Environmental Product Declaration

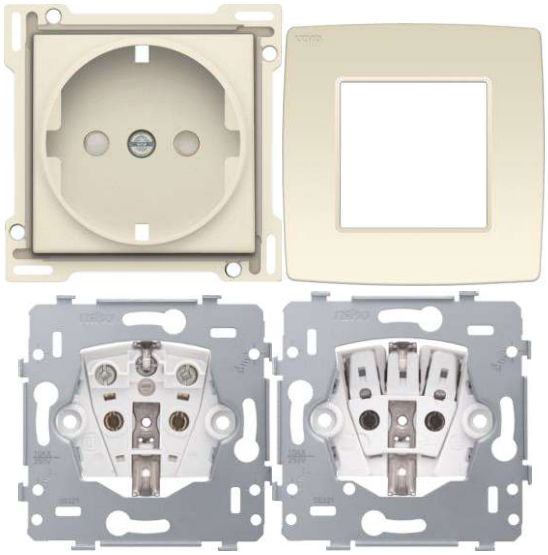
According to EN15804+A2 (+indicators A1)

This declaration is for:

Socket-outlet 2P with side earthing Type F, 250V~16A with shutters and cover plates and two types of mechanism

Provided by:

Niko NV



program operator

Stichting MRPI®

publisher

Stichting MRPI®

www.mrpi.nl

MRPI® registration

1.1.00511.2024

date of first issue

22-03-2024

date of this issue

22-03-2024

expiry date

22-03-2029

COMPANY INFORMATION

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MRPI® REGISTRATION

1.1.00511.2024

DATE OF ISSUE

22-3-2024

EXPIRY DATE

22-3-2029

SCOPE OF DECLARATION

This MRPI®-EPD certificate is verified by Ulbert Hofstra, SGS Intron. De LCA study has been done by An Janssen, Enperas NV. The certificate is based on an LCA-dossier according to EN15804+A2 (+indicators A1). It is verified according to the 'MRPI®-EPD verification protocol November 2020.v4.0'. EPD's of construction products may not be comparable if they do not comply with EN15804+A2. Declaration of SVHC that are listed on the 'Candidate list of Substances of Very High Concern for authorisation' when content exceeds the limits for registration with ECHA.

PROGRAM OPERATOR

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Managing Director MRPI

PRODUCT

Socket-outlet 2P with side earthing Type F, 250V~16A with shutters and cover plates and two types of mechanism.

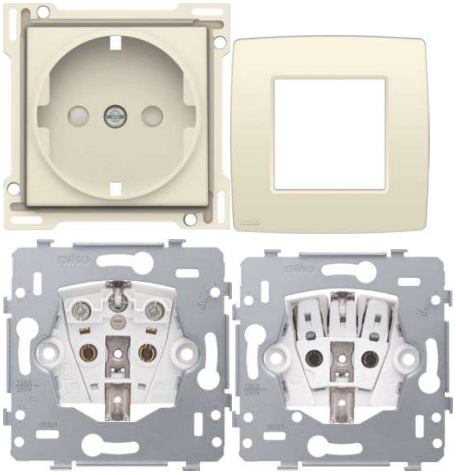
DECLARED UNIT/FUNCTIONAL UNIT

One socket-outlet, connecting/disconnecting during 20 years the plug of a load consuming maximum 16 A (In) under a voltage (U) of 250 Vac, while protecting the user from direct contact with live parts, and with a protection class (IP20) and an impact resistance of (IK06), produced in Belgium and installed in The Netherlands

DESCRIPTION OF PRODUCT

The product is a socket-outlet 2P with side earthing type F, 250V~16A, consisting of a central plate, a cover plate and two types of mechanism (i.e. with plug-in terminals and with screw type terminals).

