Tungaloy Environmental Report 2023

Member IMC Group Tungaloy INDUSTRY 4.0

SUSTAINABLE DEVELOPMENT GOALS

Tungaloy supports the Sustainable Development Goals

Message

The earthquake that hit southeastern Turkey in February 2023 destroyed many buildings and took the lives of people living there. I would like to express my sympathies to the victims and wish for the earliest possible recovery. Like Turkey, Japan is also located on the boundary of tectonic plates and therefore is a country with a high probability of a major earthquake. Tungaloy's Headquarters and Iwaki Campus were damaged by the 2011 Great East Japan Earthquake. Fortunately, we were able to recover quickly from the earthquake disaster, but the event reminded us once again of the importance of disaster countermeasures. In the twelve years since then, we set up a business continuity plan (BCP) and have focused on improving it. As a milestone, a new building for manufacturing intermediate products was completed at the Iwaki Campus in October 2022. This new building replaces the building that had been used while being repaired after the disaster, and reduces the risk of building to ensure the safety of employees and stable supply of products. Tungaloy's plant will be transformed into a disaster-resistant, environmentally-friendly and cleaner plant.

Tungaloy has also taken major steps toward carbon neutrality and the United Nations Sustainable Development Goals (SDGs). In the Tungaloy Environmental Report 2022, we reported the start of purchasing electric power generated by renewable energy in addition to in-house power generation. In 2023, we started purchasing electric power generated by renewable energy at all of our plants, and have increased the ratio of such electric power. With regard to SDGs, we have newly adopted fair trade banana paper for our tool instruction manuals, and have reduced the use of plastic by using corrugated board as a cushioning material for cutter boxes. Furthermore, looking broadly at our activities other those related to environmental conservation, we have confirmed that Tungaloy has been taking approaches to achieving all 17 goals of SDGs. We would like to eventually provide you with the information on our approaches, but currently we are working to raise employee awareness about the SDGs. Tungaloy has been organizing a system to play a role in realizing the sustainable world that the SDGs aim for, one where poverty and hunger are eradicated, fair and safe lives are ensured, and economic growth and environmental conservation are compatible with each other.

Tungaloy acquired ISO 14001 certification, the international standards on environmental management systems, in 1997, making us the first manufacturer to acquire certification in the cemented carbide tool industry in Japan, and this year marks the 26th anniversary of the acquisition. In order to continue being a brand that can respond to customer's expectations and safety, all Tungaloy employees will unite to continue and promote our environmental conservation activities.

This report outlines the environmental conservation activities carried out in 2022 and, continuing from 2020, it also describes the connections between our activities and SDGs. Your kind understanding and honest opinions would be very much appreciated.

April 2023

Tungaloy Corporation
President & CEO
Satoshi Kinoshita

Approaches to SDGs

This report introduces the state of Tungaloy's approaches to Sustainable Development Goals (SDGs) which have achieved global consensus toward 2030, using icons.

Tungaloy's environmental conservation activities are linked to the nine goals of SDGs.

Icons	Sustainable Development Goals (Target number)	Tungaloy's environmental Conservation activities
	Ensure healthy lives and promote well-being for all at all ages. (3.9)	Management of chemical substances Pollution prevention (air, water, soil)
	Ensure availability and sustainable management of water and sanitation for all. (6.3, 6.4)	Pollution prevention (water) Recycling of water
	Ensure access to affordable, reliable, sustainable and modern energy for all. (7.2, 7.3)	Utilization of renewable energy Energy conservation activities

Tungaloy Policy

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 contributes to customers and society via ideas that alter the common sense of the manufacturing industry and through the strength of its products.

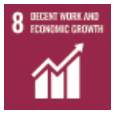
Tungaloy supplies qualitative and reliable products while integrating safety, environmental and energetic considerations in the design and production processes to meet the customers', and relevant interested parties, expectations to their fullest satisfaction.

As a member of IMC Group, Tungaloy will aspire to preserve its position as a leader in the international market in its field.

Tungaloy's activities are based on the principle of compliance and consideration for the environment.

Tungaloy will fully comply with its commitments as agreed in the engagement contract between Tungaloy and its customer.

