

## Toshiba Carrier (Thailand) Co., Ltd. Site Report Information

Address: 144/9 Moo 5 Bangkadi Industrial Park, Tivanon Rd., Muang, Pathumthai 12000

Lot area: 56,514 m<sup>2</sup>, Building area: 39,631 m<sup>2</sup>, Green ratio: 32.17%

Establishment: January 9, 1989, Employee : 2,785 persons (as of June 2022)

Major products: Air conditioners

ISO 14001:2015 certified: May 1998, Latest update: January, 28<sup>th</sup> 2020  
(Certificate number: EMS18012/471)



## Message from Environmental Preservation Chief

Since its establishment in 1989, Toshiba Carrier Thailand (TCTC) has believed Corporate Social Responsibility (CSR) is a management matter of the utmost importance, and recognized protection of environment is one of key areas of CSR. As a developer and manufacturer of air-conditioning system, TCTC continues to make its best efforts for low carbon environment through promoting environmental management, providing environmentally conscious products, reducing environmental impact through business activities, implementing to sustainable and continual improvement.



Environmental Preservation Chief  
Mr. Takehiko Sato

## Major environmental activities in 2021

### Waste reduction project

- Recycle fin press oil
- Reuse plastic waste from package by returning to suppliers.



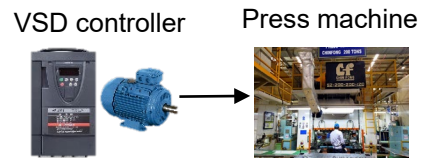
Total recycle oil: 1,600 liters/year



Total waste reduction: 545 kg/year

### Energy saving projects

- Installation on Variable Speed Driver (VSD) at press machines for 2 sets



Total energy savings: 73,181 kWh/year  
Total CO<sub>2</sub> reduction: 30.37 t-CO<sub>2</sub>

## Development of products and environmental technologies from environmental consideration point

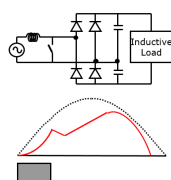
### New technology to reduce material use for next generation products.

#### Hi-Frequency reactor apply in Power Factor control circuit



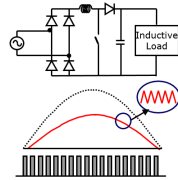
Metal: 1,470g  
Copper: 250g

#### Partial switching



Ferrite Core: 146g  
Copper: 28g

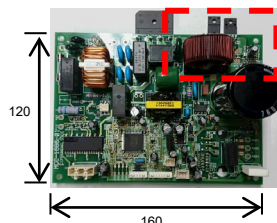
#### Active scheme



#### Hi-Frequency reactor

Next generation of Inverter models.  
We develop new Boot converter circuit by apply Hi-Frequency Reactor.

Boot circuit



Hi-Frequency reactor are use for better DC voltage control and also reduce Metal and Copper material use.

## TCTC Environmental Policy

Toshiba Carrier Group aims to provide environmentally conscious products into the worldwide society and contribute to the society through business operation considering the reduction environmental burden, as a corporate to develop the system, manufacture, sell and provide services on Air-conditioning systems, hot-water-supply systems, ventilation systems, refrigerators, and compressors. Moreover, we hold environmental initiatives to be one of our top priority tasks in corporate management, guided by the “Essence of Toshiba”. We will strive to create enriched value and ensure harmony with the earth for people around the world now and in the future. Through our environmental management that aims to achieve a decarbonized society, a resource circulating society, and a society in harmony with nature, we will contribute to the realization of a sustainable society and turn on the promise of a new day.

### Promoting environmental management harmonized with business operations

1. Toshiba Carrier Group assesses the impacts of its business activities and products and services on the environment (including biodiversity), sets environmental impact reduction targets, and implements environmental activities.
2. Toshiba Carrier Group continuously improves its environmental management through audits and activity reviews.
3. Toshiba Carrier Group complies with all laws and regulations, industry guidelines it has endorsed, and its own standards on the environment.
4. Toshiba Carrier Group further raises employees’ environmental awareness, and the company as a whole makes efforts for environmental protection.
5. Toshiba Carrier Group operates globally and promotes environmental activities throughout the Group accordingly.