VISUAL PRODUCT



MORE INFORMATION

www.niko.eu/nl

DEMONSTRATION OF VERIFICATION
CEN standard EN15804 serves as the core PCR(a)
Independent verification of the declaration an data according to EN15804+A2 (+indicators A1) internal: external: x
Third party verifier: Ulbert Hofstra, SGS Intron
[a] PCR = Product Category Rules

DETAILED PRODUCT DESCRIPTION

The product is a socket-outlet 2P with side earthing type F, 250V~16A with shutters and cover plates. It has a flush-mounting depth of 28,5 mm and consists of three parts: a mechanism, a finishing set or central plate and a faceplate or cover plate. Two types of mechanism are possible, i.e. one type with plug-in terminals and one type with screw type terminals. The results given in this EPD are weighted averages for both socket-outlet variants based on their market share. The NIKO socket-outlets are designed and installed in the fixed installation to provide power to appliances within a residential environment.

Production process:
The manufacturing process for socket-outlets in the NIKO factory at Sint-Niklaas, Belgium, consists of two steps. In a first step, the raw materials are put into shape. This is done by pressing metal bands and sheets into the right dimensions and by injection moulding of plastic grains into the different needed parts. In a second step, subassemblies are automatically or manually assembled and combined into one end product. At the end, the final product is packed so that it is ready for transport to the customers.

Reference service life:
The reference service life (RSL) of a socket-outlet is estimated at 20 years. These 20 years are based on the reference service life, taken into account in the specific rules for electrical switch gear and control gear solutions of the French PEP ecopassport® programme (PSR 0005, 2023), which also serve as a guideline for this EPD.

Installation:
The socket-outlet is simply mounted in a flush-mounting box with screw type fixing. The screws are included in the flush mounting box, which is not included in this EPD. The electrical wiring is inserted into the plug-in terminals or into the screw type terminals of the socket-outlet. The installation can be done manually using a manual screwdriver or by using an electric machine.

Technical data/Physical characteristics
The most important technical properties of a socket-outlet 2P with side earthing type F, 250V~16A with shutters and cover plates are given in the table below.

Technical property	Value	Unit
flush-mounting depth	28,5	Mm
current	16	A
voltage	250	Vac
protection degree of the combination of a mechanism, a central plate and a faceplate	IP20	
impact resistance of the combination of a mechanism, a central plate and a faceplate	IK06	

The socket-outlet consists of three parts: a mechanism, a finishing set or central plate and a faceplate or cover plate. The general composition of both socket-outlet types (i.e. with a mechanism with plug-in terminals and with a mechanism with screw type terminals) is given in following table. Only the composition of the mechanism is different between both variants.

Component (> 1%)	(kg / %)
mechanism	0,052-0,053
central plate	0,015
cover plate	0,013
steel	37%-39%
brass	11%-10%
plastics	52%-51%

