

# Life Cycle Assessment (LCA) & Carbon Footprint Products (CFP)

# Life cycle assessment (LCA) and Carbon Footprint Product (CFP) Revenue

Unit: Million Baht

Business Group	Total Revenue 2025	LCA & CFP Revenue 2025
Fiber Packaging (FP)	31,073	24,927
Packaging Paper (PP)	46,865	40,216
Consumer and Performance Packaging (CPP)	16,920	1,605
Fibrous Business (FB)	23,381	20,591
Recycling Business and Others	6,135	0
Total	124,374	87,339
Percentage of LCA and CFP revenue		<b>70.2%</b>

Remark:

1. Total revenue in 2025 covers both domestic and overseas revenue
2. LCA and CFP revenue data cover Thailand operations only
3. In 2025, SCGP in Thailand achieved 100% Carbon Footprint of Products (CFP) data coverage for all pulp- and paper-based products, and 30.3% CFP data coverage for polymer-based products, with plans to expand coverage to overseas operations of paper-based by 2030
4. Products with CFP data account for 95.9% of SCGP's total revenue in Thailand

# Product Stewardship Roadmap

## Product Stewardship Roadmap

- 2020 ● Identify and assess safety and environmental risks of products and develop product to receive SCG Green Choice label
- 2021 ● Restricted hazardous substance usage in products target, including consider guideline to manage safety and environmental risks of products and calculate LCA of products
- 2022 ● Received the Product Carbon Footprint Label (CFP) for 37 products from Thailand Greenhouse Gas Management Organization (Public Organization) (TGO)
- 2023 ● Establish product stewardship policy and increase products to receive the Product Carbon Footprint Label (CFP) from TGO
- 2024 ● Increase products to receive the Product Carbon Footprint label (CFP), the Carbon Footprint of Circular Economy Product (CFP-CE) label and the Carbon Footprint Reduction (CFR) label from TGO
- 2025 ● 100% of fiber-based products have been assessed for Carbon Footprint (CFP) and reviewed against the Green Choice criteria.

