**Form 1**(F-01s-02)

# Product Environmental Aspects Declaration

EP and IJ printer（PCR-ID:AD-04）

No. AD-16-E709
Date of publication
01/09/2016

KYOCERA

http://www.kyoceradocumentsolutions.co.jp/

## ECOSYS M2030dn

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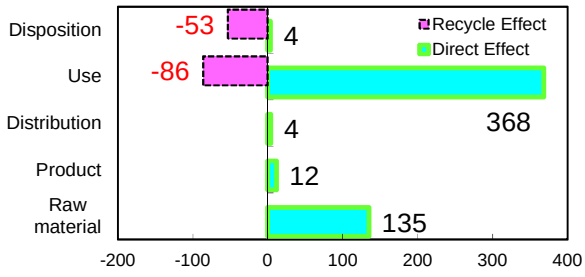
Making Technology:Electrophotographic Printer（EP)
Printng Speed: Monoclome 30 Pages per minute in A4
aximum priting paper: A4
Duplex function: Standard

【The Environmental load for life-cycle】

| Consumption and discharge in a life cycle | All the stage sum totals |
|---|---|
| Global Warming ($CO_2$ equivalent) | 522.6kg ( 383.1kg ) |
| Acidification ($SO_2$ equivalent) | 0.8kg ( 0.6kg ) |
| Energy resources (crude oil equivalent) | 12,253MJ ( 8,735MJ ) |

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

Warming load $CO_2$ equivalent of each stage[kg]




Use stage: Printing Mono 540,000
The environmental load of sheet in"Use" stage is not included in above data.

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]

- ●Conformed to the International ENERGY STAR® Program.
- ●Manufactured at ISO14001 certified factories.
- ●Plastic housing and outer package: halogenated flame retardants are not

PCR review was conducted by : PCR Deliberation Committee,January 01,2008,Name of reprentative：Youji Uchiyama,
Independent verification of the declaration and data, according to ISO14025□internal ■external
Third party verifier: < name of the third party verifier *> Hiroo Sakazaki

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.

Form 2-B(F-02Bs-02)

# Product Environmental Information Data Sheet (PEIDS)

| | |
|---|---|
| Document control no. | F-02Bs-02 |
| Product vendor | KYOCERA Document Solutions Inc. |
| EcoLeaf registration no. | AD-16-E709 |

| | |
|---|---|
| Unit Function DB version | v2.1 |
| Characterization Factor DB version | v2.1 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| PCR name | EP and IJ Printer | | Product type | ECOSYS M2030dn | | | |
| PCR code | AD-04 | Product weight (kg) | 20.09 | Package (kg) | 6.35 | Weight total (kg) | 26.44 |

