Product Environmental Profile

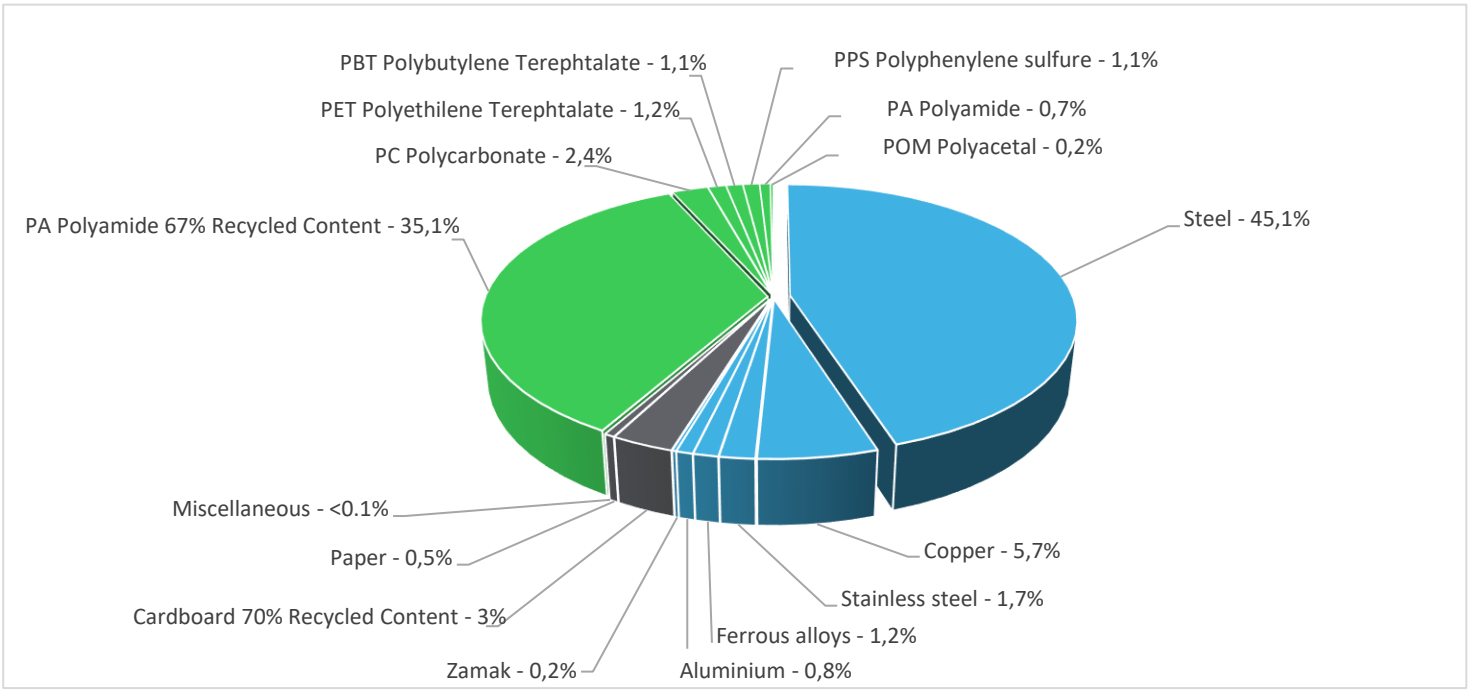
Resi9 - Miniature Circuit Breaker - 1P - 16A made with recycled plastic

General information

Representative product	Resi9 - Miniature Circuit Breaker - 1P-16A made with recycled plastic - R9F23116
Description of the product	Resi9 one-pole miniature circuit breaker R9F23116 is designed to protect residential installations againts overloads and short-circuits with assigned voltage 230VAC and rated current of 16A.
Description of the range	This PEP covers the Resi9 miniature circuit breakers 1P/2P/3P/4P made with recycled plastic. 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.
Functional unit	Protect during 20 years the installation against overloads and short-circuits in circuit with assigned voltage 230VAC and rated current 16A. This protection is ensured in accordance with the following parameters: - Number of poles : 1 - Rated breaking capacity Icn = 6000A - Tripping curve : B

Constituent materials

Reference product mass	110 g	including the product, its packaging and additional elements and accessories



Plastics	41,8%
Metals	54,7%
Others	3,5%

Substance assessment

Products of this range are designed in conformity with the requirements of the RoHS directive (European Directive 2011/65/EU of 2 January 2013, amended in March 2015, 2015/863/EU and in November 2017, 2017/2102/EU) 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), Bis (2-ethylhexyl)phthalate - DEHP, Benzyl butyl phthalate– BBP, Dibutyl phthalate - DBP, Diisobutyl phthalate - DIBP) as mentioned in the Directive.

