

- Japan Eco Mark
- International Energy Star Program
- Conforming to Japanese Law on Promoting Green Purchasing
- In this product, PCR materials<sup>\*\*</sup> are used by over 25% in weight ratio of resin.

% PCR material (Post-Consumer Recycled material): materials recovered and recycled from consumers.

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.

## Form 2 (F-02B-03)

# Product Environmental Information Data Sheet (PEIDS)

D	ocum	nent	control n	o. F	-02B-03	3	Unit Fu	nction DB version	2.1	Preday	ECO			
Product vendor KONICAM					Characterization Factor DB version		2.1		I MATE					
					-18-9	,					製品環境情報 p://www.jemai.or.jp			
PCR name EP and IJ printer Product type						Product type	-		bizhub 458e					
PCR-ID AD-04				Product weight[kg]	96.0	Package[kg]	15.7	Weight total[kg]	111.7					
								: aonago[ng]	,					
Life Cycle Stage			Unit	Raw material	Iction Product	Distribution	Use	Disposal	Recycle					
				MJ	7.00E+03	1.09E+03	1.92E+02	1.03E+04	7.72E+01	-2.79E+03				
			Energy Consumption		Mcal	1.67E+03	2.60E+02	4.59E+01	2.46E+03	1.84E+01	-6.66E+02			
				Coal	kg	6.66E+01	7.36E+00	4.49E-04	6.37E+01	3.80E-01	-3.24E+01			
			Energy	Crude oil (as a fuel)	kg	6.23E+01	8.33E+00	4.19E+00	6.76E+01	8.86E-01	-2.02E+01			
				Natural Gas	kg	1.28E+01	3.87E+00	6.47E-02	2.90E+01	1.98E-01	-3.70E+00			
				Uranium ore	mg	1.15E-03	4.98E-04	3.04E-08	2.53E-03	2.57E-05	-1.84E-04			
				Crude oil (as an ingredients)	kg	2.28E+01	0	0	3.19E+01	0	-1.38E+01			
				Iron ore	kg	5.56E+01	0	0	2.64E+01	0	-3.27E+01			
				Copper ore	kg	2.10E+00	0	0	3.10E-03	0	-7.26E-01			
	G te	۵		Bauxite	kg	2.63E+00	0	0	1.87E+00	0	-1.79E+00			
	umpti	Exhaustible	0.00	Nickel ore Chromium ore	kg ka	9.34E-02	0	0	6.93E-02	0	-6.51E-02			
	Const nviro.	Exhau	Dep	Manganese ore	kg kg	1.44E-01 2.78E-01	0	0	1.03E-01 1.51E-01	0	-9.86E-02 -2.32E-02			
	the et		Material	Plumbous ore	kg kg	8.18E-02	0	0	0	0	-2.46E-02			
	Resource Consumption from the environment	rom t		Tin ore	kg	0.102 02	0	0	0	0	0			
	ss =			Zinc ore	kg	8.04E-01	0	0	0	0	-2.42E-01			
				Gold ore	kg	0	0	0	0	0	0			
				Silver ore	kg	0	0	0	0	0	0			
				Silica sand	kg	3.11E+00	0	0	4.18E-01	0	-1.04E+00			
s				Rock salt	kg	1.12E+01	1.22E-03	0	1.88E+00	3.52E-02	-4.87E+00			
alyse				Limestone	kg	1.13E+01	0	0	5.42E+00	4.34E-01	<u>-5.39E+00</u>			
Inventory analyses		-		Natural soda ash Wood	kg	2.55E-01 2.33E+01	0	0	1.23E-02	0	-8.88E-02			
vento		Renewable resources		Water	kg kg	3.04E+04	5.84E+03	3.38E-01	1.69E+01 3.41E+04	3.12E+02	<u>-1.61E+01</u> -7.91E+03			
Ē		to Atmosphere		CO2	kg	4.06E+02	5.77E+01	1.36E+01	4.91E+02	4.33E+01	-1.55E+02			
				SOx	kg	3.00E-01	4.36E-02	9.14E-03	3.57E-01	2.32E-02	-1.23E-01			
				NOx	kg	5.09E-01	3.56E-02	7.91E-02	5.40E-01	5.83E-02	-2.07E-01			
				N2O	kg	3.23E-02	1.29E-03	2.08E-03	4.85E-02	8.12E-05	-1.30E-02			
				CH4	kg	3.04E-03	1.33E-03	8.12E-08	6.73E-03	6.87E-05	-4.61E-04			
				со	kg	7.67E-02	8.55E-03	2.35E-02	8.75E-02	1.27E-02	-3.42E-02			
				NMVOC	kg	5.94E-03	2.61E-03	1.59E-07	1.32E-02	1.35E-04	<u>-9.01E-04</u>			
	harge			CxHy dust	kg	1.64E-02	2.43E-04	2.17E-03	1.46E-02	3.66E-04	-6.91E-03			
	/Discl			BOD	kg kg	5.82E-02	1.87E-03	7.25E-03	4.48E-02	3.42E-03	<u>-2.63E-02</u>			
	Emission/Discharge to the environment			COD	kg kg	_	_	_	_	_	_			
	Emis to th	to W	ater system	N total	kg			_		_				
				P total	kg	-	-	-	_	-	-			
				SS	kg	-	-	-	-	-	-			
			o Soil system	Unspecified solid waste	kg	2.86E+00	9.15E-03	0	2.16E+01	4.31E+01	-1.41E+00			
				Slag	kg	1.77E+01	0	0	8.03E+00	0	-9.41E+00			
		to S		oil system	Soil system	Soil system	il system	Sludge	kg	4.60E+00	0	0	4.01E+00	0
				Low emission radioactive waste	kg	8.05E-04	3.48E-04	2.12E-08	1.77E-03	1.79E-05	-1.28E-04			
	ion by Resource Consumption		xhaustible resources	Energy resources (crude oil equivalent)	kg	1.30E+02	2.18E+01	4.27E+00	1.64E+02	1.58E+00	-4.69E+01			
ment				Mineral resources (Iron ore equivalent)	kg	5.82E+02	0	0	1.07E+02	0	-2.37E+02			
ses				Global warming (CO2 equivalent)	kg	4.15E+02	5.81E+01	1.42E+01	5.04E+02	4.33E+01	-1.58E+02			
as	mpt		to	Acidification		6.56E-01	6.85E-02	6.45E-02	7.34E-01	6.40E-02	-2.68E-01			
Impact assesment	Consur	Atr	nosphere	(SO2 equivalent)	kg	0.002-01	0.052-02	0.450-02	7.340-01	0.40E-02	-2.00E-01			
-	Emision Consumption		o Water system											
	by Em		o Soil 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) 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 product/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). 1,215,000 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 material production of recycled materials are included in the values with minus as a recycling effect.

