Form 1 (F-01s-02)

Product Environmental Aspects Declaration

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

No. AD-18-E1071-A
Date of publication : Sep./27/2018
Date of modification : Dec./25/2019

TOSHIBA

TOSHIBA TEC CORPORATION
Corporate Quality & Environmental Group
TEL: +81-3-6830-9100

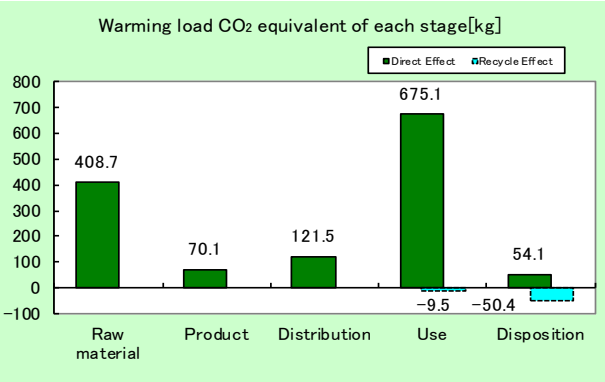
URL http://www.toshibatec.co.jp

e-STUDIO™3515AC

1. Printing Process : Electrophotography (EP)
2. Color : Color and Monochrome(B/W)
3. Printing Speed: 35 Letter pages per minute (Color and B/W)
4. Maximum Paper Size : Ledger Size
5. Duplex copying : Standard

Consumption and discharge in a life cycle	All the stage sum totals
Global Warming (CO_2 equivalent)	1329.5kg (1269.6kg)
Acidification (SO_2 equivalent)	2.79kg (2.70kg)
Energy resources (crude oil equivalent)	24,136MJ (22,998MJ)

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



The above environmental load is calculated assuming that the usage period is 5 years and the total number of printed sheets is 735,000 pages. Also, the printing paper is not included in the calculation range. Outside the red frame of the photo is not included in the LCA calculation because it is the accessories (document feeder and paper feed unit).

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 homepage at http://www.ecoleaf-jemai.jp/eng/pcr.html
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: Hiromi Horikawa
Programme operator: Sustainable Management Promotion Organization ecoleaf@sumpo.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.

Form 2-B(F-02Bs-02)

Product Environmental Information Data Sheet (PEIDS)

Document control no.	F-02Bs-02
Product vendor	TOSHIBA TEC CORPORATION
EcoLeaf registration no.	AD-18-E1071-A

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

PCR name	EP and IJ printer		Product type	TOSHIBA MFP e-STUDIO3515AC			
PCR code	AD-04	Product weight (kg)	77.5	Package (kg)	15	Weight total (kg)	92.5

