

#### 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 PSC: Product Specification Criteria.
- Visit EcoLeaf website under JEMAI homepage at http://www.jemai.or.jp/ecoleaf\_e/ 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 regulations: International Energy Star Program, EU RoHS.
- •This product and its main components such as photoreceptor, toner, and 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 representative: Youji Uchiyama, University of Tsukuba, Graduate School

Independent verification of the declaration and data, according to ISO14025 — internal external

Third party verifier \* : Kazuo Naito, system certification auditor

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.

The EcoLeaf is an environmental labeling program that belongs to the ISO-Type III category.

Document control no. Product vendor			ntrol no.	F	-02B-03		Unit Fu	nction DB version	v2.1	1	
	Produ	uct ve	ndor	RICOH C	OMPAN	IY. LTD.	Characterization	Factor DB version	v2.1		
E	coLeaf r				19-E11	,			V2.1	1	
	BC	R nar	20	ED or	nd IJ pri	ntor	Product type		IM C	4500	
		PCR IE		AD-04		Product weight (kg)	101.1	Package (kg)	20.2	Weight total (kg)	121.3
			, 	AD-04		Floddet weight (kg)	101.1	Fackage (kg)	20.2	Weight total (Kg)	121.3
In/O	n/Out items			Unit	Prode Raw material	uction Product	Distribution	Use	Disposition	Recycle effect	
Eno	ray Con	oump	tion		MJ	7.69E+03	1.59E+03	1.28E+03	1.23E+04	4.02E+01	-4.55E+03
Ene	Energy Consumption				Mcal	1.84E+03	3.81E+02	3.06E+02	2.93E+03	9.59E+00	-1.09E+03
				Coal	kg	6.44E+01	9.76E+00	2.99E-03	4.78E+01	1.77E-01	-5.21E+01
			Energy	Crude oil (for fuel)	kg	6.81E+01	1.13E+01	2.79E+01	1.01E+02	5.49E-01	-2.05E+01
				LNG	kg	1.21E+01	7.69E+00	4.31E-01	5.73E+01	9.47E-02	-1.78E+00
				Uranium content of an ore	kg	1.04E-03	6.60E-04	2.02E-07	2.58E-03	1.20E-05	5.19E-05
				Crude oil (for material) Iron content of an ore	kg	3.43E+01 5.29E+01	0	0	1.71E+01 1.09E+01	0	-4.28E+01 -6.03E+01
				Cu content of an ore	kg kg	1.26E+00	0	0	1.93E-02	0	-0.03E+01 -1.43E+00
				Al content of an ore	kg	1.50E+00	0	0	2.90E-01	0	-1.68E+00
	u o			Ni content of an ore	kg	3.12E-01	0	0	1.69E-02	0	-1.23E-03
	mpt	stible		Cr content of an ore	kg	4.40E-01	0	0	2.66E-02	0	-2.24E-02
	virol	Exhaustible resources		Mn content of an ore	kg	3.31E-01	0	0	6.05E-02	0	-5.23E-02
	Resource Consumption from the environment		₽ Material	Pb content of an ore	kg	1.06E-01	0	0	1.69E-03	0	-1.16E-01