### Reducing environmental impacts through business activities and offering environmentally conscious products and services

1. Toshiba Carrier Group recognizes that natural resources are finite, and it implements vigorous environmental measures to promote their effective, practical use in terms of both business activities as well as products and services.
  2. Toshiba Carrier Group develops and provides environmentally conscious products and services that contribute to reducing environmental impacts throughout their life cycle.
- In all phases of activities – including the design, procurement, manufacturing, logistics, sales, and disposal phases
3. In all phases of activities – including the design, procurement, manufacturing, logistics, sales, and disposal phases – Toshiba Carrier Group implements measures to decrease environmental impacts, such as those for responding to climate change, effective resource use, and chemical management.
  4. Toshiba Carrier Group considers what value and meaning it can provide to society and strives to develop environmental technologies for the future in order to contribute to realizing a sustainable society.

### Working together with stakeholders

1. Toshiba Carrier Group actively communicates with stakeholders, such as local communities and society, and promotes environmental activities in collaboration with them.

Effective Date : 19<sup>th</sup> April, 2022



Mr. Tetsumi Nakatani

(General Manager, Chairman of  
Environmental and Energy  
Management Committee)



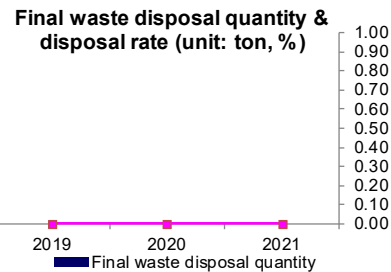
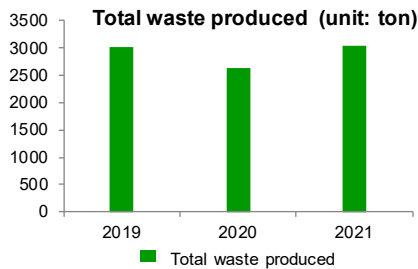
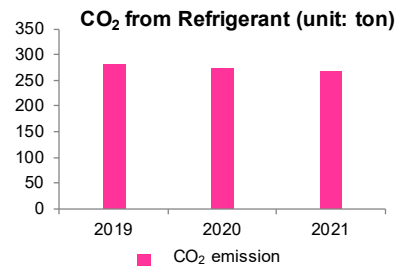
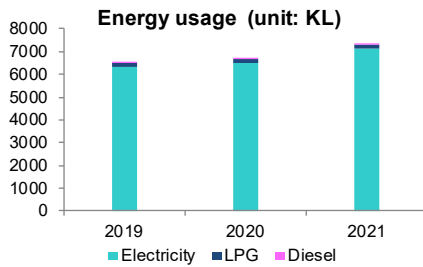
Mr. Takehiko Sato

(Managing Director)

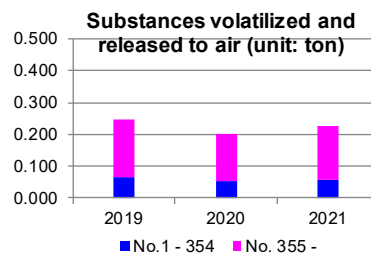
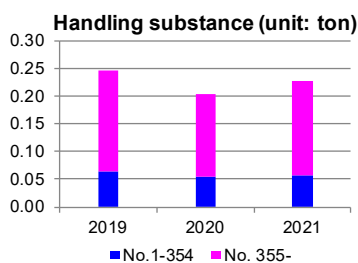
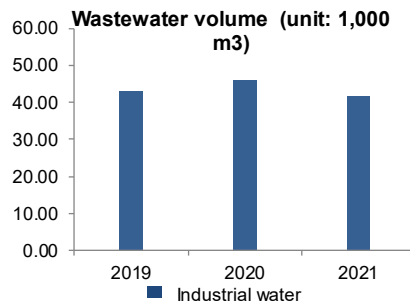
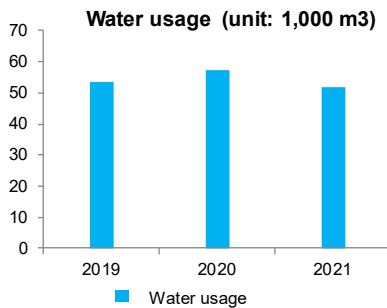
**Environmental target in FY2022-2024**

