Product Environmental Aspects Declaration

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



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



Marking technologies Electrophotographic Printer (EP)

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

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 ₂ equivalent):kg	1,711 (1,444)
Acidification(SO ₂ equivalent):kg	3.0 (2.5)
Energy resources(crude oil equivalent):MJ	32,477 (26,305)

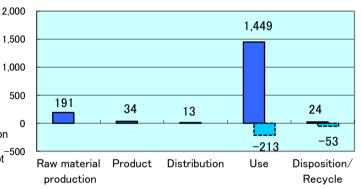
*Figures in()indicated environmental impact including recycle effect *note3



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

Environmental impact by copypaper is not -500 included

Warming load CO₂ 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

^{*} In the case of an business entity certified as an Ecoleaf-data-collection system, the names of certification auditors are written.

N2O

CH4

СО

NMVOC

СхНу

dust

BOD

COD

N total

P total

SS

Unspecified solid waste

Slag

Sludge

Low emission

radioactive waste

Energy resources

(crude oil equivalent)

Mineral resources

(Iron ore equivalent)

Global warming

(CO2 equivalent)
Acidification
(SO2 equivalent)

to Water system

to Soil system

Exhaustible

resources

to

Atmosphere

system to Soil

Impact assesment

Consumption

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
EcoLeaf registration no.	AD-14-381	<u> </u>	

1.81E-02

1.45E-03

2.76E-02

2.84E-03

8.54E-03

2.83E-02

1.65E+00

5.40E+00

1.91E+00

3.85E-04

6.04E+01

2.27E+02

1.91E+02

3.11E-01

kg



3.63E-05

3.41E-05

6.11E-03

6.67E-05

1.53E-04

1.73E-03

1.39E+01

0

0

8.89E-06

7.28E-01

0

2.40E+01

3.37E-02

-3.55E-02

-5.50E-04

-4.37E-02

-1.08E-03

-1.63E-02

-5.44E-02

-2.55E+00

-6.68E+00

-6.33E+00

-1.58E-04

-7.49E+01

-2.20E+02

-2.67E+02

-5.36E-01

1.78E-01

1.19E-02

3.45E-01

2.33E-02

6.63E-02

1.99E-01

5.15E+01

1.23E+01

1.39E+01

3.13E-03

4.13E+02

3.91E+02

1.45E+03

2.58E+00

	PCF	R nar	ne	EP and IJ print	er	Product type		ı	bizhub C311	0		
			AD-04		Product weight[kg]	34.3	Package[kg]	12.7	Weight total[kg]	47.0		
In/O	ut ite	ms		Life Cycle Stage	Unit	Produ Raw material	Product	Distribution	Use	Disposal	Recycle	
	Energy Consumption		MJ	3.67E+03	6.48E+02	1.74E+02	2.79E+04	3.54E+01	-6.17E+03			
				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	
			Energy	Crude oil (as a fuel)	kg	3.28E+01	4.74E+00	3.80E+00	2.21E+02	3.86E-01	-4.56E+01	
			Lifelgy	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 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	
	Resource Consumption from the environment	Exhaustible resources		Nickel ore	kg	8.85E-02	0	0	2.66E-01	0	-1.42E-01	
	ronn	aust		Chromium ore	kg	1.25E-01	0	0	3.74E-01	0	-1.99E-01	
	Cor	E S		Manganese ore	kg	9.26E-02	0	0	2.51E-01	0	-3.66E-02	
	ource The		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	
				Rock salt	kg	7.86E+00	2.22E-04	0	4.95E+00	1.14E-02	-4.88E+00	
lyses				Limestone kg 3.51E+00 0		0	9.38E+00	2.37E-01	-3.76E+00			
ana				Natural soda ash	kg	8.99E-02	0	0	1.00E-02	0	-2.92E-02	
Inventory analyses		Renev		Wood	kg	1.21E+01	0	0	9.99E+01	0	-4.48E+01	
Inve		resour	ces	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	

2.64E-03

7.13E-04

4.97E-03

1.40E-03

5.11E-04

1.01E-03

1.29E-05

0

0

1.86E-04

1.26E+01

3.39E+01

3.99E-02

2.22E-03

7.37E-08

1.06E-02

1.44E-07

1.61E-03

4.88E-03

0

0

0

1.93E-08

3.87E+00

0

1.30E+01

4.08E-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) 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]

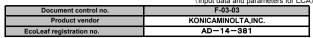
- A."Raw material" in "Production" includes environmental impacts generated during mining transportation material production phases of the main body
- B. "Product" in "production" includes environmental impacts of processing of the parts (injection, blow-, press- and glass-molding). C. Regarding the 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		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:lron	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			Injection molding	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.

c.	Classification	Energy	Energy	Material	Material					
iption	Distribution	Electricity	Furnace urban	Industrial	Groundwater					
Ę		(kWh)	gas (m ³)	water(kg)	(kg)					
ons	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									
B. Distribu	Distribution stage information (per unit): means, distance, loading ratio, consumptions and emissions/discharges.									
	Manage of transportation		Diesel truck	Diesel truck						

:20ton :2ton Load(kg·km) Load(kg·km) Load(kg·km) 2.07E+05 2.18E+04 1.50E+03

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
	Oldomiodion						Consumption	Consumption	Consumption
rct	Distribution	Electricity	Gasoline as	Furnace urban		Groundwater	Ordinary steel	Stainless steel	Aluminium (ka
Product		(kWh)	fuel(kg)	gas (m³)	water(kg)	(kg)	(kg)	(kg)	, uammum (ng
Ē	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
ಕ	Distribution	Thermoplastic			5 · · · · · ·		Press:	Injection	Blow molding
Product	Distribution	resin(kg)	Wood(kg)	Paper(kg)	Rubber(kg)	Press:Iron(kg)	Nonferrous(kg)	molding(kg)	(kg)
g.	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								
	Olara (Franklana		To Water						
	Classification Assembl	Assembly	system						
Inct	B1 4 7 47	Parts							
Product		assembly (kg)	Sewage (kg)						
ш	Quantity	1.03E+02	2.18E+03						
	Note								
	Classification	Distribution	Distribution	Distribution					
			Diesel truck:	Diesel truck:					
Product	Distribution	Freight by ship	20ton	10ton					
		(kg·km)	(kg•km)	(kg•km)					
<u>r</u>	Overable :								
	Quantity	7.52E+05	3.11E+05	2.87E+04					
	Note			1	ı	1	ı	1	ı

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)
Cor	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)						
Cor	Quantity	1.12E+04	1.36E+04						
	Note						_		

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

	Classification		0		T	T	T	T	T44
88	Classification	Consumption	Consumption	Treatment	Treatment	Treatment	Treatment	Treatment	Treatment
Consumables	Distribution	Electricity	Kerosene(kg)	Recycle: to	Recycle: to	Recycle: to	Recycle: to	Recycle: to	Recycle: to
5		(kWh)	(0)	iron(kg)	Aluminum(kg)	copper(kg)	Glass(kg)	plastics(kg)	Paper(kg)
Si Si	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)
Š	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 maintenace 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.