| In/Out items \ Life Cycle Stage | | | | | Unit | Production | | Distribution | Use | Disposition | Recycle Effect |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Raw material | Product | | | | |
| Energy Consumption | | | | | MJ | 2.53E+03 | 2.11E+02 | 5.57E+01 | 9.40E+03 | 5.12E+01 | -3.52E+03 |
| | | | | | Mcal | 6.05E+02 | 5.05E+01 | 1.33E+01 | 2.25E+03 | 1.22E+01 | -8.40E+02 |
| Inventory anaiyses | Impact by Resource Consumption | Exhaustible resources | Energy resources | Coal | kg | 1.24E+01 | 1.48E+00 | 1.30E-04 | 3.51E+01 | 5.10E-02 | -9.22E+00 |
| | | | | Crude oil (for fuel) | kg | 2.78E+01 | 1.67E+00 | 1.22E+00 | 7.34E+01 | 9.80E-01 | -3.20E+01 |
| | | | | LNG | kg | 4.95E+00 | 7.85E-01 | 1.88E-02 | 2.25E+01 | 3.97E-02 | -2.92E+00 |
| | | | | Uranium content of an ore | kg | 5.08E-04 | 1.00E-04 | 8.83E-09 | 2.18E-03 | 3.45E-06 | -1.20E-04 |
| | | | Mineral resources | Crude oil (for material) | kg | 9.62E+00 | 0 | 0 | 4.14E+01 | 0 | -3.52E+01 |
| | | | | Iron content of an ore | kg | 5.33E+00 | 0 | 0 | 1.80E+00 | 0 | -6.44E+00 |
| | | | | Cu content of an ore | kg | 5.01E-01 | 0 | 0 | 9.71E-02 | 0 | -9.10E-01 |
| | | | | Al content of an ore | kg | 1.44E-01 | 0 | 0 | 2.87E-01 | 0 | -3.75E-01 |
| | | | | Ni content of an ore | kg | 6.22E-02 | 0 | 0 | 1.57E-01 | 0 | -2.19E-01 |
| | | | | C content of an ore | kg | 8.59E-02 | 0 | 0 | 2.13E-01 | 0 | -2.99E-01 |
| | | | | Mn content of an ore | kg | 3.46E-02 | 0 | 0 | 3.49E-02 | 0 | -3.65E-02 |
| | | | | Pb content of an ore | kg | 3.05E-02 | 0 | 0 | 7.89E-03 | 0 | -7.39E-02 |
| | | | | Sn content of an ore | kg | 0 | 0 | 0 | 0 | 0 | 0 |
| | | | | Zn content of an ore | kg | 3.00E-01 | 0 | 0 | 7.76E-02 | 0 | -7.27E-01 |
| | | | | 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 | kg | 1.11E+00 | 0 | 0 | 6.74E-02 | 0 | -9.23E-01 |
| | | | | Halite | kg | 3.02E+00 | 0 | 0 | 1.45E+00 | 1.41E-04 | -3.72E+00 |
| | | | | Limestone | kg | 1.62E+00 | 0 | 0 | 4.12E-01 | 9.16E-03 | -1.28E+00 |
| | | | | Natural soda ash | kg | 1.08E-01 | 0 | 0 | 2.28E-03 | 0 | -7.25E-02 |
| | | | | Wood | kg | 1.63E+01 | 0 | 0 | 2.34E+01 | 0 | -3.88E+01 |
| | | | | Water | kg | 1.29E+04 | 1.12E+03 | 9.87E-02 | 2.74E+04 | 3.88E+01 | -4.21E+03 |
| | Impact by Emission/Discharge to the environment | to Atmosphere | | CO2 | kg | 1.32E+02 | 1.15E+01 | 3.96E+00 | 3.59E+02 | 3.58E+00 | -1.34E+02 |
| | | | | Sox | kg | 8.13E-02 | 8.76E-03 | 2.12E-03 | 2.46E-01 | 4.07E-03 | -8.25E-02 |
| | | | | Nox | kg | 1.76E-01 | 6.95E-03 | 1.38E-02 | 4.31E-01 | 4.62E-02 | -2.51E-01 |
| | | | | N2O | kg | 1.17E-02 | 1.27E-04 | 7.36E-04 | 3.52E-02 | 5.83E-05 | -1.96E-02 |
| | | | | CH4 | kg | 1.36E-03 | 2.67E-04 | 2.36E-08 | 5.82E-03 | 9.23E-06 | -3.11E-04 |
| | | | | CO | kg | 1.59E-02 | 1.70E-03 | 2.61E-03 | 7.23E-02 | 1.77E-02 | -1.58E-02 |
| | | | | NMVOC | kg | 2.65E-03 | 5.23E-04 | 4.62E-08 | 1.14E-02 | 1.81E-05 | -6.08E-04 |
| | | | | CxHy | kg | 5.58E-03 | 2.76E-05 | 4.87E-04 | 1.18E-02 | 9.24E-04 | -9.35E-03 |
| | | | | Dust | kg | 1.68E-02 | 3.75E-04 | 1.44E-03 | 3.37E-02 | 3.67E-03 | -2.73E-02 |
| | | to Water system | to Water domain | BOD | kg | - | 1.62E-04 | - | - | - | - |
| | | | | COD | kg | - | - | - | - | - | - |
| | | | | N total | kg | - | - | - | - | - | - |
| | | | | P total | kg | - | - | - | - | - | - |
| | | | | SS | kg | - | - | - | - | - | - |
| | | to Soil system | | Unspecified Solid Waste | kg | 1.50E+00 | 1.31E-06 | 0 | 1.31E+01 | 4.62E-06 | -2.21E+00 |
| | | | | Slag | kg | 2.43E+00 | 0 | 0 | 9.05E-01 | 0 | -2.93E+00 |
| | | | | Sludge | kg | 1.90E-01 | 0 | 0 | 6.15E-01 | 0 | -8.05E-01 |
| | | | | Low level radio-active waste | kg | 3.56E-04 | 6.99E-05 | 6.17E-09 | 1.52E-03 | 2.41E-06 | -8.38E-05 |
| Impact assessment | by Res | | | Energy resources (crude oil equivalent) | kg | 4.58E+01 | 4.38E+00 | 1.24E+00 | 1.41E+02 | 1.09E+00 | -4.25E+01 |
| | | | | Mineral resources (Iron ore equivalent) | kg | 1.87E+02 | 0 | 0 | 1.78E+02 | 0 | -4.71E+02 |
| | by Emission/Discharge to environment | to Atmosphere | | Global Warming (CO2 equivalent) | kg | 1.35E+02 | 1.15E+01 | 4.16E+00 | 3.68E+02 | 3.60E+00 | -1.40E+02 |
| | | | | Acidification (SO2 equivalent) | kg | 2.05E-01 | 1.36E-02 | 1.18E-02 | 5.48E-01 | 3.64E-02 | -2.58E-01 |
| | | | | Ozone Depletion (CFC-11 equivalent) | kg | 0 | 0 | 0 | 0 | 0 | 0 |
| | | | | Photochemical Oxidant | kg | 1.02E-02 | 3.86E-04 | 7.81E-04 | 2.32E-02 | 1.88E-03 | -1.51E-02 |
| | | | | Eutrophication (Phosphate equivalent) | kg | 0 | 0 | 0 | 0 | 0 | 0 |