Form3 (F-03-03)

Product data sheet (Input data and parameters for LCA) F-03-03



 Document control no.
 F-03-03

 Product vendor
 KONICAMINOLTA,INC.

 EcoLeaf registration no.
 AD-18-959

 PCR name
 EP and IJ printer(PCR-ID:AD-04)
 Product type
 bizhub 458e

 LCA/LCIA in units of:
 1
 Product weight[kg]
 96.0
 Package[kg]
 15.7
 Weight total[kg]
 111.7

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

 11.7

	Breakdown of primar	y materials		Math breakdown of parts, which need to apply Processing / Assembly Base Units (Parts B,			
Material name Weight (kg)		Material name	Weight (kg)	Process name	Weight (kg)	Process name	Weight (kg)
Ordinary steel	5.32E+01	Rubber	5.51E-01	Press molding:lron	4.71E+01		
Stainless steel	5.85E-01	Semiconductor circuit board	2.76E+00	Press molding:Nonfe rrous metal	4.11E+00		
Aluminium	2.03E+00			Injection molding	3.33E+01		
Other metals	2.08E+00						
Glass	2.23E+00						
Thermoplastic resin	3.39E+01						
Wood	6.50E+00						
Paper	7.87E+00						
Subtotal	1.08E+02	Subtotal	3.31E+00				
	Total		1 195-09	Subtotal	9455-01	Subtotal	

