

## 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

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  ${\rm I\!I\!I}$  category.

ľ	Document control 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	egistr	ation no		19-E11	·	1			1	
	PC	R nan	ne	EP an	nd IJ pri	nter	Product type		IM C		
		CR ID		AD-04		Product weight (kg)	101.1	Package (kg)	20.2	Weight total (kg)	121.3
$\equiv$		_				Ducid	4!				
In/Ou	ut items			Life Cycle Stage	Unit	Raw material	uction Product	Distribution	Use	Disposition	Recycle effect
Ener	Energy Consumption				MJ	7.69E+03	1.59E+03	1.28E+03	1.52E+04	4.02E+01	-5.08E+03
	Coal			Mcal	1.84E+03	3.81E+02	3.06E+02	3.62E+03	9.59E+00	-1.21E+03	
				Coal Crude oil (for fuel)	kg	6.44E+01	9.76E+00	2.99E-03	7.06E+01	1.77E-01	-5.95E+01
			Energy	LNG	kg	6.81E+01	1.13E+01	2.79E+01	1.16E+02	5.49E-01	-2.26E+01
				Uranium content of an ore	kg	1.21E+01	7.69E+00	4.31E-01	6.53E+01	9.47E-02	-2.17E+00
					kg	1.04E-03	6.60E-04	2.02E-07	3.59E-03	1.20E-05	5.67E-05
				Crude oil (for material)	kg	3.43E+01	0	0	2.06E+01	0	-4.66E+01
				Iron content of an ore	kg	5.29E+01	0	0	1.90E+01	0	-6.81E+01
				Cu content of an ore	kg	1.26E+00	0	0	4.86E-02	0	-1.46E+00
	5 + 2			Al content of an ore	kg	1.50E+00		-	8.06E-01		-2.18E+00
	Resource Consumption from the environment	Exhaustible resources		Ni content of an ore	kg	3.12E-01	0	0	2.92E-02	0	-1.39E-03
	Isun	aust	resources	Cr content of an ore	kg	4.40E-01	0	0	4.61E-02	0	-2.53E-02
	ani Co	rest		Mn content of an ore	kg	3.31E-01	0	0	1.06E-01	0	-5.91E-02
	the ce	ш -	Material	Pb content of an ore	kg	1.06E-01	0	0	4.17E-03	0	-1.19E-01
	sou t			Sn content of an ore	kg	1.59E-03	0	0	0.00E+00	0	0
	ar a			Zn content of an ore	kg	1.07E+00	0	0	4.25E-02	0	-1.17E+00
				Au content of an ore	kg	1.71E-03	0	0	1.74E-03	0	0
				Ag content of an ore	kg	4.96E-02	0	0	0	0	0
				Silica Sand	kg	3.18E+00	0	0	2.40E-01	0	-2.71E+00
es				Halite	kg	3.15E+01	5.60E-03	0	7.93E+00	7.25E-03	-7.67E-01
Inventory analyses				Limestone	kg	1.20E+01	0	0	3.98E+00	5.23E-01	-1.21E+01
an				Natural soda ash	kg	2.51E-01	0	0	2.86E-04	0	-2.14E-01
ton		Renev		Wood	kg	3.27E+01	0	0	2.61E+01	0	0
ver		resou	rces	Water	kg	2.39E+04	8.39E+03	2.26E+00	6.15E+04	1.50E+02	-4.11E+03
-				CO <sub>2</sub>	kg	4.06E+02	8.40E+01	9.08E+01	7.22E+02	2.74E+01	-2.51E+02
				SO <sub>x</sub>	kg	2.70E-01	5.79E-02	5.54E-02	4.25E-01	1.49E-02	-1.56E-01
				NO <sub>x</sub>	kg	4.94E-01	5.80E-02	4.31E-01	8.54E-01	4.22E-02	-2.18E-01
				N <sub>2</sub> O	kg	3.55E-02	1.05E-02	1.52E-02	1.48E-01	5.82E-05	-2.76E-02
		to Atm	nosphere	CH <sub>4</sub>	kg	2.74E-03	1.76E-03	5.41E-07	9.57E-03	3.21E-05	1.94E-04
				CO	kg	6.21E-02	1.26E-02	1.13E-01	1.49E-01	9.13E-03	4.54E-03
	r ag			NMVOC	kg	5.37E-03	3.46E-03	1.06E-06	1.87E-02	6.28E-05	3.78E-04
	chan			C <sub>x</sub> H <sub>y</sub>	kg	1.76E-02	1.73E-03	1.30E-02	3.44E-02	2.97E-04	-1.16E-02
	Emission/Discharge to the environment			Dust	kg	5.94E-02	2.51E-03	4.14E-02	5.79E-02	2.04E-03	-4.35E-02
	ion/ env			BOD	kg	-	-	-	-	-	-
	the			COD	kg	-	-	-	-	-	-
	E e	to Wat	ter system	N total	kg	-	-	-	-	-	-
				P total	kg	-	-	-	-	-	-
				SS	kg	-	-	-	-	-	-
				Unspecified Solid Waste	kg	3.98E+00	3.37E-02	0	7.89E+00	7.68E+00	-6.25E-01
		40.0-1	Louistan	Slag	kg	1.96E+01	0	0	5.90E+00	0	-2.19E+01
		10 501	l system	Sludge	kg	3.23E+00	0	0	1.73E+00	0	-4.67E+00
				Low level radio-active waste	kg	7.26E-04	4.61E-04	1.41E-07	2.50E-03	8.38E-06	3.97E-05
	on			Energy resources (crude oil	10						
Ŧ	by Resource Consumption	Exhau	ustible	equivalent)	kg	1.32E+02	3.23E+01	2.85E+01	2.69E+02	8.75E-01	-6.29E+01
ame	Res	resou		Mineral resources (Iron ore	le m						
sess	Cor Cor			equivalent)	kg	1.15E+04	0	0	1.90E+03	0	-5.40E+02
Impact assessment	ie to ient			Global Warming (CO <sub>2</sub>	kg			0.405+01	7.605.00	0.755.01	
npa	miss harg the onm	to Atn	nosphere	equivalent)		4.16E+02	8.69E+01	9.49E+01	7.62E+02	2.75E+01	-2.59E+02
-	Impact as: by Emission/ Discharge to the environment			Acidification (SO <sub>2</sub> equivalent)	kg	6.16E-01	9.85E-02	3.57E-01	1.02E+00	4.44E-02	-3.09E-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