- Tungaloy is committed to continually improve the effectiveness of occupational safety and health systems, product quality management, environment and energy management system while complying with the requirements of all applicable international standards, laws, regulations and agreements.
- Tungaloy will provide safe and healthy working conditions to prevention of work-related injuries and damages in health while maintaining employee safety, product quality, environmental preservation and pollution prevention as primary factors that are as important as ensuring the company's success and profitability.
- Tungaloy is committed to consult with employees and their representatives and collaborate on EHS (Environment, Health and Safety) and energy issues.
- Tungaloy will address the following items in order for the policy to come into fruition:
  - Educating managers and employees to maintain occupational safety and health standards, product quality and environmental quality.
  - Introducing innovative production and inspection methods, control methods at all stages of the process, supervision of performance in safety, product quality, occupational hygiene, environmental quality and energy management.
  - Tungaloy integrates Environmental, Social, and Corporate Governance (ESG) considerations to achieve all UN 17 Sustainable Development Goals (SDGs).
  - Tungaloy's sustainable supply chain management is a key corporate goal to provide added value for all nterested parties.
  - To mitigate climate change, in addition to energy conservation activities within our company, we will promote the introduction of renewable energy and reduce our carbon dioxide emissions by 46% by 2030 compared to the 2013 levels. We will also reduce the energy burden of our customers by supplying a large number of new high-performance products.
  - Tungaloy is committed to remove risk factors and reduce EHS risks.
  - Tungaloy creates among its employees a sense of recognition and commitment so that each employee is responsible for the quality of the process/product he/she oversees while maintaining safety procedures, environmental quality and energy management.
  - Tungaloy will carry out activities to encourage awareness of employees to occupational safety and health, product quality, environment quality, energy management and importance.
  - Tungaloy's management will provide the necessary human resources and equipment and will make them available.
  - Tungaloy's management will set occupational safety and health goals in employment, product quality goals and environmental quality and energy management, accompanied by measurable criteria and testing systems to assess the level of success and periodically monitor their implementation.
- Tungaloy defines an ethical code that reflects the company's culture, vision, standards, principles and philosophy. The ethical code is distributed to employees and relevant interested parties on behalf of the company and under its supervision.
- Tungaloy will convey this policy to its stakeholders, including all of its employees.

Icons	Sustainable Development Goals (Target number)	Tungaloy's environmental Conservation activities
	Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all. (8.2, 8.4)	Environment-conscious products (high-efficiency products) Energy conservation activities
	Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation. (9.4)	Environment-conscious products (high-efficiency products) Energy conservation activities
	Make cities and human settlements inclusive, safe, resilient and sustainable. (11.6)	Pollution prevention (air) Waste and Recycling
	Ensure sustainable consumption and production patterns. (12.2, 12.5)	Waste and Recycling Management of chemical substances Environment-conscious products (high-efficiency products) Pollution prevention (air, water, soil)
	Take urgent action to combat climate change and its impacts. (13.1, 13.3)	Utilization of renewable energy Energy conservation activities T-BCP Environmental education for employees
	Conserve and sustainably use the oceans, seas and marine resources for sustainable development. (14.1)	Pollution prevention (water)

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.

For details of the Standards for Certification of Environment-Conscious Products (ECP), please see the website of the Japan Cutting & Wear-resistant Tool Association (JTA). *Japanese version only
http://www.jta-tool.jp/06-1-3-2.html

JTA Standards for Certification of ECP

Sample label

High-Feed milling cutter

ADDDOFEED / DOFEED

New UER inserts

Highly efficient DoFeed high-feed milling cutter series has a multiple cutting-edge design and a wide variety of lineups to enable all types of machining. (2010-017★★★)
New UER types with low cutting-edge angle added. Chips are thin, which is expected to extend tool life and suppress chatter.
AddDoFeed is a small diameter type. The combination of a small insert with an inscribed circle diameter of 4.0 mm and a multiple cutting-edge specification body with four cutting edges for a tool diameter of 16 mm and seven cutting edges for 25 mm enables far more efficient machining than general-purpose small-diameter solid endmills.
https://tungaloy.com/product/milling/adddofeed-dofeed/

Versatile shoulder milling cutter

TUNGFORCEREC

Insert size 04 / 12

TungForceRec has a V-shaped insert bottom that enables thicker back metal and longer set screws to ensure high tool rigidity. It also has the largest number of cutting teeth in the industry, enabling high efficiency machining.
The size 04 is a small-diameter type insert suitable for reducing insert costs and switching solid endmills.
The size 12 has cutting edges that are approximately doubled in length, enabling machining with a larger cutting depth.
https://tungaloy.com/product/milling/tungforce-rec/