SCOPE AND TYPE

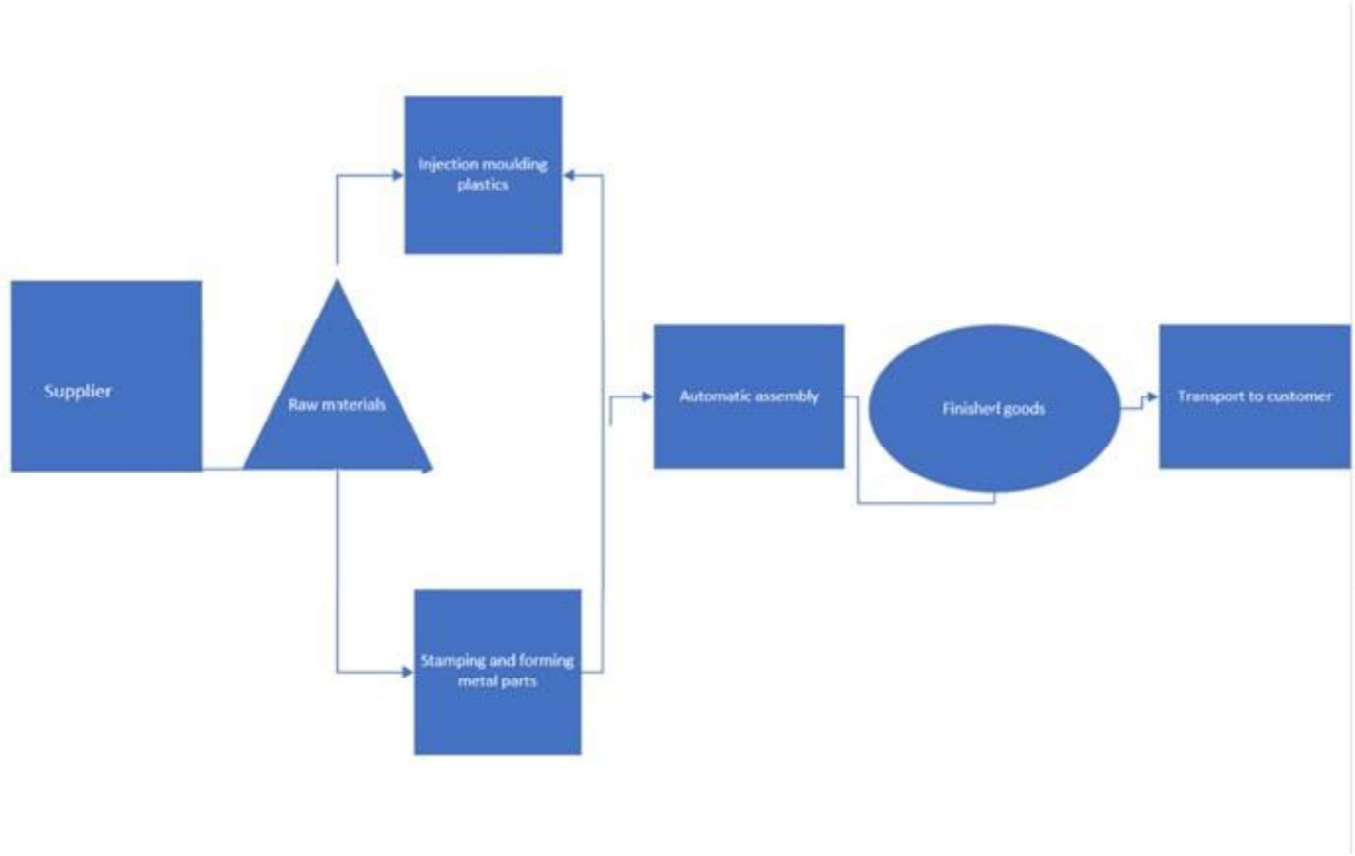
This is a specific EPD for a socket-outlet 2P with side earthing Type F, 250V~16A with shutters and cover plates and two types of mechanism, produced by Niko NV in Sint-Niklaas, Belgium. The socket-outlet is installed in The Netherlands and at its end-of-life waste is treated according to the Dutch end-of-life scenarios. As a result, the EPD is representative for the Dutch market.

Company-specific data for the product stage have been collected by Niko NV and were provided to Enperas NV through a data collection questionnaire. Enperas NV uses publicly available generic data for all background processes, such as the production of electricity, transportation by means of a specific truck, etc. Primary data is used for modules A1, A2, A3 and A5. The rest of the study is based on scenarios (module A4, modules C1-C4 and module D).

The main LCI source used in this EPD is the Ecoinvent v3.6 Cut-off database.

For the calculation of the LCA results, the software program SimaPro 9.5.0.1 (PRé Consultants, 2023) has been used, as well as the Enperas Quadrant LCA tool for Niko socket-outlet and switches (Enperas, 2023). The EF3.0 characterisation factors from EC-JRC were applied where relevant.

PRODUCT STAGE		CONSTRUCTION PROCESS STAGE			USER STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Rawmaterial supply	Transport	Manufacturing	Transport gate to site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse- Recovery – Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	X	X	X	X	X	X	X	ND	ND	X	X	X	X	X
X= Modules Assessed ND= Not Declared																



REPRESENTATIVENESS

The data used for the LCA are representative for the production of a socket-outlet 2P with side earthing Type F, 250V~16A with shutters and cover plates and two types of mechanism, produced by Niko NV in Sint-Niklaas, Belgium, and installed in The Netherlands.