In/Out items \ Life Cycle Stage					Unit	Production		Distribution	Use	Disposition	Recycle Effect
						Raw material	Product				
Energy Consumption					MJ	7.20E+03	1.21E+03	1.66E+03	1.40E+04	1.05E+02	-1.14E+03
					Mcal	1.72E+03	2.89E+02	3.96E+02	3.33E+03	2.50E+01	-2.72E+02
Inventory analyses	Impact by Resource Consumption	Exhaustible resources	Energy resources	Coal	kg	5.63E+01	7.05E+00	3.87E-03	5.90E+01	3.96E-01	-1.31E+01
				Crude oil (for fuel)	kg	6.92E+01	1.24E+01	3.62E+01	1.25E+02	1.55E+00	-7.37E+00
				LNG	kg	1.33E+01	3.59E+00	5.59E-01	3.21E+01	2.17E-01	-5.98E-01
				Uranium content of an ore	kg	1.34E-03	4.77E-04	2.63E-07	3.58E-03	2.68E-05	-9.71E-07
			Mineral resources	Crude oil (for material)	kg	2.50E+01	0	0	3.49E+01	0	-8.06E+00
				Iron content of an ore	kg	4.17E+01	0	0	4.66E+00	0	-1.44E+01
				Cu content of an ore	kg	1.74E+00	0	0	1.46E-02	0	-2.34E-01
				Al content of an ore	kg	9.09E-01	0	0	9.77E-01	0	-6.20E-01
				Ni content of an ore	kg	2.45E-01	0	0	5.50E-03	0	-2.93E-04
				C content of an ore	kg	3.44E-01	0	0	9.05E-03	0	-5.35E-03
				Mn content of an ore	kg	2.44E-01	0	0	2.56E-02	0	-5.40E-03
				Pb content of an ore	kg	9.40E-02	0	0	1.19E-03	0	-1.90E-02
				Sn content of an ore	kg	0	0	0	0	0	0
				Zn content of an ore	kg	9.25E-01	0	0	1.17E-02	0	-1.87E-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	3.47E+00	0	0	8.25E-02	0	-8.30E-01
				Halite	kg	1.44E+01	9.57E-05	0	1.65E-01	3.43E-02	-2.42E+00
				Limestone	kg	9.55E+00	0	0	2.38E+00	9.21E-01	-2.60E+00
				Natural soda ash	kg	3.07E-01	0	0	2.63E-03	0	-7.80E-02
		Renewable resources		Wood	kg	2.41E+01	0	0	5.80E+01	0	0
				Water	kg	3.21E+04	5.35E+03	2.91E+00	6.10E+04	3.33E+02	-1.29E+03
	Impact by Emission/ Discharge to the environment	to Atmosphere		CO_2	kg	3.99E+02	6.91E+01	1.18E+02	6.67E+02	5.41E+01	-5.83E+01
				Sox	kg	2.56E-01	4.90E-02	9.21E-02	4.73E-01	3.17E-02	-4.20E-02
				Nox	kg	4.72E-01	7.86E-02	9.15E-01	1.13E+00	1.04E-01	-7.76E-02
				N_2O	kg	3.39E-02	3.45E-03	1.48E-02	3.11E-02	1.54E-04	-6.05E-03
				CH4	kg	3.57E-03	1.27E-03	7.02E-07	9.55E-03	7.17E-05	8.86E-06
				CO	kg	5.51E-02	1.59E-02	3.07E-01	2.79E-01	2.64E-02	-1.11E-02
				NMVOC	kg	6.98E-03	2.50E-03	1.37E-06	1.87E-02	1.40E-04	1.70E-05
				CxHy	kg	1.63E-02	1.82E-03	2.23E-02	2.26E-02	1.01E-03	-3.16E-03
				Dust	kg	5.33E-02	6.58E-03	7.90E-02	8.51E-02	5.91E-03	-1.16E-02
		to Water system	to Water domain	BOD	kg	-	-	-	-	-	-
				COD	kg	-	-	-	-	-	-
				N total	kg	-	-	-	-	-	-
				P total	kg	-	-	-	-	-	-
				SS	kg	-	-	-	-	-	-
		to Soil system		Unspecified Solid Waste	kg	3.20E+00	2.72E-04	0	9.50E+00	3.61E+01	-6.19E-01
				Slag	kg	1.49E+01	0	0	1.45E+00	0	-4.57E+00
				Sludge	kg	1.40E+00	0	0	2.10E+00	0	-1.33E+00
				Low level radio-active waste	kg	9.38E-04	3.33E-04	1.84E-07	2.50E-03	1.87E-05	-7.16E-07
Impact assessment	by Resource Consumption	Exhaustible resources		Energy resources (crude oil equivalent)	kg	1.32E+02	2.51E+01	3.69E+01	2.31E+02	2.28E+00	-1.65E+01
				Mineral resources (Iron ore equivalent)	kg	6.68E+02	0	0	3.54E+01	0	-9.10E+01
	by Emission / Discharge to	to Atmosphere		Global Warming (CO_2 equivalent)	kg	4.09E+02	7.01E+01	1.22E+02	6.75E+02	5.41E+01	-5.99E+01
				Acidification (SO_2 equivalent)	kg	5.87E-01	1.04E-01	7.33E-01	1.27E+00	1.04E-01	-9.63E-02
				–	–	–	–	–	–	–	–
				–	–	–	–	–	–	–	–
		–		–	–	–	–	–	–	–	–

[Notes for readers: EcoLeaf common rules]

I. Stage related

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

(1) "Raw material" production: consists of mining, transportation and raw material production.