## SCGP carried out product stewardship responsibility aligned with Circular Economy Principle

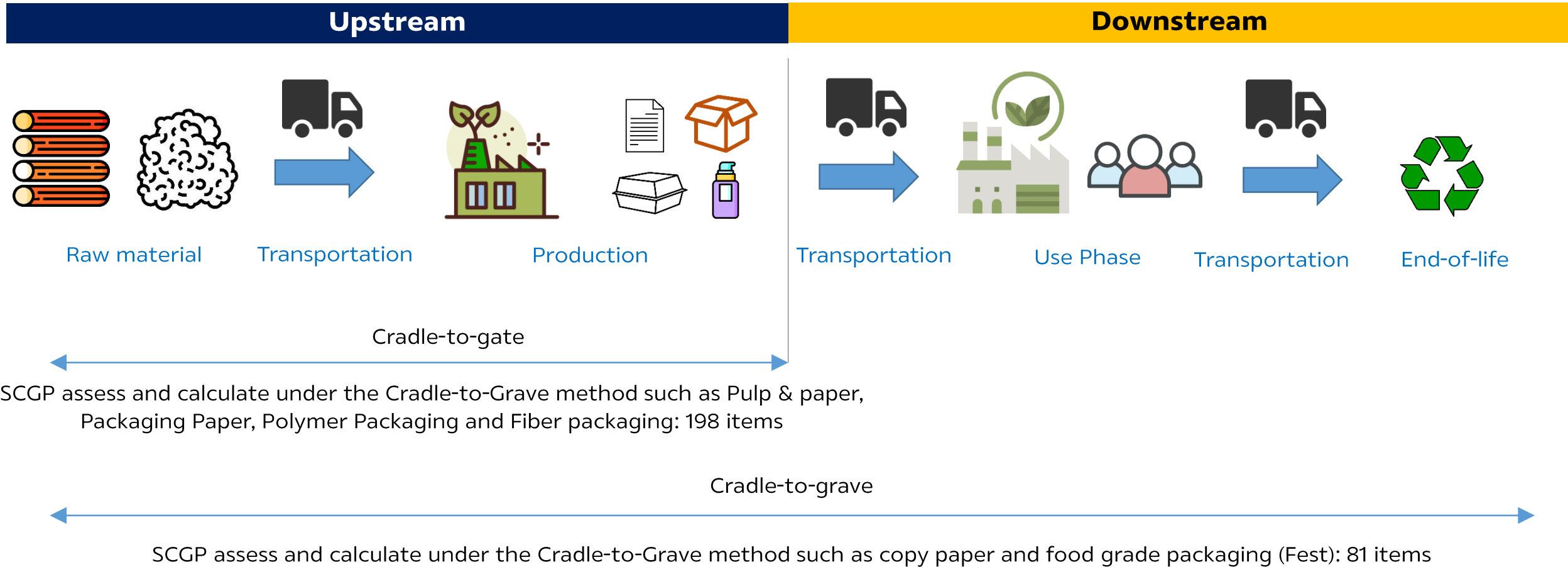


# Life Cycle Assessment (LCA) - Impact Category

## Impact Category

Resource Use	Ecological Consequences	Human Health
Freshwater eutrophication	Climate Change	Human toxicity
Marine	Ozone depletion	Ionizing radiation
Agricultural land occupation	Terrestrial acidification	
Urban land occupation	Freshwater eutrophication	
Water depletion	Marine eutrophication	
Metal depletion	Photochemical oxidant formation	
Fossil depletion	Particulate matter formation	
	Terrestrial ecotoxicity	
	Freshwater ecotoxicity	
	Marine ecotoxicity	
	Natural land transformation	

# LCA & CFP Assessment Boundary



# Summary assessment and impact of 1 ton CS110

## SimaPro 8.5.2.2

**Project:** SCG Packaging BP 2020  
**Calculation:** Analyze  
**Results:** Impact assessment  
**Method:** ReCiPe Midpoint (H) V1.13 / Europe Recipe H  
**Product:** 1 ton KA PM6 2020 (of project SCG Packaging BP 2020)

Impact category	Unit	CS110
Climate change	kg CO2 eq	1053.84
Ozone depletion	kg CFC-11 eq	0.000
Terrestrial acidification	kg SO2 eq	10.678
Freshwater eutrophication	kg P eq	0.444
Marine eutrophication	kg N eq	0.731
Human toxicity	kg 1,4-DB eq	337.965
Photochemical oxidant formation	kg NMVOC	5.763
Particulate matter formation	kg PM10 eq	3.214
Terrestrial ecotoxicity	kg 1,4-DB eq	1.524
Freshwater ecotoxicity	kg 1,4-DB eq	7.187
Marine ecotoxicity	kg 1,4-DB eq	7.234
Ionizing radiation	kBq U235 eq	68.181
Agricultural land occupation	m2a	297.454
Urban land occupation	m2a	20.165
Natural land transformation	m2	0.104
Water depletion	m3	3.866
Metal depletion	kg Fe eq	46.470
Fossil depletion	kg oil eq	274.610

# Summary assessment and impact of 1 ton II125, II150, II185

SimaPro 8.5.2.2

Project SCG Packaging TCP2

Calculation: Analyze

Results: Impact assessment

Method: ReCiPe Midpoint (H) V1.13 / Europe Recipe H

Product: 1 ton II TCP2 2018 (of project SCG Packaging TCP2)

