Product Environmental Aspects Declaration

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

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http://konicaminolta.jp

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

Accurio*Press* C6100

Marking technologies Electrophotographic Printer (EP)

100 prints-per-minute(B/W), 100 prints-per-minute(color) Printing speed

Maximum copy paper A3

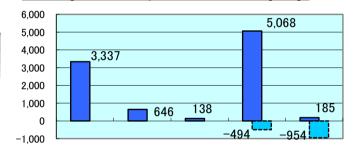
Non-stack ADU equipped Duplex copying

Life Cycle Impact

Consumption and discharge in a life cycle	All the stage sum totals
Global warming(CO ₂ equivalent):kg	9,375
Global Walthing(GO2equivalent).kg	(7,926)
Acidification(SO₂equivalent):kg	16.0
Acidinoation(302equivalent).kg	(12.9)
Energy resources(crude oil equivalent):MJ	169,769
Litergy resources/crude oil equivalent/.ivio	(146,767)

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

Warming load CO₂ equivalent of each stage (kg)



Product Raw material Distribution Disposition/ Use production Recycle



of five years usage.

Environmental impact by copypaper is not

XPF-707m,PF-711,RU-511,SD-506,FS-532,PI-

are optional. This calculation includes PF-711,

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
 - 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 * : Kazuo Naito

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.

Product Environmental Information Data Sheet (PEIDS)

			-
Document co	ontrol no.	F-02B-03	Unit Function
Product v	endor	KONICAMINOLTA ,INC.	Characterization Facto
EcoLeaf regis	tration no.	AD-17-836	

Unit Function DB version 2.1

Characterization Factor DB version 2.1



	PCF	R nan	ne	EP and IJ printer Product type AccurioPress C6100								
		R-II		AD-04		Product weight[kg]	844.0	Package[kg]	110.4	Weight total[kg]	954.4	
Life Cycle Stage Production												
ln/Οι	ıt ite	ms		Life Cycle Stage	Unit	Raw material	Product	Distribution	Use	Disposal	Recycle	
	10 100				MJ	4.91E+04	1.26E+04	1.87E+03	1.06E+05	4.97E+02	-2.30E+04	
Energy Consumption			Mcal	1.17E+04	3.01E+03	4.46E+02	2.52E+04	1.19E+02	-5.49E+03			
				Coal	kg	7.58E+02	8.23E+01	4.36E-03	5.65E+02	2.19E+00	-3.59E+02	
			Energy	Crude oil (as a fuel)	kg	3.36E+02	9.32E+01	4.08E+01	7.03E+02	6.01E+00	-1.32E+02	
			Energy	Natural Gas	kg	8.62E+01	4.23E+01	6.29E-01	3.23E+02	1.16E+00	−3.72E+01	
				Uranium ore	mg	7.25E-03	5.57E-03	2.95E-07	2.33E-02	1.48E-04	-1.16E-03	
					Crude oil (as an ingredients)	kg	7.95E+01	0	0	3.92E+02	0	-7.94E+01
				Iron ore	kg	7.19E+02	0	0	8.16E+01	0	−3.19E+02	
				Copper ore	kg	1.36E+01	0	0	1.65E-01	0	-4.84E+00	
	<u> </u>			Bauxite	kg	2.47E+01	0	0	5.98E+01	0	-3.37E+01	
	Consumption environment	Exhaustible resources		Nickel ore	kg	6.39E+00	0	0	2.78E+00	0	-3.67E+00	
	onsul	Exhaustible		Chromium ore	kg	8.89E+00	0	0	3.79E+00	0	-5.07E+00	
	_		Material	Manganese ore Plumbous ore	kg	4.56E+00	0	0	8.76E-01	0	-6.89E-01	
	Resource from the		waterial	Tin ore	kg	3.29E-01 0	0	0	0	0	-8.67E-02 0	
	χ ±			Zinc ore	kg kg	3.23E+00	0	0	0	0	-8.52E-01	
				Gold ore	kg	0	0	0	0	0	0	
				Silver ore	kg	0	0	0	0	0	0	
				Silica sand	kg	1.41E+01	0	0	9.20E-01	0	-3.20E+00	
				Rock salt	kg	5.50E+01	2.39E-02	0	1.60E+01	3.67E-01	-2.65E+01	
/ses				Limestone	kg	1.37E+02	0	0	1.81E+01	1.87E+00	-5.03E+01	
analyses				Natural soda ash	kg	5.90E-01	0	0	1.08E-04	0	-1.37E-01	
		Renew	able	Wood	kg	1.53E+02	0	0	1.17E+02	0	-1.08E+02	
Inventory		resources		Water	kg	1.95E+05	6.70E+04	3.29E+00	3.88E+05	1.76E+03	-8.92E+04	
				CO2	kg	3.28E+03	6.43E+02	1.32E+02	4.89E+03	1.85E+02	-1.42E+03	
				SOx	kg	2.53E+00	4.88E-01	8.58E-02	5.00E+00	1.04E-01	-1.78E+00	
				NOx	kg	3.23E+00	3.94E-01	7.16E-01	6.53E+00	3.16E-01	-1.90E+00	
				N2O	kg	1.98E-01	1.08E-02	2.10E-02	6.50E-01	5.41E-04	-1.11E-01	
		to Atmo	osphere	CH4	kg	1.89E-02	1.49E-02	7.90E-07	6.11E-02	3.97E-04	-2.48E-03	
				СО	kg	6.13E-01	9.51E-02	2.05E-01	1.08E+00	8.18E-02	-4.03E-01	
				NMVOC	kg	3.70E-02	2.92E-02	1.55E-06	1.20E-01	7.77E-04	-4.85E-03	
	arge nent			СхНу	kg	1.02E-01	2.16E-03	2.03E-02	1.82E-01	3.04E-03	-5.27E-02	
	Disch ironn			dust	kg	4.37E-01	2.10E-02	6.67E-02	5.53E-01	1.98E-02	−2.54E−01	
	sion/I			BOD	kg	_		_		-	_	
	Emission/Discharge to the environment	to Met	er system	COD N total	kg	_	_	_	<u> </u>	_		
		lo wate	or system	P total	kg ka	_	<u>-</u>	_	<u>-</u>	_		
				SS	kg kg	_		_		_		
				Unspecified solid waste	kg	1.65E+01	1.67E-01	0	1.57E+02	4.53E+02	-1.45E+01	
				Slag	kg	2.16E+02	0	0	2.62E+01	0	-9.31E+01	
		to Soil :	system	Sludge	kg	4.38E+01	0	0	1.28E+02	0	-6.88E+01	
				Low emission radioactive waste	kg	5.07E-03	3.89E-03	2.06E-07	1.62E-02	1.03E-04	-8.10E-04	
	sumption			Energy resources (crude oil equivalent)	kg	9.85E+02	2.43E+02	4.15E+01	1.64E+03	1.00E+01	-4.16E+02	
nt	Resource Con		ustible ources	Mineral resources (Iron ore equivalent)	kg	8.28E+03	0	0	2.65E+03	0	-4.11E+03	
sesment	ption by F			Global warming (CO2 equivalent)	kg	3.34E+03	6.46E+02	1.38E+02	5.07E+03	1.85E+02	-1.45E+03	
tas	mpti		to	Acidification	kg	4.79E+00	7.64E-01	5.87E-01	9.57E+00	3.25E-01	-3.11E+00	
Impact asse	Consur	Atmo	sphere	(SO2 equivalent)	Νg	7.73L 100	7.07L 01	0.07L 01	3.37L+00	0.200 01	0.11L+00	
=	Emision C		Water stem									
	by Em		Soil stem									

