# Product Environmental Aspects Declaration

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



No. AD-14-381 Date of publication July/25/2014



# bizhub e3110

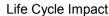
Marking technologies Electrophotographic Printer (EP)

Printing speed 31 prints-per-minute(B/W), 31 prints-per-minute(color)

Maximum copy paper A4



Please direct any inquiries or comments to e-mail: bt-environ@pub.konicaminolta.jp



Consumption and discharge in a life cycle	All the stage sum totals
Global warming(CO <sub>2</sub> equivalent):kg	1,711 (1,444)
Acidification(SO <sub>2</sub> equivalent):kg	3.0 (2.5)
Energy resources(crude oil equivalent):MJ	32,477 (26,305)

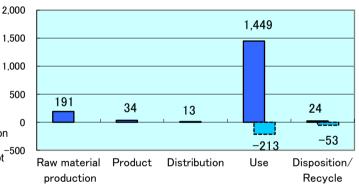
\*\*Figures in( ) indicated environmental impact including recycle effect \*note3



Total of 576,600 sheets on the assumption of five years usage.

Environmental impact by copypaper is not included.

Warming load CO<sub>2</sub> equivalent of each stage (kg)



# 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.

# [Supplemental environmental information]



- Certified Environmental Standards
  - Japan Eco Mark
  - International Energy Star Program
- Conforming to Japanese Law on Promoting Green Purchasing

PCR review was conducted by : PCR Deliberation Committee, January 01,2008, Name of reprentative : Youji Uchiyama, University of Tsukuba, Graduate School

Independent verification of the declaration and data, according to ISO14025  $\ \square$  internal  $\blacksquare$  external

Third party verifier: The third party verifier \* : Shozo Nakamuta

 $Programme\ operator:\ Japan\ Environmental\ Management\ Association\ for\ Industry,\ ecoleaf@jemai.or.jp$ 

<sup>\*</sup> In the case of an business entity certified as an Ecoleaf-data-collection system, the names of certification auditors are written.

# Product Environmental Information Data Sheet (PEIDS)

		_	
Document control no.	F-02B-03	Unit Function DB version	2.1
Product vendor	KONICAMINOLTA ,INC.	Characterization Factor DB version	2.1
Ecol eaf registration no.	AD-14-381	•	



