Form 1(F-01s-02)

Product Environmental Aspects Declaration

No. AD-16-E748
Date of publication
04/20/2016

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

TOSHIBA
Leading Innovation

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

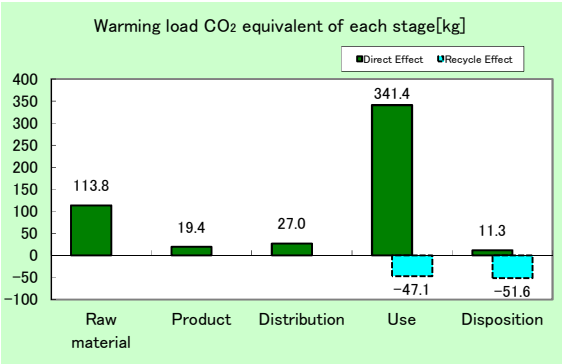
e-STUDIO 2803AM

■Marking tecnologies : Electrophotographic Printer(EP)
■Printing Speed: 28 LTR Pages per minutes (B/W)
■Maximum Paper Size : LD
■Duplex copying : Options
The number of copies when used for 5 years is 470,400

Paper Feed Unit and Desk are optional

Consumption and discharge in a life cycle	All the stage sum totals
Global Warming (CO_2 equivalent)	513.058kg (414.311kg)
Acidification (SO_2 equivalent)	0.933kg (0.744kg)
Energy resources (crude oil equivalent)	10,353MJ (8,396MJ)

※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/ 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

* 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-16-E748

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

PCR name	EP and IJ printer		Product type	TOSHIBA MFP e-STUDIO2803AM			
PCR code	AD-04	Product weight (kg)	24.3	Package (kg)	6.6	Weight total (kg)	30.9

In/Out items \ Life Cycle Stage					Unit	Production		Distribution	Use	Disposition	Recycle Effect
						Raw material	Product				
Energy Consumption					MJ	2.29E+03	3.55E+02	3.66E+02	7.32E+03	2.54E+01	-1.96E+03
					Mcal	5.46E+02	8.47E+01	8.74E+01	1.75E+03	6.06E+00	-4.68E+02
Inventory anaiyses	Impact by Resource Consumption	Exhaustible resources	Energy resources	Coal	kg	1.28E+01	2.47E+00	8.55E-04	3.03E+01	8.69E-02	-1.28E+01
				Crude oil (for fuel)	kg	2.21E+01	2.84E+00	8.00E+00	6.44E+01	3.92E-01	-1.77E+01
				LNG	kg	3.42E+00	1.24E+00	1.23E-01	1.64E+01	4.83E-02	-1.63E+00
				Uranium content of an ore	kg	3.22E-04	1.67E-04	5.80E-08	1.77E-03	5.88E-06	-8.26E-05
			Mineral resources	Crude oil (for material)	kg	1.31E+01	0	0	2.23E+01	0	-1.42E+01
				Iron content of an ore	kg	7.63E+00	0	0	3.11E+00	0	-1.01E+01
				Cu content of an ore	kg	3.76E-01	0	0	0	0	-1.86E-01
				Al content of an ore	kg	2.18E-01	0	0	6.63E-01	0	-8.33E-01
				Ni content of an ore	kg	3.15E-01	0	0	1.94E-03	0	-3.15E-01
				C content of an ore	kg	4.29E-01	0	0	3.70E-03	0	-4.30E-01
				Mn content of an ore	kg	8.78E-02	0	0	1.68E-02	0	-5.05E-02
				Pb content of an ore	kg	2.12E-02	0	0	0	0	-1.51E-02
				Sn content of an ore	kg	0	0	0	0	0	0
				Zn content of an ore	kg	2.08E-01	0	0	0	0	-1.48E-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	1.23E+00	0	0	3.66E-02	0	-9.61E-01
				Halite	kg	7.30E+00	0	0	1.29E+00	6.66E-03	-3.72E+00
				Limestone	kg	1.92E+00	0	0	1.41E+00	4.31E-01	-1.92E+00
				Natural soda ash	kg	1.23E-01	0	0	0	0	-9.85E-02
			Biomass resources	Wood	kg	1.05E+01	0	0	2.50E+01	0	-3.54E+01
				Water	kg	7.62E+03	1.87E+03	6.45E-01	2.72E+04	7.24E+01	-4.14E+03
	Impact by Emission/Discharge to the environment	to Atmosphere		CO2	kg	1.11E+02	1.94E+01	2.60E+01	3.35E+02	1.13E+01	-9.58E+01
				Sox	kg	7.63E-02	1.47E-02	1.75E-02	2.36E-01	6.46E-03	-7.57E-02
				Nox	kg	1.55E-01	1.17E-02	1.53E-01	4.88E-01	2.45E-02	-1.62E-01
				N2O	kg	1.11E-02	2.74E-04	3.95E-03	2.21E-02	4.34E-05	-1.08E-02
				CH4	kg	8.57E-04	4.47E-04	1.55E-07	4.72E-03	1.57E-05	-2.03E-04
				CO	kg	1.57E-02	2.85E-03	4.54E-02	8.82E-02	5.76E-03	-1.67E-02
				NMVOC	kg	1.67E-03	8.76E-04	3.03E-07	9.25E-03	3.09E-05	-3.97E-04
				CxHy	kg	5.30E-03	5.71E-05	4.16E-03	1.19E-02	2.37E-04	-5.10E-03
				Dust	kg	1.69E-02	6.33E-04	1.39E-02	4.11E-02	9.04E-04	-1.74E-02
		to Water system	to Water domain	BOD	kg	-	-	-	-	-	-
				COD	kg	-	-	-	-	-	-
				N total	kg	-	-	-	-	-	-
				P total	kg	-	-	-	-	-	-
				SS	kg	-	-	-	-	-	-
					kg	-	1.70E-02	-	-	-	-
		to Soil system		Unspecified Solid Waste	kg	1.09E+00	6.41E-07	0	1.05E+00	6.20E-01	-6.51E-01
				Slag	kg	3.01E+00	0	0	9.42E-01	0	-3.44E+00
				Sludge	kg	3.57E-01	0	0	1.42E+00	0	-1.79E+00
				Low level radio-active waste	kg	2.26E-04	1.17E-04	4.05E-08	1.24E-03	4.12E-06	-5.78E-05
Impact assessment	by Res		Energy resources	Energy resources (crude oil equivalent)	kg	3.71E+01	7.29E+00	8.15E+00	1.18E+02	5.54E-01	-2.85E+01
			Mineral resources	Mineral resources (Iron ore equivalent)	kg	3.56E+02	0	0	1.88E+01	0	-3.24E+02
	by Emission/Discharge to environment	to Atmosphere		Global Warming (CO2 equivalent)	kg	1.14E+02	1.94E+01	2.70E+01	3.41E+02	1.13E+01	-9.87E+01
				Acidification (SO2 equivalent)	kg	1.85E-01	2.29E-02	1.24E-01	5.78E-01	2.36E-02	-1.89E-01
				Ozone Depletion (CFC-11 equivalent)	kg	-	-	-	-	-	-
				Photochemical Oxidant	kg	-	-	-	-	-	-
				Eutrophication (Phosphate equivalent)	kg	-	-	-	-	-	-

