

Product Environmental Aspects Declaration



No. AA-02-008

RICOH
Image Communication



Electrophotographic Dry Process Photocopier

imagio Neo 220

- Coping Speed: 22 A4 copies per minute (A4 paper. Horizontal feed, continuous operation)
- Maximum Paper Size A3

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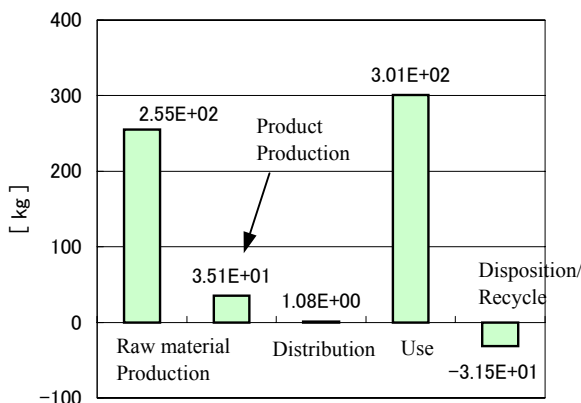


The picture shows a copying machine with an optional document feeder, feed table, branch unit, and inner 1 bin tray.

The number of copies when used for 5 years is 288,000.
The main environmental burdens are as follows:

- Global Warming (CO2 equivalent) 561 kg
- Acidification (SO2 equivalent) 0.75 kg
- Energy Consumption 10400 MJ

Emission of Global Warming Gas (CO2 equivalent)



Notes:

1. Visit *EcoLeaf* website under JEMAI homepage at <http://www.jemai.or.jp/ecoleaf/e/> for full details including below.
2. Original LCA data is available on *PEIDS: Product Environmental Information Declaration Sheet*, and *Product Data Sheet*.
3. Unified rules and requirements for *EcoLeaf* LCA, for intended product category, are available as a *PSC: Product Specification Criteria*.
4. All *Basic Units* based on Japan domestic data. This is due to a lack of base data for full establishment of localized *Basic Unit* for overseas locations for now.

[Supplemental environmental information]

- EcoMark-certified
- Acquired ISO14001 certification for domestic sales group companies, as well as all domestic and international production bases.
- Conforms to the International Energy Star Program.
- Received the Energy Conservation Chairman's Prize at the Energy Conservation Award in fiscal 2001.
- Drastically reduced lead and polyvinyl chloride content.
 - In the guidelines set by the Green Purchasing Network,
 - Unleaded solder: Rank A
 - Use of polyvinyl chloride for coated wiring etc.: Rank III
- Uses chromium-free steel sheets: does not use hexavalent chromium during production of steel sheets.
 - Use of chromium-free steel sheets is more than 90%.

Product Environmental Information Data Sheet (PEIDS)



Document control no.	
Product vendor	RICOH COMPANY, LTD.
EcoLeaf registration no.	AA-02-008

Unit Function DB ver.	020601
Characterization Factor DB ver.	020601

PSC name	Electrophotographic Dry Process Photocopier			Product type	imagio Neo220		
PSC code	PSC-AA	Product weight (kg)	54.0	Package (kg)	8.93	Weight total (kg)	62.9

