Tungaloy Environmental Report 2024 🥑







Tungaloy supports the Sustainable Development Goals

Message

The year 2024 began with the Noto Peninsula Earthquake on New Year's Day, followed by the runway collision at Haneda Airport on the following day, and many people started the year feeling anxious, tense, and sad. I would like to once again express my sympathies to the victims and all those involved. I hope that those who have been going through hardships will be able to reclaim their calm days as soon as possible.

Last year, heavy rain caused disasters again in various areas, and Iwaki City, Fukushima Prefecture, where Tungaloy's headquarters is located, also suffered damage from a flood. Fortunately, Tungaloy was not significantly affected. However, warnings about the Nankai Trough earthquake are often reported in the media, and we are reminded that multiple types of disasters can occur at the same time in multiple locations or over a wide area. In order to prepare for disaster mitigation, evacuation, and subsequent recovery, we must update our business continuity plan (BCP) as appropriate and make sure to implement it. We have long conducted training for accidents and emergency situations in preparation for oil leaks from equipment at our plants with the assumption that a disaster may occur when there are few employees, for example, at night. Last year, we also conducted plant-wide evacuation drills during shift work hours at some plants to verify safety confirmation methods.

In addition, last year, as the COVID-19 pandemic that began in 2020 was coming to an end, we resumed activities that we had refrained from, such as participating in exhibitions and holding seminars. I am glad that Tungaloy members have the opportunity to meet many people in person again. On the other hand, online activities also have advantages, so we have launched a cutting and processing community website "Kirikomi" and have continued to hold some of our online seminars. Digitalization and automation are accelerating in the world of production sites and the manufacturing industry. This is probably because of the growing recognition that improvements in productivity can help address issues such as SDGs and carbon neutrality. Tungaloy offers a wide range of environment-conscious products that help customers improve their productivity. In addition to automation and digitalization within our company, Tungaloy has also been working on energy conservation activities such as optimizing operating conditions for facilities including ancillary facilities, and was awarded the Environmental Activity Award by the Japan Cutting & Wearresistant Tool Association, an industry group.

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 27th anniversary of the acquisition. In order to continue being a brand that can respond to customers' 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 2023. Your kind understanding and honest opinions would be very much appreciated.

April 2024



Satoshi Kinoshita

President & CEO

Tungaloy Corporation

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		
3 DOOD HEALTH AND WELL-BEING	Ensure healthy lives and promote well-being for all at all ages. (3.9)	Management of chemical substances Pollution prevention (air, water, soil)		
6 CLEAN WATER AND SANTATION	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, friction materials 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 interested parties.
- Tungaloy will reduce our carbon dioxide emissions to mitigate climate change by 46% by 2030 compared to the 2013 levels. In addition, we will engage energy conservation activities including our procurement and design activities, improve our performance of energy, and promote the introduction of renewable energy. Also, we will reduce the energy burden of our customers by supplying a large number of new highperformance 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
8 DECENT NUME AND ECONOMIC GROWTH	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
9 NELECTIVI, INVENTIALA NEO INFERENCIELLAR	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
12 ESPONSELLE CONSUMPTION AND PRODUCTION	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)
13 GEBARE	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
14 LIFE RELOW INCER	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







A long-blade type cutter for rough machining with a cutting blade shape required for highefficiency machining of titanium alloys. Double-sided inserts and dovetail clamps with both sharpness and cutting-edge strength greatly improve insert strength and clamp strength.

https://tungaloy.com/product/milling/extendedforcemill/





Reproduction of the "barrel head," a barrel-shaped tool for profile milling. While retaining the advantage of the shape that enables short-time machining by increasing the pick feed, the design with increased insert clamping rigidity supports highprecision machining.

https://tungaloy.com/product/milling/addforcebarrel/







Multifunctional milling cutter with 4-corner specification inserts, with both center and peripheral edges set on each face of a single insert, also suitable for drilling. The flatness of the front cutting edge has been improved, making it possible to make the machining bottom surface almost flat.

https://tungaloy.com/product/milling/domultirec/

Grooving and threading tool series for CNC automatic lathes





2-corner inserts with unique V-shape. Compared to conventional triangular inserts, the cutting edge is slimmer, so there is no interference with adjacent tools when mounted on the cutter holder. The V-shaped pocket securely fixes the insert, providing high tool rigidity.

https://tungaloy.com/product/grooving/miniv-lockgroove/

Grooving & parting tool

TUNGC



1.2 mm wide insert / CBN-tipped STH inserts



1.2 mm wide insert: When small parts are machined in mass quantities, this insert can reduce costs compared to conventional 2-mm wide inserts and provides stable performance despite its very narrow groove width. Assuming use on automatic lathes, the clamping screw can be operated from the side of the holder.

