WINAICO®

Power to Perform

CORPORATE SOCIAL RESPONSIBILITY REPORT 2018

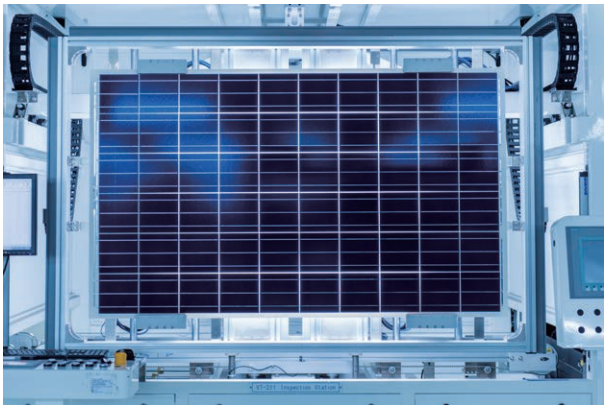
WINAICO is a trademark of Win Win Precision Technology Co., Ltd.

SWP1808-01(EN)

WINAICO®
Power to Perform

Sustainability and renewable resources are not only key to the products that WINAICO makes, they are the basis around which WINAICO operates. We believe that environmental protection, along with protecting occupational health and safety are key to building a sustainable business foundation, and retaining valuable human resources.

ABOUT WINAICO



In 2007, Win Win Precision Technology was restructured into two business branches: semiconductor and solar. The solar branch was set up to respond to the upswing in photovoltaic sales. We are driven to produce the highest quality products while maintaining cost-effectiveness, and prioritising environmental protection and eco-friendly product design.

As a family-run enterprise, Win Win is committed to sustainable management based on its market-oriented business model and establishing multi-year strategic partnerships with our customers. In order to express our commitment to the highest quality, striving toward perfection, a new brand name, "WINAICO" was created and from early on, tied to these corporate values.

The WINAICO brand has become an international recognized trademark with a strong reputation for solar panel manufacturer in Taiwan. WINAICO has installed over 670MW over 25 countries, and this number is increased every year. Indeed, from 2016 and 2017, the PV module capacity was increased 7%. The WINAICO globally PV solar installed capacity has been offset over 550,000 tons of CO2 emissions annually[1].

1. United States Environmental Protection Agency website https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator

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OVERVIEW

The sun is a virtually endless source of energy for humankind. Even when all raw materials and traditional energy sources have been depleted, It will still have enough power to cover the energy demands of the entire planet. With the photovoltaic effect, humankind has found a way to directly convert sunlight electricity and harness the energy of the sun.

Win Win Precision Technology takes on social responsibilities in a wide range of areas and countries. We are dedicated to the principles of sustainability, in line with our business's long term eco-friendly character. By contributing our time and resources where we believe can make a difference, we actively provide positive social contribution in areas of science, education and social affairs.

Educating Earth's next generation and promoting continuous development in research, science and technology are important prerequisites for the growth of a modern, forward-thinking society. It is therefore our passion and commitment to advocate and advance solar power as a key alternative energy for the future.

SUSTAINABILITY GOVERNANCE

Sustainability and resource conservation are not only associated with the products from WINAICO, but are present in our entire business operation. We are committed to minimizing the environmental impacts and enhancing the social and economic benefits of our products across their life cycle, from raw material sourcing through to product end-of-life.

In cooperation with our recycling partners, we make sure our products are recycled in compliance with the WEEE directive (Waste of Electrical and Electronic Equipment) at the end-of-life. Our environmental management system is certified to ISO 14001, so to make a decision to choose WINAICO is the choice that favors the climate and the environment.

INTERNATIONAL UKAS QUALITY MANAGEMENT
ISO 9001:2015

OHSAS
18001:2007

WEEE
Waste of Electrical and Electronic Equipment

WEEE SOLAR PV

ISO 14001: 2015
ENVIRONMENTAL MANAGEMENT SYSTEM

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REDUCING ENVIRONMENTAL IMPACTS

We are constantly working to reduce our carbon emissions throughout the company's value chain. This involves reducing energy consumption in our operations, exploring possibilities to use renewable energy sources, and promoting innovative products that are based on recycled materials.