High feed milling cutters with six cutting edge inserts

DOFEEDTRI

Tungaloy’s first high feed milling cutters with 6-corner double-sided inserts. Wide insert restraining surface improves clamping rigidity. Longer inner cutting edge design is ideal for digging processing. Excellent chatter suppression and cutting edge strength.
https://tungaloy.com/product/milling/dofeedtri/

Shoulder milling cutter

TUNG-TRI

Insert size 04

Small-diameter type Tung-Tri shoulder milling cutter series. The series concepts such as economical 3-corner inserts that enable both high-precision machining and low resistance and 1.5 to 2 times more cutting edges than conventional products have been realized with ultra-small inserts, enabling highly efficient machining.
https://tungaloy.com/product/milling/tung-tri/

Internal grooving tool

ADDICUT INTERNAL

Internal grooving tool with 4-corner inserts, which can be used for machining diameters of at least 10.5 mm. The revolutionary clamping system with both tool rigidity and good chip discharge performance realizes excellent repeated cutting edge positioning accuracy.
https://tungaloy.com/product/grooving/addinternalcut/

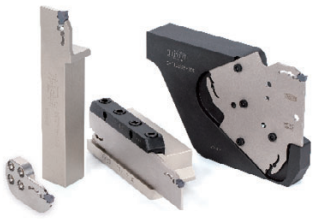
Carbide grade series for stainless steel turning

T6200 & AH6200

Thick CVD coating film, which is 1.3 times thicker than conventional films, has been adopted for CVD-coated grade T6215. Thick PVD coating film that is effective in suppressing crater wear on the rake face has been developed for PVD-coated grade AH6225 and AH6235. This series provides stable life performance in stainless steel turning.
https://tungaloy.com/product/turning/t6200-ah6200-series/

Grooving and parting-off tool series

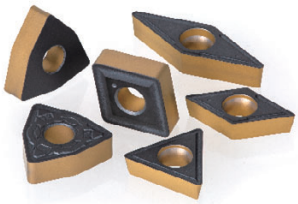
ADDFORCECUT



A grooving tool series that enables excellent chip evacuation for deep grooving and cut-off machining with a 1-corner insert and high-rigidity self-clamping mechanism. The bottom stopper of the insert pocket achieves high cutting edge position accuracy.
https://tungaloy.com/product/grooving/addforcecut/

CVD-coated grade for cast iron turning

T505



The thickest coating film in the history of Tungaloy's CVD-coated grades, which is 1.5 times thicker than conventional films, 20 μm or more has been adopted to enhance wear resistance. The dedicated base material has a thermal conductivity 1.6 times higher than that of conventional materials to cope with cutting heat during high-speed machining. Excellent life performance during high-speed and continuous machining of cast iron.
https://tungaloy.com/product/turning/t500-series/

Environmental Conservation Activities by Tungaloy

Utilization of renewable energy

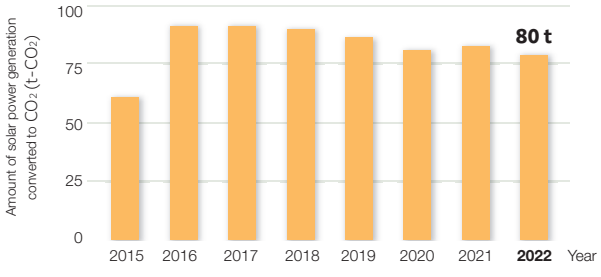
As stated in Tungaloy's policy, we aim to reduce our carbon dioxide (CO_2) emissions by 46% by 2030 compared to the 2013 levels by promoting the introduction of renewable energy in addition to energy conservation activities within the company in order to mitigate climate change.

Consumption

Since January 2022, 100% of electricity purchased at the Nagoya Campus has been derived from renewable energy sources.
All the other plants have also introduced electricity derived from renewable energy sources for part of their purchased electricity. We will gradually increase the ratio of renewable energy in the future.

Generation

We introduced a solar power generation system in 2015, and all the electricity generated is used at our Iwaki Headquarters. We also installed a wind generator system in 2017 to raise environmental awareness of our employees.
Our solar power generation system generates approx. 160 MWh of electricity per year, which means that it reduces CO_2 emissions by approx. 80 tons per year.

