

SAGA™ SOCKET OUTLET WITH LED LIGHT

PEP ecopassport®

Product Environmental Profile



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

ORGANIZATION		CONTACT INFORMATION			
Busch-Jaeger Elektro GmbH		pia.denninghoff@de.abb.com			
ADDRESS		WEBSITE			
Freisenbergstraße 2, 58513 Lüdenscheid, Germany		www.busch-jaeger.de/en/online-catalogue			
STATUS	SECURITY LEVEL	REGISTRATION NUMBER	REV.	LANG.	PAGE
Approved	Public	ABBG-00282-V01.01-EN	1	en	1/12



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.



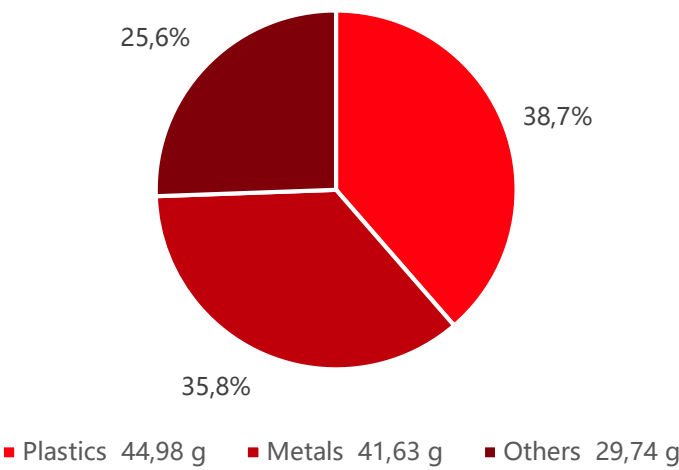
General Information

Reference product	SAGA™ Socket Outlet with LED steplight (2CKA002013A5487)
Description of the product	The product covered in this study is called SAGA™ SOCKET OUTLET with LED light. It is a socket outlet which also provides a continuous source of light. It is designed for indoor use only and is installed manually. The product is a white square, which is mainly made of polycarbonate, steel, brass, PCBA, an LED lamp, and Nylon.
Functional unit	Connect/disconnect the plug of a load consuming 16A maximum under a voltage of 230V while protecting the user from direct contact with live parts during 20 years, with a protection class IP20 and IK03, while providing a continuous source of light.
Other products covered	Variation 1: SAGA™ Socket Outlet with LED indication (2CKA002013A5486); Variation 2 (reference variation): SAGA™ Socket Outlet with LED steplight (2CKA002013A5487)

STATUS	SECURITY LEVEL	REGISTRATION NUMBER	REV.	LANG.	PAGE
Approved	Public	ABBG-00282-V01.01-EN	1	en	2/12



Constituent Materials



Total weight of Reference product	116,34	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	45,4	Unalloyed steel	3,6	Cardboard (packaging)	43,1
Nylon	1,3	Low-alloyed steel	1,8	Paper (packaging)	1,4
LDPE film (packaging)	2,0			PCBA	1,2
Teflon	0,0	Brass	0,1	LED lamp	0,0
Glass fibre	0,0	Solder wire	0,0	Chemical oil	0,0

