Product Environmental Profile

MAX9 1P+N C Curve 16A 6000 A Miniature Circuit Breaker

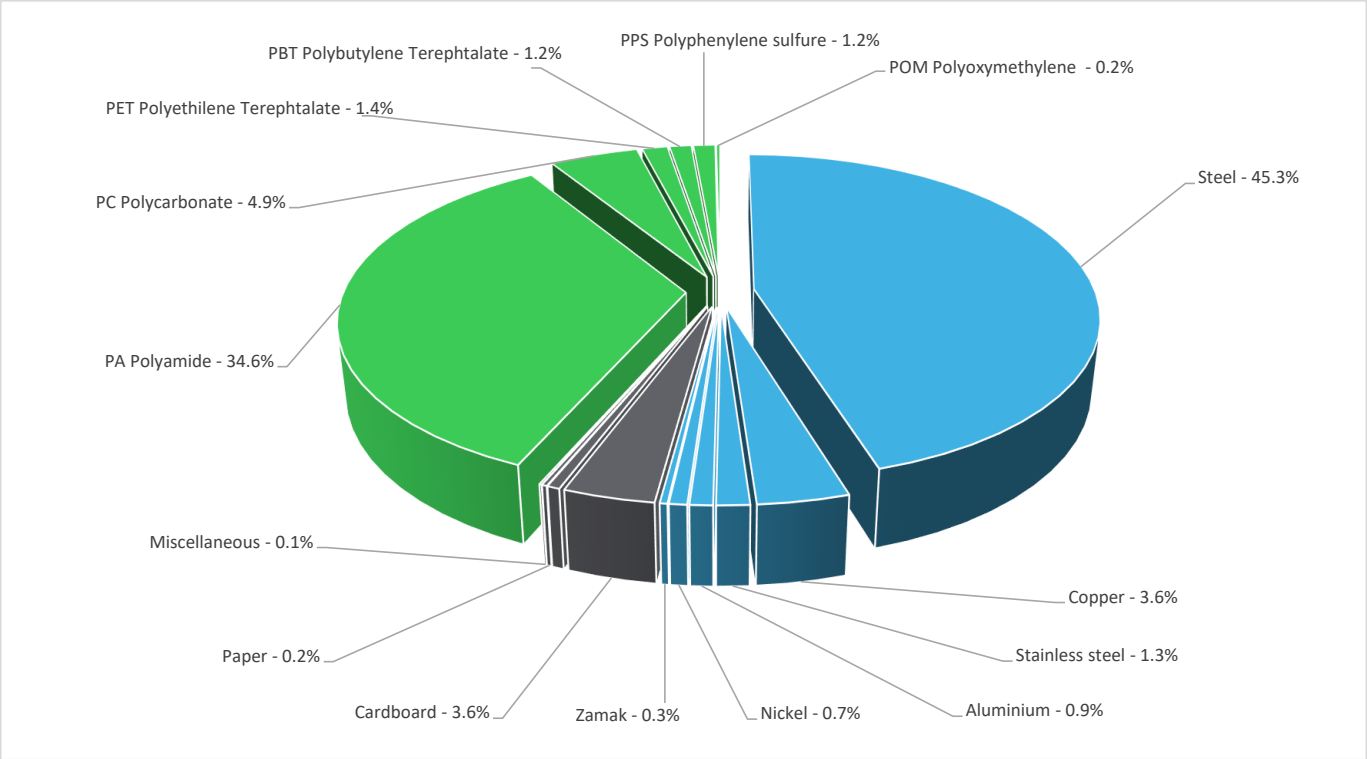
MAX9

General information

Reference product	MAX9 1P+N C Curve 16A 6000 A Miniature Circuit Breaker - MX9MN116
Description of the product	The mian function of this product is to provide overload prodection and short circuit protection in low voltage power.
Description of the range	The products of the range are: This range consists of MAX9 1P+N C Curve of 6A to 40A, the representative product used for the analysis is MAX9 PhN MCB C Curve 6kA 1P 16A (commercial reference:MX9MN116). The mass range of the product is all 126.8g including packaging. The environmental impacts of this reference product are representative of the impacts of the other products of the range which are developed with a similar technology.
Functional unit	Protect the installation from overloads and short circuits in a circuit with rated voltage 230V, rated current 16A, with 1P+N poles, a rated breaking capacity 6kA Icn, and the tripping curve C if applicable, and, if applicable, the specific specifications, in the Household/Commercial application area, according to the appropriate use scenario, and during the reference service life of the product of 20 years.
Specifications are:	Ue = Rated operating voltage (230V) In = Rated current (16A) Np = 1P+N Icn: Rated breaking capacity (6kA) Cd = Tripping curve (C)

