REPORTING OF INVENTORY, ASSESSMENT OF POTENTIAL AND PLANS FOR GREENHOUSE GAS EMISSION REDUCTION AT IMITI COMPANY CO., LTD

The project is implemented within the framework of the "Supporting Enterprises to Enhance Their Capacity to Adapt to Green and Equitable Transformation Goals" project, signed between the Vietnam Chamber of Commerce and Industry - Ho Chi Minh City Branch (VCCI-HCM) and the Danish Confederation of Industry, with funding from the Danish Government.

Representative of IMITI CO., LTD

Representative of VCCI-HCM

P.P. GENERAL DIRECTOR
DEPUTY GENERAL DIRECTOR

Bui Thi Ninh

May 2025

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Part 1. GENERAL INFORMATION

1.1. Name of establishment, address, business license

- Company Name: IMITI CO., LTD
- Address: 55 Tan Phuoc Khanh Street, Tan Phuoc Khanh Ward, Tan Uyen Town, Binh Duong Province.
- Phone: 0909.567.520
- Business license: No. 0313671359

1.2. Information about the representative of the establishment before law

- Company representative: Ms. La Kim Nhung
- Position: Director
- Contact Person: Ms. La Kim Nhung
- Telephone: 0909.567.520

1.3. Information on business and production activities

- Year of construction/operation: 2022
- Business Type: Private Enterprises
- Main Products: Cabinets, Beds, Tables, Chairs.
- Current capacity: 52,164 products – in 2024.
- Certificates (if any): SMETA-ISO 9001
- Total number of people working in the company (people): 160
- Working hours: 8 hours/day
- Number of working shifts: 01 shift/day
- Total working days in a year: 302 days
- Total land area (m2): 6,000 m2
- Total factory area (m2): 5,800 m2
- Brief introduction of the history of the formation and development of the company:

  Company is one of the enterprises operating in the field of interior design and manufacturing in Vietnam.

  With its history of formation and development, the company has affirmed its position in the market and contributed to the development of the furniture industry.

Figure 1.1. IMITI Company Limited Factory.

Part 2. INFORMATION ON PRODUCTION AND BUSINESS ACTIVITIES AND OPERATIONAL DATA

2.1. BOUNDARIES AND SCOPE OF OPERATION OF THE FACILITY

This greenhouse gas inventory report is limited to the factory of IMITI Company Limited - CN2 at 55 Tan Phuoc Khanh Street, Tan Phuoc Khanh Ward, Tan Uyen Town, Binh Duong Province.

The scope of the report includes all factory operations under scope 1, scope 2.

The boundaries of the factory's activities are as follows:

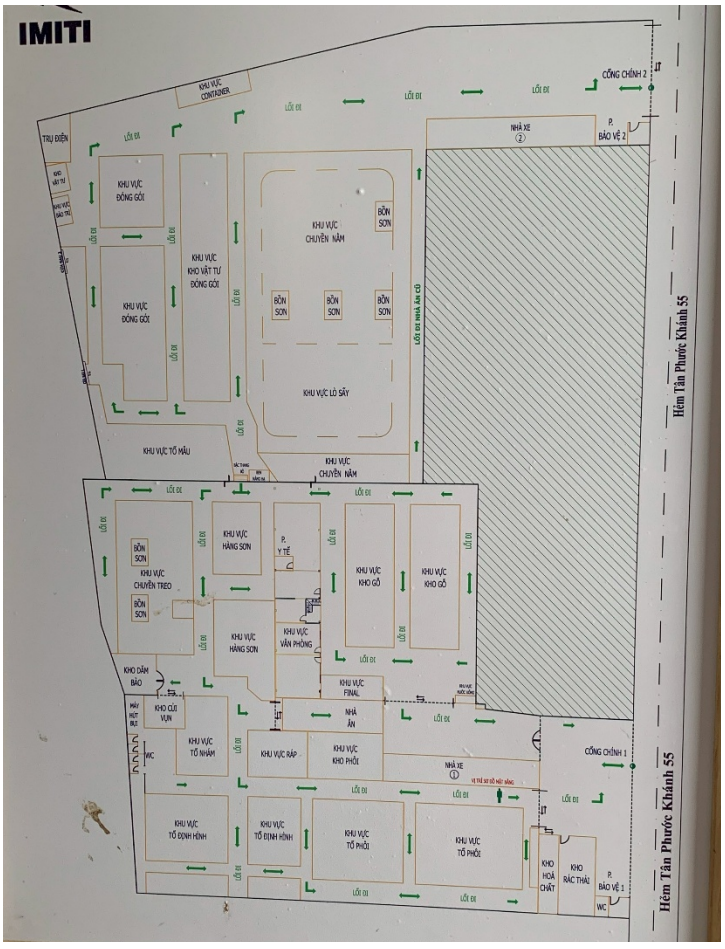


Figure 2.1. Boundaries of the factory's activities.

2.2. INFRASTRUCTURE, TECHNOLOGY AND OPERATION

2.2.1 Infrastructure

Table 2.1. Infrastructure items at the company

STT	Area	Area (m2)	Activity
1	Total factory area	5,800	
2	Workpiece Manufacturing Area		Production of workpieces to order
3	Shaping – Sanding Area		Forming and finishing product workpieces
4	Paint Area		Paint products to order
5	Assembly – Packaging Area		Create a complete product and package it
6	Finished Products Warehouse		Product Storage
7	Raw Material Warehouse		Storage of production materials
8	Office Area		
9	Chemical Warehouse		
10	Garages, Yards		

Some pictures of the infrastructure at the company are as follows:

Figure 2.3. Production infrastructure at the Company.

2.2.2. Technologies and operations at the Company

- **Production Process**

  The diagram of the production process at the Company is as follows:

