

Product Environmental Profile



Eaton 3S 850 FR

PEP N°EATO-10003-V01.01-EN

The purpose of a Product Environmental Report is to highlight environmental considerations of the product and communicate comparable information about the intended benefits of that product.

Product Description

Product type :	Single-phase UPS
Family name :	Eaton 3S
Representative product name :	Eaton 3S 850 FR
Commercial reference :	3S850F
Performance classification :	VFD
Function :	OFF-LINE
Gross Weight :	5.4 Kg
Net Weight :	4.3 Kg
Power apparent (VA) :	850
Power active (W) :	510
Dimensions (mm) :	86 × 170 × 335

Functional unit: To protect the load of 510 Watts against input power failure during 5 years and switch to the energy storage system to avoid power outage.



Figure 1 Eaton 3S 850 FR

About Eaton and the Environment

Eaton is developing customer solutions that drive sustainable growth around the globe, including efficiently using and conserving global resources, developing energy efficient products, reducing emissions, protecting the environment, and volunteering time to help build stronger communities.

For more information on sustainability at Eaton, please visit www.eaton.com/Sustainability

Manufacturing Site Information

The Eaton 3S product range are manufactured at Eaton production site of Shenzhen City (Lianzheng, China) which is certified ISO14001 with an environmental management system.

Packaging Information

The packaging has been designed to be more ecological friendly. Its weight and volume are optimized as it is described in the European Union packaging directive. The total weight of Eaton 3S 850 FR packaging is 1.1 Kg of cardboard, pulp foam and plastic bag.

Product Materials Information

Considerations in product design and supplier selection were made in order to ensure that this product does not contain restricted materials.

In addition, this product was designed to comply with the following material directives/standards:

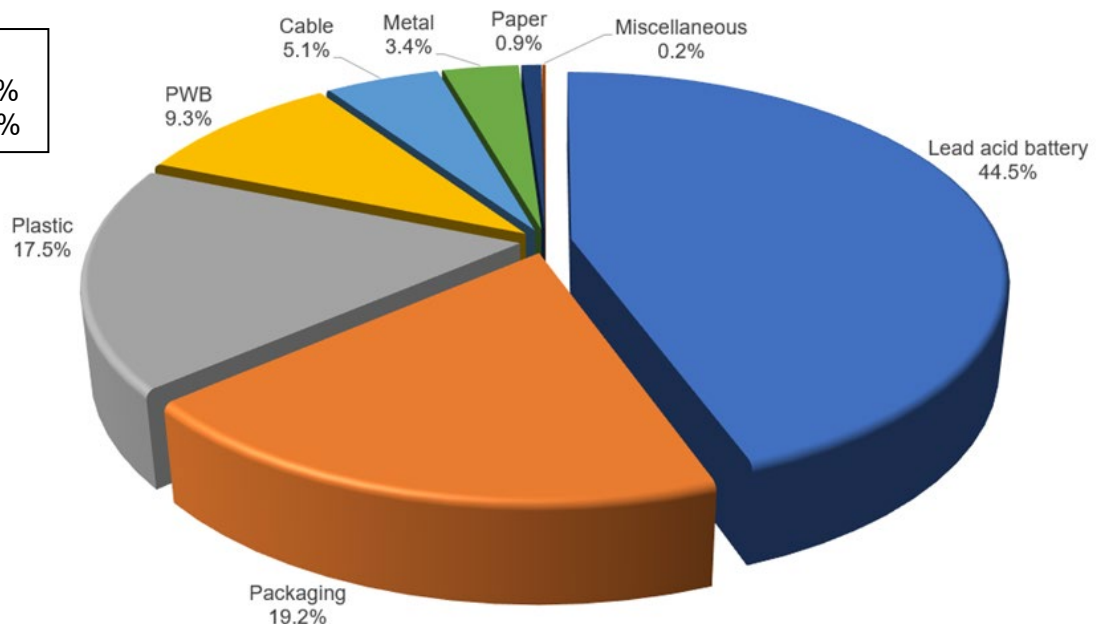
RoHS Directive - 2011/65/EU

REACH Regulation

IEC 62474: 2012

The constituent materials for the Eaton 3S 850 FR are distributed as the next figures shows, the net weight is 4.3 Kg, and gross weight is 5.4 Kg including packaging.

<p>Metal: 3.4%</p> <p>Plastic: 17.5%</p> <p>Others: 79.1%</p>



Installation

The installation phase includes transport of technician delivering UPS.

End of life

This product was designed to comply with the following recycling directives/standards:

Directive 2012/19/EU (WEEE directive)

Directive 2004/12/EC (Packaging directive)

Directive 2013/56/EU (Batteries directive)

The recyclability rate of this product is: 64 %, calculated through the IEC62635 calculation method.

Additional Information

This product is also compliant with the requirement of IEC 62040-4: 2013.

This PEP was conducted using:

PCR-ed3-EN-2015 04 02

PSR-0010-ed1.1-EN-2015 10 16

Life Cycle Assessment Results – LCA is a detailed environmental assessment tool that evaluates the potential impacts of a product or service throughout its life cycle, from cradle to grave.

LCA Results Summary/Interpretation

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 and have been performed in conformity with ISO 14040.

The first conclusion, upon inspection of these results, is that the use stage dominates the environmental impacts of the Eaton 3S 850 FR contributing $\geq 90\%$ to 5 impact categories of the 14 categories. In 9 categories the use phase and the manufacturing share the contribution.