[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]

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.

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-16-E748

PCR name	EP and IJ printer		Product type	TOSHIBA MFP e-STUDIO2803AM				
LCA/LCIA in units of:	1		Product weight (kg)	24.3	Package (kg)	6.6	Weight total (kg)	30.9

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	6.12E+00	Paper	4.90E+00	Press molding:Iron (kg)	6.69E+00	Parts assembly (kg)	2.45E-01
	Stainless steel	1.99E+00	Semiconductor substrate	5.62E-01	Press molding:Nonferrous metal (kg)	5.49E+00		
	Other metals	6.07E-01	Medium-sized motor	5.80E-01	Injection molding (kg)	1.87E+01		
	Aluminum	1.57E-01						
	Glass	1.31E+00						
	Thermoplastic resin	1.41E+01						
	Thermosetting resin	1.38E-01						
	Rubber	4.16E-01						
	Subtotal	2.49E+01	Subtotal	6.04E+00				
	Total			3.09E+01	Subtotal	3.09E+01	Subtotal	2.45E-01

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				
	Distribution	Electricity (kWh)	Furnace LPG (kg)	Heavy oil as fuel (kg)	Industrial water (kg)				
	Quantity	7.20E+00	4.70E-02	5.00E-03	1.70E-02				
	Note								
Emission/Discharge	Classification	Water system							
	Distribution	Sewage processing (kg)							
	Quantity	1.70E-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)
	Quantity	3.09E+01	1.00E+03	3.34E+01	9.26E+04	3.09E+01	1.17E+04	1.00E+02	3.61E+05
	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)	PET (kg)	Expandable hard polyurethane (Hard) (kg)
	Quantity	3.00E+00	1.19E-02	6.27E-01	1.04E-01	1.57E+01	1.52E-02	9.13E+00	8.84E-01
	Note								
	Classification	Consumption	Consumption	Consumption	Consumption	Consumption	Process	Consumption	Consumption
	Distribution	Corrugated cardboard (kg)	Paper (Western style) (kg)	Press molding: Nonferrous metal (kg)	Injection molding (kg)	Blow molding (kg)	Freight by ship (kg·km)	Electricity (kWh)	LNG (kg)
	Quantity	1.17E+01	1.70E-02	1.19E+01	1.57E+01	1.04E-01	5.73E+05	4.12E+02	1.37E-01
	Note								
	Classification	Consumption	Consumption	Consumption	Discharge	Process	Process	Process	
	Distribution	Urban gas (13A) (m3)	Industrial water (kg)	Clean water (kg)	Sewage processing (kg)	Diesel truck: 4 ton (kg·km)	Landfill: Industrial waste (kg)	Incineration: Industrial waste (kg)	
	Quantity	1.03E+00	2.10E+01	1.11E+02	1.32E+02	6.91E+04	5.50E-01	7.55E+00	
	Note								