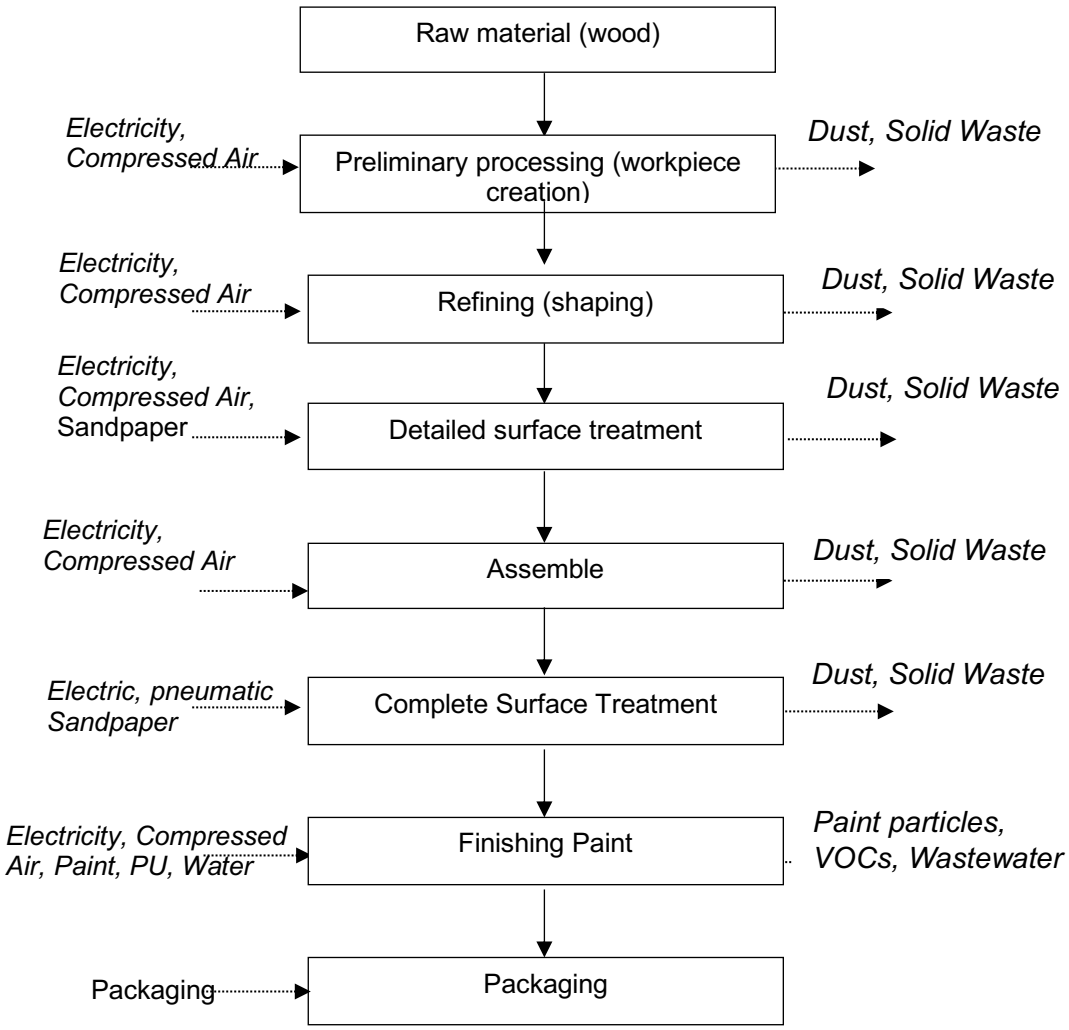


Figure 2.4. The Company's production process

Explanation of the process:

- Depending on the order requirements and based on detailed drawings, the team of engineers statistics the types of raw materials for production. Materials and materials are listed by each item such as: wood, accessories, equipment if necessary and materials to support the order completion process. After being counted, materials and materials will be exported from the warehouse to import raw materials to serve the production process of orders.
- Wood processing stage (Cutting, Jigsawing, Planing, Splicing), then moving to wood refining stage (Turning, Grinding, Drilling, Sanding) and finally moving to UV Paint;
- Board cutting stage, then moving to board refining stage (Edge gluing, drilling, tupi, sanding) and finally moving to UV Paint. After the UV painting stage, move on to the White Goods Assembly stage, then the surface painting and finishing wrapping. Finally, the final assembly, transfer to inspection before packaging, then storage/waiting for shipment.

- **Production materials**

Table 2.2. Main raw materials for production at the company – 2022, 2023, 2024

Information	Main Materials Used		
	Wood	Board	Paint
	(m^3)	(m^3)	(kg)
In 2022			
January	Not yet active	Not yet active	
February	Not yet active	Not yet active	
March			
April	29.755	5.4	2,563
May	7.37	12.1	2,158
June	33.05		5,537
July	11.18	2.1	1,037.3
August	46.718	4.27	3,368
September	14.202	9.9	2,312.17
October	111.82	13.84	7,321.4
November	63.04	10.31	4,531.50
December	41.200	4.300	3,807.110
Sum	*358.335*	*62.22*	*326,35.48*
Year 2023			
January	54.500	14.0915	4,423
February	64.63	8.0085	4,457
March	28.718	5.0679	2,480.18
April	82.627	9.181	3,579.74
May	141.019	15.6688	8,233
June	141.935	12.3422	8,177.8
July	139.3524	12.68380	8,048.35
August	239.018	30.53120	13,230
September	230.278	17.33277	13,489
October	167.533	10.69358	9,463
November	252.445	16.113	14,132
December	301.195	26.920	16,753
Sum	*1,843.25*	*178.6343*	*106,466.1*

In 2024			
January	266.778	20.080	16,228.55
February	184.648	22.013	10,085.00
March	416.5046	26.5854	22,707.0
April	337.3425	21.5325	18,922.5
May	736.7391	47.0259	13,582.4
June	247.4208	10.3092	13,589.4
July	187.5168	7.8132	9,981.4
August	395.6061	29.75959	22,804
September	388.778	16.1991	22,981.9
October	445.19	49.46605	31,175.8
November	387.261	68.3402	27,190.3
December	429.67	75.824	33,025
Sum	*4,423.45*	*394.948*	*242,273*

Source: IMITI Co., Ltd.

- **Product**

Table 2.3. Product output at the company – Year 2022, 2023, 2024

Product Type	Product output at the company		
	Production Output	Mass	Total volume of products produced
	(pcs)	(kg/piece)	(m^3 of refined wood)
In 2022			
Bed	2,718	100	51.3702
Cabinet	906	70	17.1234
Chair	3,582	20	18.6264
Table	142	50	2.4424
Mirror frame	60	25	1.182
Sum	***7,408***	***265***	***90.7444***
Year 2023			
Bed	19,051	100	360.8425
Cabinet	3,549	70	67.214
Chair	1,110	20	5.782
Table	1,337	50	22.986

Mirror	32	25	0.63
Sum	***25,079***	***265***	***457.4545***
In 2024			
Bed	32,321	100	646.215
Cabinet	15,804	70	236.594
Chair	2,619	20	13.957
Shoe Rack	1,211	20	22.981
Sum	***51,955***	***210***	**919.747**

Source: IMITI Co., Ltd.

2.3. SOURCES OF GREENHOUSE GAS EMISSIONS AND ABSORPTION TANKS WITHIN THE SCOPE OF OPERATION OF THE FACILITY

The sources of GHG emissions within the scope of the Company's activities are described in the following diagram:

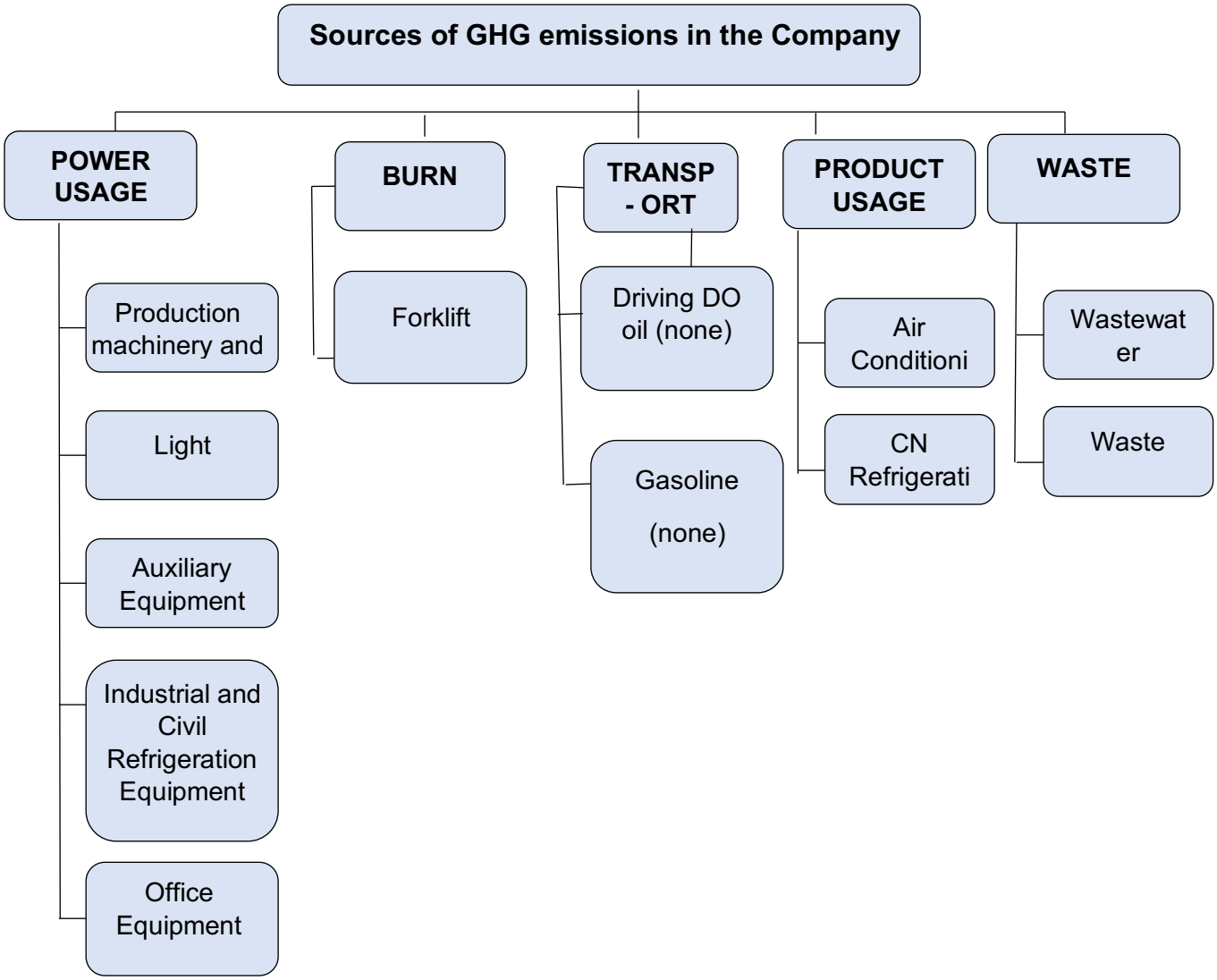


Figure 2.5. Sources of greenhouse gas emissions at the Company

The above emission sources will emit different types of greenhouse gases and are arranged into 02 ranges as shown in the following figure:

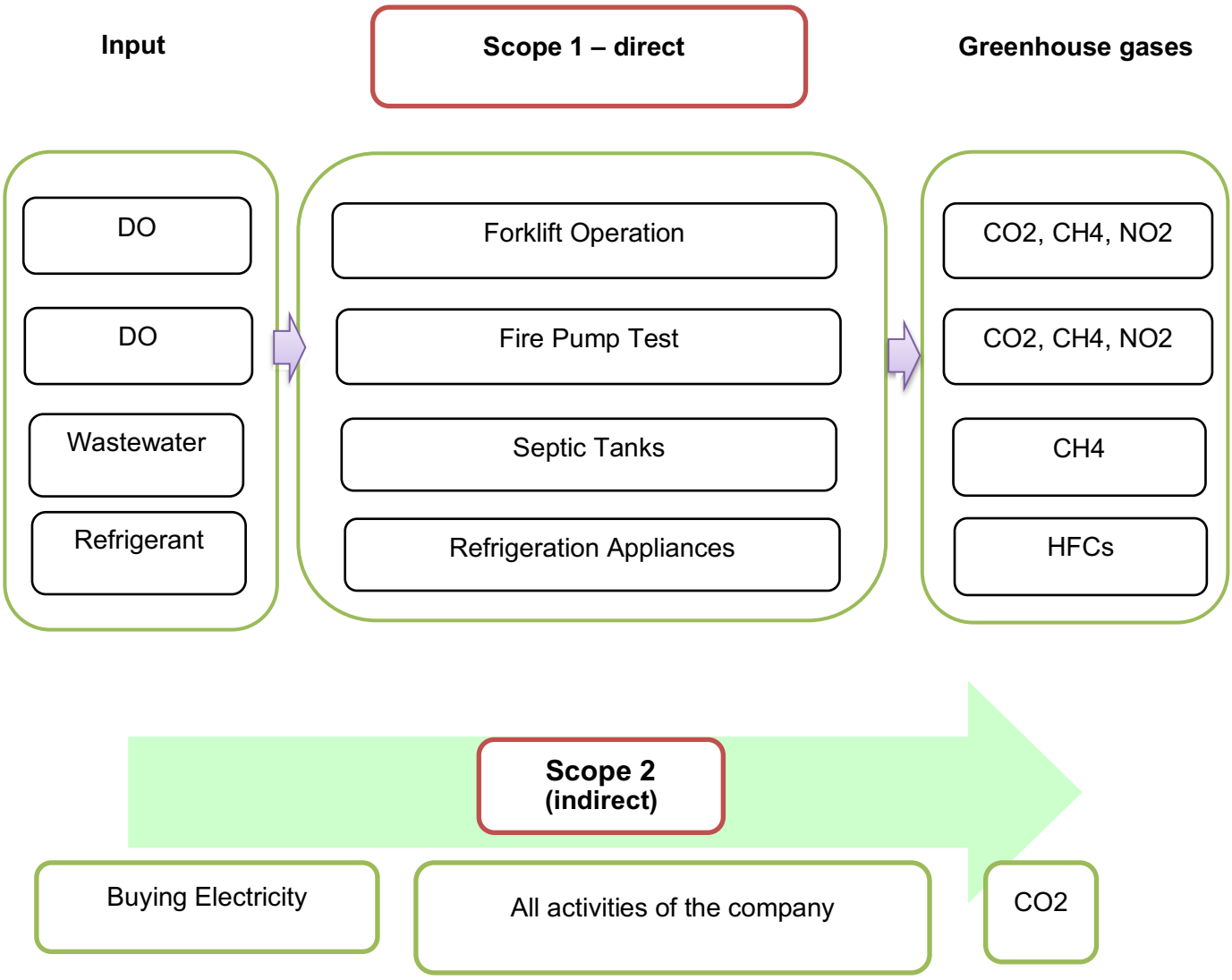


Figure 2.6. GHG emission sources are classified into 2 scopes at the Company

2.4. INFORMATION AND DATA SYSTEM ON GREENHOUSE GAS EMISSIONS OF ESTABLISHMENTS

Information	Describe
Method of choice in KNK inventory	Activity Control
Report Year	2022, 2023, 2024
The year chosen is the base year	2023
Reasons for choosing the base year	The company starts KNK inventory
List of scope 3 activities included in the report	- Not counted
List of activities that fall under scope 1, scope 2, and scope 3 that are excluded from the report with the reason for the exclusion	- Scope 1: full calculation. - Scope 2: full calculation (the company only uses electricity from the national grid, does not buy heat from outside). - Scope 3: does not count
Identify the causes of limitations in greenhouse gas inventories.	- Temporarily take the emission coefficient of the power grid in 2024 equal to the coefficient of 2023 of 0.6592 (tCO2/MWh) according to Official Letter No. 1726/BĐKH-PTCBT dated December 3, 2024 of the Department of Climate Change because this coefficient of 2024 has not been announced - Activity figures at the Septic Tank are estimates - The amount of CO2 loaded into the fire extinguisher is too small for the total emissions, so the inventory in this report is omitted.