Our main products have passed the ISO14067 verification of greenhouse gas emissions throughout its whole life cycle, from cradle to grave, including acquisition of raw materials, manufacturing, transportation, packaging, etc. Life cycle assessment allows us to seek opportunities to reduce the GHG emissions in the process of product design, manufacturing, packaging and transport, and to explore the potential projects to reducing our environmental impacts.

We are committed to scaling up environmental impact assessment of our facilities, setting targets, and implementing actions based on these assessments. We are also committed to evaluating these impacts, opportunities, and trade-offs relating to our supply chain.

BUREAU VERITAS Certification

PRODUCT CARBON FOOTPRINT

ISO/ TS 14067:2013

4% production

96% raw materials

GHG Emission[2](metric tonne CO_2-e)	2015	2016	2017
Scope 1	5,407	3,840	4,641
Scope 2	134,677	95,646	115,583
Total	140,084	99,486	120,224

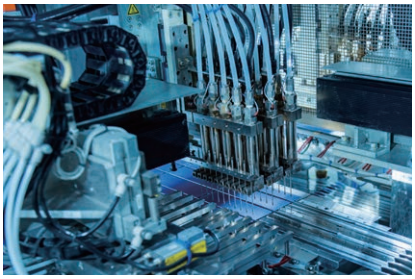
Ozone layer depletion	2015	2016	2017
Total volume ($CFC\text{-}11_{eq}$/kg)	8.685	6.168	7.453

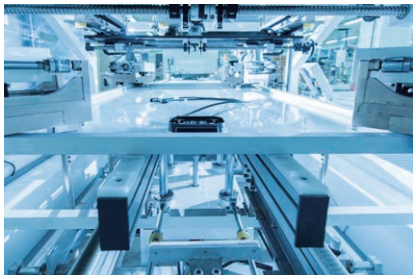
2. ISO 14067 Product Environmental report provided verification data of the life cycle assessment of WINAICO WST module from 2014/01/01 to 2014/12/31. The figure of the GHG data above was estimated from this report. The carbon footprint certification online download: http://www.WINAICO.com/fileadmin/redaktion/downloads/Zertifikate/Carbon_Footprint_Certificate.pdf

AIR POLLUTANTS

Chemicals used in our production progress which have the potential for air pollution are limited to organic solvents such as soldering flux, xylene, ethanol, acetone, GME, carbon dioxide. As we care about health and safety of our employees, we periodically monitor chemical levels and inspect the factory biannually. Our factory employees also receive a yearly health check.

Our factory monitoring has found no SOX or NOX compound are present in the facility. The following report would be VOCs report and factory on- site monitoring report for 2015-2017.





VOCs	2015	2016	2017
Total volume (kg)	4211.8	5125.29	1134.86[3]

ON-SITE AIR INSPECTION PERIODICALLY

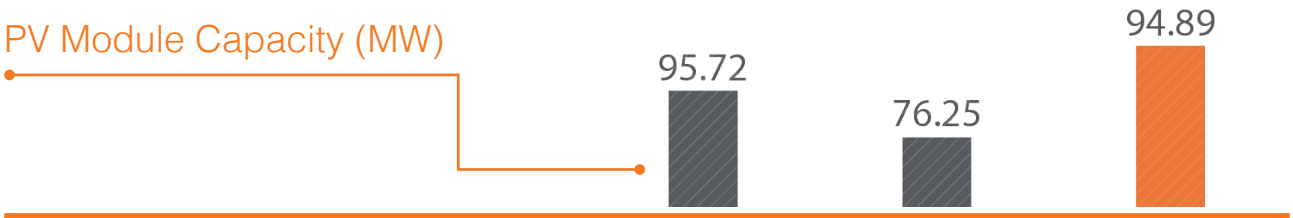
COMBINED TABBERS AND STRINGERS (CTS)				
Organic Solvents in used	**2015**	**2016**	**2017**	**Standard**
Ethanol	42.1	50.3	30.8	1000ppm
Isopropyl acetone	2.92	36.6	40.7	400ppm
SCREEN PRINTING MACHINE				
Organic Solvents in used	**2015**	**2016**	**2017**	**Standard**
Acetone	0.19	0.31	2.32	750ppm
Ethylene glycol monobutylether	0.11	0.20		25ppm
Ethylene glycol ether		< 0.27		5ppm
Proprylene glycol monomethyl ether		< 0.27	< 0.10	100ppm
N-butyl acetate			0.17	150ppm
Xylene			7.27	100ppm

WINAICO has established and maintained a comprehensive environmental and occupational health management system based on international practices and standards of ISO14001 and OHSAS18001. All the monitoring assessments meet the standards of the Occupational Safety and Health Act in Taiwan.