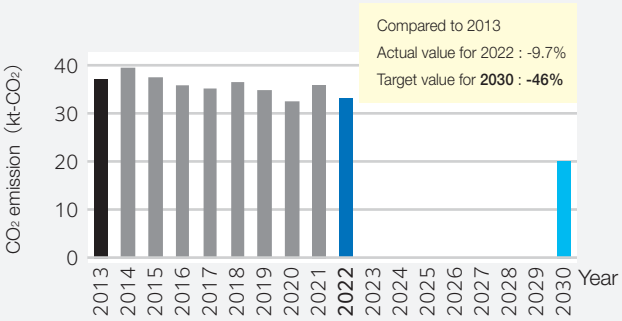


Global Warming Prevention / Energy Conservation Activities

We aim to prevent the global warming by reducing CO_2 emissions through energy-saving activity.

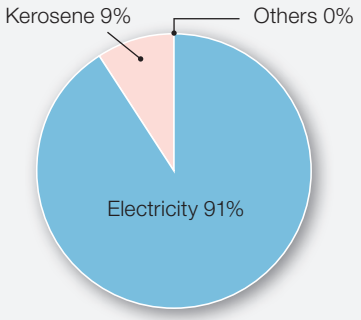
CO_2 emission

Compared with 2021, it increased about **7%**.



Ratio of energy used

The energy used is compared by crude oil equivalent by type. About 90% is electric.

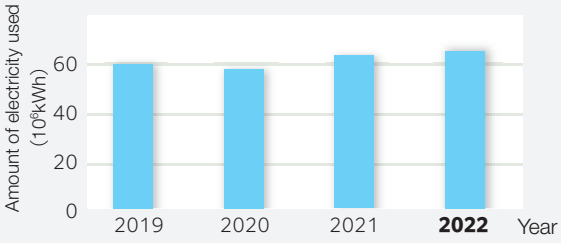


Energy Conservation Promotion Committee

The Energy Conservation Promotion Committee is held at least once a year for the purpose of rationalizing efficient and effective use of energy in our plants.
In 2022, due to the continuing COVID-19 pandemic, the meeting was held on September 2 by remotely connecting our offices in order to reduce the number of attendees, as in the case of the meeting in 2021. Within the Committee, reports were made on the status of energy consumption at each plant, and consultations and discussions were held on matters related to specific energy conservation methods. For two reported energy conservation activities, we applied for Japan Cutting & Wear-resistant Tool Association's Environmental Activity Awards, and received both awards.

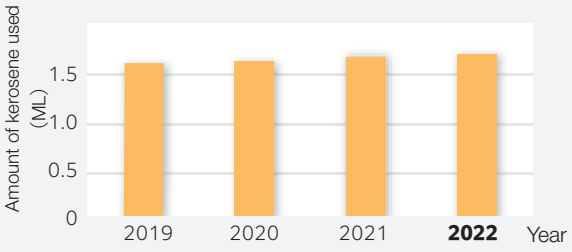
Amount of electricity used

Compared with 2021, it increased about **4%**.



Amount of kerosene used

Compared with 2021, it increased about **1%**.



T-BCP

We have launched and made efforts for Tungaloy Business Continuity Plan (T-BCP) since 2016. We have been preparing for disaster prevention, disaster mitigation, evacuation and post-disaster recovery so that we can continue our business even in emergencies such as disasters.

Tungaloy has introduced a safety confirmation system for all employees in the event of a disaster. In addition to periodic disaster response drills, this system has also been used to check physical conditions of our employees during the spread of COVID-19.

