世鎧精密股份有限公司
SHEH KAI PRECISION CO.,LTD.

2024

溫室氣體盤查報告書
GHG Inventory Report

版本 / Version: 2.0
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SHEH KAI PRECISION CO., LTD.

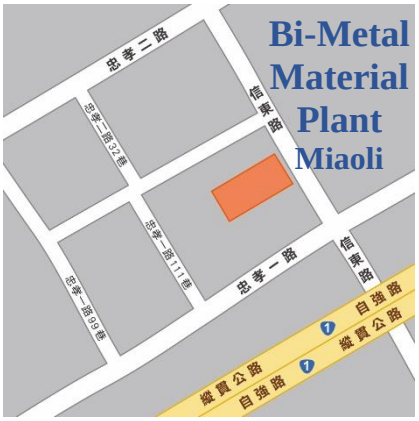
- ✧ Plant: Gangshan Plant
- ✧ Address: No. 1, 3, 5, Bengong 1st Rd., Benzhou Vil., Gangshan Dist., Kaohsiung City
- ✧ Main Production Items:

- ◎ Bi-metal Screws
- ◎ Concrete Screw Anchors
- ◎ Stainless Steel Screws
- ◎ Stainless Steel Point Tail/Flat Tail Screws
- ◎ Stainless Steel Threat Cutting Screws Type17
- ◎ Stainless Steel Self-drilling Screws
- ◎ High Strength Stainless Screws
- ◎ Special Fasteners
- ◎ Double End Bolts/Screws
- ◎ Automotive Fasteners
- ◎ Carriage Bolt
- ◎ Hex Lag Screws

Plant	Main Business	Address
Luzhu Plant	Stainless Steel Wire	No. 161, Minyou Rd., Beilin Vil., Luzhu Dist., Kaohsiung City
Packaging Plant	Products Packaging and Shipping	No. 1, Bengong W. 1st Rd., Benzhou Vil., Gangshan Dist., Kaohsiung City
Bi-Metal Material Plant	Drill Bit Manufacturing Equipment Development	No. 70-29, Shishan, Neigh. 23, Dacuo Vil., Zhunan Township, Miaoli County
Zhunan Plant	Screw Automatic Joining	No. 58, Neigh. 9, Dacuo Vil., Zhunan Township, Miaoli County
Sheh Kai (Shanghai)	Fasteners wholesale	8F, No. 9, Lane 1555, Jinshajiang West Road, Jiading District, Shanghai City


Luzhu
Plant
Kaohsiung
民有路
民治路106巷
北嶺一路
民治路16巷
縱貫公路
岡山北路


Packaging
Plant
Kaohsiung
本工一路
本工二路
本工西二路
本工西一路
本工路
縱貫公路
岡山北路


Bi-Metal
Material
Plant
Miaoli
忠孝二路
信東路
忠孝一路
自強路
縱貫公路


Zhunan
Plant
Miaoli
國祥街
全天路
13甲
全天路108巷
國昌街215巷
國昌街205巷

Table of Contents

Chapter 1 2024 GHG Carbon Inventory Report Preparation Instructions and Introduction

Company Name	SHEH KAI PRECISION CO., LTD.

Basis

Informed by the Letter of Taipei Exchange dated March 9, 2022: Jin-Guan-Zheng-Fa-Zi No. 1110381030 Letter of Financial Supervisory Commission, "Sustainable Development Roadmap for TWSE/TPEx Listed Companies" plan content (I) Information disclosure on greenhouse gas (GHG) inventory and verification completed according to the schedule:

Disclosure content: GHG direct emissions (Scope 1) and energy indirect emissions (Scope 2).

Applicable Timeline:

1. Paid-in capital of NT$10 billion or more, individual companies in the steel and cement industries listed on TPEx (Phase 1): inventory completed in 2023, verification completed in 2024.
2. Paid-in capital of NT$10 billion or more, subsidiaries included in consolidated financial statements of steel and cement TPEx-listed companies, and individual TPEx-listed companies with paid-in capital between NT$5 billion and NT$10 billion (Phase 2): inventory completed in 2025, verification completed in 2027.

The aforementioned implementation plan items shall include but not limited to the following focuses:

- Specify the establishment of full-time (adjunct) unit, evaluate the number of full-time (adjunct) personnel and the scope of their job duties, and establish an internal audit unit.
- Specify the plan item detailed implementation schedule.
- Establish talent training, strategic goal, control mechanism, internal audit and external verification plans, GHG inventory and report plan content, etc. The inventory inspection procedure shall include the following key focuses:

  1. Set up inventory boundary, identify emission source and disclosure scope.
  2. Complete emissions inventory inspection.
  3. Prepare, distribute the first edition of inventory report and execute document preservation management.

4. Perform verification procedure (including internal and external verification).
5. Internal auditors shall track and audit whether relevant operations are completed according to the plan.
6. Complete the establishment of relevant information systems.

In response to the global trend of energy conservation, carbon reduction, and net-zero goals to address climate change, the Company is committed to sustainable development and has completed the 2023 greenhouse gas inventory report and information disclosure. The 2023 greenhouse gas inventory report was externally verified by a third party, AFNOR Asia Ltd., for Sheh Kai Precision Co., Ltd.'s five plants. The verification confirmed that the relevant greenhouse gas inventory data comply with the ISO 14064-1:2018 standard. The assurance level for verification of Scope 1 and Scope 2 emissions was determined to be a reasonable level of assurance.

The 2024 Greenhouse Gas Inventory Report is prepared in accordance with ISO 14064-1:2018 standard and the project requirements of the Ministry of Environment. The purpose of this report is to provide greenhouse gas (GHG) inventory management related information of the Company. Through the inventory inspection process and result, the GHG emissions of the Company can be properly understood. Accordingly, the Company further plans to exert greater effort in the reduction of GHG emissions in the future.

Responsibility of Report:

The preparation of this report is to comply with the requirements of the Greenhouse Gas Reduction and Management Act.

Purpose of Report:

(1) To identify the GHG emission source and to investigate the emissions of the Company in order to use it as the basis for internal management to cope with the national and international GHG trend.

(2) To clearly explain the GHG information of the Company in order to properly understand the GHG emission status, to use it as the basis for the study and discussion of Category 1 and Category 2 GHG reduction, and to use as the inventory basis for the disclosure of the Sustainable Development Roadmap for TWSE/TPEx Listed Companies announced by the Financial Supervisory Commission (FSC).

Expected Purpose and Subject of Report:

In accordance with the Financial Supervisory Commission's Sustainability Roadmap for TWSE/TPEx Listed Companies, Scope 1 and Scope 2 emissions are inventoried; this year's greenhouse gas report provides information for internal greenhouse gas management, the Company's customers, other relevant stakeholders (such as government agencies), and third-party verification purposes.

I. Introduction

The impact of global climate change and greenhouse effect becomes more severe year after year, and disaster also occurs more frequently. In view of the threat of climate change on the environment, human survival and national security becomes greater and more urgent, more than 130 countries worldwide have declared and responded to the "2050 Net Zero Emissions." How to respond to the impact of the climate change in order to achieve stability and balance of natural system is a major challenge that needs to be faced and actively resolved by all of us.

While facing the treat of climate change, countries around the world have stated their commitments in the net zero emissions by 2050. Nevertheless, the international net zero trade and domestic net zero regulations implemented are expected to cause harsh potential impact on export-oriented industries. With regard to the "European Union Carbon Border Adjustment Mechanism (CBAM)", the "European Commission's Implementing Regulation" has been officially implemented in October 2023. Accordingly, for products exported to European Union (EU) during Q4 of 2023, the first 2023_Q4 carbon content report must be completed by the end of January of 2024. From 2026, the full implementation period will require, besides reporting carbon content, the purchase of CBAM certificates to pay for carbon emission costs. Regardless of the EU Carbon Border Adjustment Mechanism (CBAM) currently in its trial phase, the United Kingdom has also announced that it will implement the UK CBAM starting in 2027 without a transitional period, becoming the world's second economy to implement CBAM. Meanwhile, the United States is considering the draft of the Clean Competition Act (CCA), and Canada and Australia are actively exploring the feasibility of implementing CBAM (Carbon Border Adjustment Mechanism). Even supply chain requirements from major international corporations will have a significant impact on the competitiveness of products exported to Europe, the US, and other

countries in the future.

The government of our nation announced the “Taiwan 2025 Net Zero Emissions Roadmap” in March 2022, and the “Greenhouse Gas Reduction and Management Act” Amendment Draft also passed the third-reading of the Legislative Yuan on January 10, 2023 and promulgated for implementation on February 15, 2023 with the title of the Act amended to “Climate Change Response Act”, which also included the goal of 2050 net zero emissions, improvement of climate governance level, collection of carbon fee for specific purpose of use, additional stipulation of climate change adaption section, inclusion of carbon footprint and product label management mechanism. Accordingly, the Taiwanese government not only demonstrates the determination of our nation heading toward goal of net zero emissions to the external but also establishes a resilient climate legal basis for the internal.

The “Climate Change Response Act” specifies the basic carbon inventory requirements and also emphasizes the carbon pricing mechanism of carbon fee, voluntary reduction and cap control. The carbon fee collection in stages for different period is planned, and the subjects for carbon fee collection can be divided into direct emissions sources and indirect emission sources. The Ministry of Environment, based on the rate recommendations from the Carbon Fee Rate Review Committee, approved the carbon fee rates and completed the relevant legislative procedures. On October 21, 2024, it announced the “Carbon Fee Collection Rates,” which will take effect on January 1, 2025.

The carbon fee includes a general rate of $300 per ton of carbon and two other preferential rates. Large carbon emitters-specifically electricity and manufacturing industries with combined direct and indirect annual greenhouse gas emissions of 25,000 metric tons or more—are the first group subject to the carbon fee.

According to the “Carbon Fee Collection Regulations,” entities subject to the carbon fee must calculate and pay the carbon fee in May 2026 based on their total greenhouse gas emissions for the entire year of 2025. The arrival of an era where carbon emissions have a price is now evident. In addition to continuously improving energy efficiency, it is a pressing issue to guide industries toward low-carbon production transformation and sustainable development through measures such as phasing out outdated process equipment, introducing new process technologies, and adopting low-carbon fuel alternatives. It is essential to begin planning and formulating solutions as early as possible.

Company Profile:

Sheh Kai Precision Co., Ltd., established in 1992 and approved by the Financial Supervisory Commission for public listing at Taipei Stock Exchange (TPEx) in 2008, equipped with the European ETA Certification and U.S. ICC Certification for products of screw anchors, is the largest manufacturer for the export of products of stainless steel bi-metal drilling screws and bi-metal screw anchors in Taiwan. The “dissimilar metal joining and partial high-frequency heat treatment” of bi-metal screws, apart from conventional screws, is of relatively higher technical barrier, and its manufacturing process is extremely complicated. All of the key automated machineries necessary for the manufacturing process are self-designed and fabricated by the Company. The Company aims to research and develop manufacturing process technologies and to reduce cost for a long period of time. After extensive years of effectors, the Company has achieved competitive advantages in its stable and exclusive mass production technologies, self-development and manufacturing of machine equipment, product reputation and framework in the specific high-end markets requiring certification. For products demanded by customers, the Company is able to respond promptly and properly, in order to increase the profit margin and to achieve the most optimal profitability for the Company.

Policy Statement:

This report is prepared in accordance with the requirements specified in the “Sustainable Development Roadmap for TWSE/TPEx Listed. Companies” announced by Financial Supervisory Commission - GHG inventory and verification information disclosure schedule: For steel and iron industry TPEx listed company first stage of GHG direct emissions (Scope 1) inventory and energy indirect emissions (Scope 2) inventory, the inventory inspection is to be completed in 2023 and the verification thereof is to be completed in 2024. In Phase 2, subsidiaries included in consolidated financial statements must complete the inventory by 2025.

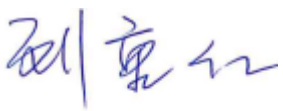
Sheh Kai Precision adopts the principle of proper use of resources and fulfills the corporate social responsibility in accordance with ISO 14064-1: Since 2018, with regard to the GHG control development trend and response to the requirements for future GHG emission reduction, the Company has implemented the plans of systematic GHG emission inventory and list establishment as well as

the verification procedure, etc. In addition, the 2022 and 2023 carbon inventory has also been performed early along with the report of total carbon emissions during the quarterly meeting, in order to provide a reference for future implementation of effective emission reduction improvement plans. In addition, the Company aims to achieve sustainable energy development along with the consideration of resource efficiency, energy saving and environmental protection at the same time, in order to exert effort in the achievement of low-carbon economic society for the industry jointly.