Items	FY2022	FY2023	FY2024
1. CO <sub>2</sub> emission by energy consumption (ton-CO <sub>2</sub> /100M JPY)	24.6	24.1	23.7
2. Greenhouse gas (ton-CO <sub>2</sub> )	2.9	3.4	3.7
3. Total waste (Kg/100M JPY)	5,902	5,843	5,784
4. Water volume (m <sup>3</sup> /100M JPY)	93	92	91
5. Chemical emission (ton/100M JPY)	0.000504	0.000499	0.000494

**Environmental load data**



**Major wastes:** Coated steel scrap, aluminum flake and foil and wooden pallet



**Major chemical substances:** Toluene, 1,1-dichloro-1 fluoroethane and xylene

**Compliance management**

**Stack measurement results (brazing process: LPG gas)**

Monitoring date: Mar - Apr, 2021

	Regulation value	Self-control value	Actual measurement	Measurement frequency
NOx (ppm)	≤ 200	≤ 190	1.06 – 5.70	Once a year
CO (ppm)	None	None	<1.3	Once a year
TSP (mg/Nm <sup>3</sup> )	≤ 320	≤ 304	0.04 – 2.9	Once a year

**Final wastewater measurement results (major results)**

Monitoring date: Apr 2021– Mar 2022

(TCTC does not has a treatment facility. TCTC wastewater is treated at Bangkadi Central Wastewater Treatment)

	Regulation value	Self-control value	Actual measurement	Measurement frequency
Hydrogen ion concentration (pH)	5-9	5.5-8.5	6.9 - 8.4	Once/month
BOD (mg/l)	≤ 500	475	13 - 221	Once/month
COD (mg/l)	≤ 750	712	81 - 526	Once/month
TSS (mg/l)	≤ 200	190	27 - 227	Once/month
TDS (mg/l)	≤ 3000	≤ 2850	292 - 760	Once/month
Temperature (°C)	≤ 40	38	28.7 – 34.2	Once/month

**Ambient noise & vibration measurement results**

Monitoring date: 15-16 Feb 2021

	Location: Time	Regulation value	Self-control value	Actual measurement	Measurement frequency
Noise (dB)	Lot boundary	70	67	65.1	Once a year
Vibration (dB)	Lot boundary: Day	None	None	None	None

**Other measurement results (Sewage Water Law: Major results)**

	Regulation value	Self-control value	Actual measurement	Measurement frequency
Hydrogen ion concentration (pH)	None	N/A	N/A	N/A
BOD (mg/l)	None	N/A	N/A	N/A
SS (mg/l)	None	N/A	N/A	N/A

**Environmental accidents, administrative advices and complaints**

	State
Environmental accident	None
Environmental problem around the factory and in the local area	None
Administrative advice or direction	None
Complaint from neighboring residents	None

**Environmental communication**

**Environmental activities in Pathumthani**

- In cooperation with Bangkadi Industrial Park, we donated chair and stone desk for school in Pathumthani.

School name: Phi Bai Kindergarden school  
Date: May 13, 2021



Rest area at Phi Bai kindergarden school

**Environmental activities in Pathumthani**

- In cooperation with Bangkadi Industrial Park, we donated wooden scrap for flooding area nearby Chao Phraya river in Pathumthani.

Community name: Sa-La- Daeng community  
Date: October 15, 2021



Houses of the community which were affected from flood

**EH&S awareness activities for employee**

- Arranged EH&S weeks activities called “EH&S talk and quiz “

Objective: To raise awareness on environment and safety for all employee.

Number of participants: approx. 2,667 employees  
Date: December 8-22, 2021



**Conservation of Biodiversity**

**Tree distribution to employee**



- Arranged the activity for distributing tree to employee for planting at employees' houses as species (8 species): 1) Siamese rosewood, 2) Jackfruit, 3) Pink trumpet, 4) White bamboo, 5) Curd, 6) Moringa oleifera, 7) Broken bones, 8) Indian Gooseberry,

Number of tree: 500 trees

Date: July 5-6, 2021

Number of participants: 215 employees

**Tree monitor at Bangkadi Industrial Park**



- Monitor trees which donated for increasing green area at Bangkadi Industrial Park.

Date: Nov 24, 2021

Number of tree: 18 trees (*Shorea*: 15 trees and *Magnolia sirindhorniae* Noot & Chalermglin: 3 trees)