Product Environmental Aspects Declaration

Data Projector（PCR-ID:AG-04）

ECO LEAF
製品環境情報
http://www.jemai.or.jp

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EPSON
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EH-DM3

1. Projection System
   : RGB Liquid Crystal Shutter Projection System
2. Brightness：2,000 ANSI Lumens
3. Pixel number：518,400 dots (960 x 540) x 3
   Native Resolution：540P（960×540）

SEIKO EPSON CORPORATION

http://www.epson.jp

Inquires:
Global Environmental Policy Dept.
TEL: +81-266-52-3131
FAX: +81-266-58-9584
http://www.epson.jp/misc/form.html

	Total, all stages
Global warming impact (CO_2 equivalent)	246.6 kg
Acidification impact (SO_2 equivalent)	0.32 kg
Energy consumption	5,213 MJ
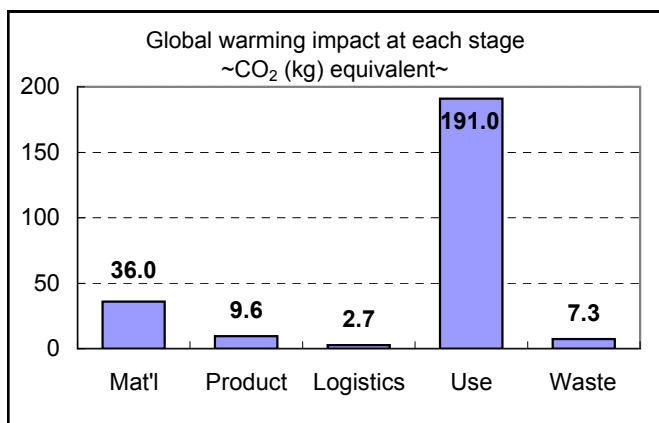
Global warming impact at each stage
~CO_2 (kg) equivalent~

Mat'l	Product	Logistics	Use	Waste
36.0	9.6	2.7	191.0	7.3

Condition during the usage
・Operating/waiting 3.5hr/day
・Days of utilization in an year 100day/yr
・Usage periods　5years

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 Specification Criteria.
   Visit EcoLeaf website under JEMAI homepage at http://www.jemai.or.jp/ecoleaf_e/ for details.
3. 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]
●This product is assembled at an ISO14001 certified factory.
●No halogen resin is used for the housing.

PCR review was conducted by : the chair Mr. Hisashi Ishitani, KEIO University at PCR Deliberation Committee in January 1, 2008.
Independent verification of the declaration and data, according to ISO14025:2006☐ internal ☑ external
Third party verifier and the system auditor: Mr. Shozo Nakamuta.

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

Product Environmental Information Data Sheet（PEIDS）

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Document control no.	**F-02A-02**
Product vendor	**Seiko Epson Corporation**
EcoLeaf registration no.	**AG-10-065**

Unit Function DB ver.	**2.1**
Characterization Factor DB ver.	**2.1**

PCR name	**Data Projector**		Product type	**EH-DM3**		
PCR	**AG-04**	Product weight (kg) **4.11**	Package (kg)	**2.87**	Weight total (kg)	**6.98**