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

	NOx should be indicated in SO2, NO2								
5	Classification	Energy	Energy	Material	Material				
ptic	Distribution	Electricity	Furnace urban	Industrial	Groundwater				
Ę	Distribution	(kWh)	gas (m <sup>3</sup> )	water(kg)	(kg)				
Consumption	Quantity	3.50E+01	2.45E-01	2.43E+02	1.57E+01				
0	Note								
	01	To Water							
,uc/	Classification	system							
Emission/ Discharge	Distribution	Sewage(kg)							
ji ji ji	Quantity	2.11E+02							
	Note	2.112.02							
3. Distribu	ution stage information (per unit	:): means, distan	ice, loading ratio	o, consumptions	and emissions/	discharges.			
	Moone of transportation								
	Means of transportation	Freight by	Freight by	Freight by	Freight by	Diesel truck	Diesel truck	Diesel truck	Diesel truck
	Means of transportation	Freight by ship	Freight by ship	Freight by ship	Freight by ship	Diesel truck :20ton	Diesel truck :20ton	Diesel truck :20ton	Diesel truck :20ton
	· ·	ship	ship	ship		:20ton	:20ton	:20ton	
	Means of transportation Conditions				ship				:20ton
e	· ·	ship	ship	ship	ship Loading	:20ton	:20ton	:20ton	:20ton Loading
ution	Conditions	ship Load(kg•km)	ship Weight (kg)	ship Distance (km)	ship Loading Ratio(%w)	:20ton Load(kg•km)	:20ton Weight (kg)	:20ton Distance (km)	:20ton Loading Ratio(%w)
stribution	Conditions Quantity Note	ship Load(kg•km) 1.90E+05	ship Weight (kg) 1.12E+02	ship Distance (km) 1.70E+03	ship Loading Ratio(%w) 1.0E+02	:20ton Load(kg•km)	:20ton Weight (kg)	:20ton Distance (km)	:20ton Loading Ratio(%w)
Distribution	Conditions Quantity	ship Load(kg•km)	ship Weight (kg)	ship Distance (km)	ship Loading Ratio(%w)	:20ton Load(kg•km)	:20ton Weight (kg)	:20ton Distance (km)	:20ton Loading Ratio(%w)
Distribution	Conditions Quantity Note Means of transportation	ship Load(kg•km) 1.90E+05 Diesel truck :2ton	ship Weight (kg) 1.12E+02 Diesel truck :2ton	ship Distance (km) 1.70E+03 Diesel truck :2ton	ship Loading Ratio(%w) 1.0E+02 Diesel truck :2ton	:20ton Load(kg•km)	:20ton Weight (kg)	:20ton Distance (km)	:20ton Loading Ratio(%w)
Distribution	Conditions Quantity Note	ship Load(kg•km) 1.90E+05 Diesel truck	ship Weight (kg) 1.12E+02 Diesel truck	ship Distance (km) 1.70E+03 Diesel truck	ship Loading Ratio(%w) 1.0E+02 Diesel truck .:2ton Loading	:20ton Load(kg•km)	:20ton Weight (kg)	:20ton Distance (km)	:20ton Loading Ratio(%w)
Distribution	Conditions Quantity Note Means of transportation Conditions	ship Load(kg•km) 1.90E+05 Diesel truck :2ton Load(kg•km)	ship Weight (kg) 1.12E+02 Diesel truck :2ton Weight (kg)	ship Distance (km) 1.70E+03 Diesel truck :2ton Distance (km)	ship Loading Ratio(%w) 1,0E+02 Diesel truck :2ton Loading Ratio(%w)	:20ton Load(kg•km)	:20ton Weight (kg)	:20ton Distance (km)	:20ton Loading Ratio(%w)
Distribution	Conditions Quantity Note Means of transportation	ship Load(kg•km) 1.90E+05 Diesel truck :2ton	ship Weight (kg) 1.12E+02 Diesel truck :2ton	ship Distance (km) 1.70E+03 Diesel truck :2ton	ship Loading Ratio(%w) 1.0E+02 Diesel truck .:2ton Loading	:20ton Load(kg•km)	:20ton Weight (kg)	:20ton Distance (km)	:20ton Loading Ratio(%w)