Part 3. RESULTS OF GREENHOUSE GAS EMISSION INVENTORY

3.1. DESCRIPTION OF GREENHOUSE GAS EMISSION INVENTORY METHODS

3.1.1. Data collection methods

Table 3.1. Methods of collecting operational data

STT	Activity Metrics	Intended use	Source
1	***Scope 1 – Live***		
1.1	DO Oil	Forklift Operation	Purchase Invoice
1.2	DO Oil	Fire Protection Pump Test	Estimated
1.3	Wastewater	Domestic wastewater (septic tanks)	Estimate
1.4	Refrigerant	Industrial & Residential Refrigeration	Check information labels on refrigeration units
2	***Scope 2 – Indirect***		
2.1	Electricity	Production Activities	Electricity Purchase Bill
3	***Scope 3 – Other Indirect***		
3.1	Not counted		

3.1.2. Emission coefficients

In this report, emission factors are prioritized using data published by the country, other missing data will be referred to the IPCC 2006 guidelines. The coefficients used in the greenhouse gas emission inventory are specified in the following table:

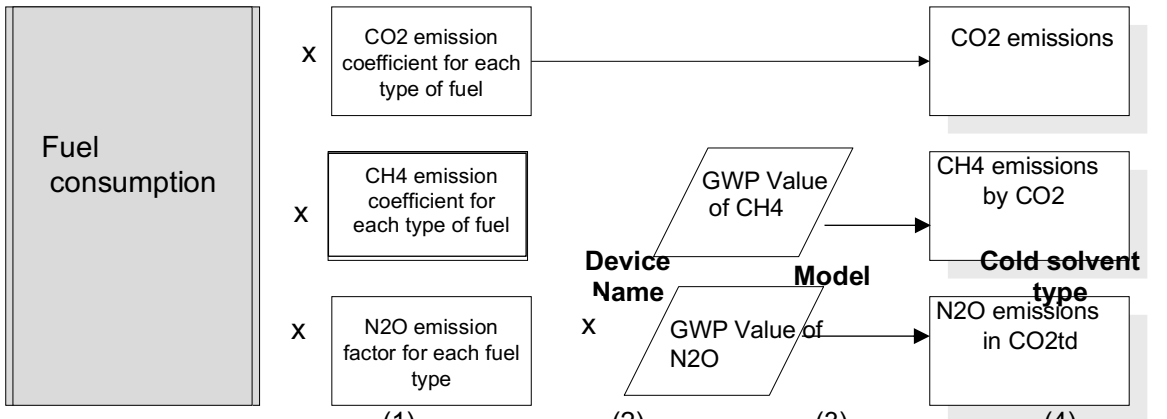
Table 3.2. Emission coefficients used in the report

STT	Data Type	Value	Source	Notes
1	Calorific value of fuels		Table 1.2 - Default net calorific values (NCVS), p1.18 – 20, 2006 IPCC Guidelines for National Greenhouse Gas	The data at the factory is not available, so the data of the IPCC should be used.
	+ DO Oil	43 (TJ/Gg)		

			Inventories: Volume 2 Energy, Chapter 1	
2	Emission coefficient of fuels			
	+ DO Oil	The values of CO2, CH4, N2O (kg/tj) emission coefficients are used in specific worksheets in the spreadsheets in the appendix	Decision 2626/QD-BTNMT, dated October 10, 2022 on the List of emission coefficients for greenhouse gas inventory	Using data published by Vietnam
3	Grid Emission Coefficient (tCO2/MWh)	Year 2022 = 0.6766 Year 2023 = 0.6592 Year 2024 = 0.6592	Emission coefficient of Vietnam's power grid announced annually	Temporarily take the emission factor of the power grid in 2024 = 0.6592

3.1.3. Calculation method

- ***Calculation method of GHG emissions for fuel use***



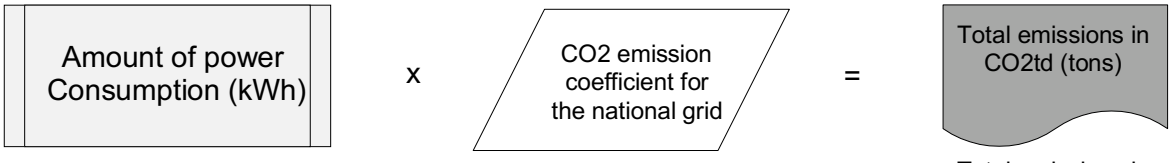
GHG and fuel $_{emissions}$ = Fuel consumption x $_{KHK\ emission\ coefficient}$

+ GHG emissions: The amount of KNK generated by each activity of different fuels (tons)
+ Fuel consumption: Total fuel consumption in 1 year in (TJ)
+ Emission coefficient: the emission coefficient of each activity of different fuels (kg KNK/TJ)

	Device Name	Model	Cold solvent type	Power	A
	(1)	(2)	(3)	(4)	(5)
	Air Conditioner				
1	Mitsubishi Air Conditioner	18YT-S5/SRC		2HP	
2	Mitsubishi Air	18YT-S5/SRC	R410A	1.5HP	
			2	2HP	
	Conditioner				
4	Mitsubishi Air Conditioner	MS Y-dP60VF	R32	2HP	
5	Mitsubishi Air Conditioner	SRK/SRK-18YXP-W5	R22	2HP	
6	Nagakawa Standing Cabinet Air Conditioner	NP-C50DG	R22	5HP	
7	Daikin Standing Cabinet Air Conditioner	FVRN/FVRR 125 AXV1-S5	R410A	5HP	

The emission factors used in calculating emissions from fuel combustion are shown in detail in the spreadsheets in the appendix

- ***KNK emission calculation method for electricity use***

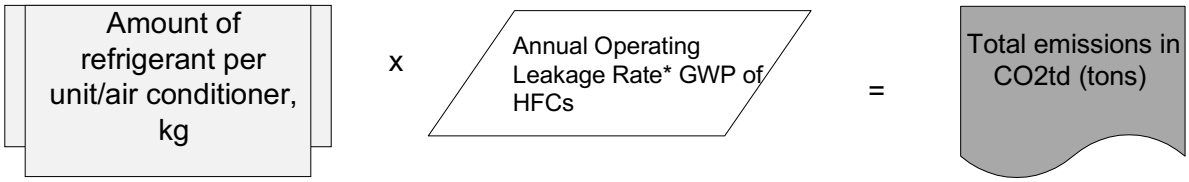


Emission coefficient of Vietnam's power grid:

+ 2022 = 0.6766 tonnes of CO2/MWh
+ 2023 = 0.6592 tonnes of CO2/MWh
+ 2024 = 0.6592 tonnes of CO2/MWh