ENVIRONMENT IMPACT per functional unit or declared unit (core indicators A1)

	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
ADPE	kg Sb eq.	1,69 E-05	1,25 E-08	2,32 E-07	1,71 E-05	3,84 E-09	4,68 E-09	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	ND	ND	0,00 E+00	1,91 E-09	7,61 E-11	4,08 E-09	-1,32 E-06
ADPF	MJ	6,27 E+00	9,40 E-02	1,95 E+00	8,31 E+00	3,13 E-02	5,79 E-03	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	ND	ND	0,00 E+00	1,56 E-02	1,36 E-03	2,09 E-02	-9,82 E-01
GWP	kg CO2 eq.	4,20 E-01	6,26 E-03	1,13 E-01	5,39 E-01	2,05 E-03	2,60 E-03	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	ND	ND	0,00 E+00	1,02 E-03	8,68 E-05	7,91 E-02	-6,61 E-02
ODP	Kg CFC11 eq.	1,99 E-08	1,15 E-09	2,52 E-08	4,62 E-08	3,80 E-10	5,23 E-11	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	ND	ND	0,00 E+00	1,89 E-10	4,36 E-12	5,66 E-10	-5,28 E-09
POCP	Kg ethene eq.	3,86 E-04	3,12 E-06	4,86 E-05	4,38 E-04	1,23 E-06	2,88 E-07	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	ND	ND	0,00 E+00	6,13 E-07	1,48 E-08	1,92 E-06	-8,28 E-05
AP	kg SO2 eq.	3,70 E-03	1,49 E-05	2,40 E-04	3,95 E-03	8,82 E-06	2,23 E-06	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	ND	ND	0,00 E+00	4,39 E-06	1,68 E-07	1,54 E-05	-5,19 E-04
EP	kg (PO4) 3- eq.	2,92 E-04	2,31 E-06	4,76 E-05	3,42 E-04	1,76 E-06	3,56 E-07	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	ND	ND	0,00 E+00	8,78 E-07	3,43 E-08	4,17 E-06	-4,84 E-05

HTP	kg DCB-Eq	9,68 E-01	2,51 E-03	2,06 E-02	9,91 E-01	8,77 E-04	4,46 E-04	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	ND	ND	0,00 E+00	4,37 E-04	1,05 E-05	4,92 E-03	-7,48 E-02
FAETP	kg DCB-Eq	1,30 E-02	6,93 E-05	1,49 E-03	1,46 E-02	2,57 E-05	2,01 E-05	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	ND	ND	0,00 E+00	1,28 E-05	2,81 E-07	1,64 E-04	-1,19 E-03
MAETP	kg DCB-Eq	4,66 E+01	2,66 E-01	1,85 E+00	4,87 E+01	9,17 E-02	6,03 E-02	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	ND	ND	0,00 E+00	4,57 E-02	1,17 E-03	6,84 E-01	-5,79 E+00
TETP	kg DCB-Eq	3,25 E-03	8,94 E-06	4,30 E-04	3,69 E-03	3,11 E-06	1,49 E-06	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	ND	ND	0,00 E+00	1,55 E-06	4,39 E-07	4,30 E-06	1,09 E-03
ECI	euro	1,32 E-01	6,62 E-04	9,41 E-03	1,42 E-01	2,48 E-04	1,90 E-04	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	ND	ND	0,00 E+00	1,23 E-04	6,55 E-06	4,57 E-03	-1,33 E-02
ADPF	kg Sb eq.	3,01 E-03	4,52 E-05	9,38 E-04	4,00 E-03	1,50 E-05	2,78 E-06	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	ND	ND	0,00 E+00	7,50 E-06	6,53 E-07	1,01 E-05	-4,72 E-04

ADPE = Abiotic Depletion Potential for non-fossil resources
ADPF = Abiotic Depletion Potential for fossil resources
GWP = Global Warming Potential
ODP = Depletion potential of the stratospheric ozone layer
POCP = Formation potential of tropospheric ozone photochemical oxidants
AP = Acidification Potential of land and water
EP = Eutrophication Potential
HTP = Human Toxicity Potential
FAETP = Fresh water aquatic ecotoxicity potential
MAETP = Marine aquatic ecotoxicity potential
TETP = Terrestrial ecotoxicity potential
ECI = Environmental Cost Indicator
ADPF = Abiotic Depletion Potential for fossil resources expressed in [kg Sb-eq.]