Life Cycle Stage / In/Out items				Unit	Production		Distribution	Use	Disposition	Total
					Raw material	Product				
Energy Consumption				MJ	6.67E+02	2.01E+02	3.49E+01	4.30E+03	7.09E+00	5.21E+03
				Mcal	1.59E+02	4.81E+01	8.34E+00	1.03E+03	1.69E+00	1.25E+03
Inventory analyses	Resource Consumption from the environment	Exhaustible resources (Energy)	Coal	kg	3.21E+00	1.17E+00	2.03E-02	2.45E+01	4.95E-02	2.89E+01
			Crude oil (for fuel)	kg	7.60E+00	1.36E+00	6.87E-01	2.77E+01	6.32E-02	3.74E+01
			LNG	kg	1.23E+00	6.80E-01	2.04E-02	1.22E+01	2.51E-02	1.42E+01
			Uranium content of an ore	kg	1.34E-04	7.91E-05	1.37E-06	1.66E-03	3.34E-06	1.88E-03
		Material	Crude oil (for material)	kg	2.41E+00	0	3.92E-02	0	0	2.45E+00
			Iron content of an ore	kg	1.06E+00	0	0	0	0	1.06E+00
			Cu content of an ore	kg	1.28E-01	0	0	0	0	1.28E-01
			Al content of an ore	kg	8.52E-02	0	0	0	0	8.52E-02
			Ni content of an ore	kg	6.32E-03	0	0	0	0	6.32E-03
			Cr content of an ore	kg	8.85E-03	0	0	0	0	8.85E-03
			Mn content of an ore	kg	1.77E-02	0	0	0	0	1.77E-02
			Pb content of an ore	kg	1.03E-02	0	0	0	0	1.03E-02
			Sn content of an ore	kg	3.65E-05	0	0	0	0	3.65E-05
			Zn content of an ore	kg	1.03E-01	0	0	0	0	1.03E-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	4.84E-01	0	0	0	0	4.84E-01
			Halite	kg	2.16E+00	4.36E-04	3.34E-05	0	1.93E-03	2.17E+00
			Limestone	kg	3.79E-01	0	3.42E-03	0	6.85E-02	4.51E-01
			Natural soda ash	kg	3.35E-02	0	0	0	0	3.35E-02
		Renewable resources	Wood	kg	4.70E+00	0	4.89E-01	0	0	5.19E+00
			Water	kg	3.44E+03	9.63E+02	4.55E+01	1.85E+04	4.19E+01	2.30E+04
	Emission/Discharge to the environment	to Atmosphere	CO$_2$	kg	3.51E+01	9.45E+00	2.64E+00	1.90E+02	7.31E+00	2.45E+02
			SOx	kg	2.47E-02	6.97E-03	1.68E-03	1.45E-01	3.78E-03	1.82E-01
			NOx	kg	4.87E-02	6.02E-03	1.42E-02	1.15E-01	7.06E-03	1.91E-01
			N$_2$O	kg	3.27E-03	4.43E-04	2.61E-04	2.08E-03	9.49E-06	6.06E-03
			CH$_4$	kg	3.56E-04	2.11E-04	3.68E-06	4.43E-03	8.95E-06	5.01E-03
			CO	kg	4.74E-03	1.41E-03	4.32E-03	2.81E-02	1.03E-03	3.96E-02
			NMVOC	kg	6.96E-04	4.14E-04	7.18E-06	8.68E-03	1.75E-05	9.81E-03
			CxHy	kg	1.50E-03	8.80E-05	3.35E-04	4.53E-04	4.18E-06	2.38E-03
			Dust	kg	4.62E-03	2.98E-04	1.17E-03	6.21E-03	3.74E-04	1.27E-02
		to Water system	BOD	kg	-	-	-	-	-	
			COD	kg	-	-	-	-	-	
			N total	kg	-	-	-	-	-	
			P total	kg	-	-	-	-	-	
			SS	kg	-	-	-	-	-	
		to Soil system	Unspecified Solid Waste	kg	3.12E-01	1.23E-03	4.87E-02	0	2.42E+00	2.78E+00
			Slag	kg	6.29E-01	0	0	0	0	6.29E-01
			Sludge	kg	1.42E-01	0	0	0	0	1.42E-01
			Low level radio-active waste	kg	9.37E-05	5.51E-05	9.59E-07	1.16E-03	2.34E-06	1.31E-03
Impact assessment	by Resource Consumption	Exhaustible resources	Energy resources (crude oil equivalent)	kg	1.22E+01	3.57E+00	7.36E-01	7.17E+01	1.52E-01	8.84E+01
			Mineral resources (Iron ore equivalent)	kg	4.64E+01	0	2.16E-02	0	0	4.64E+01
	by Emission/Discharge to the environment	to Atmosphere	Global Warming (CO$_2$ equivalent)	kg	3.60E+01	9.58E+00	2.72E+00	1.91E+02	7.31E+00	2.47E+02
			Acidification (SO$_2$ equivalent)	kg	5.88E-02	1.12E-02	1.16E-02	2.26E-01	8.72E-03	3.16E-01

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: consiste 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 on energy rsources 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 Atmostphere, 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".
 D. Row total of the data is automatically calculated, excluding a row includes "-" item. Row total of such is presented as a blank (no data).
  Note: BGD for material production are for production from mineral ore. Those data do not include reclaiming processes like recovery from scrap.