Because the emission coefficient of Vietnam's power grid in 2024 has not yet been announced, this report temporarily uses the data of 2023

- ***Emission calculation method for refrigerant***



- ***Emission calculation method for wastewater***

(1) CH4 emissions from septic tanks

The following formula is used to calculate:

CH4 emissions from septic tanks = TOW x EF

In which:

+ TOW: total amount of biodegradable carbon in wastewater (kg BOD/year)
+ EF: emission factor, kg CH4/kg BOD

<u>* TOW Calculation</u>

*TOW = P x BOD * working days*

In which:

- P0: number of people across the company
- P: number of people involved in creating organic matter into septic tanks, estimated daily average of about 20% of people across the company = 0.2 x P_0
- The per capita BOD in Vietnam is about 40 g/person/day, when working at the company, it is estimated that the per capita BOD contributed to the septic tank at the company is about 40%, that is, about 16 g/person/day.
- Number of working days in a year

* EF Calculations

$$EF = Bo^* MCF$$

In which:

- Bo: Maximum CH4 fertility, CH4 kg/kg BOD, default is 0.6
- MCF: the CH4 correction factor for septic tanks is 0.5

(2) CH4 emissions from wastewater:

The company's wastewater is mainly domestic wastewater (almost no industrial wastewater)

The following formula is used to calculate:

$$CH4(ww) = BOD(ww) \times (1-Fsl) \times Fan \times EF \times 28$$

In which:

CH4 (ww)	= CH4 emissions from wastewater treatment, kg/year
BOD $_{(ww)}$	= BOD of wastewater, kg/year
Fsl	= The BOD portion in the slurry is removed. Default 0.54 or 54%
Fan	= The BOD portion in the wastewater is anaerobicly treated.
EF	= Default CH4 emission factor in wastewater: 0.6 kg CH4/kg BOD.
28	= Global warming potential coefficient of CH4 converted to CO2

3.2. OPERATIONAL DATA RELATED TO GREENHOUSE GAS EMISSIONS

3.2.1. Fuel figures in scope 1 – direct

(1) Fuel Consumption

Table 3.3. Fuel Consumption DUE to Forklift Operation – 2022, 2023, 2024

Information	DO oil consumption for forklift operation (liters).		
	In 2022	In 2023	In 2024
How data is collected	Delivery note	Delivery note	Delivery note
January		50	50
February	40	60	60
March	40	60	50
April	50	40	100
May	50	60	110
June	50	60	110
July	50	50	120
August	40	40	120
September	50	50	160
October	50	50	160
November	50	50	160
December	50	50	160
Total	***520***	***620***	***1,360***

Source: IMITI Co., Ltd.

Table 3.4. Fuel consumption DO fire pump test – 2022, 2023, 2024

Information	DO oil consumption for fire pump testing (liters).		
	In 2022	Year 2023	In 2024
How data is collected	Estimate	Estimate	Estimate
January	2	2	2
February	2	2	2
March	2	2	2
April	2	2	2
May	2	2	2
June	2	2	2
July	2	2	2
August	2	2	2
September	2	2	2

October	2	2	2
November	2	2	2
December	2	2	2
Total	***24***	***24***	***24***

Source: IMITI Co., Ltd.

(2) Wastewater

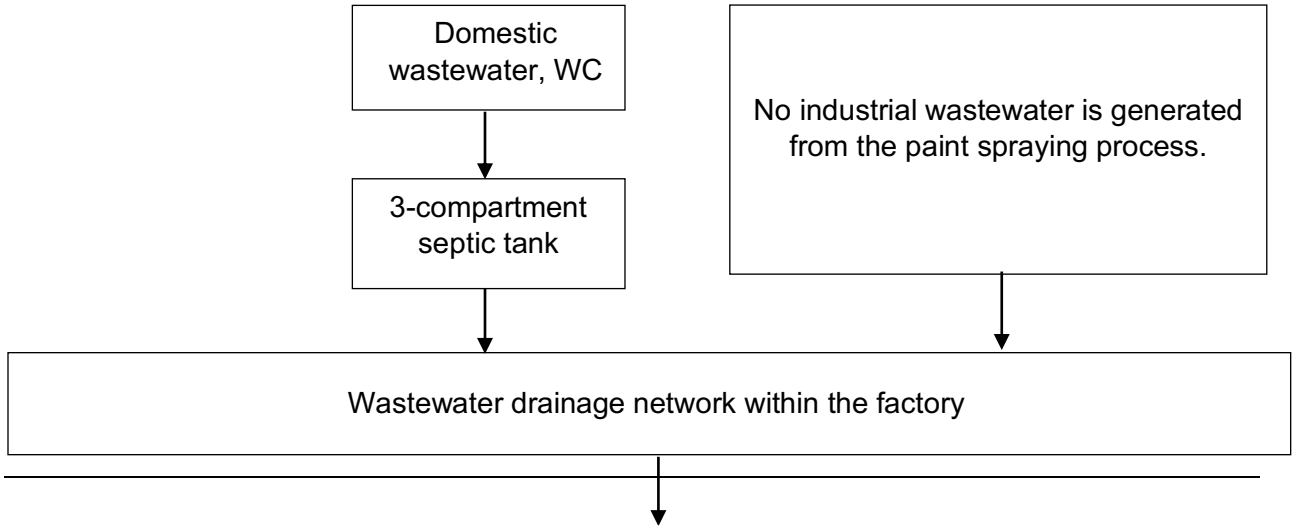
Table 3.5. Domestic wastewater – 2022, 2023, 2024

Information	Domestic wastewater (m3) – Re-enter data		
	In 2022	In 2023	In 2024
How data is collected	Figures according to wastewater treatment bills		
January		140.63	281.19
February	35	139.68	240.34
March	34.12	180.5	302.37
April	45.21	164.82	301.2
May	43.02	181.46	328.5
June	47.34	195.05	328.13
July	53.64	190.22	337.43
August	54.22	190.33	333.06
September	50.67	174.81	297.16
October	52.02	179.11	319.58
November	57.78	193.21	316.99
December	59.68	190.72	340.87
Total	***532.75***	***2121.72***	***3727.82***

Source: IMITI Co., Ltd.

Domestic water is preliminarily treated by septic tanks and connections and regional wastewater drainage systems, so there are no greenhouse gas (GHG) emissions from wastewater treatment, however there are GHG emissions from septic tanks.

Domestic wastewater generated at the plant shall be collected according to the following scheme:



(3) Refrigerant from refrigeration equipment

Table 3.6. Use of refrigerant in refrigeration equipment (scope 1 – direct)

STT	Device Name	Amount	Power (HP)	Cold solvent type	Refrigerant intake (kg)	Installation Location
I	**Air Conditioning**					
1	TOSHIBA	2	1.5	R32	1.72	Office
2	Aqua	3	1.5	R410A	2.04	
3	Reetech	2	1.5	R22	1.36	
4	Panasonic	3	1.5	R410A	2.04	
II	**Refrigerator**					
1	Aqua	1	285W	R-134A	0.050	

Source: IMITI Co., Ltd.