3. The number of the VOCs record is dramatically dropped in 2017 because of the production process has revised and the less of flux was used for the cleaning and maintenance of machines.

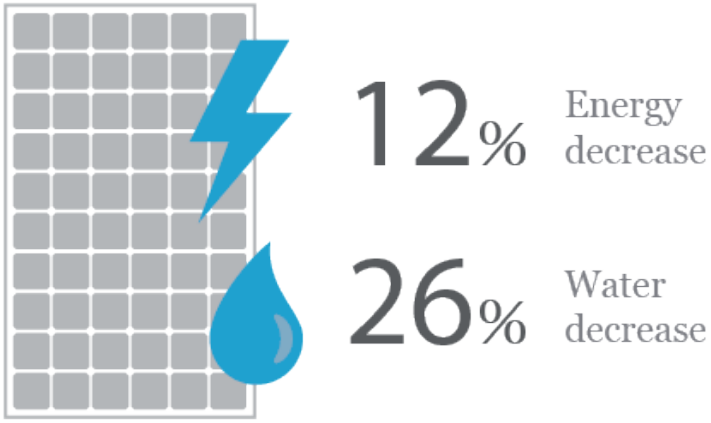
ENERGY CONSUMPTION

WINAICO understand that energy consumption is a key factor in determining the environmental impact of our operations, and overuse will contribute to increasing the risks of climate change. We have successfully reduced our energy and water usage and waste production by improved and optimized operation processes, increasing unit productivity per workstation and per hour to reduce energy consumption relatively. WINAICO uses data analysis to identify key areas for improvement.



Energy Consumption	2015	2016	2017
Electricity (kWh)	4,285,320	4,268,560	4,452,680
Water (Tonne)	12,027	16,329	14,670

In 2017, we revised the cleaning step in the manufacturing process to use compressed air instead of water. This reduced water consumption by 14.8% compared to the previous year, but as production capacity was increased 24%, per module consumption was reduced by 26%



Water Waste	2015	2016	2017
Total volume (Tonne)	2405	3669	2934

Waste Water Discharge Quality Indicators	2015	2016	2017
suspended solids (mg/l)	5.3	3.5	1.8
Biological oxygen demand (mg/l)	12.9	13.8	10.8
Chemical oxygen demand (mg/l)	23.7	22.2	46.1

In order to optimize our manufacturing capabilities to be cleaner and more efficient, we track our annual energy and water usage look for ways to improve our sustainability.

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WASTE MANAGEMENT

Our main operation offices and production sites have extensive waste recycling processes. WINAICO is continuously developing and monitoring our industrial waste management practices. WINAICO's waste recycling processes follow the principle of Reduce, Reuse and Recycle. With those waste reduction measures, we have between the years 2016 and 2017 achieved a reduction of 0.79 Ton of business operation waste.

As Taiwan is a small island, there is limited land available for waste disposal. WINAICO completes online reporting of monthly waste figures by categories to the local EPA. All of our waste is consigned to the qualified waste management companies who are subject to government regulations for waste treatment.

Waste Management (Ton)	2016	2017	GAP
General industrial waste	27.27	30.18	11%
Hazardous industrial waste	23.57	23.88	1%
Business operation waste	8.71	7.92	-9%
Recycle and Reuse	34.94	35.66	2%
Total volume of the waste	94.49	97.64	3%
PV module production capacity (PCS)	276,953	334,685	21%

2017 saw average waste material reduction of around 13.4% (around 0.04kg) for each module manufactured. Hence with PV production capacity increased by 21%, the gross waste growth rate was only 3%.

General inustrial waste

General industrial waste (which would consign to a qualified waste management company for waste treatment).

Hazardous industrial waste

Hazardous industrial waste (which would consign to a qualified waste management company for waste treatment).

