

Product Environmental Profile RCBO 1P+N 6kA

Based on standard ISO 14020 relating to general principles for environmental declarations and ISO 14025 relating to type 3 environmental information.

Company information

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Product description

Product designation: RCBO 1P+N 6kA
Product function: Compact protection devices which provide MCB overcurrent and short-circuit protection and RCCB earth fault protection in a single unit.

References covered: ADA9XXG

Reference product and methodology

Reference product: ADA916G
Product category: Category 1 "Passive Product"

Impact calculations are the result of a life cycle assessment, performed in accordance with the standard ISO 14040.

Significant life cycle step is the use and the impact of this phase is proportionnal to the current rating.

This PEP is based on version B of the Domergie / Gimelec guide.

This(these) product(s) has(have) been designed in order to limit its(their) environmental impact throughout its(their) life cycle.



Materials

All useful measures have been adopted to ensure that the materials used in the composition of the product do not contain any substances banned by the legislation in force at the time of marketing.

The products comply, on a voluntary basis, with the restrictions on substances specified in the RoHS directive.

Plastics			Metals			Others		
	g	%		g	%		g	%
PA 66	39,06	17,5%	Steel	56,48	25,3%	Talcum	20,73	9,3%
PSU	5,87	2,6%	Copper	33,16	14,9%	Flame retardant	11,57	5,2%
POM	3,31	1,5%	Brass	9,27	4,2%	Others	10,22	4,6%
PA 6	2,17	1,0%	Iron	4,77	2,1%	Packaging		
PC	0,45	0,2%	Stainless Steel	4,11	1,8%	Cardboard+Paper	12,46	5,6%
Other	4,8	2,2%	Other	4,76	2,1%			
Total weight of the reference product:			223,19g					

Manufacturing

These products are manufactured by a site that has received an environmental certification ISO 14001.

Distribution

The packaging has been designed in accordance with current regulations: directive 94/62/CE relative to packaging and packaging waste.

The used packaging is 100% recyclable.

Packaging and logistic flows are continuously improved in order to reduce their impact.

Usage

The usage of this product is: The product is crossed by 30% of the nominal current (4,8A) during 30% of the time for the duration of 20 years.

The product has an average power of 0,675W. It consumes 118,26kWh for the life cycle of 20 years.

Consumables: None

Maintenance: None

End of life

Recycling and Recovery potentials are indicative and do not take into account the existence, or not, of recovery chains, which are heavily dependant on the local situation.

Calculations done are the weight of the product without packaging: 210,34g.

Components that have to be extracted and sent to specific treatment chains:

Material or component	Recycling potential* (%)	Recovering potential* (%)
Metals	53,5%	
Plastics	18,6%	26,5%
TOTAL	72,1%	26,5%

Environmental impacts

Evaluation of the environmental impact covers the following life cycle stages: raw materials + manufacturing (MPF), distribution (D) and usage (U).

The reference product is analysed on the basis of a life cycle of 20 years.

Energy Model used: Sweden

All calculations are done with EIME software version 4.0 with the database version 11.3.

Significant life cycle step is the use and the impact of this phase is proportionnal to the current rating.

Indicators	Unit	Global MPF+D+U	Manufacturing MPF	Distribution D	Usage U
Raw Material Depletion	year ⁻¹	5,79E-14	99,3%	0,0%	0,7%
Energy Depletion	MJ	1,05E+03	2,2%	0,1%	97,7%
Water Depletion	dm ³	1,82E+02	8,0%	0,1%	92,0%
Global Warming	g ~ CO ₂	7,45E+03	19,6%	1,7%	78,8%
Ozone Depletion	g ~ CFC ₁₁	1,36E-03	17,8%	6,4%	75,8%
Air Toxicity	m ³	2,11E+06	26,2%	2,3%	71,5%
Photochemical Ozone Creation	g ~ C ₂ H ₄	4,56E+00	14,5%	3,6%	81,9%
Air Acidification	g ~ H ⁺	1,69E+00	27,9%	1,9%	70,3%
Water Toxicity	dm ³	2,1E+03	20,2%	0,7%	79,1%
Water Eutrophication	g ~ PO ₄ ³⁻	3,90E-01	73,3%	0,5%	26,1%
Hazardous Waste Production	kg	5,80E-02	27,1%	0,1%	72,8%

Product Environmental Profile Release

Release of the 30/08/2010 verified by the Hager Sustainable Development Department

* See definitions for recycling and recovery in the glossary.

Glossary

Environmental impact	Attribute or aspect of the natural environment, human health or resources allowing the identification of a problematic environmental aspect.
Life Cycle Assessment (LCA)	Compilation and evaluation of input, output and potential environmental impact of a product or system, during its life cycle, "from cradle to grave". This procedure is described by the standard ISO14040 and its complementary standards.
Recycling potential	Percentage of material that can be recycled using existing methods. It does not take into account the existence, or not, of recycling plants, which are heavily dependant on the local situation.
Recovery potential	Percentage of material in the product or packaging that may be used for the recovery of energy. The recovery of energy consists in using the calories in waste, by burning them and recovering the produced energy.
EIME (Environmental Information and Management Explorer)	Software modeling the environmental impacts of a product based on the methodology of life cycle assessment.
Energy Depletion	Indicates, in megajoules, the total energy consumption for the whole life cycle of the product.
Global Warming	Indicates for the whole life cycle stages the released quantity of equivalent-grams of CO ₂ . Example of equivalence principle: 1 g of CO ₂ = 1 g-CO ₂ ; 1 g of CH ₄ (methane) is equal to the effect of 64 g-CO ₂ , etc...
Raw Material Depletion	Indicates the depletion of raw materials, considering the quantity of the world's reserves (minerals, fossil fuels, etc.) for these resources and their current level of consumption. It is expressed as a fraction of the reserves that disappears each year.
Water Depletion	Indicates, for the whole life cycle of the product, the total water consumption.
Ozone Depletion	Indicates for the whole life cycle stages the released quantity of equivalent-grams of CFC ₁₁ .
Air Acidification	Indicates the air acidification due to released gases. Expressed in equivalent-grams of H ⁺ .
Hazardous Waste Production	Indicates the weight of hazardous waste produced during the life cycle of the product.
Air Pollution	It indicates the volume of clean air needed to diluate the released pollutant gas in order to achieve the mandatory air concentration.
Water Pollution	It indicates the volume of clean water needed to diluate the released pollutant substances in order to achieve the mandatory water concentration.
Photochemical Ozone Creation	Indicates for the whole life cycle stages the released quantity of equivalent-grams of C ₂ H ₄ .
Water Eutrophication	Indicates for the whole life cycle stages the released quantity of equivalent-grams of PO ₄ ³⁻ .

Nota :

All numerical values indicated in this document may vary and depend of many factors such as the tolerance related to materials, the usage and environment conditions of the products, installation characteristics,... Real values for a product in a concrete application may therefore change.

The usage time mentioned in this document is an average duration chosen for the need of the calculations. This value cannot be assimilated to the minimum, average or real life time.

This PEP can be compared with the PEP of another product only if products' functions, input hypothesis of the LCA and used referentials are identical.

The responsibility of the company, issuing this document, can never be engaged if differences would be noticed between the values given by this document and real ones, whatever the causes and/or consequences would be.