

S200C CIRCUIT BREAKER

# Product Environmental Profile

## Environmental Product Declaration



Document in compliance with ISO 14025: 2010 "Environmental labels and declarations. Type III environmental declarations"

ORGANIZATION		CONTACT INFORMATION			
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# 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.

ABB is also engaged with the Ellen MacArthur Foundation.



## General Information

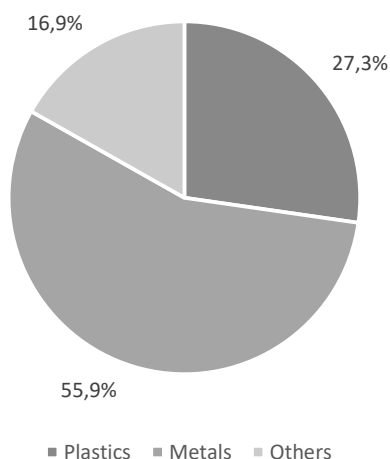
<b>Reference product</b>	S202C 6kA C 16A 2P - 2CDS252280R0164
<b>Description of the product</b>	The S200C series of miniature circuit breaker provides the protection of circuits against overload and short circuit. It is a series of compact MCBs in only 1 or 2 modules, depending on the poles configuration.
<b>Functional unit</b>	Protect during 20 years the installation against overloads and short-circuits in circuit with assigned voltage 400V and rated current 16 A.
<b>Other products covered</b>	S200C Family: S2011C: 1P+1P in 1M / 6 kA / B and C char up to 20 A (230V) S202C: 2P in 1M / 3kA - 10kA / B and C char up to 40 A S203C: 3P in 2M / 3kA - 6kA / B and C char up to 32 A S204C: 4P in 2M / 3kA - 6kA / B and C char up to 32 A

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## Constituent materials

D



**Total weight of Reference product**

114,31 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+GF	12,3	STEEL	24,6	AGC + GRAPHITE	6,8
PA	10,5	COPPER	10,5	CARDBOARD	9,3
PPS	1,3	BRASS	1,7	PAPER	0,8
PBT+GF	1,2	STAINLESS STEEL	2,2	-	-
PBT	2,0	OTHER METALS	16,9	-	-

Total weight of the reference product and its packaging: 126,00 g (9,4% box and 0,8% paper)

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## Additional Environmental Information

<b>Manufacturing</b>	Includes the environmental impacts associated with extraction and processing of the raw materials used to produce the product and its packaging, transport to the manufacturing site and assembly.
<b>Distribution</b>	Includes the transportation in its packaging from the manufacturer's last logistic platform to the distributor.
<b>Installation</b>	Installation stage includes the installation of the products made manually and packaging.
<b>Use</b>	Energy consumption is calculated by following the PSR. The energy models used in this phase are the specific energy mixes based on ABB distribution. No maintenance is necessary. Reference product consumption over 20 years is 54,61 kwh.
<b>End of life</b>	Includes its transportation from the installation site to the final end of life treatment site, and end of life treatment processes. A value of 1000 km transport by lorry is used for the transportation.
<b>Software and database used</b>	Simapro 9.3.0.3 and Ecoinvent v3.8
<b>Standards</b>	"PCR Product Category Rules for Electrical, Electronic and HVAC-R Products" (PCR-ed3-EN-2015 04 02) and - "PSR Specific Rules for Electrical Switchgear and control gear Solutions"(PSR-0005-ed2-EN—2016 03 29)



## Environmental impacts

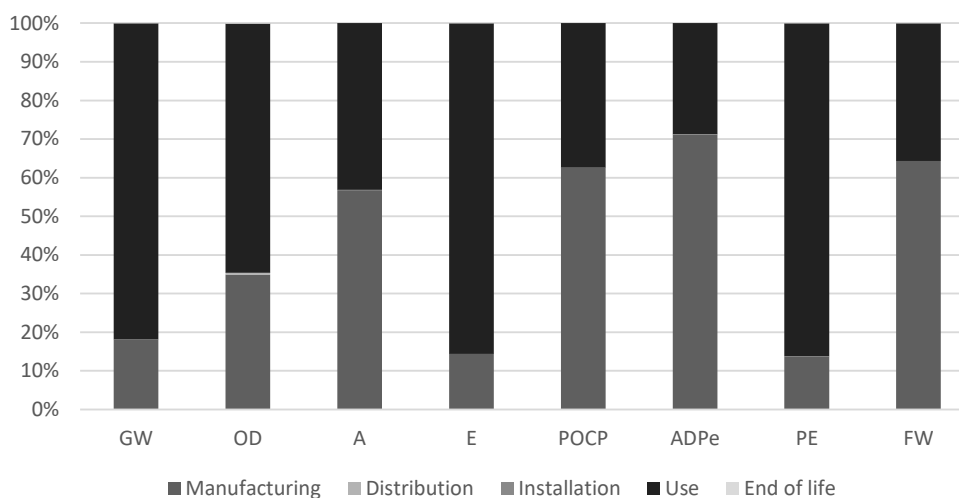
<b>Reference lifetime</b>	20 years
<b>Product category</b>	Circuit Breaker
<b>Installation elements</b>	Installation carried out manually
<b>Use scenario</b>	Global use scenario
<b>Geographical representativeness</b>	Global
<b>Technological representativeness</b>	Materials and processes data are specific for the production of S202C C16 - 2CDS252280R0164 and its family
<b>Energy model used</b>	
<b>Manufacturing</b>	A specific mix of ABB's trading company has been used (Confidential)
<b>Installation</b>	Manually done. Global
<b>Use</b>	Global use mix electricity (ad hoc)
<b>End of life</b>	Global

