

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.



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 Naitou

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.

Form 2 (F-02B-03)

Product Environmental Information Data Sheet (PEIDS)

| D | Document control no. F-02B-03 | | | | | | | nction DB version | 2.1 | Produc | ECO ELEAF | | |
|---|--|-------------------|---------------------|--|-----------------|----------------------|---|----------------------|----------------------|----------------------|------------------------|--|--|
| Product vendor KONICAMINOLTA ,I EcoLeaf registration no. AD-15-E534 | | | | | | , | Characterization Factor DB version 2.1 製品環境情報 | | | | | | |
| EC | oLeat | f re | egistration | no. AD | -15-E | 534 | | | | htt | tp://www.jemai.or.jp | | |
| | - | | name | EP and IJ pri | nter | Product type | | b | zhub C3850 | | | | |
| | PC | CR | -ID | AD-04 | | Product weight[kg] | 53.0 | Package[kg] | 12.9 | Weight total[kg] | 65.9 | | |
| | | _ | | Life Cycle Sta | ge Unit | Produ | uction | | | . | Bernele | | |
| In/O | In/Out items Raw material | | | | | Raw material | Product | Distribution | Use | Disposal | Recycle | | |
| | | | Energy C | onsumption | MJ | 4.58E+03 | 6.28E+03 | 2.42E+02 | 3.41E+04 | 3.85E+01 | -7.71E+03 | | |
| | | - | | | Mcal | 1.09E+03 | 1.50E+03 | 5.78E+01 | 8.14E+03 | 9.20E+00 | <u>-1.84E+03</u> | | |
| | | | | Coal | kg | 3.57E+01 | 3.60E+01 | 5.65E-04 | 1.68E+02 | 1.96E-01 | -3.91E+01 | | |
| | | | Energy | Crude oil (as a fuel) Natural Gas | kg kg | 4.16E+01 8.48E+00 | 4.14E+01 1.88E+01 | 5.28E+00 8.16E-02 | 2.61E+02 9.09E+01 | 4.31E-01 1.02E-01 | -6.65E+01 -1.00E+01 | | |
| | | | | Uranium ore | mg | 7.61E-04 | 2.44E-03 | 3.83E-08 | 7.68E-03 | 1.33E-05 | -5.39E-04 | | |
| | | | | Crude oil (as an ingredients) | kg | 1.91E+01 | 0 | 0 | 1.21E+02 | 0 | -6.07E+01 | | |
| | | | | Iron ore | kg | 2.71E+01 | 0 | 0 | 4.11E+01 | 0 | -2.72E+01 | | |
| | | | | Copper ore | kg | 1.01E+00 | 0 | 0 | 4.20E-02 | 0 | -3.40E-01 | | |
| | _ | | | Bauxite | kg | 1.29E+00 | 0 | 0 | 8.66E+00 | 0 | -3.98E+00 | | |
| | nptior | tible | Ces | Nickel ore | kg | 9.89E-02 | 0 | 0 | 1.03E-01 | 0 | -8.06E-02 | | |
| | vironr | thaus | resources | Chromium ore | kg | 1.42E-01 | 0 | 0 | 1.53E-01 | 0 | -1.18E-01 | | |
| | ce Co | Ű | | Manganese ore Plumbous ore | kg | 1.44E-01 | 0 | 0 | 2.34E-01 | 0 | -2.93E-02 | | |
| | Resource Consumption from the environment | | Material | Tin ore | kg kg | 4.01E-02 0 | 0 | 0 | 0 | 0 | <u>-1.13E-02</u> 0 | | |
| | Re | | | Zinc ore | кg kg | 3.94E-01 | 0 | 0 | 0 | 0 | -1.12E-01 | | |
| | | | | Gold ore | kg | 0 | 0 | 0 | 0 | 0 | 0 | | |
| | | | | Silver ore | kg | 0 | 0 | 0 | 0 | 0 | 0 | | |
| | | | | Silica sand | kg | 1.66E+00 | 0 | 0 | 5.61E-01 | 0 | -6.03E-01 | | |
| (0 | | | | Rock salt | kg | 1.10E+01 | 3.83E-04 | 0 | 5.58E+00 | 1.71E-02 | -3.03E+01 | | |