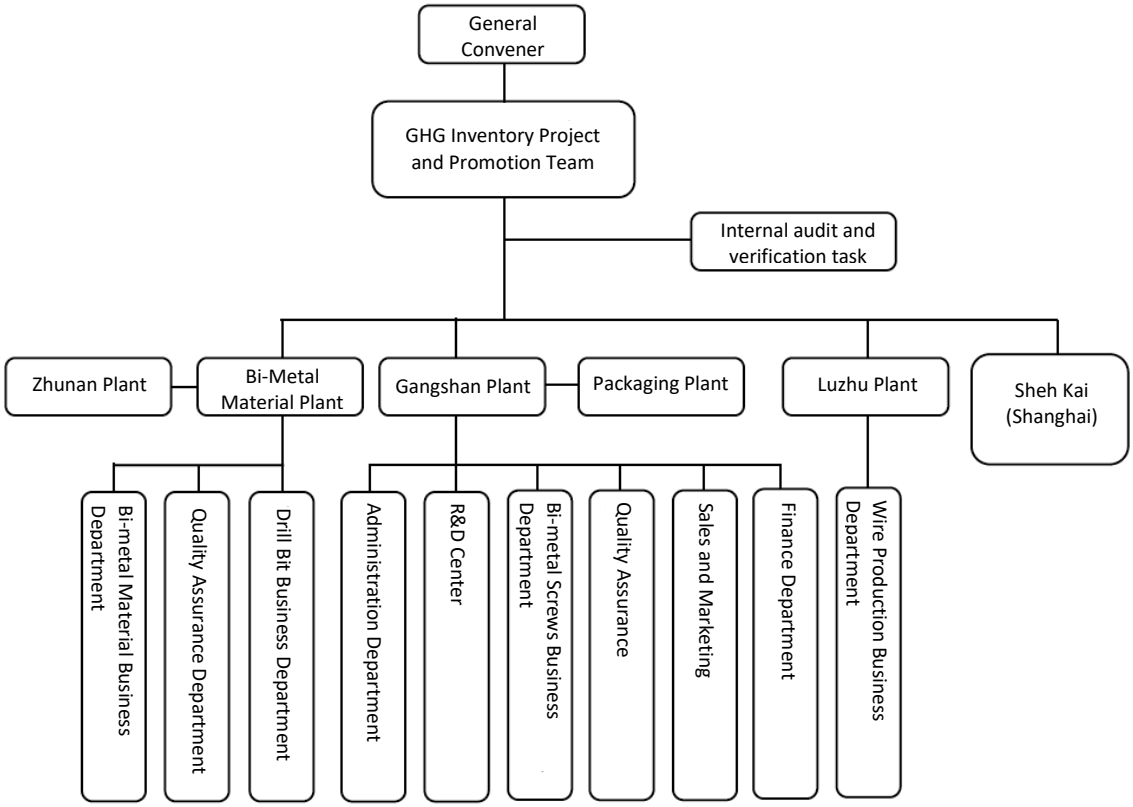
Policy Implementation Goal:

- Committed to the greenhouse gas inventory of the factories to accurately grasp the greenhouse gas emission status for 2025.
- Propose emission reduction feasible plan according to the GHG inventory data and execute the plan properly in order to implement energy saving and carbon reduction measures properly.
- Plan the feasibility and location for the installation of renewable energy generation systems (solar power).
- Optimize production equipment and improve processes to reduce the carbon footprint of products and enhance competitiveness.
- Encourage all employees to comply with environmental protection laws and to participate in carbon reduction nativities.
- Set up energy saving and carbon reduction goals, and actively reduce emissions through process optimization and environmental management.
- Assist and request suppliers/contractors to perform GHG inventory, and to provide data and cooperate with other relevant requirements.

GHG Inventory Handling Unit [R&D Center]

Manager 

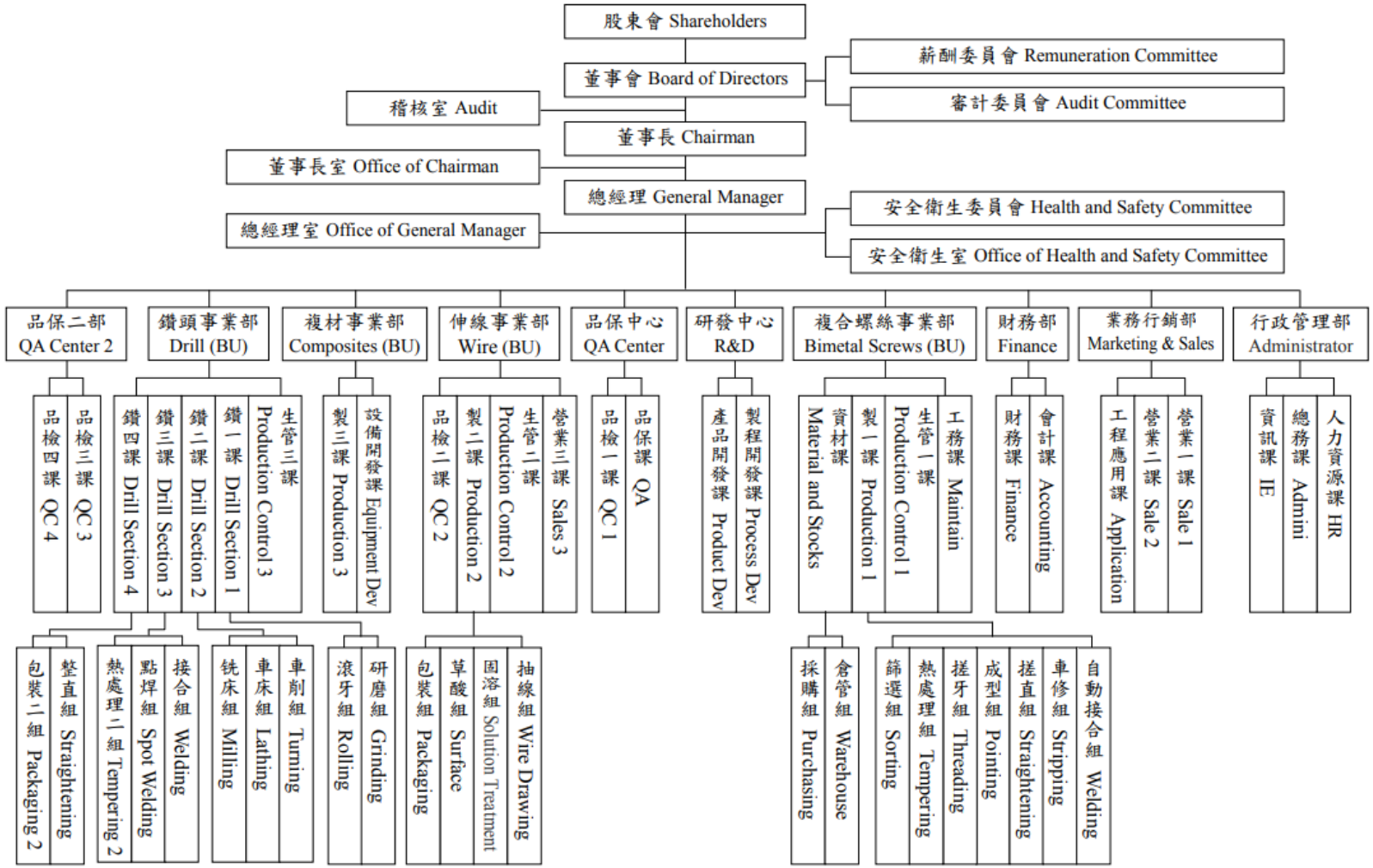
Review by Senior Vice President: 



GHG Inventory Promotion Organizational Structure 2024

[R&D Center] is the handling unit for the GHG inventory. The report boundary setting is defined in accordance with the organization, geographic, emission and operating boundaries of the organizational structure of the Company in order to establish various relevant reports and forms, following which each department head then designates the executing personnel to collect and sort the information (filling out forms), and the R&D Center then performs the summarization of the information for subsequent years according to the GHG inventory and verification schedule to plan the continuous improvement operation annually.

- Summarize GHG total monthly emissions
- Quantify data
- Calculate GHG emission equivalent
- Report to the Board of Directors quarterly
- Establish annual inventory emission inventory list
- Prepare inventory report
- Distribute report and document preservation management
- Verification procedure (internal verification), (external verification)



Sheh Kai Precision Company Organizational Chart

2024 GHG Inventory Product Manufacturing Operation Flow Chart

Operation Process	Process Description
Wire rod	Manufacture metal materials of the carbon steel and stainless steel of fasteners
Wire drawing	**Perform acid pickling, wire drawing and heat treatment** (spheroidzation) on the wire rod for skinpass to obtain desired wire diameter.
Heading	Perform pre-pressing on the wire to form desired head shape.
Trimming	Trim and flatten the joint parts of composite fasteners.
Straightening	Straighten deformation and bending of long fasteners due to manufacturing process.
Forming	Stamping on screw tails.
Threading	Thread formation of fasteners.
Heat treatment	Heating and cooling treatments on the fasteners according to the needs, in order to obtain the desired mechanical property.
Surface treatment	Electroplating and galvanization on exterior of screws to improve anti-rust capability and appearance.
Packaging	Perform packaging and label attachment according to the quantity instructed by client.
Shipping	Shipping of products to client end.

Chapter 2 Organization and Report Boundary Description

2.1 Organization Boundary Description

Inventory Year	Basic Information
	Company Plant Name
2024	Sheh Kai Precision Co., Ltd.

Plant		Address
Sheh Kai Precision Co., Ltd.	Gangshan Plant	No. 1, 3, 5, Bengong 1st Rd., Gangshan Dist., Kaohsiung City
Sheh Kai Precision Co., Ltd.	Luzhu Plant	No. 161, Minyou Rd., Beilin Vil., Luzhu Dist., Kaohsiung City
Sheh Kai Precision Co., Ltd.	Packaging Plant	No. 1, Bengong W. 1st Rd., Benzhou Vil., Gangshan Dist., Kaohsiung City
Sheh Kai Precision Co., Ltd.	Bi-Metal Material Plant	No. 70-29, Shishan, Neigh. 23, Dacuo Vil., Zhunan Township, Miaoli County
Sheh Kai Precision Co., Ltd.	Zhunan Plant	No. 58, Neigh. 9, Dacuo Vil., Zhunan Township, Miaoli County
Sheh Kai (Shanghai)	Subsidiary	8F, No. 9, Lane 1555, Jinshajiang West Road, Jiading District, Shanghai City

Setting Method	Operational control approach

2.2 Report Boundary Description

For the present inventory, the GHG category can be classified into the following GHG groups of carbon dio xide (CO_2), methane (CH_4), nitrous oxide(N_2O), nitrogen trifluoride(NF_3), sulfur Hexafluoride(SF_6)and other appropriate GHG groups, hydrofluorocarbons (HFCs), perfluorinated chemicals (PFCs), etc.

This report is prepared in accordance with the requirements specified in the "Sustainable Development Roadmap for TWSE/TPEx Listed. Companies" announced by the FSC. The report boundary includes the direct GHG emissions (Category 1) and indirect GHG emissions from imported energy (Category 2). The GHG emission source type and item are as shown in Table 1, and the emission source identification chart is as shown in Table 2.

