Regional Branch</b> 2-1-1 Edobori, Nishi-ku, Osaka (Sales offices: Osaka, Kyoto, Kobe, Okayama, Hiroshima, Fukuoka)			●	1999.12



Iwaki Headquarters



Nagoya Campus



Kyushu Campus



# **Tungaloy Corporation**

11-1 Yoshima-Kogyodanchi, Iwaki, 970-1144 Japan  
[www.tungaloy.co.jp](http://www.tungaloy.co.jp)