

S200 OV 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.



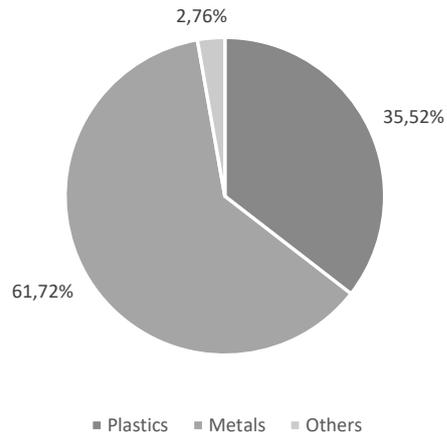
General Information

Reference product	S200 OV 10KA 2P C25 – 2CDS252202R0519
Description of the product	The EP series of miniature circuit breaker provides protection to the installations against overloads and short circuits. They have two different trip mechanisms: the thermal trip mechanism for protection against overloads and the electromagnetic trip mechanism for protection against short circuits.
Functional unit	Protect during 20 years the installation against overloads and short-circuits in circuit with assigned voltage 400V and rated current 25A.
Other products covered	S200 homogeneous family: 10kA breaking capacity OV char from 25 up to 63 A 2, 3 & 3+N Poles

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Constituent materials



Total weight of Reference product	241,7 g
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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-%
PA6+PA66+GF	15,8	Steel	31,5	Cardboard	2,6
PA6+20MF+GF	14,1	Copper	21,0	Paper	0,2
PBT V0	2,4	19MnB4 Ep-Zn	5,2	-	-
PC film	1,1	Stainless steel	3,4	-	-
Other plastics	2,2	Other metals	0,6	-	-

Total weight of the reference product and its packaging: 254,5 g (5,01% box and 0,19% paper)

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Additional Environmental Information

Manufacturing	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.
Distribution	Includes the transportation in its packaging from the manufacturer's last logistic platform to the distributor.
Installation	Installation stage includes the installation of the products made manually and packaging.
Use	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 61,73 kWh
End of life	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.
Benefits and loads beyond the system boundaries	Potential for reuse, recovery and/or recycling, expressed as net benefits and impacts



Environmental impacts

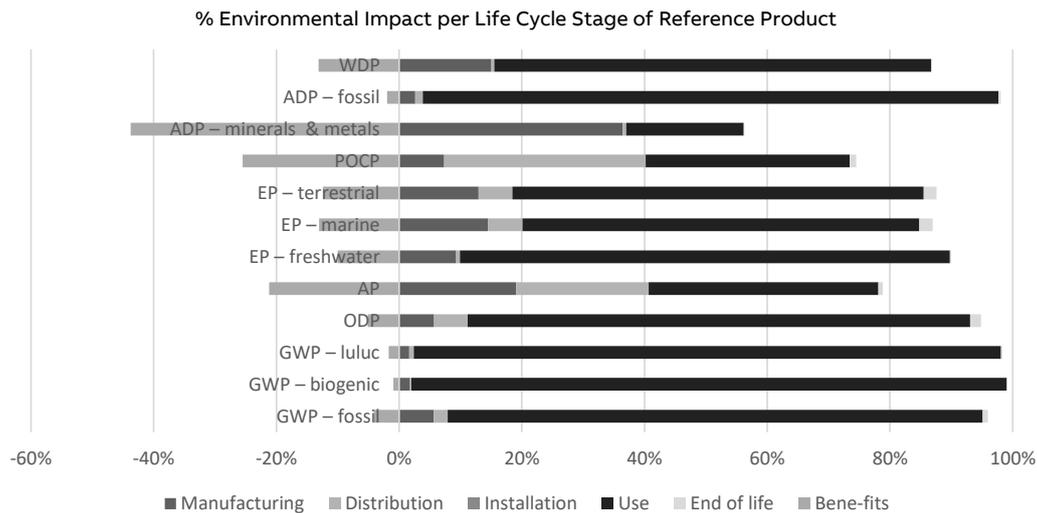
Reference lifetime	20 years
Product category	Circuit Breaker
Installation elements	Installation carried out manually. End of life of packaging.
Use scenario	Load time: 50% of rated current in continuous operation (In). Use time rate: 30% of reference lifetime (RLT).
Geographical representativeness	Europe
Technological representativeness	Materials and processes data are specific for the production of S200 OV 10KA 2P C25 – 2CDS252202R0519 and its family
Software and database used	Simapro 9.3.0.3 and Ecoinvent v3.8

Energy model used

Manufacturing	Poland General Energy Renewable
Installation	Manually done. Europe
Use	Belgium, Germany & Spain
End of life	Recycling of product

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Common base of mandatory indicators



