

# Product Environmental Aspects Declaration



EP and IJ printer (PCR-ID:AD-04)

No. AD-16-E752

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**TOSHIBA**  
Leading Innovation >>>

**e-STUDIO™ 4505AC**

TOSHIBA TEC CORPORATION  
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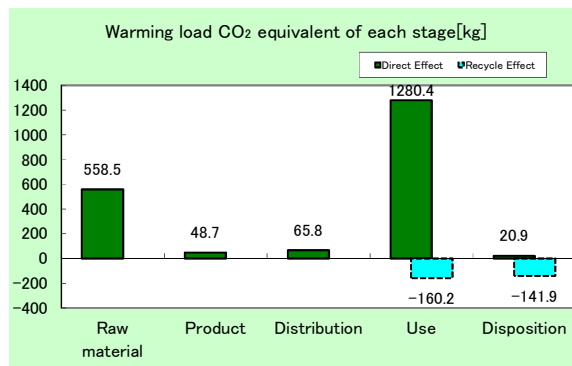
- Marking technologies : Electrophotographic Printer(EP)
  - Printing Speed: 45 LTR Pages per minutes (Color and B/W)
  - Maximum Paper Size : LD
  - Duplex copying : Standard
- The number of copies when used for 5 years is 1,215,000

URL <http://www.toshibatec.co.jp>



Consumption and discharge in a life cycle	All the stage sum totals
Global Warming (CO <sub>2</sub> equivalent)	1974.4kg (1672.331kg)
Acidification (SO <sub>2</sub> equivalent)	3.439kg (2.905kg)
Energy resources (crude oil equivalent)	40,526MJ (35.424MJ)

※Figures in ( ) indicated environmental impact including recycle effect \*note3



Notes:

1. Original LCA data is available on PEIDS: Product Environmental Information Declaration Sheet, and Product Data Sheet.
2. Unified rules and requirements for EcoLeaf LCA, for intended product category, are available as a PCR: Product Category Rule. Visit EcoLeaf website under JEMAI homepage at [http://www.ecoleaf\\_jemai.jp/eng/](http://www.ecoleaf_jemai.jp/eng/) for details.
3. Recycle Effect illustrates an indirect influence to other products/services.
4. Basic Units used for calculations are based on Japan domestic data at this time, due to a lack of base data to establish localized Basic Unit for overseas locations adequately.
5. This declaration was produced using Product Category Rule intended for a product model sold in the Japanese market and using the qualitative and quantitative data collected in Japan.

**[Supplemental environmental information]**

- Certified to the international ENERGY STAR Program V2.0, EU RoHS
- Manufactured at ISO14001 certified factories

PCR review was conducted by : PCR Deliberation Committee, January 01, 2008, Name of representative: Youji Uchiyama, University of Tsukuba, Graduate School  
Independent verification of the declaration and data, according to ISO14025:2006  internal  external  
Third party verifier: Hiroyuki Takenouchi

Programme operator: Japan Environmental Management Association for Industry, [ecoleaf@jemai.or.jp](mailto:ecoleaf@jemai.or.jp)

\* In the case of an business entity certified as an Ecoleaf-data-collection system, the names of certification auditors are written.  
The Ecoleaf is an environmental labeling program that belongs to the ISO-TypeIII category.

## Product Environmental Information Data Sheet (PEIDS)



Document control no.	F-02Bs-02
Product vendor	TOSHIBA TEC CORPORATION
EcoLeaf registration no.	AD-16-E752

Unit Function DB version	v2.1
Characterization Factor DB version	v2.1

PCR name	EP and IJ printer	Product type	TOSHIBA MFP e-STUDIO4505AC				
PCR code	AD-04	Product weight (kg)	77.6	Package (kg)	8.1	Weight total (kg)	85.7