Business operation waste

Unrecyclable (mostly life scrap, which would be handled by the local municipal environmental department)

Recycle and Reuse

Recyclable (wooden pallets and including packaging, which would be recycled by suppliers)

All aspects of hazardous waste transportation are closely regulated and observed by state and local regulations.

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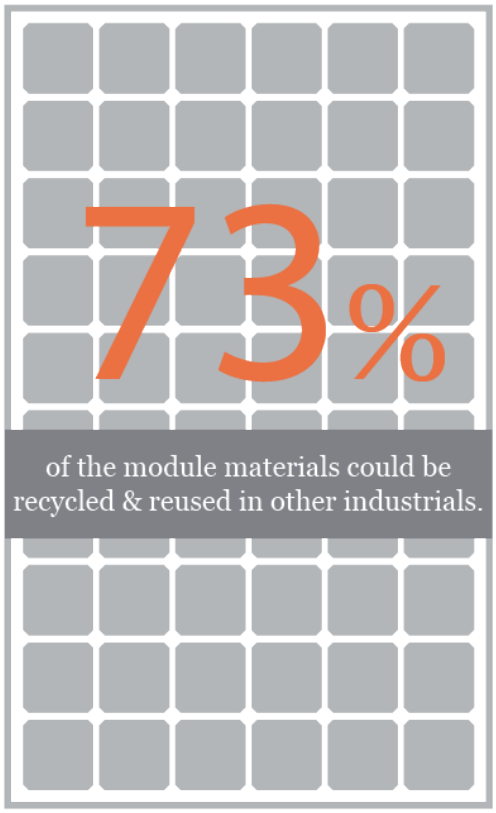
EFFICIENT USE OF RECYCLED MATERIALS

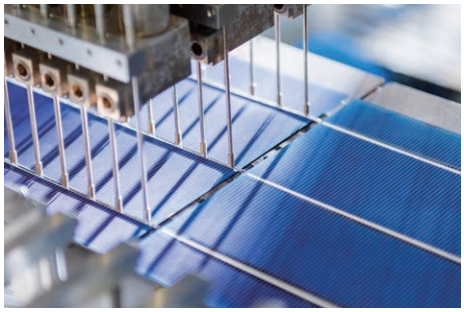
WINAICO understands our responsibility toward environmental protection does not end with manufacturing but include the complete life-cycle of the product. This also includes the supply chain to make sure everyone involved in the lifespan of our products share the responsibility of minimizing environmental, health and safety impacts.



To develop truly green energy products, WINAICO looks for recyclable materials from the beginning of a product's design. 73% of the material in the current module can be recycled and reused in other industries.

Raw material	
Cells	Reused in other industries
Glasses	Reused in other industries
EVA	Reused in other industries
Ribbons	Reused in other industries
Frames & L-Keys	Reused in other industries
Cables	Reused in other industries halogen-free
J-Boxes	Recyclable
Cartons	Recyclable
Wooden Pallets	Recyclable
Glues	Not recyclable
PE tapes	Not recyclable
Backsheets	Not recyclable

Homogeneous Material of Ribbon



Ribbon	Percentage (%)	Weight (g)	Module Weight (g)	Ratio (ppm)
Cu	80%	32.42		1724.33
Pb	7.2%	2.92		155.19
Sn	12.4%	5.02		267.27
Ag	0.4%	0.16		8.62
Total	100%	40.52	18800	2155.41

We are also working closely with professional recycling partners, we make sure our products are recycled in compliance with the WEEE directive (Waste of Electrical and Electronic Equipment) with our partner, take-e-way GmbH.

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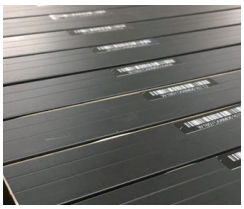
PACKAGING & OPTIMIZING LOGISTICS

WINAICO PV modules are shipped all over the world, and we aim to minimize the impacts of our logistics operations on the environment. The packaging of PV products is critical because of the fragility of modules and other components. Therefore, our package design considers the packaging logistics as well as simulation of transport, handling and bearing loads.

WINAICO chooses the cardboard boxes as our product package, it's made by 90% recycling of waste paper, there are no plastic materials contain inside of the packaging beside the plastic films and plastic strapping which we can reused.



