# Product Environmental Aspects Declaration



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

No. AD-13-E244 Date of publication Jan./29/2013





Environment Contact: RICOH Company, Ltd. Corporate Communication Center email: envinfo@ricoh.co.jp



# **Aficio MP 5002SP**

Printing process: Twin Laser Beam Scanning &

Electrophotographic Printing **Toner**: Dry, Dual Component

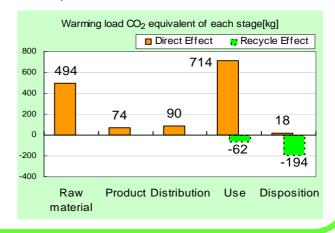
Multi-Copy Speed: 50 copies/minute (Letter LEF)

**Copy/Print size**: 5.5" x 8.5" to 11" x 17"

The warming load of the Use stage is based on the supposition that the product prints 1,500,000 images for five years.

	•
Consumption and discharge in a life cycle	All the stage sum totals
Global Warming (CO <sub>2</sub>	1.39
equivalent) / t	(1.13)
Acidification (SO <sub>2</sub>	2.13
equivalent) / kg	(1.77)
Energy resources (crude oil	27.6
equivalent) / GJ	(22.9)

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



# 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.
- 5. This declaration was produced using Product Category Rule intended for a product model sold in the Japanese market and using the qualitative and quantitative data collected in Japan.

# [Supplemental environmental information]

- Certified regulations: Energy Star Version 1.1
- •This product and its main components such as photoreceptor, toner, carrier are produced in our factories certified to ISO14001 management system standard.

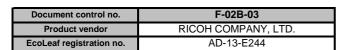
PCR review was conducted by: PCR Deliberation Committee, January 01, 2008, Name of reprentative: Youji Uchiyama, University of Tsukuba, Graduate School

Independent verification of the declaration and data, according to ISO14025 □internal ■external Third party verifier: Hiroo Sakazaki \*

