COMPACT MCB (SU200M, SU200ML, SU200MR AND SUP200M) FAMILY

PEP ecopassport®

Product Environmental Profile

Registration number:	**ABBG-00593-V01.01-EN**	Drafting rules:	**PCR-ed4-EN-2021 09 06**
Contact information:	**email: EPD_ELSB@abb.com**	Supplemented by:	**PSR-0005-ed3.1-EN-2023 12 08**
Verifier accreditation number:	**VH45**	Information and reference documents:	**www.pep-ecopassport.org**
Date of issue:	**April-25**	Validity period:	**5 years**

Independent verification of the declaration and data in compliance with ISO 14025: 2006

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

Document complies with ISO 14025:2006 "Environmental labels and declarations. Type III environmental declarations"

ABB Purpose & Embedding Sustainability

ABB is committed to continually promoting and embedding sustainability across its operations and value chain, aspiring to become a role model for others to follow.
With its ABB Purpose, ABB is focusing on reducing harmful emissions, preserving natural resources and championing ethical and humane behavior.
The contect of this PEP cannot be compared with the content based on another program/database.
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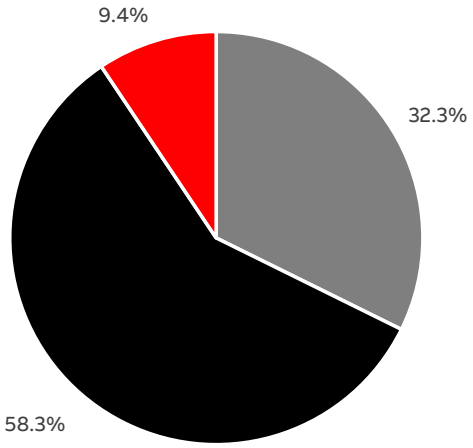
General information

Reference product	2CDS271339R0204 -SU201ML-C20
Description of the product	Miniature Circuit Breaker - 1P - C - 20 A, 230/400 V AC, C Curve, 11.25 kA , MCB is used for industrial applications.
Functional unit	Protect the installation from overloads and short circuits in a circuit with rated voltage 230/400 Volt, rated current 20A, with 1 pole, a rated breaking capacity 11.25 kA, the tripping curve C, Industrial applications, and the reference service life of the product is 20 years.
Other products covered	It is a "Product family declaration" which covers Miniature Circuit Breaker (MCB) SU200ML, SU200M, SU200MR & SUP200M of SU200 family with Standard Product data which can differ within the different series; Rated current (In): 0.2, 0.3, 0.5, 0.75, 1, 1.6, 2, 3, 4, 5, 6, 7, 8, 10, 13, 15, 16, 20, 25, 30, 32, 35, 40, 50 , 60 & 63A; Rated Voltage (Ue): 230/400 V; Number of Poles (Np): 1 to 4 Pole. Rated Breaking Capacity(Icn): 7.5kA, 11.25kA & 10 kA; Tripping Curve (Cd): B, C, D, K & Z
Manufacturing address	ABB STOTZ-KONTAKT GmbH, Eppelheimer Str. 82, 69123 HEIDELBERG www.abb.de/stotz-kontakt; www.new.abb.com,

Constituent Materials



Total weight of reference product and packaging	**134.5**	**g**

Plastics as % of weight		**Metals as % of weight**		**Others as % of weight**	
Name and CAS number	Weight%	Name and CAS number	Weight%	Name and CAS number	Weight%
PA Glass Reinforced	29.7	**Steel**	44.7	**Corrugated Board**	9.1
Miscellaneous Plastics	1.2	**Copper**	11.9	**Miscellaneous Other**	0.3
POM	1.4	**Aluminum**	1.6		
		Miscellaneous Metals	0.1		