Environmental impact indicators

Indicator	Unit	Total	Manu- facturing	Distri- bution	Instal- lation	Use	End of life	Bene- fits
GWP-total	kg CO ₂ eq.	2,02E+01	1,17E+00	4,69E-01	3,54E-03	1,84E+01	1,68E-01	-8,36E-01
GWP-fossil	kg CO ₂ eq.	1,97E+01	1,16E+00	4,67E-01	3,53E-03	1,79E+01	1,68E-01	-8,31E-01
GWP-biogenic	kg CO ₂ eq.	5,21E-01	9,40E-03	1,11E-03	3,95E-06	5,10E-01	1,88E-04	-4,88E-03
GWP-luluc	kg CO ₂ eq.	3,95E-02	6,68E-04	2,98E-04	1,75E-06	3,85E-02	8,32E-05	-6,74E-04
GWP-fossil = Global Warming Potential fossil fuels GWP-biogenic = Global Warming Potential biogenic GWP-luluc = Global Warming Potential land use and land use change								
OPD	kg CFC-11 eq.	1,71E-06	1,02E-07	9,81E-08	6,76E-10	1,47E-06	3,21E-08	-9,21E-08
OPD = Depletion potential of the stratospheric ozone layer								
AP	H ⁺ eq.	7,16E-02	2,30E-02	2,60E-02	1,78E-05	4,51E-02	8,45E-04	-2,55E-02
AP = Acidification potential, Accumulated Exceedance								
EP-freshwater	kg P eq.	9,45E-04	9,77E-05	6,47E-06	4,44E-08	8,39E-04	2,11E-06	-1,05E-04
EP-marine	kg N eq.	1,20E-02	2,00E-03	7,76E-04	6,38E-06	8,93E-03	3,03E-04	-1,80E-03
EP-terrestrial	mol N eq.	1,39E-01	2,05E-02	8,64E-03	6,95E-05	1,06E-01	3,30E-03	-1,96E-02
EP-freshwater = Eutrophication potential, fraction of nutrients reaching freshwater end compartment EP-marine = Eutrophication potential, fraction of nutrients reaching marine end compartment EP-terrestrial = Eutrophication potential, Accumulated Exceedance								
POCP	kg NMVOC eq.	3,840E-02	6,280E-03	2,810E-02	1,920E-06	2,840E-02	9,130E-04	-2,180E-02
POCP = Formation potential of tropo-spheric ozone								
ADP-minerals & metals	kg Sb eq.	7,19E-04	4,66E-04	7,05E-06	1,78E-08	2,45E-04	8,46E-07	-5,59E-04
ADP-fossil	MJ	5,61E+02	1,51E+01	6,92E+00	4,32E-02	5,36E+02	2,05E+00	-1,11E+01
ADP-minerals & metals = Abiotic depletion potential for non-fossil resources ADP-fossil = Abiotic depletion for fossil resources potential								
WDP	m ³ e depr.	5,94E+00	1,03E+00	3,38E-02	2,71E-04	4,87E+00	1,29E-02	-8,97E-01
WDP = Water Deprivation potential								
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Common base of mandatory indicators

Inventory flows indicator – Resource use indicators

Indicator	Unit	Total	Manu- facturing	Distri- bution	Instal- lation	Use	End of life	Bene- fits
PERE	MJ	7,97E+01	2,12E+00	1,91E-01	9,91E-04	7,74E+01	4,71E-02	-1,28E+00
PERM	MJ	2,23E-01	2,23E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PERT	MJ	7,99E+01	2,34E+00	1,91E-01	9,91E-04	7,74E+01	4,71E-02	-1,28E+00
PENRE	MJ	5,58E+02	1,28E+01	6,92E+00	4,32E-02	5,36E+02	2,05E+00	-1,11E+01
PENRM	MJ	2,36E+00	2,36E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PENRT	MJ	5,61E+02	1,51E+01	6,92E+00	4,32E-02	5,36E+02	2,05E+00	-1,11E+01

PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials
 PERM = Use of renewable primary energy resources used as raw materials
 PERT = Total Use of renewable primary energy resources
 PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials
 PENRM = Use of non-renewable primary energy resources used as raw materials
 PENRT = Total Use of non-renewable primary energy re-sources)

Inventory flows indicator – Indicators describing the use of secondary materials, water, and energy re-sources

Indicator	Unit	Total	Manu- facturing	Distri- bution	Instal- lation	Use	End of life	Bene- fits
SM	kg	0,00E+00	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	0,00E+00
NRSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
FW	m ³	2,03E-01	2,47E-02	1,28E-03	9,03E-06	1,77E-01	4,29E-04	-2,13E-02

SM = Use of secondary material
 RSF = Use of renewable secondary fuels
 NRSF = Use of non-renewable secondary fuels
 FW = Use of net fresh water

Inventory flows indicator – Waste category indicators

Indicator	Unit	Total	Manu- facturing	Distri- bution	Instal- lation	Use	End of life	Bene- fits
Hazardous waste disposed	kg	7,13E-04	2,89E-05	1,31E-04	1,22E-07	5,65E-04	5,82E-06	-9,85E-06
Non- hazardous waste disposed	kg	1,88E+00	2,57E-01	2,21E-01	2,08E-03	1,30E+00	9,89E-02	-1,71E-01
Radioactive waste disposed	kg	4,77E-03	2,07E-05	4,58E-05	2,82E-07	4,69E-03	1,34E-05	-1,44E-05