In/Out items	Life Cycle Stage	Unit	Production		Distribution	Use	Disposition	Recycle Effect			
			Raw material	Product							
Energy Consumption			MJ	9.41E+03	8.68E+02	8.85E+02	2.93E+04	4.76E+01	-5.10E+03		
			Mcal	2.25E+03	2.07E+02	2.11E+02	7.00E+03	1.14E+01	-1.22E+03		
Inventory analyses	Impact by Resource Consumption	Energy resources	Coal	kg	8.17E+01	6.17E+00	2.07E-03	1.28E+02	1.86E-01	-5.64E+01	
			Crude oil (for fuel)	kg	8.91E+01	7.16E+00	1.93E+01	2.57E+02	6.91E-01	-4.26E+01	
			LNG	kg	1.85E+01	3.09E+00	2.99E-01	6.93E+01	1.01E-01	-5.26E+00	
		Exhaustible resources	Mineral resources	Uranium content of an ore	kg	2.03E-03	4.17E-04	1.40E-07	7.27E-03	1.26E-05	-1.54E-04
				Crude oil (for material)	kg	2.49E+01	0	0	7.80E+01	0	-2.36E+01
				Iron content of an ore	kg	4.28E+01	0	0	1.55E+01	0	-5.49E+01
				Cu content of an ore	kg	1.86E+00	0	0	0	0	-6.79E-01
				Al content of an ore	kg	9.15E-01	0	0	3.09E+00	0	-3.74E+00
				Ni content of an ore	kg	2.00E-01	0	0	2.01E-02	0	-2.21E-01
				C content of an ore	kg	2.84E-01	0	0	3.26E-02	0	-3.18E-01
				Mn content of an ore	kg	2.41E-01	0	0	8.55E-02	0	-6.33E-02
				Pb content of an ore	kg	1.01E-01	0	0	0	0	-5.51E-02
				Sn content of an ore	kg	0	0	0	0	0	0
				Zn content of an ore	kg	9.90E-01	0	0	0	0	-5.42E-01
				Au content of an ore	kg	0	0	0	0	0	0
				Ag content of an ore	kg	0	0	0	0	0	0
				Silica Sand	kg	1.81E+01	0	0	1.82E-01	0	-2.01E+00
				Halite	kg	1.18E+01	0	0	3.33E-01	1.23E-02	-5.59E+00
				Limestone	kg	9.80E+00	0	0	3.77E+00	7.94E-01	-9.61E+00
				Natural soda ash	kg	2.87E-01	0	0	0	0	-1.71E-01
		Wood	kg	1.72E+01	0	0	1.07E+02	0	-1.23E+02		
			Water	kg	5.29E+04	4.67E+03	1.56E+00	1.35E+05	1.53E+02	-1.36E+04	
		Impact by Emission/Discharge to the environment	to Atmosphere	CO <sub>2</sub>	kg	5.47E+02	4.85E+01	6.29E+01	1.26E+03	2.09E+01	-2.95E+02
Sox	kg			4.94E-01	3.66E-02	3.72E-02	9.24E-01	1.18E-02	-2.31E-01		
Nox	kg			6.65E-01	2.94E-02	2.82E-01	1.75E+00	4.15E-02	-4.33E-01		
N <sub>2</sub> O	kg			4.35E-02	7.55E-04	1.08E-02	7.06E-02	8.87E-05	-2.49E-02		
CH <sub>4</sub>	kg			5.38E-03	1.12E-03	3.75E-07	1.94E-02	3.37E-05	-3.44E-04		
CO	kg			1.04E-01	7.12E-03	6.99E-02	3.59E-01	9.15E-03	-5.70E-02		
NM VOC	kg			1.05E-02	2.19E-03	7.34E-07	3.79E-02	6.62E-05	-6.72E-04		
CxHy	kg			2.03E-02	1.55E-04	8.70E-03	3.88E-02	3.68E-04	-1.24E-02		
Dust	kg			8.17E-02	1.59E-03	2.73E-02	1.39E-01	1.37E-03	-4.62E-02		
to Water system	to Water domain			BOD	kg	-	-	-	-	-	-
				COD	kg	-	-	-	-	-	-
				N total	kg	-	-	-	-	-	-
				P total	kg	-	-	-	-	-	-
				SS	kg	-	-	-	-	-	-
					kg	-	6.20E-02	-	-	-	-
					kg	-	-	-	-	-	-
to Soil system	Unspecified Solid Waste			kg	3.48E+00	2.34E-06	0	3.44E+00	1.12E+00	-2.56E+00	
	Slag	kg	2.47E+01	0	0	4.70E+00	0	-1.74E+01			
	Sludge	kg	1.37E+00	0	0	6.64E+00	0	-8.02E+00			
	Low level radio-active waste	kg	1.43E-03	2.92E-04	9.80E-08	5.07E-03	8.83E-06	-1.08E-04			
		kg	-	-	-	-	-	-			
Impact assessment	By Res	Energy resources (crude oil equivalent)	kg	1.80E+02	1.83E+01	1.97E+01	4.82E+02	1.04E+00	-8.64E+01		
			kg	6.63E+02	0	0	8.34E+01	0	-4.56E+02		
		to Atmosphere	Global Warming (CO <sub>2</sub> equivalent)	kg	5.59E+02	4.87E+01	6.58E+01	1.28E+03	2.09E+01	-3.02E+02	
			Acidification (SO <sub>2</sub> equivalent)	kg	9.60E-01	5.72E-02	2.34E-01	2.15E+00	4.08E-02	-5.34E-01	
			Ozone Depletion (CFC-11 equivalent)	kg	-	-	-	-	-	-	
			Photochemical Oxidant	kg	-	-	-	-	-	-	
			Eutrophication (Phosphate equivalent)	kg	-	-	-	-	-	-	
				kg	-	-	-	-	-	-	
				kg	-	-	-	-	-	-	
				kg	-	-	-	-	-	-	