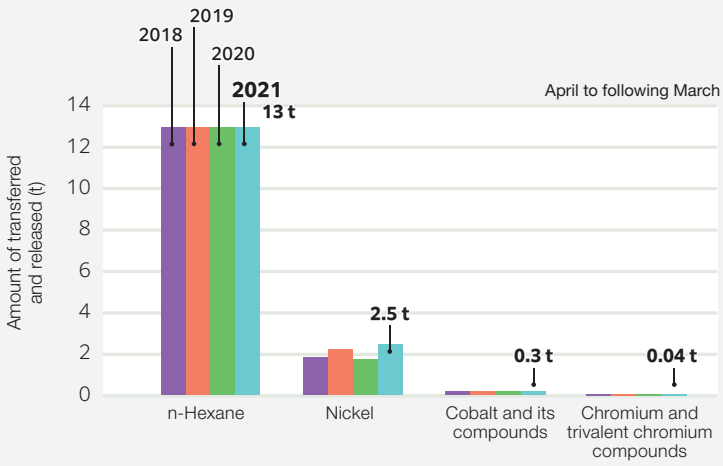
Management of Chemical Substances

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

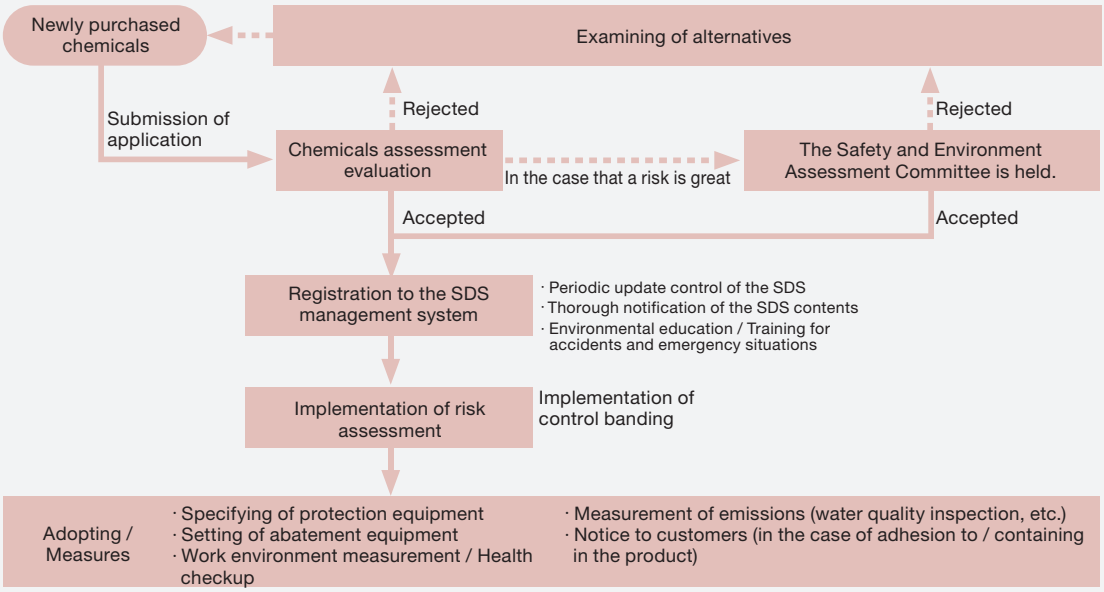
In 2021, we handled 6 substances more than 1 t in the year, among the 462 substances specified by the PRTR Law. Of these substances, 4 substances shown in the graph were transferred or emitted into the environment.

PRTR Law-related substances	Amount of handled (2021)	Principal use
Cobalt and its compounds	75 t	raw materials
Nickel	65 t	raw materials
n-Hexane	13 t	solvent
Morpholine	4.6 t	solvent
Chromium and trivalent chromium compounds	2.0 t	raw materials
Acetonitrile	1.0 t	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 Safety Data Sheet (SDS) after assessment evaluations. We reject the adoption according to the risk level and the difficulty of the measure and examine alternatives in some cases.

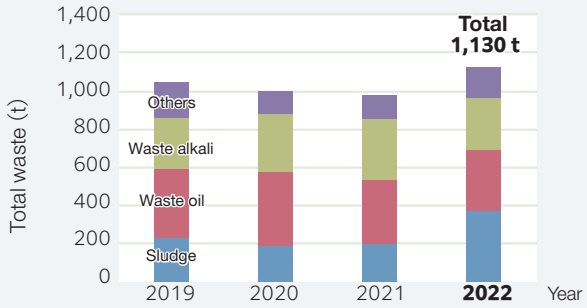


Waste and Recycling

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

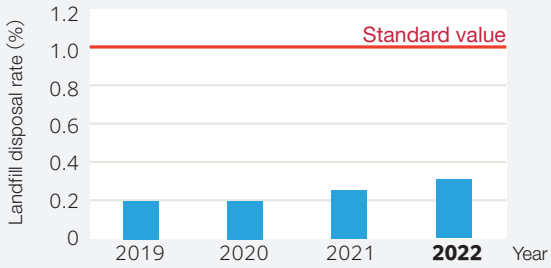
Total waste

Compared with 2021, it increased about **19%**.