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## Compulsory Indicators

Impact indicators	Unit	Total	Manu- facturing	Distri- bution	Instal- lation	Use	End of life
Global warming (GW)	kg CO <sub>2</sub> eq.	3,25E+01	5,86E+00	3,58E-02	2,11E-03	2,66E+01	2,06E-02
Ozone depletion (OD)	kg CFC- 11 eq.	1,37E-06	4,79E-07	6,43E-09	2,17E-10	8,84E-07	2,12E-09
Acidification of soil and water (A)	kg SO <sub>2</sub> eq.	3,66E-01	2,08E-01	1,26E-04	2,54E-06	1,58E-01	2,48E-05
Eutrophication (E)	kg (PO <sub>4</sub> ) <sup>3</sup> eq.	1,08E-01	1,55E-02	3,01E-05	9,39E-06	9,21E-02	9,19E-05
Photochemical ozone creation (POCP)	kg C <sub>2</sub> H <sub>4</sub> eq.	1,65E-02	1,03E-02	7,10E-06	1,21E-07	6,15E-03	1,19E-06
Depletion of abiotic resources – elements (ADPe)	kg Sb eq.	6,51E-04	4,63E-04	2,56E-07	4,01E-09	1,87E-04	3,92E-08
Resource use indicators	Unit	Total	Manu- facturing	Distri- bution	Instal- lation	Use	End of life
Total use of primary energy (PE)	MJ	7,45E+02	1,02E+02	5,58E-01	1,01E-02	6,41E+02	9,90E-02
Net freshwater use (FW)	m <sup>3</sup>	1,49E+01	9,59E+00	2,16E-03	2,79E-04	5,32E+00	2,72E-03

% Environmental Impact per Life Cycle Stage of Reference Product



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## Optional Indicators

Resource use indicators	Unit	Total	Manu- facturing	Distri- bution	Instal- lation	Use	End of life
Use of renewable primary energy, excluding renewable primary energy resources used as raw materials	MJ	8,90E+01	2,64E+01	1,06E-02	3,99E-04	6,26E+01	3,90E-03
Use of renewable primary energy resources as raw materials	MJ	5,76E-01	5,76E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Total use of renewable primary energy resources	MJ	8,96E+01	2,70E+01	1,06E-02	3,99E-04	6,26E+01	3,90E-03
Use of non-renewable primary energy, excluding renewable primary energy resources used as raw materials	MJ	6,53E+02	7,31E+01	5,48E-01	9,73E-03	5,79E+02	9,51E-02
Use of non-renewable primary energy resources as raw materials	MJ	2,35E+00	2,35E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Total use of non-renewable primary energy resources	MJ	6,55E+02	7,55E+01	5,48E-01	9,73E-03	5,79E+02	9,51E-02
Use of secondary materials	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of renewable secondary fuels	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of non-renewable secondary fuels	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

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## Optional Indicators

Waste category indicators	Unit	Total	Manu- facturing	Distri- bution	Instal- lation	Use	End of life
Hazardous waste disposed	kg	5,50E-04	3,03E-04	3,80E-06	3,42E-08	2,43E-04	3,34E-07
Non-hazardous waste disposed	kg	4,80E+00	2,72E+00	3,06E-02	1,89E-03	2,03E+00	1,85E-02
Radioactive waste disposed	kg	4,56E-03	2,91E-04	3,66E-06	5,72E-08	4,27E-03	5,59E-07
Output flow indicators	Unit	Total	Manu- facturing	Distri- bution	Instal- lation	Use	End of life
Components for reuse	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for recycling	kg	1,20E-01	1,93E-02	0,00E+00	9,36E-03	0,00E+00	9,14E-02
Materials for energy recovery	kg	8,82E-03	0,00E+00	0,00E+00	8,19E-04	0,00E+00	8,00E-03
Exported energy	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

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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:

**Use phase extrapolation factors:**

Amperage (A)	1	2	4	6	10	13	15	16	20	25	32	40
2P / 1P+1P	0,28	0,51	0,61	0,75	0,85	0,92	0,94	1,00	1,21	1,67	1,52	2,14
3P	0,42	0,77	0,92	1,13	1,28	1,38	1,41	1,50	1,82	2,51	2,28	3,21
4P	0,56	1,02	1,22	1,50	1,70	1,84	1,88	2,00	2,42	3,34	3,04	4,28

**All the others phases extrapolation factors:**

Number of poles	Manufacturing	Distribution	Installation	End of Life
1P+1P	1,11	1,11	1,00	1,11
2P	1,00	1,00	1,00	1,00
3P	1,88	1,88	1,06	1,88
4P	2,40	2,40	1,06	2,40

Product description	Product code
S202CT-C2	2CDS232280R0024
S202CT-C4	2CDS232280R0044
S202CT-C6	2CDS232280R0064
S202CT-C10	2CDS232280R0104
S202CT-C16	2CDS232280R0164
S202CT-C20	2CDS232280R0204
S202CT-C25	2CDS232280R0254
S202CT-C32	2CDS232280R0324
S202CT-C40	2CDS232280R0404
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S202CL-C10	2CDS242280R0104
S202CL-B10	2CDS242280R0105

Product description	Product code
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S204CL-B4	2CDS244280R0045
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Product description	Product code
S204CL-B10	2CDS244280R0105
S204CL-C16	2CDS244280R0164
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S2011C-C1	2CDS251281R0014
S2011C-C2	2CDS251281R0024
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S2011C-C4	2CDS251281R0044
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S2011C-C16	2CDS251281R0164
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S202C-C40	2CDS252280R0404
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S202TC-C2	2CDS252282R0024
S202TC-B2	2CDS252282R0025
S202TC-C4	2CDS252282R0044
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Product description	Product code
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S202CM-C2	2CDS272280R0024
S202CM-B2	2CDS272280R0025
S202CM-C4	2CDS272280R0044

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S202CM-B4	2CDS272280R0045
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S202CM-C15	2CDS272280R0154

Product description	Product code
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S202CM-B20	2CDS272280R0205
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S202CM-C32	2CDS272280R0324
S202CM-B32	2CDS272280R0325

Product description	Product code
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Registration number: ABBG-00066-V01.01-EN	Drafting Rules: PCR-ed3-EN-2015 04 02	Supplemented by: PSR-0005-ed2-EN—2016 03 29
Verifier accreditation number: VH32	Information and reference documents: <a href="http://www.pep-ecopassport.org">www.pep-ecopassport.org</a>	
Date of issue: 21/11/2022	Validity period:	5 years
Independent verification of the declaration and data, in compliance with ISO 14025: 2010		
Internal <input type="radio"/>	External <input checked="" type="radio"/>	
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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## Environmental Impact Indicator Glossary

Impact indicators	Description	Unit
Global warming (GW)	Indicator of potential global warming caused by emissions to air contributing to the greenhouse effect. Includes fossil and biogenic	kg CO <sub>2</sub> eq.
Ozone depletion (OD)	Indicator of emissions to air that contribute to the destruction of the ozone layer	kg CFC-11 eq.
Acidification of soil and water (A)	Indicator of the potential acidification of soils and water caused by the release of certain gases to the atmosphere	kg SO <sub>2</sub> eq.
Eutrophication (E)	Indicator of the contribution to eutrophication of water by the enrichment of the aquatic ecosystem with nutritional elements, e.g. industrial or domestic effluents, agriculture, etc.	kg (PO <sub>4</sub> ) <sup>3</sup> eq.
Photochemical ozone creation (POCP)	Indicator of emissions of gases that affect the creation of photochemical ozone in the lower atmosphere (smog) because of the rays of the sun.	kg C <sub>2</sub> H <sub>4</sub> eq.
Depletion of abiotic resources – elements (ADPe)	Indicator of the depletion of natural non-fossil resources	kg Sb eq.
Depletion of abiotic resources – fossil fuels (ADPf)	Indicator of the depletion of natural fossil resources	MJ (lower heating value)
Water pollution (WP)	Indicator of the quantity of water necessary to dilute the toxic elements poured into water in all the stages of the product life cycle.	m <sup>3</sup>
Air pollution (AP)	Indicator of the quantity of air necessary to dilute the toxic elements emitted into the air in all the stages of the product life cycle.	m <sup>3</sup>
Resource use indicators	Description	Unit
Total use of primary energy (PE)	Total use of non-renewable primary energy resources (primary energy and primary energy resources used as raw materials) + Total use of renewable primary energy resources (primary energy and primary energy resources used as raw materials)	MJ (lower heating value)

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