[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. 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.

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]

- A."Raw material" in "Production" includes environmental impacts generated during mining transportation material production phases of the main body of the printer and the toner cartridge enclosed in the printer. The environmental impacts are calculated using the eco-leaf basic unit DB for calculations.
- B. " Product" in "production" includes environmental impacts of processing of the parts (injection, blow-, press- and glass-molding).

The environmental impacts from the parts assembly plant which is different from the main body assembly plant (such parts are clacified in "parts C") are calculated using the eco-leaf basic unit DB for calculations.

The impacts from the main body assembly plant are calculated using the quantitative data on environmental impacts in our assembly plant.

C. Regarding the basis and the basic units for calculations during distribution stages

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

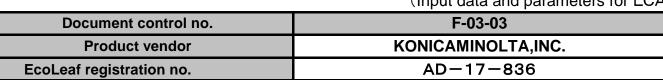
The power consumption is measured by the TEC test procedure according to PCR (AD-04). 6,000,000 sheets are printed in total during the use period of five years. The toner consumption is summed up over the five years from the toner consumption data per sheet using our print pattern with 5% coverage.

The production loads and the collection & recycling impacts of the toner cartridges used over the five years are included in this 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). The impacts are calculated with the remaining 60% following the disposal senario as general wastes.
- 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	AccurioPress C6100				
LCA/LCIA in units of:	1	Product weight[kg]	844.0	Package[kg]	110.4	Weight total[kg]	954.4

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

	Breakdown of primar	y materials		Math breakdown of part	s, which need to apply	Processing / Assembly I	Base Units (Parts B, C)
Material name	Material name	Weight (kg)	Process name	Weight (kg)	Process name	Weight (kg)	
Ordinary steel	6.78E+02	6.78E+02 Rubber		Press molding:Iron	6.24E+02		
Stainless steel	4.04E+01 Semiconductor circuit board		1.52E+01	Press molding:Nonfer rous metal	2.53E+01		
Aluminium	1.93E+01			Injection molding	8.44E+01		
Other metals	6.48E+00						
Glass	2.55E+00						
Thermoplastic resin	8.78E+01						
Wood	5.50E+01						
Paper	Paper 4.58E+01						
Subtotal	9.35E+02	Subtotal	1.92E+01				
	Total		9.54E+02	Subtotal	7.34E+02	Subtotal	