Landfill disposal rate

It was **0.3%** in 2022.

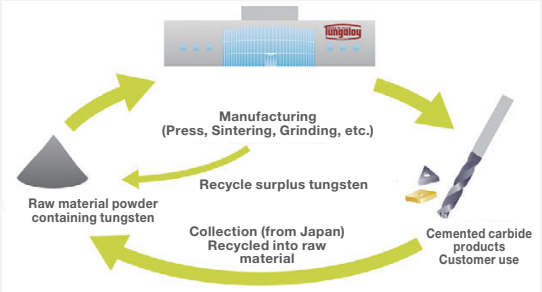


Visit to our waste disposal contractor

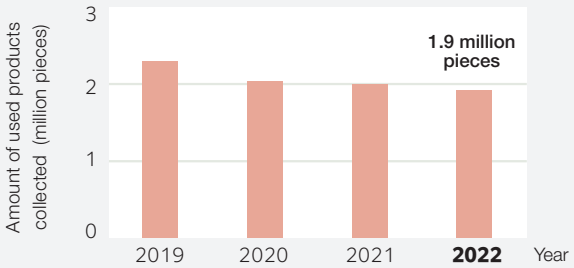
We visit our waste disposal contractor on a regular basis to check the disposal status and ensure the compliance.
In 2022, we conducted our visit while taking into consideration infectious disease control.

Collection and Recycling of Used Cemented Carbide Products

Measures have been taken for collecting and recycling of used products.



Compared with 2021, the amount of used products collected decreased about **3%**.



The collecting service of the used products is available only in Japan.

Pollution prevention

Voluntary control standard values stricter than those specified by various laws and regulations including the Air Pollution Control Act and the Water Pollution Prevention Act have been established at each plant to measure and observe exhaust air from boilers, treated water at effluent treatment facilities and noise at property boundaries. Moreover, we are making efforts to understand risks and take measured against them through implementation of assessment before new introduction and periodic review of results of environmental impact assessment.

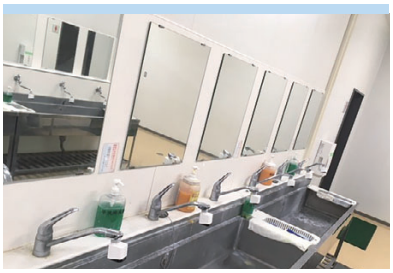
Improvement of weeding work

At Tungaloy, considering the effects of residual chemical substances, we limit the use of herbicides to the minimum and thoroughly 2022, we introduced manage their use history and other information. In a hot water high-pressure washer at the Iwaki Headquarters. Using 100 ℃ hot water, we aim for clean weeding work without using chemical substances.

Water conservation

At Tungaloy, water is used as water for living use for our employees to wash their hands, etc., washing water associated with production and water for cooling of equipment.

- At the Kyushu Campus, rechargeable automatic faucets have been retrofitted to lever-type manual faucets in the hand washing places. By frequently turning off the water while washing hands, the amount of water used is reduced to about one-third, but it was difficult to thoroughly make our employees do this because it would inevitably be troublesome with manual faucets. However, by installing automatic faucets, we can save water effortlessly.
- Basically, cooling water of equipment is recycled.



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.
- Trainings are held by setting accidents assumed for each facility and equipment owned. We use the actual things as much as possible for measuring instruments, collection materials for leaked substance, and protective equipment. After training, we also check the ease of use and handling.

Environmental education

Meeting before and after training

Training with gas- and chemical-resistant protective equipment

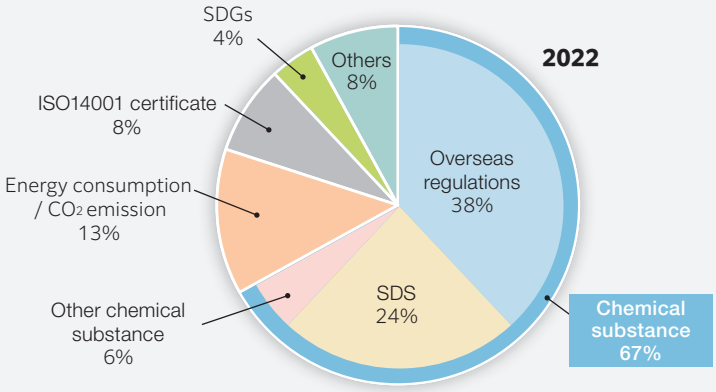
Simulation of oil recovery using pumps

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

In addition to inquiries about chemical substances, we are now receiving inquiries about carbon neutrality and SDGs.



