Form 1（F-01s-02）

Product Environmental Aspects Declaration

EP and IJ printer（PCR-ID:AD-04）

No. AD-13-E324
Date of publication
12/20/2013

KYOCERA

http://www.kyoceradocumentsolutions.co.jp/

Contact us
KYOCERA Document Solutions Inc.
Corporate CSR Division
TEL : +81-6-6764-3760
FAX : +81-6-6764-3780

Color MFD
TASKalfa 4551ci

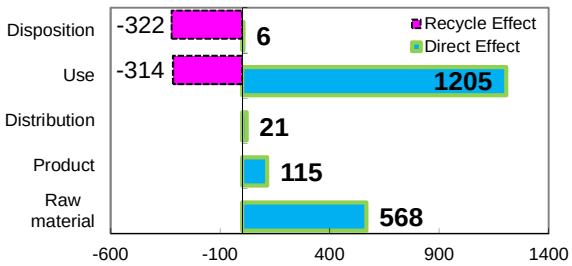
Making Technology:Electrophotographic Printer（EP)
Printng Speed: Monoclome 45 Pages per minute in A4
Color 45 Pages per minute in A4
Maximum priting paper: A3
Duplex function: Standard

【The Environmental load for life-cycle】

Consumption and discharge in a life cycle	All the stage sum totals
Global Warming (CO_2 equivalent)	1916kg (1280kg)
Acidification (SO_2 equivalent)	2.95kg (1.73kg)
Energy resources (crude oil equivalent)	40,389MJ (28,244MJ)

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

Warming load CO_2 equivalent of each stage[kg]



Lower part of main body is paper feeder〔PF-730(B)〕, left part is finishe〔DF-770(C) 〕as optional equipment. It isn't included in the range of calculation.

Use stage: Printing Mono 607,500/Col 607,500 A4 sheets in 5 years.
The environmental load of sheet in"Use" stage is not included in above data.

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 Specification Criteria. Visit EcoLeaf website under JEMAI homepage at http://www.jemai.or.jp/ecoleaf_e/ 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]

- ●Conformed to the International ENERGY STAR® Program.
- ●Manufactured at ISO14001 certified factories.
- ●Plastic housing and outer package: halogenated flame retardants are not

PCR review was conducted by : PCR Deliberation Committee,January 01,2008,Name of reprentative：Youji Uchiyama,
Independent verification of the declaration and data, according to ISO14025:2006 □internal ■external
Third party verifier: < name of the third party verifier *> Hiroo Sakazaki

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-Type Ⅲ category.

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

Product Environmental Information Data Sheet (PEIDS)

Document control no.	F-02Bs-02
Product vendor	KYOCERA Document Solutions Inc.
EcoLeaf registration no.	AD-13-E324

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

PCR name	EP and IJ Printer		Product type	TASKalfa 4551ci			
PCR code	AD-04	Product weight (kg)	109.86	Package (kg)	25.67	Weight total (kg)	135.53