In/Out items	Life Cycle Stage	Unit	Production		Distribution	Use	Disposition/Recycle	Total		
			Raw material	Product						
Energy Consumption										
		MJ	4.35E+03	6.33E+02	1.53E+01	6.16E+03	-7.98E+02	1.04E+04		
		Mcal	1.04E+03	1.51E+02	3.65E+00	1.47E+03	-1.91E+02	2.48E+03		
Inventory analyses	Resource Consumption from the environment	Energy	Coal	4.09E+01	4.21E+00	3.57E-05	2.39E+01	-1.14E+01	5.77E+01	
			Crude oil (as fuel)	3.74E+01	5.06E+00	3.33E-01	6.55E+01	-2.97E+00	1.05E+02	
			Natural Gas	7.09E+00	2.49E+00	5.15E-03	1.42E+01	3.28E-01	2.41E+01	
			Uranium ore	7.37E-04	2.84E-04	2.42E-09	1.41E-03	6.67E-05	2.50E-03	
			Crude oil (as an ingredi	1.62E+01	0	0	9.00E+00	-7.89E+00	1.73E+01	
		Material	Iron ore	3.60E+01	0	0	2.23E+00	-1.53E+01	2.29E+01	
			Copper ore	5.33E-01	0	0	1.17E-03	-7.32E-02	4.61E-01	
			Bauxite	3.38E-01	0	0	3.18E-01	-1.78E-01	4.78E-01	
			Nickel ore	5.49E-02	0	0	6.19E-02	-3.11E-04	1.17E-01	
			Chromium ore	8.63E-02	0	0	8.45E-02	-5.68E-03	1.65E-01	
	Manganese ore		1.93E-01	0	0	3.09E-02	6.96E-02	2.94E-01		
	Plumbous ore		2.60E-02	0	0	9.45E-05	-5.94E-03	2.01E-02		
	Tin ore		0	0	0	0	0	0		
	Zinc ore		2.55E-01	0	0	9.30E-04	-5.84E-02	1.98E-01		
	Gold ore		0	0	0	0	0	0		
	Silver ore		0	0	0	0	0	0		
	Silica sand		1.94E+00	0	0	3.67E-02	-3.66E-01	1.61E+00		
	Rock salt		4.49E+00	0	0	1.60E+00	-1.15E-01	5.98E+00		
	Limestone		7.83E+00	0	0	5.54E-01	-1.84E+00	6.54E+00		
	Natural soda ash		1.64E-01	0	0	0	-3.97E-02	1.25E-01		
		kg								
Renewable resources	Wood	kg	1.57E+01	0	0	8.98E-01	-8.44E+00	8.12E+00		
	Water	kg	1.80E+04	3.28E+03	2.64E-02	2.18E+04	3.13E+02	4.34E+04		
	to Atmosphere	CO ₂	kg	2.49E+02	3.46E+01	1.08E+00	2.96E+02	-3.06E+01	5.51E+02	
		SO _x	kg	1.38E-01	2.50E-02	1.32E-03	1.56E-01	-6.21E-03	3.14E-01	
		NO _x	kg	2.75E-01	2.33E-02	1.67E-02	3.38E-01	-3.20E-02	6.21E-01	
N ₂ O		kg	1.90E-02	1.68E-03	1.94E-05	1.54E-02	-3.21E-03	3.29E-02		
CH ₄		kg	1.97E-03	7.60E-04	6.46E-09	3.75E-03	1.81E-04	6.66E-03		
CO	kg	3.31E-02	5.02E-03	6.58E-03	3.11E-02	-3.71E-03	7.21E-02			
NMVOOC	kg	3.84E-03	1.49E-03	1.27E-08	7.35E-03	3.54E-04	1.30E-02			
CxHy	kg	9.52E-03	2.91E-04	3.33E-04	4.70E-03	-1.95E-03	1.29E-02			
Dust	kg	3.28E-02	1.08E-03	1.32E-03	1.43E-02	-7.43E-03	4.20E-02			
to Water system	BOD	kg	-	1.31E-04	-	5.26E-04	-	-		
	COD	kg	-	-	-	-	-	-		
	N total	kg	-	-	-	-	-	-		
	P total	kg	-	-	-	-	-	-		
	SS	kg	-	7.86E-06	-	3.15E-05	-	-		
to Soil system	Unspecified solid waste	kg	1.13E+00	3.06E-03	0	6.38E-01	3.07E+00	4.84E+00		
	Slag	kg	1.14E+01	0	0	7.20E-01	-4.53E+00	7.56E+00		
	Sludge	kg	5.20E-01	0	0	6.81E-01	-3.81E-01	8.20E-01		
	Low emission radioactive waste	kg	5.16E-04	1.99E-04	1.69E-09	9.86E-04	4.67E-05	1.75E-03		
			kg							
Impact assessment	by Resource Consumption	Exhaustible resources	Energy resources (crude oil equivalent)	kg	2.14E+02	0	0	5.75E+01	-4.20E+01	2.30E+02
			Mineral resources (Iron ore equivalent)	kg	7.83E+01	1.31E+01	3.40E-01	1.09E+02	-9.32E+00	1.91E+02
	by Emission/Discharge to the environment	to Atmosphere	Global warming (CO ₂ equivalent)	kg	2.55E+02	3.51E+01	1.08E+00	3.01E+02	-3.15E+01	5.61E+02
			Acidification (SO ₂ equivalent)	kg	3.30E-01	4.13E-02	1.30E-02	3.93E-01	-2.86E-02	7.49E-01
				kg						
	to Water system		kg							

Notes:

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).