(2) "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_2 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]

Form 3(F-03s-02)

Product data sheet

(Input data and parameters for LCA)

Document control no.	F-03s-02
Product vendor	TOSHIBA TEC CORPORATION
EcoLEaf registration no.	AD-18-E1071-A

PCR name	EP and IJ printer (PCR-ID:AD-04)	Product type	TOSHIBA MFP e-STUDIO3515AC					
LCA/LCIA in units of:	1	Product weight (kg)	77.5	Package (kg)	15	Weight total (kg)	92.5	

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

	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	3.67E+01	Paper	8.73E+00	Press molding:Iron (kg)	3.72E+01	Parts assembly (kg)	1.04E+00
	Stainless steel	1.54E+00	Wood	5.46E+00	Press molding: Nonferrous metal (kg)	1.68E+01		
	Other metals	2.27E+00	Semiconductor substrate	3.44E+00	Injection molding (kg)	2.82E+01		
	Aluminum	6.17E-01	Medium-sized motor	2.91E+00	Glass molding (kg)	2.64E+00		
	Glass	2.64E+00						
	Thermoplastic resin	2.75E+01						
	Thermosetting resin	4.27E-01						
	Rubber	2.60E-01						
	Subtotal	7.20E+01	Subtotal	2.05E+01				
	Total			9.25E+01	Subtotal	8.49E+01	Subtotal	1.04E+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_2, NO_2 equivalent.

Consumption	Classification	Energy	Energy	Energy	Material	Energy	Material	Material	Material
	Distribution	Electricity (kWh)	Diesel oil as fuel (kg)	Heavy oil as fuel (kg)	Diesel truck: 10 ton (kg·km)	Furnace LPG (kg)	Industrial water (kg)	Clean water (kg)	Steam (kg)
	Quantity	2.27E+01	1.05E-02	3.40E-02	1.40E+04	1.92E-01	3.20E-02	1.65E+01	2.35E-04
	Note								
	Classification	Material	Material	Material					
	Distribution	Nitrogen (kg)	Diesel truck: 4 ton (kg·km)	Freight by ship (kg·km)					
	Quantity	4.11E-03	2.33E+02	2.41E+05					
	Note								
Emission/Discharge	Classification	Water system							
	Distribution	Sewage processing (kg)							
	Quantity	1.65E+01							
	Note								

Note : The impact of transportation from China to Indonesia is also included.

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)
	Quantity	9.25E+01	1.30E+01	4.81E+01	2.50E+03	9.25E+01	1.41E+04	1.00E+02	1.31E+06
	Note								
	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)				
	Conditions	Mass(kg)	Distance (km)	Loading Ratio(%w)	Load(kg·km)				
	Quantity	9.25E+01	3.30E+03	4.81E+01	6.35E+05				
	Note								

Note : The main body product is assumed to be transported from Indonesia to USA .

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)	Electroplated steel Plate (kg)	Stainless steel plate (kg)	Aluminum plate (kg)	High density polyethylene (kg)	Low density polyethylene (kg)	Polystyrene (kg)	POM (polyacetal) (kg)
	Quantity	1.47E+00	3.02E+00	3.42E-02	9.24E-01	6.15E+00	1.57E-01	8.37E+00	3.17E-01
	Note								
	Classification	Consumption	Consumption	Consumption	Consumption	Consumption	Consumption	Consumption	Consumption
	Distribution	PA66 (Polyamide 66) (kg)	PET (kg)	Phenol resin (PF) (kg)	Corrugated cardboard (kg)	Assembled circuit board (kg)	Press molding: Iron (kg)	Press molding: Nonferrous metal (kg)	Injection molding (kg)
	Quantity	5.80E-02	3.03E+01	1.30E-02	2.72E+01	1.06E-01	3.05E+00	2.72E+01	1.51E+01
	Note								
	Classification	Process	Process	Consumption	Consumption	Consumption	Consumption	Consumption	Discharge
	Distribution	Diesel truck: 4 ton (kg·km)	Freight by ship (kg·km)	Electricity (kWh)	Heavy oil as fuel (kg)	Furnace LPG (kg)	Industrial water (kg)	Clean water (kg)	Sewage processing (kg)
	Quantity	3.00E+05	2.99E+05	8.19E+02	4.07E-03	2.46E-01	3.78E-03	6.28E+02	1.80E+02
	Note								
	Classification	Consumption	Consumption						
	Distribution	Steam (kg)	Nitrogen (kg)						
	Quantity	7.03E-04	1.23E-02						
	Note								