3.2.2. Activity metrics in scope 2 – indirect

Table 3.7. Electricity consumption from the national grid – 2022, 2023, 2024

Information	Power Consumption (KWh)		
	In 2022	Year 2023	In 2024
Note	Operation 1 Ward	Operating in 1 ward in the first 6 months of the year and 2 wards in the last 6 months of the year	2 Ward Operation
How data is collected	Electricity Purchase Bill		
January		13,523	40,870
February		15,140	42,742
March	10,230	15,890	40,652
April	12,123	17,552	40,503
May	15,185	18,141	38,056
June	15,300	42,230	40,987
July	14,221	41,156	40,568
August	14,140	50,190	42,766
September	13,554	52,358	46,888
October	15,241	52,235	57,586
November	12,620	52,988	70,623
December	15,780	54,782	57,720
Total	***138,394***	***426,185.00***	***559,961***

Source: IMITI Co., Ltd.

3.2.3. Operating data in scope 3:

Currently, data on the scope of 03 companies does not have.

3.3. RESULTS OF THE COMPANY'S GREENHOUSE GAS INVENTORY

3.3.1. Calculation results

Table 3.8. Results of the company's greenhouse gas inventory

Information		Results of the company's greenhouse gas inventory through 2022, 2023, 2024					
		YEAR 2022		IN 2023		IN 2024	
		Emissions (tonnes CO2td)	Rate (%)	Emissions (tonnes CO2td)	Rate (%)	Emissions (tonnes CO2td)	Rate (%)
***Scope 1*: Direct emissions from owned/controlled activities**		**3.04**	**3.15**	**3.34**	**1.17**	**5.55**	**1.48**
Section 1.	Using DO oil to operate forklifts	1.55	1.61	1.85	0.65	4.07	1.09
Section 2.	Engine running, fire protection	0.07	0.07	0.07	0.02	0.07	0.02
Section 3.	Septic tank system	1.30	1.34	1.30	0.46	1.30	0.35
Section 4.	Use of refrigerant from refrigeration equipment	0.12	0.13	0.12	0.04	0.12	0.03
***Scope 2*: Indirect emissions from energy use: Electricity**		**93.64**	**96.85**	**280.94**	**98.83**	**369.13**	**98.52**
Section 1.	Use of national grid electricity	93.64	96.85	280.94	98.83	369.13	98.52
***Scope 3*: Indirect GHG emissions from activities that the Company does not control.**		Not counted					
Sum		**96.68**	**100.00**	**284.28**	**100.00**	**374.68**	**100.00**

Note: Detailed calculation results are attached in the Appendix

Table 3.9. Composite Evaluation Table

Information	KNK inventory results over 2022, 2023, 2024		
	2022	2023	2024
Total GHG emissions of the year (tons/year)	96.68	284.28	374.68
Total product volume (m^3 of refined wood)	90.7444	457.4545	919.747
kgCO2/ m^3 of refined wood	1065	621	407

3.3.2. Reviews and comments

- The total greenhouse gas emissions at the Company over the years are increasing due to increasing production.
- The emission level calculated in kgCO2/m3 of refined wood tends to decrease significantly in the years 2022, 2023, 2024..
- GHG emissions are mainly electricity consumption, accounting for more than 96%
- The reason for the reduction in greenhouse gas emissions is that in 2022, the company just started operating, the initial output was still very low, then the company has gradually operated with gradually increasing capacity, machines operating at full load and constantly improving production efficiency and crazy consumption efficiency.

Part 4. EMISSIONS REDUCTION POTENTIAL ASSESSMENT AND GHG EMISSIONS REDUCTION PLAN.

4.1. RESULTS OF ENERGY AUDIT AND ASSESSMENT OF POTENTIAL TO REDUCE GREENHOUSE GAS EMISSIONS

From the above KNK inventory results, it shows that in order to mitigate greenhouse gas emissions at the Company, it will focus on solutions to use electricity efficiently and use solar energy to gradually replace the national grid.

The results of the energy audit show the potential to reduce emissions as follows:

Table 4.1. Propose energy-saving solutions and assess the potential to reduce greenhouse gas emissions

STT	Proposed solution	Potential to save electricity (kWh/year)	Expected investment	Cost Savings	Payback period	Reduce CO2 emissions	% CO2 reduction
			(103 VND)	*(103 VND/year)*	*(month)*	*(tons/year)*	*(%)*
I	**For management and technical solutions**						
1	Reduce peak hours for production processing machines such as planers, splicers, etc. etc	-	-	34,404	-	-	
2	Regulations for checking and fixing compressed air leaks every 2 weeks,	12,600	-	27,090	-	8.31	2.22
3	Reinstall the air compressor, minimizing the condition of the air compressor operating at idle,	28,350	20,000	60,953	3.94	18.69	4.99

4	Regulations for closing the fan intake when not in use,	7,104	-	15,274	-	4.68	1.25
5	Regulations to turn off lights when not in use or apply human sensors to turn off lights,	14,777	30,000	31,770	11,33	9.74	2.60
6	Gradually replace the old engine with a new high-performance engine,	10,752	75,000	23,117	38.93	7.09	1.89
7	Strengthen internal management and improve the efficiency of the central power monitoring system,	22,398	120,000	48,157	29.9	14.76	3.94
8	Replace the old air compressor with a new high-efficiency machine (consider abandoning the old machine and relocating the high-efficiency machine),	16,800	150,000	36,120	49.83	11.07	2.96
9	Install inverter to control dust collection fan,	23,940	100,100	51,471	23.34	15.78	4.21
10	Take advantage of air compressor heat instead of infrared lights in the drying area	69,600	180,000	149,640	14.43	45.88	12.25
11	*Total 1*	***206,321***	***675,100***	***477,996***	***16.95***	***136.007***	**36.30**
II	**For Solar Energy Usage Solution**						
1	Phase 1: Investment in a 100 kWP solar crazy system	147,825	1,200,000	325,215	45	97.45	26.01

2	Phase 2: Increase the capacity of the solar crazy system to 200 kWP (when relocated to the industrial park)	295,650	3,000,000	650,430	56	194.89	52.02
3	*2 total*	443,475.00	4,200,000.00	975,645.00	101.00	292.34	78.02

Note: *A detailed description of energy audit solutions can be found in the attached energy audit report.*

4.2. REVIEWS AND COMMENTS

- The total potential to reduce the company's greenhouse gas emissions is huge, including management, technical and fully renewable solutions with solar energy after the company relocates to the Industrial Park.
- Currently, the company plans to immediately deploy management and technical solutions.
- In general, the above-mentioned solutions are technically and economically feasible and are being encouraged by national policies and customers to implement and can be implemented in the short term in 2025 for some simple and low-cost solutions
- In order to make new breakthroughs in reducing greenhouse gas emissions, the company will relocate to industrial parks and focus on solar energy installation solutions.