	n the			Sn content of an ore	kg	1.59E-03	0	0	0.00E+00	0	0
	Resc			Zn content of an ore	kg	1.07E+00	0	0	1.74E-02	0	-1.14E+00
	<u> </u>			Au content of an ore	kg	1.71E-03	0	0	9.26E-04	0	0
				Ag content of an ore	kg	4.96E-02	0	0	0	0	0
				Silica Sand	kg	3.18E+00	0	0	1.35E-01	0	-2.65E+00
s				Halite	kg	3.15E+01	5.60E-03	0	4.58E+00	7.25E-03	-7.18E-01
alyse				Limestone	kg	1.20E+01	0	0	2.34E+00	5.23E-01	-1.08E+01
ana				Natural soda ash	kg	2.51E-01	0	0	1.60E-04	0	-2.14E-01
tory		Rene		Wood	kg	3.27E+01	0	0	2.61E+01	0	0
Inventory analyses		resou	rces	Water	kg	2.39E+04	8.39E+03	2.26E+00	4.92E+04	1.50E+02	-3.19E+03
-				CO <sub>2</sub>	kg	4.06E+02	8.40E+01	9.08E+01	5.91E+02	2.74E+01	-2.23E+02
				SO <sub>x</sub>	kg	2.70E-01	5.79E-02	5.54E-02	3.01E-01	1.49E-02	-1.31E-01
				NO <sub>x</sub>	kg	4.94E-01	5.80E-02	4.31E-01	7.47E-01	4.22E-02	-1.91E-01
				N <sub>2</sub> O	kg	3.55E-02	1.05E-02	1.52E-02	1.42E-01	5.82E-05	-2.48E-02
		to Atn	nosphere	CH <sub>4</sub>	kg	2.74E-03	1.76E-03	5.41E-07	6.89E-03	3.21E-05	1.72E-04
				CO	kg	6.21E-02	1.26E-02	1.13E-01	1.14E-01	9.13E-03	6.48E-03
	arge ent			NMVOC	kg	5.37E-03	3.46E-03	1.06E-06	1.35E-02	6.28E-05	3.36E-04
	Emission/Discharge to the environment			C <sub>x</sub> H <sub>y</sub> Dust	kg	1.76E-02	1.73E-03	1.30E-02	3.11E-02	2.97E-04	-1.05E-02
	iQ/u	<u> </u>			kg	5.94E-02	2.51E-03	4.14E-02	4.34E-02	2.04E-03	-3.85E-02
	ssio Je e			BOD COD	kg kg	-	-	-	-	-	-
	to the mining of	to Wat	ter system	N total	kg	-	-	-	-	-	-
		10		P total	kg	-	-	-	-	-	-
				SS	kg			-			-
				Unspecified Solid Waste	kg	3.98E+00	3.37E-02	0	6.75E+00	7.68E+00	-4.92E-01
				Slag	kg	1.96E+01	0	0	3.36E+00	0	-1.95E+01
		to Soi	il system	Sludge	kg	3.23E+00	0	0	6.22E-01	0	-3.61E+00
				Low level radio-active waste	kq	7.26E-04	4.61E-04	1.41E-07	1.80E-03	8.38E-06	3.64E-05
	ce			Energy resources (crude oil							
, ut	mpti		ustible	equivalent)	kg	1.32E+02	3.23E+01	2.85E+01	2.22E+02	8.75E-01	-5.56E+01
sessme	by Resource Consumption	resou	rces	Mineral resources (Iron ore equivalent)	kg	1.15E+04	0	0	1.02E+03	0	-5.20E+02
Impact assessment	ssion/ rge to e ment			Global Warming (CO <sub>2</sub> equivalent)	kg	4.16E+02	8.69E+01	9.49E+01	6.30E+02	2.75E+01	-2.29E+02
Imp	by Emission/ Discharge to the environment		nosphere	Acidification (SO <sub>2</sub> equivalent)	kg	6.16E-01	9.85E-02	3.57E-01	8.24E-01	4.44E-02	-2.65E-01