Total weight of reference product is included with packaging material

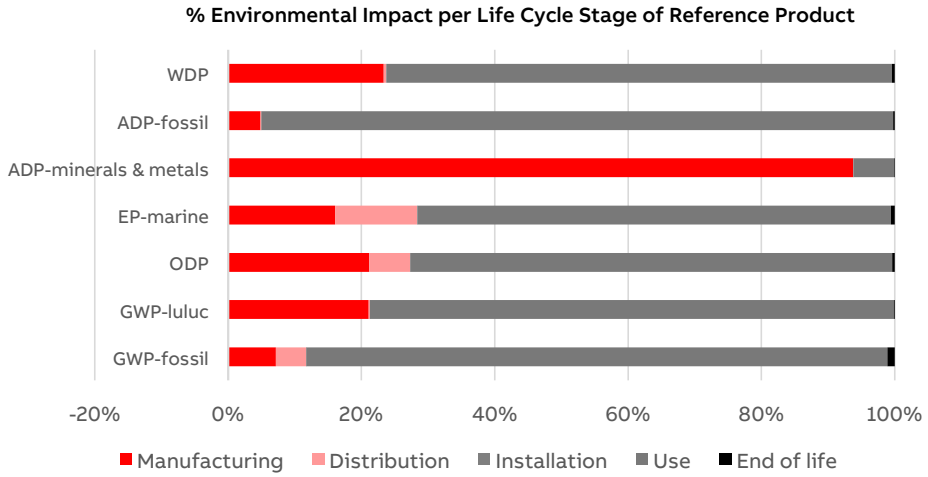
Additional Information

Manufacturing	Manufacturing location is certified with DIN EN ISO 14001, DIN EN ISO 9001, DIN ISO 45001, DIN EN ISO 50001 and ISO/TS 22163
Distribution	Includes the transportation of product including packaging from the manufacturer's last logistic platform to the End User. Is modelled by considering the average distances from manufacturing site to distance at delivery end user.
Installation	No energy required during installation. End of life of product packaging considered in installation phase.
Use	MCB does not required any maintenance and consumables or spares during its life time. Total consumption of energy during its life is 26.28 kWh calculated as per PSR
End of life	PCR Default scenario considered. A value of 1000 km transport by lorry is used for transportation from the installation site to the final end of life treatment as per PCR.

Environmental Impacts

Reference lifetime	20 years
Product category	Circuit Breakers
Installation elements	Installation carried out manually. Packaging material generated as waste
Use scenario	At loading rate 50% of rated current (In) in continuous operation. And use time rate 30% of reference lifetime (RLT). Total Energy consumption is 26.28 kWh
Geographical representativeness	Global
Technological representativeness	Technology is specific to ABB MCBs which is common for all ABB manufacturing factories at global level
Software and database used	SimaPro 9.6.0.1 & Ecoinvent 3.10
Energy model used	
Manufacturing	Electricity Medium Voltage, Global
Installation	Electricity Low Voltage, Medium & High Voltage, Global
Use	Electricity Medium Voltage, Global
End of life	Electricity Low Voltage, Medium & High Voltage, Global

Common base of mandatory indicators



Environmental impact indicators

Indicator		Unit	Total	Manufacturing	Distribution	Installation	Use	End of life
GWP	Total	kg CO2 eq.	1.43E+01	1.03E+00	6.34E-01	1.05E-02	1.24E+01	1.53E-01
	Fossil	kg CO2 eq.	1.38E+01	9.91E-01	6.34E-01	4.38E-04	1.21E+01	1.50E-01
	Biogenic	kg CO2 eq.	3.84E-01	3.59E-02	1.49E-04	1.01E-02	3.35E-01	3.08E-03
	Luluc	kg CO2 eq.	2.97E-02	6.26E-03	6.61E-05	2.61E-07	2.34E-02	4.25E-05
ODP		kg CFC-11 eq.	1.55E-07	3.30E-08	9.54E-09	4.68E-12	1.12E-07	6.12E-10
AP		H+ eq.	6.11E-02	1.91E-02	3.93E-03	2.36E-06	3.78E-02	2.62E-04
EP	Freshwater	kg P eq.	8.20E-03	1.20E-03	1.06E-05	8.17E-08	6.96E-03	2.55E-05
	Marine	kg N eq.	1.09E-02	1.74E-03	1.34E-03	6.51E-06	7.74E-03	6.14E-05
	Terrestrial	mol N eq.	1.04E-01	1.77E-02	1.47E-02	6.05E-06	7.07E-02	6.00E-04
POPCD		kg NMVOC eq.	3.58E-02	5.52E-03	4.52E-03	4.08E-06	2.55E-02	2.03E-04
ADP	Minerals & metals	kg SB eq.	2.96E-04	2.78E-04	2.05E-07	2.35E-09	1.80E-05	2.57E-07
	Fossil	MJ	1.30E+02	6.30E+00	1.90E-01	1.44E-03	1.23E+02	2.85E-01
WDP		m^3 eq. depr.	3.29E+00	7.68E-01	1.29E-02	-6.70E-04	2.50E+00	1.31E-02