L myentory 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 urgnium ore presents weight of urgnium 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 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-E1144

	PCR name	EP and IJ printer ( PCR-ID : AD-04 )	Product type	IM C6000							
	LCA/LCIA in units of:	1 product	Product weight (kg)	101.1	Package (kg)	20.2	Weight total (kg)	121.3			
1	Product information (per unit): parts etc. by material and by process/assembly method										

	Br	eakdown of pr	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	1.83E-01	7.62E-01	1.52E-01	1.56E-01	3.07E-03	0.00E+00	1.22E+01	2.52E-03
	Note								
Product	Classification	Consumption	Consumption	Consumption	Consumption	Consumption	Consumption	Condition	Consumption
	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	1.81E-01	0.00E+00	7.30E-06	7.69E+00	0.00E+00	4.30E-01	6.38E+04	1.89E+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	5.42E-01	1.70E-01	4.32E-02	7.89E-03	3.59E+05	6.62E-02	7.85E-02	1.07E-02
	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	4.88E+00	1.34E+01	1.74E-03	2.00E+03	2.45E-01	2.38E-04	1.75E+01	9.23E-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	9.55E+00	1.52E-01	2.81E+01	1.98E+02	4.41E+01	8.83E+03	5.79E+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	6.60E+02	5.13E+00	3.26E+05		
	Noto						

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	4.31E+00	1.22E+01	1.18E+03	3.10E+01	3.10E+01	1.42E+01	1.33E+01	2.38E-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)
0	Quantity	1.68E+01	7.31E-01	1.65E-01	8.98E+00	2.34E-04	1.68E+01	7.31E-01	1.65E-01
	Note								
	Classification	Deduction	Process						
	Distribution	Polystyrene (kg)	Diesel truck: 10 ton (kg∙km)						
	Quantity	8.98E+00	2.48E+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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