In/Out items \ Life Cycle Stage					Unit	Production		Distribution	Use	Disposition	Recycle Effect
						Raw material	Product				
Energy Consumption					MJ	9.66E+03	2.24E+03	2.81E+02	2.81E+04	7.23E+01	-1.21E+04
					Mcal	2.31E+03	5.36E+02	6.71E+01	6.72E+03	1.73E+01	-2.90E+03
Inventory anaiyses	Impact by Resource Consumption	Exhaustible resources	Energy resources	Coal	kg	8.64E+01	1.44E+01	6.56E-04	1.26E+02	4.06E-02	-9.20E+01
				Crude oil (for fuel)	kg	9.02E+01	1.71E+01	6.14E+00	2.31E+02	1.48E+00	-1.10E+02
				LNG	kg	1.71E+01	7.20E+00	9.48E-02	7.05E+01	4.24E-02	-1.34E+01
				Uranium content of an ore	kg	1.58E-03	9.72E-04	4.45E-08	6.90E-03	2.75E-06	-5.23E-04
			Mineral resources	Crude oil (for material)	kg	3.11E+01	0	0	8.65E+01	0	-7.50E+01
				Iron content of an ore	kg	6.50E+01	0	0	1.60E+01	0	-7.61E+01
				Cu content of an ore	kg	2.02E+00	0	0	2.26E-01	0	-3.36E+00
				Al content of an ore	kg	3.63E+00	0	0	3.46E+00	0	-6.70E+00
				Ni content of an ore	kg	6.03E-01	0	0	7.07E-01	0	-1.31E+00
				C content of an ore	kg	8.38E-01	0	0	9.63E-01	0	-1.80E+00
				Mn content of an ore	kg	4.19E-01	0	0	1.96E-01	0	-2.51E-01
				Pb content of an ore	kg	1.01E-01	0	0	1.50E-02	0	-2.79E-01
				Sn content of an ore	kg	0	0	0	0	0	0
				Zn content of an ore	kg	1.01E+00	0	0	1.74E-01	0	-2.79E+00
				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	3.35E+00	0	0	3.00E-01	0	-2.89E+00
				Halite	kg	1.71E+01	0	0	2.57E+00	8.37E-04	-1.73E+01
				Limestone	kg	1.38E+01	0	0	3.28E+00	5.43E-02	-1.32E+01
				Natural soda ash	kg	2.61E-01	0	0	9.69E-03	0	-1.71E-01
				Wood	kg	5.34E+01	0	0	1.94E+02	0	-2.47E+02
				Water	kg	4.29E+04	1.14E+04	4.98E-01	9.85E+04	3.16E+01	-2.92E+04
	Impact by Emission/Discharge to the environment	to Atmosphere		CO2	kg	5.56E+02	1.14E+02	2.00E+01	1.18E+03	6.16E+00	-6.19E+02
				Sox	kg	4.23E-01	8.64E-02	1.04E-02	8.57E-01	6.52E-03	-5.18E-01
				Nox	kg	6.96E-01	7.35E-02	6.55E-02	1.34E+00	7.24E-02	-1.01E+00
				N2O	kg	4.49E-02	1.76E-03	3.76E-03	9.56E-02	8.84E-05	-6.33E-02
				CH4	kg	4.16E-03	3.00E-02	1.19E-07	1.84E-02	7.35E-06	-1.26E-03
				CO	kg	9.14E-02	1.67E-02	1.13E-02	2.05E-01	2.75E-02	-1.14E-01
				NMVOC	kg	8.13E-03	5.09E-03	2.33E-07	3.60E-02	1.44E-05	-2.47E-03
				CxHy	kg	2.15E-02	5.35E-04	2.39E-03	2.99E-02	1.43E-03	-3.02E-02
				Dust	kg	7.64E-02	4.36E-03	6.95E-03	9.00E-02	5.65E-03	-1.05E-01
		to Water system	to Water domain	BOD	kg	-	2.55E-03	-	-	-	-
				COD	kg	-	-	-	-	-	-
				N total	kg	-	-	-	-	-	-
				P total	kg	-	-	-	-	-	-
				SS	kg	-	-	-	-	-	-
		to Soil system		Unspecified Solid Waste	kg	4.67E+00	2.00E-02	0	3.70E+01	2.74E-05	-7.45E+00
				Slag	kg	2.20E+01	0	0	5.59E+00	0	-2.71E+01
				Sludge	kg	7.04E+00	0	0	7.33E+00	0	-1.44E+01
				Low level radio-active waste	kg	1.11E-03	6.79E-04	3.11E-08	4.81E-03	1.92E-06	-3.65E-04
Impact assessment	by Res			Energy resources (crude oil equivalent)	kg	1.79E+02	4.29E+01	6.25E+00	4.54E+02	1.58E+00	-1.89E+02
				Mineral resources (Iron ore equivalent)	kg	1.04E+03	0	0	6.96E+02	0	-2.19E+03
	by Emission / Discharge to environment	to Atmosphere		Global Warming (CO2 equivalent)	kg	5.68E+02	1.15E+02	2.10E+01	1.21E+03	6.18E+00	-6.36E+02
				Acidification (SO2 equivalent)	kg	9.10E-01	1.38E-01	5.63E-02	1.79E+00	5.72E-02	-1.22E+00
				Ozone Depletion (CFC-11 equivalent)	kg	0	0	0	0	0	0
				Photochemical Oxidant	kg	4.33E-02	4.34E-03	3.79E-03	6.38E-02	2.89E-03	-5.60E-02
				Eutrophication (Phosphate equivalent)	kg	0	0	0	0	0	0

[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]

1.We include package and attached articles, such as CD-ROM, operation manual in the product weight. Toner container as standard is included in the use stage, not in the product weight.

2.Production stage: Environmental impacts on main product, toner supplied with and drum are included in this stage. Production of main product is included as China production. Toner and drum are included as Japan production.

3.Transportation stage: Marine transport distance of a main product is 2,600km and domestic transport distance based on PCR provisions is 100km.

4.Use stage: Based on PCR provision, impact on 607,500 sheets monochrome printing and 607,500 sheets color printing by user for five years is considered.

5.Disposal/Recycle: We have calculated on the basis of a performance-based recycle scenario.