Table 1 Sheh Kai Precision's 2024 GHG Emission Source Type and Item

Category	Item	Activity/ Equipment Type	Emission Source	GHG	Emission Source Location
Category 1 Direct greenhouse gas emissions	Direct emissions from stationary combustion source	Heating furnace	Natural gas	CO_2, CH_4, N_2O	Gangshan Plant, Luzhu Plant
		Emergency power generator	Diesel	CO_2, CH_4, N_2O	Gangshan Plant, Luzhu Plant, Packaging Plant, Bi-Metal Material Plant
	Direct emissions from mobile combustion source	Company vehicles	Gasoline	CO_2, CH_4, N_2O	Gangshan Plant, Luzhu Plant, Bi-Metal Material Plant Sheh Kai (Shanghai)
		Company vehicles	Diesel	CO_2, CH_4, N_2O	Gangshan Plant, Luzhu Plant
		Fork lift trucks	Diesel	CO_2, CH_4, N_2O	Gangshan Plant, Luzhu Plant, Packaging Plant, Zhunan Plant
	Direct emissions from manufacturing processes or facilities	Wires for electric welding operation	Welding materials	CO_2	Bi-Metal Material Plant
		Acetylene	CO_2	CO_2	Gangshan Plant, Luzhu Plant
		WD40 anti-rust oil	CO_2	CO_2	Gangshan Plant, Luzhu Plant Plant, Bi-Metal Material Plant
		Ammonia cracker	Refer to 2.2.1, Note 2.		Luzhu Plant
	Direct fugitive emissions of GHG from anthropogenic systems	Septic tanks	CH_4	CH_4	Gangshan Plant, Luzhu Plant, Packaging Plant, Bi-Metal Material Plant, Zhunan Plant and Sheh Kai (Shanghai)
		Air	HFCs	HFCs	Gangshan Plant,

Category	Item	Activity/ Equipment Type	Emission Source	GHG	Emission Source Location
		conditioners/refrigerators/chiller units /vehicle coolant			Luzhu Plant, Packaging Plant, Bi-Metal Material Plant, Zhunan Plant and Sheh Kai (Shanghai)
		Gas circuit breakers (GCB)	SF_6	SF_6	Gangshan Plant
		Carbon Dioxide Fire Extinguisher	CO_2	CO_2	Gangshan Plant, Bi-Metal Material Plant and Zhunan Plant
Category 2: Indirect GHG emissions from imported energy	Indirect emissions from imported electricity	Electricity supply	Electricity	CO_2	Gangshan Plant, Luzhu Plant, Packaging Plant, Bi-Metal Material Plant, Zhunan Plant and Sheh Kai (Shanghai)

2.2.1 Exclusions for GHG Emissions Inventory

1. For Category 2, except for the externally purchased Taipower's electricity, the externally purchased energies of thermal energies and steam are excluded. In addition, since the Company does not use biomass energy, it is also excluded.
2. The process of ammonia cracker refers to the reaction of ammonia and nitrogen, and there is no reaction with the oxygen during the process; therefore, the GHG of N2O is not generated.
3. Since R-22 and R-12 coolants are controlled substances specified in the Montreal Protocol, rather than GHG controlled substances, they are excluded.
4. Since R-600a coolant has no GWP value, it is excluded.
5. Since activity data collection of the tail gas combustion of Gangshan Plant is difficult, it is excluded.
6. ABC-type fire extinguishers do not directly produce greenhouse gases and are therefore excluded.
7. Gasoline and electricity usage at the Shanghai plant are excluded from the inventory and not included in the quantitative uncertainty calculation, as they do not use meters from Taiwan.

Table 2Sheh Kai Precision's 2024 GHG Emission Source Identification Chart

No.	Location Name	Emission source	Emission Source Data		Type of GHG Possibly Generated						
			Category	Emission Type	CO_2	CII_4	N_2O	HFC_S	PFCs	SF_6	NF_3
1	Gangshan Plant	Company vehicles (gasoline)	Category 1	Mobile (T)	v	v	v				
2	Gangshan Plant	Company vehicles (diesel)	Category 1	Mobile (T)	v	v	v				
3	Gangshan Plant	Fork lift truck (super diesel)	Category 1	Mobile (T)	v	v	v				
4	Gangshan Plant	Septic tank escape	Category 1	Fugitive (F)		v					
5	Gangshan Plant	Coolant (R-134a)	Category 1	Fugitive (F)				v			
6	Gangshan Plant	Coolant (R-410A)	Category 1	Fugitive (F)				v			
7	Gangshan Plant	Coolant (R-407C)	Category 1	Fugitive (F)				v			
8	Gangshan Plant	Gas circuit breakers/GCB	Category 1	Fugitive (F)						v	
9	Gangshan Plant	Carbon Dioxide Fire Extinguisher	Category 1	Fugitive (F)	v						
10	Gangshan Plant	Natural Gas	Category 1	Stationary (E)	v	v	v				
11	Gangshan Plant	Emergency power generator (diesel)	Category 1	Stationary (E)	v	v	v				
12	Gangshan Plant	Acetylene	Category 1	Process (P)	v						
13	Gangshan Plant	WD40 anti-rust oil	Category 1	Process (P)	v						
14	Gangshan Plant	Externally purchased electricity	Category 2	Externally purchased electricity	v						
15	Luzhu Plant	Company vehicles (gasoline)	Category 1	Mobile (T)	v	v	v				
16	Luzhu Plant	Company vehicles (diesel)	Category 1	Mobile (T)	v	v	v				
17	Luzhu Plant	Fork lift truck (diesel)	Category 1	Mobile (T)	v	v	v				
18	Luzhu Plant	Septic tank escape	Category 1	Fugitive (F)		v					
19	Luzhu Plant	Coolant (R-134a)	Category 1	Fugitive (F)				v			
20	Luzhu Plant	Coolant (R-110A)	Category 1	Fugitive (F)				v			
21	Luzhu Plant	Coolant (R-427A)	Category 1	Fugitive (F)				v			
22	Luzhu Plant	Natural Gas	Category 1	Stationary (E)	v	v	v				
23	Luzhu Plant	Emergency power generator (diesel)	Category 1	Stationary (E)	v	v	v				
24	Luzhu Plant	Acetylene	Category 1	Process (P)	v						
25	Luzhu Plant	WD40 anti-rust oil	Category 1	Process (P)	v						
26	Luzhu Plant	Externally purchased electricity	Category 2	Externally purchased electricity	v						
27	Packaging Plant	Fork lift truck (super diesel)	Category 1	Mobile (T)	v	v	v				
28	Packaging Plant	Septic tank escape	Category 1	Fugitive (F)		v					
29	Packaging Plant	Coolant (R-134a)	Category 1	Fugitive (F)				v			
30	Packaging Plant	Coolant (R-410A)	Category 1	Fugitive (F)				v			
31	Packaging Plant	Emergency power generator （diesel）	Category 1	Stationary (E)	v	v	v				
32	Packaging Plant	Externally purchased electricity	Category 2	Externally purchased electricity	v						
33	Bi-Metal Material Plant	Company vehicles (gasoline)	Category 1	Mobile (T)	v	v	v				
34	Bi-Metal Material Plant	Septic tank escape	Category 1	Fugitive (F)		v					
35	Bi-Metal Material Plant	Coolant (R-134a)	Category 1	Fugitive (F)				v			
36	Bi-Metal Material Plant	Coolant (R-410A)	Category 1	Fugitive (F)				v			
37	Bi-Metal Material Plant	Carbon Dioxide Fire Extinguisher	Category 1	Fugitive (F)	v						
38	Bi-Metal Material Plant	Emergency power generator (diesel)	Category 1	Stationary (E)	v	v	v				
39	Bi-Metal Material Plant	WD-40 anti-rust oil	Category 1	Process (P)	v						
40	Bi-Metal Material Plant	Wires for electric welding operation	Category 1	Process (P)	v						
41	Bi-Metal Material Plant	Externally purchased electricity	Category 2	Externally purchased electricity	v						
42	Zhunan Plant	Fork lift truck (super diesel)	Category 1	Mobile (T)	v	v	v				
43	Zhunan Plant	Septic tank emissions	Category 1	Fugitive (F)		v					
44	Zhunan Plant	Coolant (R-134a)	Category 1	Fugitive (F)				v			
45	Zhunan Plant	Coolant (R-410A)	Category 1	Fugitive (F)				v			
46	Zhunan Plant	Coolant (R-417A)	Category 1	Fugitive (F)				v			
47	Zhunan Plant	Carbon Dioxide Fire Extinguisher	Category 1	Fugitive (F)	v						
48	Zhunan Plant	Externally purchased electricity	Category 2	Externally purchased electricity	v						
49	Sheh Kai (Shanghai)	Company vehicles (gasoline)	Category 1	Mobile (T)	v	v	v				
50	Sheh Kai (Shanghai)	Septic tank escape	Category 1	Fugitive (F)		v					
51	Sheh Kai (Shanghai)	Coolant (R-134a)	Category 1	Fugitive (F)				v			
52	Sheh Kai (Shanghai)	Externally purchased electricity	Category 2	Externally purchased electricity	v						

Chapter 3 Base Year Setting and Inventory List Change

3.1 Base Year

Base Year Setting	2024

The greenhouse gas inventory baseline year has been changed from 2023 to 2024.
Reason for the change:
In 2023, the Company conducted a greenhouse gas inventory, established a systematic process to quantify data, and obtained third-party external verification assurance. Due to the addition of the subsidiary Sheh Kai Trading Co., Ltd. (Shanghai), changes were made to the organizational and reporting boundaries. Therefore, the baseline year for the inventory was changed from the originally set 2023 to 2024.

3.2 Change of Base Year

In case of the following situations, the base year set by the Company may be updated and re-calculated according to the new situation, and documentation is to be implemented:

1. Structural change (merger, acquisition, investment and disinvestment) in the organization boundary or report boundary.
2. GHG emission source or relevant ownership and control right moving in or out of the organization boundary.
3. Change in the quantification method, resulting in significant change of the GHG emissions or removals amount; discovery of major error, or accumulated error exceeding the significance threshold by 3.0% (significance threshold of GHG inventory operation is set to be 3.0%).
4. Change in the facility production level, including facility shutdown or activation, and the organization shall not consider the re-calculation of its base year and GHG inventory list.

Chapter 4 GHG Inventory and CO_2_e Emissions of Each Category

Category 1 Direct emissions from stationary combustion (natural gas)

(1) 2024 monthly natural gas consumption (*cross-month consumption)		
Consumption amount ($1000m^3$) / Month	Gangshan Plant	Luzhu Plant
1	0.6760*	4.2054*
2	0.5800	3.9300
3	0.8000	7.8470
4	0.8330	6.8460
5	0.8650	7.9410
6	0.6050	8.2310
7	0.2720	7.2930
8	0.6640	7.7020
9	0.4150	5.2810
10	0.6320	5.4940
11	0.4080	7.9090
12	0.1982*	9.1755*
Subtotal ($1000m^3$)	6.9482	81.8549

(2) GHG emissions factor and GWP value			
GHG	CO_2	CH_4	N_2O
Emissions factor ($ton/1000m^3$)	1.8790358400	0.0000334944	0.0000033494
GWP value	1	30	265

(3) Emissions equivalent = Annual consumption amount x [CO_2 emission factor + CH_4 emission factor x CH_4 GWP + N_2O emission factor x N_2O GWP]		
Plant site emission source_emissions amount	Gangshan Plant (natural gas)	Luzhu Plant (natural gas)
Emissions equivalent (ton_CO_2-e)	13.0619	153.9688
Total (ton_CO_2-e)	**167.0307**	

Note: Packaging Plant, Zhunan Plant and Bi-Metal Material Plant do not use natural gas. Gangshan Plant uses natural gas for the drawing furnace waste gas burning, and after the burning of the waste gas, the additional small amount of carbon emissions cannot be detected easily for calculation; therefore, it is excluded from the calculation.

2024 Direct emissions from stationary combustion (natural gas)
Total emissions equivalent 167.0307 ton_CO_2-e

Category 1 Direct emissions from stationary combustion of power generators (diesel)

2024 Diesel consumption of emergency power generators of each plant site (Unit: L)				
Plant site	KW	Test run oil consumption per minute (L)	Total annual test run time (minutes)	Total oil consumption (L)
Gangshan Plant (1)	60	0.2500	30	7.5000
Gangshan Plant (2)	114	0.4167	30	12.5010
Luzhu Plant	30	0.1250	30	3.7500
Packaging Plant	60	0.2500	30	7.5000
Bi-Metal Material Plant	50	0.2083	30	6.2490
Zhunan Plant	0	0.0000	0	0.0000

Note 1: The diesel consumption of the fork lift trucks of Gangshan Plant and Luzhu Plant refers to the total diesel consumption minus the diesel consumption of power generators.

Note 2: Bi-Metal Material Plant has no fork lift truck, and the emergency power generator diesel is supplied by the fire inspection company.

Note 3: For each trial run, the power generator is turned on for five minutes, and numerous startups are performed according to the inspection items. The average annual trial run time is half an hour.