	PC	R nam	ne	EP and IJ print	er	Product type			bizhub C3110	)	
	PC	R-II	)	AD-04		Product weight[kg]	34.3	Package[kg]			
$\equiv$				Life Cycle Stage		Brodi	uction	0 : 0;			
In/O	ut ite	ms		Life Cycle Stage	Unit	Raw material	Product	Distribution	Use	Disposal	Recycle
					MJ	3.67E+03	6.48E+02	1.74E+02	2.79E+04	3.54E+01	-6.17E+03
		En	ergy Co	onsumption	Mcal	8.77E+02	1.55E+02	4.16E+01	6.68E+03	8.44E+00	-1.47E+03
				Coal	kg	2.36E+01	3.94E+00	4.07E-04	1.15E+02	1.88E-01	-2.86E+01
				Crude oil (as a fuel)	kg	3.28E+01	4.74E+00	3.80E+00	2.21E+02	3.86E-01	-4.56E+01
			Energy	Natural Gas	kg	6.56E+00	2.60E+00	5.87E-02	6.75E+01	9.75E-02	-7.53E+00
				Uranium ore	mg	5.50E-04	2.67E-04	2.76E-08	4.49E-03	1.27E-05	-2.26E-04
		-		Crude oil (as an							Z.ZOL OT
				ingredients)	kg	1.99E+01	0	0	1.65E+02	0	-6.04E+01
				Iron ore	kg	1.61E+01	0	0	3.93E+01	0	-2.22E+01
				Copper ore	kg	5.65E-01	0	0	1.05E-01	0	-2.05E-01
				Bauxite	kg	9.96E-01	0	0	6.48E+00	0	-2.99E+00
	ption	ible		Nickel ore	kg	8.85E-02	0	0	2.66E-01	0	-1.42E-01
	nsum	Exhaustible resources		Chromium ore	kg	1.25E-01	0	0	3.74E-01	0	-1.99E-01
	Cor	Ext		Manganese ore	kg	9.26E-02	0	0	2.51E-01	0	-3.66E-02
	Resource Consumption from the environment		Material	Plumbous ore	kg	2.69E-02	0	0	0	0	-9.31E-03
	Resc			Tin ore	kg	0	0	0	0	0	0
				Zinc ore	kg	2.64E-01	0	0	0	0	−9.15E−02
				Gold ore	kg	0	0	0	0	0	0
				Silver ore	kg	0	0	0	0	0	0
				Silica sand	kg	1.06E+00	0	0	5.79E-01	0	-4.21E-01
ç				Rock salt	kg	7.86E+00	2.22E-04	0	4.95E+00	1.14E-02	-4.88E+00
Inventory analyses				Limestone	kg	3.51E+00	0	0	9.38E+00	2.37E-01	−3.76E+00
y ans				Natural soda ash	kg	8.99E-02	0	0	1.00E-02	0	-2.92E-02
utofu		Renewa		Wood	kg	1.21E+01	0	0	9.99E+01	0	-4.48E+01
- N		resourc	es	Water	kg	1.40E+04	3.07E+03	3.08E-01	7.27E+04	1.57E+02	−1.16E+04
				CO2	kg	1.86E+02	3.32E+01	1.24E+01	1.40E+03	2.39E+01	−2.57E+02
				SOx	kg	1.34E-01	2.36E-02	6.93E-03	9.69E-01	1.28E-02	-2.13E-01
				NOx	kg	2.52E-01	2.32E-02	4.83E-02	2.30E+00	2.99E-02	-4.62E-01
				N2O	kg	1.81E-02	2.64E-03	2.22E-03	1.78E-01	3.63E-05	-3.55E-02
		to Atmo	spnere	CH4 CO	kg	1.45E-03	7.13E-04	7.37E-08	1.19E-02	3.41E-05	-5.50E-04
				NMVOC	kg	2.76E-02	4.97E-03	1.06E-02	3.45E-01	6.11E-03	-4.37E-02
	0				kg	2.84E-03	1.40E-03 5.11E-04	1.44E-07 1.61E-03	2.33E-02 6.63E-02	6.67E-05 1.53E-04	-1.08E-03
	harg			dust	kg	8.54E-03	1.01E-04	4.88E-03	1.99E-01	1.73E-04 1.73E-03	-1.63E-02
	Disc		er system	BOD	kg kg	2.83E-02	1.01E-03	4.00E-U3	1.88E-01	1./3E-03	-5.44E-02
	sion, e en			COD	kg	_		_		_	
	Emis to th	to Wate	er system	N total	kg	_	_	_	_	_	_
				P total	kg	_	_	_	_	_	_
				SS	kg	_	-	_	_	_	-
				Unspecified solid waste	kg	1.65E+00	1.29E-05	0	5.15E+01	1.39E+01	-2.55E+00
				Slag	kg	5.40E+00	0	0	1.23E+01	0	-6.68E+00
		to Soil s	system	Sludge	kg	1.91E+00	0	0	1.39E+01	0	-6.33E+00
				Low emission		0.055.04	1 005 04	1005.00		0.005.00	
				radioactive waste	kg	3.85E-04	1.86E-04	1.93E-08	3.13E-03	8.89E-06	-1.58E-04
	ption			Energy resources	l. m	6.04E+01	1.26E+01	3.87E+00	4.13E+02	7.28E-01	-7.49E+01
	E	l		(crude oil equivalent)	kg	0.04E+01	1.205701	3.87E+00	4.13ETUZ	7.28E-01	-7.49ETUI
	nsuoo eo.		ustible urces	Mineral resources	kg	2.27E+02	0	0	3.91E+02	0	-2.20E+02
Ħ	by Resource	1830		(Iron ore equivalent)	Νg	Z.Z/ETUZ	U	U	3.91E+0Z	U	-Z.ZUETUZ
mei	by R										
ses	on			Global warming (CO2 equivalent)	kg	1.91E+02	3.39E+01	1.30E+01	1.45E+03	2.40E+01	-2.67E+02
ass	npt		to	Acidification			3.99E-02	4.08E-02		1	
Impact assesment	Consumption	Atmo	sphere	(SO2 equivalent)	kg	3.11E-01	3.88E-UZ	4.00E-02	2.58E+00	3.37E-02	−5.36E−01
Jmp	Co										
	ion	to Water									

[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) C. "Use" stage is intended for use of the product (active mode, standby mode, etc.) and production, transportation to disposal/recycle of consumables
- D. "Disposition/Recycle" stage is intended for environmental impacts by product disposition/recycle, and deduction by recycling
- E. "Recycle Effect" illustrates an indirect environmental influences to other products/services by use of reclaimed materials/parts, and/or by supply of Case 1: Use of reclaimed materials/parts: Sum of increase of environmental impact by collection activities of used materials/parts, and decrease
- Case 2: Supply of used products to other businesses for material reclaim/parts reuse: Sum of increase of environmental impact by materials/parts

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

Ill Impact analyses

Result of the "Impact analyses" is found in converting results of inventory analyses into total amount of a reference material (e.g. CO2 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.