[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) 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 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. $CO_2$ 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.)

[Notes for readers: Target product specific]

1.We include package and attached articles, such as CD-ROM, operation manual in the product weight. Toner container as standard is included in the use stage, not in the product weight.

2.Production stage: Environmental impacts on main product, toner supplied with and drum are included in this stage. Production of main product is included as China production. Toner and drum are included as Japan production.

3.Transportation stage: Marine transport distance of a main product is 2,600km and domestic transport distance based on PCR provisions is 100km.

4.Use stage: Based on PCR provision, impact on 540,000 sheets monochrome printing by user for five years is considered.

5.Disposal/Recycle: We have calculated on the basis of a performance-based recycle scenario.

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.

Form 3(F-03s-03)

# Product data sheet

(Input data and parameters for LCA)

| | |
|---|---|
| Document control no. | F-03s-03 |
| Product vendor | KYOCERA Document Solutions Inc. |
| EcoLEaf registration no. | AD-16-E709 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| PCR name | EP & IP Printer（PCR-ID:AD-04） | Product type | ECOSYS M2030dn | | | | |
| LCA/LCIA in units of: | 1 Unit | Product weight (kg) | 20.09 | Package (kg) | 6.35 | Weight total (kg) | 26.44 |

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

| | 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) |
| Product | Carbon steel(kg) | 4.35E+00 | Paper (kg) | 7.55E+00 | Press molding:Iron (kg) | 4.74E+00 | Parts assembly (kg) | 2.64E+01 |
| | SUS (kg) | 3.93E-01 | Assembled circuit board (kg) | 1.42E+00 | Press molding:Nonferrous metal (kg) | 6.28E-01 | | |
| | Cu (kg) | 5.97E-01 | Medium-sized motor (kg) | 6.30E-01 | Injection molding (kg) | 1.05E+01 | | |
| | Al (kg) | 8.38E-02 | | | Blow molding (kg) | 2.65E-02 | | |
| | Glass (kg) | 8.64E-01 | | | Glass molding (kg) | 8.64E-01 | | |
| | Thermoplastics resin (kg) | 1.05E+01 | | | | | | |
| | thermosetting resin (kg) | 3.28E-02 | | | | | | |
| | Rrubber (kg) | 4.44E-02 | | | | | | |
| | Subtotal | 1.68E+01 | Subtotal | 9.60E+00 | | | | |
| | Total | | | 2.64E+01 | Subtotal | 1.67E+01 | Subtotal | 2.64E+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 $SO_2$, $NO_2$ equivalent.