Impact category	Unit	II125	II150	II185
Climate change	kg CO2 eq	1769.12	2232.15	2900.64
Ozone depletion	kg CFC-11 eq	0.000	0.000	0.000
Terrestrial acidification	kg SO2 eq	12.053	12.874	12.962
Freshwater eutrophication	kg P eq	0.625	0.653	0.638
Marine eutrophication	kg N eq	0.740	0.834	0.857
Human toxicity	kg 1,4-DB eq	473.891	487.507	475.589
Photochemical oxidant formation	kg NMVOC	4.808	5.256	5.512
Particulate matter formation	kg PM10 eq	3.202	3.418	3.459
Terrestrial ecotoxicity	kg 1,4-DB eq	1.513	1.747	1.797
Freshwater ecotoxicity	kg 1,4-DB eq	11.454	11.803	11.500
Marine ecotoxicity	kg 1,4-DB eq	11.043	11.369	11.100
Ionizing radiation	kBq U235 eq	71.150	71.671	71.840
Agricultural land occupation	m2a	171.754	194.234	197.698
Urban land occupation	m2a	21.196	21.551	20.993
Natural land transformation	m2	0.087	0.093	0.096
Water depletion	m3	-13.758	-8.500	-11.713
Metal depletion	kg Fe eq	56.343	54.309	50.882
Fossil depletion	kg oil eq	356.306	376.841	374.325

# Summary assessment and impact of 1 ton KA125, KA150, KA185, KA230 & KA335

SimaPro 8.5.2.2

Project: SCG Packaging WS 2021  
 Calculation: Analyze  
 Results: Impact assessment  
 Method: ReCiPe Midpoint (H) V1.13 / Europe Recipe H  
 1 ton KA PM6 2020 (of project SCG Packaging WS 2021)  
 Product:

Impact category	Unit	KA125	KA150	KA185	KA230	KA335
Climate change	kg CO2 eq	1859.45	1613.79	1407.27	1415.34	2064.65
Ozone depletion	kg CFC-11 eq	0.000	0.000	0.000	0.000	0.000
Terrestrial acidification	kg SO2 eq	15.731	13.651	11.948	12.117	17.876
Freshwater eutrophication	kg P eq	0.778	0.684	0.597	0.600	0.855
Marine eutrophication	kg N eq	0.827	0.777	0.548	0.545	0.803
Human toxicity	kg 1,4-DB eq	775.479	687.362	619.499	623.848	852.991
Photochemical oxidant formation	kg NMVOC	7.499	6.450	5.621	5.713	8.841
Particulate matter formation	kg PM10 eq	5.173	4.456	3.897	3.944	5.993
Terrestrial ecotoxicity	kg 1,4-DB eq	1.220	1.264	0.681	0.673	0.921
Freshwater ecotoxicity	kg 1,4-DB eq	18.628	16.313	14.448	14.546	20.665
Marine ecotoxicity	kg 1,4-DB eq	17.812	15.611	13.938	14.037	19.910
Ionizing radiation	kBq U235 eq	102.740	95.637	92.013	93.058	118.703
Agricultural land occupation	m2a	1187.463	1006.953	798.689	798.125	1344.430
Urban land occupation	m2a	49.716	42.605	37.242	37.464	57.300
Natural land transformation	m2	0.516	0.425	0.359	0.360	0.624
Water depletion	m3	14.810	12.096	10.236	10.820	15.569
Metal depletion	kg Fe eq	49.689	50.136	52.016	52.883	54.542
Fossil depletion	kg oil eq	464.926	405.769	357.402	358.114	521.656

# Summary assessment and impact of 1 ton KT150, KT175, KT200, KT250

SimaPro 8.5.2.2  
 Project: SCG Packaging WS 2021  
 Calculation: Analyze  
 Results: Impact assessment  
 Method: ReCiPe Midpoint (H) V1.13 / Europe Recipe H  
 Product: 1 ton KT 2021 (of project SCG Packaging WS 2021)