- A. Exponential notation, after the decimal point to two, should be used.
- A. Exponentian inclation, after the declinar 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]

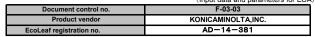
- A."Raw material" in "Production" includes environmental impacts generated during mining transportation material production phases of the main body
- B. "Product" in "production" includes environmental impacts of processing of the parts (injection, blow-, press- and glass-molding). C. Regarding the basis and the basic units for calculations during distribution stages

- D. Regarding the basis and the basic units for calculations during use and consumption stage

  E. The recycling impacts are calculated assuming that 40% of the end-of-life printers are recovered from users according to PCR (AD-04).
- F. The impacts of materilal production of recycled materials are included in the values with minus as a recycling effect.

# **Product data sheet**

(Input data and parameters for LCA)





PCR name	EP and IJ printer (PCR-ID:AD-04)	Product type	bizhub C3110				
LCA/LCIA in units of:	1	Product weight[kg]	34.3	Package[kg]	12.7	Weight total[kg]	47.0

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

	Breakdown of primar	y materials		Math breakdown of par	ts, which need to apply	Processing / Assembly B	Base Units (Parts B, C)
Material name Weight (kg) Material name		Weight (kg)	Process name	Weight (kg)	Process name	Weight (kg)	
Ordinary steel	1.53E+01	Rubber	2.15E-01	Press molding:Iron	1.46E+01	Parts assembly	1.42E+00
Stainless steel	5.58E-01	Semiconductor circuit board	1.24E+00	Press molding:Nonfe rrous metal	1.37E+00		
Aluminium	8.43E-01				2.09E+01		
Other metals	5.31E-01			Blow molding	4.76E-02		
Glass	7.06E-01						
Thermoplastic resin	2.16E+01						
Wood	7.54E-01						
Paper	5.33E+00	·					
Subtotal	4.55E+01	Subtotal	1.45E+00				
	Total		4.70E+01	Subtotal	3.70E+01	Subtotal	1.42E+00

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

SOx and NOx should be indicated in SO2, NO2 equivalent.

_	Classification	Energy	Energy	Material	Material						
ption	Distribution	Electricity	Furnace urban	Industrial	Groundwater						
E	Distribution	(kWh)	gas (m <sup>3</sup> )	water(kg)	(kg)						
Suo	Quantity	2.98E+01	8.00E-01	3.20E-01	8.92E+01						
Ö	Note										
	Classification	To Water									
Emission/ Discharge	Classification	system									
iissi cha	Distribution	Sewage (kg)									
Err Dis	Quantity	3.83E+01									
	Note										
. Distribu	Distribution stage information (per unit): means, distance, loading ratio, consumptions and emissions/discharges.										
_	Means of transportation	Freight by ship	Diesel truck	Diesel truck							

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

	Classification	Consumption	Consumption	Consumption	Consumption	Consumption	Consumption	Consumption	Consumption
Product	Distribution	Electricity (kWh)	Gasoline as fuel(kg)	Furnace urban gas (m³)	Industrial water(kg)	Groundwater (kg)	Ordinary steel (kg)	Stainless steel (kg)	Aluminium (kg)
₫.	Quantity	6.98E+02	1.11E+01	2.59E+01	9.76E-01	3.41E+03	3.74E+01	1.68E+00	6.13E+00
	Note								
	Classification	Consumption	Consumption	Consumption	Consumption	Processing	Processing	Processing	Processing
Product	Distribution	Thermoplastic resin(kg)	Wood(kg)	Paper(kg)	Rubber(kg)	Press:Iron(kg)	Press: Nonferrous(kg)	Injection molding(kg)	Blow molding (kg)
₫.	Quantity	1.68E+02	3.77E+00	4.52E+01	2.04E+00	5.58E+01	3.87E+00	4.88E+01	1.03E+02
	Note								
	Classification	Assembly	To Water system						
Product	Distribution	Parts assembly (kg)	Sewage (kg)						
	Quantity	1.03E+02	2.18E+03						
	Note								
	Classification	Distribution	Distribution	Distribution					
Product	Distribution	Freight by ship (kg·km)	Diesel truck: 20ton (kg•km)	Diesel truck: 10ton (kg•km)					
	Quantity	7.52E+05	3.11E+05	2.87E+04					
	Note								

