Product Environmental Profile

Smart-UPS® greater than 1500

PEP ecopassport SCHN-2011-568-V0

by Schneider Electric

Product Environmental Profile - PEP

Product overview

The Smart-UPS® greater than 1500 product range provides devices that provide emergency power to a load when the input power source fails. Additionally, This Smart-UPS® greater than 1500 product range also filter out small utility line fluctuations and isolates equipment from large disturbances by internally disconnecting from the utility line, while supplying power from its internal battery pack until the utility line returns to safe levels. While not specific to any kind of equipment, Smart-UPS® greater than 1500 typically are used to retain power integrity of business computer equipment.

This range consists of Smart-UPS® with different form factors (tower and tower) and with a maximum configurable power comprises between 1800 Watts / 1920 VA and 4000 Watts / 5000 VA.

The representative product used for the analysis is the APC SUA3000I: Smart-UPS® 3000VA USB & Serial 120V, 2700 Watts / 3000 VA, Input 120V / Output 120V , Interface Port DB-9 RS-232, SmartSlot, USB.

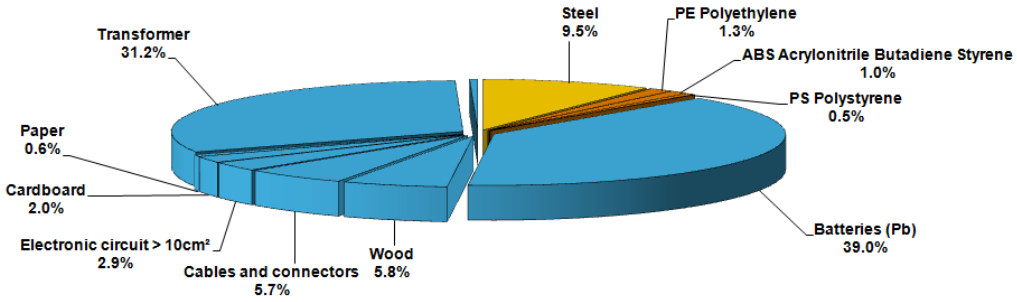
The environmental impacts of this referenced product are representative of the impacts of the other products of the range which are developed with a similar technology.

The environmental analysis was performed in conformity with ISO 14040.

Products	**Smart-UPS® Rack/Tower – SUA/SMT/SMX/SUM/SU greater than 1500 VA to 5,000 VA** **Smart-UPS® Rack/Tower – DL/DLA/EMC/IBM/NEC/FJ greater than 1500 VA to 5,000 VA** **Smart-UPS® SC – SC greater than 1500 VA to 5,000 VA**

Constituent materials

The mass of the product range is from 28 kg and 145 kg including packaging. It is 61 kg for the SUA3000I
The constituent materials are distributed as follows:



Substance assessment

Products of this range are designed in conformity with the requirements of the RoHS directive (European Directive 2002/95/EC of 27 January 2003) and do not contain, or only contain in the authorised proportions, lead, mercury, cadmium, hexavalent chromium or flame retardants (polybrominated biphenyls - PBB, polybrominated diphenyl ethers - PBDE) as mentioned in the Directive.
The battery pack within this product range are designed in conformity with the requirements of the Battery Directive (European Directive 2006/66/EC of 26 September 2006) and do not contain, or only contain in authorized proportions, lead, mercury and cadmium as mentioned in the Battery Directive.

Manufacturing

The Smart-UPS® greater than 1500 product range is manufactured at a Schneider Electric production site on which an ISO14001 certified environmental management system has been established.

Distribution

The weight and volume of the packaging have been optimized, based on the European Union's packaging directive.
The Smart-UPS® greater than 1,500 packaging weight is *5.1 kg*. It consists of cardboard and paper.