GHG emissions factor and GWP value			
GHG	CO_2	CH_4	N_2O
Emission factor (ton/kL)	2.6811103270	0.0001085470	0.0000217094
GWP value	1	30	265

Emissions equivalent (ton_CO_2-e) = Annual consumption amount x [CO_2 emission) factor + (CH_4 emission factor x CH_4 GWP + N_2O emission factor x N_2O GWP)]			
Plant site emission source (Annual consumption amount)	Gangshan Plant		Luzhu Plant
	Emergency power generator diesel (0.0200 kL)		Emergency power generator diesel (0.0038 kL)
Emissions equivalent ton_CO_2-e	0.0536		0.0102
Plant site emission source (Annual consumption amount)	Packaging Plant	Bi-Metal Material Plant	Zhunan Plant
	Emergency power generator diesel (0.0075 kL)	Emergency power generator diesel (0.0062 kL)	Emergency power generator diesel (0L)
Emissions equivalent ton_CO_2-e	0.0201	0.0166	0
Total (ton_CO_2-e)	**0.1005**		

2024 direct emissions from stationary combustion

Emergency power generator diesel

Total emissions equivalent 0.1005 ton_CO_2-e

Category 1 Direct emissions from mobile combustion (gasoline, diesel)

2024 Consumption amount of each plant site (Unit: kL)					
Gangshan Plant			Luzhu Plant		
Vehicle gasoline	Vehicle diesel	Fork lift truck diesel	Vehicle gasoline	Vehicle diesel	Fork lift truck diesel
10.3267	4.5074	1.9550	0.8557	0.2038	5.9962

Packaging Plant	Bi-Metal Material Plant	Zhunan Plant	Sheh Kai (Shanghai)
Fork lift truck diesel	Vehicle gasoline	Fork lift truck diesel	Vehicle gasoline
3.1555	2.0817	0.0477	1.9789

Note 1: The diesel consumption of the fork lift trucks of Gangshan Plant, Luzhu Plant and Packaging Plant refers to the total diesel consumption minus the diesel consumption of power generators.

Note 2: The gasoline density is 0.73 ton/kilolitre, sourced from the "China Land Transport-Enterprise Greenhouse Gas Emission Accounting Methods and Reporting Guidelines (Trial)." Therefore, the gasoline consumption for Sheh Kai (Shanghai) is 1.4446 tons.

GHG emissions factor and GWP value				
GHG		CO_2	CH_4	N_2O
Emission factor (ton/kL)	Vehicle gasoline	2.2077151312	0.0001210580	0.0001815870
	Vehicle/ fork lift truck diesel	2.6811103270	0.0001411111	0.0001411111
GWP value		1	30	265

Note: The emission factor for Sheh Kai (Shanghai) is based on the <China Products Carbon Footprint Factors Database>, using the carbon footprint factor for vehicle gasoline = 3.04 (on CO_2-e/ton).

Emissions equivalent = Annual consumption amount x [CO_2 emission factor + CH_4 emission factor x CH_4 GWP + N_2O emission factor x N_2O GWP] (Unit: ton_CO_2-e)						
Plant site emission source	Gangshan Plant			Luzhu Plant		
	Vehicle gasoline	Vehicle diesel	Fork lift truck diesel	Vehicle gasoline	Vehicle diesel	Fork lift truck diesel
Emissions equivalent	23.3409	12.2618	5.3301	1.9451	0.5464	16.3125
Subtotal	40.9328			18.8040		
Plant site emission source	Packaging Plant		Bi-Metal Material Plant	Zhunan Plant		Sheh Kai (Shanghai)
	Fork lift truck diesel		Vehicle gasoline	Forklift diesel		Vehicle gasoline
Emissions equivalent	8.5782		4.7108	0.1279		4.3916
Total	**77.5453 (ton_CO_2-e)**					

2024 direct emissions from mobile combustion

Including gasoline and diesel consumed by vehicles and fork lift truck diesel

Total emissions equivalent 77.5453 ton_CO_2-e

Category 1 Direct emissions from industrial processes (acetylene, WD40 anti-rust oil)

(1) 2024 Annual consumption amount					
Plant site emission source	Gangshan Plant		Luzhu Plant		Bi-Metal Material Plant
	Acetylene	WD40 anti-rust oil	Acetylene	WD40 anti-rust oil	WD40 anti-rust oil
Consumption amount (kg)	32.5	0.9010	2.5	0.1902	0.0100

- Acetylene cylinder specification (35L), acetylene filling of 2.5kg, Gangshan Plant consumption of 13 cylinders, and Luzhu Plant consumption of 1 cylinders.
- CO_2 Usage in WD40 = WD40 Purchase Volume × 0.81 (WD40 specific weight) × 3% (carbon content)

Gangshan Plant purchase volume: 37.080 L, CO_2 usage in WD40 = 37.0800 × 0.81 × 3% = 0.9010 kg

Luzhu Plant purchase volume: 7.828 L, CO_2 usage in WD40 = 7.8280 × 0.81 × 3% = 0.1902 kg

Bi-Metal Material Plant purchase volume: 0.412 L, CO_2 usage in WD40 = 0.4120 × 0.81 × 3% = 0.0100 kg

(2) Emission factor		
Emission source	Acetylene	WD40 anti-rust oil
Emission factor (kg/kg)	3.3846153846	1.0000000000

(3) Emissions equivalent = Annual consumption amount x Emission factor					
Plant site emission source	Gangshan Plant		Luzhu Plant		Bi-Metal Material Plant
Emission source	Acetylene	WD40 anti-rust oil	Acetylene	WD40 anti-rust oil	WD40 anti-rust oil
Emissions equivalent (ton_CO_2-e)	0.1100	0.0009	0.0085	0.0002	0.0000
Subtotal (ton_CO_2-e)	0.1109		0.0087		0.0000
Total (ton_CO_2-e)	**0.1196**				

Remarks: The Packaging Plant, Bi-Metal Material Plant, and Zhunan Plant did not use acetylene. The Packaging Plant and Zhunan Plant did not use WD-40 anti-rust oil.

2024 direct emissions from industrial processes

Including Acetylene, WD40 Rustproof Oil

Total Emissions Equivalent 0.1196 ton_CO_2-e

GHG emissions carbon equivalent inventory Category 1 - Coolant

Plant site	Gangshan Plant					Sheh Kai (Shanghai)
Equipment	Refrigerators, water dispensers	Company vehicles	Air conditioners	Chiller units	Dryers	Company vehicles
Coolant type	R-134a/HFC-134a	R-134a	R-410a	R-410a	R-407C	R-134a
Equipment quantity(units)	29 (#1)	11	7	2	3	2
Total filling amount (g)	2206.9589	7600	14660	36000	12500	1500
Fugitive emissions rate (%)	0.3	20	3	8.5	16	20
Leakage amount (g)	6.6209	1520	439.8	3060	2000	300
GWP	1300	1300	1924	1924	1624	1300
Carbon emissions equivalent (ton_CO_2-e)	1.9846		6.7336		3.2480	0.3900
Subtotal (ton_CO_2-e)	11.9662					0.3900

Plant site	Luzhu Plant				Packaging Plant	
Equipment	Refrigerators, water dispensers	Company vehicles	Air conditioners	Dryers	Refrigerators, water dispensers	Air conditioners
Coolant type	R-134a	R-134a	R-410a	R-427a	R-134a	R-410a
Equipment quantity (units)	5	2	13	1	4	6
Total filling amount (g)	512	1020	28920	550	275	7180
Fugitive emissions rate (%)	0.3	20	3	16	0.3	3
Leakage amount (g)	1.5360	204	867.6	88	0.8250	215.4
GWP	1300	1300	1924	2024	1300	1924
Carbon emissions equivalent (ton_CO_2-e)	0.0020	0.2652	1.6693	0.1781	0.0011	0.4144
Subtotal (ton_CO_2-e)	2.1146				0.4155	

Plant site	Bi-Metal Material Plant				Zhunan Plant		
Equipment	Refrigerators Water dispensers	Company vehicles	Air con-ditioners	Chiller units	Refrigerators Water dispensers	Air con-ditioners	Dryers
Coolant type	R-134a HFC-134a	R-134a	R-410a	R-410a	R-134a HFC-134a	R-410a	R-417a
Equipment quantity(units)	5	3	6	5	2	2	1
Total filling amount (g)	260	1230	20450	36650	330	4200	1400
Fugitive emissions rate (%)	0.3	20	3	8.5	0.3	3	16
Leakage amount (g)	0.7800	246	613.5000	3115.2500	0.99	126	224
GWP	1300	1300	1924	1924	1300	1924	2127
Carbon emissions equivalent (ton_CO_2-e)	0.3208		7.1741		0.0013	0.2424	0.4764
Subtotal (ton_CO_2-e)	7.4949				0.7201		

Remarks:

#1: Gangshan Plant replaced one water dispenser in July 2024; leakage amount calculated based on the installation dates of the old and new machines.

#2: Zhunan Plant removed one air conditioner in September 2024; leakage amount calculated based on the removal date of the old unit.

#3: Gangshan Plant added two new chilled water units in October 2024; leakage amount calculated based on the installation dates of the new machines.

Plant site	Gangshan Plant		Bi-Metal Material Plant		Zhunan Plant		
Equipment	Air con-ditioners	Chiller units	Dryers	Chiller units	Air con-ditioners	Dryers	Water dispensers
Coolant type	R-22		R-22		R-22		R-12
Total quantity (units)	8	7(#3)	2	1	4 (#2)	2	1
Total filling amount (g)	59950	48000	6200	4200	20050	4900	300
Fugitive emissions rate (%)	5.5	8.5	5.5	8.5	5.5	5.5	0.3
Leakage amount (g)	3297.25	3250.0274	341	357	1102.7500	269.5000	0.9
GWP	1760	1760	1760	1760	1760	1760	10200
Carbon emissions equivalent (ton_CO_2-e)	11.5232		1.2285		2.4152		0.0092

Note: Air conditioners and equipment use R22 and R12 coolants. Since such types of coolants refer to substances under the control of the Montreal Protocol rather than substances for GHG emissions control, they are listed in the inventory inspection but are excluded from the scope of carbon emissions equivalent statistics.

GHG emissions carbon equivalent inventory Category 1 - Coolant						
Plant site	Gangshan Plant	Luzhu Plant	Packaging Plant	Bi-Metal Material Plant	Zhunan Plant	Sheh Kai (Shanghai)
Carbon emissions equivalent (ton_CO_2-e)	11.9662	2.1146	0.4155	7.4949	0.7201	0.3900
Total	**23.1013**					

2024 direct fugitive emissions (coolant) of GHG from anthropogenic systems

Total emissions equivalent 23.1013 ton_CO_2-e

Category 1 Direct fugitive emissions (septic tanks) of GHG from anthropogenic systems

2024 employee/non-employee monthly working hours						
Working hours (hr) / Month	Gangshan Plant	Luzhu Plant	Packaging Plant	Bi-Metal Material Plant	Zhunan Plant	Sheh Kai (Shanghai)
1	29039.0	8610.0	4345.0	5891.5	4039.0	783.0
2	20858.5	6297.5	3047.0	4155.5	2894.5	351.0
3	28101.0	8712.0	3344.0	5564.5	3554.0	657.0
4	26490.0	8328.0	3244.0	5557.5	3611.0	792.0
5	29279.5	8882.0	3696.0	6134.5	3822.0	756.0
6	25230.0	8172.5	3208.0	5229.0	3328.0	684.0
7	30566.5	8722.0	3576.0	6023.0	3824.0	828.0
8	29570.0	9425.5	3440.0	5555.5	3840.0	792.0
9	27164.5	8849.0	3281.0	5303.0	3308.0	756.0
10	24466.5	9546.0	3012.0	4938.5	3365.0	684.0
11	28251.5	9255.5	3470.0	5750.0	3686.0	756.0
12	27884.5	8815.5	3360.0	5511.5	3721.0	792.0
Subtotal (hr)	326901.5	103615.5	41023.0	65614.0	42992.5	8631.0

GHG emissions factor and GWP value (Taiwan)		
GHG	(Taiwan)CH_4	(Shanghai) CH_4
Emission Factor (ton/person-hour)	0.0000005625	0.0000015000
GWP value	28.0	28.0

(1) Emissions equivalent = Working hours (subtotal) x CH_4 emission factor x CH_4 GWP						
Plant site	Gangshan Plant	Luzhu Plant	Packaging Plant	Bi-Metal Material Plant	Zhunan Plant	Sheh Kai (Shanghai)
Emissions equivalent (ton_CO_2-e)	5.1492	1.6324	0.6468	1.0332	0.6776	0.3612
Total (ton_CO_2-e)	**9.5004**					

Note: Non-employees include cleaning personnel and security guards.