[Notes for readers: EcoLeaf common rules]

## I. Stage related

A. "Production" stage is intended for two sub-stages listed below.

- "Raw material" production: consists of mining, transportation and raw material production.
- "Product" production: consists of the parts processing, assembly and installation.

B. "Distribution" stage is intended for transportation of produced product. Transportation of consumables and maintenance goods (e.g. replacement parts) for use of the product are included into "Use" stage.

C. "Use" stage is intended for use of the product (active mode, standby mode, etc.) and production, transportation to disposal/recycle of consumables/maintenance goods (e.g. replacement parts).

D. "Disposition/Recycle" stage is intended for environmental impacts by product disposition/recycle, and deduction by recycling (e.g. impact reduction of raw material production).

E. "Recycle Effect" illustrates an indirect environmental influences to other products/services by use of reclaimed materials/parts, and/or by supply of used products to other businesses for material reclaim/parts reuse.

Case 1: Use of reclaimed materials/parts: Sum of increase of environmental impact by collection activities of used materials/parts, and decrease by volume reduction of used materials/parts.

Case 2: Supply of used products to other businesses for material reclaim/parts reuse: Sum of increase of environmental impact by materials/parts reclaiming process, and decrease by volume reduction of new materials/parts production.

## II. Inventory analyses

A. Data of mineral ore on "Exhaustible resources" are presented in weight of pure ingredients (e.g. iron, aluminum) in the ore.

B. Data on energy resources are presented based on origin in calorific value. e.g. Data on uranium ore presents weight of uranium concentrate, which is available for use as an atomic fuel.

C. Data of discharge to water system are in actual figure (not calculated using unit function in inventory analyses).

## III Impact analyses

Result of the "Impact analyses" is found in converting results of inventory analyses into total amount of a reference material (e.g. CO<sub>2</sub> in case of "Global Warming").

A. Impact "by resource consumption" represents magnitude of impacts to resource depletion.

B. Impact "by emission/discharge to environment" represents magnitude of impacts to Atmosphere, Water and Soil system.

## IV Data entry format

A. Exponential notation, after the decimal point to two, should be used.

B. Indicate "0" instead exponential notation, if the result of calculation or estimation is considered as "zero" or negligible in comparison to related results.

C. Indicate "-" if calculation nor estimation can not be done, in order to differentiate to indicate "zero".

(BGD for material production are for production from mineral ore. Those data do not include reclaiming processes like recovery from scrap.)

[Notes for readers: Target product specific]

This declaration was produced using Product Category Rule intended for a product model sold in the Japanese market and using the qualitative and quantitative data collected in Japan.