Labels (Micron matte silver PET)	Materials	Weight(g)
Saftey label (10x12cm)1pcs	metallic polyester facestock	0.86
	glassine paper	0.96
Series number & barcode (6x1.2cm) 2pcs	metallic polyester facestock	0.10
	glassine paper	0.12
Total labels weight per module		2.04

*Shipping mark and content list use copper paper or semi gloss paper printing. All the label materials were passed and testify by MSDS(Material Safety Data Sheet)/SDS standard.

Brown Paper of Carton Test Report	Method Detection Limit	Result
Cadmium(mg/kg)	2	Not detected
Lead(mg/kg)	2	3.66ppm[4]
Mercury (mg/kg)	2	Not detected
Hexavalent Chromium (mg/kg)	8	Not detected
Halogen-Fluorine (mg/kg)	50	Not detected
Halogen-Chlorine (mg/kg)	50	160ppm
Halogen-Bromine (mg/kg)	50	Not detected
Halogen-Iodine (mg/kg)	50	Not detected

WINAICO aims to minimize the impacts of our logistics operations on the environment by optimized our carton box design. To increasing the modules shipping amount in the carton and container and reducing the impact of carbon footprint during shipping and also decreased our shipping costs. The plan is executing currently, would provide the effectiveness report in next year.

4. The maxium weight of our cardboard box and cardboard partitions are about 28.9kg.

OCCUPATIONAL HEALTH AND SAFETY

Behind all company successes stand reliable and dedicated employees. At WINAICO, health and safety in the workplace is our top priority. The Occupational Health and Safety Assessment Series – OHSAS 18001 in short – is the world's best known occupational health and safety management system, practiced in over 80 countries. WINAICO's parent company, Win Win Precision Technology Co. Ltd., is one of the first companies in the PV sector to be certified in accordance with OHSAS 18001:2007 in Taiwan.

Risk Control

- We offer EHS training to our employees, contractors and suppliers increases their awareness of safety and health. WINAICO focusses on the prevention of workplace accidents and has clear processes in place to ensure that staff are kept safe in emergency situations.
- We strictly require our employees to wear the safety equipment the and display the warning signs in all the high Hazardous Work zone as the reminder.
- We strictly control activities that may cause major injury or losses, such as working at a height, working with open flames and in a confined space.

Emergency Management

- We prepare the emergency equipment in the hazardous work zone that may occur, such as first-aid kits, eye-wash station.
- WINAICO strictly evaluates fire safety equipment annually. We also required the section supervisors take the fire drills training and all employees to participate in the fire exit drills.

INCIDENT RATE	2015	2016	2017
Disabling Frequency Rate, FR	6.57	7.36	10.34[5]
Disabling Severity Rate, SR	11.8	17.66	299.18[5]
Dart Rate	--	--	1
EMPLOYEES TRAINING (Hours)		**2016**	**2017**
Training and professional & qualification		180	496.5
Orientation training		35	32
EHS courses		52	244
Total hours		267	772.5

In order to improve the occupational safety, we did a lot of the works at 2017, such as increased the EHS training courses to educate the employees and enhance the hazardous awareness during the work and posting the warning sign at high hazardous stations etc. As WINAICO Taiwan has EPC department to help our clients survey the installation site, it's also increased the safety risk. Therefore, we help our employees to obtain relevant licenses of working safety on the roof.

5. We strictly inquiry employees have to wear the safety guard on the roof and follow the roof work safety guide instruction and site works require at least 2 people. Unfortunately, One of our employees helped our EPC client to evaluate the module on the roof and falling down from the roof to cause a serious injury and had the occupational sickness leave for a month.

WINAICO's Human Rights Statement

Win Win Precision Technology Co., Ltd. and all of its subsidiaries (collectively "WINAICO") follow the guidelines of International Labour Organization (ILO) and Taiwan's Labor Standards Act to outline work rules, worker complaint procedures, sexual harassment prevention and other internal measures to protect labour human rights, and ensure all workers are treated fairly and with respect.