Constituent materials

Reference product mass	126.8 g	including the product, its packaging and additional elements and accessories



	Plastics	43.50%
	Metals	52.10%
	Others	4.40%

Substance assessment

Details of ROHS and REACH substances information are available on the Schneider-Electric Green Premium website
https://www.se.com/ww/en/work/support/green-premium/

Additional environmental information

End Of Life	Recyclability potential:	**49%**	The recyclability rate was calculated from the recycling rates of each material making up the product with the exception of data using the ESR database. For materials or components using the ESR database or the absence of data the conservative hypothesis "0% recyclability" was used.

Environmental impacts

Reference service life time	20 years
Product category	Circuit-breakers - Household / Commercial
Installation elements	The product does not require any installation operations.
Use scenario	Load rate = 15% In Use rate = 30% RLT
Time representativeness	The collected data are representative of the year 2024
Technological representativeness	The Modules of Technologies such as material production, manufacturing processes and transport technology used in the PEP analysis (LCA EIME in the case) are Similar and représentaive of the actual type of technologies used to make the product.
Geographical representativeness	Rest of the World

	[A1 - A3]	[A5]	[B6]	[C1 - C4]
Energy model used	Electricity Mix; Low voltage; 2018; China, CN	Electricity Mix; Low voltage; 2018; Australia, AU	Electricity Mix; Low voltage; 2018; Australia, AU	Electricity Mix; Low voltage; 2018; Australia, AU

Detailed results of the optional indicators mentioned in PCRed4 are available in the LCA report and on demand in a digital format - Country Customer Care Center - http://www.schneider-electric.com/contact

Mandatory Indicators		MAX9 1P+N C Curve 16A 6000 A Miniature Circuit Breaker - MX9MN116						
Impact indicators	**Unit**	**Total (without Module D)**	**[A1 - A3] - Manufacturing**	**[A4] - Distribution**	**[A5] - Installation**	**[B1 - B7] - Use**	**[C1 - C4] - End of life**	**[D] - Benefits and loads**
Contribution to climate change	kg CO2 eq	4.78E+00	1.09E+00	1.92E-02	0*	3.30E+00	3.75E-01	-2.60E-01
Contribution to climate change-fossil	kg CO2 eq	4.76E+00	1.07E+00	1.92E-02	0*	3.30E+00	3.74E-01	-2.58E-01
Contribution to climate change-biogenic	kg CO2 eq	1.67E-02	1.39E-02	0*	0*	1.61E-03	1.24E-03	-1.82E-03
Contribution to climate change-land use and land use change	kg CO2 eq	7.67E-06	7.63E-06	0*	0*	0*	4.45E-08	0.00E+00
Contribution to ozone depletion	kg CFC-11 eq	1.28E-07	1.11E-07	2.94E-11	0*	1.60E-08	9.23E-10	-4.17E-08
Contribution to acidification	mol H+ eq	3.05E-02	7.91E-03	1.21E-04	0*	2.16E-02	8.79E-04	-2.22E-03
Contribution to eutrophication, freshwater	kg $(PO4)^{3-}$ eq	4.71E-05	1.78E-05	7.19E-09	0*	2.33E-08	2.92E-05	-4.47E-07
Contribution to eutrophication marine	kg N eq	3.84E-03	1.19E-03	5.69E-05	1.18E-06	2.39E-03	2.02E-04	-1.54E-04
Contribution to eutrophication, terrestrial	mol N eq	4.31E-02	1.30E-02	6.24E-04	1.20E-05	2.72E-02	2.28E-03	-1.78E-03
Contribution to photochemical ozone formation - human health	kg COVNM eq	1.28E-02	3.95E-03	1.57E-04	2.89E-06	7.99E-03	6.91E-04	-6.62E-04
Contribution to resource use, minerals and metals	kg Sb eq	1.68E-04	1.67E-04	0*	0*	5.09E-08	9.30E-07	-7.70E-05
Contribution to resource use, fossils	MJ	8.58E+01	2.16E+01	2.67E-01	0*	5.09E+01	1.30E+01	-5.60E+00
Contribution to water use	m3 eq	1.07E-01	0*	7.28E-05	4.40E-04	1.31E-01	1.12E-01	-1.35E-01