4.3. GREENHOUSE GAS EMISSION REDUCTION PLAN

With the potential to reduce emissions as above, it is expected that the plan to mitigate greenhouse gas emissions at the Company is as follows:

Table 4.2. Greenhouse gas emission reduction plan at the Company

STT	Proposed solution	Potential to save electricity (kWh/year)	Cost Savings	Reduce CO2 emissions	% CO2 reduction	Estimated implementation time
			(103 VND/year)	*(tons/year)*	*(%)*	
I	**For management and technical solutions**					
1	Reduce peak hours for production processing machines such as planers, splicers, etc. etc	-	34,404	-		Implementation 2025 and 2026
2	Regulations for checking and fixing compressed air leaks every 2 weeks	12,600	27,090	8.31	2.22	Implementation 2025
3	Reinstall the air compressor, minimizing the condition of the air compressor operating at idle	28,350	60,953	18.69	4.99	Implementation 2025
4	Regulations for closing the fan intake when not in use,	7,104	15,274	4.68	1.25	Implementation 2025
5	Regulations to turn off lights when not in use or apply human sensors to turn off lights	14,777	31,770	9.74	2.60	Implementation 2025
6	Gradually replace the old engine with a new high-performance engine	10,752	23,117	7.09	1.89	No plan yet

7	Strengthen internal management and improve the efficiency of the central power monitoring system	22,398	48,157	14.76	3.94	Implementation 2025
8	Replace the old air compressor with a new high-efficiency machine (consider abandoning the old machine and relocating the high-efficiency machine)	16,800	36,120	11.07	2.96	No plan yet
9	Install inverter to control dust collection fan,	23,940	51,471	15.78	4.21	No plan yet
10	Take advantage of air compressor heat instead of infrared lights in the drying area	69,600	149,640	45.88	12.25	Possible implementation in 2025 or early 2026
	Total 1	***206,321***	***477,996***	***136.007***	**36.30**	
II	**For Solar Energy Usage Solution**					
1	Phase 1: Investment in a 100 kWP solar crazy system	147,825	325,215	97.45	26.01	Possible implementation in 2025 or early 2026
2	Phase 2: Increase the capacity of the solar crazy system to 200 kWP (when relocated to the industrial park)	295,650	650,430	194.89	52.02	There will be a plan when relocating to the industrial park
	2 total	443,475.00	975,645.00	292.34	78.02	

Part 5. DETERMINING UNCERTAINTY IN THE CALCULATION OF GREENHOUSE GAS EMISSIONS

5.1. CALCULATION AND RANKING OF UNCERTAINTY OF INDIRECT MEASURED EMISSIONS (calculated for 2024)

	A	B	C	D	And	F	G	H	I	J	K	L
Data Information	Activity Data	Units used to measure Activity Data	Uncertainty of activity data	GHG emission coefficient	Unit of GHG emission coefficient	Uncertainty of the GHG emission factor	CO2 emissions (kg)	CO2 emissions in tonnes	Uncertainty of calculated emissions $I = \sqrt{C^2 + F^2}$	Reliability Rating	Secondary Variable 1	Secondary Variable 2
							A * D	G/1000			(H*I)	K2
Source Description												
Use of national grid electricity	559,961	Kwh	+/- 3.0%	0.6592	kg CO2/KWh	+/- 5.0%	369,126	369.13	+/- 5.8%	Good	21.52	463.26

Total CO2 emissions (M):	**369,126 kg**	**369.13 tons**	**Summary of Certainty Ratings**

Calculating Uncertainty:	$\pm u = \pm \frac{\sqrt{\sum_{i=1}^{n} (H_i * I_i)^2}}{M}$	**+/- 5.8%**	**Good**

5.2. CALCULATION AND RANKING OF UNCERTAINTY OF DIRECTLY MEASURED EMISSIONS (calculated for 2024)

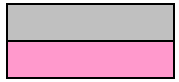
	A	B	C	D	And
	Estimated kg of GHG emissions	Uncertain estimates of calculated emissions	Certainty Rating	Secondary Variable 1	Secondary Variable 2
		Estimates from live measurement data		(G*H)	Day 2
Certainty Rating					
1. Use DO oil to operate the forklift	4,066	+/- 10.0%	Good	407	165,313
2. Use DO oil to test fire pump	65	+/- 25.0%	Fair	16	266
3. Wastewater treatment system	1,299	+/- 25.0%	Fair	325	105,437
4. Use of refrigerant from refrigeration equipment	122.00	+/- 25.0%	Fair	30.50	930.25

Total CO2 emissions (M):	5,551.93 kg		
		Summary of Certainty Ratings	
Calculating Uncertainty:	$\pm u = \pm \frac{\sqrt{\sum_{i=1}^{n} (H_i * I_i)^2}}{M}$	+/- 9.4%	Good

Summary of uncertainty from 02 Worksheets above

	Aggregate uncertainty	"Uncertainty ratings"
Aggregate uncertainty for total emissions measured directly and indirectly	**+/- 5.7%**	**Good**

Automatically calculated value:
Automatic uncertainty rating:



Source: According to IPCC guidelines on calculating the uncertainty of statistical parameters in KNK inventory

CONCLUSIONS AND RECOMMENDATIONS

- **CONCLUDE**

The KNK inventory report is the basis for the company to grasp:

- Existing sources of greenhouse gas emissions in the company;
- Understand the emission contribution from waste sources; thereby identifying which areas/sources emit the most, as well as which areas have the most potential to reduce emissions;
- Update, synthesize and make statistics on operational data in consecutive years into the pre-established data system to calculate emissions over the years, as a basis for comparison between years of GHG emissions per production unit;
- Establish emission levels and forecast future emissions;
- Setting GHG emission reduction targets for the company through emission reduction solutions;
- Enhance environmental responsibility, green development, energy saving and environmental friendliness and enhance the corporate image.

- **PROPOSAL**
  - In the coming time, the Company needs to expand the monitoring of some relevant missing operational data (if any) to make the GHG inventory system more complete.
  - Have a plan and gradually complete the data collection for input suppliers related to GHG emissions in Scope 3, including:
    - Purchased goods and services
    - Upstream transportation and distribution
    - Employee travel
    - Uptream/Downstream transportation and distribution
    - Research on communication on product use to reduce emissions, etc.

APPENDIX 1. DETAILED GREENHOUSE GAS EMISSIONS WORKSHEETS OF ITEMS

Table 1. Appendix 1

1. Use DO oil to operate the forklift (direct emission)

Emission Source: Direct - Forklift

GHG emissions: CO2, CH4, NO2

Scope: scope 1 – direct emissions

Calculation results:

Year of Emission Calculation	Source Description	Amount of fuel DO used (liters)	DO oil density (d= 0.85kg/l)	Switch to DO Fuel Usage (kg)	Net calorific value (TJ/Gg)	Net Calorific Conversion(TJ)	Emission coefficient (kg/tj)			Emission calculation results			
							kg CO2	kg CH4	kg N2O	CO2 (tấn)	CH4 (tấn)	N2O (tấn)	Total emissions in CO2 equivalent (tons)
(1)	(2)	(3)	(4)	(5)	(6)	(7) = (5)*(6)/10^6	(8)	(9)	(10)	(11) = (7)*(8)/ 10^3	(12) = (7)*(9)/ 10^3	(13) = (7)*(10)/ 10^3	(14) = (11) +(12 *28) + (13*265)
2022	'Using DO oil for forklifts	520	0.85	442.0	43	0.019	74,100	4.15	28.6	1.41	0.0001	0.0005	1.55
2023		620	0.85	527.0	43	0.023	74,100	4.15	28.6	1.68	0.0001	0.0006	1.85
2024		1,360	0.85	1,156.0	43	0.050	74,100	4.15	28.6	3.68	0.0002	0.0014	4.07

Notes:

(1), (2), (3), (4), (5): IMITI Co., Ltd.