Impact category	Unit	KT150	KT175	KT200	KT250
Climate change	kg CO2 eq	1010.44	1277.07	1241.91	1242.89
Ozone depletion	kg CFC-11 eq	0	0	0	0
Terrestrial acidification	kg SO2 eq	8.72	10.324	10.182	10.255
Freshwater eutrophication	kg P eq	0.42	0.455	0.449	0.447
Marine eutrophication	kg N eq	0.42	0.454	0.481	0.501
Human toxicity	kg 1,4-DB eq	477.3	522.982	515.813	512.64
Photochemical oxidant formation	kg NMVOC	3.55	4.639	4.559	4.636
Particulate matter formation	kg PM10 eq	2.39	2.928	2.888	2.915
Terrestrial ecotoxicity	kg 1,4-DB eq	0.84	0.582	0.554	0.569
Freshwater ecotoxicity	kg 1,4-DB eq	10.64	11.648	11.448	11.373
Marine ecotoxicity	kg 1,4-DB eq	10.27	11.45	11.263	11.206
Ionizing radiation	kBq U235 eq	66.5	80.655	78.266	78.419
Agricultural land occupation	m2a	100.33	79.592	76.695	77.925
Urban land occupation	m2a	16.69	18.391	17.965	17.869
Natural land transformation	m2	0.07	0.105	0.105	0.108
Water depletion	m3	5.74	5.296	4.557	4.596
Metal depletion	kg Fe eq	52.35	59.252	57.696	57.553
Fossil depletion	kg oil eq	239.38	290.192	293.134	294.891

# Summary assessment and impact of 1 ton TS140, TS165, TS185, TS235

SimaPro 8.5.2.2

Project

SCG Packaging WS 2021

Calculation:

Analyze

Results:

Impact assessment

Method:

ReCiPe Midpoint (H) V1.13 / Europe Recipe H

Product:

1 ton TS 2021 (of project SCG Packaging WS 2021)

Impact category	Unit	TS140	TS165	TS185	TS235
Climate change	kg CO2 eq	1103.13	1354.85	1441.07	1418.37
Ozone depletion	kg CFC-11 eq	0	0	0	0
Terrestrial acidification	kg SO2 eq	10.24	11.429	12.018	11.966
Freshwater eutrophication	kg P eq	0.46	0.49	0.522	0.508
Marine eutrophication	kg N eq	0.64	0.58	0.643	0.635
Human toxicity	kg 1,4-DB eq	504.51	559.604	593.09	575.718
Photochemical oxidant formation	kg NMVOC	4.53	5.16	5.392	5.483
Particulate matter formation	kg PM10 eq	2.86	3.225	3.388	3.392
Terrestrial ecotoxicity	kg 1,4-DB eq	1.43	0.649	0.745	0.736
Freshwater ecotoxicity	kg 1,4-DB eq	11.18	12.563	13.398	12.994
Marine ecotoxicity	kg 1,4-DB eq	10.85	12.342	13.147	12.801
Ionizing radiation	kBq U235 eq	73.35	81.591	84.076	83.421
Agricultural land occupation	m2a	155.74	87.405	97.705	96.2
Urban land occupation	m2a	17.71	18.997	19.868	19.264
Natural land transformation	m2	0.09	0.116	0.123	0.127
Water depletion	m3	5.63	6.18	5.121	4.781
Metal depletion	kg Fe eq	54.69	59.38	61.007	59.28
Fossil depletion	kg oil eq	271.86	325.939	349.501	345.292

# Summary assessment and impact of 1 ton GBS160, GBS180

SimaPro 8.5.2.2

Project

SCG Packaging BP 2020

Calculation:

Analyze

Results:

Impact assessment

Method:

ReCiPe Midpoint (H) V1.13 / Europe Recipe H

Product:

1 ton GBS160, GBS180 2021 (of project SCG Packaging WS 2021)