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

5.15E+05

SOv and NOv should be indicated in SO2, NO2 equivalent

SOx and I	NOx should be indicated in SO2, NO2	equivalent.						
C C	Classification	Energy	Energy	Material	Material			
nption	Distribution	Electricity	Furnace urban	Industrial	Groundwater			
uns	Distribution	(kWh)	gas (m³)	water(kg)	(kg)			
Cons	Quantity	6.24E+02	1.38E+00	4.42E+03	8.46E+01			
O	Note							
Emission/ Discharge	Classification	To Water system						
cha	Distribution	Sewage(kg)						
Err Dis	Quantity	4.12E+03						
	Note							
3. Distribu	tion stage information (per unit):	means, distance	e, loading ratio, c	onsumptions ar	nd emissions/dis	charges.		
	Means of transportation	Eroight by chin	Diesel truck	Diesel truck				
tribution	ivicaris or transportation	Freight by ship	:20ton	:2ton				
ribu	Conditions	Load(kg·km)	Load(kg·km)	Load(kg·km)				

2.93E+03

4. Use stage (per unit): use condition (mode, term) including active mode, standby mode and maintenance.

1.92E+06

4.1 Product and accessories subject to this analysis

Quantity

Note

	ict and accessories subject to thi	,							
	Classification	Consumption	Consumption	Consumption	Consumption	Consumption	Consumption	Consumption	Consumption
ಕ	Distribution	Electricity	Gasoline as	Furnace urban	Industrial	Groundwater	Ordinary steel	Stainless steel	A l (l. a)
Product	Distribution	(kWh)	fuel(kg)	gas (m³)	water(kg)	(kg)	(kg)	(kg)	Aluminium (kg)
P	Quantity	5.51E+03	3.24E+00	1.27E+02	9.75E+02	1.56E+04	7.31E+01	1.76E+01	5.65E+01
	Note								
	Classification	Consumption	Consumption	Consumption	Consumption	Processing	Processing	Processing	Processing
Product	Distribution	Thermoplastic	Wood(kg)	Paper(kg)	Rubber(kg)	Press:Iron(kg)	Press:	Injection	Blow molding
rod	Distribution	resin(kg)	Wood(Ng)	i aper(kg)	•	i ress.iioii(kg/	Nonferrous(kg)	molding(kg)	(kg)
Ğ	Quantity	3.95E+02	0.00E+00	5.52E+01	1.88E+00	9.33E+01	1.79E+01	9.31E+01	8.31E+01
	Note								
	Classification	Assembly	To Water						
	Ciassification	Assembly	system						
Product	Distribution	Parts assembly	Sewage(kg)						
Pro	Distribution	(kg)	Sewage (kg)						
	Quantity	8.31E+01	1.27E+04						
	Note								
	Classification	Distribution	Distribution	Distribution					
			Diesel truck:	Diesel truck:					
duct	Distribution	Freight by ship	20ton	10ton					
Product		(kg·km)	(kg·km)	(kg·km)					
	Quantity	0.00E+00	0.00E+00	8.19E+04					
	Note								

4.2 Disposition/Recycle information on consumables and replacement parts

4.2 DISPO	sition/Recycle information on co	iisuiiiabies aiiu i	epiacement parts	3					
	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)
Ö	Quantity	6.87E+00	1.50E-01	3.63E+01	2.26E+01	5.90E-04	5.18E+01	2.21E+01	1.18E+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)	lron(kg)	Aluminum(kg)	Copper(kg)	Plastics(kg)	Paper(kg)
Co	Quantity	5.33E-01	1.13E+02	1.16E+02	-3.63E+01	−2.26E+01	-5.90E-04	−5.18E+01	-2.21E+01
	Note								
	Classification	Distribution	Distribution						
Consumables	Distribution	Diesel truck: 10ton (kg•km)	Diesel truck: 4ton (kg•km)						
So	Quantity	1.83E+04	2.21E+04						
	Note								

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

S	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 Glass(kg)	Recycle: to plastics(kg)	Recycle: to Paper(kg)
suo	Quantity	1.72E+01	3.78E-01	2.87E+02	7.72E+00	4.66E+00	1.02E+00	3.48E+01	4.24E+01
0	Note								
sumables	Classification	Treatment	Treatment	Treatment	Treatment	Deduction	Deduction	Deduction	Deduction
	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)	Glass(kg)
Const	Quantity	6.16E+00	1.23E+00	1.16E+02	4.34E+02	-2.87E+02	-7.72E+00	-4.66E+00	-1.02E+00
	Note								
	Classification	Deduction	Deduction	Distribution	Distribution				
ısumables	Distribution	Plastics(kg)	Paper(kg)	Diesel truck: 10ton (kg·km)	Diesel truck: 4ton (kg·km)				
Consi	Quantity	-3.48E+01	-4.24E+01	4.59E+04	5.55E+04				
	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 6,000,000 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. Treatment of copper and deduction of copper include copper of " assembled circuit board".

Incineration of assembled circuit board is included "Incineration: Industrial waste".

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.

Treatment of copper and deduction of copper include copper of " assembled circuit board".

Incineration of assembled circuit board is included "Incineration: Industrial waste".