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)**



Unit Function DB version Characterization Factor DB version

v2.1 v2.1



	PC	R name	EP an	d IJ pri	nter	Product type		Aficio MI	P 5002SP	
	Р	CR ID	AD-04		Product weight (kg)	97	Package (kg)	16	Weight total (kg)	113
			Life Cycle Stage		Produ	uction				
In/Ou	ut items		Life Cycle Stage	Unit	Raw material	Product	Distribution	Use	Disposition	Recycle effect
Eno	ray Cond	sumption		MJ	8.65E+03	1.38E+03	1.23E+03	1.64E+04	2.72E+01	-4.73E+03
Elle	igy Cons	Sumption		Mcal	2.07E+03	3.30E+02	2.94E+02	3.91E+03	6.49E+00	-1.13E+03
			Coal	kg	7.60E+01	9.39E+00	8.49E-01	8.37E+01	1.04E-01	-6.26E+01
		Energy	Crude oil (for fuel)	kg	7.89E+01	1.06E+01	2.54E+01	1.34E+02	4.02E-01	-2.00E+01
			LNG Uranium content of an ore	kg	1.46E+01 1.48E-03	4.87E+00 6.35E-04	7.89E-01 5.56E-05	4.03E+01 4.53E-03	5.69E-02 7.03E-06	-2.96E+00 4.86E-05
			Crude oil (for material)	kg kg	2.99E+01	0.33E-04	0	2.93E+01	0	-3.82E+01
			Iron content of an ore	kg	6.03E+01	0	0	1.32E+01	0	-6.79E+01
			Cu content of an ore	kg	8.04E-01	0	0	6.24E-03	0	-1.57E+00
			Al content of an ore	kg	1.34E+00	0	0	2.37E+00	0	-3.53E+00
	E +		Ni content of an ore	kg	2.10E-01	0	0	2.69E-04	0	-1.38E-03
	nent	Exhaustible resources	C content of an ore	kg	3.06E-01	0	0	4.90E-03	0	-2.52E-02
	nsur iron	aust	Mn content of an ore	kg	3.54E-01	0	0	7.00E-02	0	-5.89E-02
	e Co	res res	Pb content of an ore	kg	1.24E-01	0	0	6.82E-02	0	-1.28E-01
	urce the	Material	Sn content of an ore	kg	0	0	0	0	0	0
	Resource Consumption from the environment		Zn content of an ore	kg	7.74E-01	0	0	1.11E+00	0	-1.26E+00
	Ľ.		Au content of an ore	kg	0	0	0	0	0	0
			Ag content of an ore	kg	0	0	0	0	0	0
			Silica Sand Halite	kg	2.37E+00 2.01E+01	0	0	1.63E-01 3.30E+00	0 1.76E-03	-1.54E+00 -5.44E-01
S			Limestone	kg kg	1.34E+01	0	0	2.66E+00	1.67E-01	-1.17E+01
alysı			Natural soda ash	kg	1.62E-01	0	0	2.60E-07	0	-7.55E-02
Inventory analyses			14atarar 30da asrr	kg	1.022 01	U		2.002 07		7.002 02
ntor		Renewable	Wood	kg	2.81E+01	0	0	6.86E+00	0	0.00E+00
Inve		resources	Water	kg	3.59E+04	7.25E+03	6.23E+02	7.06E+04	8.95E+01	-6.77E+03
			CO <sub>2</sub>	kg	4.83E+02	7.34E+01	8.60E+01	7.04E+02	1.85E+01	-2.48E+02
			SO <sub>x</sub>	kg	3.04E-01	5.56E-02	4.86E-02	5.58E-01	1.01E-02	-2.03E-01
			NO <sub>x</sub>	kg	5.55E-01	4.49E-02	3.01E-01	7.12E-01	3.07E-02	-2.20E-01
			N <sub>2</sub> O	kg	3.82E-02	1.40E-03	1.46E-02	3.68E-02	3.26E-05	-2.57E-02
		to Atmosphere	CH <sub>4</sub>	kg	3.94E-03	1.70E-03	1.49E-04	1.21E-02	1.88E-05	1.97E-04
			CO NMVOC	kg	7.08E-02	1.09E-02	6.29E-02	1.35E-01	7.86E-03	-5.93E-03
	arge nent		C <sub>x</sub> H <sub>v</sub>	kg	7.70E-03 1.91E-02	3.33E-03 2.70E-04	2.91E-04 1.01E-02	2.36E-02 1.61E-02	3.69E-05 2.79E-04	3.84E-04 -1.05E-02
	isch		Dust	kg kg	6.51E-02	2.39E-03	3.06E-02	6.16E-02	1.98E-03	-4.27E-02
	Emission/Discharge to the environment		BOD	kg	0.51L-02 -	2.39L-03	3.00L-02 -	0.10L-02 -	1.90L-03	-4.27L-02
	issic the e		COD	kg	-	-	-	-	-	-
	E t	to Water syster		kg	-	-	-	-	-	-
			P total	kg	-	-	-	-	-	-
			SS	kg	-	-	-	-	-	-
			Unspecified Solid Waste	kg	3.79E+00	0	0	1.02E+01	7.68E+00	-1.00E+00
		to Soil system	Slag	kg	2.07E+01	0	0	5.32E+00	0	-2.20E+01
		.,	Sludge	kg	2.88E+00	0	0	5.09E+00	0	-7.57E+00
			Low level radio-active waste	kg	1.04E-03	4.44E-04	3.89E-05	3.15E-03	4.91E-06	3.41E-05
	by source sumpti on	Exhaustible resources	Energy resources (crude oil equivalent)	kg	1.57E+02	2.77E+01	2.73E+01	2.73E+02	5.94E-01	-6.33E+01
	Re	resources	Mineral resources (Iron ore equivalent)	kg	5.48E+02	0	0	2.66E+02	0	-5.72E+02
Impact assessment	nment		Global Warming (CO <sub>2</sub> equivalent)	kg	4.94E+02	7.38E+01	8.99E+01	7.14E+02	1.85E+01	-2.55E+02
ot asse	sion/ enviro	to Atmosphere	Acidification (SO <sub>2</sub> equivalent)	kg	6.92E-01	8.70E-02	2.59E-01	1.06E+00	3.16E-02	-3.56E-01
Impac	y Emission/ s to the environment		Ozone Depletion (CFC-11 equivalent)	kg	0	0	0	0	0	0
	by Discharge t		Photochemical Oxidant  Eutrophication (Phosphate	kg	3.75E-02	2.49E-03	1.67E-02	4.16E-02	9.46E-04	-2.16E-02
	Disch	to Water syster	equivalent)	kg	0	0	0	0	0	0

[Notes for readers: EcoLeaf common rules]

L. 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

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. CO<sub>2</sub> 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 "O' 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]

This declaration was produced using Product Category Rule intended for a product model sold in the Japanese market and using the qualitative and quantitative data collected in Japan.

