

溫室氣體查驗意見

2023 年溫室氣體排放資訊

台灣百和工業股份有限公司

彰化縣和美鎮和港路 575 號

經本公司依據 ISO 14064-3:2019 完成查驗並符合下列標準要求

ISO 14064-1:2018

直接溫室氣體排放量

2,310.6621 公噸二氧化碳當量

間接溫室氣體排放量

21,470.9011 公噸二氧化碳當量

直接與間接溫室氣體總排放量

23,781.563 公噸二氧化碳當量

簽署人



鮑柏宇

管理與保證事業群副總裁

日期: 2024年04月10日

版次:1

TGP56B-15-1 2401

台灣檢驗科技股份有限公司

新北市五股區(新北產業園區)五工路 136 之 1 號

t (02) 22993279 f (02)22999453 www.sgs.com



【全廠/集團各類別溫室氣體排放量】

單位：公噸二氧化碳當量

報告邊界		溫室氣體排放量	
類別	內容說明		
直接溫室氣體排放	固定燃燒直接排放	1,755.5166	
	移動燃燒直接排放	138.0022	
	工業製程直接製程排放及移除	0.2362	
	人為系統中溫室氣體釋放產生直接逸散排放	416.9071	
	土地利用變更和森林直接排放和移除	0.0000	
間接溫室氣體排放	輸入能源溫室氣體排放	輸入電力的間接排放	6,550.7021
	運輸溫室氣體排放	<ul style="list-style-type: none">上游運輸和貨物配送產生的排放(主要產品織帶及射出帶原料)下游運輸和貨物配送產生的排放(貨運商之貨運運送金額佔比最大者，以及貨運商載送交易金額排名前20大之客戶(不含子公司))員工通勤產生的排放(不包含外籍員工及共乘同仁)廢棄物運輸產生的排放	413.2296
	組織使用產品溫室氣體排放	<ul style="list-style-type: none">源自採購商品的排放(主要原料及外購能資源)固體和液體廢棄物處理產生的排放	14,506.9694
	使用來自於組織產品溫室氣體排放	-	-
	其他來源溫室氣體排放	-	-
直接與間接溫室氣體總排放量		23,781.563	

台灣檢驗科技股份有限公司(以下簡稱SGS)，經與台灣百和工業股份有限公司(以下簡稱台灣百和)，彰化縣和美鎮和港路575號，達成雙邊協議，依據ISO 14064-3:2019之要求執行直接與間接溫室氣體排放量之查驗，查驗意見內容說明如下：

角色與責任

- 台灣百和管理階層確保組織溫室氣體資訊系統之發展、紀錄維護及文件化程序已符合標準要求，負責評估、決定及報告溫室氣體排放量資訊。
- 簽約時間：SGS 秉持第三方查驗單位之準則，依據 2022 年 06 月 20 日簽訂雙邊協議
- 查驗準則：
 - ISO 14064-1:2018 溫室氣體—第 1 部：組織層級溫室氣體排放與移除之量化及報告附指引之規範
- 查驗期間：2024 年 02 月 20 日至 2024 年 03 月 22 日

查驗範圍

- 溫室氣體排放量資訊涵蓋週期：2023 年 01 月 01 日至 2023 年 12 月 31 日
- 包含廠區：

廠區	活動範圍地理位置
本廠	彰化縣和美鎮和港路 575 號、西平路 1 號、西平路 5 號、西平路 51 號、西平路 68 號
二廠	彰化縣和美鎮德美路 616 巷 49 號、德美路 616 巷 60 號、德美路 616 巷 62 號、和美鎮和北段 536-2、536-3、539 地號

- 排放溫室氣體種類：二氧化碳(CO₂)、甲烷(CH₄)、氧化亞氮(N₂O)、氫氟碳化物(HFCs)、全氟碳化物(PFCs)、六氟化硫(SF₆)、三氟化氮(NF₃)
- 全球暖化潛勢(GWP)引用 IPCC 2021 第六次評估報告之全球暖化潛勢值
- 排放係數資料庫來源：
 - 直接溫室氣體排放：溫室氣體排放量盤查作業指引(111.05)
 - 間接溫室氣體排放：
 - 輸入能源之電力引用經濟部能源署 2023 年公布之 2022 年電力排放係數: 0.495 公斤二氧化碳當量/度計算
 - 二級資料庫引用產品碳足跡資訊網、New Life Yarns、Life Cycle Assessment of Ramie Fiber Used for FRPs、OPEN.CO2.NET、bregau olt GmbH、ICAO Carbon Emissions Calculator、台灣高速鐵路股份有限公司