(6): Table 1.2 – Default Net Calorific Value (NCVs). Fuel type: Gas/Diesel, page 1.18 - 2006 IPCC Guidelines for National Greenhouse Gas Inventories: Volume 2 Energy, Chapter 1 [Table 1.2 - Default net calorific values (NCVs) and lower and upper limits of the 95% confidence intervals, Fuel type: Gas/Diesel Oil, p1.18 - 2006 IPCC Guidelines for National Greenhouse Gas Inventories: Volume 2 Energy, Chapter 1]

(8), (9), (10): Table 3.3.1 – Default emission factors for off-road sources and mobile machinery, p3.36 – 2006 IPCC Guidelines for National GHG Inventories: Volume 2 Energy, Chapter 3 – Mobile Combustion. [Table 3.3.1 - Default emission factors for off-road mobile sources and machinery (Industry), p3.36 - 2006 IPCC Guidelines for National Greenhouse Gas Inventories: Volume 2 Energy, Chapter 3 - Mobile Combustion].

(14) = Calculation based on global warming potential factors (GWP) - IPCC 2006 Guidelines on National GHG Inventories.

Table 2. Appendix 1

2. Use DO (Fire Pump Test) - Direct Emission.

Emission Source: Direct

GHG emissions: CO2, CH4, NO2

Scope: scope 1 – direct emissions

Calculation results:

Year of Emission Calculation	Source Description	Amount of fuel DO used (liters)	DO oil density (d= 0.85kg/l)	Switch to DO Fuel Usage (kg)	Net calorific value (TJ/Gg)	Net Calorific Conversion(TJ)	Emission coefficient (kg/tj)			Emission calculation results			
							kg CO2	kg CH4	kg N2O	CO2 (tấn)	CH4 (tấn)	N2O (tấn)	Total emissions in CO2 equivalent (tons)
(1)	(2)	(3)	(4)	(5)	(6)	(7) = (5)*(6)/10^6	(8)	(9)	(10)	(11) = (7)*(8)/ 10^3	(12) = (7)*(9)/ 10^3	(13) = (7)*(10)/ 10^3	(14) = (11) +(12 *28) + (13*265)
2022	'Use DO - Fire Protection Pump	24	0.85	20.4	43	0.001	74,100	3	0.6	0.07	0.0000	0.0000	0.07
2023		24	0.85	20.4	43	0.001	74,100	3	0.6	0.07	0.0000	0.0000	0.07
2024		24	0.85	20.4	43	0.001	74,100	3	0.6	0.07	0.0000	0.0000	0.07

Notes:

(1), (2), (3), (4), (5): IMITI Co., Ltd.

(6): Table 1.2 – Default Net Calorific Value (NCVs). Fuel type: Gas/Diesel, page 1.18 - 2006 IPCC Guidelines for National Greenhouse Gas Inventories: Volume 2 Energy, Chapter 1 [Table 1.2 - Default net calorific values (NCVs) and lower and upper limits of the 95% confidence intervals, Fuel type: Gas/Diesel Oil, p1.18 - 2006 IPCC Guidelines for National Greenhouse Gas Inventories: Volume 2 Energy, Chapter 1].

(8), (9), (10): Decision 2626/QD-BTNMT on the publication of the list of emission coefficients for greenhouse gas inventory, dated October 10, 2022 - APPENDIX I,

(14) = Calculation based on global warming potential factors (GWP) - IPCC 2006 Guidelines on National GHG Inventories.

Table 3. Appendix 1

3. Emissions from Septic Tanks

Source of emissions: direct – Waste management (Waste emissions from septic tanks)

Emission Source: CH4

Scope: Scope 1 Emissions – Direct

Calculation results:

STT	Calculation Information	Source	Result		
			2022	**2023**	**2024**
1	***TOW = P x BOD * working days/1000 (kg BOD)***	Chapter 6: Wastewater Treatment and Discharge - IPCC	***155***	***155***	***155***
2	**P0:** number of people across the company	IMITI Co., Ltd.	160	160	160
3	**P:** number of participants in creating organic matter into septic tanks, estimated at 20%		32	32	32
4	BOD per capita in Vietnam is about 40 g/person/day		40	40	40
5	BOD per capita contributor in septic tanks (estimated 40%)		16	16	16
6	Number of working days in a year		302	302	302
7	***EF = Bo* MCF***	Chapter 6: Wastewater Treatment and Discharge - IPCC	***0.30***	***0.30***	***0.30***
8	**Bo:** Maximum CH4 fertility, CH4 kg/kg BOD, default is 0.6		0.60	0.60	0.60
9	**MCF:** the CH4 correction factor for septic tanks is 0.5		0.50	0.50	0.50
10	**GWP** of CH4 is converted to kg CO2TD		28	28	28
11	**CH4 emissions from septic tanks (tons):= TOW x EFx GWP/1000**		**1.30**	**1.30**	**1.30**

Table 4. Appendix 1

4. HFCs emissions from refrigeration equipment operation

Source of Emissions: Direct – Operation of Refrigeration Equipment

Emission source: refrigerant

Scope: Scope 1 Emissions – Direct

Calculation results:

STT	Device Name	Power (HP)	Cold solvent type	Amount	Refrigerant intake (kg)	GWP	Annual Leakage Rate (%)	Usage time in the reporting period = 1 year	Emissions from refrigeration equipment operation (tonnes of CO2-e equivalent/yr)
(1)	(2)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
I	**Air Conditioner**								
1	TOSHIBA	1.5	R32	2	0.86	675	1.00%	1	0.0116
2	Aqua	1.5	R410A	3	0.68	2,088	1.00%	1	0.0426
3	Reetech	1.5	R22	2	0.68	1,810	1.00%	1	0.0246
4	Panasonic	1.5	R410A	3	0.68	2,088	1.00%	1	0.0426
II	**Refrigerator**								
1	Aqua	120W	R134A	1	0.05	1,430	1.00%	1	0.0007
	Sum								**0.1221**

Notes: *(1), (2), (3), (4), (5), (6), (7): IMITI Co., Ltd.*

(8), (9), (10): IPCC 2006 Guidelines on National GHG Inventory.

(11) = (6)(7)*(8)*(9)*(10)/1000*

Table 5. Appendix 1

5. Emissions from the National Grid in all company operations

Emission Source: Indirect Emissions - Using the National Grid.

Emission source: CO2.

Scope: Emissions Scope 02 - Indirect

Calculation results:

Year of Emission Calculation	Source Description	Energy Type	Unit	Consumption	Emission coefficient of Vietnam's power grid (tons of CO2/MWh)	GHG emissions from electricity use (tonnes CO2)
(1)	(2)	(3)	(4)	(5)	(6)	(7) = (5)*(6)/1000
2022	Operation of machinery and equipment	Electricity	Kwh	138,394	0.6766	93.64
2023	Operation of machinery and equipment	Electricity	Kwh	426,185.00	0.6592	280.94
2024	Operation of machinery and equipment	Electricity	Kwh	559,961	0.6592	369.13

Notes:

(1), (2), (3), (4), (5): Company TNHH IMITI

(6): Emission coefficient of Vietnam's power grid by year.