Direct fugitive emissions (septic tank) of GHG from anthropogenic systems in 2024

Total emissions equivalent 9.5004 ton_CO_2-e

Laser welding of dissimilar metals (2024)

Laser welding of dissimilar metals					
Plant site	Gangshan Plant	Luzhu Plant	Packaging Plant	Bi-Metal Material Plant	Zhunan Plant
Welding materials HS-9M Consumption amount (kg)	0	0	0	1.09	0
CO_2 usage in welding material HS-9M (kg)	0	0	0	0.0095	0
Emissions equivalent (kg_CO_2-e)	0.0000	0.0000	0.0000	0.0348	0.0000

Emission equivalent of HS-9M metal welding rods(kg CO_2-e) = Wire Usage × Carbon Content in Wire × Emission Factor × CO_2 GWP	
Greenhouse Gas Emissions	CO_2
Carbon content ratio	0.87% (material certificate provided by the supplier)
Emission factor	CO_2 emission factor is calculated based on the mass balance approach, $C+O_2 \rightarrow CO_2$, and for the burning of 1 mole C (molecular weight of 12), 1 mole CO_2 (molecular weight of 44) is generated; therefore, the CO_2 emission factor=44/12=3.6666666667(kg/kg carbon)
GWP value	1

In 2024, R&D welding trials were conducted using 1.09 kg of HS-9M metal welding rods. Based on a carbon content percentage of 0.87% (certified by the supplier), the carbon emission equivalent was calculated to be 0.0348 kg CO_2-e. When expressed in tons CO_2-e, the carbon emission equivalent is 0.0000 ton CO_2-e.

2024 direct emissions from R&D processes

Metal laser welding

Total emissions equivalent 0.0000 ton_CO_2-e

Category 1 High pressure gas circuit breakers

High pressure gas circuit breakers (GCB) protection gas SF_6 (Unit: g)					
Plant site	Gangshan Plant	Luzhu Plant	Packaging Plant	Bi-Metal Material Plant	Zhunan Plant
Gas circuit breakers (GCB) quantity (units)	2	0	0	0	0
Filling amount of current year (g)	0.0000	0.0000	0.0000	0.0000	0.0000
Emissions equivalent (ton_CO_2-e)	0.0000	0.0000	0.0000	0.0000	0.0000

Gas circuit breaker (GCB) protection gas SF_6 GHG emissions factor and GWP value	
GHG	SF_6 sulfur hexafluoride
Emission factor	1.0000000000
GWP value	23500
SF_6 emissions = Filling amount of current year x Emission factor x GWP value	

溫室氣體化學式	AR2 (1995)	AR3 (2001)	AR4 (2007)	AR5 (2014)	AR6 (2021)
HFC-245ca，1,1,2,2,3-五氟丙烷，$CH_2FCF_2CHF_2$	560	640	693	716	787
HFC-245fa，1,1,1,3,3-五氟丙烷，$CHF_2CH_2CF_3$	–	950	1,030	858	962
HFC-365mfc，1,1,1,3,3-五氟丁烷，$CF_3CH_2CF_2CH_3$	–	890	794	804	914
HFC-43-10mee，1,1,1,2,2,3,4,5,5,5-十氟戊烷，$CF_3CHFCHFCF_2CF_3$	1,300	1,500	1,640	1,650	1,600
Chlorocarbons and Hydrochlorocarbons					
Methylchloroform，CH_3CCl_3	100	140	146	160	161
Methylchloride，CH_3Cl	4	16	13	12	6
Methylenechloride，CH_2Cl_2	9	10	8.7	9	11
Chloroform，$CHCl_3$	–	30	31	16	21
Fully Fluorinated Species					
NF_3，三氟化氮	–	10,800	17,200	16,100	17,400
SF_6，六氟化硫	23,900	22,200	22,800	23,500	25,200
PFC-14，四氟化碳，CF_4	6,500	5,700	7,390	6,630	7,380
PFC-116，六氟乙烷，C_2F_6	9,200	11,900	12,200	11,100	12,400
PFC-218，C_3F_8，全氟丙烷	7,000	8,600	8,830	8,900	9,290
PFC-318，c-C_4F_8，八氟環丁烷	8,700	10,000	10,300	9,540	–
C_4F_{10}，全氟丁烷	7,000	8,600	8,860	9,200	10,000
Perfluorocyclopentene，c-C_5F_8，八氟環戊烯	–	–	–	2	–
PFC-4-1-12，C_5F_{12}(n-C_5F_{12})，全氟戊烷	7,500	8,900	9,160	8,550	9220
PFC-5-1-14，C_6F_{14}(n-C_6F_{14})，全氟己烷	7,400	9,000	9,300	7,910	8620
混合冷媒					
R-401A，HCFC-22/HFC-152a/HCFC-124(53.0/13.0/34.0)	1,126	1,127	1,182	1,130	1,263

SF_6 emissions = Filling amount of current year x Emission factor x GWP

0 x 1.0000000000 x 23500 = 0 (ton CO_2-e)

GHG chemical formula	Emission factor	GWP
SF_6 sulfur hexafluoride	1.0000000000	23500

Information source: Calculation according to mass balance approach

2024 High pressure gas circuit breakers (GCB) protection gas SF_6

Total emissions equivalent 0.0000 ton_CO_2-e

Category 1 Fire extinguisher

Number of fire extinguishers at each plant in 2024 (unit: units)						
Plant site / Types of fire extinguishers	Gangshan Plant	Luzhu Plant	Packaging Plant	Bi-Metal Material Plant	Zhunan Plant	Sheh Kai (Shanghai)
ABC dry powder fire extinguisher (Without carbon content, and no calculation is necessary)	96	26	30	14	7	2
Carbon dioxide fire extinguisher (Contains carbon content, calculation required)	14	0	0	16	6	0

Note: Note: Fire extinguisher type ●ABC dry powder: Without carbon content, and no calculation is necessary ●BC type dry powder: Depending on its content, if the content refers to sodium bicarbonate (NaHCO3), then calculation is necessary; ●Carbon dioxide: Its content refers to CO2, and calculation is necessary; ●KBC type: Its content refers to potassium bicarbonate (KHCO3), and calculation is necessary; ●HFC: For HFC-227ea, HFC-23 and HFC-236fa, the calculation is necessary.

The ABC-type dry powder fire extinguishers at each plant contain no carbon content and do not require calculation; also, no refilling of carbon dioxide fire extinguishers was conducted during the year.

2024 Fire extinguishers

Total emissions equivalent 0.0000 ton_CO_2-e

Category 2 Indirect emissions from imported energy (2024)

2024 Monthly electricity consumption of each plant site (unit: kWh) *cross-month calculation)						
Plant site / Month	Gangshan Plant	Luzhu Plant	Packaging Plant	Bi-Metal Material Plant	Zhunan Plant	Sheh Kai (Shanghai)
1	464.8000	237.8400	4.3751*	24.8400	14.0028*	1.6540
2	300.2000	189.4400	4.9390	18.6800	14.8800	1.2760
3	402.0000	290.6400	4.2340	26.4800	14.8800	0.5360
4	384.6000	278.5600	5.6450	30.4800	20.0400	0.4440
5	437.2000	294.8000	4.9390	33.8800	20.4000	0.6100
6	394.2000	278.0800	4.9390	29.4800	21.8400	0.9800
7	435.4000	232.1600	6.3500	31.9200	23.5200	2.2220
8	476.0000	309.1200	4.9390	34.6800	21.1200	2.6640
9	410.4000	278.5600	4.9390	30.6000	17.8800	1.2250
10	279.4000	301.4400	4.9390	22.5200	12.3600	0.3750
11	396.4000	300.8800	4.2340	27.3200	14.2800	0.4510
12	381.0000	290.5600	4.0880*	22.6400	14.6889*	1.0000
Subtotal (MWh)	**4761.6000**	**3282.0800**	**58.5601**	**333.5200**	**209.8917**	**13.4370**

Electricity Emission factor	The 2024 electricity emission factor announced by the Bureau of Energy 0.4740 ton CO_2e/ thousand kWh. Carbon Footprint Factor for Electricity Announced by China's Ministry of Ecology and Environment for 2023 0.6205 ton Co_2e/thousand kWh.

Emissions equivalent (ton_CO_2-e)= Electricity consumption (subtotal) x Electricity emission factor

Emissions equivalent (ton_CO_2-e)	Gangshan Plant	Luzhu Plant	Packaging Plant	Bi-Metal Material Plant	Zhunan Plant	Sheh Kai (Shanghai)
	2256.9984	1555.7059	27.7575	158.0885	99.4887	8.3377
Total (ton_CO_2-e)	**4106.3767**					

2024 Imported energy (electricity)

Total emissions equivalent 4106.3767 ton_CO_2-e

Summarization of GHG CO2_e Emissions of Each Plant Regional Boundary

4.1 2024 GHG total emissions according to category, type of GHG and emission source are described in the following table

Table 4.1.1 2024 Gangshan Plant GHG Emissions Summary Table

Category 1: Direct GHG emissions and removals (ton CO_2e)						**71.2746**			
Item	**Subtotal**	**Percentage (%)**	**CO_2**	**CH_4**	**N_2O**	**HFCs**	**PFCs**	**SF_6**	**NF_3**
Direct emissions from stationary combustion	13.1155	0.563	13.1095	0.0060	0.0000	-	-	-	-
Direct emissions from mobile combustion	40.9328	1.758	40.1248	0.0660	0.7420	-	-	-	-
Direct emissions from industrial processes and removals	0.1109	0.005	0.1109	-	-	-	-	-	-
Direct fugitive emissions of GHG from anthropogenic systems	17.1154	0.735	0.0000	5.1492	-	11.9662	-	-	-
Total	**71.2746**	**3.061**	**53.3452**	**5.2212**	**0.7420**	**11.9662**	-	-	-

Category 2: Indirect GHG emissions from imported energy (ton CO_2e)			**2256.9984**
Item	**Total**	**Percentage (%)**	**Significance identification**
Imported electricity/energy	**2256.9984**	**96.939**	GHG emissions from imported electricity or imported energy (steam, thermal energy, cold energy, high pressure air)

[Category 1 + Category 2] Gangshan Plant GHG emissions (ton CO_2- e)	**2328.2730**

Table 4.1.2 2024 Luzhu Plant GHG Emissions Summary Table

Category 1: Direct GHG emissions and removals (ton CO_2-e)						**176.5387**			
Item	**Subtotal**	**Percentage (%)**	**CO_2**	**CH_4**	**N_2O**	**HFCs**	**PFCs**	**SF_6**	**NF_3**
Direct emissions from stationary combustion	153.9790	8.889	153.8185	0.0810	0.0795	-	-	-	-
Direct emissions from mobile combustion	18.8040	1.086	18.5120	0.0270	0.2650	-	-	-	-
Direct emissions from industrial processes and removals	0.0087	0.001	0.0087	-	-	-	-	-	-
Direct fugitive emissions of GHG from anthropogenic systems	3.7470	0.216	-	1.6324	-	2.1146	-	-	-
Total	**176.5387**	**10.192**	**172.3392**	**1.7404**	**0.3445**	**2.1146**	**-**	**-**	**-**

Category 2: Indirect GHG emissions from imported energy (ton CO_2-e)			**1555.7059**
Item	**Subtotal**	**Percentage (%)**	**Significance identification**
Imported electricity/energy	**1555.7059**	**89.808**	GHG emissions from imported electricity or imported energy (steam, thermal energy, cold energy, high pressure air)

[Category 1 + Category 2] Luzhu Plant greenhouse gas emissions (ton CO_2-e)	**1732.2446**

Table 4.1.3 2024 Packaging Plant GHG Emissions Summary Table

Category 1: Direct GHG emissions and removals (ton CO_2-e)						**9.6606**			
Item	**Subtotal**	**Percentage (%)**	**CO_2**	**CH_4**	**N_2O**	**HFCs**	**PFCs**	**SF_6**	**NF_3**
Direct emissions from stationary combustion	0.0201	0.054	0.0201	-	-	-	-	-	-
Direct emissions from mobile combustion	8.5782	22.925	8.4602	0.0120	0.1060	-	-	-	-
Direct emissions from industrial processes and removals	-	-	-	-	-	-	-	-	-
Direct fugitive emissions of GHG from anthropogenic systems	1.0623	2.839	-	0.6468	-	0.4155	-	-	-
Total	**9.6606**	**25.818**	**8.4803**	**0.6588**	**0.1060**	**0.4155**	-	-	-

Category 2: Indirect GHG emissions from imported energy (ton CO_2-e)			**27.7575**
Item	**Subtotal**	**Percentage (%)**	**Significance identification**
Imported electricity/energy	**27.7575**	**74.182**	GHG emissions from imported electricity or imported energy (steam, thermal energy, cold energy, high pressure air)