## Product data sheet

(Input data and parameters for LCA)

Document control no.	F-03s-02
Product vendor	TOSHIBA TEC CORPORATION
EcoLeaf registration no.	AD-16-E752



PCR name	EP and IJ printer	Product type	TOSHIBA MFP e-STUDIO4505AC				
LCA/LCIA in units of:	1	Product weight (kg)	77.6	Package (kg)	8.1	Weight total (kg)	85.7

## 1. Product information (per unit): parts etc. by material and by process/assembly method

Product	Breakdown of primary materials				Math breakdown of parts, which need to apply Processing / Assembly Base Units (Parts B, C)			
	Material name	Weight (kg)	Material name	Weight (kg)	Process name	Weight (kg)	Process name	Weight (kg)
Product	Ordinary steel	3.76E+01	Paper	7.42E+00	Press molding:Iron (kg)	4.39E+01	Parts assembly (kg)	1.00E+00
	Stainless steel	1.26E+00	Wood	1.25E-02	Press molding:Nonferrous metal (kg)	1.05E+01		
	Other metals	2.25E+00	Semiconductor substrate	4.12E+00	Injection molding (kg)	2.98E+01		
	Aluminum	6.05E-01	Medium-sized motor	3.13E+00	Glass molding (kg)	1.55E+00		
	Glass	2.27E+00						
	Thermoplastic resin	2.66E+01						
	Thermosetting resin	1.08E-01						
	Rubber	3.46E-01						
	Subtotal	7.10E+01	Subtotal	1.47E+01				
	Total	8.57E+01	Subtotal	8.57E+01	Subtotal	1.00E+00		

Note

## 2. Production site information (per unit): Consumption and discharge/emission for production/processing/assembly within the site.

SOx and NOx should be indicated in SO<sub>2</sub>, NO<sub>2</sub> equivalent.

Consumption	Classification	Energy	Energy	Energy	Material				
	Distribution	Electricity (kWh)	Furnace LPG (kg)	Heavy oil as fuel (kg)	Industrial water (kg)				
Consumption	Quantity	8.63E+00	1.68E-01	1.90E-02	6.20E-02				
	Note								
Emission/Discharge	Classification	Water system							
	Distribution	Sewage processing (kg)							
Emission/Discharge	Quantity	6.20E-02							
	Note								

Note

## 3. Distribution stage information (per unit): means, distance, loading ratio, consumptions and emissions/discharges.

Distribution	Means of transportation	Diesel truck: 10 ton (kg·km)	Diesel truck: 10 ton (kg·km)	Diesel truck: 10 ton (kg·km)	Diesel truck: 10 ton (kg·km)	Freight by ship (kg·km)	Freight by ship (kg·km)	Freight by ship (kg·km)	Freight by ship (kg·km)
	Conditions	Mass(kg)	Distance (km)	Loading Ratio(%w)	Load(kg·km)	Mass(kg)	Distance (km)	Loading Ratio(%w)	Load(kg·km)
Distribution	Quantity	8.57E+01	1.00E+03	6.17E+01	1.39E+05	8.57E+01	1.17E+04	1.00E+02	1.00E+06
	Note								

Note

## 4. Use stage (per unit): use condition (mode, term) including active mode, standby mode and maintenance.

## 4.1 Product and accessories subject to this analysis

Product	Classification	Consumption	Consumption	Consumption	Consumption	Consumption	Consumption	Consumption	Consumption
	Distribution	Cold-Rolled steel plate (kg)	Stainless steel plate (kg)	Aluminum plate (kg)	Low density polyethylene (kg)	Polystyrene (kg)	POM(polyacetal) (kg)	PA66 (Polyamide 66) (kg)	PET (kg)
Product	Quantity	1.49E+01	1.25E-01	2.93E+00	5.04E-01	2.26E+01	7.15E-01	1.16E-01	8.16E+01
	Note								
Product	Classification	Consumption	Consumption	Consumption	Consumption	Consumption	Consumption	Consumption	Process
	Distribution	Phenol resin(PF) (kg)	Butadiene rubber (BR) (kg)	Corrugated cardboard (kg)	Press molding: Iron (kg)	Press molding: Nonferrous metal (kg)	Injection molding (kg)	Blow molding (kg)	Freight by ship (kg·km)
Product	Quantity	2.60E-02	3.42E-01	5.03E+01	6.68E+00	5.09E+01	2.26E+01	6.02E-01	3.87E+05
	Note								
Product	Classification	Consumption	Consumption	Consumption	Consumption	Consumption	Consumption	Consumption	Consumption
	Distribution	Electricity (kWh)	Heavy oil (kg)	Furnace LPG (kg)	Gasoline (kg)	Urban gas (13A) (m3)	Industrial water (kg)	Clean water (kg)	Nitrogen (kg)
Product	Quantity	1.69E+03	4.20E-02	7.43E-01	1.63E-01	9.83E-01	8.00E-03	2.62E+03	3.90E-02
	Note								
Product	Classification	Consumption	Discharge	Process	Process	Process			
	Distribution	Steam (kg)	Sewage processing (kg)	Diesel truck: 4 ton (kg·km)	Landfill: Industrial waste (kg)	Incineration: Industrial waste (kg)			
Product	Quantity	2.00E-03	2.62E+03	2.90E+05	8.10E-01	1.11E+01			
	Note								