Explanation:
1."Production" stage
  According to the PCR, glass coating processing is calculated by using the basic unit of the parts assembly.

Form 3

Product data sheet

（Input data and parameters for LCA）

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Document control no.	F-03-02
Product vendor	Seiko Epson Corporation
EcoLEaf registration no.	AG-10-065

PCR name	Data Projector (PCR-ID:AG-04)		Product type	EH-DM3			
LCA/LCIA in units of:	1	Product weight (kg)	4.11	Package (kg)	2.87	Weight total (kg)	6.98

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	Steel	7.78E-01	Paper	2.19E+00	Press molding:Iron	8.18E-01	Parts assembly	2.15E+00
	Stainless steel	3.99E-02	Semiconductor substrate	3.12E-01	Press molding: Nonferrous meta	2.07E-01		
	Aluminum	6.27E-02	Battery	3.58E-02	Injection molding	2.90E+00		
	Other metals	1.44E-01	Medium-sized motor	2.15E-01	Glass molding	3.08E-01		
	Thermoplastic resin	2.74E+00			Glass coarting	3.08E-01		
	Thermosetting resin	1.32E-01						
	Rubber	2.94E-02						
	Glass	3.08E-01						
	Subtotal	4.23E+00	Subtotal	2.75E+00				
	Total			6.98E+00	Subtotal	4.54E+00	Subtotal	2.15E+00

Notes: The mass of the material which can be classified in every material and have no Basic Units is proportionally distributed by the mass of each material group.

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.

	Classification	Energy	Energy	Energy	Material				
Consumption	Distribution	Electricity (kwh)	Diesel oil as fuel (kg)	LNG(kg)	Clean water (kg)				
	Quantity	1.66E+01	3.74E-02	9.35E-02	7.51E+01				
	Note								
Emission/ Discharge	Classification	Water system							
	Distribution	Sewage processing (kg)							
	Quantity	7.51E+01							
	Note								

Notes:

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

	Means of transportation	Diesel truck:10 ton		Diesel truck:4 ton		Freight by ship		Used transportation parts Diesel truck:4 ton	
Distribution	Conditions	Loading Ratio (%w)	Load (kg·km)	Loading Ratio (%w)	Load (kg·km)	Loading Ratio (%w)	Load (kg·km)	Loading Ratio (%w)	Load (kg·km)
	Quantity	45%	7.02E+03	69%	1.26E+03	-	2.09E+04	62%	2.61E+01
	Note	Distance=455km		Distance=125km		Distance=3000km		Distance=60km	

	Classification	Materials		Process		Process：Disposition			
consumptions and emissions/disc	Distribution	Thermoplastic resin (kg)	Paper (kg)	Injection molding (kg)	Shredding (kg)	Incineration to landfill (as ash) (kg)			
	Quantity	3.94E-02	2.30E-01	3.94E-02	2.69E-01	2.69E-01			
	Note	Transportation parts for traffic transportation							

Notes: The land and marine transportation load from an overseas manufacture site to Japan are added up.
The transportation distance in Japan is calculated on the basis of 500 km that are the prescription value of PCR.

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

	Classification	Energy							
Product	Distribution	Electricity (kwh)							
	Quantity	4.57E+02							
	Note								

Notes: According to the PCR, the conditions are as follows:
Use mode:
1)Condition during the usage.: Operating/waiting 3.5hr/day, Days of utilization in an year 100day/yr, ・High Brightness mode
2)Condition during the OFF.:Power Cable is plugged out while not using
3)Usage periods: 5 years

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

	Classification	Diesel truck:4 ton		Process	Process	Process			
Scenario	Distribution	Loading Ratio (%w)	Load (kg·km)	Shredding (kg)	Incineration to landfill (as ash) (kg)	Landfill: General waste (kg)			
	Quantity	62%	6.75E+02	6.98E+00	5.40E+00	1.58E+00			
	Note	Distance=60km							

Notes These figures in this table mean the environmental burden when products are disposed.