[Category 1 + Category 2] Packaging Plant greenhouse gas emissions (ton CO_2-e)	**37.4181**

Table 4.1.4 2024 Bi-Metal Material Plant GHG Emissions Summary Table

Category 1: Direct GHG emissions and removals (ton CO_2-e)						**13.2555**			
Item	**Subtotal**	**Percentage (%)**	**CO_2**	**CH_4**	**N_2O**	**HFCs**	**PFCs**	**SF_6**	**NF_3**
Direct emissions from stationary combustion	0.0166	0.010	0.0166	-	-	-	-	-	-
Direct emissions from mobile combustion	4.7108	2.749	4.5958	0.0090	0.1060	-	-	-	-
Direct emissions from industrial processes and removals	-	-	-	-	-	-	-	-	-
Direct fugitive emissions of GHG from anthropogenic systems	8.5281	4.977	-	1.0332	-	7.4949	-	-	-
Total	**13.2555**	**7.736**	**4.6124**	**1.0422**	**0.1060**	**7.4949**	**-**	**-**	**-**

Category 2: Indirect GHG emissions from imported energy (ton CO_2-e)			**158.0885**
Item	**Subtotal**	**Percentage (%)**	**Significance identification**
Imported electricity/energy	**158.0885**	**92.264**	GHG emissions from imported electricity or imported energy (steam, thermal energy, cold energy, high pressure air)

[Category 1 + Category 2] Bi-Metal Material Plant GHG emissions (ton CO_2- e)	**171.3440**

Table 4.1.5 Zhunan Plant GHG Emissions Summary Table 2024

Category 1: Direct GHG emissions and removals (ton CO_2-e)						**1.5256**			
Item	**Subtotal**	**Percentage (%)**	**CO_2**	**CH_4**	**N_2O**	**HFCs**	**PFCs**	**SF_6**	**NF_3**
Direct emissions from stationary combustion	-	-	-	-	-	-	-	-	-
Direct emissions from mobile combustion	**0.1279**	**0.127**	**0.1279**	-	-	-	-	-	-
Direct emissions from industrial processes and removals	-	-	-	-	-	-	-	-	-
Direct fugitive emissions of GHG from anthropogenic systems	**1.3977**	**1.384**	-	**0.6676**	-	**0.7201**	-	-	-
Total	**1.5256**	**1.511**	**0.1279**	**0.6676**	-	**0.7201**	-	-	-

Category 2: Indirect GHG emissions from imported energy (ton CO_2-e)			**99.4887**
Item	**Subtotal**	**Percentage (%)**	**Significance identification**
Imported electricity/energy	**99.4887**	**98.489**	GHG emissions from imported electricity or imported energy (steam, thermal energy, cold energy, high pressure air)

[Category 1 + Category 2] Zhunan Plant GHG emissions (ton CO_2- e)	**101.0143**

Table 4.1.6 2024 Sheh Kai (Shanghai) GHG Emissions Summary Table

Category 1: Direct GHG emissions and removals (ton CO_2-e)						**5.1428**			
Item	**Subtotal**	**Percentage (%)**	**CO_2**	**CH_4**	**N_2O**	**HFCs**	**PFCs**	**SF_6**	**NF_3**
Direct emissions from stationary combustion	-	-	-	-	-	-	-	-	-
Direct emissions from mobile combustion	**4.3916**	**32.577**	**4.3916**	-	-	-	-	-	-
Direct emissions from industrial processes and removals	-	-	-	-	-	-	-	-	-
Direct fugitive emissions of GHG from anthropogenic systems	**0.7512**	**5.572**	-	**0.3612**	-	**0.3900**	-	-	-
Total	**5.1428**	**38.150**	**4.3916**	**0.3612**	-	**0.3900**	-	-	-

Category 2: Indirect GHG emissions from imported energy (ton CO_2-e)			**8.3377**
Item	**Subtotal**	**Percentage (%)**	**Significance identification**
Imported electricity/energy	**8.3377**	**61.850**	GHG emissions from imported electricity or imported energy (steam, thermal energy, cold energy, high pressure air)

[Category 1 + Category 2] Sheh Kai (Shanghai) GHG emissions (CO_2-e)	**13.4805**

2024 Sheh Kai Precision GHG Emissions Statistics

Category 1–2 (ton_CO_2-e)

Category \ Plant site		Gangshan Plant	Luzhu Plant	Packaging Plant	Bi-Metal Material Plant	Zhunan Plant	Sheh Kai (Shanghai)	Inventory category subtotal
1	Direct emissions from stationary combustion (natural gas, power generator diesel)	13.1155	153.9790	0.0201	0.0166	0.0000	0.0000	167.1312
1	Direct emissions from mobile combustion (vehicle gasoline, diesel)	40.9328	18.8040	8.5782	4.7108	0.1279	4.3916	77.5453
1	Direct emissions from industrial processes (acetylene, anti-rust oil)	0.1109	0.0087	0.0000	0.0000	0.0000	0.0000	0.1196
1	Direct fugitive emissions (coolant) of GHG from anthropogenic systems	11.9662	2.1146	0.4155	7.4949	0.7201	0.3900	23.1013
1	Direct fugitive emissions (septic tank) of GHG from anthropogenic systems	5.1492	1.6324	0.6468	1.0332	0.6776	0.3612	9.5004
1	Laser welding of metal materials	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1	High pressure gas circuit breakers (SF6 gas)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1	Fire extinguishers (ABC type, CO_2)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1	Total	71.2746	176.5387	9.6606	13.2555	1.5256	5.1428	277.3978
2	Imported electricity	2,256.9984	1,555.7059	27.7575	158.0885	99.4887	8.3377	4,106.3767
Total: Category 1+2		2,328.273	1,732.245	37.418	171.344	101.014	13.481	4,383.775

2024 Category 1+2

Total emissions equivalent 4383.775 ton_CO_2-e

Chapter 5 GHG Quantification

5.1 Qualification Method

5.1.1 Quantitative Principle

The calculation of GHG emissions of each emission source of the Company mainly adopts the “Emission Factor Approach” and the “Mass Balance Approach”.

- Emission Factor Approach: It refers to multiplying the consumption amount of raw (fuel) materials by the corresponding emission factor, and further multiplying the result obtained by the global warming potential (GWP) coefficient according to the each type of GHG emissions generated, in order to calculate the GHG emissions. The calculation equation is as follows:

  Activity data (4 decimal places) × Emission factor (10 decimal places)
  = Emissions from a single source (rounded to 4 decimal places)

  Emissions from a single source (4 decimal places) × GWP
  = Emission equivalent from a single source (rounded to 4 decimal places)

  The total emission equivalent is calculated by summing the emission equivalents of each single source rounded to 4 decimal places, and the final total emission equivalent is rounded to 3 decimal places.

- Mass Balance Approach: It refers to the method of using in/out, generation, consumption and conversion balance of the substance mass and energy in a process or chemical equation, in order to calculate the emission.

(1) For the emission of each GHG, the data unit is converted into kilogram, gram (weight unit) or kL (volume unit) for recording according to different sources.

(2) Different emission sources are calculated based on the greenhouse gas emission factors announced by the Environmental Protection Administration on February 5, 2024, and the unit calorific values of energy products in the Energy Statistics Handbook (2023)of the Ministry of Economic Affairs.

(3) The “GHG Inventory Table” used by the Company is adjusted and summarized according to the “GHG Inventory Table Version 3.0.0 (Revised)” announced on the GHG Emissions Information Platform of the Ministry of Environment.

(4) After the emission factor is selected, for the value calculated, the global warming potential (GWP) for different types of GHG announced in the IPCC Fifth Assessment Report is further used in order to convert all calculation results into CO_2e (carbon dioxide equivalent), and the unit is metric ton CO_2e/year. The GWP values used by the Company are summarized in the following Table 5.1.

Table 5.1 GWP Values of IPCC Announced Substances

Substance Name	GWP Values of IPCC Fifth Assessment Report AR5
CO_2	1
CH_4 (Non-Petrochemical)	28
CH_4 (Petrochemical)	30
N_2O	265
HFC-134a/R-134a	1300
R-410A	1924
R-407C	1624
R-417a	2127
R-427a	2024
R-600a	GWP value not yet announced
SF_6	23500

5.1.2 Calculation Method

5.1.2.1 Category 1. Stationary Combustion Sources

(1) Natural gas CO_2e emissions
= (Natural gas consumption x CO_2 emission factor x CO_2 GWP) +
(Natural gas consumption x CH_4 emission factor x CH_4 GWP) +
(Natural gas consumption x N_2O emission factor x N_2O GWP)

(2) Emergency power generator (diesel) CO_2e emissions
= (Diesel consumption x CO_2 emission factor x CO_2 GWP) +
(Diesel consumption x CH_4 emission factor x CH_4 GWP) +
(Diesel consumption x N_2O emission factor x N_2O GWP)

5.1.2.2 Category 1 Mobile Combustion Sources

(1) [Taiwan] Vehicle gasoline CO_2e emissions
= (Vehicle gasoline consumption × CO_2 emission factor × CO_2 GWP) +
(Vehicle gasoline consumption × CH_4 emission factor × CH_4 GWP) +
(Vehicle gasoline consumption × N_2O emission factor × N_2O GWP)

(2) [Shanghai] Vehicle gasoline CO2e emissions
= vehicle gasoline consumption × carbon footprint factor for vehicle gasoline from the China Products Carbon Footprint Factors Database

(3) Diesel CO_2e emissions
= (Diesel consumption x CO_2 emission factor x CO_2 GWP) +
Diesel consumption x CH_4 emission factor x CH_4 GWP) +
(Diesel consumption x N_2O emission factor x N_2O GWP)

5.1.2.3 Category 1. Process Emission Sources

(1) Acetylene CO_2e emissions = Acetylene consumption amount x CO_2 emission factor x CO_2 GWP

- CO_2 emission factor is calculated based on the mass balance approach, $C_2H_2+2.5O_2 \rightarrow 2\ CO_2+H_2O$, and for the burning of 1 mole C_2H_2 (molecular weight of 26), 2 mole CO_2 (molecular weight of 88) is generated; therefore, the CO_2 emission factor=88/26=3.3846153846(kg/kg acetylene)

(2) WD40 anti-rust oil CO_2e emissions

= WD40 anti-rust oil purchase amount x Specific weight x Carbon content ratio x CO_2 emission factor x CO_2 GWP

- WD40 anti-rust oil specific weight=0.81 (reference to SDS safety data sheet)
- Carbon content ratio is 3% (reference to SDS safety data sheet)

(3) Wires for electric welding operation CO_2e emissions

= Wire usage weight x Wire carbon content x Emission factor x CO2 GWP

- Wire carbon content percentage is 0.87% indicated in the material certificate (material certificate provided by the supplier)
- CO2 emission factor is calculated based on the mass balance approach, C+O2→CO2,

and for the burning of 1 mole C (molecular weight of 12), 1 mole CO2 (molecular weight of 44) is generated; therefore, the CO2 emission factor=44/12=3.6666666667(kg/kg carbon)

5.1.2.4 Category 1 Anthropogenic Fugitive Emission Sources

(1) Coolant CO_2e missions = Equipment specification filling amount x Coolant fugitive emissions rate x Coolant GWP

- Coolant fugitive emissions rate and emission factor refer to Table 3 of the "GHG Emission Factor" announced by the Ministry of Environment, and the selection is as shown in the following Table 5.2:

Table 5.2 Equipment Coolant Fugitive Emissions Rate

Equipment name	Fugitive emissions rate (%)	Fugitive emissions rate selected for use (%)
Household freezer and refrigerator	0.1-0.5	0.3%
Independent commercial freezer and refrigerator	1-15	8.0%
Medium and large freezer and refrigerator	10-35	22.5%
Freezer and refrigerator for transportation purpose	15-50	20.0%
Industrial freezer and refrigerator, including food processing and refrigeration	7-25	16.0%
Chiller units	2-15	8.5%
Residential and commercial building air conditioner	1-10	3.0%
Mobile air purifier	10-20	15.0%

(2) ◆ Taiwan Septic tank CO_2e emissions = Total number of working hours x CH_4 emission factor x CH_4 GWP

➢ CH_4 Emission factor

= Methane correction factor x BOD emission factor x Average pollution concentration (mg/L) x 10^{-9} x Wastewater amount per person per hour (L/hour) x Septic tank treatment efficiency(100%) (set at 100%)

