Product Environmental Profile

Single phase Uninterruptible Power Supply with energy storage system [Eaton Ellipse Pro UPS]

Representative product	Ellipse Pro UPS (ELP1600FR, 1600VA/1000W) PSR product category: UPS with incorporated energy storage system
Description of the product	Eaton's Ellipse PRO series UPS are used to maintain the continuity of AC power source to a load in the event of an input power failure. The Ellipse Pro UPS comes with either four (650/850 models) or eight (1200/1600 models) sockets with surge protection and backup. The Eco-Control function, which automatically disables peripherals when the master device is turned off, can cut energy consumption by as much as 15% and 20% for 4 and 8 sockets respectively.
Homogeneous Environmental Families Covered	The PEP covers Ellipse Pro UPS offerings coverings ELP650 FR/DIN/IEC [650VA/400W], ELP850 FR/DIN/IEC [850VA/510W], ELP1200 FR/DIN/IEC [1200VA/750W] and ELP1600 FR/DIN/IEC [1600VA/1000W].
Functional unit	To protect the load of 1000 Watts against input power failure over a period of 5 years and provide a backup time of 9 minutes in case of a power outage
Company information	Eaton Electrical Ltd. No.4 Liu Fang Rd., Block 67 Baoan, Shenzhen, China Email: productstewardship-es@eaton.com

Constituent Materials			
Reference product mass	1.27E+01 kg (with packaging)		
Category PEP Material	**Materials**	**Mass (kg)**	**Percentage**
Metals	Lead	3.89E+00	30.63%
Metals	Ferrites	2.44E+00	19.21%
Plastics	Acrylonitrile butadiene styrene (ABS)	1.66E+00	13.07%
Metals	Copper	1.04E+00	8.19%
Others	Inorganic Chemicals	6.69E-01	5.27%
Others	Cardboard	6.69E-01	5.27%
Others	Wood	4.06E-01	3.20%
Plastics	Epoxy resin	3.31E-01	2.61%
Others	Glass	1.99E-01	1.57%
Plastics	Polyamide	1.83E-01	1.44%
Plastic	Polypropylene (PP)	1.54E-01	1.21%
Metals	Aluminium	1.51E-01	1.19%
Plastics	Polyethylene terephthalate	1.38E-01	1.09%
Others	Paper	8.82E-02	0.69%
Others	Miscellaneous	6.80E-01	5.36%
	Total	**1.27E+01**	**100.00 %**

Substance Assessment

The representative product is compliant with the EU-RoHS Directive (2011/65/EU) by application of exemptions and the product contains lead (Pb)which listed as Substance-of-Very-High-Concern (SVHC) on the Candidate List of the EU-REACH Regulation (1907/2006/EC).

Additional Environmental Information	
Manufacturing	The reference product is assembled at an Eaton plant holding management system certifications according to ISO9001 & 14001 standards
Distribution	Eaton is committed to minimizing weight and volume of product and packaging with focus to optimize transport efficiency
Installation	The installation of the product requires standard tools which do not require any additional energy source and no waste other than the obsolete product packaging is generated during this step
Use	The product does not require maintenance during operation.
End of life	Recyclability of product is 50.7 % based on the method of the IEC 62635.

Environmental Impacts

The calculation of the environmental impacts is the result of the Product's Life Cycle Analysis in accordance with ISO 14040/44, covering the entire lifecycle.
System modelling was carried out using the commercial LCA software EIME v5.9.3 with database version CODDE-2022-01.

Manufacturing Phase

The product is manufactured at Eaton plant located in Shenzhen, China.
Energy model used for product manufacturing: China

Distribution Phase

The shipment of the product contained in its packaging is considered as per PCR requirement from the manufacturer's last logistics platform to the installation place. Reference product transported over an average distance of 18,678 km by ship and 1000km by truck to serve the Europe market.

Installation Phase

Product is installed in Europe. Packaging waste treatment is considered.
Energy model used for treatment of packaging: Europe

Use Phase

Reference lifetime: 5 Years
Location of use: Europe.
Energy model used: Europe
Usage profile: The product has an average energy efficiency of 96.0%. The methodology for the calculation of the electricity consumption is based on Uninterruptible Power Supplies (UPSs) PSR.

Operating loads	25%	50%	75%	100%
Proportion of Time spent at	0.2	0.2	0.3	0.3

Total energy losses are 983 kWh over the 5 years.

End of life Phase

Battery: Waste treatment by Pyrometallurgical process
Product disposed with WEEE guidelines.
Energy model used: Europe