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 sification Consumption Consumption Consumption Consumption Consumption Consumption Consumption Electricity Gasoline as Furnace urban Industrial Groundwater Ordinary steel Stainless stee Aluminium Product Distribution (kWh) 5.85E+02 fuel(kg) 3.61E-01 water(kg) 7.41E+01 (kg) 1.20E+03 (kg) 2.53E+01 (kg) 4.35E-01 (kg) 1.77E+00 gas (m<sup>3</sup>) 9.53E+00 Quantity Classification Processing Consumption Consumption Consumption Consumption Processing Processing Processing Thermoplastic resin(kg) Injection molding (kg) 1.97E+00 Product Press:Iron Press: Nonferrous(kg) Blow molding Distribution Glass(kg) Paper(kg) Rubber(kg) (kg) 2.90E+01 (kg) 1.22E+01 Quantity Note 3.27E+01 1.40E-01 7.93E+00 3.52E-01 4.64E-01 To Water Classification Assembly system Product Parts sembly (kg) Distribution Sewage (kg) 9.53E+02 Quantity 1.22E+01 Note Classification Distribution Distribution Distribution Diesel truck: 20ton (kg•km) Diesel truck: 10ton (kg•km) Distribution Freight by ship (kg·km) Product Quantity 1.50E+04 9.14E+03 6.57E+03 Note 4.2 Disposition/Recycle information on consumables and replacement parts Consumption Consumption Treatment Treatment Treatment Treatment Treatment Treatment Electricity (kWh) Recycle: to iron(kg) Recycle: to Aluminum(kg) Recycle: to plastics(kg) Recycle: to Paper(kg) Industrial waste destruction by fire(kg) Industrial was inning(kg) Distribution Kerosene(kg) Cons Quantity 9.76E-01 3.47E-02 1.03E+01 7.07E-01 5.55E+00 3.17E+00 2.54E-01 5.65E-02 Note Treatment Treatment Deduction Deduction Deduction Deduction Waste destruction by fire(kg) Waste Distribution Iron(kg) Plastics(kg) Aluminum(kg) Paper(kg) innina(ka) Consi Quantity 1.34E+01 1.82E+01 -1.03E+01 -7.07E-01 -5.55E+00 -3.17E+00 Note Distribution Distribution Classification les Diesel truck Diesel truck 4ton Distribution (ka•km) (kg·km) Cons Quantity Note 2.53E+03 2.90E+03

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

8	Classification	Consumption	Consumption	Treatment	Treatment	Treatment	Treatment	Treatment	Treatment
umables	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)
Const	Quantity	2.10E+00	7.47E-02	2.20E+01	8.12E-01	1.21E+00	8.90E-01	1.34E+01	6.13E+00
C	Note								
	Classification	Treatment	Treatment	Treatment	Treatment	Deduction	Deduction	Deduction	Deduction
sumables		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)
Con	Quantity	9.54E-01	2.57E-01	2.93E+01	3.83E+01	-2.20E+01	-8.12E-01	-1.21E+00	-8.90E-01
	Note								
	Classification	Deduction	Deduction	Distribution	Distribution				
onsumables		Plastics(kg)	Paper(kg)	Diesel truck: 10ton (kg•km)	Diesel truck: 4ton (kg•km)				
C	Quantity	-1.34E+01	-6.13E+00	5.43E+03	6.57E+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 1,815,000 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

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".