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Consumption | Classification | Energy | Material | Energy | | | | | |
| | Distribution | Electricity (kWh) | Industrial water (kg) | LNG (kg) | | | | | |
| | Quantity | 3.49E+00 | 3.47E-02 | 4.49E-02 | | | | | |
| | Note | | | | | | | | |
| Emission/Discharge | Classification | Water system | | | | | | | |
| | Distribution | BOD | | | | | | | |
| | Quantity | 1.62E-04 | | | | | | | |
| | Note | | | | | | | | |

Note

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

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Distribution | Means of transportation | Diesel truck:10 ton (kg･km) | Diesel truck:10 ton (kg･km) | Diesel truck:10 ton (kg･km) | Diesel truck:10 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 | 2.64E+01 | 1.00E+02 | 5.39E+01 | 4.91E+03 | 2.64E+01 | 2.60E+03 | 1.00E+02 | 6.87E+04 |
| | 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 | Consumption | Consumption | Process | Process | Process | Process | Process | Process |
| | Distribution | Electricity (kWh) | Industrial water (kg) | Injection molding (kg) | Blow molding (kg) | Parts assembly (kg) | Diesel truck:2 ton (kg･km) | Press molding:Iron (kg) | Press molding:Nonferrous metal (kg) |
| | Quantity | 4.96E+02 | 6.45E+01 | 2.69E+01 | 6.41E-02 | 4.04E+01 | 2.36E+04 | 2.42E+00 | 2.88E-01 |
| | Note | | | | | | | | |
| | Classification | Consumption | Consumption | Consumption | Consumption | Consumption | Consumption | Consumption | Consumption |
| | Distribution | Carbon steel(kg) | SUS (kg) | Cu (kg) | Al (kg) | Thermoplastics resin (kg) | thermosetting resin (kg) | Paper (kg) | Assembled circuit board (kg) |
| | Quantity | 1.43E+00 | 9.93E-01 | 2.80E-01 | 2.71E-01 | 4.97E+01 | 6.41E-02 | 1.07E+01 | 9.20E-02 |
| | Note | | | | | | | | |

Note

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

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Consumables | Classification | Process | Process | Process | Process | Process | Process | Deduction | Deduction |
| | Distribution | Recycle:to copper plate (kg) | Recycle:to Aluminum plate (kg) | Recycle:to Thermoplastic pellet (kg) | Recycle:to corrugated cardboard (kg) | Shredding (kg) | Recycle:to cold-rolled steel (kg) | Carbon steel(kg) | SUS (kg) |
| | Quantity | 3.72E-01 | 2.71E-01 | 2.69E+01 | 1.07E+01 | 4.06E+01 | 2.42E+00 | 1.43E+00 | 9.93E-01 |
| | Note | | | | | | | | |
| | Classification | Deduction | Deduction | Deduction | Deduction | | | | |
| | Distribution | Cu (kg) | Al (kg) | Thermoplastics resin (kg) | Paper (kg) | | | | |
| | Quantity | 3.72E-01 | 2.71E-01 | 2.69E+01 | 1.07E+01 | | | | |
| | Note | | | | | | | | |

Note

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

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Scenario | Classification | Process | Process | Process | Process | Process | Process | Process | Process |
| | Distribution | Diesel truck:10 ton (kg･km) | Diesel truck:2 ton (kg･km) | Electricity (kWh) | Incineration: Industrial waste (kg) | Shredding (kg) | Recycle:to cold-rolled steel (kg) | Recycle:to copper plate (kg) | Recycle:to Aluminum plate (kg) |
| | Quantity | 1.96E+03 | 1.67E+04 | 9.20E-01 | 1.41E-01 | 2.64E+01 | 4.74E+00 | 2.65E+00 | 8.38E-02 |
| | Note | | | | | | | | |
| | Classification | Process | Process | Process | Deduction | Deduction | Deduction | Deduction | Deduction |
| | Distribution | Recycle:to Thermoplastic pellet (kg) | Recycle:to corrugated cardboard (kg) | Recycle:to Glass (kg) | Carbon steel(kg) | SUS (kg) | Cu (kg) | Al (kg) | Glass (kg) |
| | Quantity | 1.05E+01 | 7.55E+00 | 8.64E-01 | 4.35E+00 | 3.93E-01 | 2.65E+00 | 8.38E-02 | 8.64E-01 |
| | Note | | | | | | | | |
| | Classification | Deduction | Deduction | | | | | | |
| | Distribution | Thermoplastics resin (kg) | Paper (kg) | | | | | | |
| | Quantity | 1.05E+01 | 7.55E+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.