Environmental Inspections

Tungaloy periodically visits affiliated companies whose transaction ratio exceeds a certain level and conducts environmental inspections.
In 2022, we conducted our visit while taking into consideration infectious disease control.

Activties

Tungaloy focuses on communication with local schools and residents.
We actively hold and participate in plant tours, work experience, cleaning activities, and other activities.

Iwaki Headquarters
We hold work experiences and factory tours for local schools.

Materials & Components Division
We actively hold factory tours for local schools.

Materials & Components Division
We donated Tungaloy's products to a local technical high school.

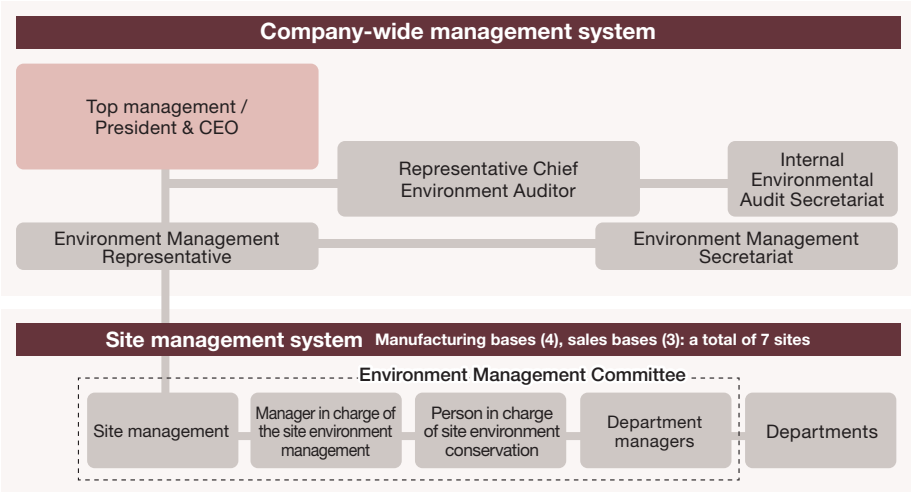
Nagoya Campus
We exhibited Nisshin Wai-Wai Festival held in Nisshin City.

Nagoya Campus
We participated in the garbage cleanup campaign in Nisshin city.

Kyushu Campus
We participate in simultaneous community cleaning activities every month.

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.
In consideration of infectious disease control, the ISO audit in 2022 was conducted on-site at Iwaki Campus and Headquarters, and other sites were audited remotely from Iwaki Headquarters, as in the previous year.



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EC97J1123
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Tungaloy Corporation

	Site information	Business operations				
		Headquarters function	Production control / Purchasing	Development / Design	Production	Marketing / Sales
Manufacturing bases	**Iwaki Headquarters** 11-1 Yoshima-Kogyodanchi, Iwaki, Fukushima	●	●	●	●	●
	Materials & Components Division 114 Kamijo-Higashiwari, Okusa-machi, Nirasaki, Yamanashi			●	●	●
	Nagoya Campus 77-1 Chaen, Asada-cho, Nisshin, Aichi				●	
	Kyushu Campus 3-7-57 Miyanojin, Kurume, Fukuoka				●	
Sales bases	**Shin-Yokohama Office (Tokyo Regional Branch)** Yusen Shin-Yokohama 1Chome Bldg., 1-7-9 Shin-Yokohama, Kohoku-ku, Yokohama, Kanagawa					●
	Nagoya Regional Branch 77-1 Chaen, Asada-cho, Nisshin, Aichi					●
	Osaka Regional Branch 2-1-10 Nankokita, Suminoe-ku, Osaka					●


Iwaki Headquarters


Materials & Components Division


Nagoya Campus


Kyushu Campus

Tungaloy Corporation
11-1 Yoshima-Kogyodanchi, Iwaki, 970-1144 Japan
tungaloy.com

Jun. 2023