# Product Environmental Aspects Declaration

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





http://konicaminolta.jp

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

Marking technologies Electrophotographic Printer (EP)

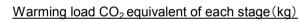
Printing speed 31 prints-per-minute(B/W), 31 prints-per-minute(color)

Maximum copy paper A4

Life Cycle Impact

Consumption and discharge in a life cycle	All the stage sum totals
Global warming(CO₂equivalent):kg	1,661 (1,405)
Acidification(SO <sub>2</sub> equivalent):kg	2.9 (2.4)
Energy resources(crude oil equivalent):MJ	31,432 (25,549)

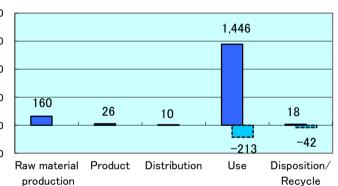
※Figures in() indicated environmental impact including recycle effect \*note3





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

Environmental impact by copypaper is not



# Notes:

included

- 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 <a href="http://www.ecoleaf-jemai.jp/eng/">http://www.ecoleaf-jemai.jp/eng/</a> 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 □internal ■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
EcoLeaf registration no.	AD-14-329		



			on no.			http://					
	PCF	R name	EP and IJ print	er	Product type		t	izhub C3100	P		
	PC	R-ID	AD-04		Product weight[kg]	28.3	Package[kg]	Weight total[kg]	37.8		
			Life Cycle Stage		Dec. 1	uction					
In/Out items				Unit	Raw material	Product	Distribution	Use	Disposal	Recycle	
111/00	at ite	1110		MJ	2.89E+03	5.04E+02	1.405+02	2.79E+04	2.77E+01	E 00E : 02	
Energy Consumption							1.40E+02 3.35E+01			-5.88E+03	
			Coal	Mcal	6.90E+02	1.20E+02		6.66E+03	6.62E+00	-1.41E+03	
				kg	2.14E+01	3.01E+00	3.27E-04	1.15E+02	1.46E-01	-2.79E+01	
		Energ	Crude oil (as a fuel)	kg	2.62E+01	3.63E+00	3.06E+00	2.20E+02	3.05E-01	-4.32E+01	
			Natural Gas	kg	5.83E+00	2.14E+00	4.73E-02	6.73E+01	7.58E-02	-7.30E+00	
		_	Uranium ore	mg	4.97E-04	2.04E-04	2.22E-08	4.46E-03	9.88E-06	-2.13E-04	
			Crude oil (as an ingredients)	kg	1.19E+01	0	0	1.65E+02	0	−5.73E+01	
			Iron ore	kg	1.44E+01	0	0	3.93E+01	0	−2.15E+01	
			Copper ore	kg	5.02E-01	0	0	1.05E-01	0	-1.83E-01	
	_		Bauxite	kg	9.42E-01	0	0	6.48E+00	0	-2.97E+00	
	ptior nent	Exhaustible resources	Nickel ore	kg	8.19E-02	0	0	2.66E-01	0	-1.39E-01	
	ronn	sourc	Chromium ore	kg	1.16E-01	0	0	3.74E-01	0	-1.96E-01	
	Cor	EX 50	Manganese ore	kg	8.43E-02	0	0	2.51E-01	0	-3.63E-02	
	ource the	Mater	Plumbous ore	kg	2.64E-02	0	0	0	0	-9.27E-03	
	Resource Consumption from the environment		Tin ore	kg	0	0	0	0	0	0	
			Zinc ore	kg	2.60E-01	0	0	0	0	-9.11E-02	
			Gold ore	kg	0	0	0	0	0	0	
			Silver ore	kg	0	0	0	0	0	0	
			Silica sand	kg	5.14E-01	0	0	5.79E-01	0	-2.10E-01	
			Rock salt	kg	5.62E+00	2.22E-04	0	4.95E+00	9.70E-03	-4.00E+00	
/ses			Limestone	kg	3.06E+00	0	0	9.38E+00	1.84E-01	-3.61E+00	
Inventory analyses			Natural soda ash	kg	2.96E-02	0	0	1.00E-02	0	-5.39E-03	
tony		Renewable	Wood	kg	1.36E+01	0	0	9.99E+01	0	-4.54E+01	
nven		resources	Water	kg	1.31E+04	2.37E+03	2.48E-01	7.24E+04	1.21E+02	-1.14E+04	
_			CO2	kg	1.56E+02	2.57E+01	9.96E+00	1.40E+03	1.83E+01	-2.46E+02	
			SOx	kg	1.17E-01	1.80E-02	5.58E-03	9.66E-01	9.75E-03	-2.07E-01	
			NOx	kg	2.01E-01	1.86E-02	3.90E-02	2.30E+00	2.31E-02	-4.43E-01	
			N2O	kg	1.36E-02	2.53E-03	1.79E-03	1.78E-01	2.87E-05	-3.38E-02	
		to Atmosphe	re CH4	kg	1.31E-03	5.44E-04	5.93E-08	1.18E-02	2.65E-05	-5.15E-04	
			CO	kg	2.45E-02	3.87E-03	8.54E-03	3.45E-01	4.78E-03	-4.26E-02	
			NMVOC	kg	2.56E-03	1.07E-03	1.16E-07	2.31E-02	5.18E-05	-1.01E-03	
	e t		СхНу	kg	6.41E-03	4.72E-04	1.29E-03	6.63E-02	1.23E-04	-1.55E-02	
	charg		dust	kg	2.20E-02	7.76E-04	3.93E-03	1.99E-01	1.34E-03	-5.20E-02	
	/Dis/		BOD	kg	_	-	-	_	-	-	
	ssior ne er		COD	kg	_	_	_	_	_	_	
	Emi to th	to Water sys	em N total	kg	-	-	-	_	-	-	
			P total	kg	_	_	_	_	_	_	
			SS	kg	_	_	_	_	_	_	
			Unspecified solid waste		1.33E+00	9.93E-06	0	5.15E+01	1.18E+01	-2.43E+00	
			Slag	kg	4.97E+00	0	0	1.23E+01	0	-6.52E+00	
		to Soil syster		kg	1.85E+00	0	0	1.39E+01	0	-6.30E+00	
			Low emission radioactive waste	kg	3.48E-04	1.42E-04	1.55E-08	3.11E-03	6.90E-06	-1.49E-04	
	umption		Energy resources (crude oil equivalent)	kg	5.10E+01	9.80E+00	3.12E+00	4.11E+02	5.70E-01	−7.17E+01	
٦t	esource Cons	Exhaustil resource		kg	2.07E+02	0	0	3.91E+02	0	-2.13E+02	
me	by Resour										
ses	on		Global warming	kg	1.60E+02	2.64E+01	1.04E+01	1.45E+03	1.83E+01	-2.55E+02	
ass	ıpti	to	(CO2 equivalent) Acidification						1		
Impact assesment	Consumption	Atmosph		kg	2.58E-01	3.11E-02	3.29E-02	2.58E+00	2.59E-02	−5.17E−01	
ī	Emision C	to Wate									
		to Soil									
	by	system									