STATUS	SECURITY LEVEL	REGISTRATION NUMBER	REV.	LANG.	PAGE
Approved	Public	ABBG-00282-V01.01-EN	1	en	3/12



Additional Environmental Information

Manufacturing	<p>The SAGA™ SOCKET OUTLET with LED light is produced at and delivered from two internal BJE sites in Germany. One site is in Lüdenscheid and the other one in Bad Berleburg/Aue. No recycled material content is assumed. All components are transported by lorry from the supplier to these two manufacturing sites. The manufacturing waste for all materials is included. The values are as follows, based on BJE expert knowledge: 2,9% for metal, 2% for paper and cardboard, 2% for metal, and 30% for all remaining materials (based on chapter 3.1.5.1.2 of PSR-0005-ed3). The 30% standard value was applied for electronic components as they are supplied externally.</p> <p>The electricity mix on both manufacturing sites is largely renewable from Scandinavian hydropower and rooftop solar power on the Lüdenscheid site (together 82% in Bad Berleburg/Aue and 77% in Lüdenscheid). However, to avoid double counting of renewable energy, a dataset for the German market mix for electricity was used instead of a hydropower dataset. The amount of natural gas for both on-site electricity generation (CHP) and heating, as well as the emissions of both was used as an input to the model. All CO₂ emissions are compensated through ClimatePartner, but this compensation is not accounted for in the EPD.</p> <p>For transport of waste from the manufacturing site to the treatment facility, the default distance of 100 km by truck is used, in line with chapter 3.1.5.1.2 of PSR-0005-ed3. Specific one-year data from 2022 on manufacturing site level was collected and allocated to the products components which are manufactured in-house by mass allocation following the requirements of ISO 14044.</p>
Distribution	The transport scenario is estimated based on the distance to the capital city of the countries it is sold to, according to the sales data for 2022.
Installation	Installation is done manually without using energy or other auxiliary materials. Treatment of packaging waste is included in this stage, assuming the European end-of-life scenario mentioned in chapter 5.1.5.2.1 of the PSR.
Use	The power dissipation of the socket is 0,062 W, and the LED lamp remains constantly turned on, with an energy consumption of 0,6 W. With a 30% use time rate and a load rate of 30% for (in line with the PSR), this comes down to a power consumption of 106,1 W over the reference lifetime of 20 years. A regional electricity mix is used to model the fraction of the product to each destination country.
End of life	The standard scenario set in the PCR is considered.
Benefits and loads beyond the system boundaries	<p>Steel has a recovery rate of 80% and brass has one of 60% according to the PCR. The Module D formula from the PCR was used to calculate the benefits of these components. Other materials were not included here, due to a material recovery rate of 0. For the product packaging, the default (European) end-of-life data from chapter 3.1.5.2.1 of the PSR is used to determine the recycling rates. According to that, cardboard and paper have a recovery rate of 82% and plastic has one of 41%, which are also included in this stage.</p>

STATUS	SECURITY LEVEL	REGISTRATION NUMBER	REV.	LANG.	PAGE
Approved	Public	ABBG-00282-V01.01-EN	1	en	4/12



Environmental Impacts

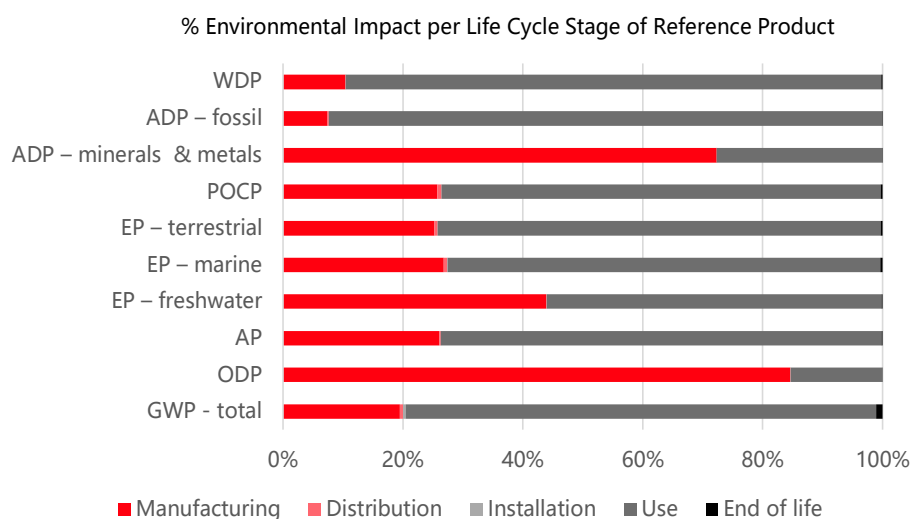
Reference lifetime	20 years (for which two products are needed)
Product category	3.13 "Other equipment"
Installation elements	Not applicable
Use scenario	Passive product
Geographical representativeness	Production site data is for Germany, and all other data has a European scope.
Technological representativeness	Materials and process data are specific for the production of the SAGA™ SOCKET OUTLET with LED light.
Software and database used	SimaPro 9.4.0.2., ecoinvent 3.9.1, PEF 3.0