Inventory flows Indicators		MAX9 1P+N C Curve 16A 6000 A Miniature Circuit Breaker - MX9MN116						
Inventory flows	Unit	Total (without Module D)	[A1 - A3] - Manufacturing	[A4] - Distribution	[A5] - Installation	[B1 - B7] - Use	[C1 - C4] - End of life	[D] - Benefits and loads
Contribution to use of renewable primary energy excluding renewable primary energy used as raw material	MJ	4.06E+00	1.88E-01	0*	0*	3.85E+00	2.52E-02	-6.93E-02
Contribution to use of renewable primary energy resources used as raw material	MJ	2.05E-01	2.05E-01	0*	0*	0*	0*	0.00E+00
Contribution to total use of renewable primary energy resources	MJ	4.27E+00	3.93E-01	0*	0*	3.85E+00	2.52E-02	-6.93E-02
Contribution to use of non renewable primary energy excluding non renewable primary energy used as raw material	MJ	8.42E+01	2.00E+01	2.67E-01	0*	5.09E+01	1.30E+01	-5.60E+00
Contribution to use of non renewable primary energy resources used as raw material	MJ	1.59E+00	1.59E+00	0*	0*	0*	0*	0.00E+00
Contribution to total use of non-renewable primary energy resources	MJ	8.58E+01	2.16E+01	2.67E-01	0*	5.09E+01	1.30E+01	-5.60E+00
Contribution to use of secondary material	kg	0.00E+00	0*	0*	0*	0*	0*	0.00E+00
Contribution to use of renewable secondary fuels	MJ	0.00E+00	0*	0*	0*	0*	0*	0.00E+00
Contribution to use of non renewable secondary fuels	MJ	0.00E+00	0*	0*	0*	0*	0*	0.00E+00
Contribution to net use of freshwater	m^3	2.59E-03	0*	1.69E-06	1.02E-05	3.04E-03	2.60E-03	-3.15E-03
Contribution to hazardous waste disposed	kg	7.34E+00	7.25E+00	0*	0*	8.41E-02	0*	-6.14E+00
Contribution to non hazardous waste disposed	kg	1.19E+00	5.72E-01	6.73E-04	4.81E-03	5.30E-01	7.90E-02	-2.09E-01
Contribution to radioactive waste disposed	kg	2.14E-04	1.58E-04	4.79E-07	0*	5.22E-05	3.68E-06	-1.03E-04
Contribution to components for reuse	kg	0.00E+00	0*	0*	0*	0*	0*	0.00E+00
Contribution to materials for recycling	kg	7.99E-02	9.74E-03	0*	0*	0*	7.02E-02	0.00E+00
Contribution to materials for energy recovery	kg	0.00E+00	0*	0*	0*	0*	0*	0.00E+00
Contribution to exported energy	MJ	7.41E-04	9.86E-05	0*	0*	0*	6.42E-04	0.00E+00

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

Contribution to biogenic carbon content of the product	kg de C	0.00E+00
Contribution to biogenic carbon content of the associated packaging	kg de C	1.36E-03

Mandatory Indicators		MAX9 1P+N C Curve 16A 6000 A Miniature Circuit Breaker - MX9MN116							
Impact indicators	Unit	[B1 - B7] - Use	[B1]	[B2]	[B3]	[B4]	[B5]	[B6]	[B7]
Contribution to climate change	kg CO2 eq	3.30E+00	0*	0*	0*	0*	0*	3.30E+00	0*
Contribution to climate change-fossil	kg CO2 eq	3.30E+00	0*	0*	0*	0*	0*	3.30E+00	0*
Contribution to climate change-biogenic	kg CO2 eq	1.61E-03	0*	0*	0*	0*	0*	1.61E-03	0*
Contribution to climate change-land use and land use change	kg CO2 eq	0*	0*	0*	0*	0*	0*	0*	0*
Contribution to ozone depletion	kg CFC-11 eq	1.60E-08	0*	0*	0*	0*	0*	1.60E-08	0*
Contribution to acidification	mol H+ eq	2.16E-02	0*	0*	0*	0*	0*	2.16E-02	0*
Contribution to eutrophication, freshwater	kg $(PO4)^{3-}$eq	2.33E-08	0*	0*	0*	0*	0*	2.33E-08	0*
Contribution to eutrophication marine	kg N eq	2.39E-03	0*	0*	0*	0*	0*	2.39E-03	0*
Contribution to eutrophication, terrestrial	mol N eq	2.72E-02	0*	0*	0*	0*	0*	2.72E-02	0*
Contribution to photochemical ozone formation - human health	kg COVNM eq	7.99E-03	0*	0*	0*	0*	0*	7.99E-03	0*
Contribution to resource use, minerals and metals	kg Sb eq	5.09E-08	0*	0*	0*	0*	0*	5.09E-08	0*
Contribution to resource use, fossils	MJ	5.09E+01	0*	0*	0*	0*	0*	5.09E+01	0*
Contribution to water use	m3 eq	1.31E-01	0*	0*	0*	0*	0*	1.31E-01	0*