Impact category	Unit	GBS160	GBS180
Climate change	kg CO2 eq	1724.2	1761.26
Ozone depletion	kg CFC-11 eq	4.4E-05	4.9E-05
Terrestrial acidification	kg SO2 eq	14.0575	14.6035
Freshwater eutrophication	kg P eq	0.63946	0.6407
Marine eutrophication	kg N eq	0.91648	0.97053
Human toxicity	kg 1,4-DB eq	719.345	721.072
Photochemical oxidant formation	kg NMVOC	5.89456	6.31358
Particulate matter formation	kg PM10 eq	3.85592	4.03048
Terrestrial ecotoxicity	kg 1,4-DB eq	0.90737	0.85758
Freshwater ecotoxicity	kg 1,4-DB eq	15.6362	15.8529
Marine ecotoxicity	kg 1,4-DB eq	15.1645	15.4072
Ionizing radiation	kBq U235 eq	83.7194	84.5301
Agricultural land occupation	m2a	118.065	113.545
Urban land occupation	m2a	22.6611	22.6655
Natural land transformation	m2	0.12829	0.13908
Water depletion	m3	8.57853	9.29081
Metal depletion	kg Fe eq	64.2317	63.8329
Fossil depletion	kg oil eq	439.709	455.544

# Summary assessment and impact of 1 ton, CAS115

SimaPro 8.5.2.2

Project: SCG Packaging BP 2021

Calculation: Analyze

Results: Impact assessment

Method: ReCiPe Midpoint (H) V1.13 / Europe Recipe H

Product: 1 ton CAS115 PM16 M1-M4 2021 - allocate elec 100% (of project SCG Packaging BP 2021)

<b>Impact category</b>	<b>Unit</b>	<b>CAS115</b>
Climate change	kg CO2 eq	1214.235
Ozone depletion	kg CFC-11 eq	3.80E-05
Terrestrial acidification	kg SO2 eq	9.722592
Freshwater eutrophication	kg P eq	0.440027
Marine eutrophication	kg N eq	0.954426
Human toxicity	kg 1,4-DB eq	350.9167
Photochemical oxidant formation	kg NMVOC	5.099947
Particulate matter formation	kg PM10 eq	2.819513
Terrestrial ecotoxicity	kg 1,4-DB eq	1.357387
Freshwater ecotoxicity	kg 1,4-DB eq	7.7373
Marine ecotoxicity	kg 1,4-DB eq	7.760249
Ionising radiation	kBq U235 eq	80.54478
Agricultural land occupation	m2a	148.8127
Urban land occupation	m2a	17.579
Natural land transformation	m2	0.106233
Water depletion	m3	6.34775
Metal depletion	kg Fe eq	58.58116
Fossil depletion	kg oil eq	281.7993

# Summary assessment and impact of 1 ton, GBI160

SimaPro 8.5.2.2

Project: SCG Packaging BP 2020  
 Calculation: Analyze  
 Results: Impact assessment  
 Method: ReCiPe Midpoint (H) V1.13 / Europe Recipe H  
 Product: 1 ton GBI160 PM8 (of project SCG Packaging BP 2021)

Impact category	Unit	GBI160
Climate change	kg CO2 eq	1656.19
Ozone depletion	kg CFC-11 eq	4.3E-05
Terrestrial acidification	kg SO2 eq	13.4401
Freshwater eutrophication	kg P eq	0.61134
Marine eutrophication	kg N eq	0.85278
Human toxicity	kg 1,4-DB eq	688.701
Photochemical oxidant formation	kg NMVOC	5.66191
Particulate matter formation	kg PM10 eq	3.70116
Terrestrial ecotoxicity	kg 1,4-DB eq	0.81241
Freshwater ecotoxicity	kg 1,4-DB eq	14.7631
Marine ecotoxicity	kg 1,4-DB eq	14.3638
Ionising radiation	kBq U235 eq	82.2438
Agricultural land occupation	m2a	108.102
Urban land occupation	m2a	21.9212
Natural land transformation	m2	0.12557
Water depletion	m3	7.72814
Metal depletion	kg Fe eq	62.9991
Fossil depletion	kg oil eq	422.78