Energy model used

Manufacturing	Electricity, high voltage {DE} market for Cut-off, U Electricity, low voltage {DE} electricity production, photovoltaic, 3kWp slanted-roof installation, single-Si, panel, mounted Cut-off, U Natural gas, high pressure {DE} market for Cut-off, S
Installation	Not applicable
Use	Electricity, medium voltage {SE} market for Cut-off, U Electricity, medium voltage {FI} market for electricity, medium voltage Cut-off, U Electricity, medium voltage {NO} market for Cut-off, U
End of life	Not applicable

STATUS	SECURITY LEVEL	REGISTRATION NUMBER	REV.	LANG.	PAGE
Approved	Public	ABBG-00282-V01.01-EN	1	en	5/12

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.	2,00E+01	3,91E+00	9,71E-02	9,11E-02	1,57E+01	2,14E-01	-3,01E-01
GWP-fossil	kg CO ₂ eq.	1,94E+01	3,89E+00	9,70E-02	9,61E-03	1,52E+01	2,12E-01	-3,20E-01
GWP-biogenic	kg CO ₂ eq.	3,23E-01	1,29E-02	7,74E-05	8,14E-02	2,27E-01	1,61E-03	1,99E-02
GWP-luluc	kg CO ₂ eq.	2,80E-01	6,55E-03	4,36E-05	1,90E-06	2,73E-01	3,79E-05	-9,13E-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								
ODP	kg CFC-11 eq.	1,77E-06	1,49E-06	2,06E-09	9,98E-11	2,69E-07	8,34E-10	-5,31E-09
ODP = Depletion potential of the stratospheric ozone layer								
AP	H ⁺ eq.	1,16E-01	3,03E-02	2,94E-04	2,13E-05	8,55E-02	2,07E-04	-7,80E-03
AP = Acidification potential, Accumulated Exceedance								
EP-freshwater	kg P eq.	1,29E-03	5,68E-04	7,43E-07	6,84E-08	7,23E-04	1,49E-06	-4,09E-05
EP-marine	kg N eq.	1,70E-02	4,55E-03	9,95E-05	8,85E-06	1,23E-02	5,83E-05	-5,99E-04
EP-terrestrial	mol N eq.	2,08E-01	5,25E-02	1,06E-03	9,12E-05	1,53E-01	6,14E-04	-7,30E-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.	6,29E-02	1,62E-02	4,41E-04	2,49E-05	4,61E-02	2,00E-04	-2,31E-03
POCP = Formation potential of tropospheric ozone								
ADP-minerals & metals	kg Sb eq.	1,51E-03	1,09E-03	3,01E-07	7,95E-09	4,17E-04	1,75E-07	-9,51E-05
ADP-fossil	MJ	7,50E+02	5,56E+01	1,33E+00	3,31E-02	6,92E+02	6,09E-01	-3,80E+00
ADP-minerals & metals = Abiotic depletion potential for non-fossil resources ADP-fossil = Abiotic depletion for fossil resources potential								
WDP	m ³ eq. depr.	9,70E+00	1,01E+00	5,11E-03	1,77E-03	8,66E+00	2,14E-02	-1,83E-01
WDP = Water Deprivation potential								
STATUS	SECURITY LEVEL		REGISTRATION NUMBER		REV.	LANG.	PAGE	
Approved	Public		ABBG-00282-V01.01-EN		1	en	6/12	

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	2,70E+02	5,81E+00	2,32E-02	4,52E-03	2,65E+02	5,52E-02	-6,09E-01
PERM	MJ	6,57E-01	6,57E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	-5,28E-01
PERT	MJ	2,71E+02	6,46E+00	2,32E-02	4,52E-03	2,65E+02	5,52E-02	-1,14E+00
PENRE	MJ	7,45E+02	5,55E+01	1,33E+00	3,31E-02	6,87E+02	6,09E-01	-3,79E+00
PENRM	MJ	8,96E-02	8,96E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	-1,41E-03
PENRT	MJ	7,45E+02	5,56E+01	1,33E+00	3,31E-02	6,87E+02	6,09E-01	-3,80E+00
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	1,96E-04	1,96E-04	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	m³	9,29E-01	3,40E-02	1,92E-04	5,63E-05	8,94E-01	6,89E-04	-4,82E-03
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	6,81E-03	4,06E-04	0,00E+00	0,00E+00	0,00E+00	6,40E-03	0,00E+00
Non- hazardous waste disposed	kg	1,11E-01	3,34E-04	0,00E+00	9,54E-03	0,00E+00	1,01E-01	0,00E+00
Radioactive waste disposed	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