Inventory flows Indicators		MAX9 1P+N C Curve 16A 6000 A Miniature Circuit Breaker - MX9MN116							
Inventory flows	Unit	[B1 - B7] - Use	[B1]	[B2]	[B3]	[B4]	[B5]	[B6]	[B7]
Contribution to use of renewable primary energy excluding renewable primary energy used as raw material	MJ	3.85E+00	0*	0*	0*	0*	0*	3.85E+00	0*
Contribution to use of renewable primary energy resources used as raw material	MJ	0*	0*	0*	0*	0*	0*	0*	0*
Contribution to total use of renewable primary energy resources	MJ	3.85E+00	0*	0*	0*	0*	0*	3.85E+00	0*
Contribution to use of non renewable primary energy excluding non renewable primary energy used as raw material	MJ	5.09E+01	0*	0*	0*	0*	0*	5.09E+01	0*
Contribution to use of non renewable primary energy resources used as raw material	MJ	0*	0*	0*	0*	0*	0*	0*	0*
Contribution to total use of non-renewable primary energy resources	MJ	5.09E+01	0*	0*	0*	0*	0*	5.09E+01	0*
Contribution to use of secondary material	kg	0*	0*	0*	0*	0*	0*	0*	0*
Contribution to use of renewable secondary fuels	MJ	0*	0*	0*	0*	0*	0*	0*	0*
Contribution to use of non renewable secondary fuels	MJ	0*	0*	0*	0*	0*	0*	0*	0*
Contribution to net use of freshwater	m^3	3.04E-03	0*	0*	0*	0*	0*	3.04E-03	0*
Contribution to hazardous waste disposed	kg	8.41E-02	0*	0*	0*	0*	0*	8.41E-02	0*
Contribution to non hazardous waste disposed	kg	5.30E-01	0*	0*	0*	0*	0*	5.30E-01	0*
Contribution to radioactive waste disposed	kg	5.22E-05	0*	0*	0*	0*	0*	5.22E-05	0*
Contribution to components for reuse	kg	0*	0*	0*	0*	0*	0*	0*	0*
Contribution to materials for recycling	kg	0*	0*	0*	0*	0*	0*	0*	0*
Contribution to materials for energy recovery	kg	0*	0*	0*	0*	0*	0*	0*	0*
Contribution to exported energy	MJ	0*	0*	0*	0*	0*	0*	0*	0*

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

Life cycle assessment performed with EIME version v6.2, database version 2023-02 in compliance with ISO14044, EF 3.0 method is applied, for biogenic carbon storage, assessment methodology 0/0 is used

According to this environmental analysis, proportionality rules may be 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.

Registration number :	ENVPEP2407001_V1	*Drafting rules*	PCR-4-ed4-EN-2021 09 06
		Supplemented by	PSR-0005-ed3.1-EN-2023 12 08
Date of issue	09-2024	*Information and reference documents*	www.pep-ecopassport.org
		Validity period	5 years

Independent verification of the declaration and data, in compliance with ISO 14021 : 2016

Internal X External

The PCR review was conducted by a panel of experts chaired by Julie Orgelet (DDemain)

PEPs are compliant with XP C08-100-1:2016 and EN 50693:2019 or NF E38-500 :2022

The components of the present PEP may not be compared with components from any other program.

Document complies with ISO 14021:2016 "Environmental labels and declarations. Type II environmental declarations"

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