ENVIRONMENT IMPACT per functional unit or declared unit (core indicators A2)

	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP-total	kg CO2 eq.	4,38 E-01	6,32 E-03	8,40 E-02	5,28 E-01	2,07 E-03	3,50 E-02	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	ND	ND	0,00 E+00	1,03 E-03	8,83 E-05	7,93 E-02	-9,93 E-02
GWP-fossil	kg CO2 eq.	4,37 E-01	6,31 E-03	1,14 E-01	5,58 E-01	2,07 E-03	2,61 E-03	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	ND	ND	0,00 E+00	1,03 E-03	8,80 E-05	7,93 E-02	-6,84 E-02
GWP-biogenic	kg CO2 eq.	3,54 E-04	2,61 E-06	-3,09 E-02	-3,05 E-02	8,87 E-07	3,24 E-02	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	ND	ND	0,00 E+00	4,42 E-07	2,58 E-07	3,47 E-06	-3,09 E-02
GWP-luluc)	kg CO2 eq.	2,11 E-04	2,25 E-06	5,42 E-04	7,55 E-04	7,31 E-07	2,78 E-07	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	ND	ND	0,00 E+00	3,64 E-07	2,59 E-08	1,38 E-06	-5,40 E-05
ODP	kg CFC11 eq.	2,07 E-08	1,44 E-09	2,19 E-08	4,40 E-08	4,76 E-10	6,00 E-11	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	ND	ND	0,00 E+00	2,37 E-10	4,35 E-12	5,75 E-10	-5,21 E-09
AP	mol H+ eq.	4,36 E-03	1,81 E-05	3,14 E-04	4,69 E-03	1,18 E-05	2,87 E-06	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	ND	ND	0,00 E+00	5,86 E-06	2,13 E-07	2,15 E-05	-6,11 E-04
EP-freshwater	kg PO4 eq.	3,36 E-05	5,04 E-08	2,57 E-06	3,62 E-05	1,70 E-08	1,41 E-08	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	ND	ND	0,00 E+00	8,47 E-09	4,99 E-09	6,01 E-08	-5,81 E-06
EP-marine	kg N eq.	4,36 E-04	3,59 E-06	8,34 E-05	5,23 E-04	4,21 E-06	7,77E-07	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	ND	ND	0,00 E+00	2,10 E-06	4,65 E-08	9,83 E-06	-6,98 E-05
EP-terrestrial	mol N eq.	5,70 E-03	4,01 E-05	8,47 E-04	6,59 E-03	4,64 E-05	8,84 E-06	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	ND	ND	0,00 E+00	2,31 E-05	5,66 E-07	9,59 E-05	-8,43 E-04
POCP	kg NMVOC eq.	1,77 E-03	1,54 E-05	2,55 E-04	2,04 E-03	1,33 E-05	2,49 E-06	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	ND	ND	0,00 E+00	6,61 E-06	1,43 E-07	2,47 E-05	-3,25 E-04
ADP-minerals & metals	kg Sb eq.	1,69 E-05	1,25 E-08	2,26 E-07	1,71 E-05	3,84 E-09	4,68 E-09	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	ND	ND	0,00 E+00	1,91 E-09	7,61 E-11	4,08 E-09	-1,32 E-06
ADP-fossil	MJ, net calorific value	5,81 E+00	9,54 E-02	3,18 E+00	9,08 E+00	3,17 E-02	5,87 E-03	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	ND	ND	0,00 E+00	1,58 E-02	1,15 E-03	1,90 E-02	-8,55 E-01
WDP	m3 world eq. Deprived	2,26 E-01	2,70 E-04	3,38 E-02	2,60 E-01	9,73 E-05	9,04 E-05	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	ND	ND	0,00 E+00	4,85 E-05	8,91 E-06	9,65 E-04	-2,47 E-02

GWP-total = Global Warming Potential total
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 = Depletion potential of the stratospheric ozone layer
AP = Acidification Potential, Accumulated Exceedence
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 Exceedence
POCP = Formation potential of tropospheric ozone photochemical oxidants
ADP-minerals&metals = Abiotic Depletion Potential for non fossil resources [2]
ADP-fossil = Abiotic Depletion for fossil resources potential [2]
WDP = Water (user) deprivation potential, deprivation-weighted water consumption [2]

Disclamer [2]
- The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator

ENVIRONMENT IMPACT per functional unit or declared unit (additional indicators A2)