Resource use indicators

Indicator	Unit	Total	Manufacturing	Distribution	Installation	Use	End of life
PERE	MJ	5.05E+01	2.82E+00	3.41E-02	2.52E-04	3.47E+01	1.30E+01
PERM	MJ	1.81E-01	1.81E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	MJ	5.24E+01	2.64E+00	3.41E-02	2.52E-04	3.47E+01	1.50E+01
PENRE	MJ	1.45E+02	6.30E+00	1.90E-01	1.44E-03	1.23E+02	1.60E+01
PENRM	MJ	1.31E+00	1.31E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PENRT	MJ	1.46E+02	4.99E+00	1.90E-01	1.44E-03	1.23E+02	1.80E+01

Common base of mandatory indicators

Use of secondary materials, water, and energy resources

Indicator	Unit	Total	Manufacturing	Distribution	Installation	Use	End of life
SM	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	m^3	1.43E-01	2.22E-02	4.19E-04	-1.51E-05	1.20E-01	4.57E-04

Waste category indicators

Indicator	Unit	Total	Manufacturing	Distribution	Installation	Use	End of life
HWD	kg	9.52E-04	4.60E-04	5.55E-05	3.02E-08	4.33E-04	3.72E-06
N-HWD	kg	5.15E-01	9.17E-02	2.44E-02	4.64E-03	3.56E-01	3.85E-02
RWD	kg	9.92E-04	2.21E-05	6.41E-07	4.27E-09	9.68E-04	1.26E-06

Output flow indicators

Indicator	Unit	Total	Manufacturing	Distribution	Installation	Use	End of life
CfRu	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MfR	kg	4.86E-02	4.09E-02	0.00E+00	7.70E-03	0.00E+00	0.00E+00
MfER	kg	3.94E-03	3.71E-03	0.00E+00	2.37E-04	0.00E+00	0.00E+00
EE	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Other indicators

Indicator		Unit	Total
Biogenic Carbon	Product	kg of C	0.00E+00
	Packaging	kg of C	6.09E-03

Optional indicators

Indicator	Unit	Total	Manufacturing	Distribution	Installation	Use	End of life
Tot PE	MJ	1.98E+02	7.63E+00	2.24E-01	1.69E-03	1.57E+02	3.30E+01
Efp	Dise inc	2.99E-07	7.33E-08	7.64E-09	5.28E-11	2.13E-07	4.89E-09
IrHH	kBq U-235 eq	4.19E+00	8.44E-02	2.64E-03	1.72E-05	4.10E+00	4.43E-03
ETX FW	CTUe	1.53E+02	3.20E+01	9.46E-01	2.66E-01	1.19E+02	7.28E-01
HTX CE	CTUh	6.61E-08	4.55E-08	8.01E-10	4.56E-12	1.94E-08	3.35E-10
HTX N-CE	CTUh	2.89E-07	1.93E-07	6.58E-09	1.55E-09	7.08E-08	1.72E-08
IrLS	Pt	7.99E+00	2.03E+00	5.01E-01	1.44E-03	5.37E+00	9.01E-02

Extrapolation Factors

For other products than the Reference product covered by this PEP, the environmental impacts for each phase of the lifecycle are obtained by multiplying the values of the Reference product by the following coefficients:

* if the coefficient is !1, the impacts of the phase of the life cycle are assimilated to the Reference product, meaning that the impacts are unchanged in comparison to the Reference product

Manufacturing, Distribution, Installation & EOL phase: To calculate environmental impact of covered product nominal value of reference product environment category to be multiplied with corresponding rating Impact category's coefficient, then value to be multiplied by the number of poles.
i.e. y=a*x*n
Where.
a= Coefficient of corresponding rating impact category
y= Homogeneous product environmental category
x=Nominal value of reference product environmental category
n=Number of poles including neutral poles