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 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 "NA" if calculation nor estimation can not be done, in order to differentiate to indicate "zero".
- D. Row total of the data is automatically calculated, excluding a row includes "NA" item. Row total of such is presented as a blank (no data).

[Descriptions]

*The values of inventory analysis and impact evaluation in this sheet are calculated using the LCI basic unit and classification coefficient of the "Ecoleaf" environmental label.

1. The product weight is the standard equipment of the main unit excluding options, and packaging includes the weight of the packaging materials, accessories etc..
2. Production Stage
The production stage includes the main body assembling burden and the production burden for the toner, carrier, and photoreceptors needed when purchased by a customer.
3. Distribution Stage

Standard 10T trucks are used. Delivery distance is 100 km based on PSC regulations.

4. Use Stage

Based on the PSC regulations, consumption of electric power, consumable supplies, and replacements are calculated with the assumption that the duration of service is 5 years and the total number of copies is 288,000.

For consumable supplies (toner, carrier, and photoconductors) and replacements, the burdens for production, disposal recycle, and transportation are calculated.

5. Disposal and Recycle Stage

Based on the PSC regulations, burden is calculated assuming a product collection rate of 100%.

For plastic recycling, based on processing at our affiliated recycle centers, environmental burden is calculated using the basic unit of "Recycle: to Thermoplastic resin" for recycled material (average processing weight rate of product recycling: 75%), and the basic unit of "Incineration: Industrial waste" for feed stock (the average processing weight rate of product recycling: 17% and energy recovery (processing weight rate: 11%).

Product data sheet

(Input data and parameters for LCA)



Document control no.	
Product vendor	RICOH COMPANY, LTD.
EcoLeaf registration no.	AA-02-008

PSC name	Electrophotographic Dry Process Photocopier	Product type	imagio Neo220				
LCA/LCIA in units of:	PSC-AA	Product weight (kg)	54.0	Package (kg)	8.93	Weight total (kg)	62.9

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

Product	Breakdown of primary materials				Math breakdown of parts, which need to apply Processing / Assembly Base Units (Parts B, C)			
	Material name	Weight (kg)	Material name	Weight (kg)	Process name	Weight (kg)	Process name	Weight (kg)
	Steel	33.4	Wood	0	Press molding: Iron	33.4	Parts assembly	36.3
	SUS	0.343	Paper	7.35	Press molding: Nonferrous	0.406		
	Aluminium	0.229	Print wired board	1.93	Injection molding	15.7		
	Other metals	0.177	Medium-sized motor	1.08	Blow molding	0.0598		
	Thermoplastic resin	16.9			Glass molding	1.39		
	Thermosetting resin	0.00625						
	Glass	1.39						
	Rubber	0.0922						
	Subtotal	52.6	Subtotal	10.4				
	Total			62.9	Subtotal	51.0	Subtotal	36.3

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 SO2, NO2 equivalent.

Consumption	Classification	Energy	Energy	Energy	Resources	Resources	Resources			
	Distribution	Electricity (kWh)	Kerosene as fuel (kg)	Furnace urban gas (13A) (m3)	Clean water (kg)	Industrial water (kg)	Underground water (kg)			
	Quantity	11.5	0.262	0.485	17.7	73.4	77.2			
	Note									
Emission/Discharge	Classification	Water system	Water system							
	Distribution	BOD (g)	SS (g)							
	Quantity	0.131	0.00786							
	Note									

Note

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

Distribution	Means of transportation	Diesel truck: 10 ton								
	Conditions	Mass (kg)	Distance (km)	Installation Rate (%w)	Load (kg·km)					
	Quantity	62.9	100	45.3	13,889					
	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