| alyse | | | | Limestone | kg | 5.65E+00 | 0 | 0 | 9.34E+00 | 2.32E-01 | -4.57E+00 | | |
| Inventory analyses | | L | | Natural soda ash | kg | 1.41E-01 | 0 | 0 | 7.53E-03 | 0 | -4.62E-02 | | |
| entor | | | enewable sources | Wood | kg | 1.76E+01 | 0 | 0 | 1.06E+02 | 0 | -4.96E+01 | | |
| <u>c</u> | | | | Water CO2 | kg kg | 1.89E+04 2.48E+02 | 2.99E+04 2.84E+02 | 4.28E-01 1.72E+01 | 1.16E+05 1.68E+03 | 1.62E+02 2.30E+01 | -1.71E+04 -3.40E+02 | | |
| | | to Atmosphere | | SOx | kg | 1.77E-01 | 2.14E-01 | 9.51E-03 | 1.29E+00 | 1.24E-02 | -3.40E+02 | | |
| | | | | NOx | kg | 3.13E-01 | 1.76E-01 | 6.52E-02 | 2.52E+00 | 3.05E-02 | -5.68E-01 | | |
| | | | | N2O | kg | 2.14E-02 | 6.31E-03 | 3.11E-03 | 1.68E-01 | 4.04E-05 | -4.23E-02 | | |
| | | | | CH4 | kg | 2.01E-03 | 6.51E-03 | 1.02E-07 | 2.04E-02 | 3.55E-05 | -1.37E-03 | | |
| | | | | со | kg | 3.90E-02 | 4.21E-02 | 1.38E-02 | 4.75E-01 | 6.58E-03 | -5.97E-02 | | |
| | | | | NMVOC | kg | 3.94E-03 | 1.27E-02 | 2.00E-07 | 3.99E-02 | 6.96E-05 | -2.69E-03 | | |
| | harge ment | | | CxHy dust | kg | 1.04E-02 | 1.39E-03 9.15E-03 | 2.20E-03 | 6.40E-02 2.05E-01 | 1.85E-04 | -1.99E-02 | | |
| | Emission/Discharge to the environment | F | | BOD | kg kg | 3.53E-02 | 9.10E-03 | 6.63E-03 | 2.05E-01 | 1.79E-03 - | -6.53E-02 - | | |
| | ssion. Te en | | | COD | kg | - | | | _ | - | | | |
| | Emi: to th | to | Water system | N total | kg | - | - | - | _ | - | - | | |
| | | | | P total | kg | - | - | - | — | - | - | | |
| | | | | SS | kg | _ | _ | - | - | - | - | | |
| | | | | Unspecified solid was | - | 2.11E+00 | 9.08E-02 | 0 | 4.93E+01 | 2.09E+01 | -4.34E+00 | | |
| | | | Soil out | Slag | kg | 8.68E+00 | 0 | 0 | 1.26E+01 | 0 | -8.00E+00 | | |
| | | tõ | Soil system | Sludge | kg | 2.28E+00 | 0 | 0 | 1.86E+01 | 0 | -8.34E+00 | | |
| | 5 | | | Low emission radioactive waste | kg | 5.33E-04 | 1.70E-03 | 2.67E-08 | 5.36E-03 | 9.27E-06 | -3.78E-04 | | |
| | onsumptio | E | xhaustible | Energy resources (crude oil equivalent |) ^{kg} | 8.10E+01 | 1.07E+02 | 5.38E+00 | 5.41E+02 | 7.89E-01 | -1.08E+02 | | |
| ment | by Resource Consumption | | resources | Mineral resources (Iron ore equivalent) | kg | 3.29E+02 | 0 | 0 | 2.26E+02 | 0 | -2.00E+02 | | |
| ses | ion | | | Global warming (CO2 equivalent) | kg | 2.54E+02 | 2.86E+02 | 1.80E+01 | 1.73E+03 | 2.30E+01 | -3.52E+02 | | |
| t as: | mpt | | to tmosphore | Acidification | kg | 3.96E-01 | 3.37E-01 | 5.51E-02 | 3.05E+00 | 3.37E-02 | -6.90E-01 | | |
| Impact assesment | nsuo | A | tmosphere | (SO2 equivalent) | | | 0.072 01 | | 0.002.00 | 0.072 02 | | | |
| Ē | Emision Consumption | | to Water system | | | | | | | | | | |
| | by Em | to 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)
- 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 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.)
- 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.