Extrapolation Factors								
	Product Series: SU200ML				Product Series: SU200M, SUP200M & SU200MR			
Rating (A) *	Manufacturing	Distribution	Installation	EOL	Manufacturing	Distribution	Installation	EOL
0.2	0.96	0.96	1.00	0.96	1.00	1.00	1.00	1.00
0.3	0.96	0.96	1.00	0.96	1.00	1.00	1.00	1.00
0.5	0.96	0.96	1.00	0.96	1.00	1.00	1.00	1.00
0.75	0.96	0.96	1.00	0.96	1.00	1.00	1.00	1.00
1	0.96	0.96	1.00	0.96	1.00	1.00	1.00	1.00
1.6	0.96	0.96	1.00	0.96	1.00	1.00	1.00	1.00
2	0.96	0.96	1.00	0.96	1.00	1.00	1.00	1.00
3	0.96	0.96	1.00	0.96	1.00	1.00	1.00	1.00
4	0.96	0.96	1.00	0.96	1.00	1.00	1.00	1.00
5	0.96	0.96	1.00	0.96	1.00	1.00	1.00	1.00
6	0.96	0.96	1.00	0.96	1.00	1.00	1.00	1.00
7	0.96	0.96	1.00	0.96	1.00	1.00	1.00	1.00
8	0.96	0.96	1.00	0.96	1.00	1.00	1.00	1.00
10	0.96	0.96	1.00	0.96	1.00	1.00	1.00	1.00
13	0.99	0.99	1.00	0.98	1.02	1.02	1.00	1.02
15	0.99	0.99	1.00	0.98	0.99	0.99	1.00	0.98
16	0.99	0.99	1.00	0.98	1.02	1.02	1.00	1.02
20	1.00	1.00	1.00	1.00	1.02	1.02	1.00	1.02
25	1.00	1.00	1.00	1.00	1.02	1.02	1.00	1.02
30	1.00	1.00	1.00	1.00	1.02	1.02	1.00	1.02
32	1.02	1.02	1.00	1.02	1.06	1.06	1.00	1.07
35	1.02	1.02	1.00	1.02	1.02	1.02	1.00	1.02
40	1.02	1.02	1.00	1.02	1.06	1.06	1.00	1.07
50	1.02	1.02	1.00	1.02	1.06	1.06	1.00	1.07
60	1.02	1.02	1.00	1.02	1.06	1.06	1.00	1.07
63	1.02	1.02	1.00	1.02	1.06	1.06	1.00	1.07

*please observe remarks "other product covered" page2

Extrapolation Factors

Use phase: To calculate the environmental impact of covered product nominal value of reference product environment category to be multiplied with corresponding rating w.r.t tripping curve's coefficient, and then value to be multiplied by the number of poles. i.e. y=a*x*n
Where
a= Coefficient of corresponding rating w.r.t tripping curve
y= Homogeneous product environmental category
x=Nominal value of reference product environmental category.
n=Number of poles including neutral poles

Rating (A)*	Extrapolation Factors				
	Use Phase				
	B Tripping Curve*	C Tripping Curve*	D Tripping Curve*	K Tripping Curve*	Z Tripping Curve*
0.2	NA	NA	NA	0.6	NA
0.3	NA	NA	NA	0.6	NA
0.5	NA	0.4	0.6	0.6	NA
0.75	NA	NA	NA	0.6	NA
1	0.6	0.6	0.6	0.6	NA
1.6	NA	0.6	0.6	0.6	NA
2	0.6	0.6	0.6	0.6	NA
3	0.6	0.6	0.6	0.6	NA
4	0.6	0.6	0.6	0.6	NA
5	0.6	0.6	0.6	0.6	NA
6	0.8	0.8	0.8	0.8	NA
7	NA	0.6	0.6	0.6	NA
8	NA	0.6	0.6	0.6	NA
10	0.8	0.8	0.8	0.8	1.2
13	1.0	1.0	1.0	1.0	NA
15	1.0	1.0	1.0	1.0	NA
16	1.0	1.0	1.0	1.0	NA
20	1.0	1.0	1.0	1.0	1.2
25	1.0	1.0	1.0	1.0	1.2
30	1.4	1.4	1.4	1.4	NA
32	1.6	1.6	1.6	1.6	NA
35	1.8	1.8	1.8	1.8	NA
40	1.6	1.6	1.6	1.6	1.8
50	1.6	1.6	1.6	1.6	NA
60	2.0	2.0	2.0	2.0	NA
63	2.2	2.2	2.2	2.2	2.2