Product	Classification	Energy	Energy	Energy	Energy	Resources	Resources	Resources	Material	Material
	Distribution	Electricity (kWh)	Kerosene as fuel (kg)	Furnace urban gas (13A) (m3)	Gasoline as fuel (kg)	Clean water (kg)	Industrial water (kg)	Underground water (kg)	Steel (kg)	SUS (kg)
	Quantity	349	0	1.94	27.4	0	0	377	2.91	0.391
	Note									
Product	Classification	Material	Material	Material	Material	Material	Material	Material	Molding	Molding
	Distribution	Aluminium (kg)	Other Metals (kg)	Thermoplastic resin (kg)	Thermosetting resin (kg)	Glass (kg)	Rubber (kg)	Paper (kg)	Press molding: Iron (kg)	Press molding: Nonferrous metal (kg)
	Quantity	0.528	0	14.7	0	0	0.00264	1.24	2.06	0.535
	Note									
Product	Classification	Molding	Molding	Molding	Assembly	Water system	Water system			
	Distribution	Injection molding (kg)	Blow molding (kg)	Glass molding (kg)	Parts assembly (kg)	BOD (g)	SS (g)			
	Quantity	3.54	1.97	0	5.45	0.526	0.0315			
	Note									

Note

4.2 Disposition/Recycle information on consumables and replacement parts

Consumables	Classification	Processing	Processing	Processing	Processing	Processing	Processing	Processing	Processing	Processing
	Distribution	Crushing (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)	Recycle: to cold-rolled steel (kg)	Recycle: to Aluminum plate (kg)	Recycle: to copper plate (kg)	Recycle: to Thermoplastic resin (kg)
	Quantity	5.96	5.96	3.98	3.47	0	1.98	0.507	0.00652	2.32
	Note									
Consumables	Classification	Processing	Processing	Processing	Processing	Processing	Processing	Processing	Processing	Processing
	Distribution	Recycle: to corrugated cardboard (kg)	Landfill: Industrial waste (kg)	Incineration: Industrial waste (kg)	Landfill: General waste (kg)	Incineration to landfill (in ash) (kg)				
	Quantity	1.23	0.251	0.901	0	0				
	Note									
Consumables	Classification	Deduction	Deduction	Deduction	Deduction	Deduction	Deduction	Deduction	Deduction	Deduction
	Distribution	Glass (kg)	Cold-Rolled steel plate (kg)	Aluminum plate (kg)	Copper plate (kg)	PC (kg)	PE (kg)	Corrugated cardboard (kg)		
	Quantity	0	-0.891	-0.228	-0.00293	-0.811	0	-0.431		
	Note									

Notes

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

Scenario	Classification	Diesel truck: 4 ton								
	Distribution	Weight (kg)	Distance (km)	Installation Rate (%w)	Load (kg·km)					
	Quantity	54.5	35.0	100	1907					
	Note									
Scenario	Classification	Processing	Processing	Processing	Processing	Processing	Processing	Processing	Processing	Processing
	Distribution	Crushing (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)	Recycle: to cold-rolled steel (kg)	Recycle: to Aluminum plate (kg)	Recycle: to copper plate (kg)	Recycle: to Thermoplastic resin (kg)
	Quantity	54.1	52.6	19.8	18.9	1.50	32.8	0.373	0.538	12.0
	Note									
Scenario	Classification	Processing	Processing	Processing	Processing	Processing	Processing	Processing	Processing	Processing
	Distribution	Recycle: to corrugated cardboard (kg)	Landfill: Industrial waste (kg)	Incineration: Industrial waste (kg)	Landfill: General waste (kg)	Incineration to landfill (in ash) (kg)				
	Quantity	7.35	3.16	4.88	0	0				
	Note									
Scenario	Classification	Deduction	Deduction	Deduction	Deduction	Deduction	Deduction	Deduction	Deduction	Deduction
	Distribution	Glass (kg)	Cold-Rolled steel plate (kg)	Aluminum plate (kg)	Copper plate (kg)	PC (kg)	PE (kg)	Corrugated cardboard (kg)		
	Quantity	-0.474	-14.7	-0.168	-0.242	-3.96	-0.247	-2.57		
	Note									

Notes

6. Others