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Common base of mandatory indicators

Inventory flows indicator – Output flow indicators

Indicator	Unit	Total	Manu- facturing	Distri- bution	Instal- lation	Use	End of life	Bene- fits
Components for re-use	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for recycling	kg	2,18E-01	1,93E-02	0,00E+00	0,00E+00	0,00E+00	1,99E-01	0,00E+00
Materials for energy recovery	kg	1,74E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,74E-02	0,00E+00
Exported energy	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

Inventory flow indicator – other indicators

Indicator	Unit	Total
Biogenic carbon content of the product	kg of C	0,00E+00
Biogenic carbon content of the associated packaging	kg of C	6,62E-03

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Optional indicators

Environmental indicators

Indicator	Unit	Total	Manu- facturing	Distri- bution	Instal- lation	Use	End of life	Bene- fits
Total use of primary energy during the life cycle	MJ	6,39E+02	1,75E+01	7,11E+00	5,94E-03	6,14E+02	2,09E-01	-4,48E+01
Emissions of fine particles	incidence of diseases	3,74E-07	1,02E-07	5,03E-08	1,79E-11	2,22E-07	6,28E-10	-3,18E-07
Ionizing radiation, human health	kBq U235 eq.	5,15E+00	2,19E-02	3,12E-02	2,43E-05	5,09E+00	8,53E-04	-6,34E-02
Ecotoxicity (fresh water)	CTUe	4,25E+02	1,62E+02	6,99E+00	2,30E-02	2,55E+02	8,10E-01	-7,46E+02
Human toxicity, carcinogenic effects	CTUh	1,42E-08	5,66E-09	7,62E-10	7,33E-13	7,75E-09	2,58E-11	-1,70E-08
Human toxicity, non-carcinogenic effects	CTUh	4,82E-07	2,62E-07	8,98E-09	8,64E-12	2,10E-07	3,04E-10	-1,24E-06
Impact related to land use/soil quality	kg	1,20E+02	9,76E+00	3,29E+00	1,70E-03	1,07E+02	5,97E-02	-3,20E+01

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Extrapolation rules

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

Use phase extrapolation factors:

Type OV	Amperage (A)				
	25	32	40	50	63
2P	0,98	1,24	1,54	1,76	2,24
3P	1,47	1,86	2,32	2,64	3,36
3P + N	1,97	2,49	3,09	3,51	4,48

All the others phases extrapolation factors:

	Manufacturing	Distribution	Installation	Use	EoL
2P	1,00	1,00	1,00	1,00	1,00
3P	1,67	1,67	1,00	1,50	1,67
4P / 3P + N	2,05	2,05	1,00	2,00	2,05

Product description	Product code
S202-OV25	2CDS252202R0519
S202-OV32	2CDS252202R0529
S202-OV40	2CDS252202R0559
S202-OV50	2CDS252202R0579
S202-OV63	2CDS252202R0599
S203-OV25	2CDS253202R0519
S203-OV32	2CDS253202R0529
S203-OV40	2CDS253202R0559
S203-OV50	2CDS253202R0579
S203-OV63	2CDS253202R0599
S203-OV25NA	2CDS253202R9519
S203-OV32NA	2CDS253202R9529
S203-OV40NA	2CDS253202R9559
S203-OV50NA	2CDS253202R9579
S203-OV63NA	2CDS253202R9599

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Verifier accreditation number:	VH48	Supplemented by:	PSR-0005-ed2-EN-2016 03 29
Date of issue:	02-2023	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 <input type="radio"/>		External <input checked="" type="radio"/>	
The PCR review was conducted by a panel of experts chaired by Julie ORGELET (DDemain)			
PEP are compliant with XP C08-100-1: 2016 or EN 50693:2019 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

Indicator	Description	Unit
Global warming potential (GWP) - total	Indicator of potential global warming caused by emissions to air contributing to the greenhouse effect. The total global warming potential (GWP-total) is the sum of three sub-categories of climate change. GWP-total = GWP-fossil + GWP-biogenic + GWP- land use and land use change	kg CO ₂ eq.
Ozone depletion (OD)	Emissions to air that contribute to the destruction of the stratospheric ozone layer	kg CFC-11 eq.
Acidification of soil and water (A)	Acidification of soils and water caused by the release of certain gases to the atmosphere, such as nitrogen oxides and sulphur oxides	H ⁺ 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. This indicator is divided to three: freshwater, marine and terrestrial.	kg P eq., kg N eq., mole N 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 NMVOC 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)	The use of non-renewable fossil resources in an unsustainable way (e.g. from material to waste)	MJ (lower heating value)
Water Deprivation potential (WDP)	Deprivation-weighted water consumption. Assesses the potential of water deprivation, to either humans or ecosystems, building on the assumption that the less water remaining available per area, the more likely another user will be deprived.	m ³ e depr.

Resource use indicators

Indicator	Description	Unit
Total use of primary energy	Total use of non-renewable primary energy resources (primary energy and primary energy resources used as raw materials) + Total use of renewable primary energy re-sources (primary energy and primary energy resources used as raw materials)	MJ (lower heating value)

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