*please observe remarks "other product covered" page2

Use phase coefficients listed above for use phase applicable for all i.e. SU200ML, SU200M, SUP200M & SU200MR FAMILY

Glossary

Environmental impact Indicators	
GWP-total	Global Warming Potential total (Climate change)
GWP-fossil	Global Warming Potential fossil
GWP-biogenic	Global Warming Potential biogenic
GWP-luluc	Global Warming Potential land use and land use change
ODP	Depletion potential of the stratospheric ozone layer
AP	Acidification potential
EP-freshwater	Eutrophication potential - freshwater compartment
EP-marine	Eutrophication potential - fraction of nutrients reachin marine end compartment
EP-terrestrial	Eutrophication potential - Accumulated Exceedance
POPCD	Formation potential of tropospheric ozone
ADP-m&m	Abiotic Depletion for non-fossil resources potential
ADP-fossil	Abiotic Depletion for fossil resources potential, WDP
WDP	Water deprivation potential

Resource indicators	
PENRE	Use of non-renewable primary energy excluding renewable primary energy resources used as raw
PENRM	Use of non-renewable primary energy resources used as raw material
PENRT	Total use of non-renewable primary energy resources (primary energy and primary energy resources used as raw materials
PERE	Use of renewable primary energy excluding non-renewable primary energy resources used as raw material.
PERM	Use of renewable primary energy resources used as raw material
PERT	Total use of renewable primary energy resources (primary energy and primary energy resources used as raw materials)

Secondary materials, water and energy resources		Waste category indicators	
SM	Use of secondary materials	HWD	Hazardous waste disposed
RSF	Use of renewable secondary fuels	N-HWD	Non-hazardous waste disposed
NRSF	Use of non-renewable secondary fuels	RWD	Radioactive waste disposed
FW	Net use of fresh water		

Output flow indicators		Optional indicators	
CfRu	Components for re-use	Tot PE	Total use of primary energy during the life cycle
MfR	Materials for recycling		
MfER	Materials for energy recovery	Efp	Emissions of Fine particles
EE	Exported Energy	IrHH	Ionizing radiation, human health
		ETX FW	Ecotoxicity, freshwater
		HTX CE	Human toxicity, carcinogenic effects
		HTX N-CE	Human toxicity, non-carcinogenic
		IrLS	Impact related to Land use / soil

References

[1] PCR “PEP-PCR-ed4-EN-2021_09_06” - Product Category Rules for Electrical, Electronic and HVAC-R Products (published: 6th September 2022)

[2] PSR “PSR-0005-ed3.1-EN-2023 12 08” - SPECIFIC RULES FOR Electrical switchgear and control gear Solutions (Circuit breakers)

[3] EN 50693:2019 - Product category rules for life cycle assessments of electronic and electrical products and systems

[4] ISO 14040:2006 - Environmental management -Life cycle assessment - Principles and framework

[5] ISO 14044:2006 - Environmental management - Life cycle assessment - Requirements and guidelines

[6] ecoinvent v3.10 (2024). ecoinvent database version 3.10 - (https://ecoinvent.org/)

[7] SimaPro Software version 9.6.0.1 - PRé Sustainability

[8] UNI EN 15804:2012+A2:2019: Sustainability of constructions - Environmental product declarations (September 2019)

[9] IEC/TR 62635 - Guidelines for end-of-life information provided by manufacturers and recyclers and for recyclability rate calculation of electrical and electronic equipment -

[10] https://www.ecosystemspa.com/

[11] ISO 14025 - Environmental management — Life cycle assessment — Principles and

[12] LB-DT 18-21D - REACH (MCCBs and ACBs)

[13] 1SDL000571R0 Ver 01 - RoHS Exemptions (MCCBs and ACBs)

[14] 1SDL000572R0 Ver 01 - SVHC present in excess of 0.1% (MCCBs and ACBs)

