

SAGA - TRANSFORMER

PEP ecopassport®

Product Environmental Profile



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

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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.

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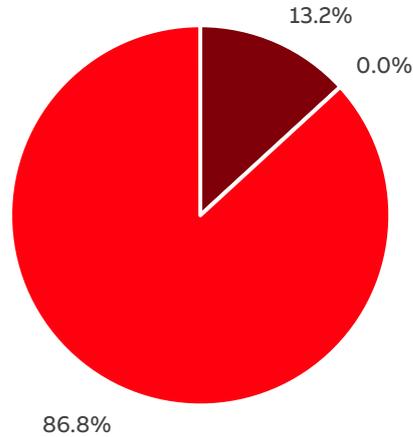
General Information

Reference product	2TKA00004972 The content of this PEP cannot be compared with content based on another program.
Description of the product	SAGA - Transformer is a small size transformer to be installed in normal mounting box for short circuit protection. The voltage of the Transformer is 230 V AC/15 V AC; while its power/loading capacity is 2.2 VA/150 mA.
Functional unit	System for short circuit protection during 10 years.
Other products covered	No other product is included in this PEP.

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Constituent Materials



■ Plastics 21.92 g ■ Metals 0.00 g ■ Others 144.31 g

Total weight of Reference product

166.23

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%
Polycarbonate	9.6	-	-	Electronic components	69.2
Polyamide 6	0.4	-	x	Cardboard packaging	16.0
Polyamide 6-6	3.2	-	x	Paper & stickers	1.5
-	x	-	x	Masterbatch color	0.1

The analysed product is in conformity with the provisions of Low Voltage Directive 2014/35/EU, RoHS directive 2011/65/EU, covering 2015/863(EU), REACH regulation No 1907/2006, and national legislation. Plastics used for the reference product are halogen-free materials (IEC/61249-2-21) and they are also recyclable.

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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; as well as the generated wastes during the manufacturing process.
Distribution	Includes the transportation of the packaged product from the manufacturer's last logistic platform to the distributor and then to end users.
Installation	Includes the manual installation of the products and the end-of-life of packaging.
Use	Energy consumption is calculated by following the use scenario of the corresponding PSR for active products, taking into account the consumed power and duration of each operating mode identified: 0% of the RLT on No load mode (1.8 W) and 100% of the RLT on Nominal mode (4.4 W).
End of life	Includes the transportation of the product to the final end-of-life treatment site and treatment processes. A value of 1000 km transport by lorry is used for the transportation.
Benefits and loads beyond the system boundaries	Prevented impacts of recycling materials.

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Environmental Impacts

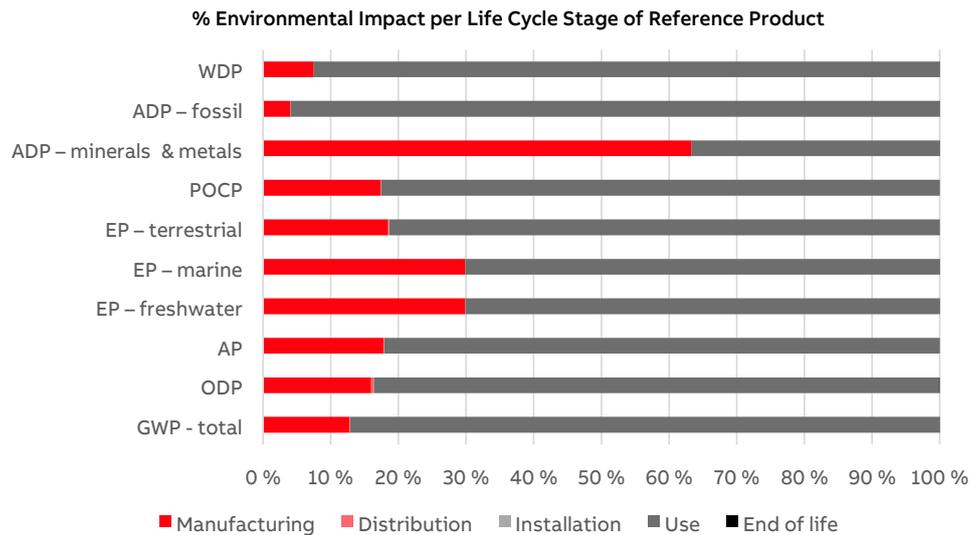
Reference lifetime	10 years
Product category	Other equipment - Active products
Installation elements	End-of-life of the packaging components
Use scenario	Europe
Geographical representativeness	Global
Technological representativeness	Materials and processes data are specific for the production of one SAGA - Transformer.
Software and database used	Simapro 9.3 and Ecoinvent 3.8

Energy model used

Manufacturing	German energy mix at low voltage obtained from IEA data
Installation	Non-applicable
Use	Customers' electricity mix at low voltage (Finland & Sweden)
End of life	Recycling of product and packaging

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Common base of mandatory indicators