# 2025 Carbon Footprint of Product Certificate Example

Certificate Number:  
TGO CFP FY25-366-2756

THAILAND GREENHOUSE GAS  
MANAGEMENT ORGANIZATION  
(Public Organization)

**CONGRATULATE**

SCG PACKAGING PUBLIC COMPANY LIMITED (Thai Paper Co., Ltd. and Phoenix Pulp & Paper Public Company Limited.)  
For  
Successfully meeting the requirements of  
the Carbon Footprint Label Scheme for

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Fest Bio Oval Plate 6.5 inches 1 pack

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B2C Scope: 118 gCO<sub>2</sub>e

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as certified by TGO

118 gCO<sub>2</sub>e

Registration Date: 22 August 2025    Expiration Date: 21 August 2028

*Nakorn.*

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Mr. Nakorn Tangavirapat  
Executive Director  
Thailand Greenhouse Gas Management Organization (Public Organization)

Certificate Number:  
TGO CFP FY25-366-2790

THAILAND GREENHOUSE GAS  
MANAGEMENT ORGANIZATION  
(Public Organization)

**CONGRATULATE**

SCG PACKAGING PUBLIC COMPANY LIMITED (Thai Paper Co., Ltd. and Phoenix Pulp & Paper Public Company Limited.)  
For  
Successfully meeting the requirements of  
the Carbon Footprint Label Scheme for

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Idea Green A3 80 gsm 1 ream (500 sheets)

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B2C Scope: 8.43 kgCO<sub>2</sub>e

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as certified by TGO

8.43 kgCO<sub>2</sub>e

Registration Date: 22 August 2025    Expiration Date: 21 August 2028

*Nakorn.*

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Mr. Nakorn Tangavirapat  
Executive Director  
Thailand Greenhouse Gas Management Organization (Public Organization)

Certificate Number:  
TGO CFP FY25-182-02-1539

THAILAND GREENHOUSE GAS  
MANAGEMENT ORGANIZATION  
(Public Organization)

**CONGRATULATE**

SCG PACKAGING PUBLIC COMPANY LIMITED  
For  
Successfully meeting the requirements of  
the Carbon Footprint Label Scheme for

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Offset laminated-Die cut-Corrugated Carton 1 ton

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B2B Scope: 469 kgCO<sub>2</sub>e

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as certified by TGO

469 kgCO<sub>2</sub>e

Registration Date: 22 April 2025    Expiration Date: 21 April 2028

*Natarika*

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Mrs. Natarika Wayuparb Nitiphon  
Acting Executive Director  
Thailand Greenhouse Gas Management Organization (Public Organization)

# 2025 Circular Economy Carbon Footprint of Product Certificate

THAILAND GREENHOUSE GAS  
MANAGEMENT ORGANIZATION  
(Public Organization)



CONGRATULATE

SCG PACKAGING PUBLIC COMPANY LIMITED  
(Siam Kraft Industry Co., Ltd. and Thai Cane  
Paper Public Company Limited.)

For  
Successfully meeting the requirements  
of the Carbon Footprint of Circular Economy  
Product Label Scheme for

Corrugating Medium (CMS) 1 ton

B2B Scope: 964 kgCO<sub>2</sub>e  
Recycle Content : 100%

as certified by TGO



Registration Date: 24 February 2025  
Expiration Date: 23 February 2028

Mrs. Natarika Wayuparb Nitiphon  
Acting Executive Director  
Thailand Greenhouse Gas Management Organization  
(Public Organization)

THAILAND GREENHOUSE GAS  
MANAGEMENT ORGANIZATION  
(Public Organization)



CONGRATULATE

SCG PACKAGING PUBLIC COMPANY LIMITED  
(Siam Kraft Industry Co., Ltd. and Thai Cane  
Paper Public Company Limited.)