4.2 Disposition/Recycle information on consumables and replacement parts

	Classification	Consumption	Consumption	Treatment	Treatment	Treatment	Treatment	Treatment	Treatment
Consumables	Distribution	Electricity (kWh)	Kerosene(kg)	Recycle: to iron(kg)	Recycle: to Aluminum(kg)	Recycle: to copper(kg)	Recycle: to plastics(kg)	Recycle: to Paper(kg)	Industrial waste destruction by fire(kg)
Co	Quantity	4.15E+00	6.32E-02	1.56E+01	2.45E+00	1.21E-01	5.45E+01	1.96E+01	9.15E-01
	Note								
	Classification	Treatment	Treatment	Treatment	Deduction	Deduction	Deduction	Deduction	Deduction
Consumables	Distribution	Industrial waste inning(kg)	Waste destruction by fire(kg)	Waste inning(kg)	Iron(kg)	Aluminum(kg)	Copper(kg)	Plastics(kg)	Paper(kg)
Š	Quantity	5.58E-01	1.13E+02	2.75E+01	-1.56E+01	-2.45E+00	-1.21E-01	-5.45E+01	-1.96E+01
	Note								
	Classification	Distribution	Distribution						
Consumables	Distribution	Diesel truck: 10ton (kg•km)	Diesel truck: 4ton (kg•km)						
So	Quantity	1.12E+04	1.36E+04						
	Note								

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

Consumables	Classification	Consumption	Consumption	Treatment	Treatment	Treatment	Treatment	Treatment	Treatment
	Distribution	Electricity (kWh)	Kerosene(kg)	Recycle: to iron(kg)	Recycle: to Aluminum(kg)	Recycle: to copper(kg)	Recycle: to Glass(kg)	Recycle: to plastics(kg)	Recycle: to Paper(kg)
ons	Quantity	8.31E-01	1.27E-02	6.31E+00	3.37E-01	3.81E-01	2.82E-01	8.53E+00	2.60E+00
O	Note								
	Classification	Treatment	Treatment	Treatment	Treatment	Treatment	Deduction	Deduction	Deduction
Consumables	Distribution	Recycle: to Assembled circuit board(kg)	Incineration: Industrial waste(kg)	Landfill: Industrial waste(kg)	Incineration to landfill (as ash)(kg)	Landfill: General waste(kg)	Iron(kg)	Aluminium (kg)	copper(kg)
ঠ	Quantity	1.68E-01	3.88E-01	1.25E-01	1.67E+01	1.11E+01	-6.31E+00	-3.37E-01	-3.81E-01
	Note								
	Classification	Deduction	Deduction	Deduction	Deduction	Distribution	Distribution		
Consumables	Distribution	Glass(kg)	Plastics(kg)	Paper(kg)	Recycle: to Assembled circuit board(kg)	Diesel truck: 10ton (kg•km)	Diesel truck: 4ton (kg•km)		
Ö	Quantity	-2.82E-01	-8.53E+00	-2.60E+00	-1.68E-01	2.26E+03	2.73E+03		
	Note								

#### 6. Others

#### A.Product information:

All the parts mass per unit sorted by materials and by processes/assembly are included. The motor mass is included in ordinary steel.

#### B.Production site information:

The energy consumption & material use during the main body assemby and cartridge & toner shipment are included.

The environmental impacts that are exhausted from the production site in the atmosphere and the water system are included.

#### C.Distribution stage information:

The total distance of the transportation in Japan of 100km is used according to PCR (AD-04) and the transportation overseas includes the transportation by track in China and by ship between China and Japan.

## D. Product and accessories subject to this analysis:

The power consumption is calculated assuming the use period of five years and 576,600 sheets printed during the use period according to the PCR (AD-04).

The toner consumption is summed up over the five years from the toner consumption data per sheet using our print pattern with 5% coverage.

The production impacts of the cartridges and toner used during the use period of five years are included.

The impacts of the maintenance parts used and the transportation impacts of the maintenance during the use period of five years are included in this stage.

## E. Disposal/Recycle information on the consumables and the maintenance parts during use stage:

The recycling information of the toner, the developer, the drums and the maintainance parts used during the use period of five years are included.

The recycling processing impacts are included as plus and the production impacts of the recycled materials are included as minus.

# F.Disposal/Recycle stage information:

The information on the products recovered from users is included.

The recycling processing impacts are included as plus and the production impacts of the recycled materials are included as minus.