[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
- 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 Thailand and by ship between Thailand 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). 5,415,000 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 materilal production of recycled materials are included in the values with minus as a recycling effect.

Form3 (F-03-03)

Document control no.

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



| | i ioduct ven | 401 | KONICAMINOLTA, | NC. | | | | 製品環境情 | 新華 段 |
|---|-----------------------|-----|----------------------------------|--------------------|--------------|-------------|-----------------|------------------|-------------|
| | EcoLeaf registration | no. | AD-15-E534 | | | | http://www.jema | i.or.jp | |
| I | PCR name | | EP and IJ printer (PCR-ID:AD-04) | | Product type | | bizhub | C3850FS | |
| | LCA/LCIA in units of: | | 1 | Product weight[kg] | 53.0 | Package[kg] | 12.9 | Weight total[kg] | 65.9 |

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

| | Breakdown of primar | y materials Material name | | Math breakdown of pa | rts, which need to apply | Processing / Assembly 8 | Base Units (Parts B, C) |
|---------------------|---------------------------|------------------------------|-------------|---------------------------------------|--------------------------|-------------------------|-------------------------|
| Material name | Material name Weight (kg) | | Weight (kg) | Process name | Weight (kg) | Process name | Weight (kg) |
| Ordinary steel | 2.58E+01 | Rubber | 2.09E-01 | Press molding:lron | 2.33E+01 | Parts assembly | 9.53E-01 |
| Stainless steel | 6.23E-01 | Semiconductor circuit board | 1.74E+00 | Press molding:Nonfe rrous metal | 1.85E+00 | | |
| Aluminium | 1.01E+00 | | | Injection molding | 2.23E+01 | | |
| Other metals | 8.41E-01 | | | Blow molding | 2.76E-02 | | |
| Glass | 1.17E+00 | | | | | | |
| Thermoplastic resin | 2.33E+01 | | | | | | |
| Wood | 5.68E+00 | | | | | | |
| Paper | 5.59E+00 | | | | | | |
| Subtotal | 6.40E+01 | Subtotal | 1.95E+00 | | | | |
| | 6.59E+01 | Subtotal | 4.75E+01 | Subtotal | 9.53E-01 | | |

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.

| | Hox chould be indicated in CO2, Ho | | | | | | r | | | |
|--|------------------------------------|-------------------|-----------------------|--------------|-------------|--|---|--|--|--|
| 5 | Classification | Energy | Energy | Material | Material | | | | | |
| nption | Distribution | Electricity | Furnace urban | Industrial | Groundwater | | | | | |
| | Distribution | (kWh) | gas (m ³) | water(kg) | (kg) | | | | | |
| Consu | Quantity | 6.14E+02 | 1.05E+00 | 2.41E+03 | 1.69E+02 | | | | | |
| 0 | Note | | | | | | | | | |
| | Classification | To Water | | | | | | | | |
| on/ | Classification | system | | | | | | | | |
| Emission/ Discharge | Distribution | Sewage (kg) | | | | | | | | |
| Ei Bisi | Quantity | 6.61E+01 | | | | | | | | |
| | Note | | | | | | | | | |
| 3. Distribution stage information (per unit): means, distance, loading ratio, consumptions and emissions/discharges. | | | | | | | | | | |
| | Means of transportation | Fastable burghter | Diesel truck | Diesel truck | | | | | | |
| tion | ividans of transportation | Freight by ship | :20ton | :2ton | | | | | | |
| Distribution | Conditions | Load(kg+km) | Load(kg+km) | Load(kg+km) | | | | | | |
| Dist | Quantity | 2.90E+05 | 2.95E+04 | 1.50E+03 | | | | | | |
| | Note | | | | | | | | | |