[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.
3) "Distribution" stage is intended for transportation of produced produced removes 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 analyse

A Drate of minors anayses A. Data of minoral 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 actorific value, e.g. Data on urganium ore presents weight of urganium concentrate, which is available for use as an atomic fuel. C. Data of discharge to water system are in actual figure indoc using unit function in inventory rankyses). 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 2 in case of "Global Warming"). A impact "by resource consumption" represents maanitude of impacts to resource depletion. B. impact "by emission/discharge to environment" represents maanitude of impacts to Atmosphere, Water and Soil system.

B. Impact 'D' emission/ discharge to environment represents magnitude or impacts to runnopriore, where and our optional
A. Exconential notation, after the decimal point to two, should be used.
B. indicate 'O' instead exconential notation. If the result of calculation or estimation is considered as "zero" or nealiable in comparison to related results.
C. indicate '-- if calculation on estimation can not be done. In order to differentiate to indicate 'zero".
(BQD for material production are for production from mineral ore. Those data do not include reclaming 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.

Document control no.	F-03-03
Product vendor	RICOH COMPANY, LTD.
EcoLEaf registration no.	AD-19-E1143

	PCR name	EP and IJ printer ( PCR-ID : AD-04 )	Product type	IM C4500								
	LCA/LCIA in units of:	1 product	Product weight (kg)	101.1 Package (kg) 20.2 Weight to			Weight total (kg)	121.3				
1	1. Product information (per unit): parts etc. by material and by process/assembly method											

	u , i	,	material and by proceedia	,				
	Br	eakdown of pi	rimary materials		Math breakdown of parts, which	ch 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)
	Stainless steel	1.97E+00	Thermosetting resin	1.46E+00	Press molding:Iron (kg)	5.09E+01	Parts assembly (kg)	9.79E+01
	Aluminum	1.42E+00	Electronic circuit board	1.34E+00	Press molding:Nonferrous metal (kg)	5.10E+00		
duct	Glass	2.60E+00	Ordinary steel	5.04E+01	Injection molding (kg)	3.92E+01		
Prod	Rubber	1.28E-01	Wood	7.17E+00	Glass molding (kg)	2.73E+00		
Ā	Other metals	3.68E+00						
	Paper	1.16E+01						
	Lubricant	1.06E-02						
	Thermoplastic resin	3.96E+01						
	Subtotal	6.10E+01	Subtotal	6.04E+01				
		Total		1.21E+02	Subtotal	9.79E+01	Subtotal	9.79E+01

Note

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

SOx and NOx should be indicated in SO<sub>2</sub>, NO<sub>2</sub> equivalent.

u	Classification	Energy	Material	Energy	Material		
Consumption	Distribution	Electricity (kWh)	Clean water (kg)	Furnace urban gas (13A) (m3)	Industrial water (kg)		
suo	Quantity	4.55E+01	1.28E+02	3.58E+00	8.37E+02		
0	Note						
	Classification	Water system					
Emission/ Discharge	Distribution	Sewage processing (kg)					
Dis	Quantity	9.65E+02					
	Note						
Note							

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

Distribution	Means of transportation	Diesel truck:20 ton (kg+km)	Diesel truck:20 ton (kg·km)	Diesel truck:20 ton (kg·km)	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)
	Quantity	1.21E+02	1.28E+03	5.43E+01	2.85E+05	1.21E+02	1.16E+04	1.00E+02	1.41E+06
	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