[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.

- B. Indicate "0" instead exponential notation, after the decimal point to two, should be used.

  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.)

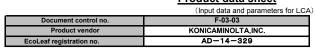
### [Notes for readers: Target product specific]

- 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**





PCR name	EP and IJ printer (PCR-ID:AD-04)	Product type	bizhub C3100P				
_ LCA/LCIA in units of:	1	Product weight[kg]	28.3	Package[kg]	9.5	Weight total[kg]	37.8

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

		Math breakdown of par	ts, which need to apply	Processing / Assembly E	Base Units (Parts B, C)		
Material name	Weight (kg)	Material name	Weight (kg)	Process name	Weight (kg)	Process name	Weight (kg)
Ordinary steel	1.37E+01	Semiconductor circuit board	1.19E+00	Press molding:lron	1.33E+01	Parts assembly	1.42E+00
Stainless steel	5.17E-01			Press molding:Nonfe rrous metal	1.35E+00		
Aluminium	8.17E-01			Injection molding	1.25E+01		
Other metals	5.33E-01			Blow molding	4.76E-02		
Thermoplastic resin	1.31E+01						
Wood	2.63E+00						
Paper	5.16E+00						
Rubber	1.64E-01						
Subtotal	3.66E+01	Subtotal	1.19E+00		•		
	Total					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			
mption	Distribution	Electricity	Furnace urban	Industrial	Groundwater			
Ę	Distribution	(kWh)	gas (m <sup>3</sup> )	water(kg)	(kg)			
Consul	Quantity	2.33E+01	8.00E-01	2.40E-01	8.92E+01			
0	Note							
	Classification	To Water						
on/ rge	Classification	system						
Emission/ Discharge	Distribution	Sewage(kg)						
Er Dis	Quantity	3.82E+01						
	Note							
. Distribu	ution stage information (per unit)	: means, distand	e, loading ratio,	consumptions a	nd emissions/di	scharges.		
	Means of transportation	Freight by ship	Diesel truck	Diesel truck				
Ej	mount of transportation	Freight by Ship	:20ton	:2ton				
Distribution	Conditions	Load(kg·km)	Load(kg•km)	Load(kg•km)				
Dist	Quantity	1.66E+05	1.69E+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
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	6.90E+02	1.11E+01	2.59E+01	8.88E-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)						
	Quantity	1.12E+04	1.36E+04						
	Note						_		

J. Diopooi	ition/Recycle stage information (								
Consumables	Classification	Consumption	Consumption	Treatment	Treatment	Treatment	Treatment	Treatment	Treatment
	Distribution	Electricity	Varaaana(ka)	Recycle: to	Recycle: to	Recycle: to	Recycle: to	Recycle: to	Recycle: to Assembled
	Distribution	(kWh)	Kerosene(kg)	iron(kg)	Aluminum(kg)	copper(kg)	plastics(kg)	Paper(kg)	circuit board(kg)
ons	Quantity	6.69E-01	1.02E-02	5.67E+00	3.27E-01	3.76E-01	5.20E+00	3.28E+00	1.62E-01
O	Note								
	Classification	Treatment	Treatment	Treatment	Treatment	Deduction	Deduction	Deduction	Deduction
Consumables	Distribution	Incineration: Industrial waste(kg)	Landfill: Industrial waste(kg)	Incineration to landfill (as ash)(kg)	Landfill: General waste(kg)	Iron(kg)	Aluminium (kg)	copper(kg)	Plastics(kg)
Ē	Quantity	3.57E-01	8.71E-02	1.26E+01	9.73E+00	-5.67E+00	-3.27E-01	-3.76E-01	-5.20E+00
	Note								
	Classification	Deduction	Deduction	Distribution	Distribution				
Consumables	Distribution	Paper(kg)	Recycle: to Assembled circuit board(kg)	Diesel truck: 10ton (kg•km)	Diesel truck: 4ton (kg•km)				
Ö	Quantity	-3.28E+00	-1.62E-01	1.81E+03	2.20E+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.