# Product data sheet

(Input data and parameters for LCA)

Document control no.	F-03-03
Product vendor	RICOH COMPANY, LTD.
EcoLEaf registration no.	AD-13-E244



PCR name	EP and IJ printer ( PCR-ID : AD-04 )	Product type	Aficio MP 5002SP				
LCA/LCIA in units of:	1 product	Product weight (kg)	97	Package (kg)	16	Weight total (kg)	113

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

	Bro	eakdown of pr	imary materials		Math breakdown of parts, which	h need to apply	Processing / Assembly Base U	nits (Parts B, C)
	Material name	Weight (kg)	Material name	Weight (kg)	Process name	Weight (kg)	Process name	Weight (kg)
	SUS	1.32E+00	PCB	3.43E+00	Press molding: Iron (kg)	5.86E+01	Parts assembly (kg)	9.53E+01
*	Alminum	1.27E+00	Steel	5.78E+01	Press molding: Nonferrous metal (kg)	2.51E+00		
roduct	Glass	9.18E-01	Wood	1.23E-01	Injection molding (kg)	3.28E+01		
Pro	Rubber	4.95E-01			Glass molding (kg)	1.41E+00		
-	Other metals	1.24E+00						
	Paper	1.32E+01						
	Thermoplastic	3.27E+01						
	Thermosetting	6.88E-01						
	Subtotal	5.18E+01	Subtotal	6.13E+01				
		Total		1.13E+02	Subtotal	9.53E+01	Subtotal	9.53E+01

Note

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

SO<sub>2</sub> and NO<sub>3</sub> should be indicated in SO<sub>2</sub>. NO<sub>2</sub> equivalent.

- L	Classification	Energy	Material	Energy	Material		
Consumption	Distribution	Electricity (kWh)	Clean water (kg)	Furnace urban gas (13A) (m <sup>3</sup> )	Industrial water (kg)		
ISI	Quantity	4.24E+01	8.63E+01	2.23E-01	5.05E+01		
ပိ	Note						
<b>~</b> 40	Classification	Water system					
Emission/ Discharge	Distribution	Sewage processing (kg)					
imis Sisc	Quantity	1.37E+02					
	Note						

Note

3. Distribution stage information (per unit): means, distance, loading ratio, consumptions and emissions/discharges.

	Means of transportation	Diesel truck: 20 ton (kg·km)	Freight by ship (kg·km)	Freight by ship (kg·km)	Freight by ship (kg·km)	Freight by ship (kg·km)			
	Conditions	Mass(kg)	Distance (km)	Loading Ratio(%w)	Load(kg·km)	Mass(kg)	Distance (km)	Loading Ratio(%w)	Load(kg·km)
등	Quantity	1.13E+02	2.53E+01	4.73E+01	6.05E+03	1.13E+02	1.20E+04	1.00E+02	1.35E+06
iĦ	Note								
Distribution	Means of transportation	Freight by rail (kg·km)	Freight by rail (kg·km)	Freight by rail (kg·km)	Freight by rail (kg·km)	Diesel truck: 20 ton (kg·km)			
	Conditions	Mass(kg)	Distance (km)	Loading Ratio(%w)	Load(kg·km)	Mass(kg)	Distance (km)	Loading Ratio(%w)	Load(kg·km)
	Quantity	1.13E+02	4.99E+03	1.00E+02	5.64E+05	1.13E+02	6.00E+02	4.73E+01	1.44E+05
	Note								

Note

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

		Cessories subje			0	0	0	0	0
	Classification	Consumption	Consumption	Consumption	Consumption	Consumption	Consumption	Consumption	Consumption
	Distribution	Aluminum plate (kg)	Glass (kg)	Styrene-butadiene rubber (SBR) (kg)	Copper plate (kg)	Zinc (kg)	PA66 (Polyamide 66) (kg)	Polycarbonate (kg)	Polycarbonate- ABS (70/30) (kg)
	Quantity	2.24E+00	3.10E-06	1.84E+00	2.07E-02	9.24E-01	4.75E-03	1.61E-01	1.78E+00
	Note								
	Classification	Consumption	Consumption	Consumption	Consumption	Consumption	Consumption	Consumption	Consumption
	Distribution	Low density polyethylene (kg)	PET (kg)	POM (polyacetal) (kg)	Polypropylene (kg)	Epoxy resin (EP) (kg)	Expandable hard polyurethane (Hard) (kg)	Cold-Rolled steel plate (kg)	Press molding: Iron (kg)
	Quantity	4.58E+00	3.09E+01	1.06E-02	1.00E-04	9.77E-01	8.00E-03	1.27E+01	1.07E+01
	Note								
	Classification	Consumption	Consumption	Consumption	Consumption	Energy	Energy	Material	Water system
Product	Distribution	Press molding: Nonferrous metal (kg)	Injection molding (kg)	Glass molding (kg)	Parts assembly (kg)	Electricity (kWh)	Furnace urban gas (13A) (m <sup>3</sup> )	Industrial water (kg)	Sewage processing (kg)
	Quantity	3.19E+00	7.52E+00	1.84E+00	2.33E+01	2.79E+02	8.91E-01	7.36E+01	7.36E+01
	Note								