CBN-tipped STH inserts: CBN inserts effective for the finish external turning process of hardened steel parts, for which CBN inserts in ISO shapes are generally used. The grooving tool shape enables high-feed face turning and high-feed external turning without worrying about interference.

https://tungaloy.com/product/grooving/tungcut/

External turning tool





Multi-directional turning tool based on the concept of high efficiency by high-feedback (pull) turning method. The unique Y-Prism shape on the holder's seating face and the insert's bottom face ensures secure clamping. This tool can also be used for front (push) turning just as with conventional ISO tools. promoting a high degree of flexibility.

https://tungaloy.com/product/turning/addmultiturn/

Coated CBN grade for hardened steel





The dedicated substrate inhibits the generation and propagation of cracks by evenly distributed fine CBN grains. Furthermore, the new PVD coating, which helps prevent the generation of sudden defects and microchipping, realizes high reliability and long tool life during heavy interrupted hard-turning operations.

https://tungaloy.com/product/turning/bxa10-bxa20-br35f/

Environmental Conservation Activities by Tungaloy





As stated in Tungaloy's policy, we aim to reduce our carbon dioxide (CO₂) 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

CBN inserts

HF/HS/HP chipbreaker

BXA20

CBN inserts with chipbreaker

HARDBREAKER SERIES

HF chipbreaker (for carburized layer removal): The conventional

HF type has been improved to have three-dimensional specifica-

tions to provide excellent chip control. In addition, the angled rake

HS chipbreaker (for high-feed finishing): The latest technology is

used to form a curved breaker on the CBN part, providing outstan-

HP chipbreaker (for precision finishing): The cutting-edge shape

with low cutting force realizes long tool life, provides chatter-free

https://tungaloy.com/product/turning/hardbreaker-series/

face controls chip flow and reduces crater wear.

ding chip control even in high-feed machining.

machining, and enables precision machining.

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 CO₂ emissions by approx. 79 tons per year.



Global Warming Prevention / Energy Conservation Activities



We aim to prevent the global warming by reducing CO₂ emissions through energy-saving activity.

CO₂ emission

Compared to 2022, CO₂ emissions were reduced by approximately **12%**.



Amount of electricity used

Compared to 2022, amount of electricity used were reduced by approximately **3%**.



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 2023, the meeting was held on September 15. 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.

Ratio of energy used

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



Amount of kerosene and city gas used

In September 2023, we changed the fuel used at the lwaki Headquarters from kerosene to city gas. The change of the fuel to city gas can improve efficiency and reduce consumption and CO_2 emissions.

Compared to 2022, CO₂ emissions were reduced by approximately **16%**.



For three reported energy conservation activities, we applied for Japan Cutting & Wear-resistant Tool Association's Environmental Activity Awards, and all were awarded.

- Simplified inspection of electrical equipment in panels by thermographic measurement
- Improvement of adsorption systems in automatic inspection machines
- Elimination of electric power waste by stopping mist collectors when not needed.





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 2022, 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.



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)".





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 and Recycling of Used Cemented Carbide Products

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



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

Compared with 2022, the amount of used products collected increased about **7%**.



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 °C 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 levertype 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.

Meeting before and after training

































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 2023, following the revision of the Stockholm Convention on Persistent Organic Pollutants (POPs) and the Act on the Assessment of Releases of Specified Chemical Substances in the Environment and the Promotion of Management Improvement, we received many inquiries about Per- and Polyfluoroalkyl Substances (PFAS) and other chemical substances.

We also received an increasing number of inquiries about comprehensive environmental conservation systems, including energy management and chemical substance management.



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 participate in simultaneous community cleaning activities every month.



Materials & Components Division We weeded and cleaned the slope named Hanezaka in Nirasaki city.



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



Kyushu Campus We actively hold factory tours for local schools.



Kyushu Campus We cleaned up the Chikugo River and interacted with local residents.



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



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



Site information		Business operations					
		Headquarters function	Production control / Purchasing	Development / Design	Production	Marketing / Sales	
Manufacturing bases	ses	Iwaki Headquarters 11-1 Yoshima-Kogyodanchi, Iwaki, Fukushima	٠	٠	•	٠	٠
	ring pa	Materials & Components Division 114 Kamijo-Higashiwari, Okusa-machi, Nirasaki, Yamanashi			٠	٠	•
	Manufactu	Nagoya Campus 77-1 Chaen, Asada-cho, Nisshin, Aichi				٠	
		Kyushu Campus 3-7-57 Miyanojin, Kurume, Fukuoka				٠	
Sales bases	es	Shin-Yokohama Office (Tokyo Regional Branch) Yusen Shin-Yokohama 1Chome Bldg., 1-7-9 Shin-Yokohama, Kohoku-ku, Yokohama, Kanagawa					•
	lles Das	Nagoya Regional Branch 77-1 Chaen, Asada-cho, Nisshin, Aichi					•
	0	Osaka Regional Branch 2-1-10 Nankokita, Suminoe-ku, Osaka					•



Iwaki Headquarters







Kyushu Campus



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