- 保證等級：依據查驗準則及雙邊協議執行查驗程序，針對台灣百和於溫室氣體聲明所提查驗證據顯示
 - 類別一及類別二之未違反實質性差異門檻，符合主管機關認可之合理保證等級。
 - 類別三至六為有限保證等級。
- 實質性差異門檻判斷準則：5%
- 盤查清冊版本次：V10
- 盤查報告書版本次：V7
- 查驗意見之預期使用者：組織自行使用

查驗目標

SGS獨立客觀的取得支持溫室氣體聲明揭露資訊的佐證，確保報告資訊符合準確性、完整性、一致性及透明度之準則，其內容包含錯誤或遺漏之項目。

結論

SGS 採用以風險評估為基礎之方法，確保並控管溫室氣體排放資訊揭露風險；規劃及執行查驗流程，包含行前評估、取樣計畫、證據之蒐集，取得查驗意見需要之資訊、說明及相關佐證，確保溫室氣體聲明中的現場溫室氣體排放量無實質的錯誤聲明。

- 查驗數據結果：
 - 溫室氣體總排放量為 23,781.563 公噸二氧化碳當量
 - 生質燃燒之二氧化碳排放量為 0.0000 公噸二氧化碳當量

【全廠/集團各類別溫室氣體排放量】

單位：公噸二氧化碳當量

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	工業製程直接製程排放及移除	0.2362	
	人為系統中溫室氣體釋放產生直接逸散排放	416.9071	
	土地利用變更和森林直接排放和移除	0.0000	
間接溫室氣體排放	輸入能源溫室氣體排放	輸入電力的間接排放	6,550.7021
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	組織使用產品溫室氣體排放	<ul style="list-style-type: none">源自採購商品的排放(主要原料及外購能資源)固體和液體廢棄物處理產生的排放	14,506.9694
	使用來自於組織產品溫室氣體排放	-	-
	其他來源溫室氣體排放	-	-
	直接與間接溫室氣體總排放量		23,781.563

- 查驗意見：SGS 根據下述狀況，提出修正後無保留意見之查驗意見。
 - 查驗者有充分且適當的證據支持實質的排放量、移除量或儲存。
 - 查驗者針對實質的排放量、移除量或儲存採取適當的準則。
 - 當查驗者擬依賴相關管制時，管制之有效性已經過評估。
 - 查驗者採用 ISO 14064-1:2018 準則，經查驗有以下發現事項，然經調整修正後，無產生實質性錯誤。
 - 部分排放源鑑別不完整
 - 部分活動數據錯誤
 - 部分排放係數引用不適切
- 保留限制：無

保密性聲明

此報告及附件可能包含屬於台灣百和之機密資訊，未經台灣百和書面同意，其他個人、團體或公司禁止自行複製或發行。

利益衝突迴避聲明

此報告及附件內容完全依照主管機關之標準方法與程序等相關規定，秉持公正、誠實進行查驗作業。絕無虛偽不實，如有違反，就政府機構所受損失願負連帶賠償責任之外，並接受主管機關依法令所為之行政處分及刑事處罰。

所有查驗人員瞭解如自身受政府機關委任從事公務，亦屬於刑法上之公務員，並瞭解刑法上圖利罰、公務員登載不實偽造公文書及貪污治罪條例之相關規定，如有違反，亦為刑法及貪污治罪條例之適用對象，願受最嚴厲之法律制裁。

本公司與受查驗單位並無財務投資之關係，且符合主管機關對利益衝突迴避之要求。如有違反前述事實情事，經主管機關查證屬實時，此報告及附件內容願接受主管機關判定為無效之處分。

查驗團隊

上述意見係查驗團隊依據公正之查驗過程所提出之意見。

主導查驗員：

史孟燕

查驗員：

陳明輝

蔡昇紘

郭展宏

葉凱平

備註：本查驗意見遵照 SGS 溫室氣體查驗服務條款要求 http://www.sgs.com/terms_and_conditions.htm，意見內容由台灣檢驗科技股份有限公司依據溫室氣體聲明之查驗結果進行編製，業經客戶同意後發行。本查驗意見非用以解除客戶遵守組織章程、全國或者地方法令，以及任何被發佈國際指南章程之責任；客戶與 SGS 彼此為獨立之個體，客戶非受 SGS 約束，在此 SGS 除客戶之外毋須代表其面對其他組織團體。