Details of ROHS and REACH substances information are available on the Schneider-Electric Green Premium website

http://www2.schneider-electric.com/sites/corporate/en/products-services/green-premium/green-premium.page

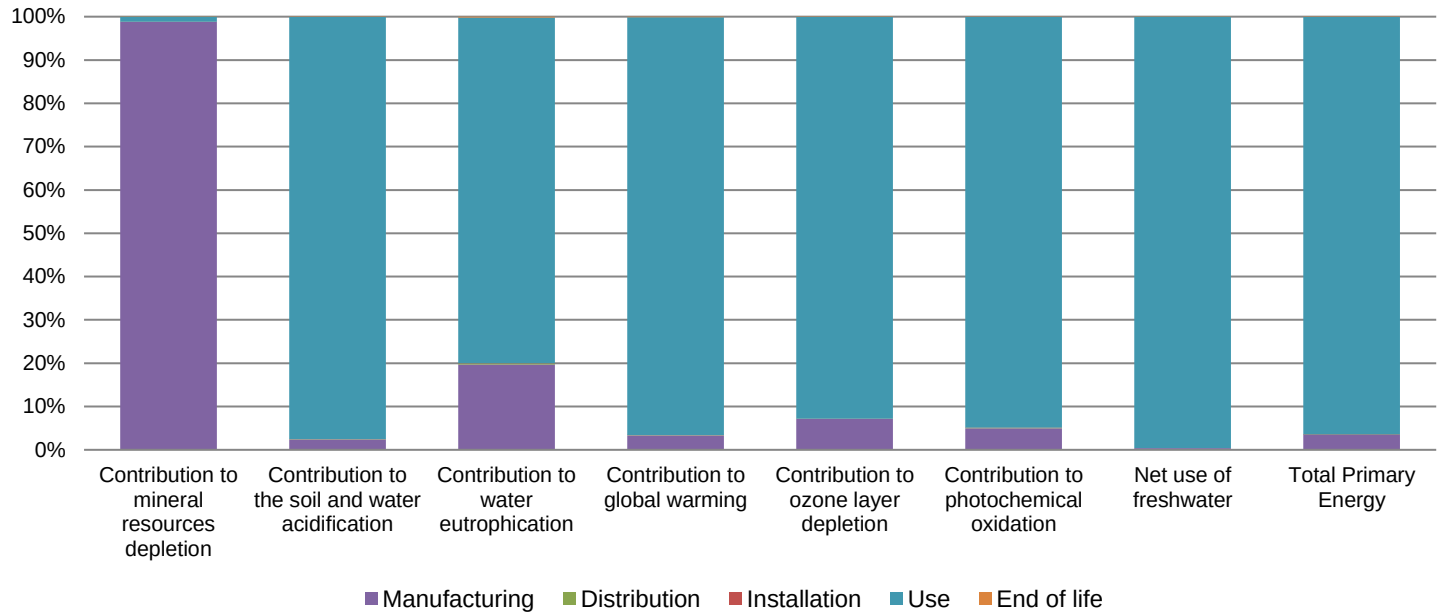
Additional environmental information

The Resi9 - Miniature Circuit Breaker - 1P - 16A - R9F23116 presents the following relevent environmental aspects	
Design	Miniature Circuit Breaker R9F23116 is made with at least 56% plastic recycled content
Manufacturing	Manufactured at a Schneider Electric production site ISO14001 certified
Distribution	Weight and volume of the packaging optimized, based on the European Union's packaging directive Packaging weight is 3,4 g, consisting of carboard (98,6%), paper (1,4%) Packaging recycled materials is 70% of total packaging mass. Product distribution optimised by setting up local distribution centres
Installation	The reference R9F23116 does not require any specific installation operations.
Use	The product does not require special maintenance operations.
End of life	End of life optimized to decrease the amount of waste and allow recovery of the product components and materials No special end-of-life treatment required. According to countries' practices this product can enter the usual end-of-life treatment process. Recyclability potential: **53%** Based on "ECO'DEEE recyclability and recoverability calculation method" (version V1, 20 Sep. 2008 presented to the French Agency for Environment and Energy Management: ADEME).

Environmental impacts

Reference life time	20 years			
Product category	Circuit-breakers			
Installation elements	No special components needed			
Use scenario	Load rate: 50% of 16A (In) Use time rate: 30% of the time during 20 years (RLT)			
Geographical representativeness	Europe			
Technological representativeness	Resi9 one-pole miniature circuit breaker R9F23116 is designed to protect residential installations againts overloads and short-circuits with assigned voltage 230VAC and rated current of 16A.			
Energy model used	**Manufacturing**	**Installation**	**Use**	**End of life**
	Bulgaria - Electricity Mix; AC; consumption mix, at consumer; 230V; BG	Electricity grid mix; AC; consumption mix, at consumer; < 1kV; EU-27	Electricity grid mix; AC; consumption mix, at consumer; < 1kV; EU-27	Electricity grid mix; AC; consumption mix, at consumer; < 1kV; EU-27