Note : The periodical replacement parts are assumed to be transported from China to USA.

4.2 Disposition/Recycle information on consumables and replacement parts

Consumables	Classification	Process	Process	Process	Process	Process	Process	Process	Process
	Distribution	Shredding (kg)	Landfill: Industrial waste (kg)	Incineration: Industrial waste (kg)	Incineration to landfill (as ash) (kg)	Landfill: General waste (kg)	Sorting: Iron (by magnetic force) (kg)	Sorting: Nonferrous metal (by eddy current with wind force) (kg)	Sorting: Plastics (by relative density difference in water) (kg)
	Quantity	5.08E+01	5.17E-01	1.67E+01	2.73E+01	3.27E+00	9.37E+00	7.65E+00	7.30E+00
	Note								
	Classification	Process	Process	Process	Deduction	Deduction	Deduction		
	Distribution	Recycle: to cold-rolled steel (kg)	Recycle: to Aluminum plate (kg)	Recycle: to Thermoplastic pellet (kg)	Cold-Rolled steel plate (kg)	Aluminum plate (kg)	Polystyrene (kg)		
	Quantity	1.63E+00	3.51E-01	5.38E+00	1.47E+00	3.51E-01	1.22E+00		
	Note								

Note : The values in the above table are calculated based on actual results in Japan.

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

Scenario	Classification	Process	Process	Process	Process	Process	Process	Process	Process
	Distribution	Landfill: Industrial waste (kg)	Incineration: Industrial waste (kg)	Incineration: Biomass (paper) (kg)	Shredding (kg)	Incineration to landfill (as ash) (kg)	Landfill: General waste (kg)	Diesel truck: 10 ton (kg·km)	Diesel truck: 4 ton (kg·km)
	Quantity	3.84E+00	8.39E+00	2.18E+00	8.95E+01	2.75E+01	2.80E+01	3.29E+04	5.37E+03
	Note								
	Classification	Process	Process	Process	Process	Process	Process	Process	Process
	Distribution	Sorting: Iron (by magnetic force) (kg)	Sorting: Nonferrous metal (by eddy current with wind force) (kg)	Sorting: Plastics (by relative density difference in water) (kg)	Recycle: to cold-rolled steel (kg)	Recycle: to copper plate (kg)	Recycle: to Aluminum plate (kg)	Recycle: to Glass (kg)	Recycle: to Thermoplastic pellet (kg)
	Quantity	2.94E+01	1.49E+01	1.38E+01	1.38E+01	7.75E-01	2.35E-01	9.30E-01	9.83E+00
	Note								
	Classification	Deduction	Deduction	Deduction	Deduction	Deduction	Deduction	Deduction	
	Distribution	Cold-Rolled steel plate (kg)	Copper plate (kg)	Aluminum plate (kg)	Polystyrene (kg)	Polycarbonate-ABS (70/30) (kg)	ABS (kg)	Glass (kg)	
	Quantity	1.24E+01	7.75E-01	2.35E-01	2.23E+00	2.20E+00	2.98E+00	9.30E-01	
	Note								

Note : The values in the above table are calculated based on actual results in Japan.

6. Others

This Product is transported directly from China to USA too.