= 0.5 x 0.6(ton CH_4/ton-BOD) x 100(mg/L) x 10^{-9} x $\frac{150}{8}$ (L/hour)

= 0.0000005625 (ton CH_4/person-hour)

◆ Shanghai Septic tank CO_2e emissions = Total number of working hours x CH_4 emission factor x CH_4 GWP

The CH_4 emission factor is referenced from the IPCC 2006 Guidelines, Volume 5, on domestic wastewater, as follows:

➢ CH_4 Emission factor=$B_o \times MCF_j \times BOD \div 1000 \times I \times \text{working person} - \text{day}$

EFj = Bo × MCFj, where Bo = 0.6 kg CH_4/kg BOD; MCFj is 0.5 according to Table 6.3

BOD is 40 g/person-day; I = 1

CH_4 emission factor = 0.000012 (ton CH_4/person-day) = 0.0000015 (ton CH_4/person-hour)

(3) Gas circuit breaker(GCB) CO_2e emissions = Filling amount x Emission factor x SF_6GWP

5.1.2.5 Category 2 Indirect GHG Emissions

(1) Externally purchased electricity CO_2e emissions = Electricity consumption in kWh x Electricity emission factor

➢ The 2024 electricity emission factor announced by the Bureau of Energy = 0.4740 (CO_2e/kWh)

➢ Carbon Footprint Factor for Electricity Announced by China's Ministry of Ecology and Environment for 2023 = 0.6205 (ton Co_2e/thousand kWh)

5.2 Emission Factor Selection and Use

The emission factor selection principle of the Company is to use the factor obtained from measurement or calculated via the mass balance approach in priority, and the national emission factor is used as the secondary option. If no emission factor is available for use, the applicable factor announced internationally is then used. Emission factors are as shown in Table 5.3:

Table 5.3 Table of Emission Factors for Different Emission Sources

Emission source category	Emission source	GHG	Emission factor	Unit	Information source	Emission source location
Category 1 Stationary (E)	Natural gas	CO_2	1.8790358400	ton/1000m^3	Greenhouse gas emission factors announced by the Environmental Protection Administration on February 5, 2024, and calorific values published in the Ministry of Economic Affairs Energy Statistics Handbook (2023)	Gangshan Plant, Luzhu Plant
		CH_4	0.0000334944	ton/1000m^3		
		N_2O	0.0000033494	ton/1000m^3		
	(Emergency power generator) diesel	CO_2	2.6811103270	Kg/L		Gangshan Plant, Luzhu Plant, Packaging Plant, Bi-Metal Material Plant
		CH_4	0.0001085470	Kg/L		
		N_2O	0.0000217094	Kg/L		
Category 1 Mobile (T)	(Company vehicle) Vehicle gasoline	CO_2	2.2077151312	ton/kL	Greenhouse gas emission factors announced by the Environmental Protection Administration on February 5, 2024, and calorific values published in the Ministry of Economic Affairs Energy Statistics Handbook(2023)	Gangshan Plant, Luzhu Plant Plant, Bi-Metal Material Plant
		CH_4	0.0001210580	ton/kL		
		N_2O	0.0001815870	ton/kL		
		CO_2	3.0400000000	ton/ton	China Products Carbon Footprint Factors Database	Sheh Kai (Shanghai)
	(Company vehicles) diesel	CO_2	2.6811103270	ton/kL	Greenhouse gas emission factors announced by the Environmental Protection Administration on February 5, 2024, and calorific values published in the Ministry of Economic Affairs Energy Statistics Handbook(2023)	Gangshan Plant, Luzhu Plant
		CH_4	0.0001411111	ton/kL		
		N_2O	0.0001411111	ton/kL		
	(Forklift) premium diesel	CO_2	2.6811103270	ton/kL		Gangshan Plant, Luzhu Plant, Packaging Plant, Bi-Metal Material Plant, Zhunan Plant
		CH_4	0.0001411111	ton/kL		
		N_2O	0.0001411111	ton/kL		
Category 1 Process (P)	Acetylene	CO_2	3.3846153846	Kg/Kg	Mass balance approach	Gangshan Plant, Luzhu Plant
	Anti-rust oil (WD40)	CO_2	1.0000000000	Kg/Kg		Gangshan Plant, Luzhu Plant Plant, Bi-Metal Material Plant
	Wires for electric welding operation	CO_2	3.6666666667	Kg/Kg		Bi-Metal Material Plant
Category 1 Fugitive (F)	Septic tanks	CH_4	0.0000005625	ton/phr	Table 3 of the “GHG Emission Factor” announced by the Ministry of Environment	Gangshan Plant, Luzhu Plant, Packaging Plant, Bi-Metal Material Plant and Zhunan Plant
	Septic tanks	CH_4	0.0000015000	ton/phr	IPCC 2006 Guidelines, Volume 5–Domestic Wastewater	Sheh Kai (Shanghai)
	HFC-134a /R-134a	HFCs	1.0000000000	g/g	Table 3 of the “GHG Emission Factor” announced by the Ministry of Environment on February 5, 2024	Gangshan Plant, Luzhu Plant, Packaging Plant, Bi-Metal Material Plant, Zhunan Plant and Sheh Kai (Shanghai)

Emission source category	Emission source	GHG	Emission factor	Unit	Information source	Emission source location
	R-407c	HFCs	1.0000000000	g/g		Gangshan Plant
	R-410a	HFCs	1.0000000000	g/g		Gangshan Plant, Luzhu Plant, Packaging Plant, Bi-Metal Material Plant and Zhunan Plant
	R-417a	HFCs	1.0000000000	g/g		Zhunan Plant
	R-427a	HFCs	1.0000000000	g/g		Luzhu Plant
	Gas circuit breakers (GCB)	SF_6	1.0000000000	g/g	Mass balance approach	Gangshan Plant
Category 2	Externally purchased electricity	CO_2e	0.4740000000	ton/MWh	Electricity emission factor for 2024 announced by the Bureau of Energy	Gangshan Plant, Luzhu Plant, Packaging Plant, Bi-Metal Material Plant and Zhunan Plant
			0.6205000000	ton/MWh	Carbon Footprint Factor for Electricity Announced by China's Ministry of Ecology and Environment for 2023	Sheh Kai (Shanghai)

5.3 Quantitative Calculation Method Change Explanation

When there is any change in the quantitative calculation method, the new quantitative calculation method is used for calculation, and it is also necessary to perform comparison with the original calculation method, and the difference between the two and the reason for the use of the new method shall be explained. The current quantitative calculation method is performed in accordance with the requirements specified by the Ministry of Environment, and there is no change in the quantitative method.

5.4 Emission Factor Selection and Use Explanation

For the emission calculation factor, if there is any change of the factor indicated in the data source, file must be re-created and calculated, and the difference between the data after change and the original data shall also be explained. The currently selected emission factors are based on the greenhouse gas emission factors announced by the Environmental Protection Administration on February 5, 2024.

5.5 Data Quality Management

5.5.1 Direct and Indirect GHG Emission Source Data Quality

(1) To achieve data quality accuracy, all responsible units are required to explain the data source, such as the purchase basis, flow meter record, quantifier record, pickup record and computer database record or computer documents, etc., and all records and documents capable of proving and supporting the credibility of the data must be investigated. In addition, the data shall be preserved in the responsible units in order to facilitate subsequent inspection and to be used as the tracking basis.

(2) The purpose of the Company's quality control operation on the 2024 inventory data is to comply with the principles of relevance, completeness, consistency, transparency and accuracy specified in ISO 14064-1ISO14064-1:2018/CNS 14064-1:2021. The operation content is explained in the following:

A. Quality audit is handled by internal auditors.

B. Implementing general quality audit: For general mistakes likely to occur due to negligence and errors during the processes of data collection/input/processing, data file creation and emissions calculation, appropriate quality inspection is performed

C. Performing specific quality audit: For the specific scope of the appropriateness of inventory boundary, re-calculation operation, quality of specific emission source input data, and qualitative explanation for main causes of data uncertainty, rigorous inspection

The contents of the general and specific quality inspection operations are as shown in Table 5.4 and Table 5.5.

Table 5.4 General Quality Audit Operation Content

Inventory inspection stage	Work content
Data collection, input and processing operation	・ Inspect whether the records of input data contain any error. ・ Inspect whether there is any omission in the data filling and recording (completeness). ・ Ensure that the electronic file of appropriate version is executed.
Data file creation	・ Determine the data source of all primary data (including reference data) in the forms and tables. ・ Inspect that files have been created for all documentations referenced. ・ Inspect that files have been created for the assumptions and rules

	selected for application to the following items: boundary, base year, quantitative method, activity data, emission factor and other parameters.
Calculate emissions and inspect calculations	· Inspect whether the emissions unit, parameters and conversion coefficients have been properly indicated. · Inspect whether the units are appropriately indicated and used properly during the calculation process. · Inspect the conversion coefficient. · Inspect the data processing steps in the inventory forms and tables. Inspect that the input data and arithmetic data in the forms and tables shall be clearly distinguished. · Inspect the representative samples of the calculation. · Use simple algorithm to check the calculation. · Inspect the total of different emission source types and data. · Inspect the consistency between the input and calculation values for different periods and years.

Table 5.5 Specific Quality Audit Operation Content

Inventory inspection type	Work focus
Emission factors and other parameters	· Determine whether the use of emission factors and other parameters is appropriate. · Determine whether the units of the factors or parameters are consistent with the units of the activity data. · Determine whether the unit conversion coefficient is accurate.
Activity data	· Determine whether the data collection operation is continuous (without interruption). · Determine whether relevant historical data has a consistent variation. · Perform cross-comparison on the activity data of the same types of facilities/departments. · Determine whether there is correlation between the activity data and product production capacity. · Determine whether the activity data changes due to re-calculation of the base year.
Emission calculation	· Determine whether the computer built-in equations for emissions calculation are correct. · Determine whether historical emissions estimation is consistent. · Perform cross-comparison on the emissions of the same types of facilities/departments. · Determine the difference between the actual measurement value and the emissions estimation value. · Determine whether there is correlation between the emissions and product production capacity.

5.5.2 Inventory Inspection Data Uncertainty Management

(1) Emission source uncertainty quantitative analysis

Since the Company's 2024 GHG emissions are centralized at the emission sources of natural gas, vehicle gasoline, diesel and externally purchased electricity, and since the instrument accuracy and supporting documents for the activity data of other emission sources cannot be obtained easily, uncertainty quantitative assessment is performed mainly on the aforementioned four emission sources, as shown in Table 5.6.

A. Uncertainty analysis sources for activity data

(A) For externally purchased electricity, it refers to the requirements specified in Section 8.1.4 of the Technical Specification of Verification and Inspection for Electricity Meters (CNMV 46, Edition 6) announced by the Bureau of Standards, Metrology and Inspection. When the mechanical and electronic electricity meter (watt-hour meter) exterior indicates "0.5), the verification tolerance is ±0.5% of the verification value. In addition, according to the statistics principle of two standard deviations, the verification tolerance of 1% is used as the uncertainty of this data.

(B) For natural gas, it refers to the requirements specified in Section 4.7 of the Technical Specification of Verification and Inspection for Diaphragm Gas Meters (CNMV 31, Edition 5) announced by the Bureau of Standards, Metrology and Inspection. For gas meters, the verification tolerance is ±1.5% of the verification value. In addition, according to the statistics principle of two standard deviations, the verification tolerance of 3% is used as the uncertainty of this data.

(C) For the oil of vehicle gasoline and diesel, it refers to the requirements specified in Section 3.12 of the Technical Specification of Verification and Inspection for Oil Gauges (CNMV 117, Edition 3) announced by the Bureau of Standards, Metrology and Inspection. For oil gauges, the verification tolerance is ±0.5% of the verification value. In addition, according to the statistics principle of two standard deviations, the verification tolerance of 1% is used as the uncertainty of this data.

B. Uncertainty analysis sources for emission factors

(A) For the externally purchased electricity, since the Bureau of Energy has not yet announced the scope of uncertainty for its electricity emission factor, the incomplete data statistical system for the energy category announced in the IPC 1996 Edition of the GHG Emission Factor Management Table is used to calculate the uncertainty, and the uncertainty of the emission factor is ±7%.

(B) For natural gas, according to the recommended value of the Ministry of

Environment in the GHG Emission Factor Management Table Version, the uncertainty of the emission factor is -3.2%/+3.9%.