Use

The products of the Smart UPS® range do not generate environmental pollution (emissions) requiring special precautionary measures in standard use. Audible noise one meter from the surface of the product is between 45 and 53 dBA.
The usage scenario for Uninterruptible Power Supplies is specific; the methodology for the calculation of the electricity consumption is based on the Energy Star rules under development by the U.S. Environmental Protection Agency (Energy Star Uninterruptible Power Supply Product Category version 1, draft 2, 14 Oct 2011).

	Weighted Average Load (%)	Weighted Average Loss (%)	Weighted Average Loss (W)	Annual Average Consumption (kWh)	Life time (years)	Lifetime Average Consumption (kWh)
SUA3000(I)	75.0%	2.5%	66.3	581	10	5810
SMT3000RMI2U (230V) - Best case	75.0%	1.2%	32.5	285	10	2851
SUA5000RMT5U (208V) –Worst case	75.0%	3.4%	135.4	1186	10	11863

Maintenance: The replacement of 1 battery pack is required during the service life of the product.

End of life

At end of life, the products in the Smart-UPS® greater than 1500 have been optimized to decrease the amount of waste and allow recovery of the product components and materials.
This product range contains batteries, external cables and electronic boards that should be separated from the stream of waste so as to optimize end-of-life treatment by special treatments. The location of these components and other recommendations are given in the End of Life Instruction document which is available for this product range.
The recyclability potential of the products has been evaluated using the “ECO’DEEE recyclability and recoverability calculation method” (version V1, 20 Sep. 2008 presented to the French Agency for Environment and Energy Management: ADEME).
According to this method, the potential recyclability ratio is: 65%.
As described in the recyclability calculation method this ratio includes only metals and plastics which have proven industrial recycling processes.

Environmental impacts

Life cycle assessment has been performed on the following life cycle phases: Materials and Manufacturing (M), Distribution (D), Installation (I) Use (U), and End of life (E).
Modeling hypothesis and method:

- the calculation was performed on the SUA3000I
- product packaging: is included
- Installation components: no special components included.
- scenario for the Use phase: this product range is included in the category 2: Energy consuming product. The usage scenario for UPS is specific; the methodology for the calculation of the electricity consumption is based on the rules defined by the EPA for small household UPS.
  Assumed service life is 10 years
  Use scenario is: annual electricity consumption = 581 kWh per year
  The electrical power model used for calculation is the average European model.
  This equipment requires the replacement of the batteries after 5 years. The production and the transport of the battery packs have been included in the Use phase of the product.
- End of life impacts are based on a worst case transport distance to the recycling plant (1000km)

Presentation of the product environmental impacts

Environmental indicators	Unit	SUA3000I					
		S = M + D + I + U + E	M	D	I	U	E
Raw Material Depletion	Y-1	5.89E-12	3.23E-12	6.17E-17	0	2.66E-12	1.24E-16
Energy Depletion	MJ	7.25E+04	4.72E+03	4.53E+01	0	6.77E+04	9.10E+01
Water depletion	dm^3	1.31E+04	2.85E+03	4.30E+00	0	1.02E+04	8.64E+00
Global Warming	g≈CO_2	3.77E+06	2.82E+05	3.59E+03	0	3.48E+06	7.21E+03
Ozone Depletion	g≈CFC-11	2.64E-01	5.39E-02	2.54E-03	0	2.02E-01	5.10E-03
Air Toxicity	m^3	8.90E+08	1.80E+08	6.76E+05	0	7.08E+08	1.36E+06
Photochemical Ozone Creation	g≈C_2H_4	1.35E+03	1.70E+02	3.06E+00	0	1.17E+03	6.16E+00
Air acidification	g≈H^+	6.05E+02	8.21E+01	4.57E-01	0	5.21E+02	9.19E-01
Water Toxicity	dm^3	1.01E+06	4.32E+04	4.48E+02	0	9.69E+05	9.01E+02
Water Eutrophication	g≈PO_4	2.17E+01	1.17E+01	5.96E-02	0	9.83E+00	1.20E-01
Hazardous waste production	kg	6.16E+01	5.30E+00	1.33E-03	0	5.63E+01	2.68E-03