Greenhouse Gas Verification Opinion

The inventory of Greenhouse Gas emissions in year 2023 of

TAIWAN PAIHO LIMITED

No. 575, Hegang Rd., Hemei Township, Changhua County, Taiwan (R.O.C.)

has been verified in accordance with ISO 14064-3:2019 as
meeting the requirements of

ISO 14064-1:2018

Direct emissions

2,310.6621 tonnes of CO₂e

Indirect emissions

21,470.9011 tonnes of CO₂e

Direct emissions and indirect emissions

23,781.563 tonnes of CO₂e



Authorized by



Stephen Pao

Business Assurance Director

Date: 10 April 2024

Version 1

TGP56B-15-1 2401
SGS Taiwan Ltd.

No. 136-1, Wu Kung Road, New Taipei Industrial Park, Wu Ku District,
New Taipei City 24803, Taiwan
t (02) 22993279 f (02)22999453 www.sgs.com



The emission of each category is described as below:

Unit: tonnes of CO₂e

Reporting Boundaries			GHG Emissions
Inventory categories		Description	
Direct emissions		Direct emissions from stationary combustion	1,755.5166
		Direct emissions from mobile combustion	138.0022
		Direct process emissions and removals from industrial processes	0.2362
		Direct fugitive emissions arise from the release of GHGs in anthropogenic systems	416.9071
		Direct emissions and removals from land use, land use change and forestry	0.0000
Indirect emissions	Imported energy	Emissions from imported electricity	6,550.7021
	Transportation	<ul style="list-style-type: none"> Emissions from upstream transport and distribution for goods (domestic land transportation of main materials-webbings & molded belts) Emissions from downstream transport and distribution for goods are emissions from freight services (domestic land transportation of the most amount of the transaction of the freight forwarder and the top sales amount 20%, not including subsidiaries.) Emissions from employee commuting (excludes foreign employees and ridesharing colleagues) Emissions from employee commuting (excludes foreign employees and ridesharing colleagues) 	413.2296
	Products used by an organization	<ul style="list-style-type: none"> Emissions from goods purchased by an organization (main materials and the production of energy and resources purchased) Emissions from the disposal of solid and liquid waste 	14,506.9694
	Associated with the use of products from the organization	-	-
	Other sources	-	-
Direct emissions and indirect emissions			23,781.563

SGS, No. 136-1, Wu Kung Road, New Taipei Industrial Park, Wu Ku District, New Taipei City 24803, Taiwan, has been contracted by TAIWAN PAIHO LIMITED (hereinafter referred to as "TAIWAN PAIHO"), No. 575, Hegang Rd., Hemei Township, Changhua County, Taiwan (R.O.C.) for the verification of direct and indirect Greenhouse Gas emissions in accordance with

ISO 14064-3:2019

as provided by TAIWAN PAIHO LIMITED (hereinafter referred to as "TAIWAN PAIHO"), No. 575, Hegang Rd., Hemei Township, Changhua County, Taiwan (R.O.C.), in the GHG Statement in the form of GHG report.

Roles and responsibilities

- The management of TAIWAN PAIHO is responsible for the organization's GHG information system, the development and maintenance of records and reporting procedures in accordance with that system, including the calculation and determination of GHG emissions information and the reported GHG emissions.
- The verification was based on the verification scope, objectives and criteria as agreed between TAIWAN PAIHO and SGS on 20 June 2022.
- Verification Criteria: ISO 14064-1:2018, ISO 14064-3:2019.
- Verification Period: 20 February 2024 to 22 March 2024.

Scope

- GHG information for the following period was verified: 01 January 2023 to 31 December 2023
- Location/boundary of the activities:

Main Plant

- No. 575, Hegang Rd., Hemei Township, Changhua County, Taiwan (R.O.C.)
- No. 1, Xiping Rd., Hemei Township, Changhua County, Taiwan (R.O.C.)
- No. 5, Xiping Rd., Hemei Township, Changhua County, Taiwan (R.O.C.)
- No. 51, Xiping Rd., Hemei Township, Changhua County, Taiwan (R.O.C.)
- No. 68, Xiping Rd., Hemei Township, Changhua County, Taiwan (R.O.C.)

Second Plant

- No. 49, Ln. 616, Demei Rd., Hemei Township, Changhua County, Taiwan (R.O.C.)
- No. 60, Ln. 616, Demei Rd., Hemei Township, Changhua County, Taiwan (R.O.C.)
- No. 62, Ln. 616, Demei Rd., Hemei Township, Changhua County, Taiwan (R.O.C.)
- Land No. 536-2, 536-3, 539, Hebei section, Hemei Township, Changhua County, Taiwan (R.O.C.)