STATUS	SECURITY LEVEL	REGISTRATION NUMBER	REV.	LANG.	PAGE
Approved	Public	ABBG-00282-V01.01-EN	1	en	7/12

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	3,05E-01	2,16E-01	0,00E+00	4,35E-02	0,00E+00	4,58E-02	0,00E+00
Materials for energy recovery	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	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	
Biogenic carbon content of the product	kg of C	0,00E+00
Biogenic carbon content of the associated packaging	kg of C	2,29E-02

STATUS	SECURITY LEVEL	REGISTRATION NUMBER	REV.	LANG.	PAGE
Approved	Public	ABBG-00282-V01.01-EN	1	en	8/12

Optional indicators

Environmental indicators

Indicator	Unit	Total	Manu- facturing	Distri- bution	Installation	Use	End of life	Bene- fits
Total use of primary energy during the life cycle	MJ	1,02E+03	6,21E+01	1,35E+00	3,77E-02	9,52E+02	6,64E-01	-4,93E+00
Emissions of fine particles	incidence of diseases	6,74E-07	2,04E-07	6,43E-09	2,24E-10	4,58E-07	5,19E-09	-3,12E-08
Ionizing radiation, human health	kBq U235 eq.	1,95E+01	1,42E-01	7,81E-04	5,07E-05	1,93E+01	2,25E-03	-1,07E-02
Ecotoxicity (fresh water)	CTUe	1,28E+02	6,67E+01	7,13E-01	8,62E-02	5,89E+01	1,24E+00	-8,00E+00
Human toxicity, car-cinogenic effects	CTUh	2,45E-08	9,50E-09	3,96E-11	5,96E-12	1,36E-08	1,30E-09	-2,09E-09
Human toxicity, non- carcinogenic effects	incidence of diseases	8,10E-07	2,64E-07	1,16E-09	2,42E-10	5,43E-07	1,61E-09	-9,54E-08
Impact related to land use/soil quality		2,38E+02	2,07E+01	6,81E-01	2,82E-02	2,16E+02	2,08E-01	-5,29E+00

Other indicators

Indicator	Unit	Total	Manu- facturing	Distri- bution	Installation	Use	End of life	Bene- fits
No Other indicators used								

STATUS	SECURITY LEVEL	REGISTRATION NUMBER	REV.	LANG.	PAGE
Approved	Public	ABBG-00282-V01.01-EN	1	en	9/12

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

[illegible]

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 resources (primary energy and primary energy resources used as raw materials)	MJ (lower heating value)

STATUS	SECURITY LEVEL	REGISTRATION NUMBER	REV.	LANG.	PAGE
Approved	Public	ABBG-00282-V01.01-EN	1	en	11/12

Registration number: ABBG-00282-V01.01-EN		Drafting Rules: PCR-ed4-EN-2021 09 06
		Supplemented by: PSR-0005-ed3-EN-2023 06 06
Verifier accreditation number: VH44		Information and reference documents: www.pep-ecopassport.org
Date of issue: 22/05/2024		Validity period: 5 years
Independent verification of the declaration and data, in compliance with ISO 14025: 2006		
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 and EN 50693:2019 or NF E38-500 :2022 The elements of the present PEP cannot be compared with elements from any other program.		
Document in compliance with ISO 14025: 2006 "Environmental labels and declarations. Type III environmental declarations"		

STATUS	SECURITY LEVEL	REGISTRATION NUMBER	REV.	LANG.	PAGE
Approved	Public	ABBG-00282-V01.01-EN	1	en	12/12