Life cycle assessment has been performed with the EIME software (Environmental Impact and Management Explorer), version 4, and with its database version 11.0.
The Manufacturing phase and the use phase are the life cycle phase which has the greatest impact on the majority of environmental indicators. According to this environmental analysis, proportionality rules may be used to evaluate the impacts of other products of this range: Depending on the impact analysis, the impact on the Raw Material Depletion of other products in this family may be proportional extrapolated by the mass of the products. The impacts on the other indicators are proportional to the electricity consumption.

System approach

As the products of the range are designed in accordance with the RoHS Directive (European Directive 2002/95/EC of 27 January 2003), they can be incorporated without any restriction in an assembly or an installation subject to this Directive.
Please note that the values given above are only valid within the context specified and cannot be used directly to draw up the environmental assessment of an installation.

Glossary

Raw Material Depletion (RMD)
This indicator quantifies the consumption of raw materials during the life cycle of the product. It is expressed as the fraction of natural resources that disappear each year, with respect to all the annual reserves of the material.

Energy Depletion (ED)
This indicator gives the quantity of energy consumed, whether it be from fossil, hydroelectric, nuclear or other sources.
This indicator takes into account the energy from the material produced during combustion. It is expressed in MJ.

Water Depletion (WD)
This indicator calculates the volume of water consumed, including drinking water and water from industrial sources. It is expressed in dm^3.

Global Warming (GW)
The global warming of the planet is the result of the increase in the greenhouse effect due to the sunlight reflected by the earth's surface being absorbed by certain gases known as "greenhouse-effect" gases. The effect is quantified in gram equivalent of CO_2.

Ozone Depletion (OD)
This indicator defines the contribution to the phenomenon of the disappearance of the stratospheric ozone layer due to the emission of certain specific gases. The effect is expressed in gram equivalent of CFC-11.

Air Toxicity (AT)
This indicator represents the air toxicity in a human environment. It takes into account the usually accepted concentrations for several gases in the air and the quantity of gas released over the life cycle. The indication given corresponds to the air volume needed to dilute these gases down to acceptable concentrations.

Photochemical Ozone Creation (POC)
This indicator quantifies the contribution to the "smog" phenomenon (the photochemical oxidation of certain gases which generates ozone) and is expressed in gram equivalent of ethylene (C_2H_4).

Air Acidification (AA)
The acid substances present in the atmosphere are carried by rain.
A high level of acidity in the rain can cause damage to forests.
The contribution of acidification is calculated using the acidification potentials of the substances concerned and is expressed in mode equivalent of H^+.

Water Toxicity (WT)
This indicator represents the water toxicity. It takes into account the usually accepted concentrations for several substances in water and the quantity of substances released over the life cycle. The indication given corresponds to the water volume needed to dilute these substances down to acceptable concentrations.

Hazardous Waste Production (HWP)
This indicator calculates the quantity of specially treated waste created during all the life cycle phases (manufacturing, distribution and utilization). For example, special industrial waste in the manufacturing phase, waste associated with the production of electrical power, etc.
It is expressed in kg.

APC by Schneider Electric has achieved compliance status and the accuracy of data in this PEP document is based on our best knowledge as of the date of its publication.

Registration No.: SCHN-2011-568-V0				Writing rules: PCR PEPecopassport 2010 :1.0
Accreditation No. of verifier:: VH05				Programme information: www.pep-ecopassport.org
Date of issue: 11-2011				Period of validity: 4 years
Independent verification of the declaration and data, in compliance with ISO 14025:2006				
Internal		External	X	
In compliance with the ISO 14025:2006 type III environmental declaration standard.				
The critical review of the PCR was conducted by a panel of experts chaired by. J. Chevalier (CSTB).				
The information in the present PEP cannot be compared with information from another programme.				

For more information please go to: http://www.apc.com/recycle/

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