- Types of GHGs included: CO₂, CH₄, N₂O, HFCs, PFCs, SF₆, NF₃
- The IPCC 2021 AR6 GWP values are applied in this inventory.
- Emission factor:
 - Direct emissions: Greenhouse Gas Emission Inventory Operation Guideline (2022.05).
 - Indirect emissions:
 - Electricity emission factor is 0.495 kgCO₂e/kwh (Announced by Energy Administration, Ministry of Economic Affairs in 2023).
 - The secondary database has Carbon Footprint Information Platform, New Life Yarns Life Cycle Assessment of Ramie Fiber Used for FRPs, OPEN.CO2.NET, bregau olt GmbH, ICAO Carbon Emissions Calculator, Taiwan High Speed Rail Corporation.
- The level of assurance for category 1 and category 2 agreed is that of reasonable assurance. Category 3 till category 6 agreed is that of limited assurance.
- Materiality : 5%
- The version of inventory sheet: V10
- The version of GHG statement: V7
- Intended user of the verification opinion: Private

Objective

The purposes of this verification exercise are, by review of objective evidence, to independently review:

- Whether the GHG emissions are as declared by the organization's GHG statement
- The data reported are accurate, complete, consistent, transparent and free of material error or omission.

Conclusion

SGS's approach is risk-based, drawing on an understanding of the risks associated with reporting GHG emissions information and the controls in place to mitigate these. Our examination includes assessment, on a test basis, of evidence relevant to the amounts and disclosures in relation to the organization's reported GHG emissions. We planned and performed our work to obtain the information, explanations and evidence that the GHG emissions are free from material misstatement.

- The greenhouse gas emissions is 23,781.563 metric tonnes of CO₂ equivalent
- The emissions from the combustion of biomass is 0.0000 metric tonnes of CO₂ equivalent

The emission of each category is described as below:

Unit: tonnes of CO₂e

Reporting Boundaries			GHG Emissions
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	Associated with the use of products from the organization	-	-
	Other sources	-	-
Direct emissions and indirect emissions			23,781.563

- The opinion of SGS is modified in accordance with the following described circumstances.
 - The verifier has sufficient and appropriate evidence to support the material emissions, removals, or storage.
 - The verifier applies appropriate criteria for the material emissions, removals, or storage.
 - When the verifier intends to rely on relevant controls, the effectiveness of those controls has been assessed.
 - The verifier, applying the ISO 14064-1:2018 standard, presents the following findings. After adjustments and corrections, no material errors were identified.
 - The identification of emission sources is incomplete.
 - Some of the activity data is incorrect.
 - Some of the emission factors are referenced incorrectly
- Retention Limitation: Nil

Confidentiality

The reports and attachments may contain relevantly confidential information of the clients. In addition to being submitted as governmental application or certification documents, the reports and attachments are not allowed to be edited, duplicated, or published without the clients' agreement in written form.

Avoidance of Conflict of Interest

The reports and attachments are completely complied with the standards and procedures that related authorities established. The reports and attachments of auditing process are conduct with fairness and honesty. If not, the auditing institution not only has to bear the relevant compensation duties, but also to receive legal charge and punishment.

This opinion shall be interpreted with the GHG statement of TAIWAN PAIHO as a whole.

Verifier Group

Above opinions coincide with auditing process with fairness and impartiality and aim at the emission of year 2023 of clients.

Lead Verifier:

Belinda Shih

Verifier:

Ming-Hui Chen

Jim Tsai

Steven Kuo

Kai ping Teh

Note: This opinion is issued, on behalf of Client, by SGS Taiwan Ltd. ("SGS") under its General Conditions for Greenhouse Gas Verification Services available at http://www.sgs.com/terms_and_conditions.htm. The findings recorded hereon are based upon an audit performed by SGS. A full copy of this opinion, the findings and the supporting GHG Assertion may be consulted at TAIWAN PAIHO LIMITED, No. 575, Hegang Rd., Hemei Township, Changhua County, Taiwan (R.O.C.). This opinion does not relieve Client from compliance with any bylaws, federal, national or regional acts and regulations or with any guidelines issued pursuant to such regulations. Stipulations to the contrary are not binding on SGS and SGS shall have no responsibility vis-à-vis parties other than its Client.