Environmental impact indicators

Indicator	Unit	Total	Manu- facturing	Distri- bution	Installation	Use	End of life	Benefits
GWP-total	kg CO ₂ eq.	7.29E+01	9.31E+00	6.18E-02	1.62E-02	6.34E+01	6.77E-02	-6.01E+00
GWP-fossil	kg CO ₂ eq.	7.06E+01	9.12E+00	6.17E-02	5.83E-03	6.13E+01	6.61E-02	-5.98E+00
GWP-biogenic	kg CO ₂ eq.	1.22E+00	1.77E-01	5.54E-05	1.04E-02	1.03E+00	1.59E-03	-1.47E-02
GWP-luluc	kg CO ₂ eq.	1.10E+00	1.66E-02	2.43E-05	2.71E-06	1.08E+00	1.81E-05	-9.48E-03
GWP-fossil = Global Warming Potential fossil fuels GWP-biogenic = Global Warming Potential biogenic GWP-luluc = Global Warming Potential land use and land use change								
ODP	kg CFC-11 eq.	4.06E-06	6.50E-07	1.43E-08	1.24E-09	3.39E-06	5.99E-09	-3.97E-07
ODP = Depletion potential of the stratospheric ozone layer								
AP	H+ eq.	3.55E-01	6.32E-02	2.54E-04	2.68E-05	2.91E-01	1.35E-04	-6.59E-02
AP = Acidification potential, Accumulated Exceedance								
EP-freshwater	kg P eq.	1.11E-02	3.31E-03	1.33E-06	1.57E-07	7.76E-03	1.29E-06	-3.00E-03
EP-marine	kg N eq.	3.61E-03	1.08E-03	4.32E-07	5.10E-08	2.53E-03	4.20E-07	-9.77E-04
EP-terrestrial	mol N eq.	5.67E-02	1.05E-02	7.56E-05	1.26E-05	4.61E-02	4.26E-05	-9.47E-03
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.	6.85E-01	1.19E-01	8.35E-04	9.27E-05	5.65E-01	4.40E-04	-1.11E-01
POCP = Formation potential of tropospheric ozone								
ADP-minerals & metals	kg Sb eq.	3.44E-03	2.18E-03	2.14E-07	2.47E-08	1.26E-03	1.19E-07	-3.03E-03
ADP-fossil	MJ	2.89E+03	1.17E+02	9.33E-01	8.29E-02	2.77E+03	4.58E-01	-7.91E+01
ADP-minerals & metals = Abiotic depletion potential for non-fossil resources ADP-fossil = Abiotic depletion for fossil resources potential								
WDP	m ³ eq. depr.	3.59E+01	2.70E+00	2.79E-03	3.23E-04	3.32E+01	3.55E-03	-2.08E+00
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	Installation	Use	End of life	Bene- fits
PERE	MJ	8.90E+02	1.20E+01	1.31E-02	1.60E-03	8.78E+02	1.23E-02	-8.25E+00
PERM	MJ	3.21E+02	3.21E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	MJ	8.90E+02	1.24E+01	1.31E-02	1.60E-03	8.78E+02	1.23E-02	-8.25E+00
PENRE	MJ	2.87E+03	1.17E+02	9.33E-01	8.29E-02	2.75E+03	4.58E-01	-7.91E+01
PENRM	MJ	8.65E+02	8.65E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PENRT	MJ	2.87E+03	1.17E+02	9.33E-01	8.29E-02	2.75E+03	4.58E-01	-7.91E+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 resources

Inventory flows indicator – Indicators describing the use of secondary materials, water, and energy resources

Indicator	Unit	Total	Manu- facturing	Distri- bution	Installation	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	2.64E+00	9.09E-02	1.04E-04	1.35E-05	2.55E+00	1.17E-04	-6.53E-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	Installation	Use	End of life	Bene- fits
Hazardous waste disposed	kg	1.42E-03	5.24E-04	2.44E-06	2.18E-07	8.97E-04	1.06E-06	-3.29E-04
Non- hazardous waste disposed	kg	9.53E+00	1.17E+00	4.80E-02	6.28E-03	8.27E+00	3.71E-02	-6.98E-01
Radioactive waste disposed	kg	3.50E-02	3.32E-04	6.31E-06	5.48E-07	3.47E-02	2.74E-06	-2.26E-04

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Common base of mandatory indicators

Inventory flows indicator – Output flow indicators

Indicator	Unit	Total	Manu- facturing	Distri- bution	Installation	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	1.34E-01	0.00E+00	0.00E+00	2.17E-02	0.00E+00	1.12E-01	0.00E+00
Materials for energy recovery	kg	2.01E-02	6.63E-03	0.00E+00	2.43E-03	0.00E+00	1.10E-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	Manu- facturing	Distri- bution	Installation	Use	End of life	Bene- fits
Biogenic carbon content of the product	kg of C	1.26E+00	1.26E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Biogenic carbon content of the associated packaging	kg of C	1.33E+01	1.33E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

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Environmental Impact Indicator Glossary

Impact indicators

Indicator	Description	Distribution
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 (ODP)	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 eq. depr.

Resource use indicators

Indicator	Description	Distribution
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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