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	KYOCERA Document Solutions Inc.
EcoLEaf registration no.	AD-13-E324

PCR name	EP & IP Printer(PCR-ID:AD-04)	Product type	TASKalfa 4551ci				
LCA/LCIA in units of:	1 Unit	Product weight (kg)	109.86	Package (kg)	25.67	Weight total (kg)	135.53

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	Carbon steel(kg)	5.73E+01	Rrubber (kg)	9.64E-02	Press molding:Iron (kg)	6.11E+01	Parts assembly (kg)	1.35E+02
	SUS (kg)	3.81E+00	Paper (kg)	2.49E+01	Press molding:Nonferrous metal (kg)	5.28E+00		
	Cu (kg)	2.40E+00	Assembled circuit board (kg)	3.63E+00	Injection molding (kg)	3.40E+01		
	Al (kg)	3.10E+00	Medium-sized motor (kg)	4.01E+00	Blow molding (kg)	1.61E-01		
	Other metals (kg)	2.75E-02			Glass molding (kg)	2.04E+00		
	Glass (kg)	2.04E+00						
	Thermoplastics resin (kg)	3.37E+01						
	thermosetting resin (kg)	4.47E-01						
	Subtotal	1.03E+02	Subtotal	3.27E+01				
	Total			1.36E+02	Subtotal	1.03E+02	Subtotal	1.35E+02

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	Material	Energy	Energy				
	Distribution	Electricity (kWh)	Industrial water (kg)	Heavy oil as fuel (kg)	Gasoline as fuel (kg)				
	Quantity	1.17E+02	5.29E+02	7.92E-01	3.27E-02				
	Note								
Emission / Discharge	Classification	Water system	Atmosphere						
	Distribution	BOD	CH4						
	Quantity	2.55E-03	2.74E-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	1.36E+02	1.00E+02	6.51E+01	2.08E+04	1.36E+02	2.60E+03	1.00E+02	3.52E+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	Process	Process	Process	Process	Process	Process
	Distribution	Electricity (kWh)	Industrial water (kg)	Injection molding (kg)	Blow molding (kg)	Parts assembly (kg)	Diesel truck:2 ton (kg･km)	Press molding:Iron (kg)	Press molding:Nonferrous metal (kg)
	Quantity	1.56E+03	2.97E+02	3.88E+01	2.40E-01	1.47E+02	3.12E+04	1.54E+01	3.06E+00
	Note								
	Classification	Consumption	Consumption	Consumption	Consumption	Consumption	Consumption	Consumption	Consumption
	Distribution	Carbon steel(kg)	SUS (kg)	Cu (kg)	Al (kg)	Other metals(kg)	Thermoplastics resin (kg)	thermosetting resin (kg)	Rrubber (kg)
	Quantity	1.35E+01	4.48E+00	2.71E-01	3.23E+00	5.50E-02	1.08E+02	2.57E-01	6.32E-02
	Note								
	Classification	Consumption	Consumption	Consumption					
	Distribution	Paper (kg)	Assembled circuit board (kg)	Medium-sized motor (kg)					
	Quantity	9.09E+01	3.91E-01	4.56E-01					
	Note								

Note

4.2 Disposition/Recycle information on consumables and replacement parts

Consumables	Classification	Process	Process	Process	Process	Process	Process	Deduction	Deduction
	Distribution	Recycle:to copper plate (kg)	Recycle:to Thermoplastic pellet (kg)	Recycle:to corrugated cardboard (kg)	Shredding (kg)	Recycle:to cold-rolled steel (kg)	Recycle:to Aluminum plate (kg)	Carbon steel(kg)	SUS (kg)
	Quantity	1.12E+00	4.74E+01	9.09E+01	1.61E+02	1.81E+01	3.23E+00	1.35E+01	4.48E+00
	Note								
	Classification	Deduction	Deduction	Deduction	Deduction	Deduction			
	Distribution	Cu (kg)	Al (kg)	Other metals(kg)	Thermoplastics resin (kg)	Paper (kg)			
	Quantity	1.12E+00	3.23E+00	5.50E-02	4.74E+01	9.09E+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	Diesel truck:10 ton (kg･km)	Diesel truck:2 ton (kg･km)	Electricity (kWh)	Incineration: Industrial waste (kg)	Shredding (kg)	Recycle:to cold-rolled steel (kg)	Recycle:to copper plate (kg)	Recycle:to Aluminum plate (kg)
	Quantity	8.33E+03	2.33E+04	5.80E-01	8.37E-01	1.35E+02	6.11E+01	1.00E+01	3.10E+00
	Note								
	Classification	Process	Process	Process	Deduction	Deduction	Deduction	Deduction	Deduction
	Distribution	Recycle:to Thermoplastic pellet (kg)	Recycle:to corrugated cardboard (kg)	Recycle:to Glass (kg)	Carbon steel(kg)	SUS (kg)	Cu (kg)	Al (kg)	Other metals (kg)
	Quantity	3.37E+01	2.49E+01	2.04E+00	5.73E+01	3.81E+00	1.00E+01	3.10E+00	2.75E-02
	Note								
	Classification	Deduction	Deduction	Deduction					
	Distribution	Thermoplastics resin (kg)	Paper (kg)	Glass (kg)					
	Quantity	3.37E+01	2.49E+01	2.04E+00					
	Note								

Note

6. Others

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.