WINAICO's core human rights values:

- Fair treatment: WINAICO employees are not discriminated in any way. An employee's sex, race, religion, marital status, sexual orientation, nationality or political affiliation, will not be used to assess the employee's opportunity of being hired, promoted, performance reviewed, trained, terminated, to ensure the protection of employee's basic human rights, and eliminate any form of discrimination.
- Freedom of employment: WINAOCO does not engage in forced labour and any employee is not threatened to work against one's will. In order to ensure all employees are voluntary, illegal human trafficking and slavery are prohibited. WINAICO also forbids the use of prison labour to manufacture WINAICO's products and services.
- Ban on child labour: WINAICO explicitly forbids the use of child workers. No worker under the legal working age has been employed.
- Starting salary: an employee's compensation is determined by the employee's job function and seniority, level of responsibility, educational background, technical expertise, and performance. All employees' starting salaries are above the minimum salary level stipulated by law. WINAICO regularly monitors the pay levels in the labour market with respect to overall economic indicators to maintain competitive remuneration levels.
- Working hours: WINAICO conforms to the working hours regulated by the local government, and do not force employees to work overtime.
- Humane treatment: WINAICO prohibits any form of sexual harassment, corporal punishment, mental or physical coercion, verbal abuse, violence and inhumane treatment of any employee.

Labour-Management Communications

WINAICO values labour and management communications and interactions, and organises quarterly Labour-Management Meetings based on WINAICO's Regulations for Implementing Labour-Management Meetings.

WINAICO schedules regular seminars with our foreign employees to share the company's activities, policies and regulations, and listen to employees' feedbacks on work-life related issues. The seminar works as an interactive platform between foreign employees and management, to show the company's concern with employees' well-being.

WINAICO also sets up various communication channels for Human Resources to listen to employees and find solutions to various issues. Alternatively, employees can voice their concerns through Suggestion Boxes, Sexual Harassment Complaint Hotline or Workplace Bullying Hotline. The identity of the complainant remains hidden and protected in each investigation, to protect the anonymity and freedom of expression by or employees.

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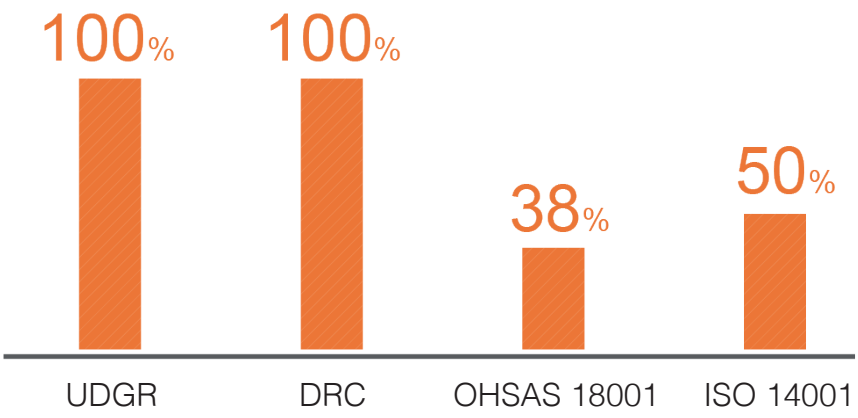
SUPPLY CHAIN

As manufacture in Taiwan, our R&D team is fervently at work designing, producing and delivering cost-effective products not just meeting the highest quality standards and also considers the environmental sustainability development. WINAICO takes social responsibility to actively involve all suppliers in building a safe, healthy, and sustainable supply chain that protects the environment and values human rights.

WINAICO sticks to the philosophy of high-quality production; therefore, it has always executed review and supervision of supplier selection in a strict manner, asking suppliers to strictly observe the Universal Declaration of Human Rights (UDHR) and DRC Conflict-free policy of the declarations. we also evaluated our supplier by certification of ISO 14001, OHSAS 18001. We expect to establish a long-term partnership with our suppliers through fulfilling corporate social responsibility philosophy together. There are 16 suppliers have been increased since 2015, 38% certified by OHSAS 18001, 50% obtained ISO 14001.



For suppliers unable to provide certificate copies of ISO 14001 and OHSAS 18001, WINAICO will ask for implementation or improvement plans and continue to track the status; for suppliers unable to provide the certificate copies, WINAICO will ask them to provide social responsibility investigation sheet or sign vendor social responsibility letter of commitment.

OHSAS
18001:2007

ISO 14001: 2015
ENVIRONMENTAL MANAGEMENT SYSTEM