Note

4.2 Disposition/Recycle information on consumables and replacement parts

Consumables	Classification	Process	Process	Process	Process	Process	Deduction	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)	Aluminum plate (kg)	Polystyrene (kg)
	Quantity	1.16E+01	3.01E+00	6.30E-01	8.57E+00	1.17E+01	3.00E+00	6.30E-01	8.05E+00
	Note								
	Classification	Deduction							
	Distribution	Corrugated cardboard (kg)							
	Quantity	1.17E+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)	Landfill: Industrial waste	Incineration: Industrial waste	Diesel truck: 10 ton (kg·km)	Recycle: to cold-rolled steel	Recycle: to copper plate	Recycle: to Aluminum plate	Recycle: to Glass (kg)
	Quantity	2.96E+01	6.20E-01	6.65E+00	9.26E+03	8.70E+00	6.15E-01	1.57E-01	1.17E+00
	Note								
	Classification	Process	Process	Process	Deduction	Deduction	Deduction	Deduction	Deduction
	Distribution	Recycle: to Thermoplastic pellet (kg)	Recycle: to corrugated cardboard (kg)	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)
	Quantity	8.11E+00	4.75E+00	1.44E-01	2.00E-01	5.86E+00	6.75E-02	1.99E+00	6.15E-01
	Note								
	Classification	Deduction	Deduction	Deduction	Deduction	Deduction	Deduction	Deduction	Deduction
	Distribution	Aluminum plate (kg)	Glass (kg)	Polypropylene (kg)	Polystyrene (kg)	Polycarbonate (kg)	Polycarbonate-ABS (70/30) (kg)	ABS (kg)	PET (kg)
	Quantity	1.57E-01	1.17E+00	9.71E-01	1.48E+00	5.04E-01	2.72E+00	8.93E-01	3.74E-01
	Note								
	Classification	Deduction	Deduction						
	Distribution	Corrugated cardboard (kg)	Paper (Western style) (kg)						
	Quantity	4.75E+00	1.44E-01						
	Note								

Note

Product data sheet

（Input data and parameters for LCA）

6. Others.

The following basic units are used in the LCA.

The sources of these basic units are provided in the Eco Leaf Environmental Label LCI Common Basic Unit (V2.1).
URL; http://www.ecoleaf-jemai.jp/application/data/basicunit_en20150601.pdf

NO.	Base Unit Name	Unit	Field
1	Cold-Rolled steel plate	kg	Material Production (Metal)
2	Electroplated steel Plate	kg	
3	Hot Dipped steel plate	kg	
6	Stainless Steel Plate	kg	
7	Cu Plate	kg	
8	Al Plate	kg	
16	Glass	kg	Material Production (Inorganic Chemistry)
26	PE (High-density)	kg	Material Production (Synthetic Resin)
27	PE (Low-density)	kg	
28	PP	kg	
29	PS	kg	
31	PBT (PolybutyleneTerephthalate)	kg	
32	PC (Polycarbonate)	kg	
33	PC-ABS resin (70/30)	kg	
34	POM (Polyacetal)	kg	
36	ABS	kg	
38	MMA Resin	kg	
39	PA66 (Polyamide 66)	kg	
40	PET	kg	
42	Rigid Urethane Foam	kg	
43	Soft Urethane Foam (forAutomobile	kg	
48	Nitrile-butadiene rubber(NBR)	kg	Material Production(Rubber)
49	Styrene-butadiene rubber(SBR)	kg	
67	Corrugated cardboard	kg	Material Production (Wood and Paper)
69	Paper (Western style)	kg	
76	Assembled circuit board	kg	Parts Production (General)
78	Medium-sized motor	kg	
85	Press Forming: Iron	kg	Processing
86	Press Forming: Nonferrousmetal	kg	
87	Injection molding	kg	
88	Blow molding	kg	
90	Parts assembly	kg	Assembly
92	4-ton Truck	kg.km	Transportation
93	10-ton Truck	kg.km	
97	Freight by ship	kg.km	
99	Electric Power	kg	Electric Power and Fuel
100	Heavy oil as fuel	kg	
108	Furnace LPG	kg	
117	Town Gas m3	m3	
119	LNG	kg	
125	Industrial water	kg	Utility (Water)
126	Clean water (kg)	kg	
129	Shredding	kg	Disposal and Recycling(Crushing and Sorting)
134	Incineration: Industrialwaste	kg	Disposal and Recycling(Incineration and Landfill)
137	Landfill: Industrial waste	kg	
138	Recycle: to cold-rolled steel	kg	Disposal and Recycling (Regeneration)
139	Recycle: to copper plate	kg	
140	Recycle: to Aluminum plate	kg	
141	Recycle: to Thermoplasticpellet	kg	
142	Recycle: to corrugatedcardboard	kg	
144	Recycle: to Paper	kg	
145	Recycle: to Glass	kg	
146	Sewage processing	kg	

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.