(C) For the uncertainty of the emission factor of vehicle gasoline, according to the GHG Emission Factor Management Table Version of the Ministry of Environment, the CO2 upper limit of gasoline is +5.3%, and the lower limit is -2.6%. Such limits are used as the uncertainly of the emission factor of the gasoline.

(D) For the uncertainty of the emission factor of diesel of company vehicles and fork lift trucks, according to the GHG Emission Factor Management Table of the Ministry of Environment, the CO2 upper limit of diesel is +0.9%, and the lower limit is -0.2%. Such limits are used as the uncertainly of the emission factor of the diesel.

Table 5.6 Uncertainty Quantitative Assessment Table

Emission source	Uncertainty of activity data		CO_2 Emission factor uncertainty		Single emission source uncertainty
	Upper/lower limits of 95% confidence interval	Source	Upper/lower limits of 95% confidence interval	Source	Upper/lower limits of 95% confidence interval
Company vehicles (Vehicle gasoline)	+1.00% ~ -1.00%	Technical Specification of Verification and Inspection for Oil Gauges (CNMV 117, Edition 3) of the Bureau of Standards, Metrology and Inspection	+5.30% ~ -2.60%	GHG Emission Factor Management Table	+5.394% ~ -2.786%
Company vehicles Fork lift trucks (Diesel)	+1.00% ~ -1.00%	Technical Specification of Verification and Inspection for Oil Gauges (CNMV 117, Edition 3) of the Bureau of Standards, Metrology and Inspection	+0.90% ~ -0.20%	GHG Emission Factor Management Table	+1.345% ~ -2.236%
Natural gas	+3.00% ~ -3.00%	Technical Specification of Verification and Inspection for Diaphragm Gas Meters (CNMV31, Edition 5)	+3.90% ~ -3.20%	GHG Emission Factor Management Table	+4.920% ~ -4.386%

Externally purchased electricity	+1.00% ~ -1.00%	Technical Specification of Verification and Inspection for Electricity Meters (CNMV 46, Edition 6)	+7.00% ~ -7.00%	GHG Emission Factor Management Table	+7.071% ~ -7.071%

Table 5.7 Uncertainty Summary Classification Table

Precision level	Uncertainty of sample average value (confidence interval expressed in %)
High	±5%
Good	±15%
Normal	±30%
Poor	Exceeding 30%

The Company's 2022 emissions data uncertainty analysis result is - 4.64%/+ 4.64% (as shown in Table 5.8), and the data quality precision level is rated as "High".

Table 5.8 The Company's 2024 GHG Emissions Data Uncertainty Quantitative Assessment Result

Sum of emissi ons absolute values of uncertainty assessment (metric tons)	Summing of total emissions absolute values (Metric ton)	Ratio of uncertainty quantitative value over emissions of entire plant (%)	Uncertainty 95% confidence interval	
			Lower limit	Upper limit
4182.916	4383.775	95.42%	- 4.64	+ 4.64

(2) Emission source uncertainty qualitative analysis

The Company performs uncertainty quantitative analysis on the emission sources of natural gas, vehicle gasoline, diesel and externally purchased electricity only. However, for all of the emission sources, their uncertainties are assessed according to the qualitative level score evaluation principle of uncertainty analysis, and the score evaluation principle is as shown in Table 5.9. For the uncertainty analysis of 52 types of emission sources of the Company in 2024, the qualitative level score evaluation table is as shown in Table 5.10.

The Company's 2024 emissions data uncertainty qualitative analysis result is as shown in Table 5.11, and the data quality qualitative level is rated as "Level 1".

Table 5.9 The Qualitative Level Score Evaluation Principles for the Company's Uncertainty Analysis

Level score evaluation	1	2	3
Activity data category level	Continuous measurement	Periodic (intermittent) measurement	Financial and accounting estimation
Activity data trust level	External calibration is performed or multiple sets of data are available as supporting documents	Internal calibration is performed or certified via accounting audit	No instrument calibration or no record summarization is performed
Emission factor category level	Own factory development factor/factor obtained from mass balance approach, same process/equipment experience factor	Factor provided by manufacturing plant, regional emission factor	National emission factor, international emission factor
Final evaluation level	Single emission source data error level (after multiplication of the aforementioned three levels)X<10 points	Single emission source data error level (after multiplication of the aforementioned three levels) 10 points ≦X<19 points	Single emission source data error level (after multiplication of the aforementioned three levels) points 19 points ≦X≦27 points

Table 5.10 The Company's Uncertainty Analysis Qualitative Level Score Evaluation Table

No.	Field	Cat.	Name	Activity data category level	Activity data trust level	Emission factor category level	Single emission source data error level	Evaluation level
1	Gangshan Plant	1	Company vehicles (gasoline)	2	2	3	12	2
2		1	Company vehicles (diesel)	2	2	3	12	2
3		1	Fork lift truck (super diesel)	2	2	3	12	2
4		1	Septic tank escape	3	2	3	18	2
5		1	Coolant (R-134a)	3	2	3	18	2
6		1	Coolant (R-410A)	3	2	3	18	2
7		1	Coolant (R-407C)	3	2	3	18	2
8		1	Gas circuit breakers/GCB	3	2	1	6	1
9		1	Carbon Dioxide Fire Extinguisher	3	2	1	6	1
10		1	Natural Gas	1	2	3	6	1
11		1	Emergency power generator (diesel)	3	2	3	18	2
12		1	Acetylene	2	2	1	4	1
13		1	WD-40 anti-rust oil	3	2	1	6	1
14		2	Externally purchased electricity	1	2	3	6	1
15	Luzhu Plant	1	Company vehicles (gasoline)	2	2	3	12	2
16		1	Company vehicles (diesel)	2	2	3	12	2
17		1	Fork lift truck (super diesel)	2	2	3	12	2
18		1	Septic tank escape	3	2	3	18	2
19		1	Coolant (R-134a)	3	2	3	18	2
20		1	Coolant (R-410A)	3	2	3	18	2
21		1	Coolant (R-427A)	3	2	3	18	2
22		1	Natural Gas	1	2	3	6	1
23		1	Emergency power generator (diesel)	3	2	3	18	2
24		1	Acetylene	2	2	1	4	1
25		1	WD-40 anti-rust oil	3	2	1	6	1
26		2	Externally purchased electricity	1	2	3	6	1
27	Packaging Plant	1	Fork lift truck(super diesel)	2	2	3	12	2
28		1	Septic tank escape	3	2	3	18	2
29		1	Coolant (R-134a)	3	2	3	18	2
30		1	Coolant (R-410A)	3	2	3	18	2
31		1	Emergency power generator (diesel)	3	2	3	18	2
32		2	Externally purchased electricity	1	2	3	6	1

No.	Field	Cat.	Name	Activity data category level	Activity data trust level	Emission factor category level	Single emission source data error level	Evaluation level
33	Bi-Metal Material Plant	1	Company vehicles (gasoline)	2	2	3	12	2
34		1	Septic tank escape	3	2	3	18	2
35		1	Coolant (R-134a)	3	2	3	18	2
36		1	Coolant (R-410A)	3	2	3	18	2
37		1	Carbon Dioxide Fire Extinguisher	3	2	1	6	1
38		1	Emergency power generator (diesel)	3	2	3	18	2
39		1	WD-40 anti-rust oil	3	2	1	6	1
40		1	Wires for electric welding operation	2	2	1	4	1
41		2	Externally purchased electricity	1	2	3	6	1
42	Zhunan Plant	1	Fork lift truck (super diesel)	2	2	3	12	2
43		1	Septic tank escape	3	2	3	18	2
44		1	Coolant (R-134a)	3	2	3	18	2
45		1	Coolant (R-410A)	3	2	3	18	2
46		1	Coolant (R-417A)	3	2	3	18	2
47		1	Carbon Dioxide Fire Extinguisher	3	2	1	6	1
48		2	Externally purchased electricity	1	2	3	6	1
49	Sheh Kai (Shanghai)	1	Company vehicles (gasoline)	2	2	3	12	2
50		1	Septic tank escape	3	2	3	18	2
51		1	Coolant (R-134a)	3	2	3	18	2
52		2	Externally purchased electricity	1	2	3	6	1

Table 5.11 The Company's 2024 Uncertainty Qualitative Assessment Result

The Company's 2024 GHG Data Level Score Evaluation Result			
Level	**Level 1**	**Level 2**	**Level 3**
Score Range	**X<10 points**	**10 points ≦X<19 points**	**19 points ≦X≦27 points**
Quantity	**18**	**34**	**0**
Inventory List Level Total Average Score	**6.16**	**Inventory List Level**	Level 1

Remarks: For average score of X<10, it is classified as Level 1; for average score of 10 points≦X<19 points, it is classified as Level 2; for average score of 19 points≦X≦27 points, it is classified as Level 3.

5.6 Inventory Data Preservation

The accuracy of the 2024 emissions data has been improved significantly. The Company implements operations according to the inventory improvement plan established. With regard to the enhancement of the activity data accuracy, such as the filing and preservation of relevant records of purchase invoices, etc., and the externally purchased electricity statistical data, such data is used as supporting documents, in order to reduce the risk of inventory inspection and verification.

- For this Report, inventory list, data list and relevant supporting documents and forms, the preservation period is at least six years.
- For the public release of this Report, the valid period is up to any further revision or abolishment of this Report.

Chapter 6 Report Verification

Internal verification:

The internal audit on the 2024 Sheh Kai Precision Co., Ltd. Carbon Inventory Report for Five Plant Sites was conducted at Gangshan Plant during 2025/02/17–25. According to the report, for the carbon emissions data, documents and supporting information or data were verified one by one or randomly according to the report, and the internal audit was completed on 2025/02/27.

External verification:

Commissioned a third party, AFNOR Asia Ltd., to perform: The 2024 external verification of the greenhouse gas inventory report for Sheh Kai Precision Co., Ltd.'s five plants and Shanghai subsidiary.

External verification: Unit name	AFNOR Asia Ltd.
Field Verification Date	First stage: 2025/05/08, 2025/05/09 Second stage: 2025/05/29

The external greenhouse gas verification was conducted by AFNOR Asia Ltd.

Confirmed that the relevant greenhouse gas inventory data complies with the ISO 14064-1:2018 standard. The verification of Scope 1 and Scope 2 emissions for the Gangshan Plant, Lujhu Plant, Packaging Plant, Bi-Metal Material Plant, and Zhunan Plant was conducted at a reasonable level of assurance; whereas the verification of Scope 1 and Scope 2 emissions for the Shanghai subsidiary was conducted at a limited level of assurance.

Chapter 7 Report Management

1. This Report covers the period of January 1, 2024–December 31, 2024. The preparation frequency of this Report is once annually, and this Report is prepared mainly in accordance with ISO 14064-1:2018.
2. Limitation on issuance subject and publication: This Report refers to the Company's GHG Inventory Report, and it is publicly released after internal verification and after being verified and assured by a third party qualified external verification institution.
3. For the public release of this Report, the valid period is up to any further revision or abolishment of this Report.
4. For this Report, inventory list, data list and relevant supporting documents and forms, the preservation period is at least six years.
5. Report Preparation Unit Information

Name	R&D Center Chung-Jen Liu, Yung-Sheng Huang
TEL	07-6225669 #313 #317
E-mail	R&D Center cj.liu@shehkai.com.tw gb79566597@shehkai.com.tw

Chapter 8 References

This report is prepared with reference to the following literature:

(1) WBCSD/WRI (2005), The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard, Revised Edition.

(2) ISO 14064-1:2018，Specification with guidance at the organization level for quantification and reporting of greenhouse gas emissions and removals.

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(7) China Products Carbon Footprint Factors Database (2022).

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(9) “Greenhouse Gas Inventory Table Version 3.0.0 (revised),”Enterprise Greenhouse Gas Emission Information System by the Environmental Protection Administration, Executive Yuan.

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(18) 2024 Electricity emission factor announced by Bureau of Energy: https://www.moeaea.gov.tw/ecw/populace/content/ContentDesc.aspx?menu_id=26678 (Updated on 2025/04/14)

(19) 2022 Shanghai carbon emission for electricity factor announced by Ministry of Ecology and Environment of China: https://www.mee.gov.cn/xxgk2018/xxgk/xxgk01/202412/t20241226_1099413.html

(20) Guidelines for greenhouse gas emissions inventory operations (announced in March 2024)

(21) The carbon content of welding wire used in welding operations (0.87%) is based on the material certification provided by the supplier.

(22) Diesel usage for emergency generators is based on annual fire safety inspection data.