Classification	Consumption	Condition	Consumption	Consumption	Condition	Condition	Condition	Condition
Distribution	Electricity (kWh)	Diesel truck: 10 ton (kg·km)	Gasoline (kg)	Corrugated cardboard (kg)	Freight by ship (kg·km)	Freight by rail (kg·km)	Diesel truck: 20 ton (kg·km)	Diesel truck: 10 ton (kg·km)
Quantity	8.53E+02	6.43E+03	6.60E+00	3.22E+00	3.07E+05	1.70E+05	3.30E+04	3.77E+02
Note								
Classification	Condition	Condition	Condition	Condition	Condition	Condition	Condition	
Distribution	Freight by ship (kg·km)	Freight by rail (kg·km)	Diesel truck: 20 ton (kg·km)	Diesel truck: 20 ton (kg·km)	Freight by ship (kg·km)	Freight by rail (kg·km)	Diesel truck: 20 ton (kg·km)	
Quantity	1.80E+04	9.97E+03	1.94E+03	9.50E+02	2.78E+05	1.16E+05	2.25E+04	
Note								

Note

4.2 Disposition/Recycle information on consumables and replacement parts

	Classification	Process	Process	Process	Process	Process	Process	Process	Process
	Distribution	Diesel truck: 4 ton (kg·km)	Landfill: Industrial waste (kg)	Incineration to landfill (as ash) (kg)	Shredding (kg)	Sorting: Iron (by magnetic force) (kg)	Sorting: Nonferrous metal (by eddy current with wind force) (kg)	Sorting: Plastics (by relative density difference in water) (kg)	Recycle: to Glass (kg)
	Quantity	3.12E+02	8.73E+00	3.22E+00	2.84E+01	2.84E+01	1.81E+01	1.50E+01	3.10E-06
	Note								
ee	Classification	Process	Process	Process	Process	Deduction	Deduction	Deduction	Deduction
Consumables	Distribution	Recycle: to cold-rolled steel (kg)	Recycle: to Aluminum plate (kg)	Recycle: to copper plate (kg)	Recycle: to Thermoplastic pellet (kg)	Glass (kg)	Cold-Rolled steel plate (kg)	Aluminum plate (kg)	Copper plate (kg)
	Quantity	1.03E+01	2.15E+00	9.06E-01	6.27E+00	2.79E-06	1.03E+01	2.15E+00	9.06E-01
	Note								
	Classification	Deduction	Process						
	Distribution	Polystyrene (kg)	Diesel truck: 10 ton (kg·km)						
	Quantity	6.27E+00	2.27E+04			_			
	Note								

Note

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

	Classification	Process	Process	Process	Process	Process	Deduction	Process	Process
	Distribution	Landfill: Industrial waste (kg)	Shredding (kg)	Incineration: Industrial waste (kg)	Incineration to landfill (as ash) (kg)	Diesel truck: 10 ton (kg·km)	High density polyethylene (kg)	Sorting: Iron (by magnetic force) (kg)	Sorting: Nonferrous metal (by eddy current with wind force) (kg)
	Quantity	5.65E+00	9.94E+01	1.49E-02	1.31E+01	9.00E+04	1.10E+00	9.74E+01	4.22E+01
	Note								
	Classification	Process	Process	Process	Process	Process	Process	Deduction	Deduction
Scenario	Distribution	Sorting: Plastics (by relative density difference in water) (kg)	Recycle: to Glass (kg)	Recycle: to cold-rolled steel (kg)	Recycle: to Aluminum plate (kg)	Recycle: to copper plate (kg)	Recycle: to Thermoplastic pellet (kg)	Glass (kg)	Cold-Rolled steel plate (kg)
	Quantity	3.99E+01	9.18E-01	5.52E+01	1.19E+00	4.32E+00	3.21E+01	8.99E-01	5.52E+01
	Note								
	Classification	Deduction	Deduction	Deduction					
	Distribution	Aluminum plate (kg)	Polystyrene (kg)	Copper plate (kg)					
	Quantity	1.19E+00	3.10E+01	4.32E+00					
	Note								

Note

# 6. Others

This declaration was produced using Product Category Rule intended for a product model sold in the Japanese market and using the qualitative and quantitative data collected in Japan.