	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
PM	Disease incidence	3,46 E-08	4,01 E-10	2,63 E-09	3,76 E-08	1,87 E-10	3,20 E-11	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	ND	ND	0,00 E+00	9,2 9E-11	8,70 E-13	1,58 E-10	-4,57 E-09
IRP	kBq U235 eq.	1,11 E-02	4,17 E-04	2,46 E-02	3,61 E-02	1,39 E-04	2,29 E-05	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	ND	ND	0,00 E+00	6,91 E-05	2,39 E-06	7,12 E-05	-2,41 E-03
ETP-fw	CTUe	3,72 E+01	7,69 E-02	3,68 E+00	4,10 E+01	2,58 E-02	1,52 E-02	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	ND	ND	0,00 E+00	1,28 E-02	1,20 E-03	2,18 E-01	-4,98 E+00
HTP-c	CTUh	1,98 E-09	2,14 E-12	3,02 E-11	2,01 E-09	9,17 E-13	1,08 E-12	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	ND	ND	0,00 E+00	4,57 E-13	2,83 E-14	1,56 E-11	-6,96 E-11
HTP-nc	CTUh	4,36 E-08	8,10 E-11	8,96 E-10	4,46 E-08	3,07 E-11	1,76 E-11	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	ND	ND	0,00 E+00	1,53 E-11	7,00 E-13	1,51 E-10	9,03 E-10
SQP	----	1,40 E+00	6,67 E-02	1,71 E+00	3,18 E+00	2,71 E-02	3,52 E-03	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	ND	ND	0,00 E+00	1,35 E-02	7,74 E-04	1,11 E-02	-3,33 E+00

PM = Potential incidence of disease due to PM emissions
IRP = Potential Human exposure efficiency relative to U235 [1]
ETP-fw = Potential Comparative Toxic Unit for ecosystems [2]
HTP-c = Potential Comparative Toxic Unit for humans [2]
HTP-nc = Potential Comparative Toxic Unit for humans, non-cancer [2]
SQP = Potential soil quality index [2]

Disclamer [1]
- This impact category deals mainly with the eventual impact of low dose ionizing radiation on human health of the nuclear fuel cycle.
It does not consider effects due to possible nuclear accidents, occupational exposure nor due to radioactive waste.

Disclamer [2]
- The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

OUTPUT FLOWS AND WASTE CATEGORIES per functional unit or declared unit (A1 / A2)

	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
HWD	kg	6,07 E-05	6,45 E-07	7,78 E-06	6,91 E-05	2,12 E-07	3,85 E-08	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	ND	ND	0,00 E+00	1,06 E-07	3,18 E-09	9,97 E-08	-7,13 E-06
NHWD	kg	8,81 E-02	5,04 E-03	1,14 E-02	1,05 E-01	2,13 E-03	2,84 E-04	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	ND	ND	0,00 E+00	1,06 E-03	3,83 E-06	1,15 E-02	-3,86 E-03
RWD	kg	7,97 E-06	3,33 E-08	2,45 E-05	3,25 E-05	1,13 E-08	1,05 E-08	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	ND	ND	0,00 E+00	5,64 E-09	1,90 E-09	3,34 E-08	-1,59 E-06
CRU	kg	0,00 E+00	0,00 E+00	3,61 E-05	3,61 E-05	0,00 E+00	9,03 E-09	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	ND	ND	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00
MFR	kg	0,00 E+00	0,00 E+00	4,01 E-04	4,01 E-04	0,00 E+00	2,03 E-02	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	ND	ND	0,00 E+00	0,00 E+00	3,60 E-02	0,00 E+00	0,00 E+00
MER	kg	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	ND	ND	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00
EEE	MJ	0,00 E+00	0,00 E+00	3,53 E-04	3,53 E-04	0,00 E+00	3,43 E-03	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	ND	ND	0,00 E+00	0,00 E+00	0,00 E+00	1,03 E-01	0,00 E+00
ETE	MJ	0,00 E+00	0,00 E+00	7,05 E-04	7,05 E-04	0,00 E+00	6,85 E-03	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	ND	ND	0,00 E+00	0,00 E+00	0,00 E+00	2,05 E-01	0,00 E+00