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	Classification	Consumption	Consumption	Consumption	Consumption	Consumption	Consumption	Consumption	Consumption
	Distribution	Stainless steel plate (kg)	Aluminum plate (kg)	Styrene-butadiene rubber (SBR) (kg)	Copper plate (kg)	Zinc (kg)	Tin (kg)	Corrugated cardboard (kg)	Lubricant (kg)
	Quantity	1.05E-01	2.74E-01	1.01E-01	6.09E-02	1.66E-03	0.00E+00	1.22E+01	5.47E-04
	Note								
	Classification	Consumption	Consumption	Consumption	Consumption	Consumption	Consumption	Condition	Consumption
Product	Distribution	ABS (kg)	PA66 (Polyamide 66) (kg)	Polycarbonate (kg)	Polycarbonate- ABS (70/30) (kg)	High density polyethylene (kg)	Low density polyethylene (kg)	Diesel truck: 20 ton (kg∙km)	PET (kg)
<u> </u>	Quantity	1.20E-01	0.00E+00	-3.65E-06	4.46E+00	0.00E+00	2.31E-01	6.38E+04	1.88E+01
	Note								
	Classification	Consumption	Consumption	Consumption	Consumption	Condition	Consumption	Consumption	Consumption
	Distribution	POM (polyacetal) (kg)	Polypropylene (kg)	Epoxy resin (EP) (kg)	Expandable hard polyurethane (Hard) (kg)	Freight by ship (kg∙km)	Expandable soft polyurethane (for automobile) (kg)	Unsaturated polyester (UP) (kg)	Assembled circuit board (kg)
	Quantity	3.19E-01	7.27E-02	2.17E-02	4.35E-03	3.59E+05	3.66E-02	2.62E-02	6.86E-03
	Note								
	Classification	Consumption	Consumption	Consumption	Condition	Consumption	Consumption	Consumption	Consumption
	Distribution	Electroplated steel Plate (kg)	Cold-Rolled steel plate (kg)	Gold (kg)	Diesel truck: 20 ton (kg∙km)	Polystyrene (kg)	Glass (kg)	Press molding: Iron (kg)	Press molding: Nonferrous metal (kg)
	Quantity	2.72E+00	7.75E+00	9.26E-04	2.00E+03	1.31E-01	1.19E-04	9.60E+00	3.38E-01
	Note								
	Classification	Condition	Consumption	Consumption	Consumption	Energy	Energy	Material	Condition
	Distribution	Freight by ship (kg∙km)	Injection molding (kg)	Glass molding (kg)	Parts assembly (kg)	Electricity (kWh)	Furnace urban gas (13A) (m3)	Industrial water (kg)	Diesel truck: 20 ton (kg∙km)
	Quantity	1.13E+04	5.46E+00	1.01E-01	1.55E+01	1.98E+02	4.41E+01	8.83E+03	3.19E+04
	Note								

	Classification	Water system	Consumption	Consumption	Condition		
	Distribution	Sewage processing (kg)	Electricity (kWh)	Gasoline as fuel (kg)	Freight by ship (kg ⋅ km)		
	Quantity	8.83E+03	4.20E+02	1.39E+01	1.80E+05		
	Note						

Note

#### 4.2 Disposition/Recycle information on consumables and replacement parts

	Classification	Process	Process	Process	Process	Process	Process	Process	Process
	Distribution	Landfill: Industrial waste (kg)	Incineration to landfill (as ash) (kg)	Diesel truck: 4 ton (kg∙km)	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	3.65E+00	1.22E+01	1.18E+03	1.84E+01	1.84E+01	9.14E+00	8.82E+00	1.19E-04
s	Note								
ple	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)
Ŭ	Quantity	9.22E+00	2.63E-01	6.74E-02	5.16E+00	1.17E-04	9.22E+00	2.63E-01	6.74E-02
	Note								
	Classification	Deduction	Process						
	Distribution	Polystyrene (kg)	Diesel truck: 10 ton (kg∙km)						
	Quantity	5.16E+00	1.47E+04						
	Note								
Note									

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

	Classification	Process	Process	Process	Process	Process	Process	Deduction	Process
	Distribution	Landfill: Industrial waste (kg)	Shredding (kg)	Incineration: Industrial waste (kg)	Incineration to landfill (as ash) (kg)	Diesel truck: 10 ton (kg∙km)	Diesel truck: 4 ton (kg∙km)	High density polyethylene (kg)	Sorting: Iron (by magnetic
	Quantity	5.63E+00	1.14E+02	5.48E+00	1.33E+01	9.09E+04	5.89E+02	8.60E-01	9.75E+01
	Note								
	Classification	Process	Process	Process	Process	Process	Process	Process	Deduction
Scenario	Distribution	Sorting: Nonferrous metal (by eddy current	Sorting: Plastics (by relative	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)
Sc	Quantity	4.86E+01	4.38E+01	2.60E+00	4.89E+01	1.33E+00	4.68E+00	3.79E+01	2.55E+00
	Note								
	Classification	Deduction	Deduction	Deduction	Deduction				
	Distribution	Cold-Rolled steel plate (kg)	Aluminum plate (kg)	Copper plate (kg)	Polystyrene (kg)				
	Quantity	4.89E+01	1.33E+00	4.68E+00	3.70E+01				
	Note								

Note

### 6. Others

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