Compulsory indicators	**Resi9 - Miniature Circuit Breaker - 1P - 16A - R9F23116**						
Impact indicators	**Unit**	Total	**Manufacturing**	Distribution	Installation	Use	End of Life
Contribution to mineral resources depletion	kg Sb eq	1,26E-04	1,24E-04	0*	0*	1,45E-06	0*
Contribution to the soil and water acidification	kg SO_2 eq	7,16E-02	1,71E-03	6,48E-05	0*	6,98E-02	3,29E-05
Contribution to water eutrophication	kg PO_4^{3-} eq	5,28E-03	1,04E-03	1,49E-05	0*	4,22E-03	9,15E-06
Contribution to global warming	kg CO_2 eq	1,74E+01	5,86E-01	1,42E-02	0*	1,67E+01	1,72E-02
Contribution to ozone layer depletion	kg CFC11 eq	1,18E-06	8,47E-08	0*	0*	1,09E-06	7,40E-10
Contribution to photochemical oxidation	kg C_2H_4 eq	4,05E-03	2,02E-04	4,62E-06	0*	3,84E-03	3,44E-06
Resources use	**Unit**	Total	Manufacturing	Distribution	Installation	Use	End of Life
Net use of freshwater	m3	6,09E+01	2,38E-01	0*	0*	6,07E+01	0*
Total Primary Energy	MJ	3,47E+02	1,23E+01	2,01E-01	0*	3,34E+02	1,60E-01



Optional indicators	Resi9 - Miniature Circuit Breaker - 1P - 16A - R9F23116						
Impact indicators	**Unit**	Total	Manufacturing	Distribution	Installation	Use	End of Life
Contribution to fossil resources depletion	MJ	1,98E+02	7,59E+00	1,99E-01	0*	1,90E+02	1,29E-01
Contribution to air pollution	m³	8,89E+02	1,67E+02	6,04E-01	0*	7,20E+02	1,16E+00
Contribution to water pollution	m³	7,35E+02	4,02E+01	2,33E+00	0*	6,91E+02	1,39E+00
Resources use	**Unit**	Total	Manufacturing	Distribution	Installation	Use	End of Life
Use of secondary material	kg	4,74E-03	4,74E-03	0*	0*	0*	0*
Total use of renewable primary energy resources	MJ	4,28E+01	2,44E-01	0*	0*	4,25E+01	0*
Total use of non-renewable primary energy resources	MJ	3,04E+02	1,21E+01	2,00E-01	0*	2,92E+02	1,60E-01
Use of renewable primary energy excluding renewable primary energy used as raw material	MJ	4,27E+01	2,26E-01	0*	0*	4,25E+01	0*
Use of renewable primary energy resources used as raw material	MJ	1,80E-02	1,80E-02	0*	0*	0*	0*
Use of non renewable primary energy excluding non renewable primary energy used as raw material	MJ	3,04E+02	1,18E+01	2,00E-01	0*	2,92E+02	1,60E-01
Use of non renewable primary energy resources used as raw material	MJ	2,62E-01	2,62E-01	0*	0*	0*	0*
Use of non renewable secondary fuels	MJ	0,00E+00	0*	0*	0*	0*	0*
Use of renewable secondary fuels	MJ	0,00E+00	0*	0*	0*	0*	0*
Waste categories	**Unit**	Total	Manufacturing	Distribution	Installation	Use	End of Life
Hazardous waste disposed	kg	6,57E+00	6,40E+00	0*	0*	8,73E-03	1,61E-01
Non hazardous waste disposed	kg	6,29E+01	4,78E-01	0*	0*	6,24E+01	0*
Radioactive waste disposed	kg	4,20E-02	3,07E-04	0*	0*	4,17E-02	0*
Other environmental information	**Unit**	Total	Manufacturing	Distribution	Installation	Use	End of Life
Materials for recycling	kg	7,25E-02	1,11E-02	0*	3,35E-03	0*	5,81E-02
Components for reuse	kg	0,00E+00	0*	0*	0*	0*	0*
Materials for energy recovery	kg	2,30E-03	0*	0*	0*	0*	2,30E-03
Exported Energy	MJ	1,06E-05	1,00E-06	0*	9,64E-06	0*	0*

** represents less than 0.01% of the total life cycle of the reference flow*

Life cycle assessment performed with EIME version 5.9.3, database version 2020-12 in compliance with ISO14044.

The use phase is the life cycle phase which has the greatest impact on the majority of environmental indicators (based on compulsory indicators).

According to this environmental analysis, proportionality rules are used to evaluate the impacts of other products of this range, ratios to apply can be provided upon request.

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.

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Date of issue	06/2022	*Information and reference documents*	www.pep-ecopassport.org
		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 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 »

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