For  
Successfully meeting the requirements  
of the Carbon Footprint of Circular Economy  
Product Label Scheme for

Recycled Liner - Brown 1 ton

B2B Scope: 965 kgCO<sub>2</sub>e  
Recycle Content : 100%

as certified by TGO



Registration Date: 22 August 2025  
Expiration Date: 21 August 2028

Mr. Nakorn Tangavirapat  
Executive Director  
Thailand Greenhouse Gas Management Organization  
(Public Organization)

THAILAND GREENHOUSE GAS  
MANAGEMENT ORGANIZATION  
(Public Organization)



CONGRATULATE

SCG PACKAGING PUBLIC COMPANY LIMITED  
(Siam Kraft Industry Co., Ltd. and Thai Cane  
Paper Public Company Limited.)

For  
Successfully meeting the requirements  
of the Carbon Footprint of Circular Economy  
Product Label Scheme for

High Strength Medium (CS) 1 ton

B2B Scope: 893 kgCO<sub>2</sub>e  
Recycle Content : 83.0%

as certified by TGO



Registration Date: 24 February 2025  
Expiration Date: 23 February 2028

Mrs. Natarika Wayuparb Nitiphon  
Acting Executive Director  
Thailand Greenhouse Gas Management Organization  
(Public Organization)

# 2025 Carbon Footprint Reduction Certificate Example

Certificate Number:  
TGO CFR FY25-052-0443

THAILAND GREENHOUSE GAS  
MANAGEMENT ORGANIZATION  
(Public Organization)

**CONGRATULATE**

SCG PACKAGING PUBLIC COMPANY LIMITED (Thai Paper Co., Ltd. and Phoenix Pulp & Paper Public Company Limited.)  
For  
Successfully meeting the requirements of  
the Carbon Footprint Reduction Label Scheme for

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Idea Green A3 80 gsm 1 ream (500 sheets)

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B2C Scope: 8.43 kgCO<sub>2</sub>e

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By 23.6 % carbon reduction from its entire life cycle  
as certified by TGO

Registration Date: 22 August 2025    Expiration Date: 21 August 2028

**Nakorn.**

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Mr. Nakorn Tangavirapat  
Executive Director  
Thailand Greenhouse Gas Management Organization (Public Organization)

Certificate Number:  
TGO CFR FY25-021-0173

THAILAND GREENHOUSE GAS  
MANAGEMENT ORGANIZATION  
(Public Organization)

**CONGRATULATE**

SCG PACKAGING PUBLIC COMPANY LIMITED  
For  
Successfully meeting the requirements of  
the Carbon Footprint Reduction Label Scheme for

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Die cut-Honey comb board 1 ton

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B2B Scope: 690 kgCO<sub>2</sub>e

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By 2.40 % carbon reduction from its entire life cycle  
as certified by TGO

Registration Date: 22 April 2025    Expiration Date: 21 April 2028

**Natarika**

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Mrs. Natarika Wayuparb Nitiphon  
Acting Executive Director  
Thailand Greenhouse Gas Management Organization (Public Organization)

Certificate Number:  
TGO CFR FY25-053-0461

THAILAND GREENHOUSE GAS  
MANAGEMENT ORGANIZATION  
(Public Organization)

**CONGRATULATE**

SCG PACKAGING PUBLIC COMPANY LIMITED (Siam Kraft Industry Co., Ltd. and Thai Cane Paper Public Company Limited.)  
For  
Successfully meeting the requirements of  
the Carbon Footprint Reduction Label Scheme for

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High Strength Medium (CS) 1 ton

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B2B Scope: 761 kgCO<sub>2</sub>e

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By 8.93 % carbon reduction from its entire life cycle  
as certified by TGO

Registration Date: 22 August 2025    Expiration Date: 21 August 2028

**Nakorn.**

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Mr. Nakorn Tangavirapat  
Executive Director  
Thailand Greenhouse Gas Management Organization (Public Organization)

SCGP

[www.SCGPackaging.com](http://www.SCGPackaging.com)