HWD = Hazardous Waste Disposed
RWD = Radioactive Waste Disposed
MFR = Materials for recycling
EEE = Exported Electrical Energy
NHWD = Non Hazardous Waste Disposed
CRU = Components for reuse
MER = Materials for energy recovery
ETE = Exported Thermal Energy

RESOURCE USE per functional unit or declared unit (A1 / A2)

	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
PERE	MJ	4,88 E-01	1,57 E-03	6,94 E-02	5,59 E-01	5,25 E-04	1,02 E-02	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	ND	ND	0,00 E+00	2,61 E-04	1,68 E-04	1,75 E-03	0,00 E+00
PERM	MJ	7,32 E-03	0,00 E+00	3,23 E-01	3,30 E-01	0,00 E+00	-3,30 E-01	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	ND	ND	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	3,27 E-01
PERT	MJ	4,95 E-01	1,57 E-03	3,92 E-01	8,89 E-01	5,25 E-04	-3,20 E-01	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	ND	ND	0,00 E+00	2,61 E-04	1,68 E-04	1,75 E-03	3,27 E-01
PENRE	MJ	4,70 E+00	1,01 E-01	3,32 E+00	8,13 E+00	3,37 E-02	3,00 E-02	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	ND	ND	0,00 E+00	1,68 E-02	9,61 E-04	1,05 E+00	0,00 E+00
PENRM	MJ	1,16 E+00	0,00 E+00	2,87 E-02	1,19 E+00	0,00 E+00	-3,05 E-02	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	ND	ND	0,00 E+00	0,00 E+00	0,00 E+00	-1,03 E+00	7,52 E-03
PENRT	MJ	5,86 E+00	1,01 E-01	3,35 E+00	9,32 E+00	3,37 E-02	-4,54 E-04	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	ND	ND	0,00 E+00	1,68 E-02	9,61 E-04	1,87 E-02	7,52 E-03
SM	kg	3,29 E-02	0,00 E+00	0,00 E+00	3,29 E-02	0,00 E+00	8,24 E-06	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	ND	ND	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00
RSF	MJ	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	ND	ND	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00
NRSF	MJ	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	ND	ND	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00
FW	m3	1,04 E-02	1,37 E-05	1,08 E-03	1,15 E-02	4,76 E-06	4,37 E-06	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	ND	ND	0,00 E+00	2,37 E-06	4,90 E-07	3,77 E-05	-4,24 E-04

PERE = Use of renewable energy excluding renewable primary energy resources
PERM = Use of renewable energy resources used as raw materials
PERT = Total use of renewable primary energy resources
PENRE = Use of non-renewable primary energy resources excluding non-renewable 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
SM = Use of secondary materials
RSF = Use of renewable secondary fuels
NRSF = Use of non renewable secondary fuels
FW = Use of net fresh water

BIOGEEN CARBON CONTENT per functional unit or declared unit (A1 / A2)

	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
BBCpr	Kg C	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	ND	ND	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0 E+00
BCCpa	kg C	2,13 E-04	0,00 E+00	9,22 E-03	9,44 E-03	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	ND	ND	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0 E+00

BCCpr = Biogenic carbon content in product
BCCpa = Biogenic carbon content in packaging

CALCULATION RULES

Allocation:

At Niko NV, different products (i.e. socket-outlets and switches) are produced. Only facility level data were available for the use of electricity, natural gas, water and ancillary materials. The facility level data have been allocated to the analysed product using their respective annual production volume, expressed in kg (physical relationship), therefore mass allocation is applied. Finally, the amounts were recalculated regarding the weight of the in this EPD considered socket-outlet.

Considered to be below cut-off:

The following processes/materials are not considered in this LCA study due to missing data and/or low volumes or weights of the materials:

- Transport of packaging of raw materials to the Niko factory in module A1 (no data available and considered to be below cut-off);
- Infrastructure and land use in module A3 (no data available);
- Transport of ancillary materials in module A3 (considered using Ecoinvent v3.6 market processes or considered to be below cut-off);
- Environmental impacts caused by the personnel of the production plants, e.g. waste from the cafeteria and sanitary installations, accidental pollution caused by human mistakes or environmental effects caused by commuter traffic.

In all cases, it is assumed that the cut-off criteria of EN 15804 are met.