Environmental Impact Indicators: Mandatory

Indicators	Unit	Total	Manufacturing	Distribution	Installation	Use (B6*)	End of Life
Global warming (GWP100)	(kg CO2 eq.)	4.84E+02	8.30E+01	4.01E+00	3.91E-01	3.89E+02	8.35E+00
Ozone layer depletion	kg CFC-11 eq.	1.51E-05	1.22E-05	6.96E-09	1.22E-09	1.54E-06	1.32E-06
Eutrophication	(kg PO4--- eq.)	9.04E-01	1.09E-01	1.07E-01	1.17E-03	6.79E-01	7.89E-03
Photochemical oxidation	kg ethylene eq.	1.76E-01	3.65E-02	1.07E-02	4.15E-04	1.25E-01	3.37E-03
Abiotic depletion (elements)	(kg antimony eq.)	7.56E-02	1.45E-02	5.34E-03	9.02E-05	5.34E-02	2.25E-03
Abiotic depletion (fossil fuels)	(MJ)	2.76E-02	2.76E-02	1.46E-07	6.15E-09	4.00E-05	1.40E-07
Air pollution	(m^3)	7.26E+03	1.07E+03	5.13E+01	2.56E+00	6.05E+03	7.42E+01
Water Pollution	(m^3)	3.27E+04	1.55E+04	6.01E+02	3.60E+01	1.37E+04	2.86E+03
Acidification potential	(kg SO2 eq.)	5.53E+04	2.70E+04	5.23E+02	1.16E+01	2.69E+04	8.56E+02

*B6 is energy requirements during the use stage. Other sub modules in the use stage (B1-B5, B7) are equal to 0, that's why they are not listed in the table.

Environmental Impact Indicators: Optional

Indicators	unit	Total	Manufacturing	Distribution	Installation	Use(B6*)	End of Life
Use of renewable primary energy, excluding renewable primary energy resources used as raw materials	MJ	2.01E+03	4.12E+01	6.62E-02	8.92E-03	1.97E+03	9.71E-02
Use of renewable primary energy resources used as raw materials	MJ	1.22E+01	1.22E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of renewable primary energy resources (primary energy and primary energy resources used as raw materials)	MJ	2.02E+03	5.35E+01	6.62E-02	8.92E-03	1.97E+03	9.71E-02
Use of non-renewable primary energy, excluding non-renewable primary energy resources used as raw materials	MJ	1.18E+04	1.35E+03	5.16E+01	2.60E+00	1.03E+04	1.14E+02
Use of non-renewable primary energy resources used as raw materials	MJ	1.34E+02	1.34E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of non-renewable primary energy resources (primary energy and primary energy resources used as raw materials)	MJ	1.19E+04	1.48E+03	5.16E+01	2.60E+00	1.03E+04	1.14E+02
Use of secondary materials	kg	9.09E-01	9.09E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Net use of fresh water	m3	1.84E+01	9.26E-01	3.13E-04	6.62E-04	1.75E+01	1.86E-02
Hazardous waste disposed of	kg	9.91E+01	6.78E+01	0.00E+00	9.97E-05	7.53E+00	2.38E+01
Non-hazardous waste disposed of	kg	7.36E+01	1.48E+01	1.25E-01	3.18E-01	5.80E+01	3.81E-01

Radioactive waste disposed of	kg	2.00E-02	6.83E-03	8.69E-05	1.35E-05	1.21E-02	9.23E-04
Materials for recycling	kg	6.85E+00	0.00E+00	0.00E+00	1.05E+00	0.00E+00	5.81E+00
Materials for energy recovery	kg	1.90E-08	1.90E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy	MJ	1.65E-01	1.54E-01	0.00E+00	1.08E-02	0.00E+00	0.00E+00
Total use of primary energy during the life cycle	MJ	1.39E+04	1.54E+03	5.16E+01	2.61E+00	1.22E+04	1.14E+02

*B6 is energy requirements during the use stage. Other sub modules in the use stage (B1-B5, B7) are equal to 0, that's why they are not listed in the table.

To evaluate the environmental impact of other product covered by this PEP, multiply the impact figures by –

Extrapolation Rules	Impact Indicators	A for PEP	ADPe for EN15804	ADPf for EN15804	AP for DHUP	EP for EN15804	GWP for EN15804	ODP for EN15804	POCP for EN15804	WP for DHUP
	Units	kg SO2 eq.	kg antimony eq.	MJ	m^3	kg PO4--- eq.	kg CO2 eq.	kg CFC-11 eq.	kg ethylene eq.	m^3
Baseline Product Ellipse PRO 1600 VA	All Phases	1	1	1	1	1	1	1	1	1
Ellipse PRO 1200 VA	Manufacturing	0.93	0.78	0.96	0.85	0.94	0.96	0.93	0.98	0.86
	Distribution	0.88								
	Installation	0.88								
	Use	1.02								
	End of Life	0.78	0.76	0.75	0.74	0.78	0.78	0.73	0.74	0.74
Ellipse PRO 850 VA	Manufacturing	0.70	0.55	0.73	0.63	0.71	0.72	0.70	0.74	0.63
	Distribution	0.65								
	Installation	0.65								
	Use	0.61								
	End of Life	0.56	0.54	0.52	0.52	0.55	0.55	0.51	0.52	0.52
Ellipse PRO 650 VA	Manufacturing	0.66	0.44	0.71	0.55	0.68	0.69	0.66	0.73	0.56
	Distribution	0.59								
	Installation	0.58								
	Use	0.64								
	End of Life	0.45	0.41	0.40	0.39	0.44	0.44	0.38	0.39	0.39

Disclaimer
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		Validity period	5 years
Independent verification of the declaration and data, in compliance with ISO 14025: 2010			
Internal		External	X
The PCR review was conducted by a panel of experts chaired by chaired by Philippe Osset (SOLINNEN)			
The elements of the present PEP cannot be compared with elements from another program.			
Document in compliance with ISO 14025: 2010 « Environmental labels and declarations. Type III environmental declarations »			