Energy model

Manufacturing: Electricity grid mix, AC, consumption mix, at consumer, < 1kV EU-27 S (ELCD)

Use: Electricity grid mix, AC, consumption mix, at consumer, 230V FR S (ELCD)

LCA Details and Assumptions

This LCA was performed using the SimaPro software: 9.1.1.1 with its database version: ELCD (June 2018) and Ecoinvent 3.6 – allocation, cut-off by classification – unit (December 2019). The method: CML-IA baseline V 4.7 (August 2016) / EU25+3, 2000. Cumulative Energy Demand (LHV) V1.00 / Cumulative energy demand, EPD (2018) V1.01, EDIP 2003 V1.07 / Default.

The life cycle stages included within the system boundary are manufacturing phase, distribution, installation, use and end-of-life.

The use scenario, was:

Time proportion	0.2	0.2	0.3	0.3
Specified proposition of reference test load	25%	50%	75%	100%
Power of load in W	127.5	255	382.5	510
Time spent in years	1	1	1.5	1.5
Time spent in hours	8760	8760	13140	13140
UPS efficiency %	97.0	97.3	97.7	97.7
Power loss in kWh	33.6	59.9	115.4	152

Electricity consumption during lifetime: 360.9 kWh

Table 1: Use phase scenario

Environmental Performance Data

Impact category	Unit	Total	Manufacturing	Distribution	Installation	Use	EOL
Acidification of soil and water	kg SO2 eq	7.08E-01	5.07E-01	5.29E-02	1.19E-03	1.46E-01	9.05E-04
Depletion of abiotic resources - elements	kg Sb eq	1.55E-01	1.55E-01	6.62E-08	2.76E-07	1.18E-05	8.25E-05
Depletion of abiotic resources - fossil fuels	MJ	1.05E+03	5.67E+02	2.33E+01	3.42E+00	4.49E+02	4.89E+00
Global warming	kg CO2 eq	8.42E+01	4.54E+01	1.84E+00	1.01E+00	3.93E+01	-3.43E+00
Net use of fresh water	m3 eq	3.40E+02	1.93E+01	6.09E-03	1.81E-02	3.21E+02	-3.66E-01
Ozone depletion	kg CFC-11 eq	5.89E-05	2.81E-06	3.14E-09	3.52E-09	5.61E-05	-8.55E-09
Photochemical ozone formation	kg C2H4 eq	3.97E-02	2.84E-02	2.62E-03	1.52E-04	8.45E-03	8.21E-05
Water eutrophication	kg (PO4)3- eq	2.48E-01	2.29E-01	5.19E-03	2.66E-03	1.19E-02	-8.01E-04
Hazardous waste	kg	6.19E-02	6.19E-02	0.00E+00	9.82E-07	0.00E+00	7.41E-07
Non-hazardous waste	kg	7.69E+00	6.36E+00	1.89E-06	7.85E-01	6.24E-01	-7.18E-02
Radioactive waste	kg	1.35E-03	1.35E-03	0.00E+00	1.50E-06	0.00E+00	8.89E-07
Total use of non-renewable primary energy resources	MJ	3.99E+03	6.38E+02	2.34E+01	3.45E+00	3.32E+03	4.50E+00
Total use of renewable primary energy resources	MJ	2.71E+02	6.29E+01	2.56E-02	1.63E-02	2.08E+02	-2.08E-01
Total use of primary energy	MJ	4.26E+03	7.01E+02	2.35E+01	3.47E+00	3.53E+03	4.29E+00




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Glossary

Air acidification	Indicator, expressed in gram equivalent of H+, of the air acidification potential caused by the release of specific gases to the atmosphere
Air toxicity	Indicator, expressed in m3, of the quantity of air needed to dilute the toxic elements released into the air for all phases of the product life cycle
Energy depletion	Indicator of the total primary energy consumption throughout the product life cycle
Global warming potential	Indicator in gram equivalent of CO2 of emissions to air participating in the global warming effect. Example of the equivalence principle: 1 g of CO2 = 1 g~CO2; 1 g of CH4 (methane) equals the effect of 25 g of CO2, etc.
Photochemical ozone creation	Indicator in gram equivalent C2H4 having an effect on the photochemical ozone formation in the lower atmosphere (smog) under the effect of solar radiation
Raw material depletion	Indicator, expressed as a fraction of the reserve that disappears each year, of the depletion of natural resources, taking account of the quantity of worldwide reserves (mineral, fossil, etc.) for such resources and the current level of consumption
Stratospheric ozone depletion potential	Indicator in gram equivalent of CFC11 of emissions to air contributing to the depletion of the ozone layer
Water depletion	Indicator in dm3 of the total consumption of water throughout the product life cycle
Water eutrophication	Indicator in gram equivalent PO43- of the participation in water eutrophication by nutrient enrichment of the aquatic environment, for example: industrial and domestic effluents, agriculture, etc.
Water toxicity	Indicator, expressed in m3, of the quantity of water required to dilute the toxic elements discharged into the water for all phases of the product life cycle

Registration number : EATO-10003-V01.01-EN	Drafting Rules : PCR-ed3-EN-2015 04 02 Supplemented by : PSR-0010-ed1.1-EN-2015 10 16
Verifier accreditation number : VH18	Information and reference documents : www.pep-ecopassport.org
Date of Issue : 09-2021	Validity period : 5 years
Independent verification of the declaration and data, in compliance with ISO 14025:2010	
Internal: <input type="checkbox"/>	External: <input checked="" type="checkbox"/>
The PCR review was conducted by a panel of experts chaired by Philippe Osset (SOLINNEN)	
PEP are compliant with XP C08-100-1: 2016 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 »	

If you have questions about this document or the information to provide, please contact: JulienMelot@eaton.com, you can also visit our eaton.com/Sustainability