Note

## 4.2 Disposition/Recycle information on consumables and replacement parts

Consumables	Classification	Process	Process	Process	Process	Process	Process	Deduction	Deduction
	Distribution	Shredding (kg)	Recycle: to cold-rolled steel (kg)	Recycle: to Aluminum plate (kg)	Recycle: to Thermoplastic pellet (kg)	Recycle: to corrugated cardboard (kg)	Cold-Rolled steel plate (kg)	Stainless steel plate (kg)	Aluminum plate (kg)
Consumables	Quantity	2.75E+01	1.51E+01	2.93E+00	1.25E+01	5.03E+01	1.49E+01	1.30E-01	2.93E+00
	Note								
Consumables	Classification	Deduction	Deduction						
	Distribution	Polystyrene (kg)	Corrugated cardboard (kg)						
Consumables	Quantity	1.16E+01	5.03E+01						
	Note								

Note

## 5. Disposition/Recycle stage information (per product): process method and scenarios

Scenario	Classification	Process	Process	Process	Process	Process	Process	Process	Process
	Distribution	Shredding (kg)	Industrial waste (kg)	Industrial waste (kg)	Diesel truck: 10 ton (kg·km)	Recycle: to cold-rolled steel (kg)	Recycle: to copper plate (kg)	Recycle: to Aluminum plate (kg)	Recycle: to Glass (kg)
Scenario	Quantity	5.88E+01	1.12E+00	1.23E+01	1.39E+04	4.22E+01	2.25E+00	6.05E-01	2.04E+00
	Note								
Scenario	Classification	Process	Process	Process	Deduction	Deduction	Deduction	Deduction	Deduction
	Distribution	Recycle: to Thermoplastic	Recycle: to corrugated	Recycle: to Paper (kg)	Cold-Rolled steel plate (kg)	Electroplated steel Plate (kg)	Hot Dipped steel plate (kg)	Stainless steel plate (kg)	Copper plate (kg)
Scenario	Quantity	1.78E+01	7.11E+00	3.19E-01	3.70E+01	5.31E-01	9.13E-02	1.26E+00	2.25E+00
	Note								
Scenario	Classification	Deduction	Deduction	Deduction	Deduction	Deduction	Deduction	Deduction	Deduction
	Distribution	Aluminum plate (kg)	Glass (kg)	High density polyethylene (kg)	Low density polyethylene (kg)	Polystyrene (kg)	Polycarbonate (kg)	Polycarbonate-ABS (70/30) (kg)	POM(polyacetal) (kg)
Scenario	Quantity	6.05E-01	2.04E+00	8.16E-01	1.58E-01	2.60E+00	1.62E+00	2.55E+00	7.53E-01
	Note								
Scenario	Classification	Deduction	Deduction	Deduction	Deduction				
	Distribution	ABS (kg)	PET (kg)	Corrugated cardboard (kg)	Paper (Western style) (kg)				
Scenario	Quantity	4.70E+00	3.51E-01	7.10E+00	3.19E-01				
	Note								

Note

## 6.

This declaration was produced using Product Category Rule intended for a product model sold in the Japanese market and using the qualitative and quantitative data collected in Japan.

Others