Manufacturer specific data have been collected for the year 2022.

SENARIOS AND ADDITIONAL TECHNICAL INFORMATION

A1 – RAW MATERIAL SUPPLY

This module takes into account the extraction and processing of all raw materials and energy which occur upstream to the studied manufacturing process.

A2 – TRANSPORT TO THE MANUFACTURER

The raw materials are transported to the manufacturing site of the socket-outlet by truck (freight, lorry, 16-32 ton, EURO 6). EURO 6 trucks are the most used in Belgium (Statbel, 2021).

A3 – MANUFACTURING

This module takes into account the production process of the socket-outlet. In a first step, the raw materials are put into shape. This is done by pressing metal bands and sheets into the right dimensions and by injection moulding of plastic grains into the different needed parts. In a second step, subassemblies are automatically or manually assembled and combined into one end product. At the end, the final product is packed, so that it is ready for transport to the customers. All inputs (e.g. energy use, water consumption, ancillary materials, packaging of final product) and outputs (e.g. emissions, production waste and waste from packaging of raw materials) are taken into account. The waste treatment of the packaging of the raw materials is modelled according to the default end-of-life scenarios in Belgium.

A4 – TRANSPORT TO THE BUILDING SITE

The final product is for 100% transported from the factory in Sint-Niklaas to the installation site in The Netherlands (Utrecht) over a distance of 155 km by a truck, unspecified, according to the requirements within the Dutch NMD determination method.

A5 - INSTALLATION IN THE BUILDING

The socket-outlet is simply mounted in a flush-mounting box with screws, which is not taken into account in this EPD. The screws are included in the flush mounting box. The installation can be done manually using a manual screwdriver or by using an electric machine. In this EPD, manual application without any energy consumption is considered. Furthermore, packaging materials are released. The waste treatment of the packaging is modelled according to the default end-of-life scenarios of the Dutch NMD determination method. Additionally, 0,025% material losses are taken into account.

B1 - USE PHASE

The socket-outlets do not have any impact during their entire use phase. Consequently, there are no environmental impacts related to this module

B2 - MAINTENANCE

The socket-outlets do not require any maintenance during their entire service life. Consequently, there are no environmental impacts related to this module.

B3 - REPAIR

The socket-outlets do not require any repair during their entire service life. Consequently, there are no environmental impacts related to this module.

B4 - REPLACEMENT
The socket-outlets do not require any replacement during their entire service life. Consequently, there are no environmental impacts related to this module.
B5 - REFURBISHMENT
The socket-outlets do not require any refurbishment during their entire service life. Consequently, there are no environmental impacts related to this module.

C1-C4: END-OF-LIFE
The default end-of-life (EOL) scenarios of the Dutch NMD determination method have been applied to the different components of the socket-outlet, i.e. steel parts, brass parts and plastic parts.
C1: It is assumed that no impacts are related to the demolition of the product, since the different parts can be easily dismantled manually.
C2: Transport of final product components to sorting, landfill and incineration according to the Dutch default scenarios.
C3-C4: EOL of final product components according to the Dutch default scenarios: steel and brass parts are 95% recycled and 5% landfilled and plastic parts are 80% incinerated and 20% landfilled.

MODULE D - LOADS AND BENEFITS BEYOND THE SYSTEM BOUNDARIES
In module D, the following waste streams originating from the final product and its packaging are considered to be recycled after their End-of-Waste point: cardboard packaging (of which 97% is recycled), plastic packaging films (of which 20% is recycled), steel parts of the socket-outlet (of which 95% is recycled) and brass parts of the socket-outlet (of which 95% is recycled). Furthermore, module D contains energy recovery through the process of incineration of the following waste from packaging materials disposed of during the installation phase (A5) and some parts of the socket-outlet at its end-of-life (C4): cardboard packaging (of which 3% is incinerated), plastic packaging films (of which 75% is incinerated) and plastic parts of the socket-outlet (of which 80% is incinerated). The EOL waste treatments are according to the Dutch default scenarios for the different waste materials within the NMD determination method.

DECLARATION OF SVHC

The product does not contain materials listed in the “Candidate list of Substances of Very High Concern for authorisation”

REFERENCES

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REMARKS

None.