4. Use stage (per unit): use condition (mode, term) including active mode, standby mode and maintenance.

| 4.1 Produ | uct and accessories subject to t | his analysis | | | | | | | |
|-------------|----------------------------------|-----------------------------------|-----------------------------------|--|-----------------------------|---------------------------|-----------------------------|--------------------------|--|
| | Classification | Consumption | Consumption | Consumption | Consumption | Consumption | Consumption | Consumption | Consumption |
| Product | Distribution | Electricity (kWh) | Gasoline as fuel(kg) | Furnace urban gas (m ³) | Industrial water(kg) | Groundwater (kg) | Ordinary steel (kg) | Stainless steel (kg) | Aluminium (kg) |
| é | Quantity | 1.70E+03 | 8.28E+00 | 2.63E+01 | 4.04E+03 | 4.01E+03 | 3.94E+01 | 6.45E-01 | 8.18E+00 |
| | Note | | | | | | | | |
| | Classification | Consumption | Consumption | Consumption | Consumption | Processing | Processing | Processing | Processing |
| Product | Distribution | Thermoplastic resin(kg) | Wood(kg) | Paper(kg) | Rubber(kg) | Press:Iron(kg) | Press: Nonferrous(kg) | Injection molding(kg) | Blow molding (kg) |
| ۲. | Quantity | 1.23E+02 | 8.57E+00 | 4.60E+01 | 2.04E+00 | 5.52E+01 | 2.81E+00 | 3.40E+01 | 5.22E+01 |
| | Note | | | | | | | | |
| | Classification | Assembly | To Water system | | | | | | |
| Product | Distribution | Parts assembly(kg) | Sewage(kg) | | | | | | |
| | Quantity | 5.22E+01 | 2.35E+03 | | | | | | |
| | Note | | | | | | | | |
| | Classification | Distribution | Distribution | Distribution | | | | | |
| Product | Distribution | Freight by ship (kg·km) | Diesel truck: 20ton (kg•km) | Diesel truck: 10ton (kg∙km) | | | | | |
| - | Quantity | 8.62E+05 | 5.10E+05 | 2.45E+04 | | | | | |
| | Note | | | | | | | | |
| 4.2 Dispo | sition/Recycle information on c | onsumables and | replacement pa | rts | • | | | • | |
| | Classification | Consumption | Consumption | Treatment | Treatment | Treatment | Treatment | Treatment | Treatment |
| Consumables | Distribution | Electricity (kWh) | Kerosene(kg) | Recycle: to iron(kg) | Recycle: to Aluminum(kg) | Recycle: to copper(kg) | Recycle: to plastics(kg) | Recycle: to Paper(kg) | Industrial waste destruction by fire(kg) |
| õ | Quantity | 3.39E+00 | 5.18E-02 | 1.60E+01 | 3.27E+00 | 4.13E-02 | 3.43E+01 | 2.18E+01 | 8.89E-01 |
| | Note | | | | | | | | |
| | Classification | Treatment | Treatment | Treatment | Deduction | Deduction | Deduction | Deduction | Deduction |
| Consumables | Distribution | Industrial waste inning(kg) | Waste destruction by fire(kg) | Waste inning(kg) | lron(kg) | Aluminum(kg) | Copper(kg) | Plastics(kg) | Paper(kg) |
| Co | Quantity | 3.53E-01 | 8.59E+01 | 2.91E+01 | -1.60E+01 | -3.27E+00 | -4.13E-02 | -3.43E+01 | -2.18E+01 |
| | Note | | | | | | | | |
| | Classification | Distribution | Distribution | | | | | | |
| Consumables | Distribution | Diesel truck: 10ton (kg•km) | Diesel truck: 4ton (kg•km) | | | | | | |
| Con | Quantity | 9.20E+03 | 1.11E+04 | | | | | | |
| | Note | | | | | | | | |
| | | | | | 1 | | | 1 | |

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

| Consumables | Classification | Consumption | Consumption | Treatment | Treatment | Treatment | Treatment | Treatment | Treatment |
|-------------|----------------|---|---------------------------------------|-----------------------------------|---|-----------------------------------|----------------------------------|-----------------------------|--------------------------|
| | 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) |
| | Quantity | 1.01E+00 | 1.55E-02 | 1.05E+01 | 4.02E-01 | 5.73E-01 | 4.68E-01 | 3.28E+01 | 4.76E+00 |
| | Note | | | | | | | | |
| | Classification | Treatment | Treatment | Treatment | Treatment | Treatment | Deduction | Deduction | Deduction |
| Consumables | Distribution | Recycle: to Assembled circuit board(kg) | Incineration: Industrial waste(kg) | Landfill: Industrial waste(kg) | Incineration to landfill (as ash)(kg) | Landfill: General waste(kg) | lron(kg) | Aluminium (kg) | copper(kg) |
| S | Quantity | 2.36E-01 | 5.07E-01 | 1.25E-01 | 1.57E+01 | 1.83E+01 | -1.05E+01 | -4.02E-01 | -5.73E-01 |
| | Note | | | | | | | | |
| | Classification | Deduction | Deduction | Deduction | Deduction | Distribution | Distribution | | |
| Consumables | Distribution | Glass(kg) | Plastics(kg) | Paper(kg) | Recycle: to Assembled circuit board(kg) | Diesel truck: 10ton (kg•km) | Diesel truck: 4ton (kg•km) | | |
| õ | Quantity | -4.68E-01 | -3.28E+01 | -4.76E+00 | -2.36E-01 | 2.75E+03 | 3.33E+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 Thailand and by ship between Thailand and Japan.

D. Product and accessories subject to this analysis:

The power consumption is calculated assuming the use period of five years and 866,400 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 are included

The recycling processing impacts are included as plus and the production impacts of the recycled materials are included as minus.

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.

G.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.